

STATE OF FLORIDA
DIVISION OF ADMINISTRATIVE HEARINGS

COASTAL ENVIRONMENTAL SOCIETY, INC.)
and ST. JOHNS PRESERVATION)
ASSOCIATION, INC.)

DOAH Case No. 90-7837

Petitioners,)
)

vs.)
)

TRAIL RIDGE LANDFILL, INC. and)
STATE OF FLORIDA, DEPARTMENT OF)
ENVIRONMENTAL REGULATION,)

Respondents.)
)

SAVE TRAIL RIDGE AND THE)
ENVIRONMENT ASSOCIATION, and)
DAVID PHILLIPS, ELLEN LONG and)
SOLLIE SOLOMONS,)

DOAH Case No. 90-7295

Petitioners,)
)

vs.)
)

TRAIL RIDGE LANDFILL, INC. and)
STATE OF FLORIDA, DEPARTMENT OF)
ENVIRONMENTAL REGULATION,)

Respondents.)
)

SAVE TRAIL RIDGE AND THE)
ENVIRONMENT, INC., et. al.)

DOAH Case Nos. 91-0336

Petitioner,)
)

vs.)
)

TRAIL RIDGE LANDFILL, INC. and)
STATE OF FLORIDA, DEPARTMENT OF)
ENVIRONMENTAL REGULATION,)

Respondents.)
)

91-0334
91-0335
91-0337
91-0338
91-0339
91-0340
91-0341
91-0342
91-0343
91-0344
91-0345
91-0346

PREHEARING STIPULATION

Respondents Trail Ridge Landfill, Inc. (Trail Ridge or Applicant) and the Florida Department of Environmental Regulation (DER), and Petitioners Coastal Environmental Society, Inc. (CESI), St. John's Preservation Association, Inc. (SJPA), Save Trail Ridge and the Environment Association, Inc. (STRATE), and William Mark McCranie, by and through undersigned counsel, hereby jointly file this prehearing stipulation pursuant to Rule 22I-6.015, Florida Administrative Code (F.A.C.) and pursuant to the March 6, 1991 Order entered by the Hearing Officer in this matter adopting the discovery schedule filed by Trail Ridge in its Motion to Set Discovery Schedule filed on February 7, 1991, and amended by the joint motion to amend the discovery schedule filed by the above-mentioned parties on April 19, 1991. Petitioners Baker County Board of County Commissioners, Darrell Sperry, and Baldwin-Maxville Coalition, Inc. do not join in this prehearing stipulation.

I. PROCEDURAL BACKGROUND

Statement of Trail Ridge and DER

This proceeding involves Trail Ridge's proposed project to construct and operate a solid waste management facility in southwestern Duval County, Florida, and various permit applications which have been filed with DER required for the project.

On October 11, 1990, DER issued its Notice of Intent to Issue a dredge and fill permit, Permit No. 161821182, to Trail Ridge to fill approximately 1.61 acres of wetlands to widen an access road for the

proposed issuance of the solid waste permit; however, they were dismissed on February 25, 1991 pursuant to an Order of the Hearing Officer issued on that date.

On January 7, 1991, Darrell Sperry and the Baldwin-Maxville Coalition, Inc. each filed a petition with DER challenging its intent to issue the solid waste permit. The Baker County Board of County Commissioners filed a petition with DER on January 9, 1991 challenging DER's proposed issuance of that permit. On January 10, 1991, Clarence Suggs, Myra O. Frasier, William Mark McCranie and Sylvia Webb-Thibault also filed petitions with DER challenging DER's proposed issuance of the solid waste permit. Myra O. Frasier and Sylvia Webb-Thibault withdrew their petitions on April 3, 1991 and April 25, 1991 respectively. Suggs was dismissed by order of the Hearing Officer on May 8, 1991.

All of the cases were consolidated by order of the Hearing Officer dated February 7, 1991. By order of the Hearing Officer dated March 12, 1991, a final hearing in all of the consolidated cases is scheduled to be held on May 14, 15, 16, 17, 22, 23, 24, 29, 30, and 31, 1991, in Jacksonville, Florida.

As used hereinafter, the term Petitioners' refers to those parties who filed petitions and are signatories to this prehearing stipulation.

Statement of Petitioners

This proceeding involves Trail Ridge's proposed project to construct and operate a solid waste management facility in

southwestern Duval County, Florida, and various permit applications which have been filed with DER required for the project.

On October 11, 1990, DER issued its Notice of Intent to Issue a dredge and fill permit, Permit No. 161821182, to Trail Ridge to fill approximately 1.61 acres of wetlands to widen an access road for the proposed solid waste facility. The Notice of Intent to Issue that permit was published on 11-5, 1990. STRATE along with Ellen Long, David Phillips, and Sollie Solomons filed a joint petition with DER on October 30, 1990, requesting a formal administrative hearing on DER's intent to issue the dredge and fill permit. On November 2, 1990, CESI and SJPA also filed a joint petition with DER challenging the agency's intent to issue that permit. In addition, on February 11, 1991, a petition to intervene in STRATE's challenge to DER's intent to issue a dredge and fill permit to Trail Ridge was filed with DER on behalf of the Baker County Board of County Commissioners.

On December 21, 1990, DER issued its Notice of Intent to Issue a solid waste management disposal permit (solid waste permit), Permit No. SC16-184444, to Trail Ridge to construct and operate the Trail Ridge Plan "A" Landfill which is to consist of Class I and Class III solid waste disposal areas. The Notice of Intent to Issue the solid waste permit was published on December 24, 1990 in the Florida Times-Union and on December 27, 1990 in the Baker County Press. On January 4, 1991, STRATE filed a petition, and CESI and SJPA filed a joint petition, challenging DER's intent to issue the solid waste permit.

Lambert and Norma Herring, John G. Herring, Ronnie and Laurie Hall and Maurice and Cathy Samples filed petitions challenging DER's proposed issuance of the solid waste permit; however, they were apparently dismissed on February 25, 1991 pursuant to an Order of the Hearing Officer issued on that date, since amended petitions do not appear to have been filed.

On January 7, 1991, Darrell Sperry and the Baldwin-Maxville Coalition, Inc. each filed a petition with DER challenging its intent to issue the solid waste permit. The Baker County Board of County Commissioners filed a petition with DER on January 9, 1991 challenging DER's proposed issuance of that permit. On January 10, 1991, Clarence Suggs, Myra O. Frasier, William Mark McCranie and Sylvia Webb-Thibault also filed petitions with DER challenging DER's proposed issuance of the solid waste permit. Myra O. Frasier and Sylvia Webb-Thibault withdrew their petitions on April 3, 1991 and April 25, 1991 respectively. Suggs was dismissed by order of the Hearing Officer on May 8, 1991.

All of the cases were consolidated by order of the Hearing Officer dated February 7, 1991. By order of the Hearing Officer dated March 12, 1991, a final hearing in all of the consolidated cases is scheduled to be held on May 14, 15, 16, 17, 22, 23, 24, 29, 30, and 31, 1991, in Jacksonville, Florida.

As used hereinafter, the term Petitioners' refers to those parties who filed petitions and are signatories to this prehearing stipulation.

In any instance in which any date referenced under this section is different from the actual date of the occurrence, the actual date will prevail.

II. BRIEF STATEMENT OF EACH PARTY'S POSITION

Trail Ridge Landfill, Inc.

The Respondent Trail Ridge's proposed solid waste management facility, together with the dredge and fill activities for an access road, meet the applicable permitting criteria under Chapters 403 and 373, Florida Statutes, and Chapters 17-3, 17-4, 17-25, 17-28, 17-101, 17-103, 17-301, 17-302, 17-312, 17-701, 28-5, 22I-6, and 40C-4, 40C-42, F.A.C. In seeking the appropriate permits for these activities, Trail Ridge has provided reasonable assurances to DER that all permitting criteria have been met and, where applicable, that the project is not contrary to the public interest. The design of the proposed Trail Ridge Landfill features a state-of-the-art double flexible membrane liner and leachate collection system. Trail Ridge's application also includes a stormwater discharge/surface water management system and an extensive groundwater monitoring plan, both designed to monitor compliance with all water quality standards. The solid waste permit application also contains a detailed operations plan to control and monitor wastes received at the Trail Ridge Landfill.

Trail Ridge proposed minimum wetland impacts for the dredge and fill activities for the access road. Trail Ridge has proposed a mitigation plan which involves the creation of wetlands which fully

offsets any wetland impacts. Trail Ridge has conducted and submitted studies of wildlife and vegetation on the site which demonstrate no adverse impacts to any endangered or threatened species.

The design of the Trail Ridge Landfill, the monitoring and mitigation proposals, and the volumes of other information submitted to DER provide reasonable assurances that Trail Ridge is entitled to the solid waste/stormwater/surface water management permit and the dredge and fill permit.

Florida Department of Environmental Regulation

After review of Trail Ridge's applications for solid waste and dredge and fill permits, DER has determined that the proposed project meets the requirements of Chapters 403 and 373, F.S. and Chapters 17-3, 17-4, 17-25, 17-28, 17-101, 17-103, 17-301, 17-302, 17-312, 17-701, 22I-6, 28-5, and 40C-4, 40C-42, F.A.C., and has determined that issuance of the above referenced permits with conditions as set forth in the two intent to issue documents is warranted.

Petitioners: Coastal Environmental Society, Inc.; St. John's Preservation Association, Inc.; Save Trail Ridge and the Environment Association; and William Mark McCranie.

Petitioners contend that the design of the proposed landfill not only fails to reasonably assure everyone that the permitting criteria applicable to this case will be met, but affirmatively demonstrates that it is unsafe.

Moreover, the impact on wetlands will be shown to be understated, particularly as to the size of the wetlands being directly impacted by the landfill and paved roads and collection areas which go with it.

It will be demonstrated that the proposed landfill is to be placed in a terrible location, at the headwaters of the St. Mary's River and Black Creek, and will have significant negative environmental impact.

Petitioners contend that all permits sought by Trail Ridge should be denied.

III. AREAS OF EXPERTISE FOR EXPERT WITNESSES

The Petitioners have declined to stipulate to the expertise of any witnesses in this matter.

IV. STATEMENT OF UNCONTESTED FACTS

The following constitutes facts which are uncontested by Respondent Trail Ridge or Petitioners and which will require no proof at the administrative hearing; however, in some paragraphs, for clarification, notation is made of matters which remain in dispute.

1. The proposed site for the Trail Ridge Landfill is located 1.14 miles north of State Road 228 (Normandy Boulevard) on the west side of U.S. Highway 301 in Duval County, in the vicinity of Maxville in Sections 18, 19, 20 and 21, Township 3 South, Range 23 East. The total area of the site is 1,288 acres of which 148+ acres

will be used for Class I solid waste disposal and 28 acres for Class III solid waste disposal. The facility will include access roads, scales, operations and maintenance buildings, equipment storage areas, and borrow and stormwater retention areas.

2. The permit applications for the construction and operation of the proposed Trail Ridge Landfill were prepared and submitted by Trail Ridge in accordance with the provisions of Rule 17-701.030(4), F.A.C.

3. In this matter, Petitioners contend that the applicant is required to demonstrate that the Trail Ridge Landfill is an economically feasible, cost effective, and environmentally safe manner of handling and disposing of solid waste. Petitioners do not contend that the proposed site must be compared to other specific sanitary landfill sites. Trail Ridge and DER contend that the referenced factors are satisfied by compliance with the criteria in applicable rules.

4. Petitioners do not contend that the applicant has not provided reasonable assurances that the location, design, construction and operation of the Trail Ridge Landfill, as proposed in the solid waste permit application and its supporting documentation, and as required by the proposed permit, will result in solid waste being disposed of contrary to the prohibitions contained in Rule 17-701.040(2)(a), (b), (c) and (d), F.A.C.

5. Petitioners do not contest that the applicant has provided reasonable assurances that the Class III disposal area should be exempt from the liner system, leachate collection system, and gas

control requirements of Rule 17-701.050(5)(a), (b), (c), (d), (e), (f), (i), and (j), F.A.C., and Rule 17-701.050(6)(i), F.A.C., and that DER has proposed to so exempt the Class III disposal area in the proposed permit.

6. Petitioners do not contest that the applicant has provided reasonable assurances through its foundation analysis and other documentation supporting the permit application that the geological foundation and subterranean features underlying the site will provide adequate structural support for the landfill project in conformance with the requirements of Rule 17-701.050 (3)(b), F.A.C., except that Petitioners contend that the applicant has failed to provide reasonable assurances that the soil removal activities from the borrow area will not cause structural support failure below the footprint of the Class I disposal area.

7. Petitioners agree that the applicant has proposed a liner system which meets the standards of Rule 17-701.050(5)(a), (b), (d), (e)1. and 2., (f)1. and 2., and (j), F.A.C.

8. The Respondents and Petitioners stipulate that the applicant has proposed, as part of its permit application, a stormwater discharge/surface water management system.

9. It is uncontested that the dredging and filling activity will not adversely affect the property of CESI, SJPA, STRATE, and William Mark McCranie.

10. Petitioners do not contest that the applicant has provided reasonable assurances that the dredging and filling activity shown in the application will not adversely affect navigation and marine

productivity in the vicinity (on site) of the dredging and filling activity. However, Petitioners do contend that Trail Ridge has failed to provide reasonable assurances that the dredge and fill activity will not violate the remaining criteria in Section 403.918(2)(a), Florida Statutes.

11. It is uncontested that Trail Ridge has provided reasonable assurances that the surface water management system will not induce saltwater intrusion.

12. It is uncontested that all surface waters which may be impacted by the proposed sanitary landfill are Class III waters as defined in Chapter 17-302, F.A.C. and all groundwaters below the proposed sanitary landfill site are Class G-II groundwaters as defined in Chapter 17-3, F.A.C.

V. STATUTES AND RULES IN CONTROVERSY

Statutory and rule criteria not stipulated to remain in controversy. The parties stipulate that official recognition should be taken for all applicable rules contained in the Florida Administrative Code.

VI. STATEMENT OF THOSE ISSUES OF LAW ON WHICH THERE IS AGREEMENT

The parties stipulate to the following issues of law which are uncontested:

1. The Division of Administrative Hearings has jurisdiction of the parties to and the subject matter of this proceeding. Section 120.57(1), Florida Statutes.

2. The following statutes and rules apply in this proceeding: Chapters 120, 373 and 403, Florida Statutes, and Chapters 17-3, 17-4, 17-25, 17-28, 17-103, 17-301, 17-302, 17-312, 17-701, 40C-4, 40C-42, 28-5, 22I-6, F.A.C.

The Foregoing is STIPULATED AND AGREED to on this 10th day of May, 1991.

COUNSEL FOR TRAIL RIDGE LANDFILL, INC:

HOPPING, BOYD, GREEN & SAMS
123 South Calhoun
Tallahassee, Florida 32301

By: 

COUNSEL FOR FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION:

General Counsel
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

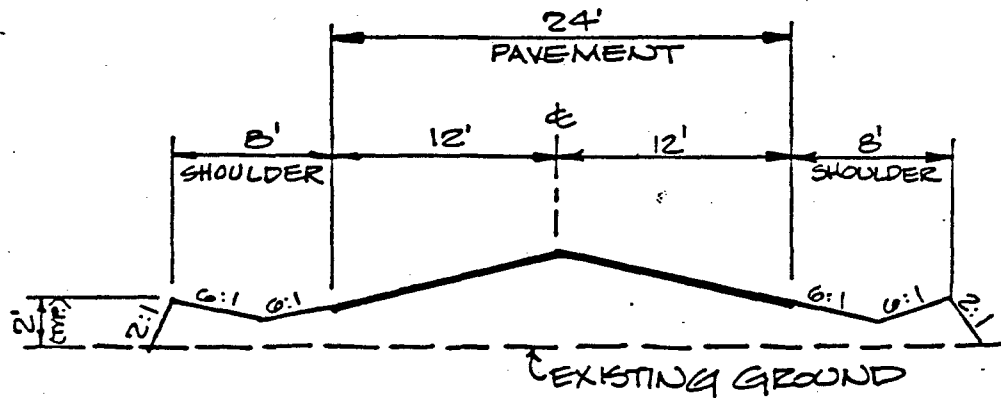
By: 

COUNSEL FOR PETITIONERS:

OERTEL, HOFFMAN, FERNANDEZ & COLE, P.A.
2700 Blair Stone Road, Suite C
Tallahassee, Florida 32301

By: _____

DBS:WMISTip3



EXHIBIT

TRL-1

England-Thimby
& Miller, Inc.
Consulting & Design Engineers

TYPICAL ENTRANCE
ROADWAY SECTION

PROJ. NO. E 89-113

DATE DEC., 1989

TRAIL RIDGE LANDFILL

SCALE 1" = 10'

DRAWING NO. 11

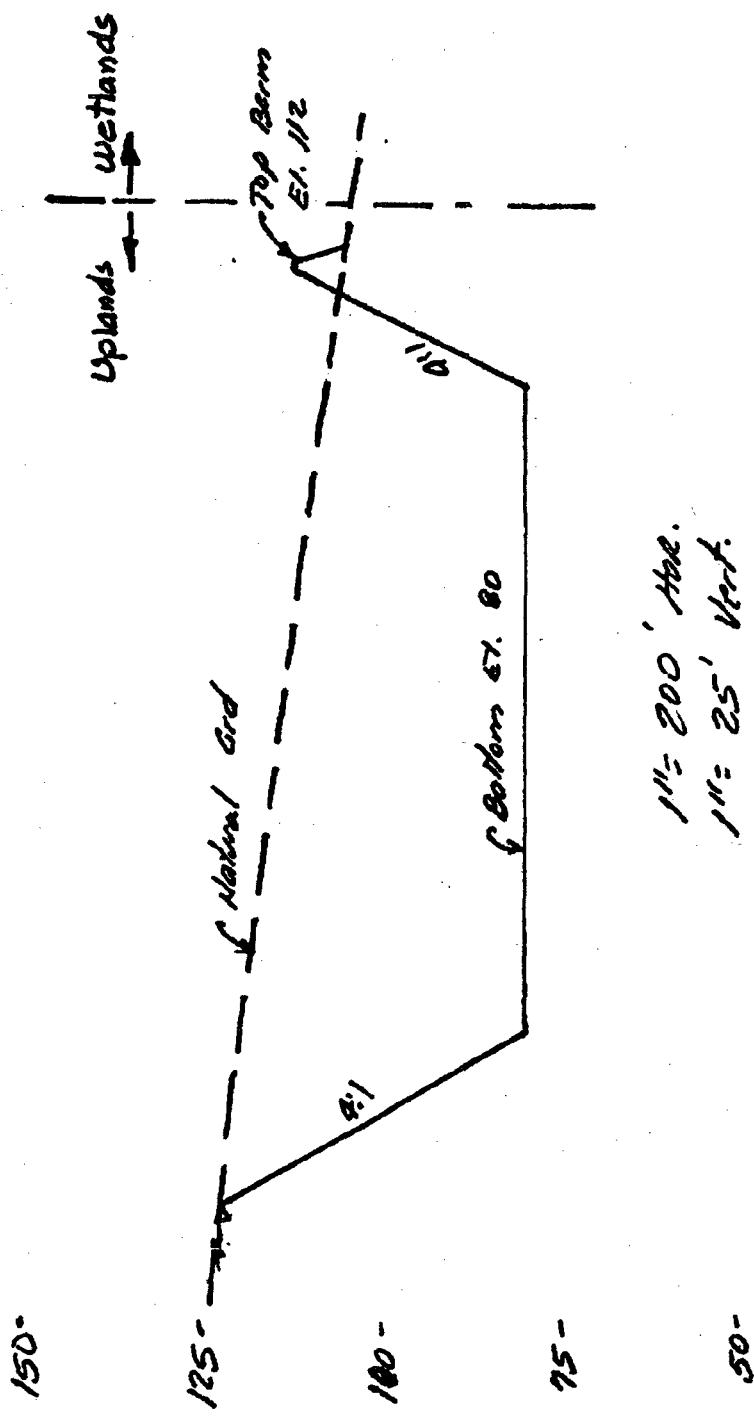
89N00-91177

England, Thims & Miller, Inc.
 Consulting & Design Engineers
 3131 St. Johns Bluff Road So. Jacksonville, FL 32216
 904-642-8990

PROJ. NAME Trail Ridge L.F.

BY _____
 CHECKED BY _____
 REVISD BY _____
 SHEET NO. _____ OF _____
 DATE _____
 DATE _____

*Class I Borrow Area
 Cross section*



EXHIBIT

TRI-2A

England, Thims & Miller, Inc.
 Consulting & Design Engineers
 3131 St. Johns Bluff Road So. Jacksonville, FL 32216
 904-642-8990

PROJ. NO. _____ PROJ. NAME Troll Ridge C.S.

BY _____
 CHECKED BY _____
 REVISD BY _____
 SHEET NO. _____ OF _____
 DATE _____
 DATE _____

*Class III Barrow Area
 Cross Section*

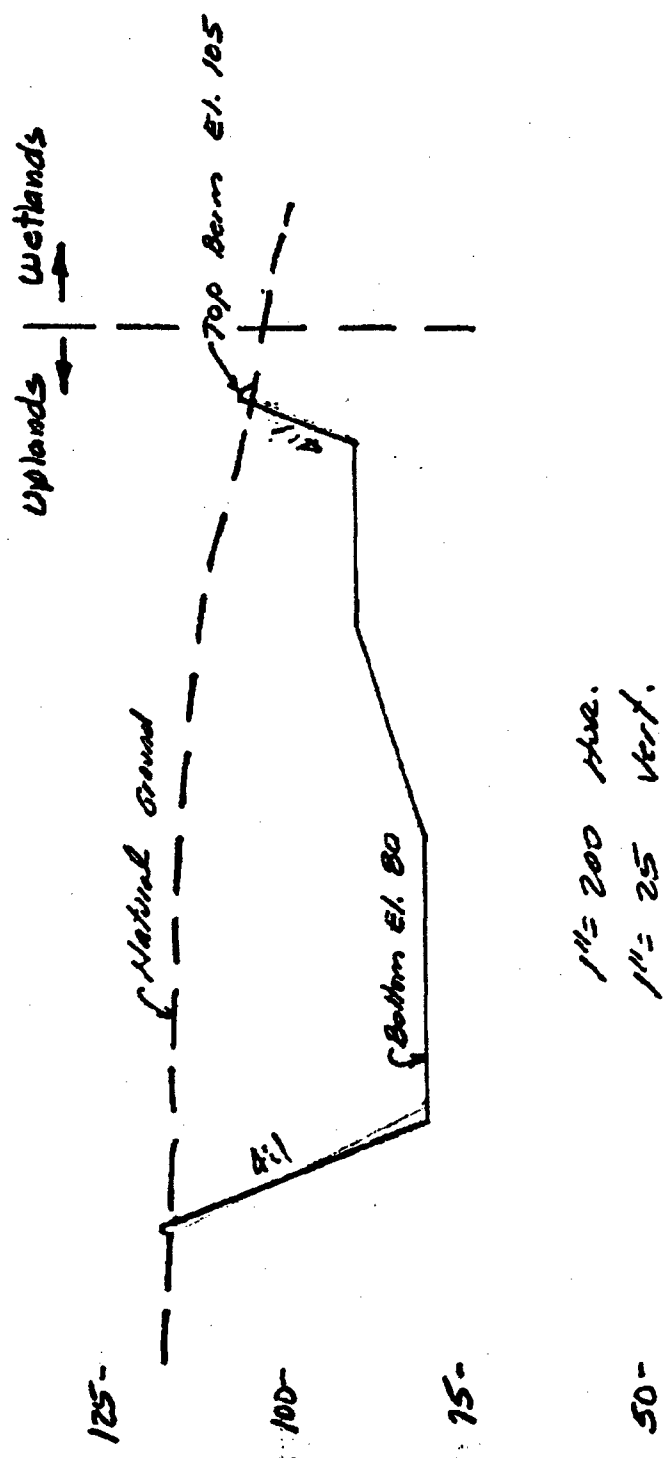
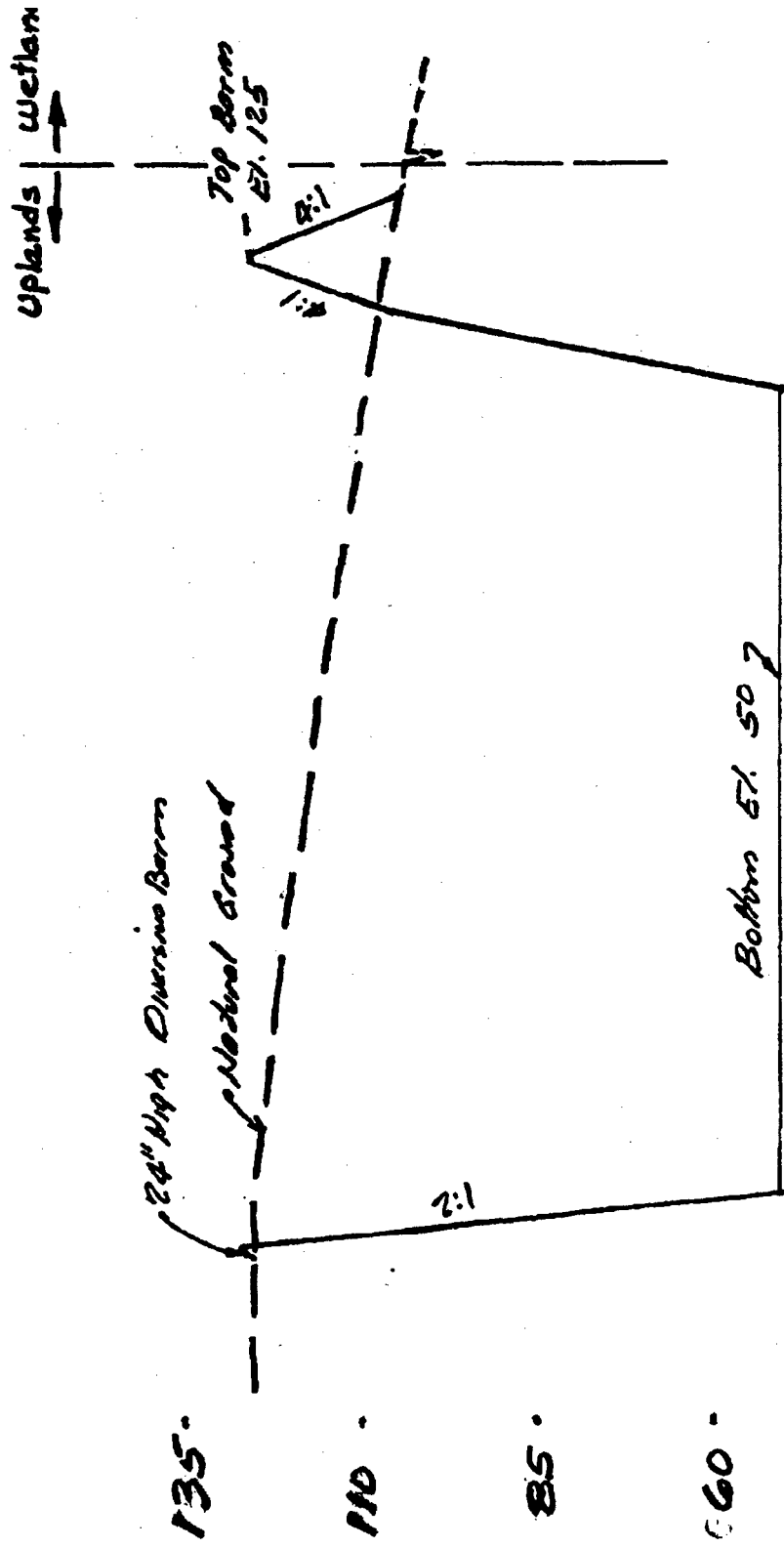


EXHIBIT
 TRT-2B

North Borrow Area Cross Section



1 1/2 300' Hor.
1 1/2 25' Vert.

PROJ. NAME Trail Ridge Landfill PROJ. NO. _____
 CONSULTING & DESIGN ENGINEERS
 5131 St. Johns Bluff Road So. Jacksonville, FL 32216
 904-642-8990
England, Thims & Miller, Inc.
 BY _____ CHECKED BY _____ REVISD BY _____
 SHEET NO. _____ OF _____ DATE _____ DATE _____

TABLE 1

FIELD OBSERVATIONS OF TRAIL RIDGE SURFACE WATER
MONITORING SITES AT THE TIME OF SAMPLE COLLECTION

LOCATION	COLLECTION DATE	
	MARCH 19, 1991	MARCH 29, 1991
1	Moderate flow through culvert under road; water depth about 0.5 m; dark organic stain	Water stagnant, no visible flow; water depth about 0.25 m; dark organic stain
2	Narrow roadside swale draining adjacent upland flatwoods; swift flow; no visible color	Slow moving flow; shallow depth about 0.1-0.2 m; no visible color
3	Moderate flow through culvert under road; water depth about 1 m; dark organic stain	Slow, sluggish flow in culvert under road; water depth about 0.5 m; dark organic stain
4	Swift flow through culvert under road; water depth about 1 m; dark organic stain	Slow, sluggish flow through culverts under road; water depth about 0.5 m; dark organic stain
5	Swift flow through culvert under road; water depth about 1.5 m; dark organic stain	Moderate flow through culvert under road; water depth about 1 m; dark organic stain
6	Not sampled	No visible flow through culverts under road; dark organic stain; water depth 0.25 m

EXHIBIT

TRL-3

TABLE 2

WATER QUALITY CHARACTERISTICS OF SURFACE WATER SAMPLES
COLLECTED AT THE TRAIL RIDGE LANDFILL SITE ON MARCH 19, 1991

PARAMETER	LOCATION				
	1	2	3	4	5
Time of Collection	15:15	17:00	18:30	19:30	18:00
pH	4.20	4.55	3.67	3.70	3.69
Spec. Cond. (umho/cm)	86	64	90	88	84
Temperature (°C)	20.93	17.88	19.13	19.65	19.39
Diss. O ₂ (mg/l)	7.5	9.0	7.2	6.0	6.0
Hardness (mg/l as CaCO ₃)	7	3	8	9	9
NH ₃ -N (ug/l)	14	< 10	14	41	24
NO ₂ + NO ₃ -N (ug/l)	< 10	16	< 10	< 10	< 10
Diss. Organic N (ug/l)	825	149	856	1648	1312
Part. Organic N (ug/l)	< 50	< 50	< 50	72	97
Total N (ug/l)	869	195	900	1766	1438
Diss. Ortho-P (ug/l)	2	< 2	2	6	5
Diss. Organic P (ug/l)	6	2	6	19	13
Particulate P (ug/l)	4	2	8	16	12
Total P (ug/l)	12	5	16	41	30
T.D.S. (mg/l)	95	26	98	172	139
S.S. (mg/l)	0.0	0.0	0.0	3.3	3.0
BOD (mg/l)	1.8	1.0	1.8	2.9	1.8
Chloride (mg/l)	16	14	20	22	20
Color (Pt-Co Units)	280	19	226	599	414
Turbidity (NTU)	4.1	0.96	5.2	9.4	8.2
Total Coliform (No./100 ml)	104	16	96	60	52
Fecal Coliform (No./100 ml)	20	< 2	64	18	30
Total Cu (ug/l)	< 5	< 5	< 5	< 5	< 5
Total Fe (ug/l)	626	192	514	802	748
Total Pb (ug/l)	< 5	< 5	< 5	< 5	< 5
Total Zn (ug/l)	20	23	35	36	32
Total Ca (mg/l)	3	< 1	4	4	4
Total Mg (mg/l)	4	3	4	5	5

TABLE 3

WATER QUALITY CHARACTERISTICS OF SURFACE WATER SAMPLES
COLLECTED AT THE TRAIL RIDGE LANDFILL SITE ON MARCH 29, 1991

PARAMETER	LOCATION					
	1	2	3	4	5	6
Time of Collection	19:30	17:10	14:30	14:50	15:20	15:05
pH	4.20	4.37	4.46	4.51	4.69	4.94
Spec. Cond. (umho/cm)	83	72	81	89	90	93
Temperature (°C)	20.20	22.04	22.64	23.46	22.14	21.09
Diss. O ₂ (mg/l)	3.0	7.3	6.4	6.5	6.3	5.3
Hardness (mg/l as CaCO ₃)	8	4	8	10	10	11
NH ₃ -N (ug/l)	30	< 10	20	29	28	33
NO ₂ + NO ₃ -N (ug/l)	< 10	< 10	< 10	< 10	< 10	< 10
Diss. Organic N (ug/l)	1234	1150	849	1186	1049	1438
Part. Organic N (ug/l)	< 50	< 50	< 50	210	134	134
Total N (ug/l)	1294	1185	899	1430	1216	1610
Diss. Ortho-P (ug/l)	< 2	< 2	< 2	< 2	< 2	< 2
Diss. Organic P (ug/l)	10	2	11	14	13	14
Particulate P (ug/l)	4	< 2	4	13	14	17
Total P (ug/l)	15	4	16	28	28	32
T.D.S. (mg/l)	158	80	156	189	168	203
S.S. (mg/l)	1.2	0.0	1.3	7.5	2.8	3.3
BOD (mg/l)	0.7	0.7	1.2	2.1	1.3	2.4
Chloride (mg/l)	16	14	20	22	20	20
Color (Pt-Co Units)	301	11	215	369	327	400
Turbidity (NTU)	3.9	0.74	4.8	8.6	9.2	5.8
Total Coliform (No./100 ml)	12	24	44	20	20	70
Fecal Coliform (No./100 ml)	3	< 1	11	10	5	13

TABLE 4

WATER QUALITY CHARACTERISTICS OF GROUNDWATER SAMPLES
COLLECTED AT THE TRAIL RIDGE LANDFILL SITE ON MARCH 19, 1991

PARAMETER	STATION	
	MW-2BS	MW-3BS
Depth to Water Table (ft)	0.38	0.74
pH	4.66	4.70
Spec. Cond. (umho/cm)	55	66
Temperature (°C)	18.43	18.60
Diss. O ₂ (mg/l)	2.1	3.8
Hardness (mg/l as CaCO ₃)	2	6
NH ₃ -N (ug/l)	< 10	< 10
NO ₂ + NO ₃ -N (ug/l)	< 10	44
Diss. Organic N (ug/l)	68	92
Part. Organic N (ug/l)	< 50	87
Total N (ug/l)	103	228
Diss. Ortho-P (ug/l)	2	4
Diss. Organic P (ug/l)	3	2
Particulate P (ug/l)	< 2	2
Total P (ug/l)	6	8
T.D.S. (mg/l)	14	16
S.S. (mg/l)	0.0	0.0
BOD (mg/l)	1.2	0.8
Chloride (mg/l)	10	22
Color (Pt-Co Units)	2	< 1
Turbidity (NTU)	0.82	0.46
Total Coliform (No./100 ml)	< 4	92
Fecal Coliform (No./100 ml)	< 1	< 1
Total Cu (ug/l)	5	7
Total Fe (ug/l)	198	12
Total Pb (ug/l)	5	< 5
Total Zn (ug/l)	10	7
Total Ca (mg/l)	< 1	1
Total Mg (mg/l)	2	5

TABLE 5

WATER QUALITY CHARACTERISTICS OF GROUNDWATER SAMPLES
COLLECTED AT THE TRAIL RIDGE LANDFILL SITE ON MARCH 29, 1991

PARAMETER	MONITORING WELL				
	2BS	3BS	11BS	12BS	13BS
Depth to Water Table (ft)	0.95	1.31	0.75	1.05	0.85
pH	4.96	4.82	5.13	4.57	4.50
Spec. Cond. (umho/cm)	52	55	63	86	83
Temperature (°C)	20.03	19.80	19.84	19.14	18.28
Diss. O ₂ (mg/l)	4.5	1.7	1.5	1.5	1.7
Hardness (mg/l as CaCO ₃)	3	6	5	6	10
NH ₃ -N (ug/l)	< 10	< 10	39	17	14
NO ₂ + NO ₃ -N (ug/l)	< 10	< 10	< 10	< 10	< 10
Diss. Organic N (ug/l)	880	831	931	936	1005
Part. Organic N (ug/l)	< 50	< 50	< 50	114	359
Total N (ug/l)	915	866	1000	1072	1383
Diss. Ortho-P(ug/l)	3	3	48	5	5
Part. Organic P (ug/l)	3	3	4	2	4
Particulate P (ug/l)	< 2	< 2	22	2	6
Total P (ug/l)	7	7	74	9	15
T.D.S. (mg/l)	61	39	48	46	59
S.S. (mg/l)	0.1	0.0	7.3	0.3	0.0
BOD (mg/l)	0.4	0.6	1.3	0.4	0.8
Chloride (mg/l)	8	20	18	19	14
Color (Pt-Co Units)	3	< 1	3	2	7
Turbidity (NTU)	0.17	0.24	11.7	0.34	0.69
Total Coliform (No./100 ml)	< 2	7	11	166	31
Fecal Coliform (No./100 ml)	< 1	< 1	< 1	< 1	< 1

TABLE 6

SUMMARY OF LAND USE WITHIN PRIMARY
STORMWATER BASINS AT THE TRAIL RIDGE LANDFILL

LAND USE	AREA (acres) ¹		
	CLASS I BASIN	CLASS III BASIN	ENTRANCE ROAD
Landfill Area (covered)	150.00	34.00	--
Exposed Waste	1.00	1.00	--
Roadway	4.62	2.91	5.19
Ditches, Roadside Swales, Shoulders	22.60	6.25	3.46
Pond Area	9.78	6.04	--
Total	188.00	50.20	8.65

1. Values based upon information provided in permit documents for Trail Ridge Landfill.

TABLE 7

PROJECTED CONCENTRATIONS OF STORMWATER
POLLUTANTS GENERATED WITHIN THE CLASS I LANDFILL AREA

WATER QUALITY PARAMETER	LAND USE ACTIVITY				WEIGHTED RUNOFF CONC.
	COVERED LANDFILL AREA ¹	EXPOSED WASTE ²	ROADWAY ³	ROADSIDE AREAS ⁴	
NH ₄ -N (mg/l)	0.010	4.54	0.110	0.060	0.044
NO _x (mg/l)	0.016	0.333	0.471	0.244	0.058
Organic N (mg/l)	0.199	9.56	1.29	0.745	0.349
Total N (mg/l)	0.225	14.43	1.87	1.049	0.451
Ortho-P (mg/l)	0.002	0.160	0.112	0.057	0.013
Total P (mg/l)	0.005	0.269	0.390	0.198	0.041
BOD (mg/l)	1.0	10.0	5.6	3.3	1.5
Oil and Grease (mg/l)	0.0	20.0	10.0	5.0	1.0
T.S.S. (mg/l)	5.0	38.0	50.3	27.7	9.2
Color (Pt-Co Units)	19	100 ⁵	53	36	22
Total Cu (ug/l)	5	9	58	32	9.8
Total Fe (ug/l)	192	1844	1285	739	299
Total Pb (ug/l)	5	21	284	145	30
Total Zn (ug/l)	23	91	221	122	41

1. Based on actual surface water runoff samples collected from the Class I site on 3/19/91.
2. Data collected by St. Johns River Water Management District at east landfill in Jacksonville.
3. Harper (1988).
4. Assumed as a 50-50 mixture of natural ground cover and roadway land uses.
5. Assumed.

TABLE 8

ESTIMATED SYSTEM PERFORMANCE AND WATER QUALITY
CHARACTERISTICS OF THE CLASS I STORMWATER POND

WATER QUALITY PARAMETER	WEIGHTED RUNOFF CONCENTRATION	REMOVAL EFFICIENCY (%) ¹	CLASS I POND CONCENTRATION
NH ₄ -N (mg/l)	0.044	-75	0.011
NO _x (mg/l)	0.058	-75	0.015
Organic N (mg/l)	0.349	-10	0.314
Total N (mg/l)	0.451	-30	0.340
BOD (mg/l)	1.5	-50	0.75
Ortho-P (mg/l)	0.013	-80	0.003
Total P (mg/l)	0.041	-60	0.021
T.S.S. (mg/l)	9.2	-80	1.8
Total Cu (ug/l)	9.8	-50	4.9
Total Fe (ug/l)	299	-75	75
Total Pb (ug/l)	30	-80	6.0
Total Zn (ug/l)	41	-85	6.2
Oil and Grease (mg/l)	1.0	-50	0.5

1. Removal efficiencies obtained from:

- a. Yousef, Y.A.; Wanielista, M.P.; and Harper, H.H. "Design and Effectiveness of Urban Retention Basins".
- b. Harper, H.H.; Yousef, Y.A.; and Wanielista, M.P. "Effectiveness of Detention/Retention Basins for Removal of Heavy Metals in Highway Runoff".

TABLE 9

PROJECTED CONCENTRATIONS OF STORMWATER
POLLUTANTS GENERATED WITHIN THE CLASS III LANDFILL AREA

WATER QUALITY PARAMETER	LAND USE ACTIVITY				WEIGHTED RUNOFF CONC.
	COVERED LANDFILL AREA ¹	EXPOSED WASTE ²	ROADWAY ³	ROADSIDE AREAS ⁴	
NH ₄ -N (mg/l)	0.010	0.202	0.110	0.060	0.028
NO _x (mg/l)	0.016	0.262	0.471	0.244	0.084
Organic N (mg/l)	0.199	4.161	1.29	0.745	0.438
Total N (mg/l)	0.225	4.624	1.87	1.049	0.550
Ortho-P (mg/l)	0.002	0.106	0.112	0.057	0.019
Total P (mg/l)	0.005	1.698	0.390	0.198	0.096
BOD (mg/l)	1.0	9.5	5.6	3.3	1.8
Oil and Grease (mg/l)	0.0	5.0	10.0	5.0	1.5
T.S.S. (mg/l)	5.0	63.2	50.3	27.7	12.5
Color (Pt-Co Units)	19	53	53	36	24
Total Cu (ug/l)	5	33	58	32	13
Total Fe (ug/l)	192	464	1285	739	348
Total Pb (ug/l)	5	158	284	145	47
Total Zn (ug/l)	23	89	221	122	52

1. Based on actual surface water runoff samples collected from the Class III site on 3/19/91.
2. Runoff characteristics from a high density residential area (Harper, 1988).
3. Harper (1988).
4. Assumed as a 50-50 mixture of natural ground cover and roadway land uses.
5. Assumed.

TABLE 10

ESTIMATED SYSTEM PERFORMANCE AND WATER QUALITY
CHARACTERISTICS OF THE CLASS III STORMWATER POND

WATER QUALITY PARAMETER	WEIGHTED RUNOFF CONCENTRATION	REMOVAL EFFICIENCY (%) ¹	CLASS III POND CONCENTRATION
NH ₄ -N (mg/l)	0.028	-75	0.007
NO _x (mg/l)	0.084	-75	0.021
Organic N (mg/l)	0.438	-10	0.394
Total N (mg/l)	0.550	-30	0.422
BOD (mg/l)	1.8	-50	0.90
Ortho-P (mg/l)	0.019	-80	0.004
Total P (mg/l)	0.096	-60	0.038
T.S.S. (mg/l)	12.5	-80	2.5
Total Cu (ug/l)	13	-50	6.5
Total Fe (ug/l)	348	-75	87
Total Pb (ug/l)	47	-80	9.4
Total Zn (ug/l)	52	-85	7.8
Oil and Grease (mg/l)	1.5	-50	0.75

1. Removal efficiencies obtained from:

- a. Yousef, Y.A.; Wanielista, M.P.; and Harper, H.H. "Design and Effectiveness of Urban Retention Basins".
- b. Harper, H.H.; Yousef, Y.A.; and Wanielista, M.P. "Effectiveness of Detention/Retention Basins for Removal of Heavy Metals in Highway Runoff".

TABLE 11

PROJECTED CONCENTRATIONS OF STORMWATER
POLLUTANTS WITHIN THE ENTRANCE ROAD STORMWATER SYSTEM

WATER QUALITY PARAMETER	PROJECTED RUNOFF CONC. (mg/l)		WEIGHTED RUNOFF CONC.	REMOVAL IN SWALE (%)	TREATED RUNOFF CONC.
	ROADWAY ¹	ROADSIDE AREAS ²			
Total N	1.87	1.049	1.54	-70	0.462
Total P	0.390	0.198	0.313	-80	0.094
BOD	5.6	3.3	4.68	-70	1.4
S.S.	50.3	27.7	41.3	-90	4.1
Total Cu	0.058	0.036	0.049	-60	0.020
Total Fe	1.285	0.739	1.067	-75	0.267
Total Pb	0.284	0.145	0.228	-90	0.023
Total Zn	0.221	0.122	0.181	-85	0.027
Oil and Grease	10.0	5.0	8.00	-70	2.4

1. Harper (1988)
2. Assumed as a 50-50 mixture of natural ground cover and roadway land uses.

TABLE 12

COMPARISON OF PROJECTED TREATED STORMWATER CHARACTERISTICS FOR THE TRAIL RIDGE LANDFILL

WATER QUALITY PARAMETER	UNITS	TREATED RUNOFF CHARACTERISTICS			AMBIENT ON-SITE WATER QUALITY ¹	CHAPTER 17-3 CLASS III SURFACE WATER CRITERIA ²
		CLASS I POND	CLASS III POND	ROADWAY SYSTEM		
Total N	ug/l	340	422	462	1226	N.S.S. ³
Total P	ug/l	16	38	94	23	N.S.S.
BOD	mg/l	0.75	0.90	1.4	1.7	N.S.S.
S.S.	mg/l	1.8	2.5	4.1	2.4	N.S.S.
Total Cu	ug/l	4.9	6.5	20	< 5	< 30
Total Fe	ug/l	75	87	267	672	< 1000
Total Pb	ug/l	6.0	9.4	23	< 5	< 30
Total Zn	ug/l	6.2	7.8	27	31	< 30
Oil and Grease	mg/l	0.5	0.75	2.4	-	< 5

1. Mean characteristics of water samples collected at sites 1, 3, 4 and 5 on March 19 and March 29, 1991

2. Chapter 17-3, Florida Administrative Code

3. N.S.S. = No Specific Standard

**CHAPTER 380
SOLID WASTE MANAGEMENT**

**Part 1. Certificate of Public Convenience and
Necessity**

- 380.101 Purpose, intent and findings.
- 380.102 Definitions.
- 380.103 Certificate required for solid waste disposal or management facility.
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**PART 1. CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY**

- 380.101 Purpose, intent and findings.**
- (a) *Purpose and intent.* The city finds that the indiscriminate and uncontrolled use of property for disposal or management of solid waste

in the city is contrary to the interest of the public health and recognized public health and environmental quality standards. The city further finds that in order to provide an efficient and comprehensive solid waste management system for Duval County it is essential that all facilities functioning within that system be subject to the regulation and control of the city. It is the purpose of this part to preserve the public health and environmental quality of the city while meeting the duty of the city mandated by law by requiring a certificate of public convenience and necessity for the use of property as a solid waste disposal or management facility; by imposing regulations upon its use; and by providing for enforcement and correction of violations. It is the intent of the city that henceforth there shall be no unregulated solid waste disposal or management facilities within Duval County.

(b) *Findings.* The City of Jacksonville has been delegated the responsibility and power to provide for the operation of an integrated solid waste disposal system to meet the needs of all incorporated and unincorporated areas of the county. One of the first steps necessary in carrying out that responsibility is the creation of an inventory of solid waste disposal or management facilities capable of helping the city meet its responsibility. A certificate of public convenience and necessity pursuant to this chapter shall indicate resource availability to the city's Director of Public Utilities who is responsible for designation under Chapter 386, Ordinance Code.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 1.

Note.—Former s. 618.101.

380.102 Definitions. As used in this part:

(a) *Certificate* means a certificate of public convenience and necessity issued under this part.

(b) *Director* means the Director of Public Utilities.

(c) *Hazardous waste* means solid waste, or a combination of solid wastes, which, because of its quantity, concentration or physical, chemical or infectious characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating

tating reversible illness or may pose a substantial present or potential hazard to human health or the environment when improperly transported, disposed of, stored, treated or otherwise managed.

(d) *Solid waste disposal facility* means any solid waste management facility which is the final resting place for solid waste, including landfills and incineration facilities that produce ash from the process of incinerating municipal solid waste.

(e) *Sanitary nuisance* shall have the meaning given it in the Health Code, s. 460.106(a), Ordinance Code, as may be amended or renumbered from time to time.

(f) *Sludge* includes the accumulated solids, residues and precipitates generated as a result of waste treatment or processing, including wastewater treatment, water supply treatment or operation of an air pollution control facility, and mixed liquids and solids pumped from septic tanks, grease traps, privies or similar waste disposal appurtenances.

(g) *Sludge disposal or utilization site* means any land site in the General Services District which is intended to be used for the disposal or utilization of sludge from a septic system or similar waste disposal device, including residue from a grease trap, and from any sanitary sewer treatment facility permitted by the State Department of Environmental Regulation.

(h) *Solid waste* includes garbage, refuse, yard trash, clean debris, white goods, special waste, ashes, sludge or other discarded material, including solid, liquid, semisolid or contained gaseous material resulting from domestic, industrial, commercial, mining, agricultural or governmental operations.

(i) *Closure* means the cessation of operation of a solid waste management facility and the act of securing such a facility so that it will pose no significant threat to human health or the environment. This includes closing, long-term monitoring, maintenance and financial responsibility.

(j) *Solid waste management* means the process by which solid waste is collected, transported, stored, separated, processed or disposed of in any other way, according to an orderly, purposeful and planned program.

(k) *Resource recovery* means the process of recovering materials or energy from solid waste, excluding those materials or solid waste under control of the Nuclear Regulatory Commission.

(l) *Solid waste management facility* means any solid waste disposal area, volume reduction plant, transfer station, or other facility, the purpose of which is resource recovery or the disposal, recycling, processing or storage of solid waste. The term does not include facilities which use or ship recovered materials unless such facilities are managing solid waste.

(m) *White goods* includes inoperative and discarded refrigerators, ranges, water heaters, freezers and other similar domestic and commercial large appliances.

(n) *Biohazardous waste* means any solid waste or liquid waste which may present a threat of infection to humans. The term includes, but is not limited to nonliquid human tissue and body parts; laboratory and veterinary waste which contain human-disease-causing agents; used disposal sharps; human blood, and human blood products and body fluids; and other materials which, in the opinion of the Department of Health and Rehabilitative Services, represent a significant risk of infection to persons outside the generating facility.

(o) *Clean debris* means any solid waste which is virtually inert and which is not a pollution threat to groundwater or surface waters and is not a fire hazard and which is likely to retain its physical and chemical structure under expected conditions of disposal or use. The term includes uncontaminated concrete, including embedded pipe or steel, brick, glass, ceramics and other wastes designated by the Florida Department of Environmental Regulation.

(p) *Generation* means the act or process of producing solid or hazardous waste.

(q) *Construction and demolition debris* means materials generally considered to be not water soluble and nonhazardous in nature, including, but not limited to, steel, glass, brick, concrete, asphalt roofing material, pipe, gypsum wallboard and lumber, from the construction or destruction of a structure as part of a construction or demolition project, and including rocks, soils, tree remains, trees and other vegetative matter which normally results from land clearing or land development operations for a construction project.

Mixing of construction and demolition debris with other types of solid waste, including material from a construction or demolition site which is not from the actual construction or destruction of a structure, will cause it to be classified as other than construction and demolition debris.

(r) *Operation* with respect to any solid waste management facility, means the disposal, storage or processing of solid waste at and by any facility.

(s) *Special wastes* means solid waste that can require special handling and management, including, but not limited to, white goods, whole tires, used oil, mattresses, furniture, lead-acid batteries and biological wastes.

(t) *Yard trash* means vegetative matter resulting from landscaping maintenance or land clearing operations and includes materials such as shrub trimmings, grass clippings, palm fronds, trees and tree stumps.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 71-492-196, s. 1; Ord. 78-1089-546, s. 1; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 2.

Note.—Former s. 618.102.

380.103 Certificate required for solid waste disposal or management facility.

(a) No person shall use property or permit property under his control or ownership to be used as a solid waste disposal or management facility without a certificate issued by the Council. Solid waste remaining for longer than ninety days on any property other than property for which a valid permit is held under the Building Code, Part 4, Chapter 320, Ordinance Code, shall constitute final disposal of that solid waste and use of that property as a solid waste disposal or management facility in violation of this part.

(b) For purposes of this section the ninety-day grace period shall commence with the date a notice to correct has been served upon the property owner(s) of record. Service of the notice to correct shall be perfected by personal delivery or by certified mail, return receipt requested. If certified mail is used, the date of deposit in the mail and not date of receipt shall constitute service of notice. If the certified mail is for any reason undeliverable, notice to correct shall be published in a newspaper of general circulation in the city and the ninety-day grace period shall commence on the date of publication.

(c) For the purposes of this section, the property owner(s) of record shall be deemed to be identified by the names and addresses on the current tax records of the Property Appraiser.

(d) Notwithstanding paragraph (a) above, sludge disposal or utilization sites shall not require a certificate under this chapter but shall continue to meet the requirements of Chapter 474, Ordinance Code.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 3.

Note.—Former s. 618.103.

380.104 Application for certificate; fee; proof of financial ability. Application for a certificate shall be filed in quadruplicate with the Director, containing:

(a) A description, plat, ownership and present zoning of the land involved.

(b) An engineering plan prepared by a professional engineer registered in the state, as required by the Director, which shall contain:

(1) Operation plan: An operation plan shall provide written instructions for the daily operation of the facility. The plan shall be revised when operational procedures change and such revisions shall be filed with the Director thirty (30) days before taking effect. The plan shall include detailed procedures where applicable:

(i) Identification of persons responsible for operation and maintenance of the facility, including ownership of facility and corporate structure;

(ii) Contingency operations, alternate waste handling and disposal methods in case of emergency such as a natural disaster or equipment failure;

(iii) Methods for controlling the type of waste received at the site. The plan shall specify inspection procedures, number and location of spotters, if applicable, and procedures to be followed if prohibited wastes are discovered;

(iv) Weighing incoming waste;

(v) Vehicle traffic control and unloading;

(vi) Method and sequence of filling waste;

(vii) Waste compaction and application of cover;

(viii) Operations of gas, leachate, and storm water controls;

(ix) Groundwater monitoring.

(2) The availability of and equipment for use of a water supply.

(3) The type and capacity of equipment to be used.

(4) Plans for fire, nuisance, water pollution, odor and vermin control.

(5) A diagram and written description of the location and extent of dikes, earthwork and fill operations.

(6) Hydrogeological survey.

(c) If the facility is a landfill, the class of landfill to be operated as defined by Chapter 17-701.050, Florida Administrative Code, as may be amended or renumbered from time to time.

(d) A demonstration of public need for the facility.

(e) Such other information as the Director may reasonably require including but not limited to the business address of the applicant.

(f) An application processing fee of one thousand two hundred dollars for applicants other than governmental bodies shall accompany the application.

(g) Proof of financial ability to perform under the terms and conditions of the proposed certificate.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 71-492-196, ss. 2, 3; Ord. 75-705-393, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 4.

Note.—Former s. 618.104.

380.105 Director, Director of Health, Welfare and Bio-Environmental Services and Director of Planning recommendations.

(a) The Director shall forward a copy of the application to the Director of Planning and to the Director of Health, Welfare and Bio-Environmental Services. The Director, the Director of Health, Welfare and Bio-Environmental Services and the Director of Planning shall review the certificate application within thirty (30) days of receipt and may, within said thirty (30) days, through the Director, request submittal of additional information needed for the Directors to make an evaluation of the proposed facility. The Directors shall each submit a written report and recommendation of approval or denial of a certifi-

icate to the Council within thirty days after receipt of a completed application. An application shall be deemed complete thirty days from application or upon receipt of all information requested by the Directors during the initial thirty-day period following application. The Directors' report may include recommended conditions.

(b) The Director of Health, Welfare and Bio-Environmental Services shall review the application and the site and shall consider in his report and recommendation:

(1) Whether the proposed method of operation will comply with the requirements of this part and with the Florida Statutes and Florida Administrative Code.

(2) Whether any hazard or menace to the public health would be created by the proposed use of the land involved or by the proposed method of operation.

(3) Such other considerations he deems relevant.

(c) The Director of Planning shall review the application and the site and shall consider in his report and recommendation:

(1) Compliance with the Zoning Code.

(2) The impact of the proposed facility on surrounding and nearby land uses including those impacts caused by the anticipated traffic patterns associated therewith.

(3) The consistency of the proposed facility with any duly adopted comprehensive plan and all land use regulations related thereto.

(4) Such other considerations as he deems relevant.

(d) The Director of Public Utilities shall review the application and the site and shall consider in his report and recommendation:

(1) The quantity of solid waste in the city requiring management or disposal.

(2) The capacity of existing facilities and the capacity and of the proposed operation.

(3) The availability of alternate methods of management or disposal.

(4) Potential sites best suited to serve the city.

(5) Such other considerations as he deems relevant.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 78-1089-546, s. 2; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 88-1065-548, s. 8; Ord. 90-296-169, s. 5.

Note.—Former s. 618.105.

380.106 Public hearing. After receipt of the reports and recommendations, and before approving or denying the application, the Council shall schedule a public hearing before the Council or one of its committees designated by the Council President in accordance with the following:

(a) The Council Secretary shall provide at least twenty days' notice of the hearing to be given by mail to the applicant and to holders of outstanding certificates under this part. The Public Utilities Department shall be responsible for providing a list of the names and addresses of all outstanding certificate holders to the Council Secretary.

(b) The Council Secretary shall provide notice of the time and place of the public hearing which shall be given by mail to all owners of real property within three hundred feet of the boundaries of the facility. The applicant shall be responsible for providing the names and addresses of said owners to the Council Secretary. For purpose of notice requirements to adjoining owners, the names and addresses of these owners shall be deemed to be those on the current tax records of the Property Appraiser. The failure of an applicant, holders of outstanding certificates or owners of real property, required by this section to be notified by mail, to receive the notice shall not invalidate or otherwise have any effect on a public hearing or action by the Council.

(c) Notice of the public hearing held pursuant to this section shall be published once in a newspaper of general circulation not less than fourteen days in advance of the date of the hearing. The published notice shall be in a form prescribed by the Council Secretary and shall be published by the applicant at his expense. The applicant shall file proof of publication with the Council Secretary prior to the public hearing.

(d) The applicant shall post a sign on the property upon which the application is made in such form as required by the Council Secretary not less than fourteen days prior to the date of the public hearing. The sign shall be posted in full

view of the public on a street side of the land involved and shall be continuously maintained by the applicant until the public hearing before the Council.

(e) Once begun pursuant to the notice set forth herein, the public hearing may be continued, as necessary, as announced by the chair prior to the close of the public hearing.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 6.

Note.—Former s. 618.106.

380.107 Issuance of certificate.

(a) The Council may issue the certificate with or without conditions if it finds, based upon the criteria considered by the Director, the Director of Health, Welfare and Bio-Environmental Services and the Director of Planning that the facility, if designated under Chapter 386, could serve the public convenience and provide a needed service to the citizens of Duval County. The issuance of a certificate under this part shall make the facility eligible for designation by the Director as a facility to receive solid waste generated or brought into Duval County as provided in Chapter 386. A certificate of public convenience and necessity does not guarantee designation under Chapter 386. Unless otherwise stated, a certificate shall be for a term of no more than five years.

(b) Nothing in this chapter or Chapter 386 shall prohibit the Department of Public Utilities from issuing a request for proposal for a solid waste disposal or management facility within Duval County and thereafter presenting the recommended proposal, application for certificate of public convenience and necessity, Director's designation, and recommended service agreement simultaneously for review and action by the Jacksonville City Council.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 78-1089-546, s. 3; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 7.

Note.—Former s. 618.107.

380.108 Operation of landfill. The following regulations apply to the operation of a landfill:

(a) Compliance with conditions of the Certificate of Public Convenience and Necessity, and Chapter 17-701, Florida Administrative Code,

as may be amended or renumbered from time to time unless specified otherwise in this part.

(b) The landfill area shall be supervised during the hours of operation. The area shall be kept neat and sanitary and public access shall be controlled at all times. The Director may require that the landfill area be supervised at times other than during the hours of operation if necessary to prevent unlawful fires, unauthorized dumping or littering of nearby property.

(c) The burning of material deposited in a landfill is prohibited.

(d) No fill shall be deposited in a stream bed or other area where a stream would be obstructed or where erosion by the stream would remove cover material from the landfill. Seepage, drainage or escape of any material or gas from the landfill which is an odor, nuisance or health hazard or which pollutes a stream is prohibited.

(e) No solid waste except clean debris shall be deposited at or below the water table level.

(f) No hazardous waste shall be deposited in landfills.

(g) Sludge, other than sludge cake and grease trap residue, will not be accepted at landfills unless authorized in the certificate.

(h) Rodents shall be exterminated and insects shall be controlled on the landfill site. Pesticides used to control rodents, flies and other insects shall be as specified by the Florida Department of Agriculture and Consumer Affairs.

(i) There shall be displayed at the entrance of each solid waste disposal or management facility site a prominent sign stating the certificate holder's name, address and telephone number and the phrase: *Operated Under City of Jacksonville Certificate No. _____*

(j) Any leachate emanating from a landfill shall be collected and treated as necessary to meet the applicable standards of Florida Administrative Code, Chapter 17-3, 17-4 and 17-25, as they may from time to time be amended or renumbered.

(k) Landfills shall be operated to provide for the collection, control and treatment of surface water runoff from the site as necessary to meet applicable standards of Florida Administrative Code, Chapter 17-3, 17-4 and 17-25 as they may from time to time be amended or renumbered.

(l) The certificate of public convenience and necessity is required to be kept at the work site of the activity during the entire effective period of the certificate.

(m) The certificate holder must provide the Department of Public Utilities personnel and Department of Health, Welfare and Bio-Environmental personnel, upon reasonable notice and upon presentation of appropriate credentials, access to the landfill premises, at reasonable times, for the following purposes:

(1) Inspection and copying any records that must be kept under the certificate of public convenience and necessity.

(2) Inspection of the facility, equipment, practices or operations regulated or required under the conditions of the certificate of public convenience and necessity; and sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with the certificate of public convenience and necessity.

(3) The city shall have the right to be present whenever and shall be notified before ground or surface water samples or measurements are taken for required regulatory analysis and to receive promptly, upon request, a split sample and a copy of the analytical report.

(n) All facilities subject to a certificate of public convenience and necessity shall comply with all city ordinances, rules and regulations related to odor.

(o) Biohazardous waste shall be properly incinerated or processed by an alternate method approved by the Department of Environmental Regulation. No untreated biohazardous waste shall be deposited in any landfill.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 71-492-196, s. 4; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 87-1547-831, s. 1; Ord. 90-296-169, s. 8.

Note.—Former s. 618.108.

380.109 Correction of violations.

(a) The Director of Health, Welfare and Bio-Environmental Services shall have the remedies provided in the Health Code, s. 460.106, Ordinance Code, to correct or cause to be corrected a violation of this part that constitutes a sanitary nuisance.

(b) The Director may issue an order to correct any violation of this part or any violation

of the conditions of the certificate within a reasonable period of time as provided by the Director. If the order is not obeyed the Director may suspend the certificate, seek judicial penalties, and/or request injunctive relief.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 88-1065-548, s. 9; Ord. 90-296-169, s. 9.

Note.—Former s. 618.110.

380.110 Suspension, revocation, termination of certificate, renewal application and notification of transfer of certificate.

(a) The Director may, by Order, suspend the operation of any solid waste disposal or management facility, and suspend the Certificate applicable thereto, for violation of any of the requirements of this part or for violation of any condition of the certificate.

(b) The Council may, after notice and a public hearing, revoke a certificate issued under this part for repeated or continual violations of this part's requirements or the conditions of the certificate. Revocation of a certificate under this part shall automatically result in the termination of any service agreement pursuant to Chapter 386.

(c) Operation of the facility following the revocation or suspension of the certificate shall be a violation of this part.

(d) In the event that the holder appeals the issues related to a suspension or revocation to a Court of law and the city prevails, the City of Jacksonville shall be entitled to reasonable attorneys' fees and costs.

(e) An application for renewal of the certificate of public convenience and necessity must be submitted six months prior to the expiration of the certificate. The Director shall recommend conditions for the renewal certificate and said requirements shall be designed to provide assurances that the continued operation of the facility will pose no significant threat to the public health or the environment. Renewal certificates require Council approval and are discretionary.

(f) All existing solid waste disposal or management facilities operating in Duval County without a certificate shall submit their completed applications to the director within ninety (90) days of the effective date of this part.

(g) Notification of transfer of certificate: In the event the certificate is transferred the cer-

tificate holder has ninety (90) days before transfer to notify the Director in writing regarding the transfer. The new owner must disclose ownership and corporate structure and must submit proof of financial responsibility for operation, closure and post-closure monitoring of the facility where applicable. Transfer does not relieve any previous owner of liability for any violation during the term of operation by the prior owner.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 73-117-596, s. 1; Ord. 73-1532-801, s. 1; Ord. 75-1080-523, s. 1; Ord. 78-959-472, s. 1; Ord. 82-833-425, s. 1; Ord. 83-591-400, s. 1; Ord. 84-1399-743, s. 1; Ord. 85-838-439, s. 1; Ord. 90-296-169, s. 10.

Note.—Former s. 618.111.

Note.—See Ord. 84-1399-743, s. 2. for special conditions.

380.111 Violations and penalties. It is unlawful for any person to violate any provision of this part or an order of the Director entered pursuant to this part.

(a) A person who knowingly, willfully or with culpable negligence violates any provision of this part or an order of the Director entered pursuant to this part shall be guilty of a Class D Offense. Provided, however, that in lieu of a prison sentence, a court of competent jurisdiction, in its discretion, may impose up to one hundred hours of public community service.

(b) In addition to any other penalty, a person who violates any provision of this part shall be liable for civil penalties of up to two thousand dollars per offense. Each day during any portion of which such violation occurs shall constitute a separate offense. Such civil penalty shall be collected in a civil action brought in the name of the city.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 88-1065-548, s. 10; Ord. 90-296-169, s. 11.

Note.—Former s. 618.112.

380.112 Exemptions. This part shall not apply to:

(a) The disposal of garbage by a swine farmer for the feeding of his own swine.

(b) Sludge disposal or utilization sites governed by Chapter 474.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1.

Note.—Former s. 618.113.

380.113 Uses for completed sanitary landfill and dump sites. Completed sanitary landfill and dump sites may be used only for recreational or agricultural purposes unless other usage is approved by the Director and the Director of Public Utilities. The construction of buildings, sewer, gas or water supply mains, parking lots or paved areas on or through completed portions of sites filled with solid waste is prohibited unless approved by the Director and the Director of Public Utilities. To make identification of these sites in the General Services District more certain, all owners of property containing an active or completed sanitary landfill or completed dump shall report the use of the property to the Property Appraiser. The Property Appraiser shall note same by real estate parcel number as used by his office.

History.—Ord. 80-578-260, s. 1; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 1; Ord. 88-1065-548, s. 11.

Note.—Former s. 618.114.

380.114 Citations and fine schedule. The judges of the County court may, in their discretion, establish a schedule of fines and hours of public service to be assessed in cases of violations of this part, except that in no event shall a fine for a violation of any section of this part be less than one hundred dollars and fifty hours of public service as provided in s. 380.111. Upon the filing of this schedule with the Clerk of the County Court, the Clerk is authorized to collect fines and to prescribe public service hours in accordance with the provisions of the schedule from persons charged in citations with any of the offenses included therein. Persons accused of offenses covered by this fine schedule may, within ten days, appear at the office of the Clerk of the County Court and pay the fines and receive public service assignments so provided after entering their pleas of guilty to the offense charged and after waiving in writing the right of trial. Where a person served by citation under the provisions of this section elects not to pay the fine and/or perform the public service assignment provided for the violation by the judges of the County Court, the Clerk shall issue a summons requiring the person to appear in County Court.

History.—Ord. 85-838-439, s. 1.

380.115 Financial responsibility. The holder and any transferee of the certificate shall, where applicable, provide to the city a copy of the financial audit as required by Florida Statutes, s. 403.7125(3)(b), simultaneously with the submission of said audit to the State of Florida. Failure to demonstrate financial responsibility for closure shall constitute grounds for suspension and revocation of the certificate.

History.—Ord. 90-296-169, s. 12.

PART 2. GARBAGE COLLECTION REGULATIONS

380.201 Definitions. As used in this part, unless the context otherwise requires:

(a) *Division* means the Sanitation Division.

(b) *Downtown Development Authority District* means the Jacksonville downtown area as described in s. 516.101, as it may be amended from time to time.

(c) *Garbage* means an accumulation of animal, vegetable or other matter that attends the preparation, consumption, decay, dealing in or storage of meats, fish, fowl, birds, fruits or vegetables or any other putrescible matter, including animal feces, and also including cans, containers or wrappers along with these materials.

(d) *Garbage collection service* means the city or another person performing the service of collection of solid waste, to which this part applies.

(e) *Garbage receptacle* includes one of the following types of containers:

(1) A container of not more than thirty-gallon nor less than twelve-quart capacity which is:

(i) Free from jagged and sharp edges,

(ii) Free from inside structures, such as inside bands or reinforcing angles, which would prevent free discharge of the contents,

(iii) Watertight and of impervious material, and

(iv) Provided with a tight-fitting cover to protect the contents from flies, insects, rats and other animals.

(2) A wet-strength Kraft paper bag of not more than four cubic feet capacity having such characteristics, markings and method of securing as are prescribed by regulation of the Health Division.

(3) A plastic bag having an inside circumference of at least forty inches and not more than sixty and one-half inches and an inside length of at least twenty-two inches and not more than thirty-seven and one-half inches, and having such characteristics, markings and method of securing as are prescribed by regulation of the Health Division.

(f) *Health Division* means the Public Health Division.

(g) *Industrial waste* means waste and debris from brick, concrete block, roofing shingle and tile plants, lumberyards and construction or demolition of buildings, debris and waste accumulation from land clearing, excavating, building, rebuilding and altering of buildings, structures, roads, streets, alleys, driveways, sidewalks or parkways, wooden crating, pallets and waste materials which, because of their volume and nature, do not lend themselves to collection with ordinary garbage and trash and originating from warehouses, abattoirs and manufacturing plants.

(h) *Noncombustible refuse* means metals, mineral matter, large quantities of glass or crockery, metal furniture, auto bodies and parts, washing machines, refrigerators and other similar material used to housekeeping or to the operation of stores and offices.

(i) *Pathological waste* means tissues, organs, body excretions or solid organic waste from hospitals, laboratories, clinics or similar sources.

(j) *Refuse* means a combination of or mixture of rubbish and garbage.

(k) *Rubbish* means an accumulation of paper, excelsior, rags, wooden and paper boxes or containers, sweepings and other accumulations of materials, other than garbage, which are usual to housekeeping and to the operation of stores, offices and other business places, and also any bottles, cans or containers.

(l) *Yard trash* means an accumulation of leaves, grass cuttings, shrubbery cuttings or

other refuse attending the care of lawns, shrubbery, vines and tree trimmings.

History.—Ord. 69-986-718, s. 2; Ord. 70-650-526; Ord. 71-397-181; Ord. 71-557-278, s. 1; Ord. 72-400-292, s. 3; Ord. 77-1180-601, s. 1; Ord. 83-591-400, s. 1.

Note.—Former s. 616.101.

380.202 Subscription to service within First Urban Services District.

(a) The occupant, unless the owner subscribes as set forth in this section, or the owner, if the owner and occupant are the same, of every single-family dwelling, multifamily dwelling, office, institutional, commercial or industrial building in the city within the First Urban Services District where garbage, rubbish, refuse, non-combustible refuse or industrial waste is generated shall subscribe to a privately-operated garbage and rubbish collection system unless service is provided by the Division, unless the owner or occupant has received from the Health Division permission to dispose of his own garbage or rubbish in a sanitary manner approved by the Health Division. The fact that a residential unit, office, institutional, commercial or industrial establishment is occupied shall be *prima facie* evidence that garbage, refuse, rubbish, noncombustible refuse or industrial waste is being generated upon the premises.

(b) The Division will collect from all residential, office, institutional, commercial or industrial establishments within the Downtown Development Authority District as follows:

(1) Solid waste properly containerized in accord with s. 380.203 and placed at curbside for manual (as opposed to mechanical) collection will be collected six nights each week; provided, that the waste for an establishment does not exceed an average of six cubic yards each week.

(2) A premises that generates more than an average of six cubic yards each week will not be eligible for service by the Division and will be required to subscribe to service by a private garbage company.

(c) The Division will collect from all residential, office, institutional, commercial or industrial establishments outside the Downtown Development Authority District but within the First Urban Services District as follows:

(1) Solid waste properly containerized in accord with s. 380.203 and placed at curbside for manual (as opposed to mechanical) collection will be collected twice a week; provided, that:

(i) The volume of waste does not exceed an average of two cubic yards each week for commercial, office, institutional or industrial establishments.

(ii) An unlimited volume of waste shall be collected from single-family residential premises and multifamily residential premises of ten units or less.

(2) Commercial, office, institutional or industrial establishments generating more than an average of two cubic yards each week, and multifamily residential premises of more than ten units must subscribe to a private garbage service.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 70-953-442, s. 1; Ord. 72-440-292, s. 4; Ord. 77-1180-601, s. 2; Ord. 83-591-400, s. 1; Ord. 86-974-495, s. 1.

Note.—Former s. 616.102.

380.203 Garbage and trash container requirements and specifications.

(a) Subject only to the following exceptions, garbage, rubbish and refuse shall be collected and stored in garbage receptacles:

(1) Garbage, rubbish and refuse may be stored or collected in a container designed for mechanical pickup if the container and its location have been approved by the Health Division. Food, waste and putrescible matter placed in an approved container shall be enclosed in a waterproof bag which is securely closed.

(2) Garbage, rubbish and refuse may be stored or collected in a special vermin-proof room or closed food-waste refrigerator which has been approved by the Health Division.

(b) A container used for the collection or storage of garbage, rubbish or refuse which fails to qualify as a garbage receptacle shall be clearly marked by the garbage collection service, which marking shall specify in what manner the container fails to meet the requirements. A container so tagged shall be removed from service. Upon failure of the person furnishing the container to remove it from service after written notice, the garbage collection service shall remove the container from service and destroy it.

History.—Ord. 69-986-718, s. 4; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.103.

380.204 Number of receptacles for accumulation of rubbish. Stores, restaurants, hotels, boarding or apartment houses, warehouses, institutions, manufacturing and processing plants, duplexes, households and other places in the city shall provide a sufficient number of containers, rooms or refrigerators to hold the accumulation of garbage, rubbish or refuse generated on the property.

History.—Ord. 69-986-718, s. 5; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.104.

380.205 Cleaning of rooms and refrigerators used for storage of garbage. Each room and refrigerator used for the collection or storage of garbage, refuse or rubbish shall be cleaned after removal of the garbage, refuse and rubbish. Waste water from cleaning shall be disposed of in the same manner as required for disposition of sewerage.

History.—Ord. 69-876-718, s. 6; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.105.

380.206 Yard trash. Yard trash, except tree trimmings, shall be placed and contained in a garbage receptacle or a disposal box. The garbage collection service shall not be required to collect yard trash not so contained and shall not be required to collect any tree trimming exceeding five feet in length or six inches in diameter. This section shall not apply during periods when the city, or an area including the city, has been designated as a disaster area.

History.—Ord. 69-986-718, s. 7; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.106.

380.207 Collection of building materials and industrial waste. The garbage collection service shall not be responsible for the collecting or hauling of trash, discarded building material, dirt, rock, plaster, lumber, metal, non-combustible refuse or other like material originating from private property preliminary to, during or subsequent to the construction of new buildings, of whatever type, in amounts exceeding one cubic yard each week, or when these materials result from work performed by a construction or building contractor. The Division shall not

be responsible for collecting or hauling industrial waste from warehouses, abattoirs or manufacturing plants.

History.—Ord. 69-986-718, s. 8; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.107.

380.208 Location of garbage receptacles; time for placement within downtown area.

(a) Persons receiving garbage, rubbish or refuse service shall place garbage receptacles at curbside unless the garbage collection service provides collection at another location.

(b) Within the downtown area, bounded by Liberty Street on the East, Broad Street on the West, State Street on the North and the St. Johns River on the South, no garbage, rubbish or refuse shall be placed for curbside collection or allowed to remain placed or otherwise allowed to exist on or along the curbside for curbside collection between 7:00 a.m. and 5:00 p.m.

History.—Ord. 69-986-718, s. 9; Ord. 70-650-526; Ord. 71-397-181; Ord. 75-1322-644, s. 1; Ord. 76-1237-626, s. 1; Ord. 77-549-251, s. 1; Ord. 83-591-400, s. 1.

Note.—Former s. 616.108.

380.209 Disposing of dangerous materials. No person shall dispose of an acid, explosive material, inflammable liquid or dangerous or highly corrosive material in a garbage container which shall be detrimental or harmful to any person.

History.—Ord. 69-986-718, s. 10; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.109.

380.210 Littering prohibited. No person shall litter, sweep, lay, throw or dispose of, allow or permit his employee or any other person under his control to litter, sweep, lay, throw or dispose of solid or liquid waste, ashes, paper, dirt, boxes, tires or industrial waste in or upon a street, sidewalk, body of water, lot, airshaft, areaway, backyard, court or alley, or upon cemetery property, whether public or private, or any other place not certified or permitted or approved in writing by the Public Health Division for placement or disposal of such material; nor shall this material be dropped, spilled or scattered from a vehicle upon a street, road or public or private place. The owner of leased or rented property shall remove the ma-

terial from the common use areas of his property and keep the common use areas free from this material. It is unlawful for any person to violate this section. Upon conviction thereof, the person shall be punished by a fine of not less than one hundred dollars nor more than two thousand dollars and by performance of not less than fifty hours nor more than one hundred hours of public service, provided that, the public service hours imposed for violation of this section shall be restricted to the cleaning and restoration of those areas in the city containing litter and trash.

History.—Ord. 70-650-526; Ord. 71-397-181; Ord. 70-953-442, s. 2; Ord. 75-1339-675, s. 1; Ord. 76-251-124, s. 1; Ord. 83-591-400, s. 1; Ord. 85-843-439, s. 2; Ord. 85-1298-826, s. 1.

Note.—Former s. 616.110.

380.211 Disposing of garbage and pathological waste. Garbage, offal, refuse, dead animals and manure, or a combination of these with rubbish shall be disposed of by incineration, burial, sanitary landfill or other method approved by the Health Division. The disposal of pathological waste shall be by incineration or other method approved by the Health Division.

History.—Ord. 69-986-718, s. 12; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.111.

380.212 Standing vehicles. Vehicles used for transporting offensive matter shall not be allowed to stand or remain near occupied premises and shall be kept clean so as not to cause a nuisance.

History.—Ord. 69-986-718, s. 13; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1.

Note.—Former s. 616.112.

380.213 Penalty. It is unlawful for any person to violate any provision of this part. Upon conviction thereof the person shall be punished by a fine of not less than one hundred dollars nor more than two thousand dollars and by performance of not less than fifty hours nor more than one hundred hours of public service.

History.—Ord. 69-986-718, s. 15; Ord. 70-650-526; Ord. 71-397-181; Ord. 75-1339-675, s. 2; Ord. 83-591-400, s. 1; Ord. 85-838-439, s. 2.

Note.—Former s. 616.113.

380.214 Citations and fine schedule. The judges of the County Court may, in their discretion, establish a schedule of fines and hours of

public service to be assessed in cases of violations of this part, except in no event shall a fine for any violation of this part be less than one hundred dollars and fifty hours of public service as expressly provided in ss. 380.210 and 380.213. Upon the filing of this schedule with the Clerk of the County Court, the Clerk is authorized to collect fines and receive public service assignments in accordance with the provisions of the schedule from persons charged in citations with any of the offenses included therein. Persons accused of offenses covered by this fine schedule may, within ten days, appear at the office of the Clerk of the County Court and pay the fines so provided after entering their pleas of guilty to the offense charged and after waiving in writing the right to trial. Where a person served by citation under the provisions of this section elects not to pay the fine and/or perform the public service assignment provided for the violation by the judges of the County Court, the Clerk shall issue a summons requiring the person to appear in County Court.

History.—Ord. 69-986-718, s. 16; Ord. 70-650-526; Ord. 71-397-181; Ord. 83-591-400, s. 1; Ord. 85-843-439, s. 2.

Note.—Former s. 616.114.

380.215 Enforcement and issuance of citations. The Division, the Health Division, the Bio-Environmental Services Division and the Sheriff shall be responsible for the enforcement of this chapter. The employees designated by the Director of Health, Welfare and Bio-Environmental Services and the Director of Public Utilities, in writing, together with officers of the Sheriff's Office, are authorized to issue citations hereunder.

History.—Ord. 69-986-718, s. 17; Ord. 70-650-526; Ord. 71-397-181; Ord. 78-1159-608, s. 1; Ord. 83-591-400, s. 1; Ord. 88-1065-548, s. 12.

Note.—Former s. 616.115.

380.216 Registration of garbage collection companies.

(a) Every person owning or operating a sanitary landfill or other solid waste processing or disposal facility or collecting garbage and rubbish for compensation from any multifamily dwelling and office, institutional, commercial or industrial building shall annually register with the Manager of Sanitation. Registration shall be accomplished not later than January 31 annually.

(b) The registration certificate shall be under oath and shall contain the following information:

(1) The full name and business address of the registrant.

(2) Whether the registrant holds a valid city occupational license.

(3) Whether the registrant carries any vehicle liability insurance and, if so, the insurance carrier, the policy limits and the amount of deductibles. In lieu thereof, a certificate of insurance issued by the insurer with the same information may be filed with the registration certificate.

(4) The disposal sites used or owned by the registrant, if a collector of garbage or rubbish.

(5) The full name, date of birth, home address and social security number of the owner if the registrant is a proprietorship; of each partner, if the registrant is a partnership; or of each officer, director and person owning or holding five percent or more of the common or preferred stock of the business, if the registrant is a corporation or other business entity.

(6) If the registrant is a partly or wholly owned subsidiary of another business entity, the latter entity's full name, business address and state of incorporation or organization, the extent of the entity's ownership of the registrant and, as to the latter entity, all the information required by paragraph (5).

(c) Each day beyond January 31 that a person required to file a registration certificate with the Manager of Sanitation fails to do so shall constitute a separate violation of this part.

(d) The initial registration under this section shall be accomplished within thirty days after the registrant has obtained an occupational license from the city. Each registrant shall provide the information required by subsection (b) and shall be subject to subsection (c) for each day in excess of the thirty-day period immediately following the acquisition of an occupational license by the registrant that he fails to file a complete registration certificate.

History.—Ord. 74-481-263, s. 1; Ord. 76-728-373, s. 6; Ord. 83-591-400, s. 1.

Note.—Former s. 616.116.

380.217 Insurance.

(a) Each person subject to s. 380.216 shall carry at his own expense a comprehensive automobile and general liability insurance policy issued by an insurance company authorized to write liability insurance in this state having a B rating or better from Alfred M. Best Company, and possessed of a certificate duly issued by the State Insurance Commissioner or some other officer as may from time to time be designated by the laws of the state, in an amount of not less than one hundred thousand dollars for each person for bodily injury, sickness or disease, including death resulting therefrom, three hundred thousand dollars for each occurrence and twenty-five thousand dollars for all property damages in any one occurrence for each vehicle owned, operated, driven or controlled by the garbage collection service, which vehicle is being utilized for the collection of refuse, and all operations necessary or incidental to the operation of the business. The policy may be in the form of a separate policy covering all vehicles operated by the garbage collection service in furtherance of waste collection, in which latter event the policy shall provide insurance on each vehicle in the amounts required in this subsection. The policy or policies shall include an endorsement to the effect that it or they cannot be cancelled for any cause without notice of cancellation being served upon the Manager of Sanitation and the Office of General Counsel at least thirty days prior to the date of cancellation. The policy or policies shall be in the generally accepted form used in this state by liability insurance companies for public liability policies and shall further provide that the insolvency or bankruptcy of the assured shall not relieve the company from the payment of damage for injuries or death sustained or loss occasioned within the provisions of the policy and that the prepayment of any judgment that may be recovered against the assured upon any claims covered by the policy shall not be a condition precedent to a right of action against a company upon the policy, but that the company shall be bound to the extent of its liability under the policy, and shall pay and satisfy the judgment by the injured person, or his heirs or personal representative, as the case may be, to enforce the liability of the company as therein set forth.

(b) At least forty-five days before the expiration of an existing policy, a renewal policy shall be filed with the Manager of Sanitation, and the Office of General Counsel shall approve or reject the policy as to form and as to sufficiency. The filing of a policy shall not constitute compliance with this section until the policy has been approved by the Office of General Counsel. The garbage collection service shall agree not to drive or operate any vehicle for the purpose of collection of garbage or solid waste until the policy covering it is approved.

(c) If a policy is cancelled, the insurance company and the garbage collection service shall notify the Manager of Sanitation and the Office of General Counsel at least thirty days before cancellation.

(d) Should an action for damage be brought against the city in connection with an accident or occurrence relating to garbage and rubbish collection, the disposal thereof or the operation of vehicles, the garbage collection service shall defend the action and will be liable for any judgment obtained and will save the city harmless therefrom.

History.—Ord. 74-481-263, s. 2; Ord. 76-728-373, s. 6; Ord. 83-591-400, s. 1.

Note.—Former s. 616.117.

PART 3. GARBAGE DISPOSAL

380.301 Definitions. As used in this part:

(a) *Hazardous material* means material that constitutes or contains an innate danger to the operators or other personnel, such as toxic chemicals.

(b) *Inert material* means a material having a salvage value in the operation of trash disposal sites and sanitary landfills, including clean dirt, asphalt, broken concrete, brick or stone rubble, nonhazardous liquid material or high-water-content and similar materials, but not including stumps, tires, wire scrap, liquid material containing putrescible matter, sewage, septic tank wastes and meat or poultry cuttings.

(c) *Putrescible matter* means solid waste likely to become putrid.

(d) *Sanitary landfill* means an area designated for the deposit of solid wastes, exclusive of explosive material.

(e) *Service contractor* means a person holding an occupational license or certificate of public necessity and convenience for the transporting of trash or putrescible matter.

(f) *Trash* means nonputrescible solid waste, exclusive of explosive material.

(g) *Trash disposal site* means an area designated for the deposit of trash, exclusive of explosive material.

History.—Ord. 74-444-179, s. 1; Ord. 83-591-400, s. 1.

Note.—Former s. 519.101.

380.302 Required disposal procedure.

No person shall deposit on the property of another trash or putrescible matter on any location in the city except as hereinafter provided. Trash may be transported to and deposited on trash sites and sanitary landfills. Putrescible matter may be transported to and deposited only on sanitary landfills. Trash disposal sites and sanitary landfill sites shall be maintained by the Public Utilities Department and by those private disposal firms as are authorized by the state or are under contract supervised by the Department. Solid waste will be deposited only in sites designated by the Director of Public Utilities. These sites shall be made public knowledge and the locations shall be furnished upon request. The Department shall maintain trash disposal and sanitary landfill sites at appropriate locations throughout the General Services District and shall maintain maps of these sites at City Hall in locations convenient to public view. The Director shall specify the materials or items that will be accepted at each of the city-operated trash disposal sites or sanitary landfills and shall maintain a list of these materials or items at each location at which a map of the site or landfill is displayed; provided, that the list and changes thereto shall be filed with the appropriate committee of the Council at least thirty days in advance of the effective date of the list or change.

History.—Ord. 74-444-179, s. 1; Ord. 83-591-400, s. 1; Ord. 88-1065-548, s. 13.

Note.—Former s. 519.102.

380.303 Rates for disposal.

(a) The following basic rates and charges for each vehicle for the deposit of solid and liquid waste at the trash disposal or sanitary landfill provided with scales or when scales are not in service shall be charged by the city:

(1) Rate per ton charged with scales in service:

<i>Waste Classification</i>	<i>Disposal Charge</i>	<i>Program Charge</i>	<i>Total Charge</i>
Industrial waste	\$ 30.39	\$6.61	\$ 37.00
Mixed residential waste	30.39	6.61	37.00
Construction demolition waste	30.39	6.61	37.00
Special waste	53.39	6.61	60.00
Mixed loads with 10 or more tires	68.39	6.61	75.00
Loads of tires	143.39	6.61	150.00
Bulk liquid or sludge	53.39	6.61	60.00
Clean dirt approved for cover	0.00	0.00	0.00
Accepted from Duval County only:			
Dead animals/spoiled food	53.39	6.61	60.00
Incinerator	30.39	6.61	37.00
Manifested asbestos	93.39	6.61	100.00
Private vehicles, cars and pickups, first 500 pounds of residential waste on Saturday only			1.00
Excess at regular rate			

(2) Vehicular charge when scales are not in service:

<i>Waste Classification</i>	<i>Disposal Charge</i>	<i>Program Charge</i>	<i>Total Charge</i>
Sunday through Friday:			
Private cars and pickups	\$ 7.40	\$ 0.00	\$ 7.40
Saturday only:			
Private cars and pickups	\$ 1.00	\$ 0.00	\$ 1.00
3/4-ton pickups	14.64	6.61	21.25
Trailers and discarded autos	52.16	11.34	63.50
Six-wheeled trucks	62.02	13.48	75.50
Ten-wheel/tandem axle trucks	146.66	31.89	178.55
Semitrailers	206.16	44.84	251.00
Minimum charge special wastes (less than 1 cubic yard)	24.49	6.61	31.10
Special solid waste/cubic yard	52.94	14.71	67.65
Bulk liquid/sludge per 1000 gallons and pro rata fraction thereof—based on the capacity of the vehicle/container	178.54	46.46	225.00
Rolloff, 20 cubic yards or less	124.11	26.99	151.10
Rolloff, over 20 cubic yards	172.73	37.57	210.30
Rearload packer, per cubic yard	10.45	4.95	15.40
Frontload packer, per cubic yard	7.85	3.70	11.55
Clean dirt approved for cover	0.00	0.00	0.00

380.303 Rates for disposal.

(a) The following basic rates and charges for each vehicle for the deposit of solid and liquid waste at the trash disposal or sanitary landfill provided with scales or when scales are not in service shall be charged by the city:

(1) Rate per ton charged with scales in service:

<i>Waste Classification</i>	<i>Disposal Charge</i>	<i>Program Charge</i>	<i>Total Charge</i>
Industrial waste	\$ 30.39	\$6.61	\$ 37.00
Mixed residential waste	30.39	6.61	37.00
Construction demolition waste	30.39	6.61	37.00
Special waste	53.39	6.61	60.00
Mixed loads with 10 or more tires	68.39	6.61	75.00
Loads of tires	143.39	6.61	150.00
Bulk liquid or sludge	53.39	6.61	60.00
Clean dirt approved for cover	0.00	0.00	0.00
Accepted from Duval County only:			
Dead animals/spoiled food	53.39	6.61	60.00
Incinerator	30.39	6.61	37.00
Manifested asbestos	93.39	6.61	100.00
Private vehicles, cars and pickups, first 500 pounds of residential waste on Saturday only			1.00
Excess at regular rate			

(2) Vehicular charge when scales are not in service:

<i>Waste Classification</i>	<i>Disposal Charge</i>	<i>Program Charge</i>	<i>Total Charge</i>
Sunday through Friday:			
Private cars and pickups	\$ 7.40	\$ 0.00	\$ 7.40
Saturday only:			
Private cars and pickups	\$ 1.00	\$ 0.00	\$ 1.00
$\frac{3}{4}$ -ton pickups	14.64	6.61	21.25
Trailers and discarded autos	52.16	11.34	63.50
Six-wheeled trucks	62.02	13.48	75.50
Ten-wheel/tandem axle trucks	146.66	31.89	178.55
Semitrailers	206.16	44.84	251.00
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Special solid waste/cubic yard	52.94	14.71	67.65
Bulk liquid/sludge per 1000 gallons and pro rata fraction thereof—based on the capacity of the vehicle/container	178.54	46.46	225.00
Rolloff, 20 cubic yards or less	124.11	26.99	151.10
Rolloff, over 20 cubic yards	172.73	37.57	210.30
Rearload packer, per cubic yard	10.45	4.95	15.40
Frontload packer, per cubic yard	7.85	3.70	11.55
Clean dirt approved for cover	0.00	0.00	0.00

(b) All charges, either per ton or vehicular rate, shall be doubled for waste collected outside of Duval County. A minimum charge of one dollar for each load shall be imposed on all vehicles.

(c) The following charges shall be imposed and collected to weigh vehicles using scales when no disposal of waste is included:

WGT. Private citizen	\$ 1.00
WGT. Commercial 1 axle	2.00
WGT. Commercial 2 axle	4.00
WGT. Commercial 3 axle	6.00
WGT. Commercial 4 axle	8.00
WGT. Commercial 5 axle	10.00

History.—Ord. 84-1398-734, s. 2; Ord. 85-569-317, s. 2; Ord. 86-1191-612, s. 1; Ord. 87-1421-768, s. 1; Ord. 88-1426-703, s. 1; Ord. 89-872-405, s. 17; Ord. 89-1245-623, s. 1.

380.304 Processing of hazardous material. Processing of hazardous material, including collection and disposal, is the responsibility of the person generating the material. Hazardous material will be accepted at a city site only when the Director of Public Utilities has been notified of the content of the material and has specifically approved and designated a site for disposal of the material. It is the responsibility of the service contractor or the source owners to notify the Director as herein required and to obtain the required approval.

History.—Ord. 74-444-179, s. 1; Ord. 83-591-400, s. 1; Ord. 88-1065-548, s. 14.

Note.—Former s. 519.104.

380.305 Hours when deposits permitted. Except when waived by the Director of Public Utilities for emergencies or other public necessity, the following operating schedule will be followed:

(a) Trash disposal sites and sanitary landfills shall be open for deposits from 8:00 a.m. to 5:00 p.m. Mondays through Saturdays and shall be closed Sundays and the following holidays: New Year's Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

(b) One sanitary landfill site designated by the Director of Public Utilities shall be open for deposits from 7:00 a.m. to 11:00 p.m. Mondays through Fridays, and 7:00 a.m. to 7:00 p.m. Saturdays, Sundays and official holidays.

History.—Ord. 74-444-179, s. 1; Ord. 83-591-400, s. 1; Ord. 88-1065-548, s. 15.

Note.—Former s. 519.105.

380.306 Penalty. It is unlawful for a person to violate a provision of this part or an order of the Director of Public Utilities issued to enforce this part. Upon conviction thereof, the person shall be punishable by a fine of not less than twenty-five dollars nor more than four hundred fifty dollars. Each act of unlawful depositing or other violation of a provision of this part constitutes a separate offense.

History.—Ord. 74-444-179, s. 1; Ord. 83-591-400, s. 1; Ord. 88-1065-548, s. 16.

Note.—Former s. 519.106.

380.307 Establishing credit accounts; controlling delinquent accounts.

(a) Except as provided in subsection (d), a user of the city's trash disposal sites or sanitary landfills may establish credit accounts as a means of paying monthly garbage disposal rates and charges incurred under this part by:

(1) Agreeing to pay monthly all garbage disposal rates and charges incurred in each month upon presentation of a bill for the charges by the Sanitation Division.

(2) Providing security for unpaid incurred charges by depositing cash, a surety bond or a letter of credit as a security deposit with the Tax Collector in an amount sufficient to pay estimated charges for a period of three months as determined by the Manager of Sanitation.

(3) In lieu of providing security as provided in paragraph (2), a person providing solid waste collection service pursuant to a contract with the city may authorize the city to deduct delinquent disposal fees owed the city from his monthly compensation for collection service.

less energy expenditures and without drawing down further on natural resources.

History.—Ord. 84-1398-734, s. 1.

380.402 Territorial application. The Council is exercising the power of the city to act as a county under and pursuant to s. 125.01(k), Florida Statutes. Therefore, this part applies throughout the General Services District.

History.—Ord. 84-1398-734, s. 1.

380.403 Program established; rule-making authority. There is established a resource recovery program, hereinafter referred to as the *program*. The program shall be administered by the Solid Waste Disposal Division, and the Manager of Disposal is authorized to adopt, alter, amend and repeal rules for the implementation and administration of the program. The program is divided into five subprograms, as follows:

(a) The landfill replacement program shall be responsible for searching for, investigating the possibilities of and recommending new sites that may be purchased for use as sanitary landfills or transfer stations or both.

(b) The recreational development program shall be responsible for developing plans and projects for the closing of open but filled sanitary landfills and the recreational use of closed sanitary landfills and for seeing that the approved plans and projects are constructed and carried to completion. The Solid Waste Disposal Division shall coordinate the efforts of this program with the Recreation and Public Affairs Department.

(c) The resource recovery program shall be responsible for the implementation of resource recovery programs as alternatives to solid waste disposal.

(d) The containment assessment and remediation program shall be responsible for the implementation of containment assessment and remediation programs at closed landfill sites.

(e) The landfill closure program shall be responsible for the closing of open but filled sanitary landfills.

History.—Ord. 84-1398-734, s. 1; Ord. 86-1020-536, s. 1; Ord. 88-1426-703, s. 2; Ord. 89-872-405, s. 18.

380.404 Resource Recovery Fund established; accounts.

(a) There is established the Resource Recovery Fund, hereinafter referred to as the *Fund*, which shall consist of the following accounts:

(1) The landfill replacement fund, which will be used to purchase and place into service new sites for sanitary landfills or transfer stations or both as current landfills are used up and closed.

(2) The recreational development fund, which will fund final use costs for landfills and allow parks, jogging trails, par courses and other recreational facilities to be constructed on landfill property.

(3) The resource recovery implementation fund, which will fund the costs for resource recovery implementation and procurement.

(4) The containment assessment and remediation fund, which will fund the costs for assessing and remediating containment at closed landfills.

(5) The landfill closure fund which will fund the costs for closing filled landfills.

(b) The resource recovery fee provided for in s. 380.405(a) shall be placed in the various funds according to the distribution formula provided for in s. 380.405(b). The Council may appropriate additional funds in order to provide adequate funding for the programs. The authority of the Mayor to make transfers of funds under s. 106.304 shall not apply to the separate funds enumerated in subsection (a), without the concurrence of the Council. All funds expended from this fund shall be subject to appropriation by the Council.

History.—Ord. 84-1398-734, s. 1; Ord. 86-1020-536, s. 2; Ord. 88-1426-703, s. 3; Ord. 89-872-405, s. 19.

380.405 Resource recovery fee; distribution formula; late charge for delinquent payment.

(a) So that the program can be adequately funded, there is imposed on every deposit of solid waste in every trash disposal site or sanitary landfill in the city, whether publicly or privately owned or operated, a resource recovery fee of six dollars and sixty-one cents for each ton of solid waste deposited, which was collected within Duval County, thirteen dollars and twenty-two

(b) When unpaid monthly charges become past due, the user's security deposit account shall be debited for the amount of the charges.

(c) Except as provided in subsection (d), when past-due and unpaid monthly charges for a user exceed the amount deposited in that user's security deposit account, the user shall thereafter pay cash for each disposal in the city's trash disposal sites or sanitary landfills prior to making the disposal until the user is in compliance with subsection (a).

(d) When a user has caused complete depletion of his security deposit account by failure to pay past-due monthly charges, he may continue utilizing his credit account after:

(1) Submission of a plan for replenishing his security deposit account to an amount sufficient to pay estimated charges for a period of three months.

(2) Payment of the past-due monthly charges and current monthly charges upon submission of a bill for the charges by the Sanitation Division and approval thereof by the Manager of Sanitation.

The provisions of this subsection shall be available only if a user is not delinquent in paying under another plan approved under this subsection.

History.—Ord. 75-318-126, s. 1; Ord. 75-1052-517, s. 1; Ord. 83-591-400, s. 1.

Note.—Former s. 519.107.

PART 4. RESOURCE RECOVERY PROGRAM

380.401 Legislative findings. The Council finds as follows:

(a) With respect to solid waste, that:

(1) The continuing technological progress and improvement in methods of manufacture, packaging and marketing of consumer products has resulted in an evermounting increase, and in a change in the characteristics, of the mass material discarded by the purchasers of these products.

(2) The economic and population growth of the city, and the improvements in the standard of living enjoyed by the city's population, have required increased industrial production to meet their needs and have made necessary

the demolition of old buildings, the construction of new buildings and the provision of highways and other avenues of transportation which, together with related industrial, commercial and agricultural operations, have resulted in a rising tide of scrap, discarded and waste materials.

(3) The continuing concentration of population in the expanding metropolitan area of the city has presented the city with financial, management, intergovernmental and technical problems in the disposal of solid wastes resulting from the industrial, commercial, domestic and other activities carried on in the city.

(b) With respect to the environment and health, that:

(1) Although land is too valuable a city resource to be needlessly polluted by discarded materials, most solid waste is disposed of on land in open dumps and sanitary landfills.

(2) Disposal of solid waste and hazardous waste in or on the land without careful planning and management can present a danger to human health and the environment.

(3) As a result of numerous federal and state laws respecting public health and the environment, greater amounts of solid waste (in the form of sludge and other pollution treatment residues) have been created.

(4) Open dumping is particularly harmful to health, contaminates drinking water from underground and surface supplies and pollutes the air and the land.

(5) Alternatives to existing methods of land disposal must be developed since the city will be running out of suitable solid waste disposal sites within the foreseeable future unless immediate action is taken.

(c) With respect to materials, that:

(1) Hundreds of thousands of tons of recoverable material which could be used are needlessly buried each year.

(2) Methods are available to separate usable materials from solid waste.

(3) The recovery and conservation of such materials is necessary to conserve both irreplaceable natural resources and the energy expended in extracting and processing them, when recycling can produce usable materials with much

less energy expenditures and without drawing down further on natural resources.

History.—Ord. 84-1398-734, s. 1.

380.402 Territorial application. The Council is exercising the power of the city to act as a county under and pursuant to s. 125.01(k), Florida Statutes. Therefore, this part applies throughout the General Services District.

History.—Ord. 84-1398-734, s. 1.

380.403 Program established; rule-making authority. There is established a resource recovery program, hereinafter referred to as the *program*. The program shall be administered by the Solid Waste Disposal Division, and the Manager of Disposal is authorized to adopt, alter, amend and repeal rules for the implementation and administration of the program. The program is divided into five subprograms, as follows:

(a) The landfill replacement program shall be responsible for searching for, investigating the possibilities of and recommending new sites that may be purchased for use as sanitary landfills or transfer stations or both.

(b) The recreational development program shall be responsible for developing plans and projects for the closing of open but filled sanitary landfills and the recreational use of closed sanitary landfills and for seeing that the approved plans and projects are constructed and carried to completion. The Solid Waste Disposal Division shall coordinate the efforts of this program with the Recreation and Public Affairs Department.

(c) The resource recovery program shall be responsible for the implementation of resource recovery programs as alternatives to solid waste disposal.

(d) The containment assessment and remediation program shall be responsible for the implementation of containment assessment and remediation programs at closed landfill sites.

(e) The landfill closure program shall be responsible for the closing of open but filled sanitary landfills.

History.—Ord. 84-1398-734, s. 1; Ord. 86-1020-536, s. 1; Ord. 88-1426-703, s. 2; Ord. 89-872-405, s. 18.

380.404 Resource Recovery Fund established; accounts.

(a) There is established the Resource Recovery Fund, hereinafter referred to as the *Fund*, which shall consist of the following accounts:

(1) The landfill replacement fund, which will be used to purchase and place into service new sites for sanitary landfills or transfer stations or both as current landfills are used up and closed.

(2) The recreational development fund, which will fund final use costs for landfills and allow parks, jogging trails, par courses and other recreational facilities to be constructed on landfill property.

(3) The resource recovery implementation fund, which will fund the costs for resource recovery implementation and procurement.

(4) The containment assessment and remediation fund, which will fund the costs for assessing and remediating containment at closed landfills.

(5) The landfill closure fund which will fund the costs for closing filled landfills.

(b) The resource recovery fee provided for in s. 380.405(a) shall be placed in the various funds according to the distribution formula provided for in s. 380.405(b). The Council may appropriate additional funds in order to provide adequate funding for the programs. The authority of the Mayor to make transfers of funds under s. 106.304 shall not apply to the separate funds enumerated in subsection (a), without the concurrence of the Council. All funds expended from this fund shall be subject to appropriation by the Council.

History.—Ord. 84-1398-734, s. 1; Ord. 86-1020-536, s. 2; Ord. 88-1426-703, s. 3; Ord. 89-872-405, s. 19.

380.405 Resource recovery fee; distribution formula; late charge for delinquent payment.

(a) So that the program can be adequately funded, there is imposed on every deposit of solid waste in every trash disposal site or sanitary landfill in the city, whether publicly or privately owned or operated, a resource recovery fee of six dollars and sixty-one cents for each ton of solid waste deposited, which was collected within Duval County, thirteen dollars and twenty-two

cents per ton for solid waste collected outside Duval County and six dollars and sixty-one cents per ton for bulk liquid or sludge collected inside Duval County and thirteen dollars and twenty-two cents for bulk liquid or sludge collected outside Duval County. The rates imposed by s. 380.303 for deposits in trash disposal or sanitary landfill sites operated by the city contain this recovery fee and the Solid Waste Disposal Division shall transfer monthly the equivalent of the resource recovery fee from the revenue account for the collection activity to the fund. The Manager of Disposal shall by rule specify the manner and method by which the privately owned trash disposal or sanitary landfill sites will report the gross tonnage disposed of and the amount of the resource recovery fee collected and the manner and method by which the resource recovery fee is transmitted to the city for deposit in the fund. All such reports and information shall be subject to review and audit by the Department of Public Utilities and the Council Auditor, including the right of entry upon proper notice for the purpose of review and confirmation of financial records connected therewith.

(b) For every six dollars and sixty-one cents collected pursuant to subsection (a) the monies shall be distributed to the accounts in the fund according to the following formula:

(1) To the landfill replacement fund three dollars and three cents.

(2) To the recreational development fund, seventy cents.

(3) To the resource recovery implementation fund, eighty-one cents.

(4) To the containment assessment and remediation fund, fifty-four cents.

(5) To the landfill closure fund, one dollar and fifty-three cents.

(c) The resource recovery fee shall be rendered monthly to the city, payable on or before the twentieth day of the second month following the date of billing. Transmittal of the funds collected for the resource recovery fee during January, 1985, shall be due in the Manager of Disposal's office postmarked no later than March 20, 1985 and funds for subsequent fees shall be due no later than the twentieth of each succeeding second month. Transmittals postmarked later than the twentieth of the month shall be considered

delinquent. In the case of delinquent fees, a late charge in the amount of one percent of the fee shall be assessed and collected for each month the fee remains unpaid, unless waived for good cause shown, by the Manager. For the purposes of this section, any fractional part of a month shall constitute an entire month.

History.—Ord. 84-1398-734, s. 1; Ord. 85-569-317, s. 1; Ord. 86-1191-612, s. 2; Ord. 87-1421-768, s. 2; Ord. 88-1065-548, s. 17; Ord. 88-1426-703, s. 4; Ord. 89-872-405, s. 20; Ord. 89-1245-623, s. 2.

380.406 Local resource recovery and management program. The Manager of Disposal and the Solid Waste Disposal Division shall be the city's representatives with respect to the local resource recovery and management program provided for in s. 403.706, Florida Statutes. The Manager shall be responsible for negotiating interlocal agreements under s. 403.706, Florida Statutes and for administering such of them as are approved by the Council and the state.

History.—Ord. 84-1398-734, s. 1.

PART 5. RECYCLING PROGRAM

380.501 Findings. The Council finds:

(a) The city is experiencing continuous problems with unauthorized persons removing recyclable materials set out by citizens of the City of Jacksonville for collection by the contractor.

(b) To promote and protect the health, safety and general welfare of the public, it is necessary to have an effective recycling program without interference from unauthorized collection.

History.—Ord. 89-1092-541, s. 1.

380.502 Definitions.

(a) *Authorized recycling contractor* means a person, firm, partnership, corporation or other entity authorized under and by virtue of a contract with the city to collect curbside residential recyclable material in the city.

(b) *Designated recycling collection location* means the place or area along or upon city right-of-way for the deposit for pickup of recyclable materials or as otherwise designated in the contract between the city and the authorized recycling contractor.

(c) **Recyclable material** means those materials which are capable of being recycled and which would otherwise be processed or disposed of as solid waste such as, but not limited to, newspapers, glass, plastics and metal cans.

(d) **Recycling** means any process by which solid waste or materials which would otherwise become solid waste are collected, separated or processed and reused or returned to use in the form of raw materials or products.

(e) **Recovered materials** means those materials which have known recycling potential, can be feasibly recycled, and have been diverted or removed from the solid waste stream for sale, use or reuse by separation, collection or processing.

History.—Ord. 89-1092-541, s. 1.

380.503 Ownership of recyclable material. Upon the placement of recyclable material at a designated recycling collection location for collection by an authorized recycling contractor, the recyclable material shall become the property of the city.

History.—Ord. 89-1092-541, s. 1.

380.504 Unauthorized collection prohibited. During the twenty-four-hour period commencing at 6:00 p.m. on any day preceding a day designated for collection of recyclable material, no person, other than an authorized recycling contractor shall remove recyclable material which has been placed at a designated recycling collection location. Any and each such collection in violation hereof from one or more designated recycling collection locations during such twenty-four-hour period shall constitute a separate and distinct offense punishable as provided in this Code.

History.—Ord. 89-1092-541, s. 1.

380.505 Right of individual to dispose of recyclable material. Nothing in this part shall limit the right of an individual person, organization or other entity to donate, sell or otherwise dispose of recyclable material, provided that any such disposal is in accordance with the provisions of this chapter.

History.—Ord. 89-1092-541, s. 1.

380.506 Enforcement authority. The Director of the Department of Public Utilities shall have the authority to enforce the provisions of

this part. This authority shall be in addition to the authority granted to police officers pursuant to this Code.

History.—Ord. 89-1092-541, s. 1.

380.507 Civil action by authorized recycling contractor. Nothing in this part shall be deemed to limit the right of an authorized recycling contractor to bring a civil action against any person who violates s. 380.504 of this chapter, nor shall a conviction for such violation exempt any person from a civil action brought by an authorized recycling contractor.

History.—Ord. 89-1092-541, s. 1.

380.508 Penalty. It shall be unlawful and a class C offense to fail to comply with the provision of this part.

History.—Ord. 89-1092-541, s. 1.

Constitutional and Statutory Provisions

U.S.C.A.:

Title 42, §§6901–6987 Solid Waste Disposal Act.

F.S.A.:

§381.031 Duties and powers of the Department of Health and Rehabilitative Services.

§381.101 Municipal regulations and ordinances.

§585.49. Definitions; ss. 585.48–585.53 and 585.59 ["garbage" defined].

Administrative Law Provisions

C.F.R.:

Title 40, §§40.100 *et seq.* Solid waste disposal grants

Title 40, §§264.1 *et seq.* Standards for owners of hazardous waste treatment facilities

Opinions

L.D.A.O.:

Op. 122—Free stamps to indigents for use in lieu of payment to garbage and sewer service charges

Op. 269—Mandatory garbage and refuse service in former unincorporated areas

Op. 337—Assumption by city of collection of garbage service fees of private garbage companies

Cross References

Director of Health, Welfare and Bio-Environmental Services, see §26.102

Director of Planning, see §30.101

Director of Public Works, see §32.101

Sanitation Division, see §§32.501–32.502

Swill garbage regulations, see Ch. 206

Hazardous substances, see Ch. 364

Regulations pertaining to individual sewage disposal systems, see Ch. 470

Garbage container standards with respect to rodents and insects, see §472.105

SOLID WASTE MANAGEMENT

Regulation of sludge disposal and utilization sites, see Ch. 474
Throwing debris in public places prohibited, see §480.106
Class C offense, see §632.101

Library References

McQuillin:

§24.245. Garbage and refuse.
§24.248.—Particular regulations and measures.
§24.249. Trash, rubbish, house dirt, ashes.
§24.250. Removal by city; charge or assessment.
§24.251. Removal under public contract.
§24.253. Dumps and dumping.

Shepard's:

Garbage and Trash, §56.
Garbage and Trash, §58.
Garbage and Trash, §60.
Garbage and Trash, §61.

Garbage and Trash, §62.
Garbage and Trash, §67.
Garbage and Trash, §68.
Garbage and Trash, §68.1.
Garbage and Trash, §73.
Garbage and Trash, §74.
Garbage and Trash, §88.
Garbage and Trash, §90.
Garbage and Trash, §122.
Garbage and Trash, §124.
Garbage and Trash, §133.

Annotation

Revocability of license for garbage or rubbish removal services, 83 ALR2d 805

Limit of county zoning power in the disposal of solid waste, 67 Northwestern L. Rev. 738

**CHAPTER 386
WASTE FLOW CONTROL**

Part 1. General Provisions

- 386.101 Purposes and findings.
386.102 Exercise of county powers; territorial application of the chapter.
386.103 Definitions.

Part 2. Management of Solid Waste Designation and Revocation of Designation

- 386.201 Disposal of solid waste.
386.202 Service agreement.
386.203 Designation.
386.204 Revocation of designation.

Part 3. Penalties and Enforcement

- 386.301 Penalty.
386.302 Enforcement.
386.303 Severability.

PART 1. GENERAL PROVISIONS

386.101 Purposes and findings.

(a) *Purposes.* This chapter is adopted pursuant to *s. 403.701, F.S. et seq.* and *Chapter 86-462, Laws of Florida* for the following purposes:

(1) To effectuate a county-wide system for the management of all solid waste generated within or brought into the County of Duval in order to protect the public health and safety and to improve the environment of the county; and

(2) To carry out the express responsibility of the county with regard to solid waste as set forth in *Florida Statutes, ss. 403.701 through 403.769* and *Chapter 86-462, Laws of Florida*. In addition to the authorization in *Chapter 86-462, Laws of Florida* and *Chapter 403, Florida Statutes*, this chapter is an exercise of the city's powers as a county under *s. 3.01, Charter of the City of Jacksonville*.

(b) *Findings:*

(1) The City of Jacksonville has been delegated the responsibility and power to provide for the operation of an integrated solid

waste disposal system to meet the needs of all incorporated and unincorporated areas of Duval County. Although *Chapter 86-462, Laws of Florida*, is self-executing, it is in the best interest of the city to define the city's plan for regulating the flow of solid waste generated or brought into the county. The regulation of the flow of solid waste in Duval County is critical to effective regulation and is essential to meeting state goals.

(2) Certain solid waste including but not limited to biohazardous waste, waste tires, and used oil, due to their quantity, concentration or physical, chemical, biological or infectious characteristics, may be hazardous to human health, safety and welfare and to the environment, and exceptional attention to transportation disposal, storage and treatment of such waste is necessary to protect human health, safety and welfare and the environment.

(3) The flow of all solid waste generated in or brought into Duval County for disposal which is required to be disposed of in a class I solid waste disposal area shall be directed to a class I solid waste disposal area owned by the City of Jacksonville.

History.—Ord. 90-297-170, s. 1.

386.102 Exercise of county powers; territorial application of the chapter. This chapter is an exercise of the city's powers as a county under *s. 3.01, Charter of the City of Jacksonville*. This chapter shall apply throughout the General Services District.

History.—Ord. 90-297-170, s. 1.

386.103 Definitions. As used or referred to in this chapter, unless the context otherwise requires:

(a) *County of Duval* shall mean the entire County of Duval as constituted and existing under the laws of the State of Florida.

(b) *Disposal* means the discharge, deposit, injection, dumping, spilling, leaking or placing of any solid or hazardous waste into or upon any land or water so that solid waste or hazardous waste or any constituent thereof may enter other lands or be emitted into the air or discharged into any waters, including groundwaters, or otherwise enter the environment.

(c) *Municipality, or any like term*, means a municipality created pursuant to general or special law authorized or recognized pursuant to general or special law authorized or recognized pursuant to s. 2 or s. 6, Article VIII, Florida Constitution and, when Florida Statutes s. 403.706(20) applies, means a special district or other entity.

(d) *Person* means any and all persons, natural or artificial, including any individual, firm or association; any municipal or private corporation organized or existing under the laws of this or any other state; any county of this or any other state; and any governmental agency of this or any other state or the federal government or any of its agencies or departments.

(e) *Solid waste* includes garbage, refuse, yard trash, clean debris, white goods, special waste, ashes, sludge, or other discarded material including solid, liquid, semisolid, or other contained gaseous material resulting from domestic, industrial, commercial, mining, agricultural or governmental operations.

(f) *Solid waste management* means the process by which solid waste is collected, transported, stored, separated, processed or disposed of in any other way, according to an orderly, purposeful and planned program.

(g) *Resource recovery* means the process of recovering materials or energy from solid waste, excluding those materials or solid waste under control of the Nuclear Regulatory Commission.

(h) *Solid waste management facility* means any solid waste disposal area, volume reduction plant, transfer station, or other facility, the purpose of which is the recovery of resources or the disposal, recycling, processing or storage of solid waste. The term does not include facilities which use or ship recovered materials unless such facilities are managing solid waste.

(i) *White goods* includes inoperative and discarded refrigerators, ranges, water heaters, freezers and other similar domestic and commercial large appliances.

(j) *Biohazardous waste* means any solid waste or liquid waste which may present a threat of infection to humans. The term includes, but is not limited to nonliquid human tissue and body parts; laboratory and veterinary waste which contain human-disease-causing agents; used dispos-

able sharps; human blood, and human blood products and body fluids; and other materials which, in the opinion of the Department of Health and Rehabilitative Services, represent a significant risk of infection to persons outside the generating facility.

(k) *Clean debris* means any solid waste which is virtually inert and which is not a pollution threat to groundwater or surface waters and is not a fire hazard and which is likely to retain its physical and chemical structure under expected conditions of disposal or use. The term includes uncontaminated concrete, including embedded pipe or steel, brick, glass, ceramics and other wastes designated by the Florida Department of Environmental Regulation.

(l) *Generation* means the act or process of producing solid or hazardous waste.

(m) *Solid waste disposal facility* means any solid waste management facility which is the final resting place for solid waste, including landfills and incineration facilities that produce ash from the process of incinerating municipal solid waste.

(n) *Construction and demolition debris* means materials generally considered to be not water soluble and nonhazardous in nature, including, but not limited to, steel, glass, brick, concrete, asphalt roofing material, pipe, gypsum wallboard and lumber, from the construction or destruction of a structure as part of a construction or demolition project, and including rocks, soils, tree remains, trees and other vegetative matter which normally results from land clearing or land development operations for a construction project. Mixing of construction and demolition debris with other types of solid waste, including material from a construction or demolition site which is not from the actual construction or destruction of a structure, will cause it to be classified as other than construction and demolition debris.

(o) *Operation*, with respect to any solid waste management facility, means the disposal, storage or processing of solid waste at and by any facility.

(p) *Director* means the Director of Public Utilities.

(q) *Special wastes* means solid waste that can require special handling and management, including, but not limited to white goods, whole tires, used oil, mattresses, furniture, lead-acid batteries, biological wastes and sludges.

(r) *Certificate* means a certificate of public convenience and necessity under Chapter 380, Ordinance Code.

(s) *Designation* means chosen by the City of Jacksonville to receive solid waste generated in or brought into the county. Only facilities holding a certificate under Chapter 380, Ordinance Code may receive designation.

(t) *Service agreement* means an agreement between the City of Jacksonville and a designated facility which includes conditions and terms upon which the facility may operate within Duval County.

(u) *Host fee* means a fee payable by the facility to the City of Jacksonville for the privilege of receiving solid waste generated in or brought into the county.

(v) *Tipping fee* means the fee charged to the customer by the facility for the receipt or disposal, processing or management of solid waste.

(w) *Class I solid waste disposal area* means a disposal facility which receives an average of twenty tons or more per day, if scales are available, or fifty cubic yards or more per day of solid waste, as measured in place after covering, and which receives an initial cover daily.

(x) *Yard trash* means vegetative matter resulting from landscaping maintenance or land clearing operations and includes materials such as shrub trimmings, grass clippings, palm fronds, trees and stumps.

History.—Ord. 90-297-170, s. 1.

PART 2. MANAGEMENT OF SOLID WASTE, DESIGNATION, AND REVOCATION OF DESIGNATION

386.201 Disposal of solid waste. The Director of Public Utilities is hereby authorized and directed to designate:

(a) By written statement, from time to time, one or more solid waste management facilities to be used for the disposal or management of

solid waste generated or brought within the County of Duval, which designation may include a determination that a particular solid waste disposal or management facility shall be the only facility used for the disposal or management of solid waste generated or brought within all of, or a described area within, the County of Duval or by a particular person or persons. Such written designation of a facility shall be filed with the Secretary of the Jacksonville City Council.

(b) In his designation the Director may address solid waste as defined herein or individual types of solid waste including but not limited to: construction and demolition debris, clean debris, biohazardous waste, yard waste or any other special waste and may direct their flow independently.

(c) All solid waste disposal and management facilities, and construction and demolition debris disposal sites within Duval County must hold a current and valid certificate of public convenience and necessity issued pursuant to Chapter 380, Ordinance Code, in order to be considered by the Director for designation to receive solid waste generated or brought into the County.

(d) Notwithstanding any provision of this chapter or Chapter 380, sludge disposal or utilization sites which do not require a certificate under Chapter 380, shall, likewise, not be required to receive designation or a franchise. Said sites shall meet the requirements of Chapter 474, Ordinance Code.

386.202 Service agreement.

(a) In the event a privately-owned solid waste disposal or management facility other than a class I landfill or a privately operated solid waste disposal or management facility is designated to receive solid waste or construction and demolition debris either generated or brought into Duval County, the private facility must obtain a service agreement approved by the Jacksonville City Council prior to the receipt of solid waste. Said service agreement shall include the business address of the private facility where any notice to be delivered pursuant to this chapter can be delivered by United States mail, certified delivery, and

shall also include all details reasonable and necessary for the regulation of the operation of the facility which may include:

- (1) Hours of operation;
- (2) Tipping fee;
- (3) Host fee;
- (4) Timetable for amendment or adjustment to host fee and tipping fee;
- (5) Types of material to be accepted;
- (6) Areas of the county to be served by the facility;
- (7) Bond and insurance requirements;
- (8) Methods for the management of special wastes;
- (9) Control and restriction of public access to the site through fencing;
- (10) Conceptual closure plan; and
- (11) Other requirements necessary to ensure proper treatment and or disposal of solid waste and the proper operation and closure of the facility.

(b) The Director shall negotiate the terms of all service agreements on behalf of the city and present his recommended service agreements to the City Council for their approval, denial or modification. All provisions, guarantees and representations associated with the certificate shall be incorporated in the service agreement. No holder of a certificate shall have a right to a service agreement or to designation by the Director.

(c) All service agreements shall have a specific commencement and termination date. Service agreements are not renewable as a matter of course or as a matter of right.

(d) All amendments to the service agreement during its term shall be negotiated by the Director and approved, denied or modified by the City Council.

386.203 Designation.

(a) In making any designation regarding waste flow under s. 386.201, the Director shall give due consideration to the following criteria:

- (1) Size of facility.
- (2) Location of facility.
- (3) Remaining capacity of facility.
- (4) Operational capabilities.

- (5) Type of solid waste.
- (6) Origin of waste.
- (7) Environmental safeguards of the facility.
- (8) Whether the facility is owned by the city.
- (9) Whether the designation will best serve the overall needs of the city.
- (10) Whether the designation assists the city to meet its goals, objectives or policies as delineated in the Comprehensive Plan.
- (11) Alternative facilities available for designation.

(b) No person shall dispose of or receive solid waste generated within or brought into the County of Duval, except at a solid waste disposal or management facility designated by the Director in accordance with this section.

(c) The Director is hereby authorized to promulgate, in writing, such rules and regulations as he shall determine to be necessary to effectuate the purposes of this chapter. Rules and regulations promulgated pursuant to this section shall be in writing and filed with the Secretary of the Jacksonville City Council. Said rules and regulations shall take effect within sixty days after filing unless or until rescinded or modified by appropriate resolution of the Jacksonville City Council.

(d) Designations shall terminate as follows:

(1) Upon redesignation by the Director if the facility is owned and operated by the city.

(2) Upon termination of the service agreement if the facility is privately owned or privately operated.

History.—Ord. 90-297-170, s. 1.

386.204 Revocation of designation.

(a) *Grounds.* In addition to any other penalty, the Council may with or without the recommendation of the Director, revoke a designation for:

(1) Violation of terms or conditions of the service agreement.

(2) Failure to perform in accordance with the terms and conditions of the service agreement.

(3) Violation of any rule or regulation promulgated by the Director pursuant to this chapter.

(4) Violation of any requirement of this chapter.

(5) Failure to comply with Rules or Regulations of the State of Florida Department of Environmental Regulation or the State of Florida Department of Health and Rehabilitative Services.

(6) Failure to comply with federal, state or local permit requirements for the particular facility.

(7) Revocation or suspension of the facility's certificate.

(8) Changes in the city's integrated solid waste disposal system, including but not limited to changes in demand, demography, available technology or economics.

(b) *Procedures:*

(1) For those facilities not owned by the city, the Director shall provide the owners and operators of a designated facility with written notice of the proposed cause for revocation and of the date, time and place of a revocation hearing to be conducted by the Director. At the revocation hearing the designated facility shall have the opportunity to respond, to present evidence and argument on all issues involved, to conduct cross-examination and submit rebuttal evidence and to be represented by counsel. Written notice may be delivered at the place of business by certified mail or by posting and shall be given at least fifteen (15) days prior to the hearing date.

(2) After the hearing, the Director may enter a recommended order proposing revoking the designation or denying revocation. A copy of the recommended order shall be delivered to the designated facility at the place of business by certified mail or by posting within fifteen (15) days. The recommended order, findings and record of the proceeding shall be forwarded to the City Council of Jacksonville for final action.

(3) The Director may revoke or amend a designation of a city owned facility at any time based on the needs of the city and without a hearing or Council action. Where city owned facilities are operated by private enterprise, the rights and remedies pertaining to revocation or amendment to designation of the operators and

the city shall be set forth in the service agreement negotiated between the parties.

(4) In the event the designation or certificate of public convenience and necessity under Chapter 380 is revoked or terminated the service agreement shall automatically terminate.

History.—Ord. 90-297-170, s. 1.

PART 3. PENALTIES AND ENFORCEMENT

386.301 Penalty. It shall be unlawful and a class D offense for any person to:

(a) Violate the terms or conditions of the service agreement.

(b) Fail to perform in accordance with the terms and conditions of the service agreement.

(c) Violate any rule or regulation promulgated by the Director pursuant to this chapter.

(d) Violate any requirement of this chapter.

(e) Fail to comply with Rules or Regulations of the State of Florida Department of Environmental Regulation or the State of Florida Department of Health and Rehabilitative Services.

(f) Fail to comply with state permit requirements for the particular facility.

History.—Ord. 90-297-170, s. 1.

386.302 Enforcement. It shall be the responsibility of the Director, in consultation with the Office of General Counsel, to enforce the provisions of this chapter and all rules and regulations or designations made pursuant thereto. Such enforcement shall be by legal or equitable proceedings including, without limitation, a proceeding for specific performance, brought in the name of the County of Duval, as may be provided or authorized by law.

History.—Ord. 90-297-170, s. 1.

386.303 Severability. If any section, sentence, clause, phrase or word of this chapter is for any reason held or declared to be unconstitutional, inoperative or void, such holding of invalidity shall not affect the remaining portion of this chapter; and it shall be construed to have been the legislative intent to pass this chapter without such

unconstitutional, invalid or inoperative part therein; and the remainder of this chapter, after exclusion of such part or parts, shall be deemed and held to be valid as if such part or parts had not been included therein.

History.—Ord. 90-297-170, s. 1.

ERIC R. SILVERS
2131-2 Seminole Road
Atlantic Beach, Florida 32233
(904) 249-6745

EDUCATION Masters of Science, Geology, 1987, University of
Nebraska, Lincoln, Nebraska.

Bachelor of Science, Geology, 1982, Indiana
University, Bloomington, Indiana

**PROFESSIONAL
REGISTRATION** Registered Professional Geologist
State of Florida #499

**PROFESSIONAL
MEMBERSHIPS** National Water Well Association
American Water Resources Association

EMPLOYMENT HISTORY:

January 1991 -
Present

Senior Geologist
Law Engineering, Inc.
Jacksonville, Florida

Senior Geologist for Law Engineering, Inc. - Jacksonville Branch Environmental Services Division. As Senior Geologist Mr. Silvers responsibilities include oversight, technical review and project management of groundwater, soil, and surface water contamination related projects. He is currently involved in a series of environmental projects ranging from petroleum corrective actions to solid waste facility permitting and monitoring, and hazardous waste site assessment and remediation.

March, 1988 -
January 1991

Environmental Specialist
Florida Department of Environmental Regulation
Jacksonville, Florida

Professional Geologist for the FDER Northeast District, provide technical oversight for all Waste Management Program groundwater and surface water issues. Serve in an advisory capacity for the District Water Facilities Program and the Departmental Professional Geology Committee. Routinely evaluate groundwater and surface water monitoring programs for compliance with RCRA, CERCLA, and Florida Administrative Code regulations. Responsibilities

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include Solid and Hazardous Waste Permit and Consent Order negotiation, as well as, compliance and enforcement associated site assessment and remediation design. Special reviews conducted at the request of government officials and private citizens range from regional hydrogeologic investigations to local contamination assessments. Technical proficiencies include hydrogeologic investigations, aquifer performance studies, contamination assessment and monitoring system design, contaminant delineation and transport modeling, analysis of water quality data, and quality assurance.

February 1982 -
August 1985

Geologist

Precision Well Logging, Inc., Houston, Texas

Provided proprietary well-site geologic evaluations for Exxon Exploration North America, and Sun Exploration. Determined lithologic and pore pressure conditions in order to direct drilling operations into deep gas and condensate reservoirs, conducted hydrogen flame gas chromatography analyses of hydrocarbon shows. Technical skills included subsurface stratigraphic evaluation, and the interpretation and correlation of electric and seismic logs.

September 1979 -
January 1982

Core Technician

Indiana Geological Survey, Bloomington, Indiana

Assisted in the description and cataloging of cores for the Indiana Geological Survey Core Library. Participated in the statewide mapping program to digitize stratigraphic and geochemical samples of the core library.



Golder Associates

Donald J. Miller

EDUCATION M.Sc., Earth Sciences, University of Waterloo, 1984.
B.Sc., (Eng.), Water Resources, University of Guelph, 1980.

AFFILIATIONS Registered Professional Engineer, Ontario.

EXPERIENCE

1984 to Date Senior Engineer, Golder Associates. Current Project Manager on two CERCLA projects. Responsible for the preparation of a Remedial Investigation (RI)/Feasibility Study (FS) work plan, supervision of RI field work and preparation of RI/FS report for a CERCLA site in New York, and the preparation of a Remedial Design (RD) work plan, the preparation of the RD, and the supervision of Remedial Activities (RA) for a Superfund site in Florida. For both projects, responsible for interaction with regulatory agencies, client project managers, subcontractors, and project budgets. Also responsible for field supervision of a multi-drilling rig team for the installation of a new monitoring well system capable of detecting trace levels of contamination at a RCRA hazardous waste facility near Niagara Falls, New York. Also responsible for a site hydrogeological study and a review and collection of monitoring data to determine the state of potential groundwater contamination at this facility.

Responsible for field supervision of groundwater sampling teams at hazardous and municipal landfill sites, as well as uranium mine tailings impoundments. In addition was responsible for conducting a hydrogeologic investigation for the predesign of an open-pit kaolin mine in Georgia, an investigation of soils and groundwater contamination, and subsequent remediation for the decommissioning of a petrochemical refinery in Port Credit, Ontario, the investigation of seepage of acidic groundwater through a waste coke pile at a refinery in Ft. McMurray, Alberta, and a feasibility study of a tracer test to determine the effectiveness of a clay liner in a landfill in St. Catharines, Ontario.

1982 - 1984 Groundwater Researcher, University of Waterloo. Responsible for the design and testing of an in situ device used for studying biodegradation reactions in groundwater flow systems. Also involved in an investigation of entrapped air on the capillary fringe effect in watertable response.

1981 - 1982 Hydrogeologist, Alberta Environment, Edmonton. Responsible for the initiation of groundwater monitoring programs for regional landfills in Alberta. Also responsible for the review of monitoring programs for municipal and industrial landfills as well as data from other shallow soil and groundwater contamination investigations.

1980 - 1981 Engineer, Acres Consulting Services Ltd., Calgary. Participated in an electrical utility planning study to evaluate the feasibility of a proposed hydro-electric development on the Slave River in Alberta.

1979 Field Research Assistant, University of Waterloo. Involved as a technician for Professors J.A. Cherry and R.W. Gillham in a number of groundwater research projects. Particular projects included geochemical sampling at an abandoned landfill at CFB Borden and geochemical studies of uranium mine tailings at Elliot Lake, Ontario.

EXHIBIT

TRL-5B



Waste Management of North America, Inc.
Southeast Region
500 Cypress Creek Road, West • Fort Lauderdale, Florida 33309
Suite 300 • 305/771-9850

RECEIVED
DEC 20 1990

Harvey H. Bush, Jr.
Regional Environmental Vice President
Waste Management of North America

Hopping Boyd Green & Sams

Education:

Master of Science in Space Technology, Florida Institute of Technology; Bachelor of Mechanical Engineering, University of Florida; Business Management, Alexander Hamilton Institute; numerous technical and management seminars in company sponsored courses; numerous technical seminars by EPA and other professional organizations.

Registration:

Professional Engineer, Florida and eight other states.

Experience:

For the past nine years I have been responsible for environmental management of all Waste Management of North America operations in the state of Florida. WMNA facilities in Florida include: sanitary landfills, class 3 landfills, landfill gas recovery facilities, refuse to energy facilities, transfer stations, and hauling companies.

Previous experience includes responsible charge of design on projects coordinating all disciplines. Responsible for production of design plans for: new aqueduct and water supply for Florida Keys; waste water treatment facilities between 0.5 and 30 MGD; water treatment facilities to 5 MGD; municipal and private sector water and waste water distribution systems; waste water lift stations, water booster pump stations; marinas; municipal and institutional paving, grading, and drainage projects; and numerous industrial facilities. Other work has included many aspects of solid waste management including: study projects to determine solutions, quantity surveys, and design of processing facilities, including transfer stations, incinerators with heat recovery, mechanical composters, shredding and material recovery plants, and sanitary landfills. Later solid waste projects included: quantity survey, feasibility analysis, and design of 125 ton per day compost plant for Key West utilizing a shredder, air classifier, aerated mechanical digester, and automated material handling equipment; quantity survey, feasibility analysis, and

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design of a 50 ton per day mass burn incinerator with heat recovery for Naval Station Mayport; feasibility analysis and design of a solid waste shredding plant for 2300 tons per day municipal garbage and trash, 50 ton per day hazardous waste incinerator utilizing infectious hospital waste as fuel to render toxic materials and empty pesticide containers harmless through high temperature incineration with a state of the art scrubbing system, and a maintenance facility for Dade County, Florida; site location study and special study of hazardous and special waste disposal leading to design of a 320 acre landfill in accordance with Florida requirements including leachate collection, monitoring, and treatment for Dade County, Florida; feasibility study and design of 1200 ton per day solid waste transfer station for Dade County, Florida; feasibility study and design of a 700 ton per day solid waste transfer station for Hillsborough County; design of 230 acre sanitary landfill for Hillsborough County, Florida, research and investigation for the environmental handling and disposal of approximately 100 tons/day of stable waste for Calder Race Course, Miami, Florida; evaluation of a mobile incinerator for stable waste disposal, Calder Race Course, Miami, Florida; solid waste disposal and rate study and site selection for solid waste disposal including evaluation and design of a regional sanitary landfill for Charlotte County, Florida.

Other experience includes: management of a 100-man technical engineering organization in numerous multidisciplinary projects; technical review and administration of subcontracts as well as detailed design of equipment, machinery, and structures.



England-Thims & Miller, Inc.

Consulting & Design Engineers
3131 St. Johns Bluff Road So. Jacksonville, FL 32216
904-642-8990

PRINCIPALS

James E. England, P.E. President
Robert E. Thims, V.Pres. Sec.
Douglas C. Miller, P.E. V. Pres.
N. Hugh Mathews, P.E. V. Pres.

SUMMARY OF CAPABILITIES

DOUGLAS C. MILLER, P.E.
VICE PRESIDENT

Environmental Engineering
Water Resource Management
Stormwater Design
Environmental Permitting (local, state
and federal agencies)
Solid Waste Management and Landfill Design
Infrastructure Design
Project Feasibility Analysis

EDUCATION

B.S., Civil Engineering, University of Florida,
1975

PROFESSIONAL REGISTRATION

Professional Engineer, Florida (22389), 1979
Bridge Inspector, Florida (00052), 1978

PROFESSIONAL ORGANIZATIONS

A.S.C.E., American Society of Civil Engineers
F.E.S., Florida Engineering Society

EXPERIENCE

Mr. Miller provides broad experience based in both private consulting and public municipal engineering on a diverse number of civil engineering projects.

As a principal of the firm, Mr. Miller is responsible for the overall management and administration of public and private projects that require expertise in water resources management, environmental engineering, stormwater design, water and wastewater treatment design and management, and solid waste management and landfill design. The following is a partial list of projects which Mr. Miller has been responsible for.

Rosemary Hill Class I Landfill, Clay County, Florida - Principal-in-charge of design and permitting of new Class I lined landfill facility including liner design, operation plan, leachate collection, stormwater management, topographic and boundary surveying and construction inspection services. Environmental permitting included Florida Department of Environmental Regulation and St. Johns River Water Management District permits.

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Rosemary Hill Class III Landfill, Clay County - Principal-in-charge of design and permitting of new Class III landfill facility including phasing plan, operations plan, stormwater management system topographic and boundary surveys and construction inspection services. Environmental permitting included Corps of Engineers, Florida Department of Environmental Regulation and St. Johns River Water Management District permits.

Rosemary Hill Class I Landfill Closure, Clay County - Principal-in-charge of design and permitting for closure of existing 20+ year old Class I facility including cap design, stormwater management plan and surveying services. Environmental permitting includes Corps of Engineers, Florida Department of Environmental Regulation, and St. Johns River Water Management District permits.

Rosemary Hill Class III Landfill Closure, Clay County - Principal-in-charge of existing 20+ year old Class III facility including cap design, stormwater management plan and surveying services. Environmental permitting including Florida Department of Environmental Regulation and St. Johns River Water Management District permits.

Sunbeam Road Landfill Closure, Jacksonville, Florida - Principal in charge of stormwater management design, permitting, quality control inspection, certifications and As-Built surveying for gas extraction, condensate collection and odor control system for the closure of a 65 acre Class I landfill.

Trail Ridge Landfill, Jacksonville, Florida - Principal in charge of engineering design and permitting for a 1,200 acre, 2,000 ton per day Class I and Class III landfill.

West Nassau Landfill, Nassau County, Florida - Principal in charge of boundary wetlands and topographic surveying for a new 65 acre landfill.

Hippe Road Landfill Closure, Jacksonville, Florida - Principal in charge of boundary and topographic surveying for the closure. Also conducted preliminary engineering investigations for groundwater remediation pumping plans and potable water service.

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Norse Avenue Landfill Closure, Jacksonville, Florida - Principal in charge of engineering investigation for potable water source and surveying.

Argyle Forest, Jacksonville, Florida - Principal in charge of a 10,000 acre Development of Regional Impact. The project also included developing a master plan for stormwater management, environmental permitting, design of a water treatment and wastewater treatment plant, engineering design for sewage pump stations, and a wetland detention facility, plus infrastructure design for this mixed use development.

Mandarin Drainage Study, Jacksonville, Florida - Principal in charge of a master drainage and water quality study encompassing 20 square miles in the southern area of the City of Jacksonville. The project involved retrofitting 40 existing stormwater basins for treatment which included the design of a filter bed with pump discharges for stormwater treatment. Other areas of engineering included the hydraulic modelling of 29 miles of stormwater outfalls and the design of 10 miles of channel improvements and structural replacements. Services also included environmental permitting and preparation of construction and bidding documents. This project was permitted by St. Johns River Water Management, Corps of Engineers, and Florida Department of Environmental Regulation.

Riverton Development, St. Johns County, Florida - Principal in charge of Development of Regional Impact for a 4300 acre mixed use development. Project responsibilities included the development of a stormwater management plan and conceptual water management permit which included hydraulic modelling of five ravine systems discharging into the St. Johns River. Also responsible for a water and wastewater treatment and disposal master plan including water conservation planning. Another part of the project involved developing best management practices for control of stormwater runoff for three golf courses, which included pesticide, herbicide and fertilization management and environmental permitting.

RESUME
(Revised 10/10/90)

Dr. Harvey H. Harper, III., P.E.
4138 Summerwood Avenue
Orlando, Florida 32812

PERSONAL DATA:

Date of Birth: February 2, 1951
Place of Birth: Franklin, Tennessee

EDUCATION:

B.S. Biological Sciences (Limnology), Florida Technological University, 1977
M.S. Environmental Sciences (Environmental Chemistry), University of Central Florida, 1979
Thesis Title: "Ecological Responses of Lake Eola to Urban Runoff"
Ph.D. Environmental Engineering, University of Central Florida, 1985
Dissertation Title: "Fate of Heavy Metals from Highway Runoff in Stormwater Management Systems"

PROFESSIONAL REGISTRATION:

Registered Professional Engineer in State of Florida (Reg. #PE0032595)

PROFESSIONAL EXPERIENCE:

1985-Present: President Environmental Research and Design, Inc.,
3419 Rentwood Blvd., Suite 101
Orlando, Florida 32812

Activities

Water quality engineering exclusively in the areas of stormwater management systems, lake management and restoration, use of alum for pollutant removal, groundwater pollutant studies, wetlands and sediment chemistry.

1989-Present: Asst. Professor Department of Civil and Environmental
(Part Time) Engineering, University of Central Florida.

1987-1989: Instructor Department of Civil and Environmental
(Part Time) Engineering, University of Central Florida.

1978-1987: Instructor Department of Civil and Environmental
(Full Time) Engineering, University of Central Florida.

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General Teaching Areas

Environmental Chemistry	Limnology
Environmental Biology	Hydraulics
Fluid Mechanics	Hydrology
Water & Wastewater Treatment	Air Pollution
Solid & Hazardous Wastes	Statistics

Specific Courses Taught

EGN 1380 - Engineering Chemistry I
EGN 1381 - Engineering Chemistry II
STA 3032 - Probability and Statistics
EES 3104 - Environmental Engineering Biology
EVS 3240 - Water Supply Systems
ETM 3314 - Hydraulics and Hydrology
EGN 3353 - Fluid Mechanics
GEO 3370 - Resource Geography
EGN 3704 - Engineering and the Environment
EVS 4220 - Wastewater Treatment Plant Analysis
ENV 4355 - Solid and Hazardous Wastes
EVS 4362 - Air Pollution Control
ENV 4404 - Hydrology and Hydraulics
ENV 4433 - Water Resources Design
ENV 4561 - Environmental Engineering Process Design
EVS 4682 - Solid Waste Management
EGN 4825 - Environment and Society
ENV 5615 - Environmental Impact Assessment
ENV 6519 - Aquatic Chemistry
ENV 6616 - Receiving Water Impacts

**PRIMARY
RESEARCH
ACTIVITIES:**

- Response of Freshwater Lakes to Stormwater Runoff
- Inactivation of Phosphorus Release from Lake Bottom Sediments
- Limnological Studies of Lakes in Central Florida
- Development of Algal Bioassay Techniques
- Stormwater Retention/Detention Designs
- Alum Coagulation for Pollutant Removal
- Assimilation of Stormwater Pollutants in Soil
- Movement and Fate of Heavy Metals in Stormwater Management Systems
- Modeling of Heavy Metal Movement in Groundwater
- Dynamics of Nutrients and Heavy Metals in Freshwater Wetlands
- Efficiency and Performance of Stormwater Management Practices
- Use of Alum for Lake Management

**SPONSORED
RESEARCH
PROJECTS:**

1. "Performance Evaluation of Detention with Filtration Systems," Principal Investigator and Project Director, St. Johns River Water Management District, \$134,000, 10/90-6/92.
2. "Feasibility of Alum Treatment for Improvement of Water Quality in Megginis Arm During Sediment Dredging Activities," Principal Investigator and Project Director, Northwest Florida Water Management District, \$15,000, 6/90-1/92.
3. "Long-Term Evaluation of the Lake Ella Alum Injection System," Principal Investigator and Project Director, Florida Department of Environmental Regulation, \$40,000, 1/21/90-11/30/90.
4. "Effectiveness of a Pilot Project to Reduce Nutrient Concentrations in Agricultural Runoff by Chemical Precipitation Using Alum," Principal Investigator and Project Director, Lake County Board of County Commissioners, \$8430, 4/1/87 - 1/31/88.
5. "Feasibility of Alum Treatment for Nutrient Reductions in Surface Water Discharges," Principal Investigator and Project Director, Lake County Board of County Commissioners, \$5000, 9/15/86 - 2/15/87.
6. "Effects of Wet Detention Basins on Groundwater Quality," Principal Investigator and Project Director, Florida Department of Environmental Regulation, \$105,210, 10/1/86 - 6/30/88.
7. "Stormwater Treatment by Natural Systems," Principal Investigator and Project Director, Florida Department of Environmental Regulation, \$70,000, 7/1/84 - 11/30/86.
8. "Best Management Practices," Co-Investigator, Florida Department of Transportation, \$150,000, 1/1/82 - 6/30/84.
9. "Bottom Sediments - Lake Jackson," Principal Investigator, Florida Department of Environmental Regulation, \$41,175, 6/1/83 - 8/15/84.

**SPONSORED
RESEARCH**

(Continued):

10. "Consequential Species of Heavy Metals in Highway Stormwater Runoff," Co-Investigator, Florida Department of Transportation and Federal Highway Administration, \$50,000, 1/82 - 6/84.
11. "Phase II - Lake Eola Impacts/Designs," Co-Investigator, U.S. Environmental Protection Agency, \$66,000, 9/81 - 9/82.
12. "Effects of Bridges on Biological Productivity and Diversity in the Flood Plain," Co-Investigator, State of Florida STAR Grant, \$31,000, 9/30/81 - 9/30/82.
13. "Lake Toho Study," Co-Investigator, South Florida Water Management District, \$42,000, 6/81 - 12/81.
14. "Restoration of Lake Eola," Co-Investigator, U.S. Environmental Protection Agency, \$800,000, 1/1/78-9/30/81.
15. "Inactivation of Bottom Sediment Release of Phosphorus," Co-Investigator, Environmental and Industrial Experiment Station, \$30,000, 6/30/79 -9/30/80.
16. "Stormwater Management," Co-Investigator, Florida Department of Environmental Regulation, \$35,000, 6/79 - 6/80.

PRESENTATIONS:

1. "Case Study of the Lake Dot Alum Stormwater Treatment System," Florida Engineering Society Stormwater Quality Short Course, Orlando, Florida, October 12, 1990.
2. "Innovative Best Management Practices for Stormwater Runoff," Florida Engineering Society Stormwater Quality Short Course, Orlando, Florida, October 11, 1990.
3. "Stormwater Pollutants and Their Removal," Florida Engineering Society Stormwater Quality Short Course, Orlando, Florida, October 11, 1990.
4. "Removal Processes for Stormwater Treatment in Hardwood Wetlands," ASCE Technical Seminar: Wetlands - How They Impact Development, Tampa, Florida, March 21, 1990.

PRESENTATIONS
(Continued):

5. "Long-Term Evaluation of the Lake Ella Alum Injection Stormwater Treatment System," 9th Annual International Symposium on Lake and Reservoir Management, Austin, Texas, November 10, 1989.
6. "Use of Alum as a Management Tool for Florida Lake," First Annual Meeting of the Florida Lake Management Society, Winter Park, Florida, October 14, 1989.
7. "Dynamics of Phosphorus and Heavy Metal Uptake in a Hardwood Wetland Receiving Stormwater Runoff," American Water Resources Association Symposium on Wetlands: Concerns and Successes, Tampa, Florida, September 20, 1989.
8. "Review of Alum System Performance on Lake Ella and Lake Dot," Fourth Annual Florida Lake Management Conference: Stormwater Management and Lake Quality Indicators, Winter Haven, Florida, June 15, 1989.
9. "Best Management Practices for Management of Stormwater Quality," Florida ASCE - West Coast Branch, Stormwater Technical Seminar on "Water Quality-What Is Its Future?," Tampa, Florida, May 10, 1989.
10. "Restoration of an Urban Lake: The Cleanup and Management of Stormwater Inputs to Lake Ella in Tallahassee," Florida Environmental Health Association, Wakulla Springs, Florida, July 20, 1988.
11. "Lake Restoration Techniques," 11th Annual Meeting of the Florida Association for Water Quality Control, Cocoa Beach, Florida, May 23, 1988.
12. "Restoration of Lake Ella by Alum Treatment of Urban Stormwater Inputs," Seventh International Symposium of the North American Lake Management Society, Orlando, Florida, November 6, 1987.
13. "Groundwater Effects of Stormwater Management Systems," ASCE National Conference on Environmental Engineering, Orlando, Florida, July 9, 1987.
14. "Stormwater Treatment in Wetlands," Florida Department of Environmental Regulation Stormwater Workshop, Orlando, Florida, June 18, 1987.

PRESENTATIONS

(Continued):

15. "Impacts of Stormwater Management Systems on Shallow Groundwater," Florida Department of Environmental Regulation Stormwater Workshop, Orlando, Florida, June 18, 1987.
16. "Impacts of Stormwater Management Systems Receiving Highway Runoff on Shallow Groundwaters," Fourteenth Annual Conference of the ASCE Division of Water Resources Planning and Management, Kansas City, Missouri, March 16, 1987.
17. "Inactivation and Precipitation of Urban Runoff by Alum Injection in Stormsewers," Sixth Annual International Symposium on Lake and Reservoir Management: Influences of Nonpoint Source Pollutants and Acid Precipitation, Portland, Oregon, November 7, 1986.
18. "Effects of Inputs of Stormwater Runoff on the Stability of Metal-Sediment Associations in a Hardwood Wetland," Conference on Research and Applications of Aquatic Plants for Water Treatment and Resource Recovery, Orlando, Florida, July 23, 1986.
19. "An Alum Injection System for Retrofitting Urban Stormsewers to Enhance Water Quality," Ninth Annual Meeting of the Florida Association for Water Quality Control, Tampa, Florida, May 19, 1986.
20. "Stability of Metal-Sediment Associations in a Southern Hardwood Wetland Receiving Urban Runoff," Ninth Annual Symposium on Freshwater Wetlands and Wildlife - Perspectives on Natural, Managed, and Degraded Ecosystems, Charleston, South Carolina, March 25, 1986.
21. "Effectiveness of Detention/Retention Basins for Removal of Heavy Metals in Highway Runoff," EPA Stormwater and Water Quality Model Users Group Meeting, Orlando, Florida, March 24, 1986.
22. "Treatment Efficiencies for Residential Stormwater Runoff in a Hardwood Wetland," Fifth Annual International Symposium on Applied Lake and Watershed Management, Lake Geneva, Wisconsin, November 15, 1985.

PRESENTATIONS

(Continued):

23. "Sediment Nutrient Exchange and Algal Productivity in Meginnis Arm of Lake Jackson," International Symposium on Lake and Reservoir Management, McAfee, New Jersey, October 18, 1984.
24. "Efficiency of Roadside Swales in Removing Heavy Metals from Highway Associated Nonpoint Source Runoff," Twentieth Annual American Water Resources Association Conference and Symposium on Options for Reaching Water Quality Goals, Washington, D.C., August 15, 1984.
25. "Lake Eola Restoration Project for Management of Stormwater Pollution in an Urban Lake," Florida American Public Works Association 1984 Convention and Equipment Show, Orlando, Florida, May 3, 1984.
26. "An Investigation into the Importance of Sediment Nutrient Exchange on Algal Productivity in Meginnis Arm of Lake Jackson," Forty-eighth Annual Meeting of the Florida Academy of Science, Boca Raton, Florida, March 30, 1984.
27. "Fate of Heavy Metals in Stormwater Management Systems," International Symposium on Lake and Reservoir Management, Knoxville, Tennessee, October 19, 1983.
28. "Detention for Quality Control," Nineteenth Annual American Water Resources Association Conference on Analysis and Management of Land Drainage and Flood Waters, San Antonio, Texas, October 12, 1983.
29. "Reuse of Water Treatment Sludges for Improvement of Reservoir Quality," 1983 American Water Works Association Annual Conference, Las Vegas, Nevada, June 7, 1983.
30. "Stormwater Treatment Around Lake Eola," Florida Department of Environmental Regulation, Stormwater Training Workshop, Leesburg, Florida, May 26, 1983.
31. "Removal of Heavy Metals and Nutrients in Detention Ponds and Roadside Swales," Florida Department of Environmental Regulation, Stormwater Training Workshop, Leesburg, Florida, May 25, 1983.
32. "Fate of Pollutants from Highway Runoff in Roadside Swales," Seventh Annual Conference on Environmental Sciences and Engineering, Gainesville, Florida, May 21, 1983.

PRESENTATIONS
(Continued)

33. "Restoration of Lake Eola," Second Annual Meeting of the North American Lake Management Society, Vancouver, British Columbia, October 28, 1982.
34. "Stormwater Control Around Lake Eola," Stormwater Quality Control Seminar, Orlando, Florida, November 4, 1981.
35. "Stormwater Treatment by Diversion to Underground Systems," 1981 National Conference on Environmental Engineering, Atlanta, Georgia, July 10, 1981.
36. "Changes in Water Quality Due to Stormwater Runoff in Lake Eola," Forty-fifth Annual Meeting of the Florida Academy of Sciences, Orlando, Florida, May 1, 1981.
37. "Impact of Water Treatment Sludges on Benthic Organisms in Shallow Lakes," Forty-fifth Annual Meeting of the Florida Academy of Sciences, Orlando, Florida, May 1, 1981.
38. "Retention/Detention Stormwater Designs," 1980 Annual Civil Engineering Conference, Hollywood, Florida, October 31, 1980.
39. "Ecological Responses of Lake Eola to Urban Runoff," Forty-fourth Annual Meeting of the Florida Academy of Sciences, Tampa, Florida, March 27, 1980.
40. "Productivity Responses of Lake Eola Water to Urban Runoff," Urban Stormwater and Combined Sewer Overflow - Impact on Receiving Water Bodies National Conference, Orlando, Florida, November 26, 1979.
41. "Responses of Chlorella and Selenastrum to Urban Runoff in Lake Eola," Forty-third Annual Meeting of the Florida Academy of Sciences, Miami Beach, Florida, March 31, 1979.

PUBLICATIONS:

1. "Stormwater Pollutants and Their Removal," Proceedings of the Stormwater Quality Short Courses, Orlando, Florida, 1990.
2. "Restoration of Lake Dot Using an Improved Alum Stormwater Treatment Process," Proceedings of the Stormwater Quality Short Course, Orlando, Florida, 1990.

PUBLICATIONS
(Continued):

3. "Feasibility of Alum Treatment for Improvement of Water Quality in Megginnis Arm During Sediment Dredging Activities," Final Report to the Northwest Florida Water Management District, Lake Jackson SWIM Project, 1990.
4. "Estimates of Nonpoint Source Loading Rate Parameters for Various Land Uses in the Tampa Bay Watershed," Final Report to Southwest Florida Water Management District, Tampa Bay SWIM Project, 1990.
5. "Groundwater Effects of Stormwater Management Systems," Final Report to Florida Department of Environmental Regulation on Project #WM390, Tallahassee, Florida, 1989.
6. "Operational Results from the Restoration of Lake Eola," Proceedings of the 1987 ASCE Specialty Conference on Environmental Engineering, Orlando, Florida, July 1987, pp. 702-707.
7. "Groundwater Effects of Stormwater Management Systems," Proceedings of the ASCE National Conference on Environmental Engineering, Orlando, Florida, July 7-9, 1987.
8. "Stormwater Treatment by Natural Systems," Final Report to Florida Department of Environmental Regulation for STAR Project #84-026, Tallahassee, Florida, 1987, 697 pages.
9. Effects of Inputs of Stormwater Runoff on the Stability of Metal-Sediment Associations in a Hardwood Wetland," Proceedings of the Conference on Research and Applications of Aquatic Plants for Water Treatment and Resource Recovery, Orlando, Florida, July 20-24, 1986.
10. "Swale Hydraulics," Proceedings of the Conference on Stormwater Management - An Update, University of Central Florida Environmental Systems Engineering Institute, Orlando, Florida, July 1985.
11. "Fate of Pollutants in Retention/Detention Ponds," Proceedings of the Conference on Stormwater Management - An Update, University of Central Florida Environmental Systems Engineering Institute, Orlando, Florida, July 1985.

PUBLICATIONS

(Continued):

12. "Effectiveness of Detention/Retention Basins for Removal of Heavy Metals in Highway Runoff," Proceedings of the EPA Stormwater and Water Quality Model Users Group Meeting, Orlando, Florida, March 1985.
13. "Treatment Efficiencies of Residential Stormwater Runoff in a Hardwood Wetland," Lake and Reservoir Management, Proceedings of the Fifth Annual Conference and International Symposium on Applied Lake and Watershed Management, Lake Geneva, Wisconsin, November 13-16, 1985, pp. 351-356.
14. "Removal of Highway Contaminants by Roadside Swales," Surface Drainage and Highway Runoff Pollutants, Transportation Research Record 1017, Transportation Research Board, Washington, D.C., 1985, pp. 62-72.
15. "Consequential Species of Heavy Metals in Highway Runoff," Surface Drainage and Highway Runoff Pollutants, Transportation Research Record 1017, Transportation Research Board, Washington, D.C., 1985, pp. 56-61.
16. "Best Management Practices - Removal of Highway Contaminants by Roadside Swales," FL-ER-30-85, Bureau of Environment, State of Florida, 1985, 172 pages.
17. "Sediment Nutrient Exchange and Algal Productivity in Meginnis Arm of Lake Jackson," Lake and Reservoir Management: Practical Applications, Proceedings of the Fourth Annual Conference and International Symposium of the North American Lake Management Society, McAfee, New Jersey, 1984, pp. 275-281.
18. "Efficiency of Roadside Swales in Removing Heavy Metals from Highway Associated Nonpoint Source Runoff," Proceedings of the Twentieth Annual American Water Resources Association Conference and Symposium on Options for Reaching Water Quality Goals, Washington, D.C., 1984.
19. "Fate of Heavy Metals in Stormwater Runoff from Highway Bridges," The Science of the Total Environment, 33, 1984, pp. 233-244.
20. "An Investigation into Alum Application for Sediment Nutrient Inactivation in Megginis Arm, Lake Jackson," Final Report to Florida Department of Environmental Regulation, Tallahassee, Florida, 1984, 194 pages.

PUBLICATIONS
(Continued):

21. "Fate of Heavy Metals in Stormwater Management Systems," Lake and Reservoir Management, EPA 440/5/84-001, Office of Water Regulations and Standards, Washington, D.C., 1984, pp. 329-334.
22. "Hydrology/Hydraulics of Swales," Proceedings of the Workshop on Open Channel and Culvert Hydraulics, Orlando, Florida, September 1983.
23. "Reuse of Water Treatment Sludges for Improvement of Reservoir Water Quality," Proceedings of the 1983 American Water Works Association Annual Conference, Las Vegas, Nevada, June 5-9, 1983, pp. 503-516.
24. "Impact of Watershed on Lake Quality," Lake Restoration, Protection, and Management, EPA 440/5-83-001, U.S. Environmental Protection Agency, Washington, D.C., 1983, pp. 271-275.
25. "Restoration of Lake Eola," Lake Restoration, Protection, and Management, EPA 440/5-83-001, U.S. Environmental Protection Agency, Washington, D.C., 1983, pp. 13-22.
26. "Impact of Bridging on Floodplains," Wetlands, Floodplains, Erosion, and Stormwater Pumping, Transportation Research Board 948, Transportation Research Board, Washington, D.C., 1983, pp. 26-30.
27. "Lake Eola Restoration: Water Quality Background and Stormwater Management Practices," Final Report submitted to the Florida Department of Environmental Regulation, September 1982, 206 pages.
28. "Effects of Bridging on Biological Productivity and Diversity in the Floodplain," FL-ER-22-82, Bureau of Environment, State of Florida Department of Transportation, 1982, 122 pages.
29. "Evaluation of Management Practices for Urban Lands," Proceedings of the ASCE National Specialty Conference - Environmentally Sound Water and Soil Management, Orlando, Florida, July 1982.
30. "Management of Drainage Systems from Highway Bridges for Pollution Control," Hydrology and Hydraulics: Water, Noise, and Air Quality, Transportation Research Board, National Academy of Sciences, Washington, D.C., 1982.

PUBLICATIONS
(Continued):

31. "Stormwater Management for Lake Tohopekaliga Watersheds," Final Report to Florida Department of Environmental Regulation, June 1982, 174 pages.
32. "Stormwater Control Around Lake Eola," Proceedings of the Stormwater Quality control Seminar, Orlando, Florida, 1981.
33. "Stormwater Treatment by Diversion to Underground Systems," Proceedings of the 1981 ASCE Environmental Engineering Division Specialty Conference, Atlanta, Georgia, July 8-10, 1981, pp. 596-603.
34. "Detention with Effluent Filtration for Stormwater Management," Proceedings of the Second International Conference on Urban Stormwater Drainage, University of Illinois, Urbana, Illinois, June 1981.
35. "Impact of Stormwater Runoff on Lake Eola Water Quality," Proceedings of the Second International Conference on Urban Stormwater Drainage, University of Illinois, Urbana, Illinois, June 1981.
36. "Inactivation of Anaerobic Release of Phosphorus by Water Treatment Sludges," Proceedings of the 13th Annual Mid-Atlantic Industrial Waste Conference, Newark, Delaware, June 13, 1981.
37. "Inactivation of Lake Sediment Release of Phosphorus," EIES Project #11-1699-034, University of Central Florida, Orlando, Florida, January 1981.
38. "Productivity Responses of Lake Eola Water to Urban Runoff," Urban Stormwater and Combined Sewer Overflow - Impacts on Receiving Water Bodies, EPA 600/9-80-056, U.S. Environmental Protection Agency, Office of Research and Development, Cincinnati, Ohio, 1980, pp. 341-370.
39. "Retention/Detention Stormwater Design," Proceedings of 1980 Annual Civil Engineering Convention, Hollywood, Florida, October 31, 1980.

**SEMINARS
CONDUCTED:**

1. "Introduction to Hydraulics," Florida Engineering Society PE Review Course, February 5, 1989, 3 hours.
2. "Advanced Hydraulics," Florida Engineering Society PE Review Course, February 12, 1989, 3 hours.
3. "Sanitary Engineering - Water Supplies," Florida Engineering Society PE Review Course, February 19, 1989, 3 hours.
4. "Sanitary Engineering - Wastewater," Florida Engineering Society PE Review Course, February 26, 1989, 3 hours.
5. "Introduction to Lake Ecology and Management," Presented at the Seventh International Symposium of the North American Lake Management Society, November 3, 1987, Orlando, Florida, 4 hours.
6. "Florida Lake Ecology," Presented at the Seventh International Symposium of the North American Lake Management Society, November 7, 1987, Orlando, Florida, 4 hours.
7. "Hydraulics I" given at FDOT Engineering Review Course, Deland, Florida, September 27, 1988, 4 hours.
8. "Hydraulics II" given at FDOT Engineering Review Course, Deland, Florida, October 4, 1988, 4 hours.

**CONTINUING
EDUCATION:**

1. Short Course: Lake Restoration Technology, University of Wisconsin - Extension, October 12-13, 1981, 20 hours.
2. Short Course: Subsurface Monitoring Technology, University of Wisconsin - Extension, September 20-21, 1982, 20 hours.
3. Short Course: Lake Water Quality Assessment and Modeling I, Austin, Texas, November 11, 1989, 8 hours.
4. Short Course: Stormwater Quality, Orlando, Florida, October 11-12, 1990, 12 hours.
5. Short Course: Lake Water Quality Assessment and Modeling II, Springfield, Massachusetts, November 10, 1990, 8 hours.

**MAJOR
CONSULTING
ACTIVITIES:**

1. Consultant to City of Orlando, Florida on restoration of Lake Dot, an urban lake used for stormwater treatment. Developed a treatment system based on alum injection of stormwater inputs for pollutant removal. (December 1987 to present).
2. Consultant to the East-West Expressway Authority, Orlando, Florida. Reviewed stormwater management plan of proposed expressway extension for conformity to state and local regulations (March 1985 to May 1987).
3. Consultant to the City of Tallahassee, Florida on Restoration of Lake Ella, an urban lake used for stormwater treatment. Defined watershed boundaries, estimated pollutant loadings, and developed restoration plan (May 1984 to present).
4. Consultant to Bass Lake Homeowners Association concerning development of a comprehensive stormwater management plan for Bass Lake to preserve water quality (June 1984 to present).
5. Consultant to Avatar Utilities, West Palm Beach, Florida during waste load allocation process. Investigated the importance of nonpoint source loadings from a 124,000 acre watershed to nutrient budget of receiving water body (June 1984 to March 1985).
6. Consultant to Hollywood, Inc. of Hollywood, Florida concerning development of a Marine Industrial Park. Analyzed stormwater system and developed plans for management of pollutants generated during dredging operations (June - December 1983).
7. Consultant to Vista Landscaping, Inc., on water and groundwater management problems resulting from construction of a large drainage canal adjacent to their property. Designed a clay barrier to retard groundwater loss (September - December 1980).

**PROFESSIONAL
MEMBERSHIP:**

Member, American Water Works Association
Member, Water Pollution Control Federation
Member, Florida Academy of Sciences
Member, North American Lake Management Society
Member, American Water Resources Association
Member, American Water Resources Association, Florida Chapter
Member, Florida Water Well Association

**HONORS/
AWARDS:**

1. Award for outstanding presentation from Environmental Chemistry Section, Florida Academy of Sciences for paper presented on March 24, 1979 titled "Algal Productivity Responses of Lake Eola to Urban Runoff."
2. 1983 Outstanding Young Men of America Award, U.S. Jaycees, 1983.
3. Elected to Tau Beta Pi, Engineering Honor Society, Florida Delta Chapter, March 14, 1984.

ISAAC RHODES ROBINSON, JR., CEP
PRESIDENT

PROFESSIONAL EXPERIENCE SUMMARY

Mr. Robinson is a Certified Environmental Professional (National Association of Environmental Professionals) with academic experience and training in wildlife management, wildlife field studies, wetland ecology, coastal ecology, vertebrate biology, vertebrate taxonomy, botany, and ecosystem ecology. He has research experience with bobwhite quail food habits and coordination of quail habitat maintenance and forestry management. Mr. Robinson also has had significant training in systematic botany including taxonomy of the grasses, rushes, and sedges, and general ecology with emphasis on coastal ecology. He is interested in ecosystems and spends much of his leisure time photographing plants in their natural environments. Mr. Robinson's experience extends into aerial photographic interpretation, technical writing, and literature searches. Mr. Robinson has extensive experience in coordination with regulatory agencies, site analysis, and development planning. He has managed numerous public and private, large and small-scale projects since 1977.

ACADEMIC BACKGROUND

- M.S. Wildlife Biology (Minor in Botany). North Carolina State University. 1977
- B.S. Wildlife Biology. North Carolina State University. 1974
- B.S. Textile Technology (Minor in Economics). North Carolina State University. 1970

RESPONSIBILITIES WITH ENVIRONMENTAL SERVICES

Mr. Robinson provides corporate quality control supervision, project management, and staff support for a wide range of resource analysis projects. His field investigations have included analysis of biotic communities and other natural features by ground and air, water quality sampling, benthic sampling, wildlife habitat analysis, and collection of biological materials for identification and laboratory analysis. Mr. Robinson is particularly experienced in wetlands and endangered species ecology. He has prepared text for numerous projects, and his responsibilities extend into literature review and synthesis, biotic community mapping, aerial photograph interpretation, editing, and public agency contracts. The variety of projects in which Mr. Robinson has participated demonstrates his versatility and capability. He has performed field and writing tasks and has served in various leadership roles for numerous impact assessments of airport, highway, commercial, and residential development; evaluation and mitigation of impacts of various activities in wetland areas; natural resource inventory projects as large as 125,000 acres; time-critical field water quality surveys; analysis of water quality data; environmental impact assessment of operation of military installations; master planning for water resources projects; environmental assessment for major industrial (resource recovery) development; and analysis for numerous Developments of Regional Impact (DRI's) in Florida. Mr. Robinson is responsible for all of the firm's environmental audits. He has worked in New Jersey, the District of Columbia, Maryland, Virginia, North Carolina, Kentucky, Tennessee, Georgia, Florida, Alabama, Mississippi, Louisiana, Puerto Rico, and the U.S. Virgin Islands.

EXHIBIT

TRL-5F

PRIOR EXPERIENCE

1986-PRESENT: ENVIRONMENTAL SERVICES, INC. Mr. Robinson formed Environmental Services, Inc., in the spring of 1986 and is President of the firm. Mr. Robinson is also a principal in Mitigation Services, Inc. and Southeastern Environmental Audits, Inc.

1977-1986: CZR, INCORPORATED. Mr. Robinson was Vice President and Technical Director of this environmental consulting firm. During this period, Mr. Robinson worked and traveled extensively throughout the Southeast on a variety of public and private projects. His responsibilities included definition of technical approach to projects, technical staff direction and coordination, quality control, and client coordination.

1977: BUREAU OF SPORT FISHERIES AND WILDLIFE, UNITED STATES DEPARTMENT OF THE INTERIOR. Mr. Robinson was Environmental Awareness Coordinator for the Youth Conservation Corps at Mattamuskeet National Wildlife Refuge. The work involved the development of an environmental education program for participants with rural backgrounds and low socio-economic standing. Some of the topics studied were soil ecology, waterfowl management, lake ecology and succession, and management for endangered species, specifically the red-cockaded woodpecker. The educational approach was varied and involved verbal instruction, hands-on learning experience, field trips, and reasoning through group interaction.

1976-1977: RAVENSCROFT SCHOOL. Mr. Robinson was the 7th grade life science teacher at this prestigious school in Raleigh, NC. He was cited for his outstanding contributions to the athletic program.

1973-1977: NORTH CAROLINA STATE UNIVERSITY. Graduate studies in wildlife biology and botany.

1970-1973: UNITED STATES ARMY, TRANSPORTATION CORPS. Mr. Robinson was in charge of procurement of high-priority aviation and weapon system repair parts for the 8th Infantry Division in Germany.

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

The Wildlife Society
Society of Wetland Scientists
National Association of Environmental Professionals
American Water Resources Association
National Association of Lake Managers
Aquatic Plant Management Society
Florida Bar Association, Affiliate
North American Lake Management Society
Association of Wetland Managers

PUBLICATIONS

Robinson, I.R., Jr., and F.S. Barkalow, Jr. 1979. Bobwhite quail foods in pocosin habitat converted to pine. J. Wildl. Manage. 43(2):516-521.

PROJECT EXPERIENCE

Pace Island Florida Quality Development, Clay County, FL

Riverton DRI, St. Johns County, FL

Southwood Plantation DRI, Leon County, FL

Suwannee Trails Resort DRI, Hamilton County, FL

Freedom Commerce Center DRI, Jacksonville, FL

Knight Commerce Center DRI, Boca Raton, FL

The Avenues Mall DRI, Jacksonville, FL

Deerwood Park DRI, Jacksonville, FL

Duval North Commerce Center DRI, Jacksonville, FL

Clear Lake Mall DRI, Jacksonville, FL

Fernandina Port Remote Industrial Site DRI, Nassau County, FL

Poinciana DRI, Polk and Orange Counties, FL

Sunland Center DRI, Tallahassee, FL

St. Johns Forest DRI, St. Johns County, FL

Savannah Club DRI, St. Lucie County, FL

Little River FQD, Martin County, FL

Villages of Seminole Forest FQD, Clay and Putnam Counties, FL

Evaluation of Hydrologically Sensitive Areas (SJRWMD) in Jacksonville, FL

The Reserve PUD Application and Environmental Planning, St. Lucie County, FL

Hobe Sound Properties Environmental Assessments, Permitting, and Construction Management, Martin County, FL

Delta Farms Environmental Assessment

Endangered Species Survey, Gulf Shores, AL

Wetlands Assessment and Determination for Kiplinger Trust, Stuart, FL

Archaeological Assessment of 201 Facility Site, Edenton, NC

Whalehead Beach Master Plan Environmental Assessment, NC

Archaeological/Historical Site Investigation for the City of Kinston, NC

Section 404 Permit Application for National Welders Supply, Inc.
Site analysis of numerous properties, Jacksonville, FL, and vicinity

Loxahatchee River Environmental Control District Section 404 Permit Application for New Pipeline

Highway Route Selection and Environmental Impact Statement, Hilton Head, SC

Environmental Studies, 20,000-acre tract, St. Johns County, FL

Jurisdictional Wetland Determination, Kinnakeet Shores, NC

Environmental Consultant--Northeast Florida Builders Association

Programmatic EIS on Limestone Mining in Wetlands of South Florida

Wildlife Habitat Development on Dredged Material Disposal Areas

Site Selection and Analysis for Proposed Boeing Aircraft Rework Facility at Jacksonville International Airport, FL

Environmental Assessment and Permitting for Food Lion Warehouse and Distribution Center (1,000,000-square foot facility), Clay County, FL

Environmental Assessment for Silver Springs, FL

Hampton Roads Water Quality Agency 208 Water Quality Management Plan EIS, VA

Raleigh-Durham Airport Long-range Development Master Plan and Environmental Assessment, NC

Washington National Airport Safety Overrun Study EIS, Washington, DC

Overall Draft EIS for Fort McPherson, Fort Gillem, FORSCOM Flight Detachment at Charlie Brown Airport, and FORSCOM Recreation Area at Lake Allatoona, GA
Water Quality Monitoring Study for EIS on Little Contentnea Creek, NC

Southern Region Palm Beach County 201 Facility Plan EIS, FL

EIS for East-West Thoroughfare, Winston-Salem, NC

EIA on 10 Replacement Bridges in Piedmont North Carolina

Highway Route Selection and EIS, Hilton Head, SC EIS for High Level Crossing of Cape Fear River, Wilmington, NC

EIA for Route Selection, Interstate 40, Benson to Wilmington, NC

EIS for Forest Highway 13 Improvements, Appalachicola National Forest, FL

EIA for Masonville Marine Terminal, Baltimore Harbor, MD

Year-long Water Quality Monitoring Program for 136,000-acre Ft. Bragg Military Reservation, NC

Cape Fear River Salinity Monitoring and Hydrographic Studies, NC

North Fork New River Water Quality Study, FL

Big South Fork National River and Recreation Area Master Plan, KY and TN

Lake Allatoona Master Plan, GA

B. Everett Jordan Reservoir Master Plan, NC

Red River Waterway Master Plan, LA

Lake George W. Andrews Master Plan, GA and AL

Lake Walter F. George Master Plan, GA and AL

J. Percy Priest Reservoir Master Plan, TN

Endangered Species Investigations (Perdido Key Beach Mouse), Gulf Shores, AL

Red-cockaded Woodpecker Survey, National Forests of Mississippi

Gopher Tortoise Relocation Projects (2 sites), FL

Monitoring of Nesting Sea Turtles (3 projects), NC

Preparation of Beach and Dune Protection Ordinance, St. Lucie County, FL

Jacksonville Electric Authority, General Consultant

Environmental Consultant for Numerous Law Firms and Banks

Master Plans for Numerous Private Developments

Wetland Assessments for over 250,000 Acres of Land in Florida, Georgia, South Carolina, North Carolina, Virginia, Maryland, and Louisiana

Permitting Assistance Pursuant to Section 404 of the Clean Water Act

Environmental Audits for Numerous Sites

Expert Witness



Ellis & Associates, Inc.

A GREG A. EDMONDS COMPANY

MICHAEL L. LITHMAN, P.E. ENGINEERING MANAGER

MICHAEL L. LITHMAN, P.E. joined Ellis & Associates, Inc. in August, 1986. Mr. Lithman obtained a Bachelor of Science degree in Ocean Engineering in 1976, a Master of Science degree in Civil Engineering in 1977 and a Master of Business Administration degree in 1985. Mr. Lithman is presently registered as a professional engineer in the states of Florida, Georgia and Virginia. He maintains membership in the American Society of Civil Engineers, the Florida Engineering Society and the National Society of Professional Engineers.

Mr. Lithman is employed with Ellis & Associates, Inc. as engineering manager and is responsible for the technical supervision of its engineering staff, laboratory personnel and field exploration personnel. Mr. Lithman is also responsible for developing geotechnical and foundation engineering reports and studies for both public and private clients for a wide variety of design and construction projects.

In his ten years of professional practice prior to Mr. Lithman joining Ellis & Associates, Inc., he was employed by Bechtel, Inc., Raymond International, and Southwest Laboratories in Houston, Texas. Mr. Lithman has been responsible for the foundation engineering and design of industrial, commercial and governmental projects located throughout the United States and overseas. Some of the projects Mr. Lithman has been involved with included highway bridges and roadways, waterfront ship berthing facilities, deep foundations for high rise facilities, highway and utility tunneling, and offshore platforms.

EXHIBIT

TRL-5G

CURRICULUM VITA

**Robert E. Johnson
Archeological Consultant**

October 1990

I. General Information:

Business Address: Florida Archeological Services, Inc.
4250 Melrose Avenue
Jacksonville, Florida 32210

Telephone: (904) 389-1976

Home Address: 4250 Melrose Avenue
Jacksonville, Florida 32210

Telephone: (904) 389-1976

Date and Place of Birth:
December 18, 1946
Bartow, Florida

Military Service: United States Air Force (1966-1970)
Vietnam veteran (1969-1970)
631st CSAR (Combat Search and Rescue)
APO San Francisco

Present Position: Archeological Consultant, President FAS

II. Education and Degrees:

Franklin High School, Franklin, (Southampton County),
Virginia (1961-1965)

Florida Jr. College at Jacksonville, Jacksonville,
Florida (1970-1972) A.A. in General College

University of Florida, Gainesville, Florida (1974-1976)
B.A. in Anthropology, With Honors, June 1976

University of Florida, Gainesville, Florida (1977-1981)
M.A. in Anthropology, August 1981

III. Awards and Honors:

Phi Theta Kappa National Honor Fraternity
B.A. Degree with Honors

IV. Professional and Academic History:

September 1990 - October 1990, Principal Investigator under contract to Mr. Frank J. Uddo of St. Johns Landing Development. Conducted an archeological site assessment survey of the St. Johns Landing project area. Final report submitted.

June 1990 - present, Principal Investigator under contract to the Florida Community College at Jacksonville. Conducted second and final field phase of the St. Johns Bluff survey area under Historic Preservation Grant from the Florida Division of Historical Resources, Tallahassee. In final report preparation.

March 1990 - September 1990, Principal Investigator under contract to Ponce de Leon Resort Development, St. Augustine, Florida. Conducted National Register eligibility determination of Sites 8SJ3190, 8SJ3226, 8SJ3227, and 8SJ3228, St. Johns County, Florida. In final analysis, Management Summary submitted.

January 1990 - August 1990, Principal Investigator under contract to Camp, Dresser and McKee, Tallahassee, Florida. Conducted National Register determination of Site 8JE748 at the Jefferson County Correctional Facility, Jefferson County, Florida.

June 1990 - July 1990, Principal Investigator under to Mr. Roy Campbell of St. Augustine, Florida. Conducted archeological assessment of the Campbell tract, Summer Haven, Florida. Final report submitted.

June 1990 - Principal Investigator under to Pelzer Homes, Montgomery, Alabama. Conducted an Archeological Site Assessment Survey of the Arbor Village Apartment Complex, Tallahassee, Florida. Final report submitted.

December 1989 - May 1990, Principal Investigator under contract to Union Camp Corporation, The Branigar Organization, Savannah, Georgia. Conducted National Register eligibility determinations of the Exchange Tract Parcel, Skidaway Island, Chatham County, Georgia. Final report submitted.

November 1989 - February 1990, Principal Investigator under contract to Ponce de Leon Resort Development, St. Augustine, Florida. Conducted an Archeological Site

Assessment Survey of the Ponce Development project.
Final report submitted.

January 1989 - May 1989, Principal Investigator under contract to U.S. Navy, OICC Mayport, Florida. Conducted an Archeological Reconnaissance Survey of the proposed Navy Exchange expansion project at Mayport. Final report submitted.

November 1988 - present, Principal Investigator under contract to St. Augustine Airport Authority, St. Johns County, Florida. Conducted an Archeological Site Assessment Study of the 1988 airport expansion project. Management Summaries submitted. In Phase III final analysis.

October 1988 - August 1989, Consultant to Rogers, Towers, Bailey, Jones and Gay, P.A. Conducted an Archeological Reconnaissance Survey of portions of the proposed Southeast Landfill and adjacent McCormick property. Final report submitted.

October 1988 - present, Principal Investigator under contract to the United Brotherhood of Carpenters, Washington, D.C. Conducted Indian Burial Mound (8Du25) restoration and stabilization project of the Reddie Point Mound A. Project on administrative hold.

August 1988 - May 1989, Principal Investigator under contract to COASTAL ZONE RESOURCES, INC. (CZR) of Jupiter, Florida. Conducted an Archeological Phase II Site Assessment Study of 6 archeological sites associated with the Hilton Head Cross Island Connector Project, Hilton Head Island, S.C. An EIS. Final report submitted.

June 1988 - December 1988, Principal Investigator under contract to Florida Community College of Jacksonville. Conducted an Archeological Reconnaissance Survey of the St. Johns Bluff, Duval County, Florida. Awarded Historic Preservation Grant from Florida Division of Historical Resources, Department of State, Tallahassee. Final report submitted.

April 1988 - present, Principal Investigator under contract to EG&G of Florida, Inc., Titusville, Florida. Conducted a Phase III Archeological Data Recovery Project of Site 8Br170, at Kennedy Space Center, NASA, Brevard County, Florida. In project final analysis.

- March - April 1988, Principal Investigator under contract to Sound Builders, Inc., Jacksonville, Florida. Conducted an Archeological and Historical Survey of the planned (1,500 acre) Greenfield Plantation Development, Duval County, Florida. Final report submitted.
- February - September 1988, Principal Investigator under contract to Water and Air Research, Inc. of Gainesville, Florida. Conducted a Phase II Archeological Site Assessment Project of Site 8Br170 at the Kennedy Space Center, NASA, in Brevard County, Florida. Final report submitted.
- January 1988 - present, Principal Investigator under contract to Brays Island Co., Inc., Beaufort, South Carolina. Conducted an Archeological and Historical Survey and a Phase II Archeological Site Assessment Project of Brays Island Plantation, a planned 1500 acre development in Beaufort County, South Carolina. Final report in preparation.
- December 1987 - May 1988, Principal Investigator under contract to Neder Properties, Inc., Jacksonville, Florida. Conducted an Archeological and Historical Survey and Phase II Site Assessment Study of the proposed Reddie Point Development, Duval County, Florida. Phase I management summary submitted, Phase II suspended by US Army Corps of Engineers for FS Chapter 872.05 violation.
- December 1987 - December 1988, Principal Investigator under contract to Landers-Atkins Planners, Inc., Jacksonville, Florida. Conducted an Archeological and Historical Survey of a portion of the planned (8,700 acre) Southwood Plantation Development, Leon County, Florida. Final report submitted.
- December 1987 - February 1988, Principal Investigator under contract to the Haskell Co., Inc., Jacksonville, Florida. Conducted an Archeological and Historical Survey of the planned (1500 acre) DUPONT Fleming Island Development, St. Johns County, Florida. Final report submitted.
- November 1987 - May 1988, Principal Investigator under contract to Crane Island Ventures, Inc., Jacksonville, Fl. Conducted an Archeological and Historical Survey of the planned Crane Island Development Nassau County, Fl. Final report submitted.

- November 1987 - April 1988, Principal Investigator under contract to Landers-Atkins Planners, Inc., of Jacksonville, Florida. Conducted an Archeological and Historical Survey of the planned Riverton Development St. Johns County, Florida. Final report submitted.
- November 1987 - March 1988, Principal Investigator under contract to COASTAL ZONE RESOURCES, INC. of Jupiter, Florida. Conducted an Archeological and Historical Survey of the planned Stono River Bridge Replacement Highway Project, Charleston County, South Carolina. Final report submitted.
- October - December 1987, Principal Investigator under contract to Stokes-Collins, Inc., Jacksonville, Florida. Conducted an Archeological and Historical Survey of the planned Deer Creek Development, Duval County, Florida. Final report submitted.
- October - December 1987, Principal Investigator under contract to Landers-Atkins Planners, Inc., of Jacksonville, Florida. Conducted an Archeological Sensitivity Study of the planned Southwood Plantation Development, Leon County, Florida. Final report submitted.
- September 1987, Principal Investigator under contract to Cantrell-Weaver, Inc., of Jacksonville, Florida. Conducted an Archeological Reconnaissance Survey of the planned Huntington Woods and West Glen Crossing Deployment, Duval County, Florida. Final report submitted.
- May 1987 - present, Principal Investigator under contract to Molasses Creek Ltd. Partnership, Charleston, South Carolina. Conducted a Phase II Archeological Site Assessment Study and Phase III Archeological Data Recovery Project of 4 archeological site in Charleston County, South Carolina associated with the Molasses Creek Development, Mt. Pleasant, South Carolina. Final report in preparation.
- April 1987 - October 1988, Principal Investigator under contract to Radnor Edgewater Corp. Inc., Edgewater, Florida. Conducted an Archeological and Historical Survey, Phase II Site Assessment and III Data Recovery Project of the planned Edgewater Landing Development, Volusia County, Florida. Final report submitted.

- April 1987 - June 1987, Principal Investigator under contract to Landers-Atkins Planners, Inc., of Jacksonville, Florida. Conducted an Archeological and Historical Survey of the planned Rayland (St. Johns Forest) Development (20,000 acres), St. Johns County, Florida. Final report submitted.
- March 1987, Principal Investigator under contract to Landers-Atkins Planners, Inc., Jacksonville, Florida. Conducted an Archeological Sensitivity Study of the planned Rayland (St. Johns Forest) Development, St. Johns County, Florida. Final report submitted.
- November 1986, Principal Investigator under contract to COASTAL ZONE RESOURCES, INC. of Jupiter, Florida. Conducted an Archeological Sensitivity Study of the planned Northern Outer Bypass Highway Project, Horry County, South Carolina. Final report submitted.
- November 1986 - February 1987, Principal Investigator under contract to Environmental Services and Permitting, Inc., Gainesville, Florida. Conducted a Phase II Archeological Site Assessment Study of 7 archeological sites in Clay County, Florida at the DUPONT Maxville Mine Site. Final report submitted.
- October 1986, Principal Investigator under contract to Landers-Atkins Planners, Inc., Jacksonville, Florida. Conducted an Archeological Sensitivity Study of the planned Hallows Tract (Riverton) Development, St. Johns County, Florida. Final report submitted.
- September 1986, Principal Investigator under contract to Landers-Atkins Planners, Inc., Jacksonville, Florida. Conducted an Archeological Sensitivity Study of the planned Hurtz-Champion Development, Clay County, Florida. Final report submitted.
- June 1986 - July 1986, Principal Investigator under contract to Montgomery Homes, Inc., Jacksonville, Florida. Conducted an Archeological and Historical Survey of the Ridgefield Development, Duval County, Florida. Final report submitted.
- November 1985 - April 1987, Principal Investigator under contract to COASTAL ZONE RESOURCES, INC. (CZR) of Jupiter, Florida. Conducted an Archeological and Historical Survey of the Hilton Head Cross Island Corridor Study area, Hilton Head Island, S.C. An EIS. Management Summary submitted.

- October - November 1985, Principal Investigator under contract to MOCCASIN SLOUGH LTD. of Jacksonville, Florida. Conducted an Archeological and Historical Survey of the Pace Island Gardens Development Tract, a 900 acre FOD/DRI project in Clay County, Florida. Final report submitted.
- September - October 1985, Principal Investigator under contract to COMSIS CORP. of Orlando, Florida. Conducted an Archeological and Historical Survey of the Clairborne Development Tract, a 70 acre DRI project in Duval County, Florida. Final report submitted.
- June - September 1985, Principal Investigator under contract to the CAMDEN COUNTY PARKS AND RECREATION DEPARTMENT of Kingsland, Georgia. Conducted archeological investigations of the John H. McIntosh Sugar Mill, a National Register site located in Camden County, Georgia.
- September 1984 - 1990, Consultant to the U.S. NAVY, OICC TRIDENT, at the Kings Bay Submarine Base, Kings Bay, Georgia. Conducted Phase I Survey, Phase II Testing, and Phase III Mitigation of 14 archeological or historic sites located on the facility. Research is ongoing with 3 final reports submitted. Data analysis and final report preparation in progress.
- April - May 1984, Principal Investigator under contract to AMERICAN CLASSIC HOMES, INC., of Orange Park, Florida. Conducted an Archeological and Historical Survey of the proposed Gin House Landing Development project (135 acres), Clay County, Florida. Final report submitted.
- January - March 1984, Senior Site Archeologist, FLORIDA DIVISION OF ARCHIVES, HISTORY AND RECORDS MANAGEMENT, of Tallahassee, Florida. Completed archeological data analysis for site 8Hi472B, a Late Paleo/Early Archaic base camp occupation in Hillsborough County, Florida. Final report submitted.
- July - December 1983, Principal Investigator under contract to GOLDEN OCALA, INC., Ocala, Florida. Conducted Phase II test excavations and Phase III final mitigation of archeological sites 8Mr507 and 8Mr510, Marion County, Florida.

May - June 1983, Principal Investigator under contract to AMERICAN FIRST MORTGAGE FUNDING CORPORATION, of Ocala, Florida. Conducted an Archeological and Historical Survey of Trade Winds Village, a 60 acre development project in Marion County, Florida. Final report submitted.

February - April 1983, Co-principal Investigator, with the Department of Anthropology, UNIVERSITY OF FLORIDA, Gainesville. Conducted an Archeological Reconnaissance Survey of the proposed Sawgrass Cove Apartment Complex in Darien (McIntosh County), Georgia. Survey area adjacent to Ft. King George, a National Historic Site. Final report submitted.

November 1982 - July 1983, Field Director, Department of Sociology and Anthropology, UNIVERSITY OF WEST FLORIDA, Pensacola. Conducted Phase III Archeological Mitigation of sites 8Du634 and 8Du669, two late prehistoric occupations at the JACKSONVILLE ELECTRIC AUTHORITY St. Johns River Power Park (SJRPP), in Duval County, Florida. Final report (coauthor) submitted.

September 1981 - November 1982, Senior Site Archeologist, FLORIDA DIVISION OF ARCHIVES, HISTORY AND RECORDS MANAGEMENT, of Tallahassee. Conducted Phase III archeological excavation of site 8Hi472B, a Late Paleo/Early Archaic Period base camp occupation in Hillsborough County, Florida. Final report submitted.

November - December 1981, Principal Investigator under contract to JONES, EDMUNDS AND ASSOCIATES, INC. of Gainesville, Florida. Conducted an Archeological and Historical Survey of the proposed Turkey Creek Development, a 600 acre DRI in Alachua County, Florida. Final report submitted.

September - October 1981, Survey Archeologist with the Department of Anthropology, UNIVERSITY OF FLORIDA, Gainesville. Conducted an Archeological and Historical Survey of the Edenfield tract, a proposed apartment complex in Camden County, Georgia. Final report submitted.

- August - September 1981, Archeological field assistant with the Department of Anthropology, UNIVERSITY OF FLORIDA, Gainesville. Participated in the archeological investigation of the John H. McIntosh Sugar Mill, Camden County, Georgia. Work involved test excavations to recover archeological and architectural data regarding site occupation and function.
- June - August 1981, Graduate Student, Department of Anthropology, University of Florida, Gainesville. Completed Master's thesis preparation, title: "Archeological Site Density Within the Peace River Valley, Florida."
- April - May 1981, Archeological field assistant at the Kingsley Plantation State Historic Site, Ft. George Island, Florida, with the FLORIDA DIVISION OF ARCHIVES, HISTORY AND RECORDS MANAGEMENT, Tallahassee. Work involved test excavations for a proposed interpretative kitchen garden plot at the Kingsley "big house."
- January - March 1981, Graduate student, Department of Anthropology, University of Florida, Gainesville. Conducted master's thesis research of archeological site distribution and density within the Peace River Valley (Polk, Hardee, and De Soto counties), Florida.
- November - December 1980, Survey Archeologist under contract to WILLIAM M. BISHOP CONSULTING ENGINEERS, INC. of Tallahassee, Florida. Conducted an Archeological and Historical Survey of the Florida State Prison Complex 201 facility expansion project, a 70 acre EIS in Bradford, County, Florida. Final report submitted.
- September - October 1980, Archeological Consultant to SOUTHEASTERN WILDLIFE SERVICES, INC., Athens, Georgia. Conducted analysis of cultural materials recovered during Phase II test excavations of 11 archeological sites at the proposed JACKSONVILLE ELECTRIC AUTHORITY power plant in Duval County, Florida. Report submitted.

July - August 1980, Graduate student, Department of Anthropology, University of Florida, Gainesville. Conducted master's thesis research of archeological site frequency and density within the Central Peninsula Gulf Coast Archeological Area of Southwest Florida.

May - June 1980, Principal Investigator under contract to ENVIRONMENTAL SCIENCE AND ENGINEERING, INC., of Gainesville, Florida. Conducted an Archeological and Historical Survey of the proposed FLORIDA POWER CORPORATION electric power generating facility, a 1200 acre DRI in Gulf County, Florida. Final report submitted.

January - March 1980, Survey Archeologist under contract to WOODWARD-CLYDE CONSULTANTS of San Francisco, California. Conducted an Archeological and Historical Survey of the proposed BRUNSWICK ENERGY COMPANY oil refinery site, an 1800 acre EIS in Brunswick County, North Carolina. Final report submitted.

September 1979 - April 1980, Survey Archeologist, with Raymond F. Willis under contract to ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. of Gainesville, Florida. Conducted an Archeological and Historical Survey of the proposed AMAX CHEMICAL CORPORATION phosphate mine site, a 30,000 acre EIS in Manatee and De Soto Counties, Florida. Final report submitted.

June - August 1979, Archeological survey technician with the Florida State Museum (Dr. Jerald T. Milanich, Principal Investigator) under contract to DELTONA CORPORATION of Miami, Florida. Work involved an archeological and historical survey of Horr's Island, in the Ten Thousand Islands off the Southwest coast of Florida, a 1500 acre DRI.

May - June 1979, Principal Investigator under contract to R.W. BECK AND ASSOCIATES, Engineers and Consultants of Denver, Colorado. Conducted an Archeological and Historical Survey of the LEE COUNTY ELECTRIC CO-OP 230 KV electric power transmission line facilities, an 18 mile transect with an associated substation in Lee County, Florida. A DRI project. Final report submitted.

September - December 1978, Survey Archeologist under contract to SVERDRUP PARCEL AND ASSOCIATES, INC., of Gainesville, Florida. Conducted an Archeological and Historical Survey of the West Pasco Spray Irrigation Project in Pasco County, Florida. A 200 acre waste water treatment facility. Final report submitted.

December 1977 - August 1978, Field Director at Kings Bay (Camden County), Georgia with the University of Florida Archeological Field School (Dr. Charles H. Fairbanks, Principal Investigator), under contract to PLANTEC Corporation, a division of REYNOLDS SMITH and HILLS, INC. of Jacksonville, Florida. Work involved eligibility determinations - Phase II archeological testing - for inclusion in the National Register of Historic Places of Sites 9Cam167 and 9Cam173, at King's Bay, Georgia. Final report submitted.

September - December 1977, Graduate research assistant, with Dr. Charles H. Fairbanks, Department of Anthropology, University of Florida, Gainesville. Designed and constructed two mechanical earth-shakers for infield artifact retrieval.

July - September 1977, Archeological survey technician with the UNIVERSITY OF FLORIDA at King's Bay, Georgia (Camden Co.) and environs for PLANTEC Corporation, a division of REYNOLDS SMITH and HILLS of Jacksonville, Florida, (Dr. Charles H. Fairbanks, Principal Investigator). Work involved an EIS archeological and historical survey to locate archeological and historic sites on the preferred alternative location of a Trident Missile Submarine Base proposed by the U.S. Navy.

May - June 1976, Archeological field laborer at Baptizing Springs, a Spanish-colonial site in Suwanee County, Florida, with the University of Florida Archeological Field School, Dr. Jerald T. Milanich, Director.

April - May 1976, Archeological field laborer near Hawthorne, Florida, with the University of Florida Archeological Field School. Work involved excavation of a prehistoric village site in Alachua County, Florida. Dr. Jerald T. Milanich, Director.

March - April 1976, Archeological field laborer at Gainesville, Florida, with the University of Florida Archeological Field School, Dr. Jerald T. Milanich, Director. Work involved excavation of a prehistoric burial mound in Alachua County.

March - June 1975, Archeological field laborer near Gainesville, Florida, with the University of Florida Field School, Dr. Charles H. Fairbanks, Director. Work involved excavation of a prehistoric burial mound in Alachua County, Florida.

V. Professional Associations:

Society of Professional Archeologist
Society of American Archaeology
Society of Historical Archaeology
Association for Field Archeology
Southeastern Archaeological Conference
Florida Anthropological Society
Florida Archaeological Council
Florida Historical Society
Florida Trust for Historic Preservation
Florida Planning and Zoning Association

VI. Principal Fields of Interest:

Southeastern archeology and ethnohistory
Florida archeology
Historical archeology
Computer analysis of archeological data
Archeological remote sensing
Physical anthropology
Anthropological theory

VII. Publications or Technical Reports:

1990h- Keith H. Ashley and Robert E. Johnson
An Archeological Site Assessment Survey of the Proposed St. Johns Landing Development Project, Putnam County, Florida. Ms. on file Florida Division of Historical Resources, Tallahassee.

1990g- Johnson, Robert E. and Keith H. Ashely
Phase II Testing at Ponce de Leon Resort, St. Johns County, Florida: An Archeological Management

Summary. Ms. on file Florida Division of
Historical Resources, Tallahassee.

- 1990f- Johnson, Robert E.
Archeological Monitoring of the Kings Bay Archeo-
logical Multiple Resource Area: 1989. Ms. on file
OICC Trident, Kings Bay, Georgia.
- 1990e- Johnson, Robert E.
Phase II Archeological Testing of Site 8JE748 at
the Jefferson County Correctional Facility,
Jefferson County, Florida. Ms. on file Florida
Division of Historical Resources, Tallahassee.
- 1990d- Ashley, Keith H. and Robert E. Johnson
An Archeological Assessment of the Campbell Tract,
Summer Haven, Florida. Ms. on file Florida
Division of Historical Resources, Tallahassee.
- 1990c- Johnson, Robert E.
An Archeological Site Assessment Survey of the
Proposed Arbor Village Apartment Complex,
Tallahassee, Florida. Ms. on file Florida
Division of Historical Resources, Tallahassee.
- 1990b- Johnson, Robert E.
Archeological Testing of the Exchange Tract
' Parcel, Skidaway Island, Chatham County, Georgia.
Ms. on file Georgia Department of Natural
Resources, Atlanta.
- 1990a- Johnson, Robert E. and Keith H. Ashley
An Archeological and Historical Survey of the
Ponce Resort Development, St. Johns County,
Florida. Ms. on file Florida Division of
Historical Resources, Tallahassee.
- 1989e- Ashley, Keith H. and Robert E. Johnson
An Archeological Survey of the Jefferson County
Correctional Facility, Jefferson County, Florida.
Ms. on file Florida Division of Historical
Resources, Tallahassee.
- 1989d- An Archeological Survey of the Southeast Landfill
Project, Duval County, Florida. Ms. on file
Florida Division of Historical Resources,
Tallahassee.

- 1989c- Johnson, Robert E.
Archeological Monitoring of the Kings Bay Archeo-
logical Multiple Resource Area: 1988. Ms. on file
OICC Trident, Kings Bay, Georgia.
- 1989b- Johnson, Robert E. and Dana Ste. Claire
The Archeological and Historical Resources of
Riverton, A Residential Development Project, St.
Johns County, Florida. Ms. on file Florida
Division of Historical Resources, Tallahassee.
- 1989a- Johnson, Robert E.
Phase II Archeological Investigations of the
Hilton Head Cross Island Expressway Project,
Beaufort County, South Carolina. Ms. on file
South Carolina Department of Highways and Public
Transportation, Columbia.
- 1988d- An Archeological Survey of the St. Johns Bluff
Area of Duval County, Florida. Ms. on file
Florida Division of Historical Resources,
Tallahassee.
- 1988c- Johnson, Robert E. and Dana Ste. Claire
Edgewater Landing - Archeological Investigations
Along the Indian River North, Volusia County,
Florida. Ms. on file Florida Division of
Historical Resources, Tallahassee.
- 1988b- Johnson, Robert E. and Dana Ste. Claire
An Archeological and Historical Survey of the
Greenfield Plantation Tract, Duval County,
Florida. Ms. on file Florida Division of
Historical Resources, Tallahassee.
- 1988a- Johnson, Robert E.
An Archeological and Historical Survey of the
Stono River Bridge Replacement Project, Charles-
ton County, South Carolina. Ms. on file Federal
Highway Administration, Washington, D.C.
- 1987 Johnson, Robert E.
Annual Monitoring Report for 1987, A Review of the
Kings Bay Archeological Multiple Resource Area.
Ms. on file OICC Trident, Kings Bay, Georgia.
- 1986 - Johnson, Robert E.
The Archeological and Historic Resources of the
Hilton Head Cross Island Corridor Study. Robert
E. Johnson Archeological Consultant, An

Archeological Management Summary. Ms. on file South Carolina Department of Archives and History, Columbia.

- 1986 - Johnson, Robert E.
An Archeological Site Assessment Survey of NSB Kings Bay, North Boundary. Robert E. Johnson Archeological Consultant, Report of Investigations No. 4, Jacksonville, Florida. In press.
- 1986 - Johnson, Robert E.
An Archeological Survey of the Spray Field Project Area, U.S. Naval Submarine Base, Kings Bay, Georgia. Robert E. Johnson Archeological Consultant, Report of Investigations No. 3, Jacksonville, Florida.
- 1986 - Johnson, Robert E.
An Archeological Assessment of the Kings Bay Cattle Dipping Vat, U.S. Naval Submarine Base, Kings Bay, Georgia. Robert E. Johnson Archeological Consultant, Report of Investigations No. 2, Jacksonville, Florida.
- 1985 - Johnson, Robert E.
An Archeological and Historical Survey of the Pace Island Gardens Development, Clay County, Florida.
Ms. on file Florida Division of Archives, History, and Records Management, Tallahassee.
- 1985 - Johnson, Robert E.
An Archeological and Historical Survey of the Clairborne Development, Duval County, Florida.
Ms. on file Florida Division of Archives, History and Records Management, Tallahassee.
- 1985 - Johnson, Robert E.
An Archeological Reconnaissance Survey of Selected Portions of the U.S. Naval Facility, Kings Bay. Robert E. Johnson Archeological Consultant, Report of Investigations, No. 1. Jacksonville, Florida.
- 1984 - Johnson, Robert E.
An Archeological and Historical Survey of the Gin House Landing Development Tract, Clay County, Florida. Ms. on file Florida Division of Archives, History and Records Management, Tallahassee.

- 1984 - Johnson, Robert E.
Wetherington Ridge, A Late Paleo/Early Archaic
Period Occupation in West Central Florida.
Interstate 75 Highway Project, Phase III
Archaeological Investigations. Ms. on file
Bureau of Historic Sites and Properties, FLORIDA
OF ARCHIVES, HISTORY AND RECORDS MANAGEMENT,
Tallahassee.
- 1984 - Lee, Chung-ho, Irvy R. Quitmyer, Christopher
T. Espenshade, and Robert E. Johnson
Estuarine Adaptations during the Late Prehistoric
period: Archaeology of Two Shell Midden sites on
the St. Johns River. Office of Cultural and
Archaeological Research, Report of Investigations
No. 5, University of West Florida, Pensacola.
- 1983 - Johnson, Robert E.
A Cultural Resource Reconnaissance Survey of
Trade Winds Village, Marion County, Florida.
Ms. on file Florida Division of Archives,
History Records Management, Tallahassee.
- 1983 - Johnson, Robert E.
An Archeological Reconnaissance Survey of the
Proposed Sawgrass Cove Apartment Complex, Darien
Lower Bluff, McIntosh County, Georgia. Ms. on
file Department of Anthropology, University of
Florida, Gainesville.
- 1982 - Johnson, Robert E.
The Archeological and Historical Resources of
Turkey Creek Development, Inc. Properties in
Alachua County, Florida: A Management Summary.
Ms. on file Florida Division of Archives, History
and Records Management, Tallahassee.
- 1981 - Johnson, Robert E.
An Archeological and Historical Survey of a
Portion of Georgia Military District Number 1606,
Camden County, Georgia. Ms. on file Department
of Anthropology, University of Florida,
Gainesville.
- 1981 - Johnson, Robert E.
Archeological Site Density Within the Peace
River Valley, Florida. Unpublished M.A. thesis
on file Department of Anthropology, University
of Florida, Gainesville.

- 1980 - Johnson, Robert E.
An Archeological and Historical Survey of the Florida State Prison Complex 201 Facilities Project. Ms. on file Florida Division of Archives, History and Records Management, Tallahassee.
- 1980 - Johnson, Robert E.
An Archeological and Historical Survey of the Proposed Florida Power Corporation Generating Facility in Gulf County, Florida. Ms. on file Florida Division of Archives, History and Records Management, Tallahassee.
- 1980 - Johnson, Robert E., and Raymond F. Willis
An Archeological and Historical Survey of the Proposed Brunswick Energy Company Refinery Site in Brunswick County, North Carolina. Ms. on file North Carolina Division of Cultural Resources, Archeology Branch, Raleigh.
- 1980 - Willis, Raymond F., and Robert E. Johnson
Amax Pine Level Survey, An Archeological and Historical Survey of Properties in Manatee and De Soto Counties, Florida. Ms. on file Florida Division of Archives, History and Records Management. Tallahassee.
- 1979 - Johnson, Robert E.
An Archeological and Historical Survey of a Proposed 230 KV Transmission Facility in Lee County, Florida. Ms. on file Florida Division of Archives, History and Records Management, Tallahassee.
- 1978 - Johnson, Robert E. and Raymond F. Willis
An Archeological and Historical Survey of the West Pasco Spray Irrigation Project - North Site, Pasco County, Florida. Ms. on file Florida Division of Archives, History and Records Management, Tallahassee.
- 1978 - Johnson, Robert E.
Archeological Excavations of 9Cam167 and 9Cam173 at King's Bay, Camden County, Georgia. Ms. on file Department of Anthropology, University of Florida, Gainesville.

VITAE

JOSEPH E. FLUET, JR., P.E.
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Ocean Ridge, Florida 33435
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Professional History

Current: Florida Atlantic University, Boca Raton, Florida;
Adjunct Professor of Engineering
Private Consultant

1983 - 1991 GeoSyntec Consultants (formerly GeoServices
Incorporated Consulting Engineers); President,
Chairman of the Board, Senior Principal
Consulting and Laboratory Services in Civil,
Geotechnical, Environmental, Geosynthetics and
Materials Engineering
Headquarters in Boynton Beach, Florida, Ga.,
Branches in Boynton Beach, Fl. (2), Atlanta,
Ga., Huntington Beach, Ca.
150+ Employees

1981 - 1983 J.E.F. Associates Inc., President, Principal
Engineer; Precursor firm to GeoSyntec
Consultants.
Office in Ocean Ridge, FL.

1978 - 1981 Terrafix Erosion Control Products Inc., General
Manager, Chief Engineer
Manufacturer of geotextiles and other erosion
control products
Headquarters in West Palm Beach, FL, Offices in
Mobile, AL, Toronto, Canada

1976 - 1978 Associated Florida Contractors, Inc., President,
Chief Engineer
Construction Company Specializing in Marine and
Residential Construction
Office in Boca Raton, FL

1974 - 1976 Southern Bell Telephone and Telegraph Company
Manager

1971 - 1974 Florida Atlantic University, Undergraduate and
Graduate Student

1970 - 1971 Executive Flight Academy of Atlanta, Chief Pilot,
Instruments

1965 - 1970 U.S. Marine Corps, Captain, Pilot F4B Phantom

1961 - 1965 University of North Carolina, Chapel Hill,
Undergraduate Student

EXHIBIT

TRL-5I

Professional Committee Work

Past President, North American Geosynthetics Society;
Chairman, "Geosynthetics '87", a North American Conference held in New Orleans in 1987
Chairman, American Society for Testing Materials (ASTM) Symposium on "Geotextile Testing and the Design Engineer", Los Angeles, CA, 1985
Member of Organizing Committee for:
• Geosynthetics '89 (1989)
• Geosynthetics '85 (1985)
• International Conference on Geomembranes (1984)
• Second International Conference on Geotextiles (1982)
Past Treasurer, International Geotextile Society
Past Chairman, Geotextile Division of the Industrial Fabrics Association International
Past Chairman, American Railway Engineering Association, Committee One Subcommittee on Geotextiles
Past Chairman, ASTM D35 on Geotextiles, Subcommittee on Liason
Past Chairman, AREA Committee One Subcommittee on Geotextiles

Professional and Personal Recognition

Co-Recipient of the North American Geosynthetics Society Award of Excellence, presented in Atlanta, Georgia, February, 1991.
Co-Recipient of The International Geotextile Society Award, 1987-1988; Presented at The Fourth International Conference on Geotextiles, The Hague, The Netherlands, May 1990.
Recipient of Florida Atlantic University Distinguished Alumnus Award, Alumni Hall of Fame, Presented in Boca Raton, Florida, October 1989.
Recipient of the Technical Association of the Pulp and Paper Industry 1989 Nonwovens Conference Building and Industrial Mats Best Paper Award, Marco Island, Florida, August, 1989.
Invited Speaker, Government Refuse Collectors and Disposal Association (GRCDA) National Conference, Tulsa, OK, 1989
Recipient of North American Geosynthetics Society Leadership Award, 1989
Panel Moderator, Geosynthetics '89 Expert Panel on Geosynthetic Specifications
Keynote Address for American Society of Civil Engineers (ASCE) Symposium on Geosynthetics for Soil Improvement, ASCE National Convention, Nashville, TN, 1988

Professional Publications and Presentations

Author or co-author of more than 50 technical articles and papers
Author of one technical handbook and two technical manuals
Contributing author to two books
Featured interview by four technical magazines
Organizer and Instructor of Continuing Education Short Courses and Seminars at Florida Atlantic University, University of Wisconsin, North Carolina State University, George Washington University, Clemson University, University of Nebraska, Northeastern University and Lehigh University
Invited Lecturer at Florida Atlantic University, University of Miami, Massachusetts Institute of Technology and California State University at Long Beach
Invited lecturer for State of Florida Department of Environmental Regulation, State of New York Department of Environmental Control, Commonwealth of Pennsylvania Department of Environmental Regulation, State of Rhode Island Department of Environmental Management, State of California Water Quality Board, State of Minnesota Pollution Control Agency and United States Agency for International Development

Instructor for several series of 1-3 day short courses conducted on behalf of the U.S. Environmental Protection Agency and the Federal Highway Administration
Expert Witness at Public Hearings in Florida, New York, Pennsylvania, Rhode Island, Illinois and Vermont

Professional Registrations

Registered Professional Engineer in Alabama, Arizona, California, Colorado, Florida, Illinois, Indiana, Louisiana, Maine, Michigan, Montana, New Hampshire, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Vermont, Wisconsin, and Wyoming
Licensed General Contractor in Florida

Civic Participation

Active in church work since 1976
Member of F.A.U. Alumni Association Board of Directors (1981-1984);
Freedom Run volunteer and sponsor
Volunteer counselor for Vietnam-era veterans at "Vet Center" (1981-1982)
Coach and referee of youth soccer, football and baseball (1973-1985)
School Board Member, Advent Middle School (1979-1981)
Board of Directors, Florence Henderson Child Care Center (1972-1973)
Board of Directors, Advent Gardens Retirement Center (1977-1979)

Education

M.S. Engineering, Florida Atlantic University, 1976
B.A. Psychology, University of North Carolina at Chapel Hill, 1965

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LIST OF PUBLICATIONS

J.E. FLUET, Jr.

- 75-1 Hartt, W.H., Fluet, J.E., Jr., and Henke, T.E., "Cathodic Protection Criteria for Notched Structural Steel Undergoing Seawater Corrosion Fatigue", Proceedings of the Offshore Technology Conference, Houston, TX, May 5-8, 1975, pp. 216-222.
- 76-1 Hartt, W.H., Fluet, J.E., Jr., and Henke, T.E., "Fatigue Behavior of Notched 1018 Steel in Air", Met. Trans., Vol. 7A, 1976, p. 1341.
- 76-2 Hartt, W.H., Henke, T.E., and Fluet, J.E., Jr., "Fatigue Behavior of Notched 1018 Steel in Seawater", Proceedings of the AIME Meeting, Niagara Falls, NY, 1976.
- 76-3 Fluet, J.E., Jr., Corrosion Fatigue of Notched 1018 Steel in Sea Water, Masters Thesis, Florida Atlantic University, Boca Raton, FL, 1976, 151 p.
- 77-1 Hartt, W.H., Henke, T.E., and Fluet, J.E., Jr., "Fatigue Crack Acidification of Notched 1018 Steel in Seawater", Proceedings of the Annual Meeting, National Association Corrosion Engineers, San Francisco, CA, 1977.
- 80-1 Fluet, J.E., Jr., "Filter Fabric Technology and Installation Procedures", Roadbed Technology and Railway Track Renovation Workshop, George Washington University, Jun 16-18, 1980.
- 81-1 Fluet, J.E., Jr., "Earth Stabilization Geofabrics (Engineering)", Symposium on Mechanically Inter-Locked and Inter-Laced Nonwovens, Raleigh, NC, May 12- 14, 1981.
- 81-2 Fluet, J.E., Jr., "Geotextiles for Railroads - A Short Course", Industrial Fabric Products Review, Vol. 58, No. 2, I.F.A.I., Minneapolis, MN, Jul 1981, pp. 31-42.
- 81-3 Fluet, J.E., Jr. and Fuller, A.E., "An Analytical Approach to Flexible, Permeable Revetment Design", National Association of Conservation Engineers Conference, Oct 1981.
- 81-4 Fluet, J.E., Jr., Terrafix Geotextiles for Railroads, Terrafix Erosion Control Products, Inc., W. Palm Beach, FL, 1981, 24 p.
- 82-1 Fluet, J.E., Jr., "Full Scale Railroad Geotextile Testing Procedures", Proceedings of the Second International Conference on Geotextiles, Las Vegas, NV, Aug 1982, I.F.A.I., St. Paul, MN, Vol. II, pp. 491-494.
- 82-2 Fluet, J.E., Jr., "Geotextile Fabrics - An Overview", Clemson Industrial Fabrics Symposium, New York City, Sep 20- 21, 1982.
- 83-1 Paisley, M.E., Fluet, J.E., Jr., and Hampton, P.M., "Orion - A Cooperative Effort", Presented to Transportation Research Board Annual Meeting, Committee A2M01, Washington, DC, Jan 1983.
- 83-2 Fluet, J.E., Jr., "Geotextiles: A Short Course", I.F.A.I., Atlanta, GA, Oct 1983.
- 83-3 Fluet, J.E., Jr., "Geotextiles Types, Applications and Generalized

- Design Criteria", ASCE, 1983 Annual Meeting, Cape Coral, FL, Sep 29, 1983.
- 83-4 Fluet, J.E., Jr., "Geotextiles, Geomembranes, and Related Products Used in Pollution Control Applications", Industrial Fabrics, A New Clemson University Textile Conference, New York City, Nov 16-17, 1983.
- 84-1 Fluet, J.E., Jr., "Seawall Care: A Short Course Outline", Presented at Florida Atlantic University, Boca Raton, FL, Feb 1984.
- 84-2 Fluet, J.E., Jr., "Coated Fabrics in Geotextile and Geomembrane Applications", Plastics in Building Construction, ISSN 0147-2429, Vol. 8, No. 5, Feb 1984, pp. 7-12.
- 84-3 Fluet, J.E., Jr., and Koehler, E.F., "Geomembrane-Geotextile-Geogrid Composites in a Railroad Application", Proceedings of the International Conference on Geomembranes, Denver, CO, Jun 1984, pp. 20-24.
- 84-4 Fluet, J.E., Jr., "Geogrids Enhance Track Stability", Railway Track and Structures, Jun 1984, pp. 19-22.
- 84-5 Fluet, J.E., Jr., "Geotextiles: Functions, Applications and Design Considerations", Presented at Sanitary Landfill Gas and Leachate Management, University of Wisconsin, Dec 3-5, 1984.
- 84-6 Fluet, J.E., Jr., "Geotextile Research Needs: Special Projects", presented to Transportation Research Board Geotextile Task Force, Washington D.C., Jan 18, 1984.
- 84-7 Fluet, J.E., Jr., "Manufacture and Markets of Specialty and Engineered Coated Fabrics", Conference on Coated Fabrics, Boston, MA, May 3-4, 1984.
- 84-8 Rollin, A.L., Fluet, J.E., Jr., and Denis, R., "Computer Methods in Geotextile Engineering", Proceedings of the Specialty Conference on Computer Methods in Offshore Engineering, Canadian Society for Civil Engineering, Halifax, Nova Scotia, May 23-25, 1984, pp. 281-300.
- 84-9 Fluet, J.E., Jr., "Coated Fabrics in Geotextile and Geomembrane Applications", Journal of Coated Fabrics, ISSN 0093-4658, Vol. 14, Jul 1984, pp. 53-64.
- 85-1 Fluet, J.E., Jr., "Geosynthetic Products and Applications", Presented at Geotextiles and Geomembranes in Civil Engineering, Northeastern University, Boston, MA, May 1985.
- 85-2 Fluet, J.E., Jr., "Geosynthetics: Geotextiles, Geogrids and Related Products", The Track Cyclopedia, May 1985.
- 85-3 Fluet, J.E., Jr., "Quality Assurance of Hazardous Waste Geosynthetic Liner Systems", Canadian Geotechnical Conference, 1985.
- 85-4 Interview of Fluet, J.E., Jr. by J.H. Brownlee, "Stabilizing the Roadbed", Modern Railroads, Vol. 40, No. 1, Jan 1985, pp. 44-47.
- 85-5 Fluet, J.E., Jr., Exxon Geotextile Design Manual for Paved and Unpaved Roads, Exxon Chemical Americas, Atlanta, GA, 1985, 76 p.
- 85-6 Fluet, J.E., Jr., "Editor's Introductory Remarks", Geotextile

Testing and the Design Engineer, ASTM STP No. 952, 1987.

- 86-1 Fluet, J.E., Jr., Christopher, Barry R., and Slaters, Arthur R., Jr., "Stress-Strain Response Under Full Scale Embankment Loading Conditions", International Conference on Geotextiles III, Vol. 1, Apr 1986, pp. 175-180.
- 86-2 Giroud, J.P., and Fluet, J.E., Jr., "Quality Assurance of Geosynthetic Lining Systems", Geotextiles and Geomembranes, Vol. 3, No. 4, Oct 1986, pp. 249-287.
- 86-3 Fluet, J.E., Jr., "Geosynthetics and North American Railroads", Geotextiles and Geomembranes, Vol. 3, Nos. 2 & 3, 1986, pp. 201-281.
- 86-4 Fluet, J.E., Jr., Geotextiles and Geomembranes, Editorial, (Special Edition Organizer), Vol. 3, Nos. 2 & 3, 1986, pp. 89-90.
- 86-5 Fluet, J.E., Jr., "Geosynthetics A Railroader's Handbook", Simmons-Boardman, Inc., Omaha, NE, 1986, 39 p.
- 86-6 Fluet, J.E., Jr., "Geosynthetic Lining Systems: Installation and Quality Assurance", Proceedings of the National Liner/Leachate Conference, NSWMA/GRCDA, St. Louis, MO, Jun 1986, pp. 40-49.
- 87-1 Fluet, J.E., Jr., "Geosynthetic Lining Systems and Quality Assurance: State of Practice and State of the Art", Proceedings of Geosynthetics '87, New Orleans, LA, Feb 1987, pp. 530-541.
- 87-2 Fluet, J.E., Jr., "Conference Chairman's Introductory Remarks", Proceedings of Geosynthetics '87, New Orleans, LA, Feb 1987, p. 1-2.
- 87-3 Wallace, R.B., and Fluet, J.E., Jr., "Slope Reinforcement Using Geogrids", Proceedings of Geosynthetics '87, New Orleans, Feb 1987, pp. 121-132.
- 87-4 Fluet, J.E., Jr., Editor, Geotextile Testing and the Design Engineer", ASTM, Philadelphia, PA, July 1987, 190 p.
- 87-5 Fluet, J.E., Jr., "Geo-Report", The Florida Specifier, Orlando, FL, 1987, contributing columnist.
- 87-6 Fluet, J.E., Jr., "Geosynthetics Unearthing New Applications", Civil Engineering, ASCE, Vol. 57, No. 10, Oct 1987, pp. 50-53.
- 88-1 Fluet, J.E., Jr., "Geosynthetics for Soil Improvement: A General Report and Keynote Address", Proceedings of the ASCE Spring Convention, Nashville, TN, May 1988.
- 88-2 Giroud, J.P., Fluet, J.E., Jr., and Gross B.A., "Geosynthetic Design Examples: An Addendum to the FHWA Geotextile Engineering Workshop", April 1988, 144 p.
- 88-3 Fluet, J.E., Jr., "The North American Geosynthetics Society", Geotechnical News, Vol. 6, No. 4, Dec 1988.
- 89-1 Fluet, J.E., Jr., "Nonwoven Geotextiles: Types and Applications", Proceedings of the 1989 TAPPI Nonwovens Conference, Marco Island, FL, May 1989.
- 89-2 Fluet, J.E., Jr., "Nonwoven Geotextiles: Types and Applications", reprinted from Proceedings of the 1989 TAPPI Nonwovens Conference,

TAPPI Journal, Vol. 72, No. 8, Aug 1989, pp. 89-92.

- 89-3 Fluet, J.E., Jr., Badu-Tweneboah, K., and Khatami, A., "Geosynthetic Liner Systems", Proceedings of GRCD A Annual Conference, Tulsa, OK, Aug 1989.
- 89-4 Interview of Fluet, J.E., Jr., "Designing By Function", Geotechnical Fabrics Report, St. Paul, MN, Sep 1989, p. 56.
- 89-5 Interview of Fluet, J.E., Jr., "Trends in Hazardous Waste Land Disposal" by Andrew Singer, Environmental Manager, New York, NY, Vol. 1, No. 5, Dec 1989, pp. 7-8.
- 90-1 Fluet, J.E., Jr., "Geosynthetics Quality Assurance: Planning Your Work and Working Your Plan", Geosynthetics World, United Kingdom, Vol. 1, No. 1, May 1990, pp. 20-25.
- 90-2 Fluet, J.E., Jr., Badu-Tweneboah, K., and Khatami, A., "Geosynthetic Liner Systems: Types, Design & Selection Criteria" GRCD A Journal of Municipal Solid Waste Management, Silver Spring, MD, Vol. 1, August 1990, pp.29-43.
- 91-1 Bonaparte, R., Fluet, J.E., Jr., Johnson, R.D., and Chouery-Curtis, V., "Application of Geosynthetics to the W.H. Zimmer Generating Station Project", Proceedings of Geosynthetics '91, Atlanta, Ga., February, 1991.
- 91-2 Fluet, J.E., Jr., Badu-Tweneboah, K., and Khatami, A., " A Review of Geosynthetic Liner System Technology" Waste Management & Research, Copenhagen, Denmark, Vol. ____, No. ____, ____ 1990, pp. ____.

Professional Resume of

J. STEVE GODLEY

Areas of Specialization

Wetlands - vertebrate species interactions; environmental permitting and mitigation design
community ecology; endangered species; experimental design; biotelemetry.

Experience

Vice President, Biological Research Associates, Inc., Tampa, Florida, 1986 - present.

Senior Ecologist, Biological Research Associates, Inc., Tampa, Florida, 1979 - 1985.

Ecological Consultant, U.S. Fish and Wildlife Service, Tampa, Florida, 1978 - 1983.

Ecological Consultant, McFarland - Johnson Engineers, Inc., Tampa, Florida 1976 -1980.

Ecological Consultant, Tampa Electric Company, Tampa, Florida, 1974 - 1977.

Curatorial Assistant, University of South Florida Herpetology Museum, Tampa, Florida, 1976
- 1977.

Teaching Assistant, Fundamentals of Biology, Sex and Reproduction, Ecology, Environment,
Biology of the Amphibia, Biology of the Reptilia, Biometry, University of South Florida,
Tampa, Florida, 1975 - 1976, 1981 - 1982.

Field Assistant, Los Angeles County Museum Herpetological Expedition to Mexico directed
by Dr. John W. Wright and Dr. Roy W. McDiarmid, 1975.

Field Assistant, U.S. National Park Service, Sooty Tern Population Study directed by Dr.
William B. Robertson, 1974.

Clinical Laboratory Technician, University Community Hospital, Tampa, Florida, Supervisor
11-7 weekend shift, 1971 - 1975.

Clinical Laboratory Technician, U.S. Army, Fort Polk, LA, Supervisor, Hematology
Department, 1969 - 1971.

Education

Clinical Laboratory Technician (June, 1970). U.S. Army Medical Field Service School, Brook
Army Medical Center, Ft. Sam Houston, Texas.

B.A. - University of South Florida, Tampa, FL, 1974, Biology

M.A. - University of South Florida, Tampa, FL, 1979, Zoology

Habitat Evaluation Procedures (HEP Analysis). Certified by USFWFS, May 1987.

EXHIBIT

TRL-5J

Representative Environmental Studies

Environmental Assessments

Biological Assessment of the Lower Hillsborough Flood Detention Area. Amphibians and Reptiles. Submitted to Southwest Florida Water Management District, with Dr. Roy McDiarmid, 1973 - 1974.

A Biological Assessment of Beacon Key, Florida. Amphibians and Reptiles. Submitted to Tampa Electric Company, 1974 -1975.

A Quantitative Biological Assessment of Big Bend Power Plant Station site. Amphibians and Reptiles, Mammals. Submitted to Tampa Electric Company, 1974.

A Faunal Inventory of Sun City Center Development Project. Submitted to Biological Research Associates, Inc., 1975.

Biological Assessment of Cypress Lake Development Project. Vegetation Analysis, Faunal Inventory. Submitted to Biological Research Associates, Inc., 1976.

Study Design for Location and Environmental Report for State Project Nos. 04020-1509, 06010-1508 (Construction of a multiland roadway from S.R. 70 in Arcadia to Bowling Green on the existing S.R. 35). Negative Declaration. Submitted to Florida Department of Transportation, with McFarland - Johnson Engineers, Inc. and Dr. Roy W. McDiarmid, 1976 - 1980.

Stewardship Master Plan and Biological Inventory for the Tiger Creek Preserve. Submitted to The Nature Conservancy, Southeast Regional Director, with Jim Poppleton, 1977.

Stewardship Master Plan and Biological Inventory for the Walk-in-Water Preserve. Submitted to The Nature Conservancy, Southeast Regional Director, with Jim Poppleton, 1977.

A Biological Reassessment of the Big Bend Power Station Site: Vertebrate Fauna. Submitted to Tampa Electric Company, 1977.

Environmental Assessment of Access Alternatives to the Canaveral National Seashore, Florida. Submitted to the National Park Service, 1983.

Habitat Evaluation of the Proposed Bayport Plaza, Hillsborough County, Florida. Submitted to the Wilson Company, 1983.

Environmental Assessment of the Tarpon Lake Villages Tract, Pinellas County, Florida. Submitted to the Tarpon Lake Corporation, 1984.

Wetlands Evaluation of the 1400-acre Thomas Tract, Pasco County, Florida. Submitted to Jireh, Inc., 1985.

Faunal and Floral Inventory of the 33,000-acre Ringling-MacArthur Reserve. Submitted to Sarasota County, 1985.

Environmental Assessment of the 485-acre Shadow Run Tract. Submitted to Southeast Bank, 1986.

Environmental Compliance with the Coastal Zone Management Act. Submitted to the City of Clearwater, Florida, 1987.

Environmental Assessment and Protected Species Surveys of Orlando International Airport expansion and Proposed Mitigation Sites. Greater Orlando Aviation Authority, Orange County, Florida, 1989 - 1990.

Environmental assessment of 546-acre Rhodine Road Tract for Potential Purchase by Hillsborough County Environmental Lands Acquisition Program, Submitted to Hillsborough County for Southeast Bank, Hillsborough County, Florida, 1990.

Environmental Permitting / Mitigation Design

Mitigation Design and Wetland Planting Scheme for Revegetating 3.8 acres of Swamp Forest adjacent to Turkey Ford Lake, Hillsborough County, Florida. Submitted to Florida Department of Environmental Regulation (DER) for Mahaffey Company, 1984.

Erosion Control and Revegetation of the Woodbend Canal Control Structure, Submitted to Florida Department of Environmental Regulation for Minieri, Inc., 1984.

Creation of Wetlands in a Xeric Sandhill Community. Submitted to Beacon Homes, Inc., 1984 - 1985.

Mitigation Design for Citrus Pointe Subdivision. Submitted to DER/COE/EPC for U.S. Homes, Inc., 1984.

Environmental Permitting for the Point Shopping Center. Submitted to DER/COE for Developers Diversified, Inc., 1984.

Environmental Permitting and Mitigation Design for Woodfield Subdivision. Submitted to DER/COE for Amerifirst Development Corporation, 1985.

Environmental Permitting and Mitigation Design for Tri-County Business Park, Phase II. Submitted to DER/COE/EPC for Oldsmar Palms Corporation, 1985.

Consent Order for Cory Lakes. Submitted to DER/COE/SWFWMD/EPC for Cory Lakes, L.T.D. and Taylor Woodrow, Inc., 1985.

Mining Permit for Peat Deposits on Thomas Tract, Pasco County. Submitted to SWFWMD for Jireh, Inc., 1985.

Environmental Permitting and Mitigation Design for the Sabal Center. Submitted to DER/COE/SWFWMD/EPC for the Sabal Corporation, 1986.

Consent Order for the Cheval Golf and Polo Club. Submitted to DER/COE/EPC for Profundo Cheval, Inc., 1987.

Environmental Permitting and Mitigation Design for Hunter's Green, A Florida Quality Development. Submitted to DER/COE/SFWMD/EPC for Markborough Florida, Inc., 1988 - 1991.

Environmental Permitting and Mitigation Design for the Fourth Runway, Midfield Area and Third Terminal Complex, Orlando International Airport. Submitted to FAA/EPA/COE/DER/SFWMD/Orange County for Greater Orlando Aviation Authority, 1989 - 1991.

Environmental Permitting and Master Mitigation Plan for Build-out of Orlando International Airport. In preparation for submittal to FAA/EPA/COE/DER/SFWMD/Orange County for Greater Orlando Aviation Authority, 1990 - 1991.

Environmental Permitting and Mitigation Design for 3428-acre Trinity Communities. Submitted to COE/DER/SFWMD for Adam Smith Enterprises, Inc., 1988 - 1991.

Developments of Regional Impacts

River Pines. Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to Withlacoochee River Regional Planning Council for River Pines of Hernando, Inc., 1984.

Tampa Bay Park of Commerce. Questions 14 (Soils), 15 (Water), 16 (Wetlands), and 18 (Vegetation and Wildlife). Submitted to Tampa Bay Regional Planning Council for Hollywood, Inc., 1985.

The Sabal Center. Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the TBRPC for the Sabal Corporation, 1984.

GTE/Collier 326. Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to TBRPC for GTE Realty Company and Collier Corporation, 1984.

Arvida Corporate Park. Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the TBRPC for The Arvida Corporation, 1984.

Woodland Corporate Center, Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the TBRPC for Shimberg-Cross Enterprises, 1985.

Eastshore Commerce Park. Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the TBRPC for Florida Steel, 1986.

Trinity Communities. Questions 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the TBRPC for Adam Smith Enterprises, Inc., 1986.

Cross Creek. Question 18 C and D (Wildlife). Submitted to the TBRPC for Gulfstream Land Development Corporation, 1987.

Timber Pines. Question 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the WRRPC for U.S. Home Corp., 1988.

Serenova. Question 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the TBRPC for the Otto Pottberg Trust, 1989.

Fourth Runway. Question 16 (Wetlands) and 18 (Vegetation and Wildlife). Submitted to the ECRPC for the Greater Orlando Aviation Authority, 1990.

Wildlife Studies

Habitat Survey and Action Plan for Snake Control on MacDill Air Force Base, Florida. Submitted to W.A. Lester, Chief, Operations and Maintenance, MacDill Air Force Base, with Dr. Roy McDiarmid, 1975.

Determination of Possible Effects of White Amur on Native Herpetofaunal Residing in Lake Conway, Florida. Project Manager of 5-year study. Submitted to the U.S. Army Corps of Engineer Waterways Experiment Station, with Dr. Roy W. McDiarmid and four assistants, 1977 - 1982.

A Winter Avifaunal Inventory of the Amax Chemical Corp. Lands in Hardee and DeSoto Counties, Florida. Submitted to Environmental Science and Engineering, 1979.

Radio Telemetry Tracking of Amphibians and Reptiles in Lake Conway, Florida. Submitted to U.S. Fish and Wildlife Service, 1979 - 1983.

The Relationships between Reproductive Success of Bald Eagles and Mining Activities of the Aripeka Limerock Company. Submitted to Florida Game and Fresh Water Fish Commission, 1984.

Introduction of Triploid Grass Carp for Biological Control of *Hydrilla* in the Japanese Gardens Canal. Submitted to Florida Game and Fresh Water Fish Commission for Japanese Gardens, Inc., 1984.

Relocation of Endangered and Threatened Species Inhabiting Sand Pine Scrub on the Milgrom Tract, Pinellas County, Florida. Submitted to The City of Clearwater, for Milgrom Enterprises, Inc., 1984.

Relocation and Monitoring of Gopher Tortoises and Indigo Snakes from the proposed Gardinier Gypsum Storage Site. Submitted to Florida Game and Fresh Water Fish Commission for Gardinier, Inc., 1985.

Evaluation and Recommendations for Bald Eagle Nest in Lake County, Florida. Submitted to Florida Game and Fresh Water Fish Commission for John Meadows, 1985.

Relocation and Monitoring of Gopher Tortoises from Tampa Telecom Park. Submitted to Florida Game and Fresh Water Fish Commission for GTE/Collier Corporation, 1985.

A Model Relating Florida Panther Strikes with Vehicular Traffic on Alligator Alley and S.R. 29. Submitted to the I-75 Access Council, 1986.

Endangered Species Surveys of the Seven Hills Site, Hernando County, Florida. Submitted to the Florida Game and Fresh Water Fish Commission for Seven Hills, Inc., 1987.

Recovery and Relocation Plan for the Endangered Florida Golden Aster, *Chrysopsis floridana*. Submitted to Hillsborough County for Nolan Construction, Inc., 1987.

J. STEVE GODLEY
PAGE SIX

Endangered Species Assessment of the 1,821-acre Trout Creek Tract, Pasco County, Florida. Submitted to the FGFWFC and TBRPC for Trout Creek Associates, Inc., 1989.

Gopher Tortoise Management Plan for the 28,000-acre Disney Development Company holdings, Orange and Osceola Counties, Florida. Submitted to FGFWFC for Disney Development Company, 1990 - 1991.

Creating Wood Stork foraging habitat within the Fawn Ridge borrow pit system, Hillsborough County, Florida. Submitted to FGFWFC and Hillsborough County for MDC Partnership, 1990.

Scholarships

Graduate Registration Scholarship, University of South Florida, 1980.

Graduate Council Fellowship, University of South Florida, 1980-81.

Graduate Council Fellowship, University of South Florida, 1981-82.

Honors

Phi Kappa Phi

Sigma Xi

Herpetologists' League Outstanding Student Paper Award for 1979 (with N.N. Rojas).

Sigma Xi Outstanding Ph. D. Student Researcher at USF for 1982.

C.A. "Ding" Darling Outstanding Conservationist Award for 1982.

U.S. Fish and Wildlife Service Outstanding Achievement Award for 1982.

Publications

Godley, J.S. 1976a. Range Extension for *Ophisaurus compressus*. Herp. Review 7 (3): 122-123.

Godley, J.S. 1976b. Ontogenetic shifts in food habitats of a crayfish eating specialist: *Regina alleni* (Serpentes: Colubridae). Herp. Review 7 (2): 84-85. (abstract).

Garcia-Lozano. L.C. and Godley J.S. 1976c. A computer approach to the biogeography of the herpetofauna of the Pacific lowlands of Mexico. Herp. Review 7 (2): 83. (abstract)

Godley, J.S. 1978a. Mangrove Terrapin, *Malaclemys terrapin rhizophorarum*. Pages 51-53 in Rare and Endangered Biota of Florida, Vol. III. Amphibians and Reptiles. Florida Committee on Rare and Endangered Plants and Animals. Florida Game and Fresh Water Fish Commission Special Publication.

Godley, J.S. 1978b. Gulf Hammock Dwarf Siren, *Pseudobranchius striatus lustricolus*. Pages 17-18 in Rare and Endangered Biota of Florida, Vol. III. Amphibians and Reptiles. Florida Committee on Rare and Endangered Plants and Animals. Florida Game and Fresh Water Fish Commission Special Publication.

Godley, J.S. 1980a. Foraging ecology of the Striped Swamp Snake, *Regina alleni*, in southern Florida. Ecol. Monogr. 50: 411-436.

Godley, J.S. 1980b. The herpetofauna of Lake Conway. Proceedings, Research Planning Conference Aquatic Plant Control Program, U.S. Army Corps of Engineers Misc. Publication. A-80-3: 305-314.

Godley, J.S., R.W. McDiarmid, and G.T. Bancroft 1981a. Large-scale operations management test of use of the White Amur for control of problem aquatic plants, Report 1: Base-line Studies, Volume V. The herpetofauna of Lake Conway, Florida. U.S. Army Engineer Waterways Experiment Station. Technical Report 1-78-2: 1-111.

Godley, J.S., F.E. Lohrer, J.N. Layne, and J. Rossi. 1981b. Distributional status of an introduced lizard in Florida: *Anolis sagrei*. Herp. Review 12: 84-86.

Godley, J.S., G.T. Bancroft. 1981c. The herpetofauna of Lake Conway. Proceedings, Research Planning Conference Aquatic Plant Control Program, U.S. Army Corps of Engineers, Misc. Publication. A-81-3: 369-404.

Godley, J.S. 1982a. Aquatic snakes in water hyacinth communities. Pages 281-282 in D.E. Davis, editor. Handbook of census methods for terrestrial vertebrates. CRC Press, Inc., Boca Raton, Florida.

Godley, J.S. 1982b. Predation and defensive behavior of the striped swamp snake, *Regina alleni*. Florida Field Naturalist. 10: 31-36.

Godley, J.S., G.T. Bancroft, and R.W. McDiarmid 1983a. The herpetofauna of Lake Conway. Proceedings, Research Planning Conference Aquatic Plant Control Program, U.S. Army Corps of Engineers, Misc. Publication: 286-299.

Godley, J.S. 1983b. Observations on the courtship, nests, and young of *Siren intermedia* in southern Florida. American Midl. Naturalist. 100: 215-219.

Godley, J.S., R.W. McDiarmid, and G.T. Bancroft. 1983c. Large-scale operations management test of use of the White Amur for control of problem aquatic plants, Report 2: Final Report, Volume V. The herpetofauna of Lake Conway, Florida: Community Analysis. U.S. Army Waterways Experiment Station, Technical Report A-78-2: 1-167.

Bancroft, G.T., J.S. Godley, R.W. McDiarmid, N.N. Rojas, D.T. Gross, and D.A. Sutphen. 1983d. Large-scale operations management test of use of the White Amur for control of problem aquatic plants, Report 2: Final Report, Volume V. The herpetofauna of Lake Conway, Florida: Species Accounts. U.S. Army Waterways Experiment Station, Technical Report A-78-2: 1-301.

Godley, J.S., R.W. McDiarmid, and N.N. Rojas. 1984a. Estimating prey size and number in crayfish-eating snakes, genus *Regina*. Herpetologica 40: 82-88.

Godley, J.S. and R.J. Callahan. 1984b. Creation of Wetlands in a Xeric Community. Proceedings 10th Annual Conference on Wetlands Restoration and Creation 10: 112-129.

Godley, J.S. 1989. Comparison of gopher tortoise populations relocated onto reclaimed phosphate-mined sites in Florida. Pages 43 - 58 in J.E. Diemer, et. al. (eds). Gopher Tortoise Relocation Symposium Proceedings. FGFWFC Nongame Wildlife Program Technique Report #5.

Godley, J.S. *In Press*. Gopher Frog, *Rana aerolata*. Rare and Endangered Biota of Florida, Vol. III. Amphibians and Reptiles. Florida Committee on Rare and Endangered Plants and Animals. Florida Game and Fresh Water Fish Commission Special Publication.

Oral Presentations

J.S. Godley. 1976. Ontogenetic Shifts in Food Habits of a Crayfish Eating Specialist: *Regina alleni* (Serpentes: Colubridae). Presented at the 1976 Annual Meetings, Society for the Study of Amphibians and Reptiles and Herpetologists' League, 9-12 August 1976, Miami University, Oxford, Ohio.

J.S. Godley. 1976. A Computer Approach to the Biogeography of the Herpetofauna of the Pacific Lowlands of Mexico. Presented at the 1976 Annual Meetings Society for the Study of Amphibians and Reptiles and Herpetologists' League, 9-12 August 1976, Miami University, Oxford, Ohio. (with L.C. Garcia-Lozano).

J.S. Godley. 1977. Feeding Behavior and Handling Time in Newborn Striped Swamp Snakes, *Regina alleni*. Presented at 1977 Annual Meetings, Society for the Study of Amphibians and Reptiles, Herpetologists' League, 31 May - 7 June, 1977, Arizona State University, Tempe.

J.S. Godley. 1979. Tooth Morphology in Crayfish-eating Snakes, genus *Regina*. Presented at 1979 Annual Meetings, Society for the Study of Amphibians and Reptiles and Herpetologists' League, 12-16 August 1979, University of Tennessee, Knoxville. (with N.N. Rojas).

J.S. Godley. 1980. Diel and Seasonal Activity Patterns of amphibians and Reptiles in a Central Florida Lake. Presented at 1980 Annual Meetings, Society for the Study of Amphibians and Reptiles and Herpetologists' League, 6-10 August, 1980, University of Wisconsin, Milwaukee. (with G.T. Bancroft).

J.S. Godley. 1980. Ecology of *Amphiuma means* in a Central Florida Lake System. Presented at 1980 Annual meetings, Society for the Study of Amphibians and Reptiles and Herpetologists' League, 6-10 August 1980, University of Wisconsin, Milwaukee. (with G.T. Bancroft and R.W. McDiarmid).

J.S. Godley. 1980. Aquatic Turtle Research at Lake Conway, Florida. Presented at the Powdermill Turtle Conference, 18-21 September 1980, Carnegie Museum, Pittsburgh, PA. (with G.T. Bancroft and R.W. McDiarmid).

J.S. Godley. 1980. The Herpetofauna of Lake Conway: Second Post-stocking Report. Presented at the 14th Annual Meeting of the U.S. Army Corps of Engineers Aquatic Plant Control Program, 17-20 November, 1980, Savannah, Georgia. (with G.T. Bancroft and R.W. McDiarmid).

J.S. Godley. 1980. Foraging Ecology of the Striped Swamp Snake in Florida. Guest Lecturer at the Savannah River Ecology Laboratory, 21 November, 1980, Aiken, S.C.

J.S. Godley. 1981. New Techniques in Aquatic Radiotelemetry. Guest Lecturer at the Archbold Biological Station, 25 June 1981, Lake Placid, Florida.

J.S. Godley. 1981. The Herpetofauna of Lake Conway: Third Post-stocking Report. Presented at the 15th Annual Meeting of the U.S. Army Corps of Engineers Aquatic Plant Control Program, 16-19 November 1981, St. Paul, Minnesota.

J.S. Godley. 1982. The Herpetofauna of Lake Conway: Interactions with the Introduced Grass Carp, *Cenopharyngodon idella*. Guest Lecturer at the University of Central Florida Biology Department, 10 March 1982, Orlando, Florida.

J.S. Godley. 1982. The Amphibians and Reptiles of Lake Conway, Florida. Invited Speaker at the 6th Annual All Florida Herpetology Conference, 27 March 1982, Gainesville, Florida.

J.S. Godley. 1982. The Herpetofauna of Lake Conway, Florida: A Case Study in Environmental Disturbance. Presented at the 1982 Florida Field Biologists conference, 22-24 October 1982, Tampa, Florida.

J.S. Godley. 1983. Creation of Wetlands in a Xeric Community. Presented at the 10th Annual Conference on Wetlands Restoration and Creation, 19-20 May 1983, Tampa, Florida.

J.S. Godley. 1984. Florida's Environmental Industry working Together: The Role of Environmental Consultants. Invited Speaker at the Citrus County Audubon Society, 27 November 1984, Inverness, Florida.

J.S. Godley. 1985. Population Ecology of the Kingsnake, *Lampropeltis getulus*, in Southern Florida. Presented at 1985 Annual Meetings, Society for the Study of Amphibians and Reptiles and Herpetologists League, 5-9 August, 1985, Tampa, Florida.

J.S. Godley. 1985. The Creation of Freshwater Wetlands: Applications of Wood Storks. Guest Lecturer at the Savannah River Ecology Laboratory. 25-27 September 1985, Aiken South Carolina.

J.S. Godley. 1985. The Relocation of Two Gopher Tortoise Populations to Reclaimed Phosphate-mined Lands. Presented at the Gopher Tortoise Council Meetings, 15 - 17 November 1985, Tallahassee, Florida.

J.S. Godley. 1986. A Review of Freshwater Mitigation/Restoration Projects the Tampa Bay Area. Presented at the U.S. Department of Energy Conference on Freshwater Wetlands and Wildlife, 24 - 27 March 1986, Charleston, South Carolina.

J.S. Godley. 1986. Creating Freshwater Wetlands for Wildlife: The Florida Perspective. Presented at the National Wetland Symposium: Mitigation of Impacts and Losses, 8 - 12 October, 1986, Washington D.C.

J. STEVE GODLEY
PAGE TEN

J.S. Godley. 1988. Endangered and Threatened Species in Florida. Presented at the Seventh Annual Water Management Seminar, 9 - 17 January 1988, Vail, Colorado.

J.S. Godley. 1988. The Emerging Role of Endangered Species in Agriculture. Presented at the Florida Agribusiness Council, 21 June 1989. Tampa, Florida.

J.S. Godley. 1989 - 1991. Wetlands Mitigation; Endangered and Threatened Species. Instructor for the Florida Chamber of Commerce's Environmental Permitting Short Course, Winter and Summer Sessions 1989 - 1991, Tallahassee and Marco Island, Florida.

J.S. Godley. 1989. The Role of the Environmental Consultant in School Siting Studies. Presented at the Florida Educational Facility Planners Association, 26 July 1989. Clearwater, Florida.

J.S. Godley. 1989. Integrating the Environment into Golf Course Design: Opportunities of Wetlands Mitigation, Stormwater Treatment and Wildlife Habitat. Presented at the 44th Annual Meeting of the American Society of Golf Course Architects, 26 - 30 March 1989. Pebble Beach, California.

Translations

Mertens, R. 1957. Gibt es eine Mimikry bei Korallenschlangen? (Is there mimicry in coral snakes?). Natur und Volk 87(2): 56-66. Submitted to the Society for the Study of Amphibians and Reptiles - Translation Series, February 1981.

Mertens, R. 1946. Die Warn und Droh Reaktionen der Reptilien. (The warning and threat reactions of reptiles). Abhandlungen Senckenbergischen Naturforschenden Gesellschaft 471: 1-108. Submitted to the Society for the Study of Amphibians and Reptiles - Translation Series, September 1981.

Associations

American Fisheries Society
The American Society of Naturalists
The Ecological Society of America
Florida Committee on Rare and Endangered Plants and Animals
Florida Gopher Tortoise Council
Florida Native Plant Society
Herpetologists' League
Society for the Study of Amphibians and Reptiles
Society of State Wetland Managers

Peer Reviewer

American Midland Naturalist
Copeia
Florida Field Naturalist
Herpetologica

BYRON PEACOCK
SENIOR SCIENTIST

PROFESSIONAL EXPERIENCE SUMMARY

Mr. Peacock's background is in wildlife ecology, botany, and natural resource management. Since joining the ESI staff he has been involved with environmental assessments, wetlands studies, and environmental permitting.

ACADEMIC BACKGROUND

B.S. Wildlife Ecology. University of Florida. 1983

B.S. Botany. University of Florida. 1983

RESPONSIBILITIES WITH ENVIRONMENTAL SERVICES

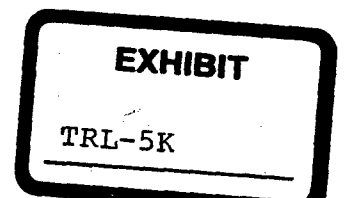
Mr. Peacock serves as a Senior Scientist/Project Manager with Environmental Services, Inc. and has over four years of experience as an environmental consultant. He is skilled at evaluating the environmental constraints to development for projects of all sizes. This work includes such tasks as:

- Mapping and evaluating vegetative communities and wetlands using aerial photograph interpretation and/or field studies
- Delineating the extent of wetlands jurisdiction of applicable federal, state and local regulatory agencies
- Conducting background literature searches and on-site field surveys for endangered and threatened animal and plant species
- Coordinating meetings with client and government agencies
- Preparing environmental assessment reports
- Obtaining dredge and fill permits
- Planning, maintenance and monitoring of wetland mitigation projects

PRIOR EXPERIENCE

1986-Present: ENVIRONMENTAL SERVICES, INC.

1984-1986: CITY OF JACKSONVILLE (FL), DIVISION OF BIO-ENVIRONMENTAL SERVICES



PROJECT EXPERIENCE

Assessments of Large Tracts of Land

- Villages of Seminole Forest FQD, 60,000 acres
- Southwood Plantation DRI, 12,000 acres
- Riverton DRI, 4,300 acres
- St. Johns Forest DRI, 18,000 acres
- Box Ranch DRI, 3,000 acres
- Suwannee Trails DRI, 1,500+ acres
- Sandestin Beach Resort DRI, 2,200+ acres
- Pace Island FQD, 1,000 acres

Commercial Developments

- Food Lion Warehouse, Jacksonville, Clay County, FL
- Walmart, Jacksonville, FL
- Burger King, St. Augustine, FL
- McDonalds, St. Augustine, FL
- Shoneys Stores, Lake City, FL
- Brannan Field Plaza
- Gran Park at the Avenues
- Lewis Point Plaza

Residential Developments

- Cypress Village
- Riverarch
- Rio Cove
- Old Palm Valley
- Waterford Apartments
- Fairfield
- Dune Allen Beach
- Wildwood Pines

Road Corridors

- County Road 217
- State Road 100
- Losco Road
- Collins Road
- Greenland Road
- McCormick Road
- Monument Road
- Park Street
- Kernan Road
- Hodges Boulevard Extension
- Belfort Road Extension
- UNF Drive Extension
- A1A/Anastatia Island

Assessments/Permitting of approximately 180 other properties and developments

RESUME

ALLAN E. WILLIAMS
5019 RIVEBROOK COURT
Jacksonville, FLORIDA 32211
(904) 743-3639

PRESENT EMPLOYMENT:

Director of Public Utilities
City of Jacksonville
219 Newnan Street
Jacksonville, FL 32202
(904) 630-1198

PERSONAL:

Age: 40
Health: Excellent
Married 20 years to Lynn M. Williams
Two Children - Tracey, 15 and Keith, 13

PROFESSIONAL BACKGROUND:

Registered Professional Engineer
State of Florida No. 29346

MS (Environmental Health Engineering)
University of Kansas, 1976

BSCE (Civil Engineering)
University of Kansas, 1976

BS (Biology) Tulane University, 1973

Entered the profession of Civil Engineering with
Sverdrup and Parcel and Associates (now Sverdrup
Corporation) in 1976.

MEMBERSHIPS:

American Society of Civil Engineers
Water Pollution Control Association
American Water Works Association

EXPERIENCE:

October 1981 - Present - Deputy Director of Public Works, then Director of Public Utilities,
City of Jacksonville, Florida.

EXHIBIT

TRL-5L

Jacksonville, Florida

Jacksonville, Florida is a high-growth sunbelt city located in northeast Florida at the mouth of the St. Johns River. It is somewhat unusual in that City and County government were consolidated in 1968, excepting three beaches communities and one small rural town. The mayor must seek legislative approvals from a 19 member City Council composed of 14 districts and 5 at-large members.

The Jacksonville Department of Public Utilities

Throughout the first two decades of consolidated government, public water and wastewater service was provided by the Water Services Division of the seven-division Department of Public Works. This was somewhat of a mismatch in that the water and wastewater services were fully user-fee funded through a separate enterprise fund; the remainder of the department was general fund. This was rectified by creating a Water Services Department in 1988.

Not unlike many other municipalities, Jacksonville experienced a growing solid waste crisis as the last decade closed. A growing frustration with the problem led city leaders to move the solid waste functions from Public Works to the Water Services Department, renaming it the Public Utilities Department. This made sense because Jacksonville was proceeding with refuse to energy and the water and wastewater utility was well experienced with enterprise funding, user fees, and wastewater sludge incineration. The City has since abandoned solid waste incineration. The solid waste issue has dominated headlines and politics as landfill space diminishes and the cost of compliance with new regulation grows.

The Public Utilities Department consists of seven divisions. Solid waste services are provided by the Recycling, Solid Waste (disposal), and Sanitation (collection) Division. The Planning and Engineering Division provides in-house and consulting services for planning and engineering of the water and wastewater utility. Operational responsibility resides in a Water Division and a Wastewater Division. Finally, a Support division provides budgeting and financial service for both the solid waste and water/wastewater utilities. An organization chart is included. The Director's office is minimal, with a personnel manager and safety officer reporting directly. The Director, Deputy Director, and all Division Chiefs are appointed by the Mayor subject to City Council approval.

Jacksonville's Water and Wastewater Utility

Jacksonville is truly fortunate in providing for water and wastewater needs. The Floridan Aquifer passes under all of Jacksonville, and provides plentiful high quality water from confined strata overlain by several hundred feet of impermeable clay zones. Artesian pressure is decreasing and water quality is decreasing near the coast, hence long term planning must address growing needs in the face of diminishing supply. Wastewater discharge is to the St. Johns River, where secondary treatment has been adequate. However, future expansions may require advanced treatment under Florida regulations.

Water supply is provided by two separate production and transmission systems, separated by the St. Johns River. Fourteen major wellfield and production facilities supply these systems, controlled by a central system through telemetry control. Average daily flow is 70 mgd.

Wastewater treatment is provided by five regional treatment plants ranging from 4.0 to 52.5 mgd. The geography of Jacksonville is very flat, with high groundwater in all locations. As a result, wastewater collection relies on nearly 500 pumping stations.

As Jacksonville grew in the pre-consolidation years, the former county areas were served by privately owned utilities and individual well and septic tank systems. A major effort over the past 20 years has led to the purchase and consolidation of these systems. In the earlier years the primary motivation was elimination of point source package plants and the proliferation of septic tank systems. As greater attention is focused on water supply and potable water quality, the benefits of utility consolidation are now emphasizing the ability to assure continued quality water supply.

The Director of Public Utilities

The Director of Public Utilities reports to the Mayor and is responsible for solid waste collection and disposal, water supply and distribution, and wastewater collection and treatment. The Director of Public Utilities is responsible for developing and focusing the utility policies of the City of Jacksonville. Those policies, once developed, must be approved by the Mayor and 19 member City Council, frequently a challenging task. Jacksonville is a high-growth community where development interests historically exert considerable influence. Despite low tax rates, it is also a community where political sentiment is unusually strong against tax and fee increases. These two characteristics make the Director of Utilities job very challenging. Rate increases, impact fees, and growth management are several facets of utility management that are most difficult in Jacksonville's government structure.

February 1976 - October 1981 - Sverdrup and Parcel

Worked in progressively more responsible positions dealing with the design and operation of industrial and municipal wastewater treatment facilities. Work assignments were primarily project related, with considerable field construction and operation experience. Later experience included management of Environmental and Field Section of Sverdrup and Parcel's Jacksonville office.

ALLAN E. WILLIAMS

My employment with the City began in 1981 as a Deputy Director of Public Works responsible for all City water and wastewater systems. When a separate Water Services Department was created, I was appointed as Director. Following the addition of solid waste functions to the department, I was named Director of Public Utilities.

Ten years of direct management of the Jacksonville water and wastewater systems have clearly left many accomplishments that I can take credit for and be proud of. However, I will be the first to acknowledge thanks to the Mayors who have given me the latitude to hire and promote the kind of professionals who have shared in my efforts. Our achievements include:

- Moving the utility from a defeatist attitude generated by continuous non-compliance and negative press to one of pride in the facilities and a sense of accomplishment of employees who continue to improve operations and maintenance. Prior management sought to attribute deficiencies to design. Current management takes full responsibility for all aspects of our systems.
- Developing a professional management team and establishing the credibility required to convince political leaders to make wise utility decisions. In 1981 there was one professional engineer in the utility; there are now six with several interns as well as a Certified Public Accountant. Enhanced professionalism has come through internal promotion and education, as well as recruiting.
- Making permit compliance the cornerstone of customer confidence. The media desire for negative news dictates that every effort be made to maintain compliance as well as anticipate regulatory changes. Customer confidence is fundamental in the utility business.
- Recognizing the importance of employee morale and satisfaction to effective utility operations. Management is more open and accessible than in the past. Advanced education and innovative shift scheduling are examples of actions taken to improve employee morale and involvement.
- Having established professional credibility, the management team has used that credibility to push for wise, yet politically disagreeable changes in public policy. A private utility acquisition program was reactivated with analysis and negotiation the responsibility of professional staff, not elected council members. The result is customer growth and utility consolidation at costs previously not thought possible.
- Making operational efficiency and wise capital planning routine goals. As a result, Jacksonville currently has the same water and wastewater user fees and connection fees (with no subsidy from taxes) as in 1981. A rate increase is pending and it would not be the utility management's recommendation to have waited this long without interim adjustments. The 1981 rate was projected by the consultant to be increased in 1983.

The above changes are examples of important policy directions taken over the last ten years. Following are specific achievements while Director of Public Utilities:

- Instituted a solid waste user fee on property tax bill
- Passed solid waste flow control programs
- Developed plans for reuse of wastewater for irrigation and industrial use
- Instituted a water conservation program
- Started a county wide curbside recycling program for over 170,000 homes
- Expanded three regional wastewater plants
- Added dechlorination to all wastewater plants
- Designed and constructed several well and reservoir additions
- Instituted pay-as-you-go rehabilitation of water lines and sewers
- Added comprehensive safety program where there had been none
- Developed in-house laboratory services for water and wastewater
- Encouragement of recruitment of minority positions

This list is not intended to cover all accomplishments, only those that are unusual or characterize our philosophy of management.

REFERENCES

I would be happy to provide references from elected officials, former and present, as well as professional associates in Jacksonville as well as national.

CLIPPINGS

Attached are two articles from the Jacksonville Times-Union. They are unusual in that this paper usually has little complimentary to say about local government personnel - elected or appointed.

R E S U M E

NAME: Charles M. Goodowns
ADDRESS: Rt. 2 Box 1660, Starke, Florida 32091
AGE: 48
DATE OF BIRTH: May 16, 1942
PLACE OF BIRTH: Montgomery County, Georgia

EDUCATIONAL EXPERIENCE:

1. Montgomery County High School. Mt. Vernon, Georgia- 1960.
2. Abraham Baldwin College - Tifton, Georgia- Received A.A. Degree 1962.
3. University of Georgia School of Forestry- Received B.S. Degree 1964.
4. Post Graduate work in Forest Physiology at Auburn University, Auburn, Alabama.
5. Numerous short courses and conferences relative to Forestry and environmental subjects.

PROFESSIONAL EXPERIENCE:

1. Resource Management Service - Birmingham, Alabama 18 months- Forestry consulting work.
2. Secrest Pulpwood and Timber Company - Thomasville, Georgia- timber dealership - 2 1/2 years.
3. Gilman Paper Company- Day, Florida Assistant Area Forester- Land Management - 15 months.
4. Gilman Paper Company- Jacksonville, Florida - Area Forester- Trailridge Forest- Land Management. October 1, 1969 to present.

PROFESSIONAL ASSOCIATIONS:

1. Society of American Foresters
2. Florida Forestry Association
- 3 Registered Forester - State of Georgia License Number 737.

EXHIBIT

TRL-5M



Waste Management of North America, Inc.
Southeast Region
500 Cypress Creek Road, West • Fort Lauderdale, Florida 33309-6127
Suite 300 • 305/771-9850

Warren N. Smith
Regional Facility Development Manager
Waste Management of North America, Inc.
Southeast Region

Warren Smith joined Waste Management, Inc. in May, 1985 after having spent nearly fourteen years in the public sector where he held managerial positions in the environmental regulatory and municipal utilities fields at both the State and local levels, and for one year with a private environmental consulting firm. To the present, during his 15 years exclusively as a solid waste professional, Mr. Smith has been involved in all aspects of the solid waste business including residential and commercial collection, solid waste transfer, sanitary landfill and hazardous waste site closures, planning and development of waste-to-energy plants, and sanitary landfill development and operation.

Prior to joining Waste Management, Inc., as Director of Hillsborough County's Solid Waste Department, Mr. Smith had direct responsibility for development of the County's Southeast Landfill, its solid waste transfer system and implementation of its 1,200 ton per day waste-to-energy plant.

With Waste Management, Inc., Mr. Smith has held positions of Manager of Special Projects for Waste Management of Tampa; Manager of Business Development for Waste Management Energy Systems; Waste Reduction Market Development Manager and most recently Regional Facility Development Manager for the Company's Southeast Region.

Mr. Smith holds an M.B.A. degree from the University of South Florida and a B.S. in Geology from the University of Florida. He has co-authored a number of articles on landfills and resource recovery published in major trade journals. He also serves on the Board of Directors of the State University System Center for Solid and Hazardous Waste Management and the Florida Business and Industry Recycling Program.

11-30-90

EXHIBIT

TRL-5N



Sunshine State
Surveyors, inc.

ROBERT S. CORSAT, P.L.S.

EDUCATION

Santa Fe Junior College, Gainesville, Florida
Florida Junior College, Jacksonville, Florida

REGISTRATIONS AND ORGANIZATIONS

Registered Professional Land Surveyor, Florida Registration No. 4341
American Congress on Surveying and Mapping
National Society of Professional Surveyors
Florida Society of Professional Land Surveyors (F.S.P.L.S.)
Director, District 2, F.S.P.L.S.
Florida Association of Cadastral Mappers

EXPERIENCE

- o 1986 - Present Vice President, Project Surveyor, Registered Land Surveyor, Sunshine State Surveyors, Inc., Jacksonville, Florida
- o 1982 - 1986 Computer-Draftsman, Party Chief, and Office manager, L.D. Bradley Land Surveyor, Jacksonville, Florida
- o 1980 - 1981 Computer-Draftsman and Party Chief, Robert M. Angas Associates, Jacksonville, Florida
- o 1978 - 1980 Vice President and Field Supervisor, Argo, Nolan and Associates, Inc. Engineer and Land Surveyors, Orange park, Florida
- o 1977 - 1978 Rodman and Instrument Man, Ray, Snyder and Associates, Land Surveyors, Jacksonville, Florida

Mr. Corsat provides experience with numerous federal, state and local government surveying projects including the United State Army Corps of Engineers, the United States Forestry Service, Florida Department of Transportation, and the City of Jacksonville.

Mr. Corsat has also conducted various hydrographic and aerial control surveys, private sector projects including subdivision design, layout and platting and sectional work.

As a project surveyor for Sunshine State Surveyors, Inc., Mr. Corsat is responsible for the project coordination, client coordination and final certifications on surveying projects.

EXHIBIT

TRL-5A

BYRON PEACOCK
SENIOR SCIENTIST

PROFESSIONAL EXPERIENCE SUMMARY

Mr. Peacock's background is in wildlife ecology, botany, and natural resource management. Since joining the ESI staff he has been involved with environmental assessments, wetlands studies, and environmental permitting.

ACADEMIC BACKGROUND

B.S. Wildlife Ecology. University of Florida. 1983

B.S. Botany. University of Florida. 1983

RESPONSIBILITIES WITH ENVIRONMENTAL SERVICES

Mr. Peacock serves as a Senior Scientist/Project Manager with Environmental Services, Inc. and has over four years of experience as an environmental consultant. He is skilled at evaluating the environmental constraints to development for projects of all sizes. This work includes such tasks as:

- Mapping and evaluating vegetative communities and wetlands using aerial photograph interpretation and/or field studies
- Delineating the extent of wetlands jurisdiction of applicable federal, state and local regulatory agencies
- Conducting background literature searches and on-site field surveys for endangered and threatened animal and plant species
- Coordinating meetings with client and government agencies
- Preparing environmental assessment reports
- Obtaining dredge and fill permits
- Planning, maintenance and monitoring of wetland mitigation projects

PRIOR EXPERIENCE

1986-Present: ENVIRONMENTAL SERVICES, INC.

1984-1986: CITY OF JACKSONVILLE (FL), DIVISION OF BIO-ENVIRONMENTAL SERVICES

EXHIBIT

TRL-5Q

PROJECT EXPERIENCE

Assessments of Large Tracts of Land

- Villages of Seminole Forest FQD, 60,000 acres, Clay and Putnam Counties, FL
- Southwood Plantation DRI, 12,000 acres, Leon County, FL
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- Box Ranch DRI, 3,000 acres, Columbia County, FL
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- Burger King, St. Augustine, FL
- McDonalds, St. Augustine, FL
- Shoneys Store, Lake City, FL
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- Waterford Apartments, Jacksonville, FL
- Fairfield, Ponte Vedra, FL
- Dune Allen Beach, Walton County, FL
- Wildwood Pines, St. Augustine, FL

Road Corridors

- County Road 217, Duval County, FL
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- Losco Road, Duval County, FL
- Collins Road, Duval County, FL
- Greenland Road, Duval County, FL
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- Park Street, Duval County, FL
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- Belfort Road Extension, Duval County, FL
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Assessments/Permitting of approximately 180 other properties and developments

JAMES W. NIEHOFF, P.E.
SENIOR GEOTECHNICAL ENGINEER

EDUCATION: BCE Georgia Institute of Technology, 1976
MSCE Georgia Institute of Technology, 1977

PROFESSIONAL MEMBERSHIP: American Society of Civil Engineers
Chairman-Geotechnical Subcommittee - Georgia Section

PROFESSIONAL REGISTRATION: Registered Engineer in Georgia, Florida, South Carolina, North Carolina

CAREER SUMMARY

Since obtaining his masters degree, Mr. Niehoff has participated in over 200 engineering projects in nine states and three foreign countries. Working with Law Engineering and other consulting firms, he has served in the capacity of project engineer, department manager, senior geotechnical engineer and branch manager. Additionally, he has taught courses in soil mechanics, foundation engineering, and surveying at the college level. He presently serves as one of four group managers in the Atlanta Branch. In this capacity, he provides technical guidance, coordination and review for the Geotechnical, Geology and Drilling Departments having a total staff level in excess of 40 administrative, technical and professional employees. He also currently serves as Chairman of the Geotechnical Committee of the Georgia Section of the American Society of Civil Engineers.

Mr. Niehoff's experience has included the planning and execution of a variety of geotechnical studies for low to high-rise office buildings and hotels, warehouses, schools, industrial and manufacturing facilities, bridges, dams, sports facilities, and landfills. His field experience spans both conventional and in-situ soil testing techniques in mountain, piedmont, coastal plain and marine physiographic settings. He has developed and utilized a wide array of computer programs for the analysis of stress distribution, settlements, slope stability, and vibrations due to unbalanced equipment forces. As part of this work, he has conducted an extensive array of field testings programs which compare theoretical responses of foundations to actual field performance.

He has planned and executed a large number of hydrogeologic studies for landfill and dam siting and design. His work in this area has included preliminary wetland delineation, characterization of geologic setting, evaluation of subsurface hydrogeology and leachate transport and consultation on liner design.

REPRESENTATIVE LANDFILL PROJECTS

Southern States Landfill - Taylor County, Georgia

Senior Geotechnical Engineer for a 400+ acre regional landfill in central Georgia. Landfill incorporated an artificial liner system as well as a complicated monitoring well plan intercepting several aquifer systems.

Remote Landfill - Oliver Springs, Tennessee

Senior Geotechnical Engineer for a large landfill located in an old strip mine. Site preparation recommendations included impact densification of mine spoil material at base of landfill.

Seminole Road Landfill - DeKalb County, Georgia

Senior Geotechnical engineer for the expansion of an existing municipal landfill. Included recommendations for the encapsulation of springs beneath landfill cells.

EXHIBIT

TRL-5R

GWL, INC. EMPLOYEE RESUME

G. WARREN LEVE

Principal Hydrogeologist

Academic Background

University of Buffalo - BA, Geology, 1950
University of Texas - MA, Geology, 1952
Louisiana State University - Post Grad, Hydrogeology, 1955
University of Arizona - Advanced Hydrogeology, 1970

Professional Background

GWL, Inc. - President, 1984 to Present
Consulting Hydrogeologist - 1983 to 1984
USGS Water Resource Division - Subdistrict Chief, 1975 to 1983
USGS Ground Water Division - Hydrologist, 1954 to 1975
USGS Military Geology Branch - Geologist, 1951 to 1952

Registrations

PROFESSIONAL GEOLOGIST - Florida, No. 258
PROFESSIONAL GEOLOGIST - South Carolina, No. 601
PROFESSIONAL HYDROGEOLOGIST - American Institute of Hydrology
(AIH), No. 275
WATER WELL CONTRACTOR - Florida No. 2524

Fields of Special Competence

Project management
Groundwater hydrogeology
Water resources assessments
Test drilling programs
Contamination assessments
Aquifer mapping and analysis
Leachate movement and control
Environmental hydrogeology

Professional Associations

American Institute of Hydrology
American Water Resources Association
National Water Well Association
American Water Works Association

Representative Project Experience

CONTAMINATION ASSESSMENTS

These projects consisted of:

- Definition of regional and site specific hydrogeology
- Extensive test drilling into multiple aquifers
- Installation of monitoring wells

EXHIBIT

TRL-5S

G. WARREN LEVE Continued

- Aquifer testing programs
- Detailed soil and groundwater sampling programs
- Geophysical (electromagnetic) surveying
- Definition of groundwater flow
- Numerical models of contaminant movement
- Design of recovery and treatment systems for site remediation

GROUNDWATER MONITORING PLANS (PERMITTING)

These projects consisted of:

- Collection and assimilation of all regional hydrogeologic data
- Detailed test drilling programs to define site geology/hydrogeology
- Installation of piezometers to define groundwater flow characteristics in multiple aquifers
- Aquifer testing to define rate of groundwater movement
- Inventory of adjacent potential receptors of any contamination
- Analysis of groundwater level fluctuations for landfill design
- Design and placement of monitor wells (clusters) to detect any leachate plume from the landfill
- Being one of the first monitoring plans approved by both FDER and SJRWMD under new expanded requirements outlined in FAC 17-7.05

LIABILITY (RISK) ASSESSMENTS

These projects consisted of:

- Background search at regulatory and enforcement agencies to define any past environmental violations on each site
- Background search to define general site hydrogeology
- Site inspection to define site conditions and locate potential adjacent receptors of contamination
- Sampling and analyses of existing compliance wells at each site
- Establish matrix to rank each site as to potential for contaminating adjacent sites
- Ranking of each site and recommending further action for site remediation, monitoring only, or no further action

G. WARREN LEVE

EDUCATION:

- o Bachelor of Arts in Geology; University of Buffalo; N.Y.; 1950
- o Master of Arts in Geology; University of Texas; Austin; 1952
- o Principals of Ground Water; Louisiana State University; Baton Rouge; 1955
- o Advanced Hydrology; University of Arizona; Tuscon; 1970
- o Short Course in Ground Water-Surface Water Relations; Geophysical Log Interpretation, and Aquifer Analysis given by U.S. Geological Survey; Denver Training Center.

EXPERIENCE:

- o Consulting Hydrogeologist; 1983 to Present.
- o Subdistrict Chief; Water Resource Division; U.S. Geological Survey; Jacksonville, Florida; 1975-1983.
- o Hydrologist; Water Resource Division; U.S. Geological Survey; St. Augustine, Jacksonville, Florida; 1954-1975.
- o Geologist; Beach Erosion Board; Corps of Engineers (Enlisted-NCO); Washington, D.C.; 1952-1953.
- o Geologist; Military Geology Branch; U.S. Geological Survey; Washington, D.C.; 1950-1951.

Mr. Leve has more than thirty years experience in conducting detailed ground and surface water investigations in the southeastern United States and the Caribbean. As hydrologist and Subdistrict Chief of the U.S. Geological Survey, he has authored numerous technical reports encompassing such subjects as aquifer characteristics of complex multi-aquifer systems, downhole geophysical exploration, environmental and urban hydrology, aerial groundwater appraisals and water budgets, aquifer mapping, numerical modeling of groundwater flow, and water quality and hazardous waste investigations. He has also received national and international recognition for his contribution to the understanding of groundwater flow systems and salt water intrusion in northeastern Florida.

He conducted extensive subsurface geohydrologic mapping programs to identify aquifer systems and to delineate subsurface geologic structure that affect groundwater flow patterns. He was invited to present a paper on the effect of geologic faults on salt water intrusion at the Stringfield Symposium of the Geological Society of America. The paper was published in a special issue of the Journal of Hydrology.

He conducted studies on movement of leachate from solid and liquid waste sites in northern Florida and aided the City of Jacksonville on the selection and monitoring of municipal sanitary landfills. He also helped design and supervise the original hydrologic investigations on two hazardous waste superfund sites in Jacksonville; Whitehouse Oil Pits and Picketville landfill, and a newly proposed superfund site (Hipps Road).

EXPERIENCE: (Continued)

He conducted detailed geochemical investigations on the source and movement of salt water intrusion in coastal aquifers throughout northern Florida and Puerto Rico and aided such municipalities as Jacksonville, St. Augustine and other coastal communities in designing wells and well fields to prevent or retard salt water intrusion.

He conducted detailed urban hydrology studies for land use application in the metropolitan Jacksonville area and completed the original studies for the Environmental Impact Studies of the Ocala National Forest.

He served as the U.S. Geological Survey representative to the Joint Oceanographic Investigation Deep Exploration Survey (JOIDES) to explore the subsurface sediments along the continental shelf. He developed a method of analyzing downhole current meter data and conducted deep well exploration drilling programs to define previously unknown deep water bearing zones in the Florida aquifer.

Mr. Leve designed and established a comprehensive multi-purpose water resource monitoring program covering more than 3500 square miles in northeastern Florida. This network consisted of more than 50 surface water monitoring sites, 500 groundwater sites and 300 water quality sites. It included sites for broad scope regional evaluations of ground and surface water supplies and detailed site-specific networks to define effects of local well field and to define contamination from landfills, hazardous waste sites and salt-water intrusion.

Mr. Leve acted as liaison between the U.S. Geological Survey and the St. Johns River Water Management District and helped in setting goals and training the technical personnel in the Water Resource Section. He has also aided the City of Jacksonville in obtaining technical support and funds from the Management District to conduct hydrogeologic studies for the City.

Mr. Leve has been guest lecturer in hydrogeology at the University of Florida and has taught a number of geology and oceanography courses at Jacksonville University. He presently is an adjunct lecturer in geology at the University of North Florida at Jacksonville.

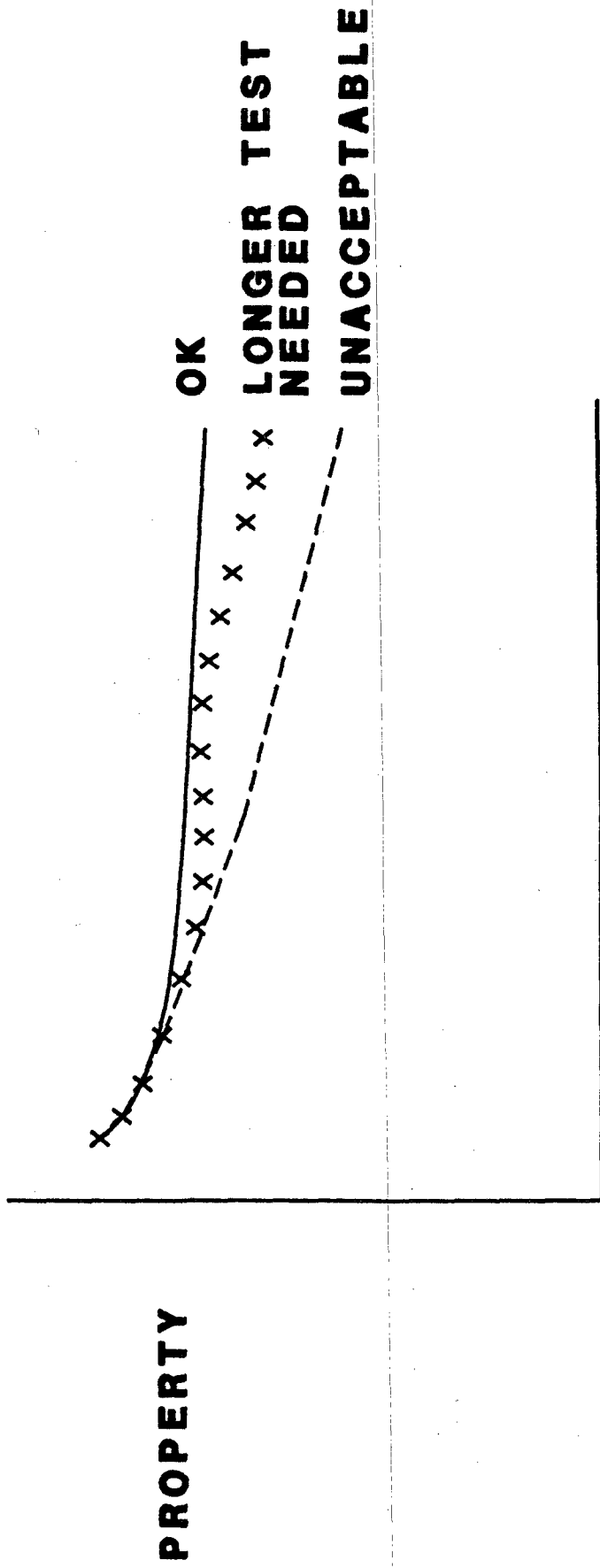
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Gilbert Warren Leve

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①



TIME

CHEMICAL COMPATABILITY TESTING TRENDS

PROPERTY

EXHIBIT
TRL-6A


DWG 1448251 1000-C081504

5

**ELEMENTS OF
CONSTRUCTION QUALITY ASSURANCE
(CQA)**

- CQA PLAN
- CONFORMANCE TESTING
- DOCUMENTATION
- MONITORING
- NON DESTRUCTIVE TESTING
- DESTRUCTIVE TESTING
- FINAL REPORT
- RECORD DRAWINGS

EXHIBIT
TRL-6B

Site Sample No.	Lab Sample No.	Sample Date	Field Density Ref.	Location Grid No.	Field Density γ_d/γ_w (pcf)	Field WC w_c (%)	Hydraulic Conductivity (cm/s)
LST #1	AL 1893	11-8	#29	A-0 #	107.3/117.1	7.0/14.0	4 x 10 ⁻⁸
LST #2	AL 1894	11-8	#31	G-0 1'	117.7/117.1	10.3/14.0	4 x 10 ⁻⁸
LST #3	AL 1895	11-8	#10	G-0 3'	113.3/117.1	10.4/14.0	2 x 10 ⁻⁸
LST #4	AL 1914	11-14	#95	G-0 #	114.0/117.1	10.6/14.0	4 x 10 ⁻⁸
LST #5	AL 1915	11-14	#101	G-7 1'	111.3/117.1	7.0/14.0	4 x 10 ⁻⁸
LST #6	AL 1916	11-14	#85	H-0 #	110.9/117.1	7.3/14.0	3 x 10 ⁻⁸
LST #7	AL 1924	11-19	#163	G-3 #	112.3/117.1	10.0/14.0	3 x 10 ⁻⁸
LST #8	AL 1925	11-19	#169	F-5 #	108.0/117.1	10.0/14.0	2 x 10 ⁻⁸
LST #9	AL 1926	11-19	#170	H-4 3'	112.0/117.1	7.4/14.0	3 x 10 ⁻⁸
LST #10	AL 1924	12-7	#239	H-9 1'	112.0/117.1	10.4/14.0	1 x 10 ⁻⁸
LST #11	AL 1925	12-7	#235	H-10 #	111.4/117.1	10.6/14.0	2 x 10 ⁻⁸
LST #12	AL 1999	12-9	#207	H-11 3'	109.4/117.1	10.0/14.0	2 x 10 ⁻⁸
				TRAIL RIDGE LANDFILL			
				RESULT OF PERMEABILITY TESTS			
				 GEOSYNTEC CONSULTANTS			
		Tested by	Date	Project No.			
		Drawn by	Date	Sheet No.			


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ENC. 1448/208 129104081233

EXHIBIT

TRL-6C

①

Site Sample No.	Lab Sample No.	Date Sampled (D/Mo/Yr)	Section Location	Passing 600 mm SCL	Atterberg Lim			Soil Classification
					LL %	PL %	FI %	
OS #19	AL 1891	8/11/90	D-8	34	37.9	21.8	18.3	CL (BANDY CLAY)
OS #20	AL 1892	8/11/90	F-8	37	38.0	22.7	18.3	CL (LEAN CLAY)
OS #21	AL 1917	14/11/90	D-8	28	37.2	20.7	18.5	CL (BANDY CLAY)
OS #22	AL 1918	14/11/90	C-8	31	38.8	21.9	14.9	CL (BANDY CLAY)
OS #23	AL 1919	14/11/90	H-7	27	36.8	22.3	14.3	CL (BANDY CLAY)
OS #24	AL 1920	14/11/90	H-8	28	38.1	21.2	18.9	CL (BANDY CLAY)
OS #25	AL 1921	14/11/90	F-8	28	38.0	21.8	14.4	CL (BANDY CLAY)
OS #26	AL 1922	14/11/90	H-8	28	37.9	21.3	18.8	CL (BANDY CLAY)
OS #27	AL 1923	14/11/90	D-8	29	37.3	20.8	18.9	CL (LEAN CLAY)
OS #28	AL 1924	14/11/90	D-7	38	38.9	21.1	17.8	CL (LEAN CLAY)
OS #29	AL 1925	14/11/90	F-8	34	37.4	20.1	17.3	CL (LEAN CLAY)
OS #30	AL 1926	14/11/90	F-7	31	38.4	20.8	17.8	CL (BANDY CLAY)
				TRAIL RIDGE LANDFILL				
				RESULT OF INDEX TESTS				
				 GEOSYNTEC CONSULTANTS				
Printed by		Date		Project No.				
Checked by		Date		Sheet No.				

© GeoSyntec Consultants

DB2 1448228 189104091822

EXHIBIT
TRL-6E

(09)

<p>PANEL REPAIR LOCATION/TEST LOG</p>	<p>PROJECT: TRAIL RIDGE LANDFILL</p> <p>LOCATION: JACKSONVILLE, FL. YEAR: 1992</p> <p>JOB NO.: FE1446 SHEET NO.: 04 OF 05</p>													
<table style="width: 100%; font-size: small;"> <tr> <td>✕ PATCH</td> <td>☒ Patched</td> <td>☐ Tested</td> <td>☑ Passed</td> <td rowspan="3" style="text-align: center;"> <input checked="" type="checkbox"/> Q.A. ID. 348 <input checked="" type="checkbox"/> NR No repair <input checked="" type="checkbox"/> Thickness (10-3 in.) </td> </tr> <tr> <td>△ BEAD</td> <td>△ Beaded</td> <td>△ Tested</td> <td>▲ Passed NORTH</td> </tr> <tr> <td>○ SAMPLE</td> <td>○ Patched</td> <td>□ Tested</td> <td>■ Passed</td> </tr> </table>		✕ PATCH	☒ Patched	☐ Tested	☑ Passed	<input checked="" type="checkbox"/> Q.A. ID. 348 <input checked="" type="checkbox"/> NR No repair <input checked="" type="checkbox"/> Thickness (10-3 in.)	△ BEAD	△ Beaded	△ Tested	▲ Passed NORTH	○ SAMPLE	○ Patched	□ Tested	■ Passed
✕ PATCH	☒ Patched	☐ Tested	☑ Passed	<input checked="" type="checkbox"/> Q.A. ID. 348 <input checked="" type="checkbox"/> NR No repair <input checked="" type="checkbox"/> Thickness (10-3 in.)										
△ BEAD	△ Beaded	△ Tested	▲ Passed NORTH											
○ SAMPLE	○ Patched	□ Tested	■ Passed											
<table style="width: 100%;"> <tr> <td style="width: 33%; vertical-align: top;"> <p>Panel No. <u>03</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M700</u> <input checked="" type="checkbox"/></p> <p>L 222 W 14.55 Area 3230.1 FT²</p> </td> <td style="width: 33%; vertical-align: top;"> <p>Panel No. <u>02</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M003</u> <input checked="" type="checkbox"/></p> <p>L 200 W 14.3 Area 4004 FT²</p> </td> <td style="width: 33%; vertical-align: top;"> <p>Panel No. <u>01</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M003</u> <input checked="" type="checkbox"/></p> <p>L 503 W 14.55 Area 7210.1 FT²</p> </td> </tr> </table>		<p>Panel No. <u>03</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M700</u> <input checked="" type="checkbox"/></p> <p>L 222 W 14.55 Area 3230.1 FT²</p>	<p>Panel No. <u>02</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M003</u> <input checked="" type="checkbox"/></p> <p>L 200 W 14.3 Area 4004 FT²</p>	<p>Panel No. <u>01</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M003</u> <input checked="" type="checkbox"/></p> <p>L 503 W 14.55 Area 7210.1 FT²</p>										
<p>Panel No. <u>03</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M700</u> <input checked="" type="checkbox"/></p> <p>L 222 W 14.55 Area 3230.1 FT²</p>	<p>Panel No. <u>02</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M003</u> <input checked="" type="checkbox"/></p> <p>L 200 W 14.3 Area 4004 FT²</p>	<p>Panel No. <u>01</u> <input checked="" type="checkbox"/></p> <p>Roll No. <u>M003</u> <input checked="" type="checkbox"/></p> <p>L 503 W 14.55 Area 7210.1 FT²</p>												

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GeosynTec Form No. 04-22

END 1446003 1890-0204

EXHIBIT

TRL-6G

①

**LINER SYSTEMS
DESIGN MODULES**

LINER

- TYPES AND THICKNESS OF GEOSYNTHETICS
- CUSHION DESIGN
- TYPE AND THICKNESSES OF SOILS
- REQUIRED SOIL PROPERTIES
- INTERFACE EFFECTS
- SETTLEMENTS
- INSTALLATION STRESSES

LEACHATE COLLECTION SYSTEM

- TYPES AND THICKNESSES OF GRAVELS AND SANDS
- TRANSMISSIVITY UNDER LOAD
- DEPTH OF LEACHATE ON LINER(S)
- RESIDENCE TIME(S)
- FILTER DESIGNS
- LCS SLOPES
- PIPE DESIGN
- PIPE SLOPES
- PIPE CLEAN-OUTS
- COLLECTION SUMPS
- REMOVAL PUMPS

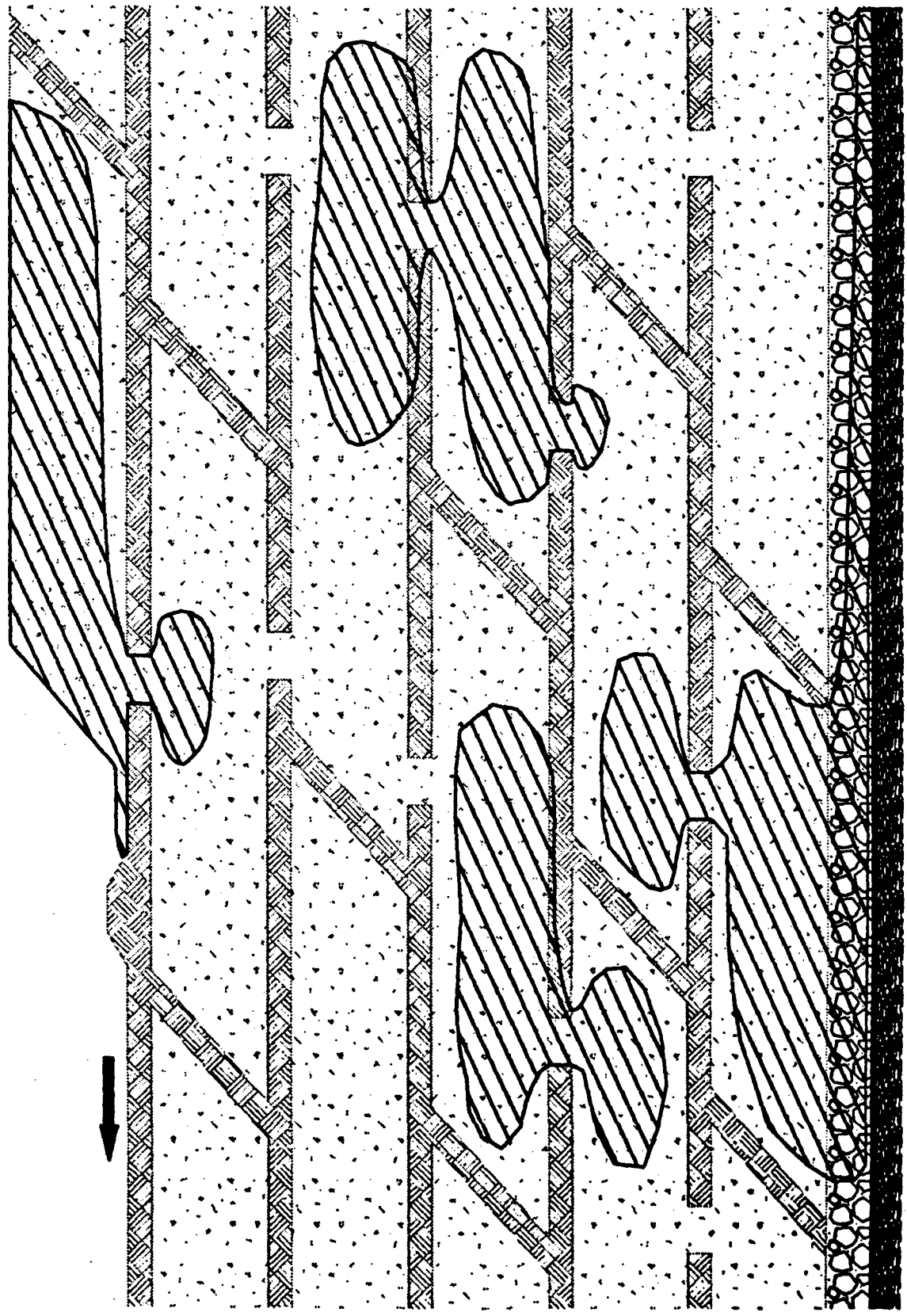
OVERALL CONSIDERATIONS

- SLOPE STABILITIES
- OVERALL AND DIFFERENTIAL SETTLEMENTS

EXHIBIT

TRL-6H

3



PRECIPITATION BECOMES INFILTRATION 'SLUGS'

EXHIBIT
TRL-7A

(A)

LEACHATE REMOVAL PIPES

CLEAN-OUT ACCESS

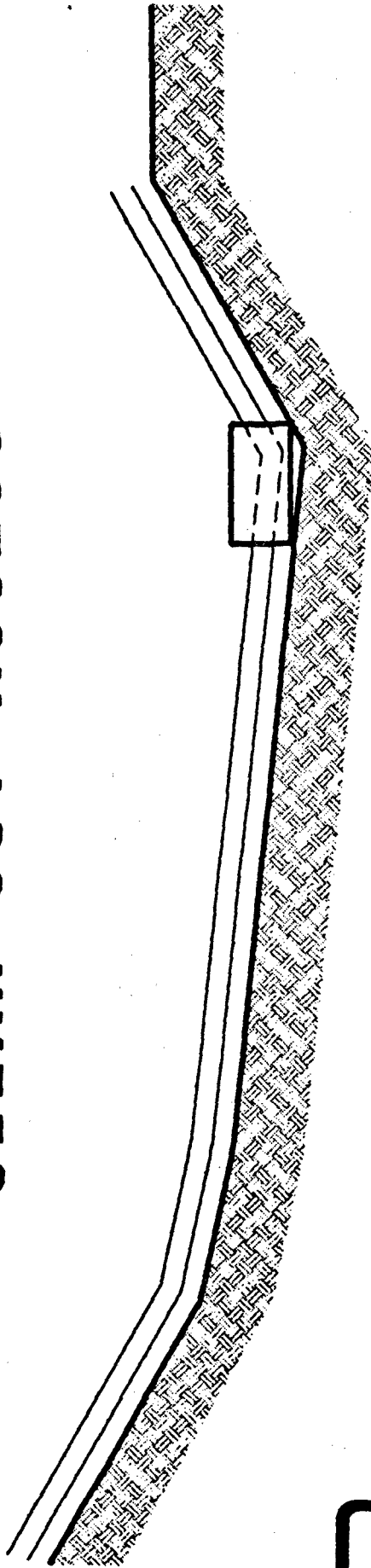


EXHIBIT
TRL-7B

11962017.

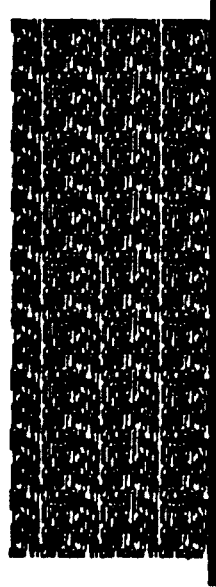
6



GRAVEL: Permeability 1 - 10 cm/sec



SAND: Permeability 0.00001 - 0.01 cm/sec



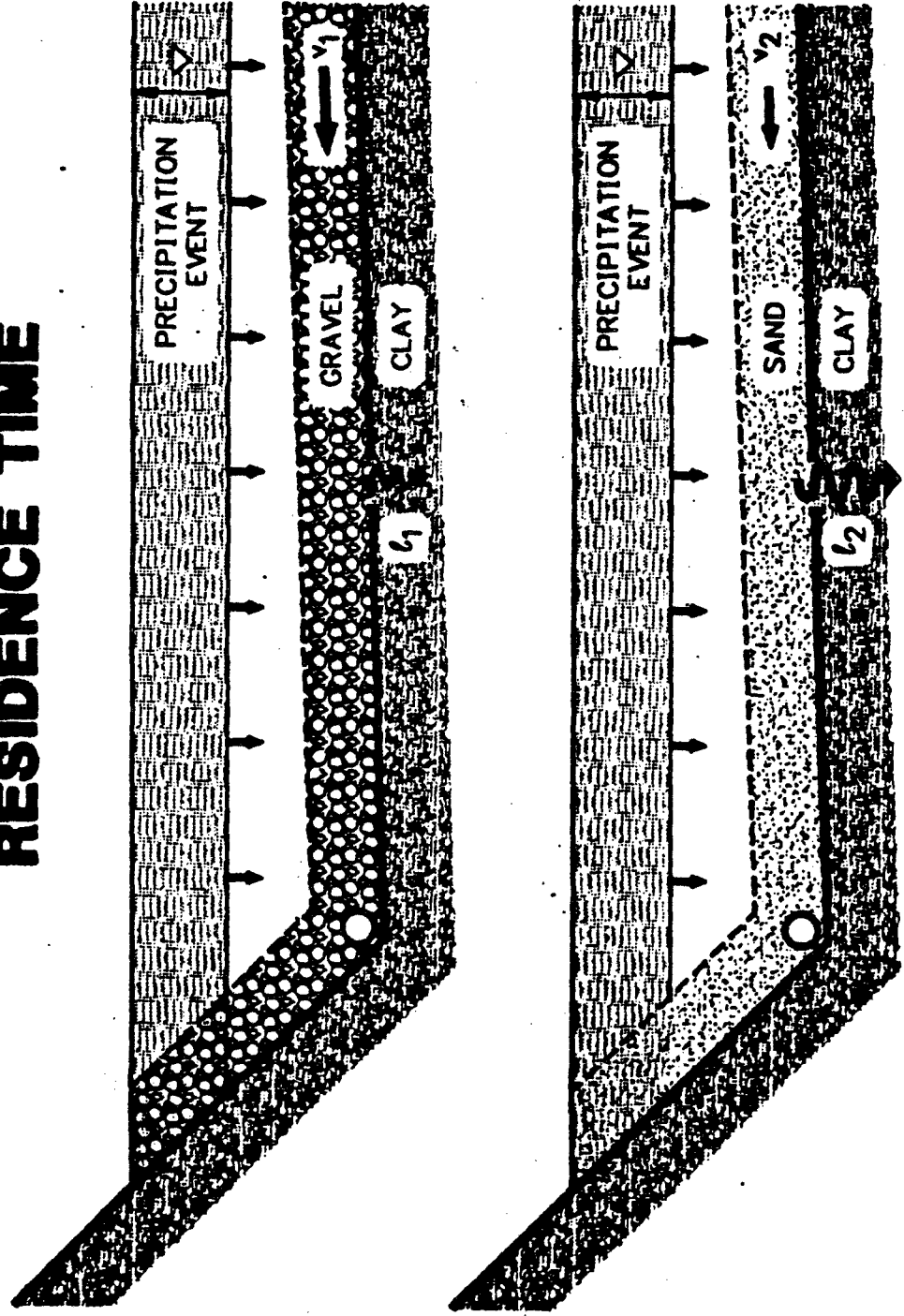
CLAY: Permeability 0.0000001 - 0.000001 cm/sec

114 2004

EXHIBIT
TRL-7C

13

LEAKAGE RATE IS PROPORTIONAL TO RESIDENCE TIME



$l_2 > l_1$ BECAUSE $v_2 < v_1$

1446201A

EXHIBIT
 TRL-7D

NO MATERIAL IS IMPERMEABLE

THEREFORE ALL

INDIVIDUAL LINERS LEAK!

SO

LINER SYSTEMS ARE REQUIRED

TO

MINIMIZE POLLUTION

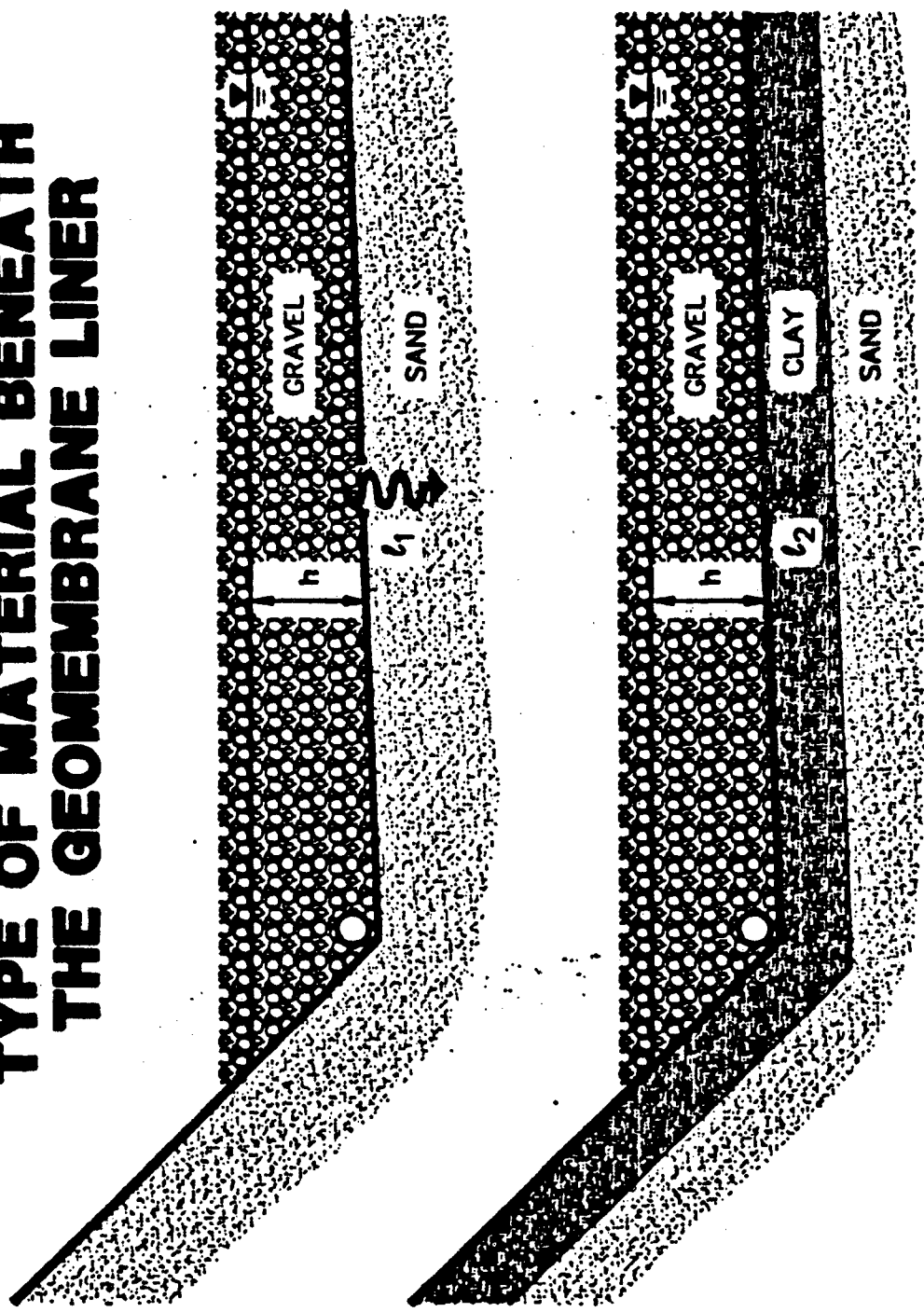
AND

MAXIMIZE GROUNDWATER PROTECTION

EXHIBIT
TRL-7E

17

LEAKAGE RATE IS PROPORTIONAL TO TYPE OF MATERIAL BENEATH THE GEOMEMBRANE LINER



$l_1 > l_2$ BECAUSE OF UNRESTRICTED FLOW BENEATH THE GEOMEMBRANE LINER

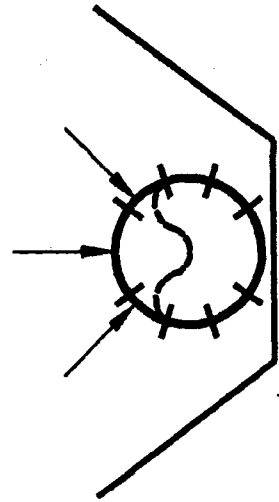
1446E015

EXHIBIT

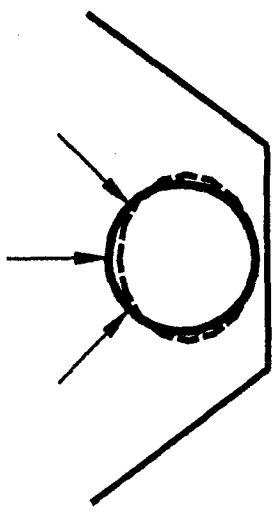
TRL-7F

LEACHATE REMOVAL PIPES

ADVANTAGE OF FLEXIBLE PIPE



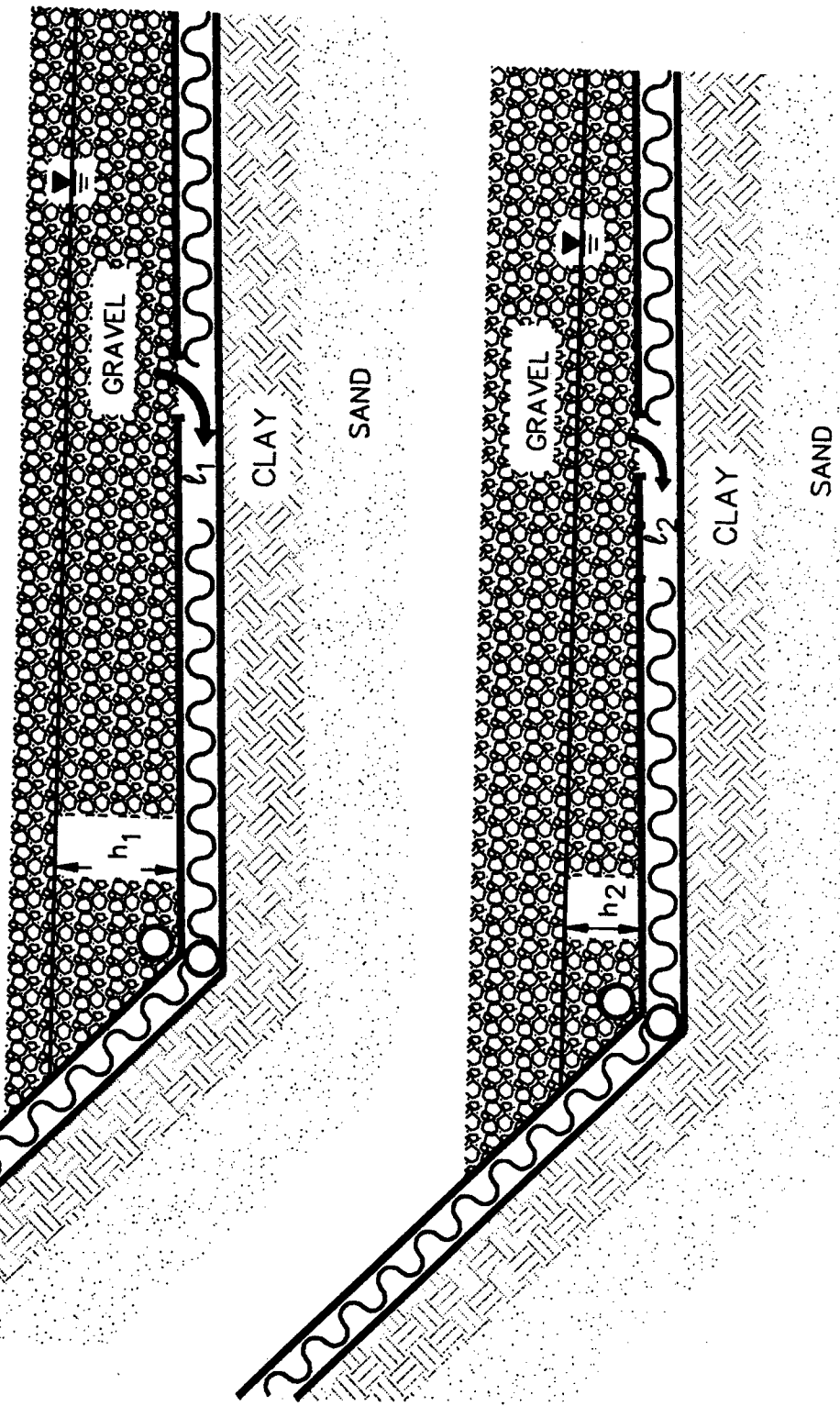
RIGID PIPE IS BRITTLE AND COLLAPSES UNDER EXCESS LOAD



FLEXIBLE PIPE CHANGES SHAPE SLIGHTLY TO ACCOMODATE EXCESS LOAD

EXHIBIT
TRL-7G

LEAKAGE RATE IS PROPORTIONAL TO DEPTH OF LIQUID ABOVE THE GEOMEMBRANE LINER

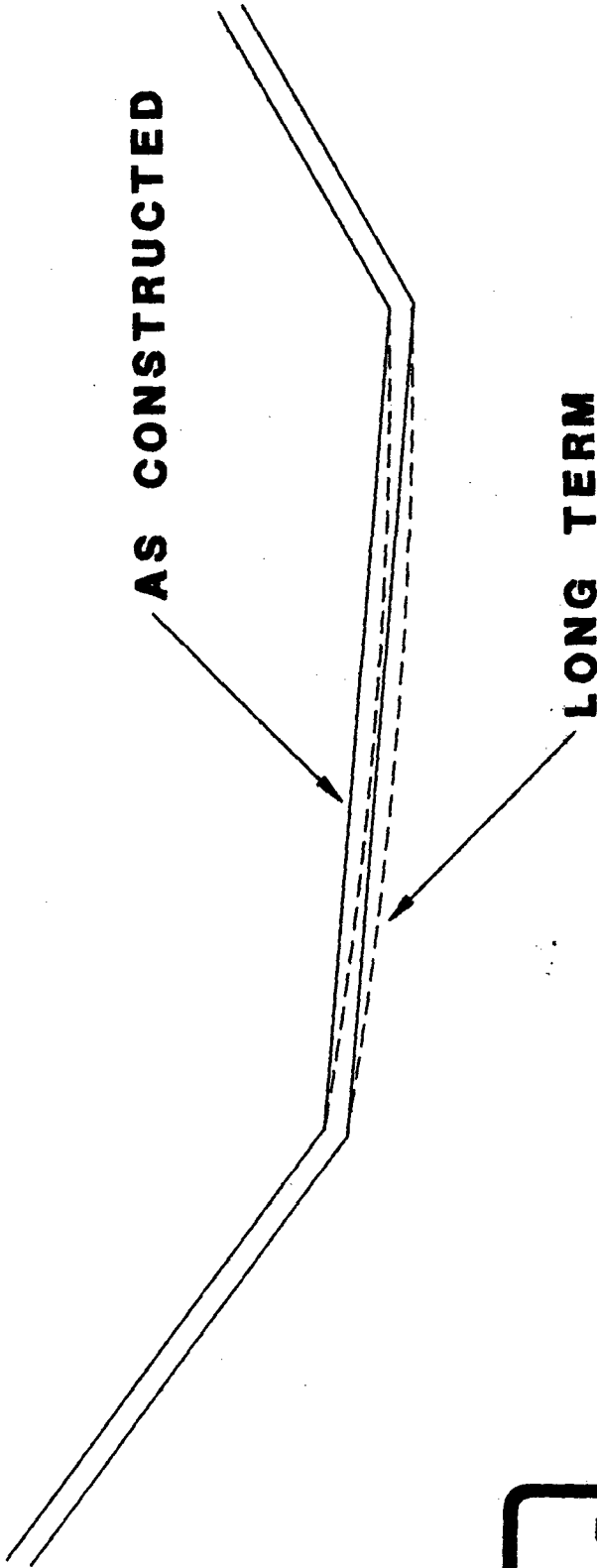


$l_1 > l_2$ BECAUSE $h_1 > h_2$

1446E005 199104231649

29

LONG TERM DESIGN



EXHIBIT

TRL-7I

DESIGN REQUIREMENTS

TO

MINIMIZE LEAKAGE

- Composite Liner and/or
- Double Liner System
- Efficient (Fast)

LCS and/or LDS

- Inward Gradient
- Liner Protection
- Long Term Design

EXHIBIT

TRL-7J

DWG 1446216 199104231634

10

(14)

CHEMICAL COMPATIBILITY

POLYMERS

- ADDITIVES
- PLASTICIZERS

TESTING

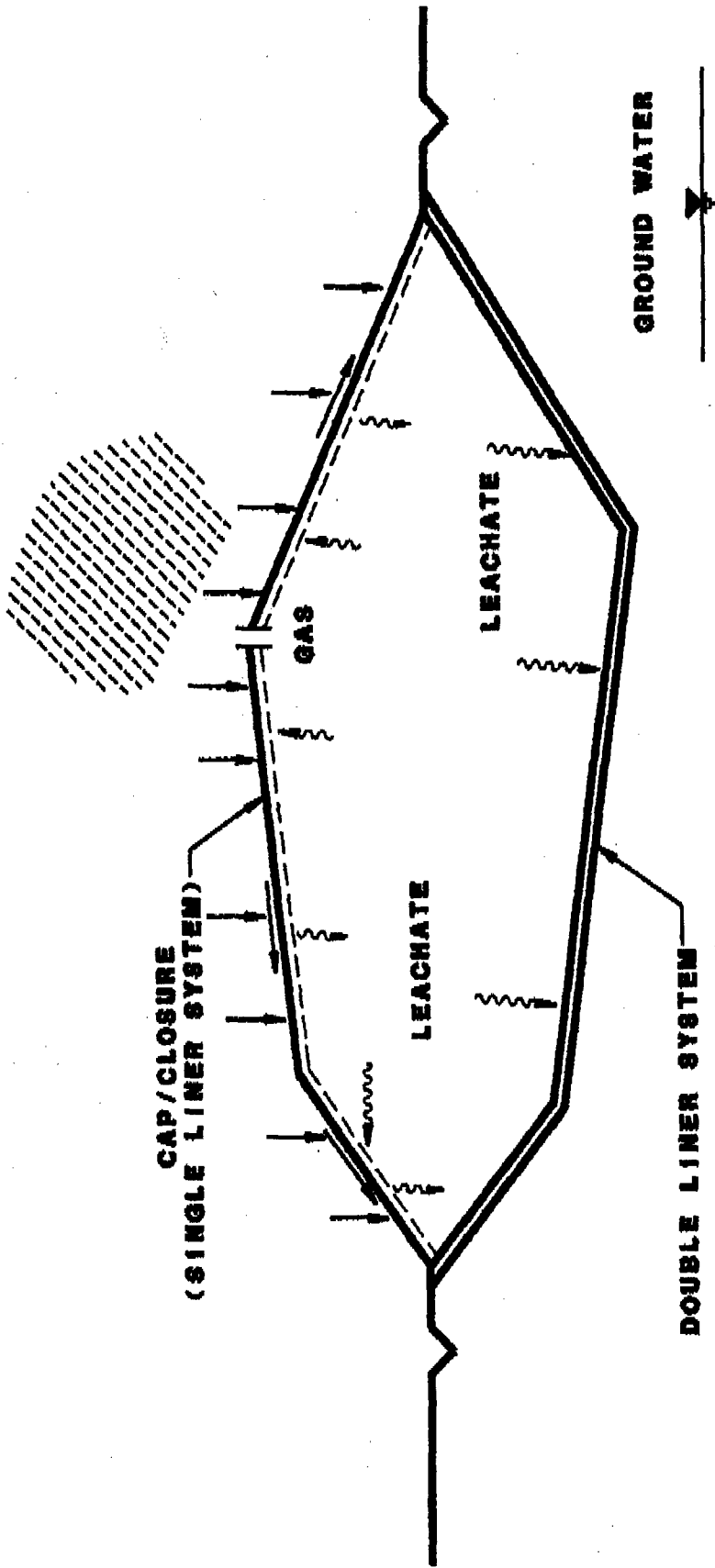
- CHEMICALS
- MSW LEACHATE
- PHYSICAL TESTS
- ANALYTICAL TESTS
- TRENDS

EXHIBIT

TRL-8

14460020

PRECIPITATION

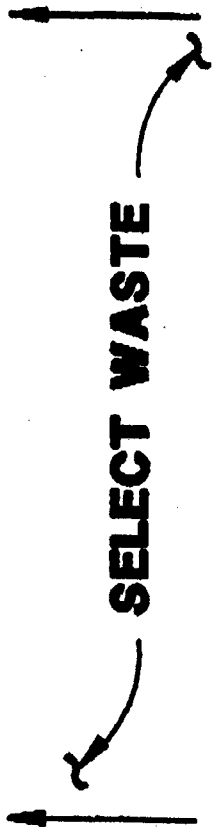


CONCEPTUAL DESIGN OF A LANDFILL

EXHIBIT

TRL-9

LINER SYSTEM



**PROTECTIVE COVER SAND AT
PERMEABILITY $\geq 10^{-3}$ CM/SEC**

**PRIMARY
LINER
SYSTEM**

EXHIBIT
TRL-10A

2'

EXHIBIT
TRL-10B

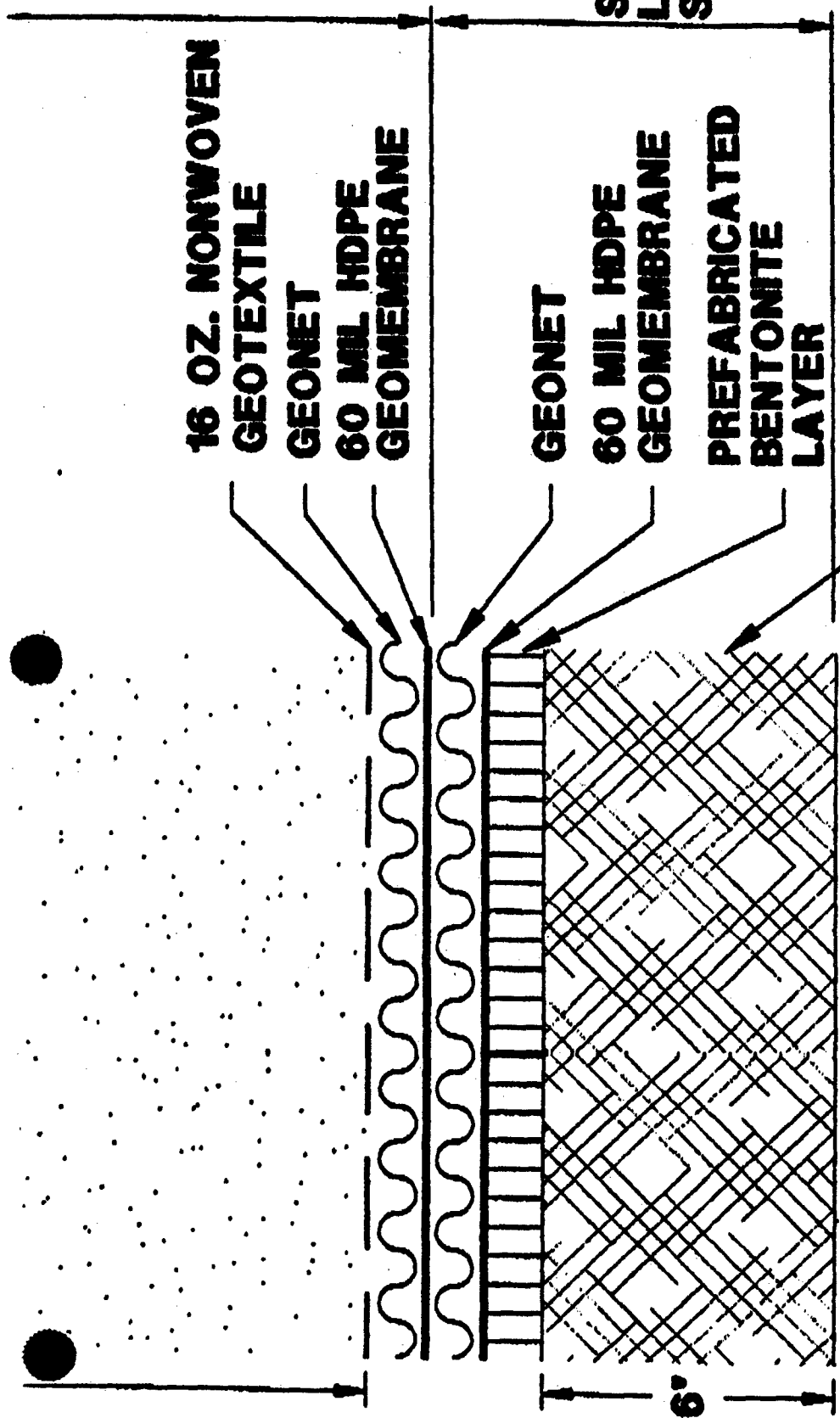
16 OZ. NONWOVEN
GEOTEXTILE
GEONET
60 MIL HDPE
GEOMEMBRANE

GEONET
60 MIL HDPE
GEOMEMBRANE
PREFABRICATED
BENTONITE
LAYER

6" COMPACTED
SUBGRADE
SOIL ($K < 1 \times 10^{-5}$ cm/s)

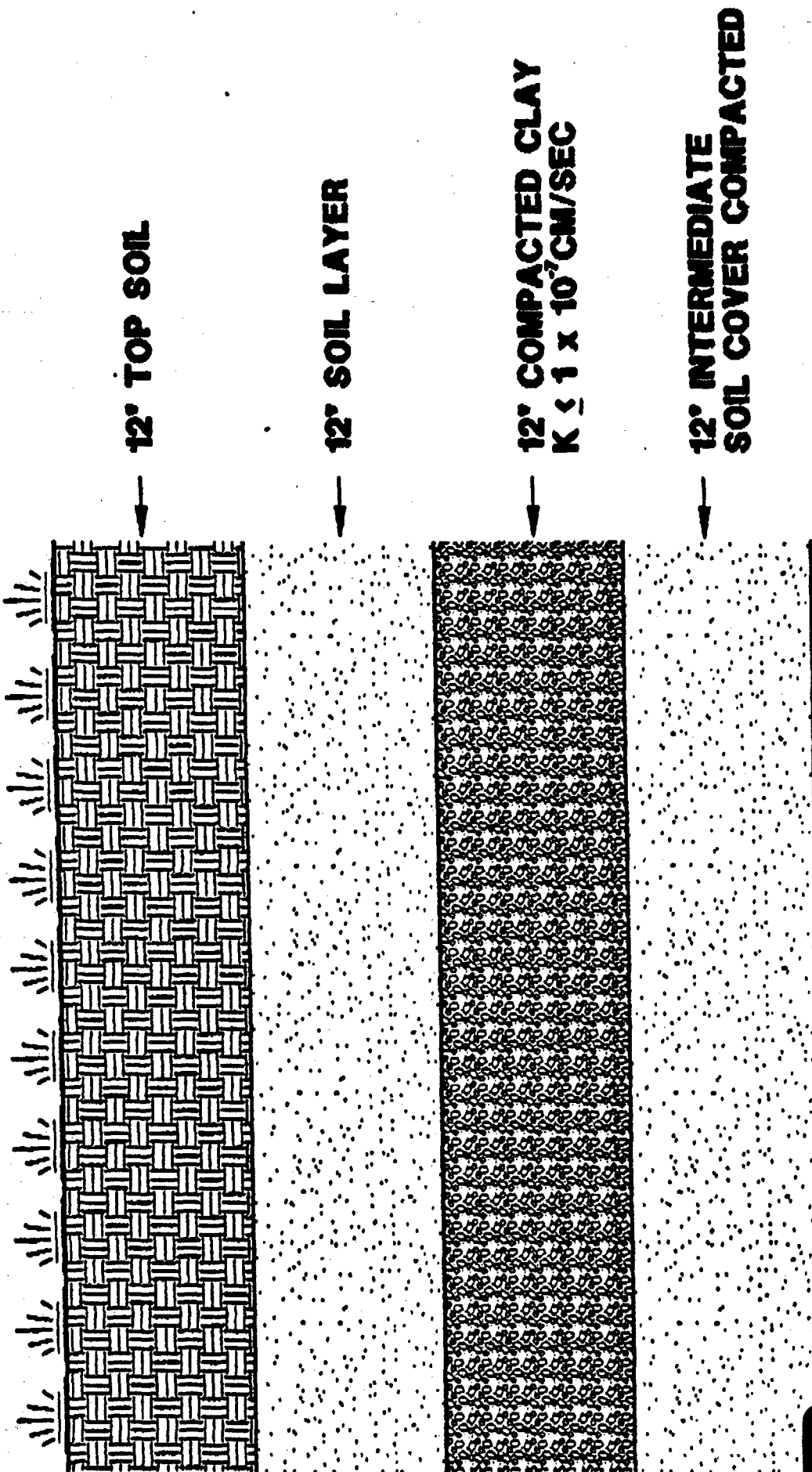
SECONDARY
LINER
SYSTEM

PREPARED
SUBGRADE



12

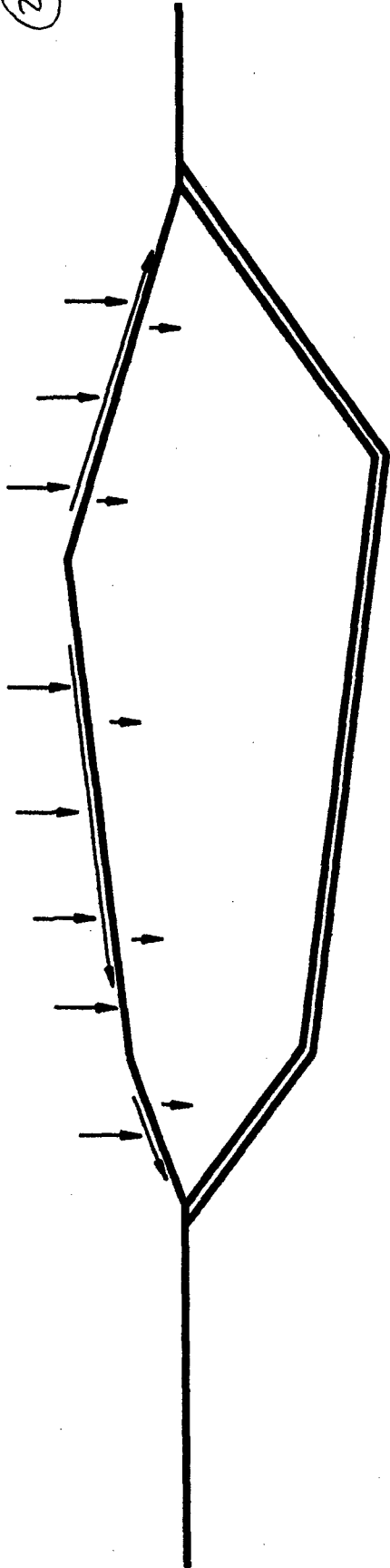
FINAL COVER



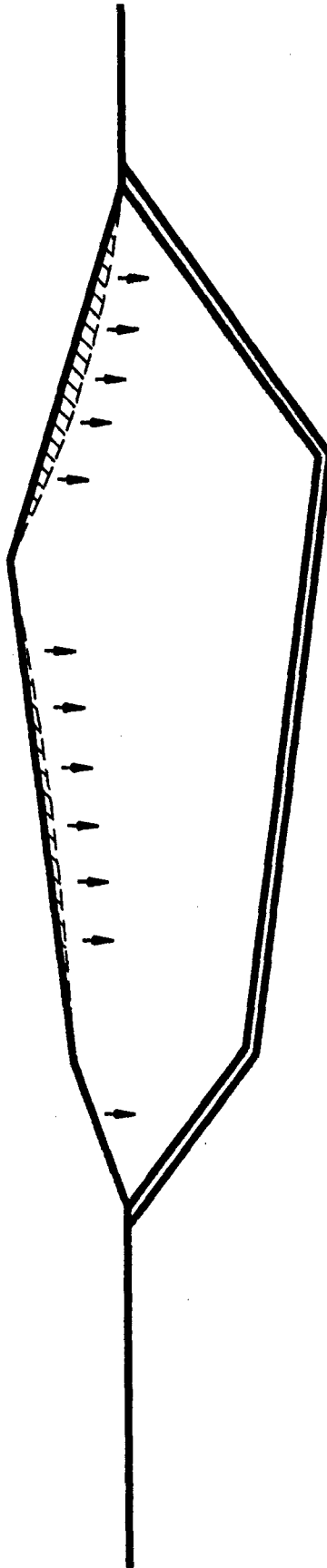
27 199104261063

EXHIBIT
TRL-11

22



NORMAL INFILTRATION



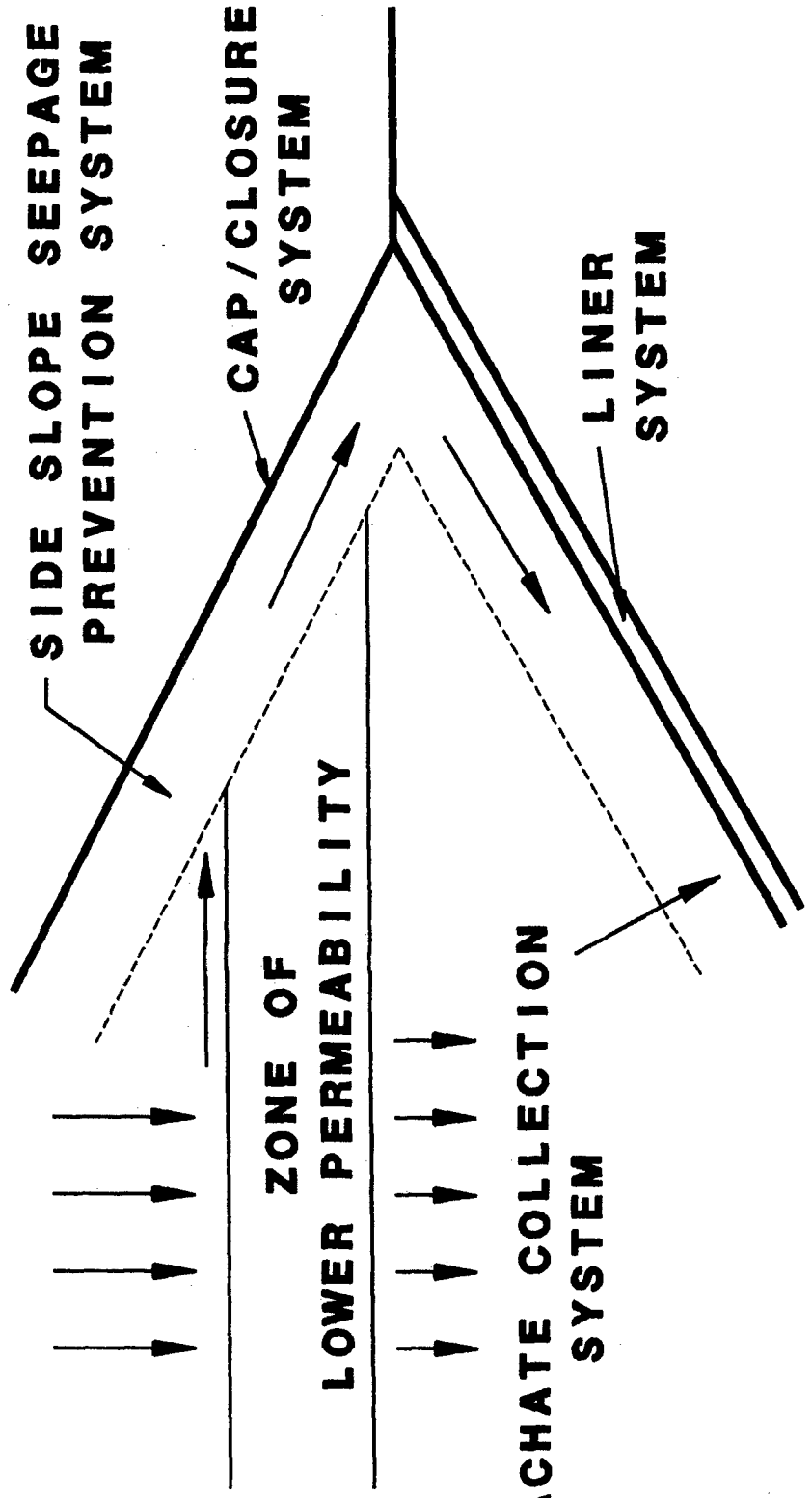
SETTLEMENT

CAP INFILTRATION MECHANISMS

D104231757

EXHIBIT
TRL-12

30



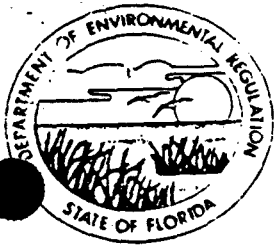
SIDE SLOPE SEEPAGE CONTROL

EXHIBIT
TRL-13

HDPE LINER MATERIAL - Original only in Hearing
Officer's Notebook

EXHIBIT

TRL-14



Florida Department of Environmental Regulation

Northeast District • Suite 200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577 • 904-448-4300

Bob Martinez, Governor

Dale Twachtman, Secretary

John Shearer, Assistant Secretary
Ernest Fry, Deputy Assistant Secretary

December 21, 1990

CERTIFIED - RETURN RECEIPT

Mr. Dwayne Igou
Trail Ridge Landfill
Post Office Box 6987
Jacksonville, Florida 32236

Dear Mr. Igou:

Trail Ridge "Plan A" Landfill
Proposed Permit No. SC16-184444
DER File Nos. 184444, 184445, and 184447
Duval County - Solid Waste

This is in reference to your application for a construction permit for the above-referenced project.

Florida Administrative Code (FAC) Rule 17-103.150 and Section 403.815, Florida Statutes, require that you publish a Notice of Intent at your own expense.

Please have the enclosed notice published one time only in the legal advertisement section of major newspapers of general circulation in Duval and Baker Counties in the area close to where the project is located (affected area) as soon as possible and no later than thirty (30) days from receipt of this notice.

Proof of publication shall be provided to the Department of Environmental Regulation within seven (7) days of publication. The processing of the application will be delayed until fourteen (14) days after this office has received the proof of publication. Failure to publish this Notice of Intent will be basis for denial of the permit.

Attached is a copy of the Intent to Issue and a draft permit for the construction of the referenced facility.

If you have any questions, please contact Emerson Raulerson at the letterhead address or telephone number.

Sincerely,


Michael J. Fitzsimmons
Waste Program Administrator

MJF

MJF:erl

Enclosures

Recycled  Paper

EXHIBIT

TRL-15

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of an
Application for Permit by:

DER File No. SC16-184444,
184445, and 184447

Trail Ridge Landfill, Inc.
Post Office Box 6987
Jacksonville, Florida 32236

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated below.

The applicant, Trail Ridge Landfill, Inc. applied on July 27, 1990 to the Department of Environmental Regulation for a permit to construct and operate the Trail Ridge Landfill with a total site area of 1288± acres of which 148± acres will be used for Class I solid waste disposal and 28 acres for Class III disposal. The project includes a proposed surface water management system. The landfill is located on the west side of U.S. Highway 301, approximately one mile north of Maxville in Duval County.

The Department has permitting jurisdiction under provisions of Chapters 373 and 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 17-3, 17-4, and 17-701. The project is not exempt from permitting procedures. The Department has determined that a construction permit is required for the proposed work. This Intent to Issue is in accordance with the application received July 27, 1990 and additional information provided September 12, 1990 and October 10 and 11, 1990. The applicant has provided reasonable assurance that the proposed work will comply with all applicable Department regulations and Chapters 373 and 403, Florida Statutes.

Pursuant to Section 403.815, F.S., and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place and in the adjoining county. The applicant shall provide proof of publication to the Department, at the Northeast District Office, 7825 Baymeadows Way, Suite 200-B, Jacksonville, Florida, 32256-7577 within seven (7) days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition

to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information;

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

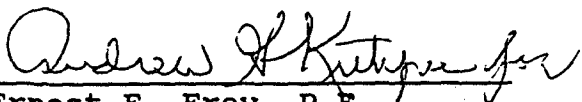
(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any

decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this intent, in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION


Ernest E. Frey, P.E.
Deputy Assistant Secretary
Northeast District Office
7825 Baymeadows Way, Suite 200-B
Jacksonville, Florida 32256-7577
(904) 448-4300

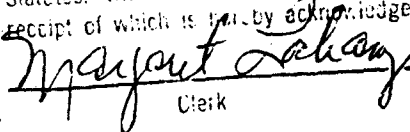
CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this INTENT TO ISSUE and all copies were mailed before the close of business on December 21, 1990 to the listed persons.

Copies furnished to:

Honorable Thomas Hazouri
Honorable Sherry Walker
Honorable George Crady
* Honorable Steve Kennedy
Honorable Marvin E. Godbold, Jr.
Honorable Eric Smith
Honorable Watson Goodwin
Doug Miller

FILING AND ACKNOWLEDGEMENT
FILED, on this date, pursuant to §120.52, Florida
Statutes, with the designated Department Clerk,
receipt of which is hereby acknowledged.


Clerk
Date 12-21-90

Trail Ridge Landfill Intent to Issue

Copies furnished to (cont'd.):

Mr. & Mrs. Fred Munson, Sr.
Ms. Karen Peterson
Ms. Janice Whatley
Mr. Nolan Green
Mr. Darrell Sperry
Mr. Will E. Furlong, P.E.
Ms. Pamela Presnell Garvin
Ms. Ellen Long
* Ms. Sylvia Thibault
Mr. Lambert L. Herring
Mr. John G. Herring
Mr. Maurice T. Samples
Mr. Ronnie E. Hall

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
NOTICE OF INTENT TO ISSUE PERMIT

The Department of Environmental Regulation gives notice of its intent to issue a permit to Trail Ridge Landfill, Inc., Post Office Box 6987, Jacksonville, Florida, 32236, to construct and operate the Trail Ridge "Plan A" landfill with a total site area of 1288± acres of which 148± acres will be used for Class I solid waste disposal and 28 acres for Class III disposal. The landfill is located on the west side of U.S. Highway 301, approximately one mile north of Maxville in Duval County.

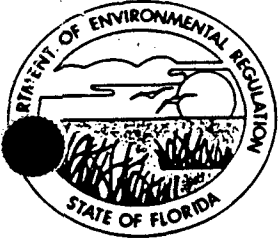
A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) in accordance with Section 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, within 14 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information; (a) The name, address, and telephone number of each petitioner; (b) The applicant's name and address, the Department Permit File Number and the county in which the project is proposed; (c) A statement of how and when each petitioner received notice of the Department's action or proposed action; (d) A statement of how each petitioner's

substantial interests are affected by the Department's action or proposed action; (e) A statement of the material facts disputed by petitioner, if any; (f) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action; (g) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and (h) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

The application is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at Department of Environmental Regulation, Northeast District Office, 7825 Baymeadows Way, Suite 200-B, Jacksonville, Florida, 32256-7577.



Florida Department of Environmental Regulation

Northeast District • Suite 200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577 • 904-448-4300

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary
Ernest Frey, Deputy Assistant Secretary

PERMITTEE:

Trail Ridge Landfill, Inc.
Post Office Box 6987
Jacksonville, Florida 32236

I.D. Number: GMS3116P03090
Permit/Cert Number: SC16-184444
Date of Issue: 12- -90
Expiration Date: 12- -95
County: Duval
Lat/Long: 30°14'00"N/82°02'30"W
Section/Township/Range: 18, 19, 20, 21/3S/23E
Project: Trail Ridge "Plan A" Landfill

This permit is issued under the provisions of Chapters 373 and 403, Florida Statutes and Florida Administrative Code Chapters 17-3, 17-4, and 17-701. The above-named Permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

To construct and operate the Trail Ridge "Plan A" Landfill, with a total site area of 1288± acres of which 148± acres will be used for disposal of Class I wastes and 28 acres will be used for disposal of Class III wastes. The leachate containment system is a double liner system as spelled out in Florida Administrative Code Rule 17-701.050(5)(d)l.b., with the addition of 0.25 inches of Claymax below the bottom liner. The primary and secondary leachate collection systems will consist of synthetic geodrains and a two (2)-foot protective soil layer will lie above the primary drain.

The facility design includes wetland mitigation and a surface water management system. A groundwater monitoring system is also included.

The Trail Ridge Landfill entrance is located on the west side of U.S. Highway 301 approximately one mile north of Maxville in Duval County.

This permit is issued in accordance with the application received July 27, 1990 and additional information provided on September 12 and October 10 and 11, 1990, and includes Department File Nos. 184444, 184445, and 184447.

EXHIBIT

TRL-16

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the Permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The Permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the Permittee, its agents, employees, servants, or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.

This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.

5. This permit does not relieve the Permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the Permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.
6. The Permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the Permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.
7. The Permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

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GENERAL CONDITIONS:

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the Permittee does not comply with, or will be unable to comply with, any condition or limitation specified in this permit, the Permittee shall immediately notify and provide the department with the following information:
 - a. A description of and cause of non-compliance; and
 - b. the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The Permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the Permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.
10. The Permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the Permittee does not waive any other rights granted by Florida Statutes or department rules.
11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The Permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the department.
12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

GENERAL CONDITIONS:

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- (X) Certification of Compliance with State Water Quality Standards
- () (Section 401, PL 92-500)
- () Compliance with New Source Performance Standards

14. The Permittee shall comply with the following monitoring and record keeping requirements:

- a. Upon request, the Permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.
- b. The Permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.
- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When requested by the department, the Permittee shall, within a reasonable period of time furnish any information required by law which is needed to determine compliance with the permit. If the Permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS:

1. Construction of the Trail Ridge "Plan A" Landfill shall be in conformance with plans, specifications, and contract drawings submitted in support of the application received July 27, 1990 and the additional information provided on September 12 and October 10 and 11, 1990. Permittee shall submit, in writing, to the Department of Environmental Regulation, Northeast District, 7825 Baymeadows Way, Suite 200-B, Jacksonville, Florida, 32256-7577, notification of the date that construction activities authorized by this permit commence.
2. The Permittee shall submit to the Department for approval a revised Quality Control/Quality Assurance Plan for installing the Class I area synthetic liner system, after selection of the synthetic liner manufacturer, and prior to its installation. The plan shall include the following:
 - a. Retention of a registered professional engineer for independent quality assurance.
 - b. Minimum qualifications of the Construction Quality Assurance engineer and supporting Quality Assurance personnel.
 - c. Sampling activities, size and locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures that may be necessary.
 - d. Procedure for testing the density of the compacted clay subbase at least once per acre.
 - e. Procedures for testing the permeability of the Claymax at least once per 40,000 square feet.
 - f. The synthetic liner manufacturer's and installer's specific recommendations for acceptability of the soil portion ("subgrade" for the synthetic liner) and the Claymax portion of the liner system. The Permittee shall ensure that the installation contractor of the synthetic portion submits his certification of acceptance of the subgrade to the Department immediately upon its execution.
 - g. The synthetic liner manufacturer's specifications and recommendations for installing and testing the specific liner selected and demonstrating that it meets or exceeds NSF Standard 54. Quality Assurance Reports shall be submitted to the Department with the Certification of Completion. Installation of the synthetic liner for the leachate holding basin shall be performed in accordance with the Department approved Construction Quality Assurance Plan and shall meet the liner manufacturer's recommended installation procedures, pursuant to FAC Rule 17-701.050(4)(c).
3. The Permittee shall establish financial assurance for closure and long-term care. Proof that the financial assurance mechanism is funded in accordance with FAC Rule 17-701.076 shall be submitted to the Department sixty (60) days prior to the acceptance of any solid waste at the facility [17-701.076(2)]. All submittals in response to this specific condition shall be submitted to: Financial Coordinator, Solid Waste Section, Department of Environmental Regulation, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

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SPECIFIC CONDITIONS (CONT'D):

4. Surface water runoff and/or diversion controls included in the plans and/or this permit shall be installed and operational prior to construction of the disposal areas. Surface water runoff shall be controlled during the construction stage and shall comply with FAC Chapter 17-3 at the site boundary.
5. Following completion of all significant construction activities, the Permittee or authorized representative shall complete and submit to the Department, DER Form 17-7.130(2), entitled "Certification of Construction Completion Application to Operate only Resource Recovery and Management Facility." The Permittee shall submit to the Department, Record Drawings signed and sealed by a professional engineer registered in the State of Florida, and a Quality Assurance Report on liner installation prepared, signed, and sealed by a professional engineer registered in the State of Florida. The Permittee shall specify where leachate will be treated and/or disposed of; and the Permittee shall submit to the Department for approval, a letter of acceptance from the wastewater treatment plant which will provide treatment and/or disposal. At such time the Permittee shall arrange for Department representatives to inspect the facility in the company of the Permittee, engineer, and on-site operator, as required by FAC Rule 17-701.030(6). The facility shall not be operated or accept solid waste until the Department has notified the Permittee in writing that all applicable submissions required for the permit, including financial responsibility documentation have been received and found acceptable.
6. The facility shall not be operated or accept solid waste until the Department has notified the Permittee, in writing, that the applicable certification, attesting that the surface water management system has been constructed in accordance with the permitted design, has been received and approved.
7. Following notification that the Department has found the submittals acceptable, the Permittee shall operate the facility in conformance with the criteria contained in FAC Rule 17-701.050 and the operation plan submitted with the permit application.
8. Daily records of waste quantities and types received shall be kept at the site. These records shall be summarized and a monthly waste quantity report shall be submitted to the Department by the fifteenth (15th) day of the following month.
9. Hazardous waste as defined in FAC Chapter 17-730, or biohazardous wastes as defined in FAC Rule 17-712.100(2) shall be prohibited from disposal. The Department shall be notified immediately in the event such wastes are discovered. If such wastes are discovered, the Permittee shall implement the waste control procedures as contained in the operations plan.
10. Laws of Florida, Chapter 88-130, Section 15, prohibits the disposal of whole tires, lead acid batteries, and white goods in solid waste landfills.
11. All construction and demolition debris must be disposed of in segregated areas according to FAC Rule 17-701.061(2).

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

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Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

12. An effective barrier to prevent unauthorized entry shall be installed and maintained in accordance with the plans in the permit application. Unauthorized scavenging or salvaging shall be prohibited. A screening barrier (i.e., trees or other vegetation) shall be installed and maintained to shield landfill operations from public view in accordance with FAC Rule 17-701.040(2)(h).
13. Objectionable odors originating from the site shall be effectively controlled. A gas venting system shall be installed in accordance with the plans and specifications in the permit application. Should objectionable odors or gas migration become a problem, the passive gas venting system shall be converted to an active system with a flare or other means to destroy the landfill decomposition gas(es).
14. Litter control devices shall be installed as necessary to prevent litter from leaving the disposal areas.
15. Any interruption of regular landfill activities (fire, natural disasters, equipment breakdown) shall be immediately reported to the Department by phone. In the event of equipment breakdown, reserve equipment capable of performing basic disposal operations shall be made available at the site within 24 hours, excluding holidays or other days when the landfill is closed.
16. A trained supervisor or foreman shall be responsible for maintaining the site in an orderly, safe, and sanitary manner in accordance with FAC Rules 17-703.300 and 17-703.400. This includes maintenance of the leachate collection system by water jet cleaning. Sufficient personnel shall be employed as noted in the operations plan to adequately operate the facility.
17. All-weather access roads to the site and disposal areas shall be maintained. Dust control methods (i.e. water sprays) shall be employed as necessary.
18. Quantitative records of leachate collected and sent off-site for treatment shall be kept and made available to the Department upon request. Disposal of leachate shall be in accordance with all applicable regulations and shall include the running of a TCLP analysis prior to disposal to determine if it is hazardous. Within six months of placing waste in the lined facility or when sufficient leachate has been generated, a detailed chemical characterization of a representative sample of the leachate shall be performed pursuant to FAC Rule 17-28.700(6)(a)2. This characterization shall include those parameters listed for initial sampling of the ground water monitoring wells. Routine sampling and analysis of leachate shall be established and incorporated by permit modification following review of the initial leachate characterization.
19. In Accordance with FAC Rules 17-28.700(6) and 17-701.050, the Permittee shall within ninety (90) days of the issuance of this permit install and place into operation a Ground Water Monitoring system.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

- a. The Ground Water Monitoring System shall be designed and constructed in accordance with plans submitted to and approved by the Department.
- b. Approximate monitoring well locations and designations shall be in accordance with Attachment 1. A surveyed drawing shall be submitted showing the location of all monitoring wells (active and abandoned) which will be horizontally located by metes and bounds or equivalent surveying techniques. The surveyed drawing shall include the monitor well identification number as well as location and elevation of all permanent benchmark(s) and/or corner monument marker(s) at the site. The survey shall be conducted by a Florida Registered Surveyor. All wells are to be clearly labeled and easily visible at all times.

Background Wells	B-2 S,I	Locations as indicated on
Phase IV	B-3 S,I	Drawing No. 9
	B-9 S,I	

Compliance Wells	
Phase I	B-7 S,I,D B-11 S,I B-12 S,I,D B-18 B-19 B-20 B-21 B-22
Phase II	B-16 B-17
Phase III	B-13 S,I B-14 S,I,D B-23
Phase IV	as above
Phase V	B-24 B-25 S,I,D B-26 B-27 B-28 B-29 B-30

- c. Upon completion of construction of the groundwater monitoring wells, the following information shall be submitted for all groundwater monitoring wells (permanent and temporary) and any new well(s) constructed:

Well identification	Driller's Lithologic Log
Latitude/Longitude	Total well depth
Aquifer monitored	Casing diameter
Screen type and slot size	Casing type and length
Elevation at top of pipe	SJRWMD well construction
Elevation at land surface	permit number

- d. In the event any monitoring well becomes damaged or inoperable, the Permittee shall notify the Department within seventy-two (72) hours and a detailed written report shall follow within seven (7) days. The written report shall detail what problem has occurred and remedial measures that have been taken to prevent a recurrence. All monitoring well design and replacement shall be approved by the Department prior to installation.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

- e. The zone of discharge shall extend horizontally to the property line or one-hundred (100) feet beyond the waste management area, whichever is less, and vertically to the base of the surficial aquifer, in accordance with F.A.C. Rule 17-28.700(2). This zone of discharge shall remain in effect unless it becomes necessary to seek a change, pursuant to F.A.C. Rule 17-28.700(5).
- f. The Permittee shall ensure that the water quality standards for Class G-II ground waters will not be exceeded at the boundary of the zone of discharge according to F.A.C. Rules 17-3.402 and 17-3.404.
- g. The Permittee shall ensure that the minimum criteria for ground water specified in F.A.C. Rule 17-3.402 shall not be violated within the zone of discharge.
- h. Ground water levels shall be recorded no less than forty-eight (48) hours after well installation and prior to evacuating the well for sample collection. Measurements, referenced to N.G.V.D., shall include ground water surface elevation, the top of well casing, and land surface at each site at a precision of plus or minus 0.01 feet. This information shall be submitted to the Department with the quarterly ground water analytical results. A map must be constructed depicting locations of wells and piezometers and corresponding water level measurements.
- i. Upon completion of construction of the ground water monitoring wells, the Permittee shall initially sample and analyze all monitoring wells for the parameters listed in Attachment 2 and all E.P.A. Priority Pollutant Parameters. Tentative identification of all peaks greater than 10 ppb is required.
- j. All sample collection and water quality analysis shall be performed by organizations with approved comprehensive or Generic Quality Assurance Plans (CompQAPs) on file with the Department. The CompQAP shall address all sampling and analysis requirements of this permit. Within 60 days of permit issuance, the Permittee shall submit to the Department for approval the name of the sample collecting organization and laboratory to be utilized. The Department reserves the right to reject all results generated by the Permittee prior to CompQAP approval, or which are not in accordance with the Department approved CompQAP. Sampling and analytical work is also subject to the provisions of FAC Rule 17-28.700(6)(d). In addition, the Permittee shall be in compliance with the provisions of FAC Rule 17-160 within 90 days of the effective date of that rule.
- k. Ground water sampling results shall be reported on the attached Parameter Monitoring Report Form [DER Form 17-1.216(2)] (Attachment 5). In order to facilitate entry of this data into the state computer system, these forms or an exact replica must be used and must not be altered as to content. The original forms should be retained so that the necessary information is available to properly complete future reports. The report forms received from the

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

laboratory must be submitted along with the DER Parameter Monitoring Report Forms described above. The Permittee shall submit to the Department the results of the ground water monitoring well water quality analysis no later than the fifteenth (15th) day of the month immediately following the end of the sampling period. Quarterly analytical results shall be accompanied by a brief narrative summary. The results shall be sent to the Department of Environmental Regulation, Northeast District, 7825 Baymeadows Way, Suite 200-B, Jacksonville, Florida, 32256-7577.

1. All ground water monitoring wells shall be sampled and analyzed quarterly for the parameters listed in Attachment 2. However, additional samples, wells, and parameters may be required based upon subsequent analyses.
- m. If, at any time, ground water standards and/or criteria are exceeded, the Permittee has fifteen (15) days in which to resample the monitor well(s) to verify the original analysis. Should the Permittee choose not to resample, the Department will consider the water quality analysis as representative of current ground water conditions at the facility.
- n. Following two (2) years of quarterly sampling, data will be reviewed by the Department to evaluate changes in parameters and sampling frequencies that may be appropriate.
- o. Sixty (60) days prior to the renewal of this permit, the Permittee shall sample and analyze all monitoring wells for the parameters listed on Attachment 1.
- p. Compliance with ground water standards and/or criteria shall be determined by analysis of unfiltered or settled ground water samples.
- q. Within sixty (60) days of issuance of this permit, all piezometers and wells not a part of the approved ground water monitoring plan are to be plugged and abandoned in accordance with F.A.C. Rule 17-21.10(4) and St. Johns River Water Management District Rule 40C3.531. The Permittee shall submit a written report to the Department providing verification of the well plugging and abandonment. A written request for exemption to the plugging and abandonment of a well must be submitted to the Department for approval.
- r. F.A.C. Rule 17-28.700(6)(d)11 requires that the ground water monitoring program must inventory and map surface waters within one mile of the landfill. If there are any modifications to surface waters within one mile of the landfill, the Permittee shall upon request submit to the Department a revised inventory and map of surface waters within ninety (90) days.
- s. F.A.C. Rule 17-28.700(6)(d)7 requires an inventory of all wells within a one (1) mile radius of the landfill, including the owners' names and addresses, well locations, well specifications (well depth, diameter, screened interval, capacity, etc.) and utilization. If there are any changes to the well inventory, the Permittee shall upon request of the Department revise the well inventory and shall submit the revised inventory to the Department within ninety (90) days.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

20. In accordance with F.A.C. Rule 17-28.700(6)(d)11, surface water monitoring is required on a quarterly basis in conjunction with the ground water monitoring schedule. The following Surface Water Monitoring Program shall be implemented within ninety (90) days of the issuance of this permit.

a. The Surface Water Monitoring System shall be designed and operated in accordance with plans submitted to and approved by the Department.

b. The surface water monitoring sites shall be located as follows:

<u>Site Number</u>	<u>Location</u>
SW-1	
SW-2	As indicated on Drawing No. 9
SW-3	

c. All surface water sampling sites shall be sampled and analyzed quarterly for the parameters listed in Attachment 4. However, additional sampling sites and parameters may be required based upon subsequent analyses. Following two (2) years of quarterly sampling, data will be reviewed by the Department to evaluate changes in parameters and sampling frequencies that may be appropriate.

21. Closure of the landfill is subject to the provisions of FAC Rules 17-701.070 through 17-701.076. Pursuant to FAC Rule 17-701.072, at least ninety (90) days prior to the date when wastes will no longer be accepted, the Permittee shall submit a closure permit application to the Department for review and approval. The application shall include a closure plan which meets the requirements of FAC Rule 17-701.073.

22. A copy of the Department approved engineering drawings, plans, reports, operational plan, and supporting information shall be kept at this landfill at all times for reference and inspections.

23. The Permittee shall immediately notify the Department by telephone whenever a serious problem occurs at this facility. During regular business hours notification shall be made to the Northeast District Office at (904)448-4300. If an emergency occurs outside regular business hours, the Permittee shall telephone the 24-hour emergency phone number (904)488-1320. This number is for emergencies only. Within 7 days of telephone notification, the Permittee shall submit to the Department a written report explaining the extent of the problem, its cause, and what actions have been or will be taken to correct the problem.

24. The Department shall be notified and prior approval shall be obtained for any changes or revisions made during construction.

Receipt of this permit from the Department does not relieve the applicant from obtaining other federal, state, and local permits required by law.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

26. A survey of the waste disposal area shall be conducted at the end of each year from the date of permit issuance until it is within ten (10) feet of design height after which it shall be conducted quarterly. This information is to be submitted to the Department within 30 days and shall include the maximum elevation at the design high point, all points designed for terraces, and the location of the toe of the slope.
27. The mitigation plan, "Trail Ridge Landfill Wetland Impacts and Mitigation Plan," submitted on June 18, 1990, shall be appended as a Specific Condition of this permit. Any specific condition requirements listed herein, shall supersede or modify any requirements contained in the appended mitigation plans.
28. Prior to initiating any construction, Permittee must record a conservation easement on the real property pursuant to Section 704.06, F.S., prohibiting all construction including clearing, dredging or filling, except that which is authorized by this permit within the conservation creation/preservation areas as delineated on plans dated as received by the Department on June 18, 1990. The easement must contain provisions as set forth in subsections 1(a)-(b) of Section 704.06, F.S., as well as provisions indicating that they may be enforced by the Department and may not be amended without Department approval. Within 30 days of the date of issuance of this permit and prior to recording, said easement must be submitted to the Department for review and approval. Within 30 days of receipt of Department approval, Permittee must provide to the Department a certified copy of the recorded easement showing the date they were recorded and the official records book and page number.
29. The initial planting of the mitigation areas, per appended mitigation plan Section 4(b)(4), shall be completed no later than one year after commencement of the construction activities authorized by this permit.
30. The Permittee shall submit an as-built survey of the wetland creation areas showing dimensions, grades, ground elevations, and water surface elevations certified by a registered surveyor or professional engineer. The as-builts must be submitted within thirty (30) days of the initial planting.
31. The Permittee shall furnish the Department with monitoring reports on the wetland creation areas describing:
 - a. Percent survival and diversity of planted species within each stratum;
 - b. Recruitment density and composition within each stratum;
 - c. Recorded growth via established parameters for planted trees and shrubs;
 - d. Percent cover of herbaceous species;
 - e. Surface water elevations referenced to N.G.V.D., or if surface water is not present, groundwater elevation referenced to N.G.V.D.

The first monitoring year shall start as of the planting date and data shall be collected and submitted in accordance with Specific Condition No. 4. Reports to the Department must also include photographs, descriptions of problems encountered, and solutions undertaken.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number: GMS3116P03090

Permit/Cert Number: SC16-184444

Date of Issue: 12- -90

Expiration Date: 12- -95

SPECIFIC CONDITIONS (CONT'D):

32. Within the wetland creation areas, non-native vegetation and nuisance vegetation such as Typha spp. shall be controlled by hand clearing or other methods approved by the Department so that they constitute no more than 10% of the areal cover at any monitoring period.
33. Successful establishment of wetland creation shall occur when:
 - a. on an annual basis at least 80% of the planted individuals in each stratum have survived and are showing signs of normal annual growth, based on standard growth parameters such as height and base diameter, or canopy circumference; and
 - b. the above criteria has been achieved and maintained for a three (3)-year period following initial planting
34. In the event that the success criteria as stated in Specific Condition No. 33 are not achieved by the expiration date of this permit, Permittee shall enter into a long-term agreement with the Department so as to ensure the success of the mitigation plan.
35. All wetland areas or water bodies which are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity or dewatering.
36. All disturbed areas adjacent to the mitigation area must be sodded or seeded and mulched within 10 days following their completion and a substantial vegetation cover must be established within 60 days of sodding or seeding.
37. The Permittee shall submit to the Department within sixty (60) days prior to acceptance of wastes, two copies of the final version of the Department approved Operations Plan.
38. Pursuant to FAC Rule 17-4.090, prior to sixty (60) days before the expiration of this permit, the Permittee shall apply for a renewal of the permit on forms and in a manner prescribed by the Department.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

Ernest E. Frey, P.E.
Deputy Assistant Secretary

ATTACHMENT 1
Initial Groundwater Parameters

Field Parameters

Specific Conductance	Temperature
Groundwater Elevation	pH

Indicator Parameters

Total Organic Carbon (TOC)	Total Kjeldahl Nitrogen (TKN)
Chemical Oxygen Demand (COD)	Biochemical Oxygen Demand (BOD)
Total Phosphorous	Ortho Phosphorous
Total Dissolved Solids (TDS)	Total Suspended Solids (TSS)
NO2 & NO3 as N	NH3 & NH4 as N
Color	Odor
Turbidity	Foaming Agents
Bicarbonate	Carbonate
Dissolved Oxygen (DO)	Sulfate

Inorganic Parameters

Arsenic	Chromium	Manganese
Barium	Copper	Mercury
Bicarbonate	Iron	Potassium
Cadmium	Fluoride	Selenium
Calcium	Lead	Silver
Chloride	Magnesium	Sodium
		Zinc

Microbiological Parameters

Total Coliform	Fecal Coliform
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Organic Parameters

EPA Priority Pollutant Parameters

ATTACHMENT 2
Quarterly Groundwater Parameters

Field Parameters

Specific Conductance	Temperature
Groundwater Elevation	pH

Indicator Parameters

Total Organic Carbon (TOC)	Total Kjeldahl Nitrogen (TKN)
Chemical Oxygen Demand (COD)	Biochemical Oxygen Demand (BOD)
Total Phosphorous	Ortho Phosphorous
Total Dissolved Solids (TDS)	Total Suspended Solids (TSS)
NO2 & NO3 as N	NH3 & NH4 as N
Color	Odor
Turbidity	Foaming Agents
Bicarbonate	Carbonate
Dissolved Oxygen (DO)	Sulfate

Inorganic Parameters

Arsenic	Chromium	Manganese
Barium	Copper	Mercury
Bicarbonate	Iron	Potassium
Cadmium	Fluoride	Selenium
Calcium	Lead	Silver
Chloride	Magnesium	Sodium
		Zinc

Microbiological Parameters

Total Coliform	Fecal Coliform
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VOC's (Method 601)

Bromodichloromethane	1,1-Dichloroethane
Bromoform	1,2-Dichloroethane
Bromomethane	trans-1,2-Dichloroethane
Carbon Tetrachloride	cis-1,3-Dichloropropene
Chlorobenzene	trans-1,3-Dichloropropene
Chloroethane	1,2-Dichloropropane
2-Chloroethylvinyl ether	Methylene Chloride
Chloroform	1,1,2,2-Tetrachloroethane
Chloromethane	Tetrachloroethene
Dibromochloromethane	1,1,1-Trichloroethane
1,2-Dichlorobenzene	1,1,2-Trichloroethane
1,3-Dichlorobenzene	Trichloroethene
1,4-Dichlorobenzene	Trichlorofluoromethane
Dichlorodifluoromethane	Vinyl Chloride
1,1-Dichloroethane	

VOC's (Method 602)

Benzene	1,4-Dichlorobenzene
Chlorobenzene	Ethylbenzene
1,2-Dichlorobenzene	Toluene

ATTACHMENT 3

Surface Water Parameters

Field Parameters

Specific Conductance
Temperature
pH

Indicator Parameters

Dissolved Oxygen	Total Organic Carbon (TOC)
Chemical Oxygen Demand (COD)	Biochemical Oxygen Demand (BOD)
Total Dissolved Solids (TDS)	Total Suspended Solids (TSS)
Total Nitrogen	Total Organic Nitrogen
Nitrate	Un-ionized Ammonia
NH3	NH4+
Total Phosphorous	Turbidity
Sodium	Chlorides
Sulfates	

Inorganic Parameters

Arsenic	Magnesium
Barium	Manganese
Cadmium	Mercury
Chromium	Nickel
Copper	Selenium
Iron	Silver
Lead	Zinc

Microbiological Parameters

Total Coliform	Fecal Coliform
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STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32399-2400



BOB MARTINEZ
GOVERNOR
DALE TWACHTMANN
SECRETARY

QUARTERLY REPORT ON GROUND WATER MONITORING
Rule 17-4.245(6)(k)2.

GMS / _____ DATE _____

DER PERMIT # _____

Installation Name _____

Address _____ City _____ State _____ Zip _____ County _____

Owner or Authorized Representative's Name _____ Title _____

Method of Discharge _____

Type of Industry _____

Report for Period _____ date _____ to _____ date _____

Attach monitoring data as approved in monitoring plan using parameter monitoring report forms. When applicable, attach additional sheets describing any changes in the background water quality and the discharge plume since the last reported description. Include any changes in size, direction of movement, rate of movement, and concentration changes of plume constituents in violation of the applicable standards.

NOTE: Pursuant to Rule 17-4.245(6)(k)3., at any time there is a change in the permitted volume, location or chemical, physical or microbiological composition of the discharge plume, the permittee shall notify the department and, if required by the department, submit a new report stating the volume and chemical, physical and microbiological compositions of the discharge at the point of release or contact with the ground water at the site boundary.

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Owner or Authorized Representative's Signature _____ Date _____

RECEIVED OCT 15 1990

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

In the Matter of:)	
Application for Permit by:)	DER File No.: 161821182
)	Duval County-D/F
Trail Ridge Landfill, Inc.)	
c/o Douglas C. Miller, P.E.)	
England, Thims & Miller, Inc.)	
3131 St. Johns Bluff Road South)	
Jacksonville, FL 32216)	

INTENT TO ISSUE

The Department of Environmental Regulation gives notice of its intent to issue a permit (copy attached) for the proposed project as detailed in the application specified above, for the reasons stated below.

The applicant, Trail Ridge Landfill, Inc., applied through an agent, England, Thims & Miller, Inc., on June 13, 1990, to the Department of Environmental Regulation for a permit and water quality certification to fill 1.61 acres of roadside ditches, which discharge to Deep Creek, to facilitate the widening of an existing road to provide access to a solid waste landfill facility. To mitigate the loss of these ditches, 4.76 acres of freshwater hardwood swamp wetlands shall be created on site. The project is located 1.14 miles north of State Road 228 (Normandy Boulevard) on the west side of U.S. Highway 301 in Duval County, in the vicinity of Maxville in Sections 18, 19, 20, 21, Township 3 South, Range 23 East.

The Department has permitting jurisdiction under Chapter 403, Florida Statutes, and Florida Administrative Code Rules 17-4 and

EXHIBIT
TRL-17

17-312, Public Law 92-500 for the construction of pollution sources within waters of the State. The project is not exempt from permitting procedures. The Department has determined that a Wetland Resource Management (dredge/fill) permit is required for the proposed work.

The Department intends to issue this permit (copy attached) with specific conditions for the following reasons:

The applicant has provided the Department with affirmative reasonable assurance, pursuant to Florida Administrative Code Rule 17-312.080(1) that the immediate and long-term impact of the project will not result in violation of State Water Quality Standards.

In addition, the applicant has provided the Department with reasonable assurance pursuant to Florida Administrative Code Rule 17-312.080(2) that based on plans, test results or other information that the project is not contrary to the public interest in accordance with Section 403.918(2), Florida Statutes.

Section 403.918(2), Florida Statutes, states that,
"No permit shall be issued under this part unless the applicant provides the department with reasonable assurance that the project is not contrary to the public interest...(a) In determining whether a project is not contrary to the public interest the Department shall consider and balance the following criteria:

File No.: 161821182

- (1) Whether the project will adversely affect the public health, safety, or welfare or property of others;
- (2) Whether the project will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;
- (3) Whether the project will adversely affect navigation or the flow of water or cause harmful erosion or shoaling;
- (4) Whether the project will adversely affect the fishing or recreation values or marine productivity in the vicinity of the project;
- (5) Whether the project will be of a temporary or permanent nature;
- (6) Whether the project will adversely affect or enhance significant historical and archeological resources under the provision of s. 267.061; and
- (7) The current condition and relative value of functions being performed by areas affected by the proposed activity.

Pursuant to Section 403.815, Florida Statutes and DER Rule 17-103.150, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Notice of Intent to Issue Permit. The notice shall be published one time only within 30 days, in the legal ad section of a newspaper of general circulation in the area affected. For the purpose of this rule, "publication in a newspaper of general circulation in the area affected" means publication in a newspaper meeting the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. The applicant shall provide proof of publication to the Department, at 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7577, within seven days of publication. Failure to publish the notice and provide proof of publication within the allotted time may result in the denial of the permit.

File No.: 161821182

The Department will issue the permit with the attached conditions unless a petition for an administrative proceeding (hearing) is filed pursuant to the provisions of Section 120.57, F.S.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 2600 Blair Stone Road, Tallahassee, Florida 32399-2400. Petitions filed by the permit applicant and the parties listed below must be filed within 14 days of receipt of this intent. Petitions filed by other persons must be filed within 14 days of publication of the public notice or within 14 days of their receipt of this intent, whichever first occurs. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, Florida Statutes.

The Petition shall contain the following information:

File No.: 161821182

(a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action or proposed action;

(d) A statement of the material facts disputed by Petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this intent. Persons whose substantial interests will be affected by any decision of the Department with regard to the application have the

File No.: 161821182

right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 14 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Executed in Jacksonville, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION



Ernest E. Frey, P.E.
Deputy Assistant Secretary
Northeast District Office
7825 Baymeadows Way,
Suite 200B
Jacksonville, FL 32256-7577

Phone: (904) 448-4300

FILING AND ACKNOWLEDGEMENT

FILED, on this date, pursuant to §120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

[Handwritten signature] 10-11-90

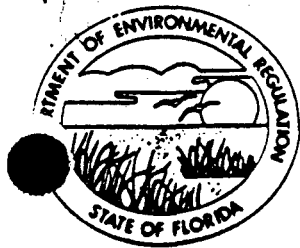
Copies furnished to:

Trail Ridge Landfill, Inc. (Certified #P 771 963 696)
Pamela Presnell Garvin (Certified #P 771 962 166)
William Congdon, Permit Attorney, DER, Tallahassee
John Adams, ACOE, Jacksonville
Forrest Watson, DNR, Jacksonville
Michael Eaton, DER, Jacksonville
Jeremy Tyler, DER, Jacksonville
Mary Nogas, DER, Jacksonville

CERTIFICATE OF SERVICE

This is to certify that the NOTICE OF PERMIT and all copies were mailed before the close of business on 10-11-90 to the listed persons.

File No.: 161821182



Florida Department of Environmental Regulation

Northeast District • Suite 200, 7825 Baymeadows Way • Jacksonville, Florida 32256-7577 • 904-448-4300

Bob Martinez, Governor

Dale Twachtmann, Secretary

John Shearer, Assistant Secretary

Ernest Frey, Deputy Assistant Secretary

D R A F T

DRAFT

PERMITTEE:

Trail Ridge Landfill, Inc.
c/o Douglas C. Miller, P.E.
England, Thims & Miller, Inc.
3131 St. Johns Bluff Road South
Jacksonville, FL 32216

I.D. Number: WRM

Permit/Cert. Number: 161821182

Date of Issue:

Expiration Date:

County:

Lat/Long: 30°13'20"/82°02'30"

Section/Township/Range: 18,19,20,21/3S/23E

Project: Construct a road.

This permit is issued under the provisions of Chapter 403, Florida Statutes, and Florida Administrative Code Rule(s) 17-312. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the department and made a part hereof and specifically described as follows:

Fill 1.61 acres of roadside ditches, which discharge to Deep Creek, to facilitate the widening of an existing road to provide access to a solid waste landfill facility. To mitigate the loss of these ditches, 4.76 acres of freshwater hardwood swamp wetlands shall be created on site. The project is located 1.14 miles north of State Road 228 (Normandy Boulevard) on the west side of U.S. Highway 301 in Duval County, in the vicinity of Maxville.

EXHIBIT

TRL-18

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number:

Permit Number: 161821182

Date of Issue:

Expiration Date:

DRAFT

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth herein are "Permit Conditions" and as such are binding upon the permittee and enforceable pursuant to the authority of Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes. The permittee is hereby placed on notice that the department will review this permit periodically and may initiate enforcement action for any violation of the "Permit Conditions" by the permittee, its agents, employees, servants, or representatives.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the department.
3. As provided in Subsections 403.087(6) and 403.722(5), Florida Statutes, the issuance of this permit does not convey any vested rights or any exclusive privileges. Nor does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit does not constitute a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgement of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the state. Only the Trustees of the Internal Improvement Trust Fund may express state opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, plant or aquatic life or property and penalties therefore caused by the construction or operation of this permitted source, nor does it allow the permittee to cause pollution in contravention of Florida Statutes and department rules, unless specifically authorized by an order from the department.
6. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized department personnel, upon presentation of credentials or other documents as may be required by law, access to the premises, at reasonable times, where the permitted activity is located or conducted for the purpose of:

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number:

Permit Number: 161821182

Date of Issue:

Expiration Date:

DRAFT

- a. Having access to and copying any records that must be kept under the conditions of the permit;
- b. Inspecting the facility, equipment, practices, or operations regulated or required under this permit; and
- c. Sampling or monitoring any substances or parameters at any location reasonably necessary to assure compliance with this permit or department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with, or will be unable to comply with, any condition or limitation specified in this permit, the permittee shall immediately notify and provide the department with the following information:
 - a. A description of and cause of non-compliance; and
 - b. the period of non-compliance, including exact dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the department, may be used by the department as evidence in any enforcement case arising under the Florida Statutes or department rules, except where such use is proscribed by Sections 403.73 and 403.111, Florida Statutes.
10. The permittee agrees to comply with changes in department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or department rules.
11. This permit is transferable only upon department approval in accordance with Florida Administrative Code Rules 17-4.12 and 17-30.30, as applicable. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the department.
12. This permit is required to be kept at the work site of the permitted activity during the entire period of construction or operation.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number:

Permit Number: 161821182

Date of Issue:

Expiration Date:

DRAFT

13. This permit also constitutes:

- () Determination of Best Available Control Technology (BACT)
- () Determination of Prevention of Significant Deterioration (PSD)
- (X) Certification of Compliance with State Water Quality Standards
(Section 401, PL 92-500)
- () Compliance with New Source Performance Standards

14. The permittee shall comply with the following monitoring and record keeping requirements:

- a. Upon request, the permittee shall furnish all records and plans required under department rules. The retention period for all records will be extended automatically, unless otherwise stipulated by the department, during the course of any unresolved enforcement action.
- b. The permittee shall retain at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), copies of all reports required by this permit, and records of all data used to complete the application for this permit. The time period of retention shall be at least three years from the date of the sample, measurement, report or application unless otherwise specified by department rule.
- c. Records of monitoring information shall include:
 - the date, exact place, and time of sampling or measurements;
 - the person responsible for performing the sampling or measurements;
 - the date(s) analyses were performed;
 - the person responsible for performing the analyses;
 - the analytical techniques or methods used; and
 - the results of such analyses.

15. When requested by the department, the permittee shall, within a reasonable period of time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the department, such facts or information shall be submitted or corrected promptly.

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number:

Permit Number: 161821182

Date of Issue:

Expiration Date:

DRAFT

SPECIFIC CONDITIONS:

1. The permittee is hereby advised that Florida law states: "No person shall commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund of the Department of Natural Resources under Chapter 253, until such person has received from the Board of Trustees of the Internal Improvement Trust Fund the required lease, license, easement, or other form of consent authorizing the proposed use." Pursuant to Florida Administrative Code Rule 16Q-14, if such work is done without consent, or if a person otherwise damages state land or products of state land, the Board of Trustees may levy administrative fines of up to \$10,000 per offense.
2. If historical or archeological artifacts, such as Indian canoes, are discovered at any time within the project site the permittee shall immediately notify the Northeast District Office of the Department of Environmental Regulation and the Bureau of Historic Preservation, Division of Archives, History and Records Management, R.A. Gray Building, Tallahassee, Florida 32301.
3. Prior to commencement of work authorized by this permit, the permittee shall provide written notification of the date of the commencement and proposed schedule of construction to the Northeast District Office of the Department of Environmental Regulation, Wetland Management Section, Suite B-200, 7825 Baymeadows Way, Jacksonville, FL 32256-7577.

This permit does not constitute any approval of the stormwater management system which must be obtained separately from the appropriate agency.

5. The project shall comply with applicable State Water Quality Standards, namely:
17-302.500 - Minimum Criteria for All Waters at All Times and All Places.
17-302.510 - Surface Waters: General Criteria.
17-302.560 - Criteria - Class III Waters - Recreation, Propagation and Management of Fish and Wildlife: Surface Waters.
6. The mitigation plan, "Trail Ridge Landfill Wetland Impacts and Mitigation Plan," submitted on June 18, 1990, shall be appended as a Specific Condition of this permit. Any specific condition requirements listed herein, shall supercede or modify any requirements contained in the appended mitigation plan.
7. Prior to initiating any construction, permittee must record a conservation easement on the real property pursuant to Section 704.06, F.S., prohibiting all construction including clearing, dredging or filling, except that which is authorized by this permit within the conservation creation/preservation areas as delineated on plans dated as received by the Department on June 18, 1990. The easement must contain provisions as set forth in subsections 1 (a) - (b) of Section 704.06, F.S., as well as provisions indicating that they may be enforced by the Department and may not be amended without Department approval. Within 30 days of the date of issuance of this permit and prior to recording, said easement must be submitted to the Department for

CONTINUED NEXT PAGE

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number:

Permit Number: 161821182

Date of Issue:

Expiration Date:

DRAFT

SPECIFIC CONDITIONS CONTINUED:

review and approval. Within 30 days of receipt of Department approval, permittee must provide to the Department a certified copy of the recorded easement showing the date they were recorded and the official records book and page number.

8. The permittee shall submit, in writing, to the Department of Environmental Regulation, Northeast District, 7825 Baymeadows Way, Suite 200B, Jacksonville, FL 32256-7577, notification of the date that activities authorized by this permit commence.
9. The initial planting of the mitigation areas, per appended mitigation plan section 4 (b)(4), shall be completed no later than one year after commencement of the activities authorized by this permit.
10. The permittee shall submit an as-built survey of the wetland creation areas showing dimensions, grades, ground elevations and water surface elevations certified by a registered surveyor or professional engineer. The as-build must be submitted within thirty (30) days of the initial planting.
11. The permittee shall furnish the Department with monitoring reports on the wetland creation areas describing:
 - a. Percent survival and diversity of planted species within each stratum;
 - b. Recruitment density and composition within each stratum;
 - c. Recorded growth via established parameters for planted trees and shrubs;
 - d. Percent cover of herbaceous species;
 - e. Surface water elevations referenced to N.G.V.D., or if surface water is not present, groundwater elevation referenced to N.G.V.D.

The first monitoring year shall start as of the planting date and data shall be collected and submitted in accordance with Specific Condition Number 9. Reports to the Department must also include photographs, descriptions of problems encountered and solutions undertaken.

12. Within the wetland creation areas, non-native vegetation and nuisance vegetation such as Typha spp. shall be controlled by hand clearing or other methods approved by the Department so that they constitute no more than 10% of the areal cover at any monitoring period.

CONTINUED NEXT PAGE

PERMITTEE:

Trail Ridge Landfill, Inc.

I.D. Number:

Permit Number: 161821182

Date of Issue:

Expiration Date:

DRAFT

SPECIFIC CONDITIONS CONTINUED:

13. Successful establishment of the wetland creation shall occur when:

- a. on an annual basis at least 80 percent of the planted individuals in each stratum have survived and are showing signs of normal annual growth, based on standard growth parameters such as height and base diameter, or canopy circumference; and
- b. the above criteria has been achieved and maintained for a three (3) year period following initial planting.

14. In the event that the success criteria as stated in Specific Condition Number 13 are not achieved by the expiration date of this permit, the permittee shall enter into a long term agreement with the Department so as to insure the success of the mitigation plan.

15. All wetland areas or water bodies which are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity or dewatering.

16. All disturbed areas adjacent to the mitigation area must be sodded or seeded and mulched within 10 days following their completion and a substantial vegetation cover must be established within 60 days of sodding or seeding.

Issued this day of , 1990

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL REGULATION

DRAFT

Ernest E. Frey, P.E.
Deputy Assistant Secretary

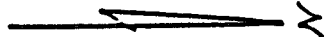
Copy to: ACOE, Jacksonville
DNR, Jacksonville
County Tax Assessor

CERTIFICATE OF SERVICE

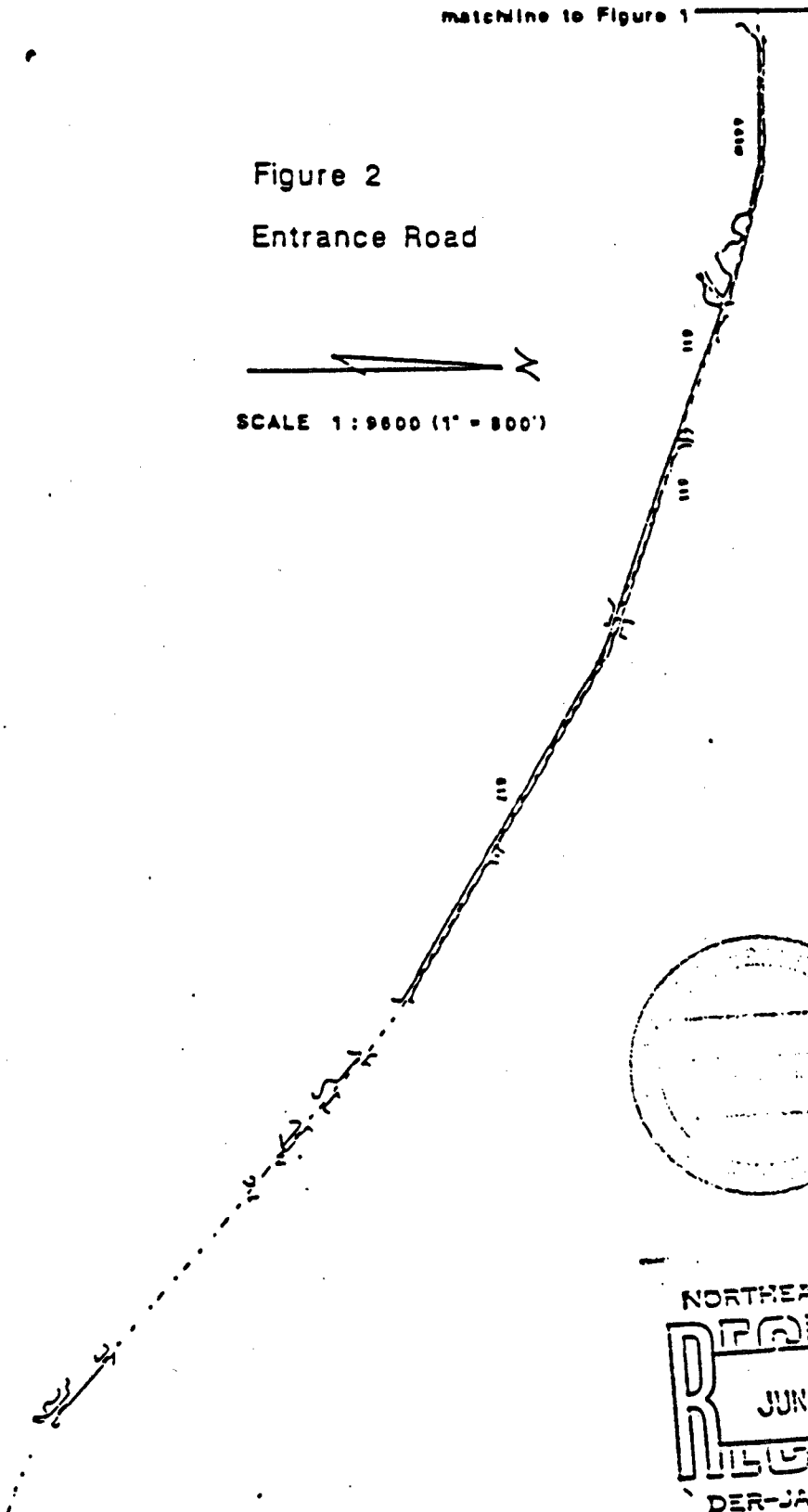
The undersigned duly designated deputy clerk hereby certifies that this NOTICE OF PERMIT and all copies were mailed before the close of business on _____ to the listed persons.

matchline to Figure 1

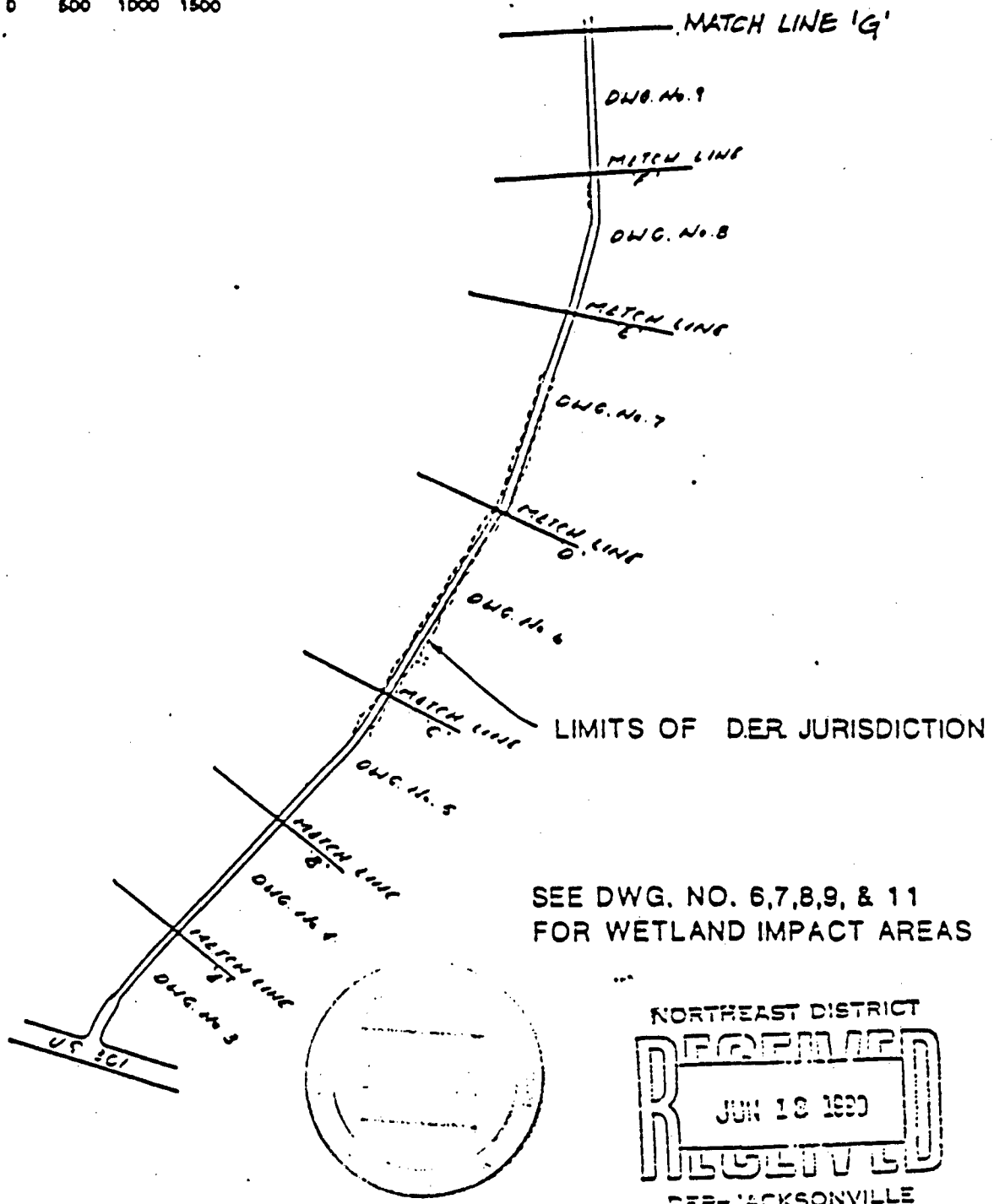
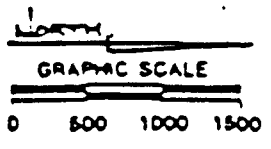
Figure 2
Entrance Road



SCALE 1:9600 (1" = 800')



NORTHEAST DISTRICT
RECEIVED
JUN 16 1950
DER-JACKSONVILLE



SEE DWG. NO. 6, 7, 8, 9, & 11
FOR WETLAND IMPACT AREAS

NORTHEAST DISTRICT
RECEIVED
 JUN 18 1990
RECEIVED
 DER-JACKSONVILLE

England-Thims
& Miller, Inc.

SITE PLAN
 ENTRANCE ROAD
TRAIL RIDGE LANDFILL
 TRAIL RIDGE LANDFILL, INC.

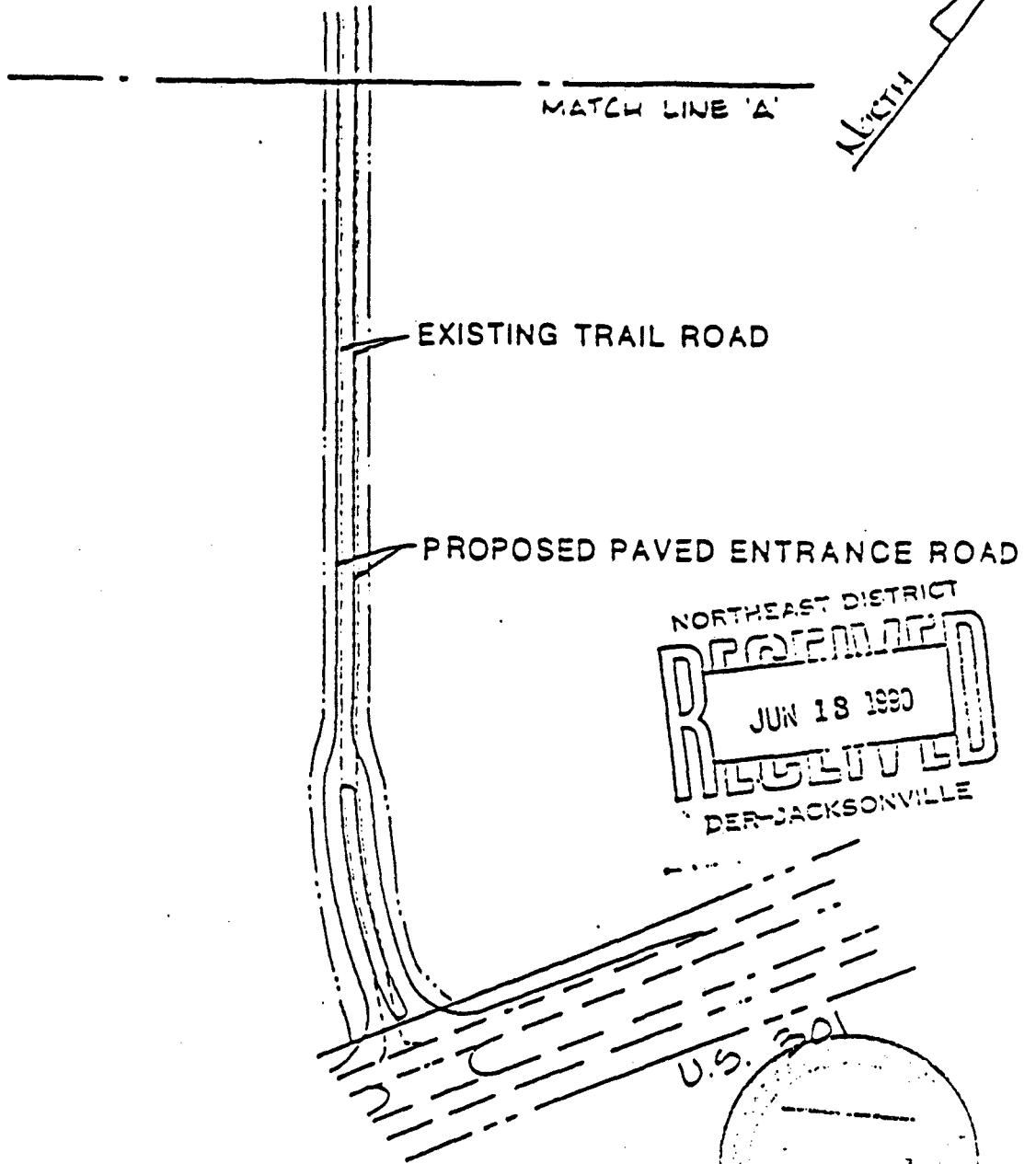
PROJ. NO. E89-113
 DATE JUNE 11, 1990
 SCALE SEE GRAPHIC
 DRAWING NO. 3

DER




Handwritten signature
 6-11-90

200 100 0 200
GRAPHIC SCALE

NO D.E.R. IMPACTS THIS SHEET



LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PAVT.

TOTAL DEPARTMENT OF ENVIRONMENTAL
REGULATION WETLAND IMPACTS
1.61 ACRES TOTAL FILL 5364 C.Y.



England-Thims
& Miller, Inc.

SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 59-113

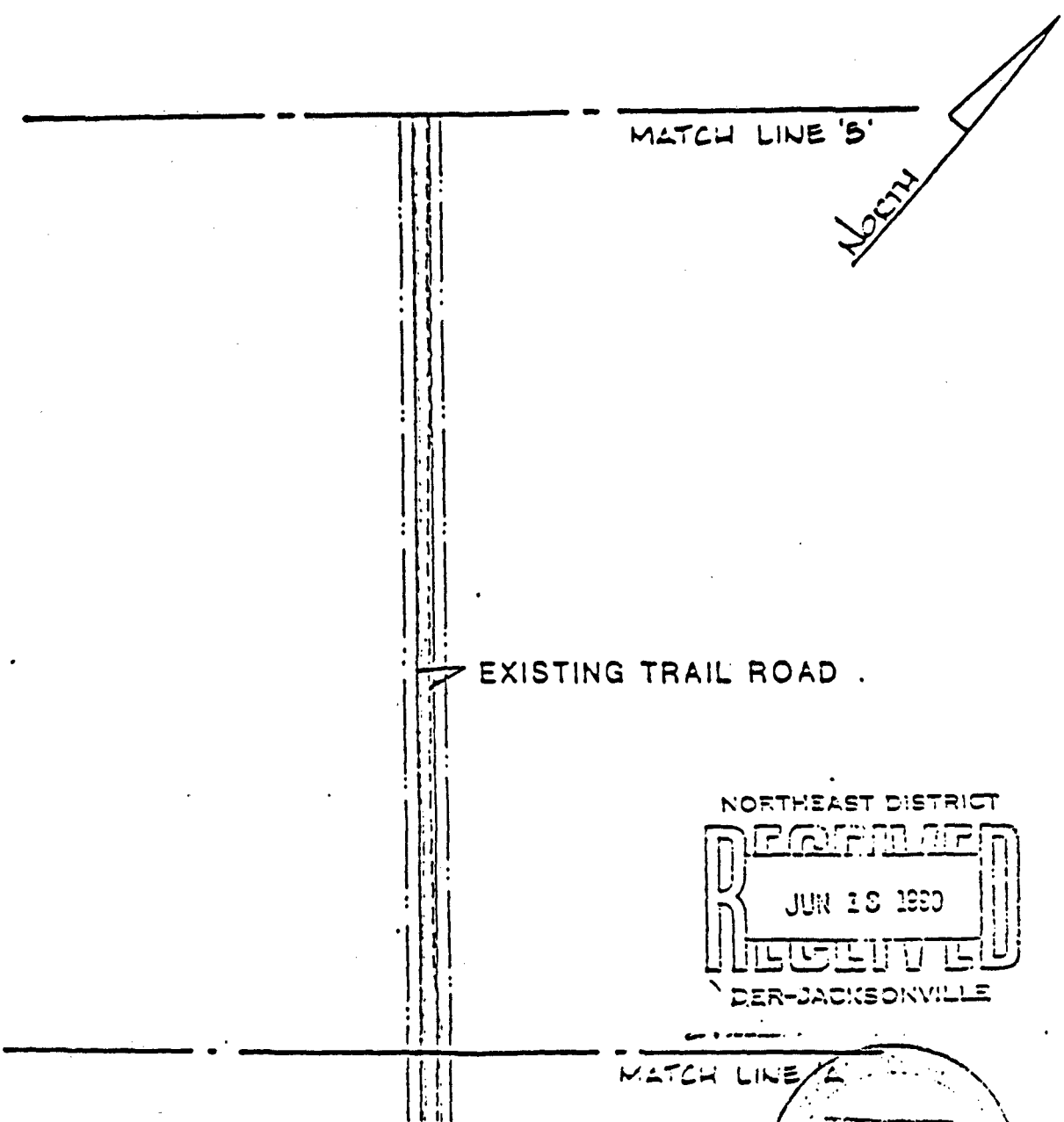
DATE JUNE 11, 1990

SCALE GRAPHIC

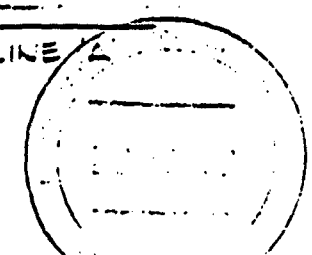
DRAWING NO. 4

DER

Granville
6-11-90



NORTHEAST DISTRICT
RECEIVED
 JUN 23 1990
RECEIVED
 DER-JACKSONVILLE



LEGEND
 ———— LIMITS OF CONSTRUCTION
 // // // // D.E.R. WETLAND IMPACT
 = = = = PROPOSED 24' ASPHALT PAVT.

England-Thims
& Miller, Inc.

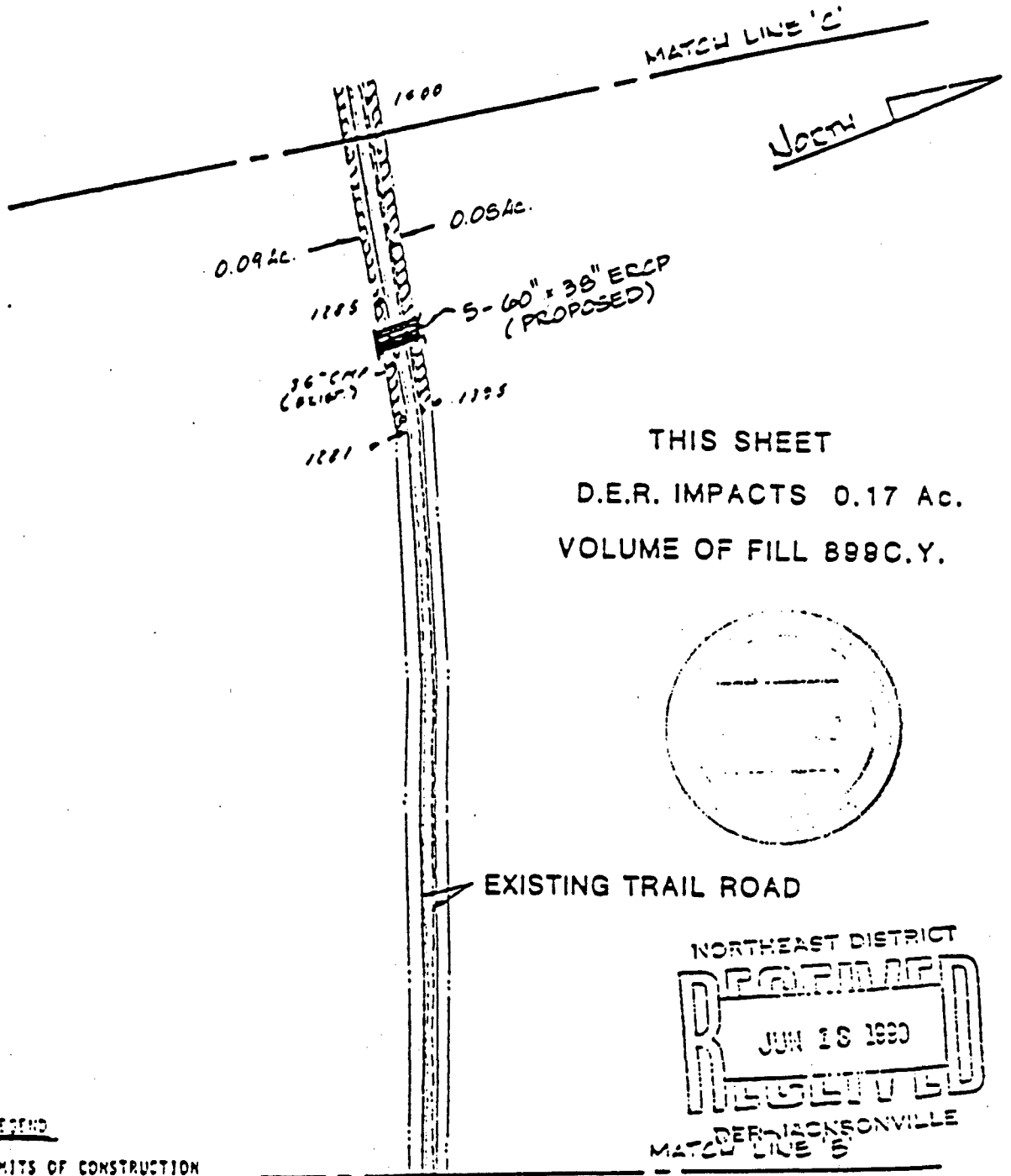
SITE PLAN
 TRAIL RIDGE LANDFILL
 TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
 DATE JUNE 11, 1990
 SCALE GRAPHIC
 DRAWING NO. 5

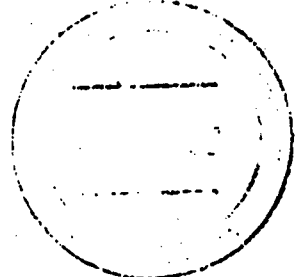
DER

Handwritten signature
 6-11-90

200 00 0
 GRAPHIC SCALE



THIS SHEET
 D.E.R. IMPACTS 0.17 Ac.
 VOLUME OF FILL 898C.Y.



EXISTING TRAIL ROAD

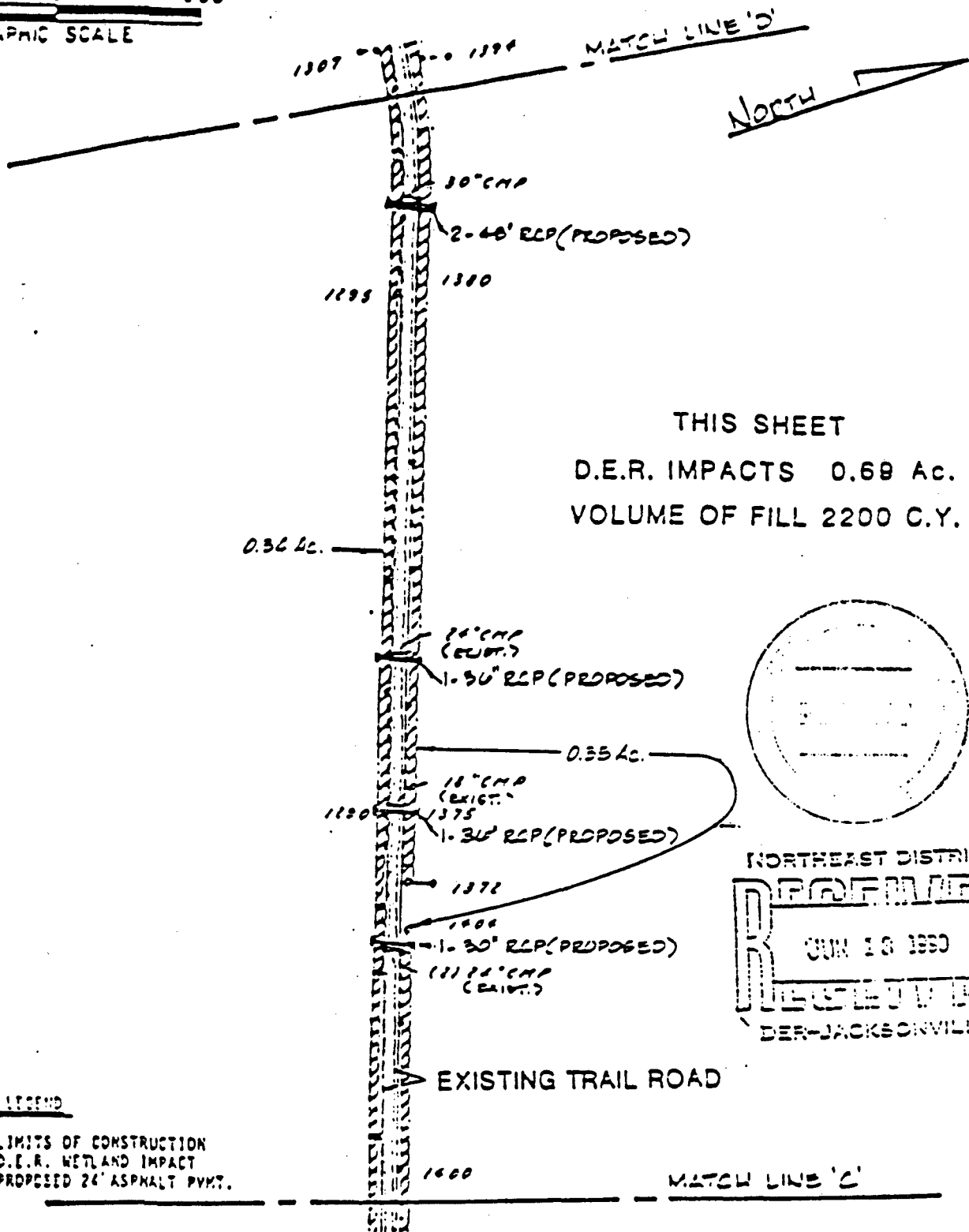
NORTHEAST DISTRICT
RECEIVED
 JUN 18 1990
 DER-JACKSONVILLE
 MATCH LINE B

LEGEND
 [Symbol] LIMITS OF CONSTRUCTION
 [Symbol] D.E.R. WETLAND IMPACT
 [Symbol] PROPOSED 24' ASPHALT PYMT.

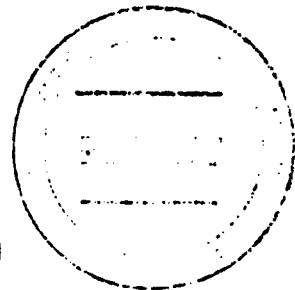
 England-Thims & Miller, Inc.	SITE PLAN	PROJ. NO. 89-113
	TRAIL RIDGE LANDFILL TRAIL RIDGE LANDFILL, INC.	DATE JUNE 11, 1990
		SCALE GRAPHIC DRAWING NO. 6

DER

[Handwritten Signature]
 6-11-90



THIS SHEET
D.E.R. IMPACTS 0.69 Ac.
VOLUME OF FILL 2200 C.Y.



LEGEND

- LIMITS OF CONSTRUCTION
- ////// D.E.R. WETLAND IMPACT
- ===== PROPOSED 24' ASPHALT PVM.

EXISTING TRAIL ROAD

<p>England-Thims & Miller, Inc.</p>	<p>SITE PLAN</p>	<p>PROJ. NO. 89-113</p>
	<p>TRAIL RIDGE LANDFILL TRAIL RIDGE LANDFILL, INC.</p>	<p>DATE JUNE 11, 1990</p>
		<p>SCALE GRAPHIC</p>
		<p>DRAWING NO. 7</p>

DER

Handwritten signature and date:
G. Miller
6-11-90

200 100 0 200

GRAPHIC SCALE

MATCH LINE 'E'



0.17 Ac.

1300

EXISTING TRAIL ROAD

1305

0.21 Ac.

1310

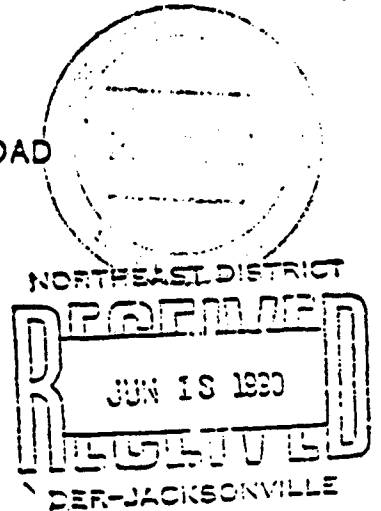
1320

1307




1324

MATCH LINE 'D'

THIS SHEET
D.E.R. IMPACTS 0.38 Ac.
VOLUME OF FILL 1292 C.Y.



LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PKWT.



England-Thims
& Miller, Inc.

SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

DATE JUNE 11, 1990

SCALE GRAPHIC

DRAWING NO. 8

DER

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6-11-90

200 100 0 200

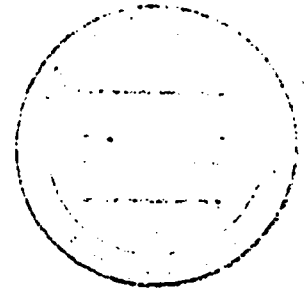
GRAPHIC SCALE

NORTH 

MATCH LINE 'F'

133E
133E
133E
133E
12136' CMP
346' (EXIST)
133E
133E
20' ASP (PROPOSED)
0.06 AC.
0.01 AC.

THIS SHEET
D.E.R. IMPACTS 0.07Ac.
VOLUME OF FILL 68C.Y.







EXISTING TRAIL ROAD

NORTHEAST DISTRICT
RECEIVED
JUN 18 1990
RECEIVED
DER-JACKSONVILLE

MATCH LINE 'E'

LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PAVT.

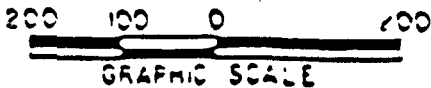
 England-Thims
& Miller, Inc.

SITE PLAN
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

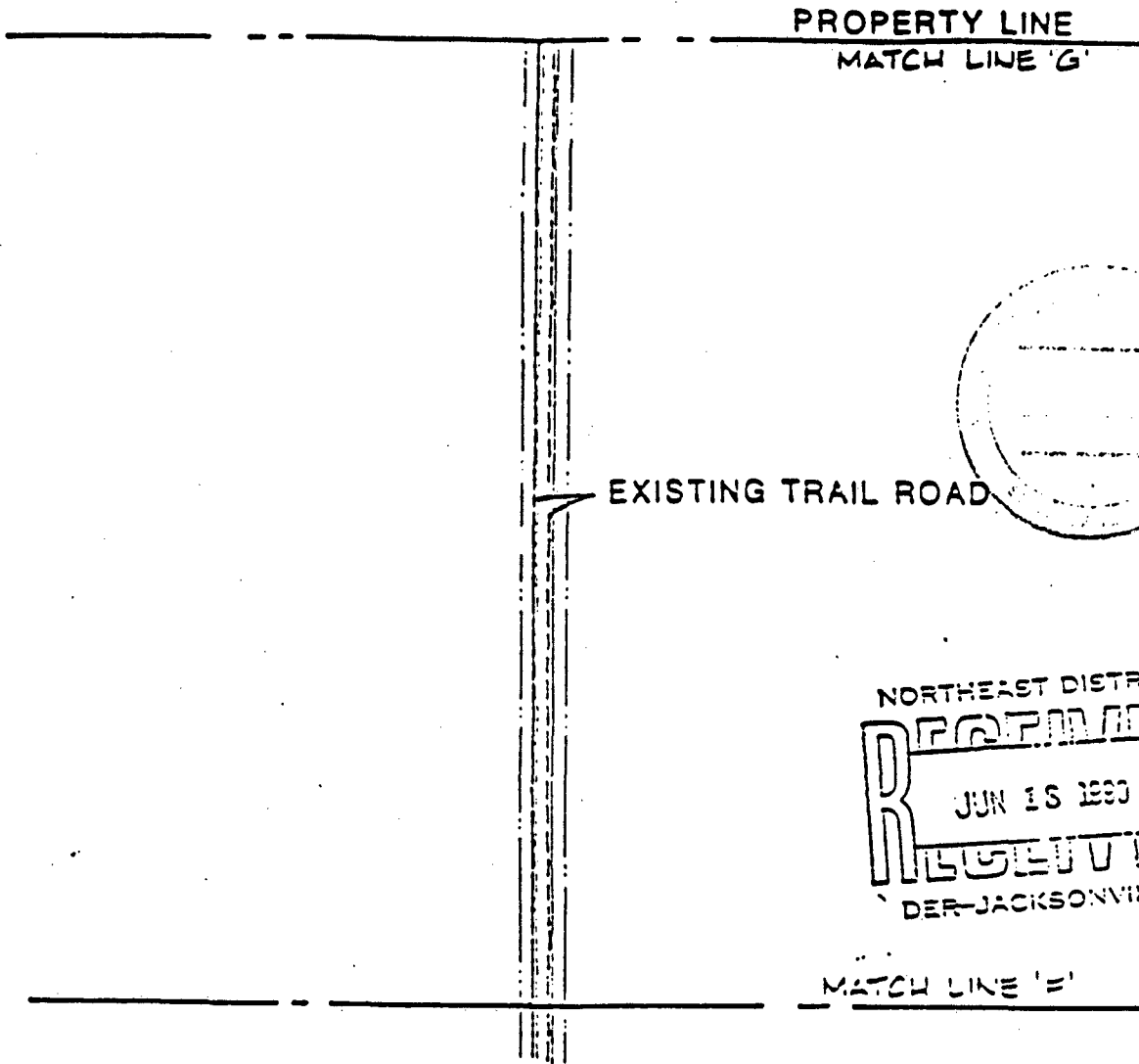
PROJ. NO. 69-113
DATE JUNE 11, 1990
SCALE GRAPHIC
DRAWING NO. 9

DER

Handwritten signature



North



EXISTING TRAIL ROAD

PROPERTY LINE
MATCH LINE 'G'

MATCH LINE 'E'

NORTHEAST DISTRICT
RECEIVED
JUN 15 1990
RECEIVED
DER-JACKSONVILLE

LEGEND

- LIMITS OF CONSTRUCTION
- D.E.R. WETLAND IMPACT
- PROPOSED 24' ASPHALT PVMT.

THIS SHEET
NO D.E.R. IMPACTS

<p>England-Thims & Miller, Inc.</p>	<p>SITE PLAN</p>	<p>PROJ. NO. 89-113</p>
	<p>TRAIL RIDGE LANDFILL TRAIL RIDGE LANDFILL, INC.</p>	<p>DATE JUNE 11, 1990</p>
		<p>SCALE GRAPHIC DRAWING NO. 10</p>

DER

England-Thims
6-11-90



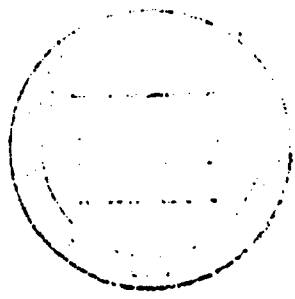
North

CLASS III
SECTION 10
SECTION 19

THIS SHEET
D.E.R. IMPACTS 0.30 AC.
VOLUME OF FILL 924 C.Y.

PROPOSED DBL. 48" CMPS.

LIMITS OF JURISDICTION



NORTHEAST DISTRICT
REGISTERED
JUN 18 1980
REGISTERED
DER-JACKSONVILLE

LEGEND

- LIMITS OF CONSTRUCTION
- ////// D.E.R. WEIR AND IMPACT
- ==== PROPOSED 24" ASPHALT PAVE.

CLASS I

EXISTING TRAIL ROAD

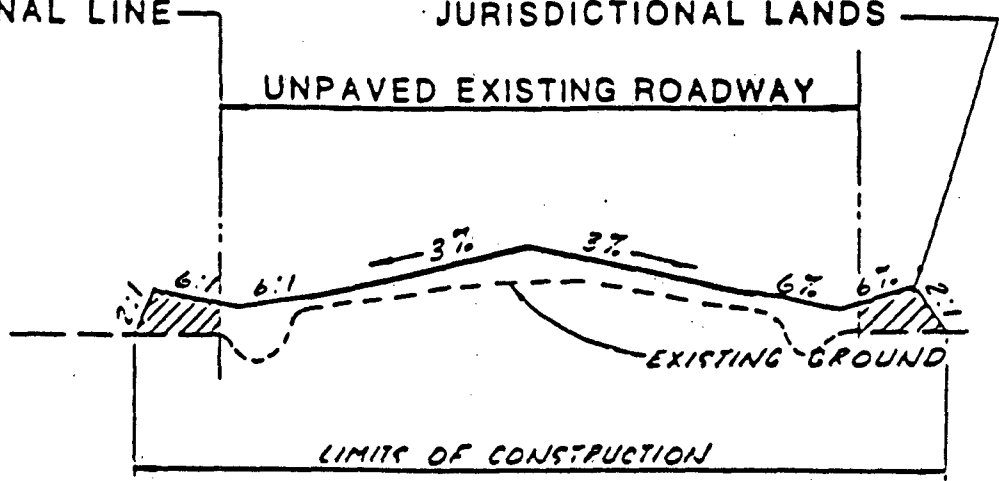
England-Thims & Miller, Inc. <small>ENGINEERS AND ARCHITECTS 5015 37th Street, N.W., Jacksonville, FL 32210</small>	SITE PLAN		PROJ. NO. 88-113
	TRAIL RIDGE LANDFILL TRAIL RIDGE LANDFILL, INC.		DATE JUNE 11, 1980
			SCALE GRAPHIC
			DRAWING NO. 11

DER

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11-11-80

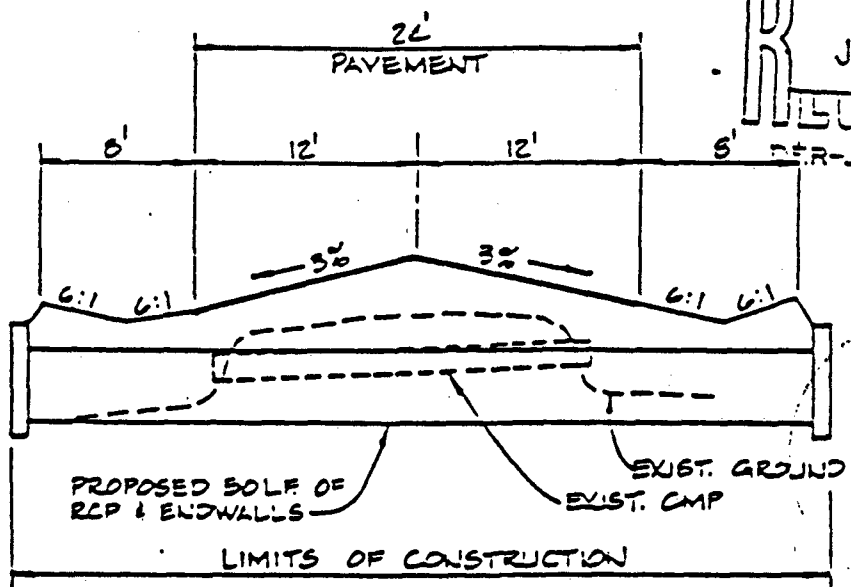
D.E.R.
JURISDICTIONAL LINE

IMPACTS TO D.E.R.
JURISDICTIONAL LANDS



TYPICAL SECTION WHERE
IMPACTING D.E.R. JURISDICTION

THE EAST DISTRICT
RECEIVED
JUN 18 1990
DER-JACKSONVILLE



TYPICAL CULVERT REPLACEMENT



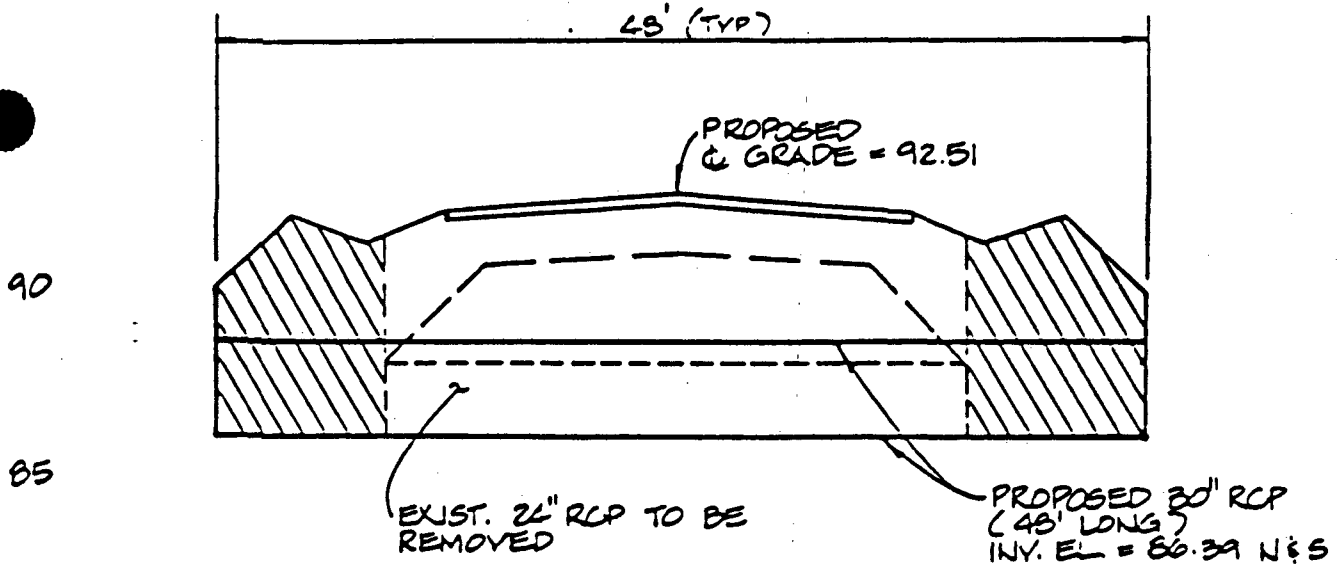
England-Thimms
& Miller, Inc.

ROADWAY SECTIONS
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
DATE JUNE 11, 1990
SCALE 1"=10'
DRAWING NO. 12

DER

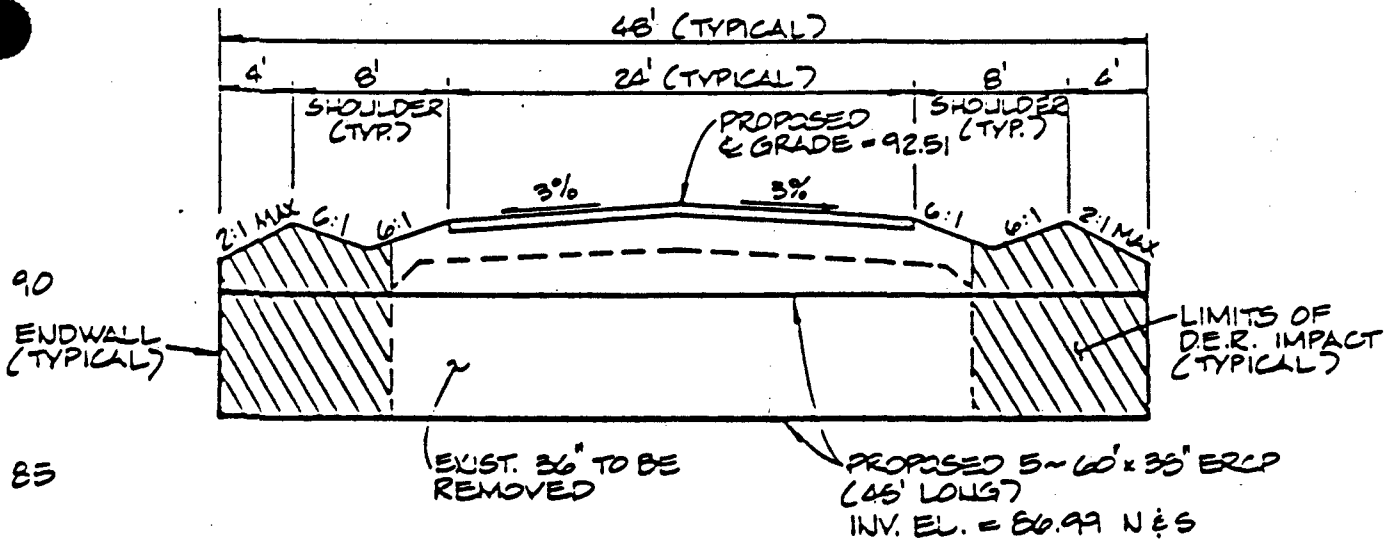
England
6-11-90



STA. 49 + 03

NORTHEAST DISTRICT

 DER-JACKSONVILLE



STA. 42 + 87

7-16-90 ADDED X-SECT'S PER DER.

England-Thims
& Miller, Inc.

CULVERT SECTIONS

TRAIL RIDGE LANDFILL
 TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

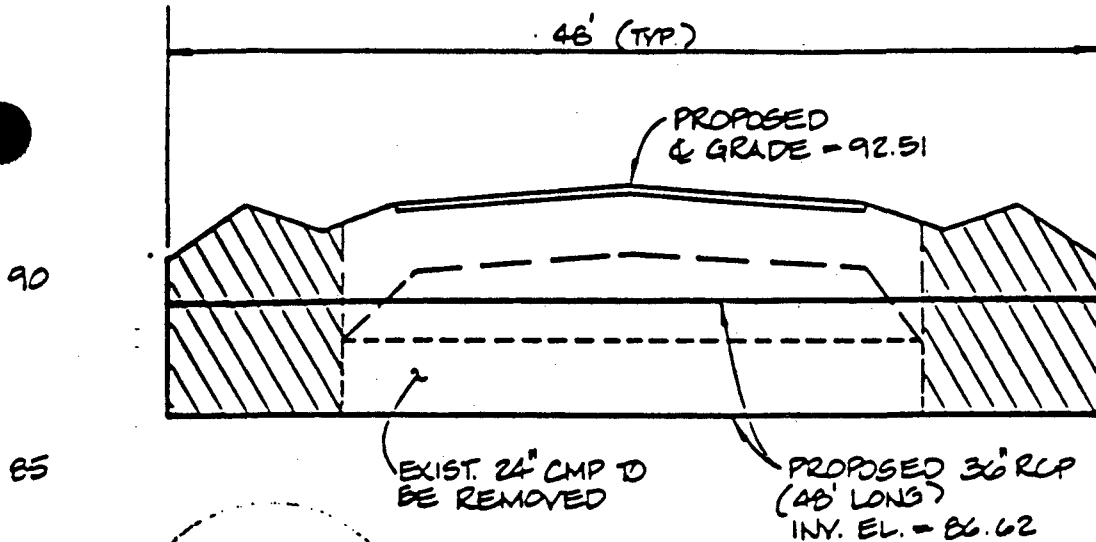
DATE JULY 14, 1990

SCALE 1" = 10'

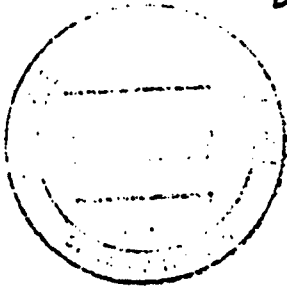
DRAWING NO. 18

DER

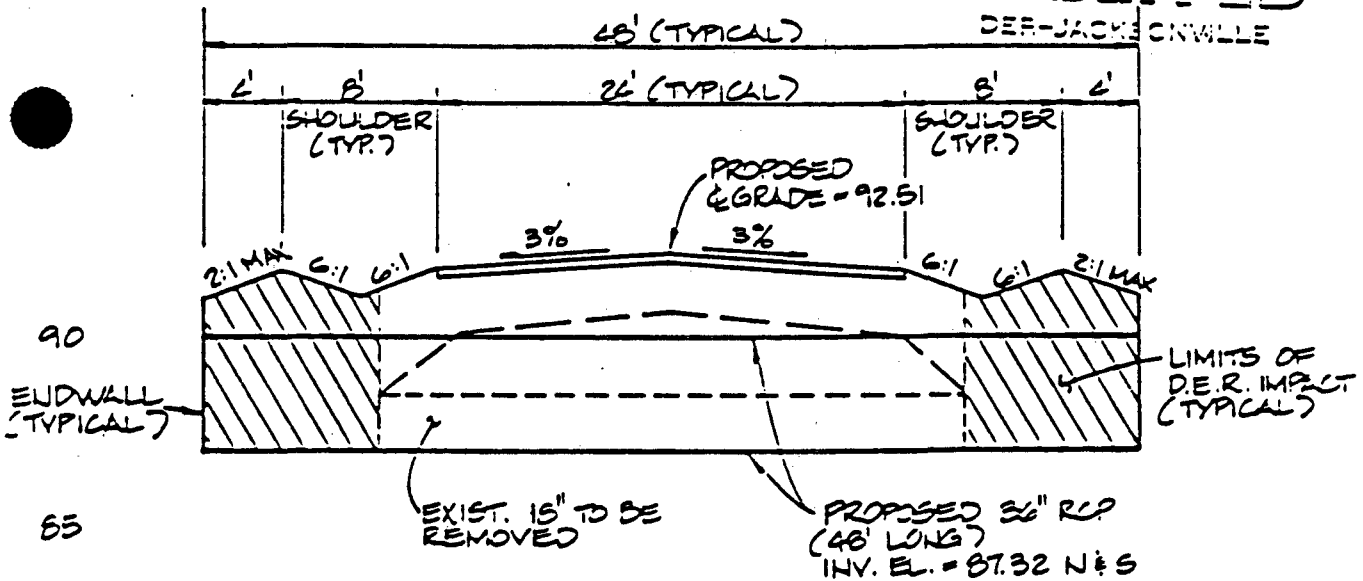
A. J. Givitt
 7-17-90



STA. 53 + 01



NORTHEAST DISTRICT
 RECEIVED
 JUL 18 1990
 RECEIVED
 DER-JACKSONVILLE



STA. 50 + 98

7.14.90 LODED X-SECT'S PER. D.E.R.

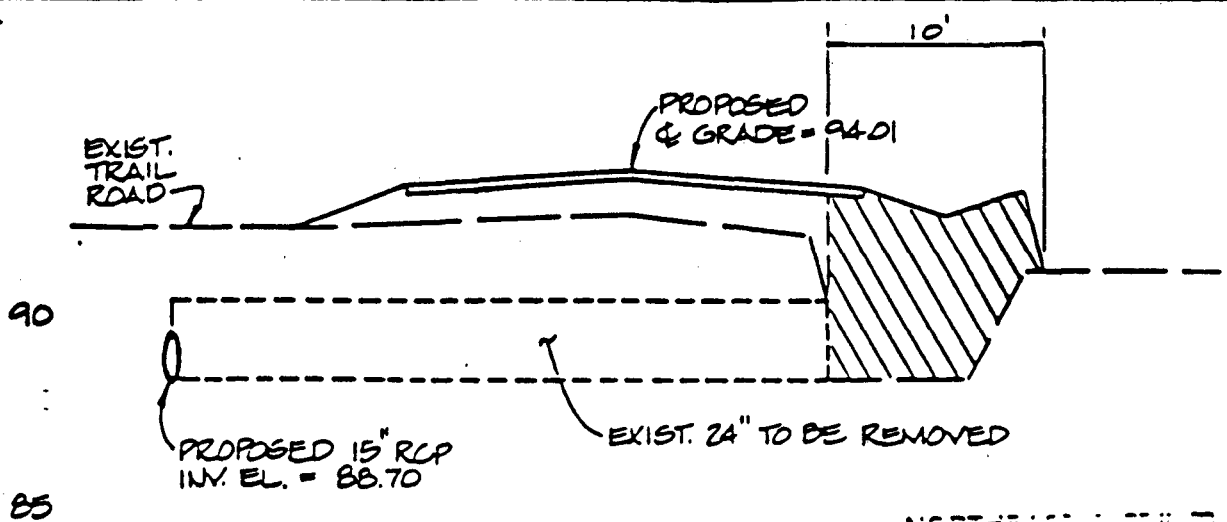
England-Thims
 & Miller, Inc.

CULVERT SECTIONS
 TRAIL RIDGE LANDFILL
 TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
 DATE JULY 14, 1990
 SCALE 1"=10'
 DRAWING NO. 19,

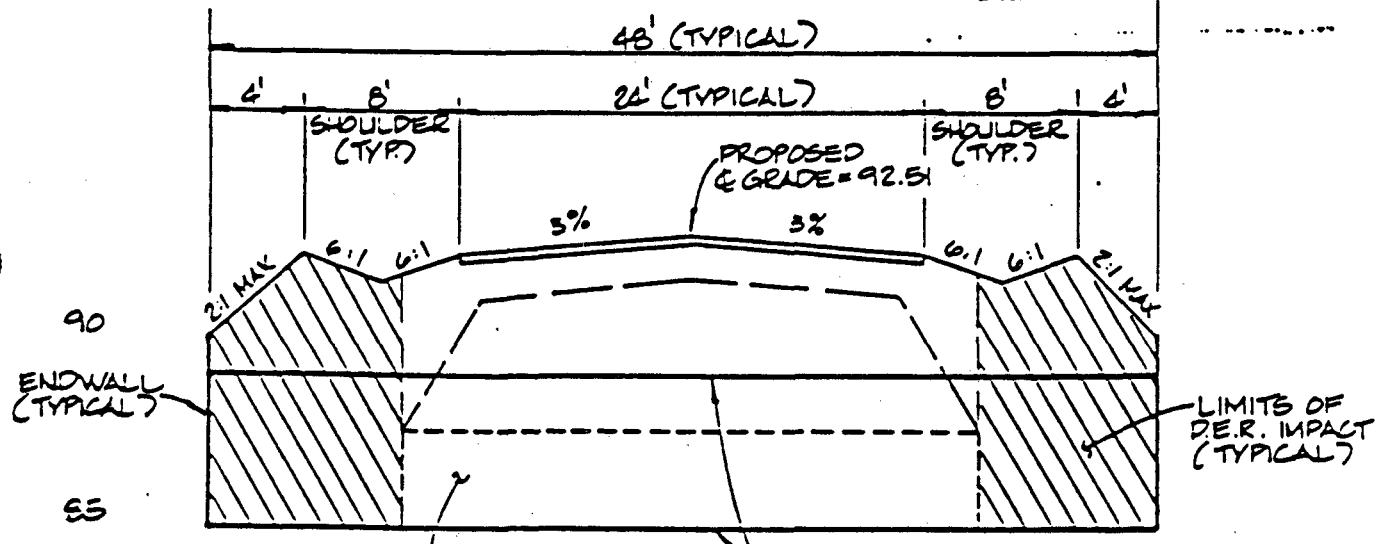
DER

L. Miller



STA. 76 + 70

NORTHEAST CORNER OF
REGULATED
 JUL 18 1990
REGULATED
 DER-JACKSONVILLE



STA. 59 + 04



7-16-90 ADDED X-SECT'S PER DER.

England-Thims
& Miller, Inc.

CULVERT SECTIONS

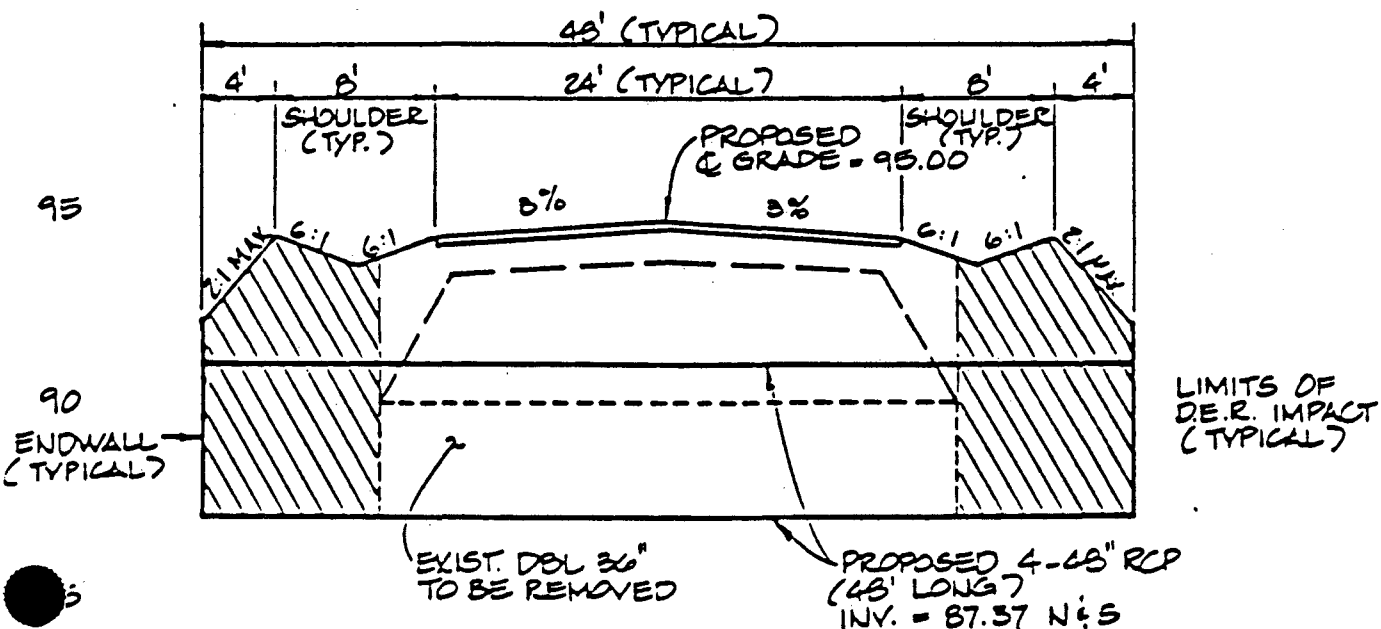
TRAIL RIDGE LANDFILL
 TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
 DATE JULY 14, 1990
 SCALE 1"=10'
 DRAWING NO. 20

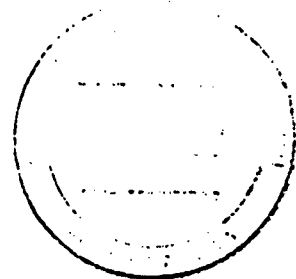
DER

Handwritten signature

NORTHEAST DISTRICT
RECEIVED
 JUL 14 1990
RECEIVED
 DER-JACKSONVILLE



STA. 85 + 00



7-14-90 ADDED X-SECT.'S PER D.E.R.

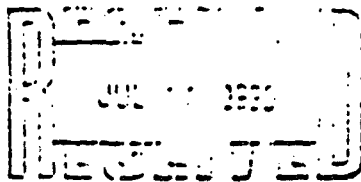
England-Thims
 & Miller, Inc.
 Consulting Engineers

CULVERT SECTIONS	PROJ. NO. 89-113
	DATE JULY 14, 1990
TRAIL RIDGE LANDFILL TRAIL RIDGE LANDFILL, INC.	SCALE 1" 10'
	DRAWING NO. 21

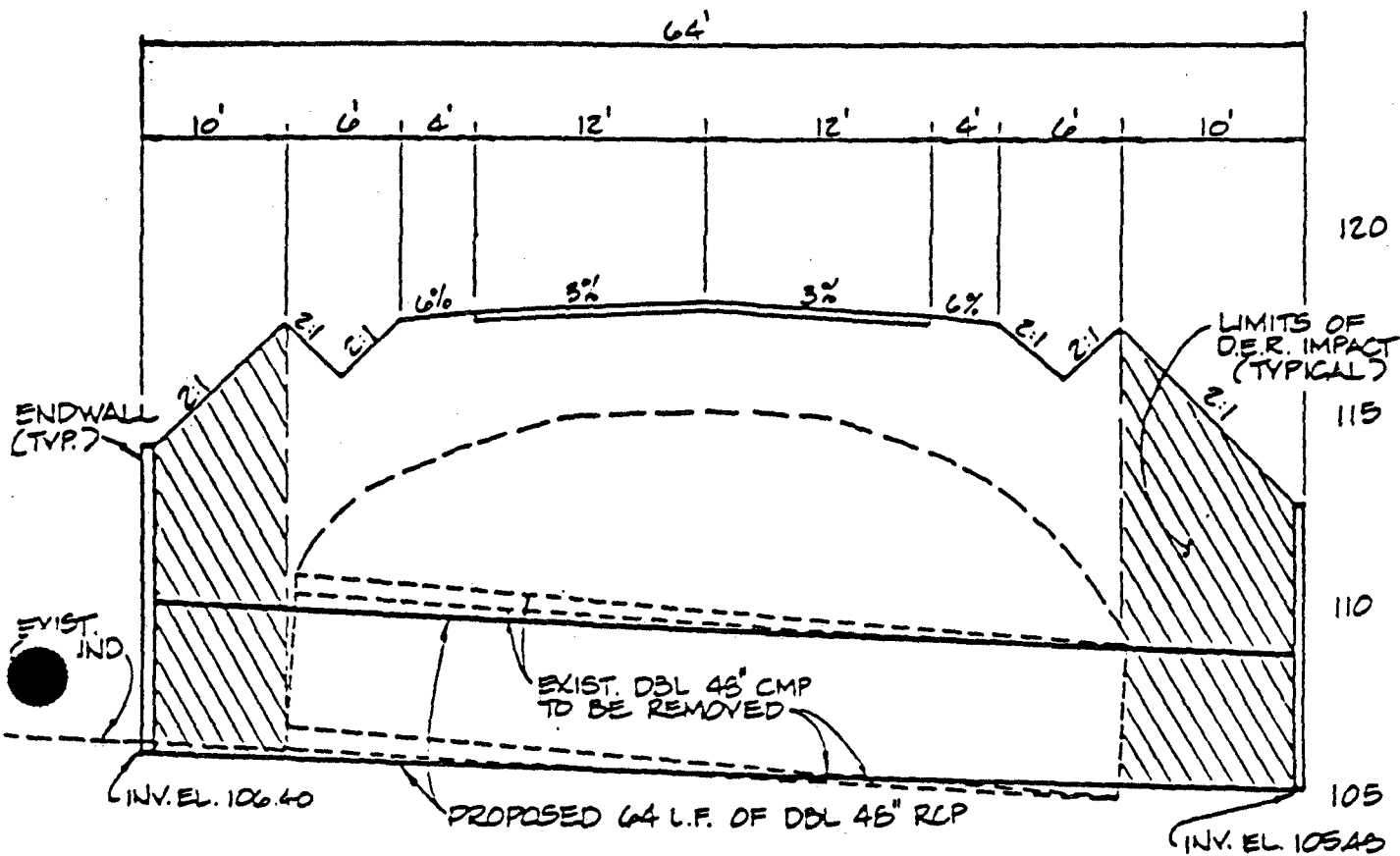
DER

(Handwritten signature)

NORTHEAST DISTRICT



DER-JACK DAVIDSON



ROAD CROSSING BETWEEN CLASS I & CLASS III



7-16-90 ADDED X-SECT'S PER DER.

England-Thims & Miller, Inc.

CULVERT SECTIONS

PROJ. NO. 29-113

DATE JULY 14, 1990

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

SCALE 1" 10'

DRAWING NO. 22

DER

Handwritten signature/initials

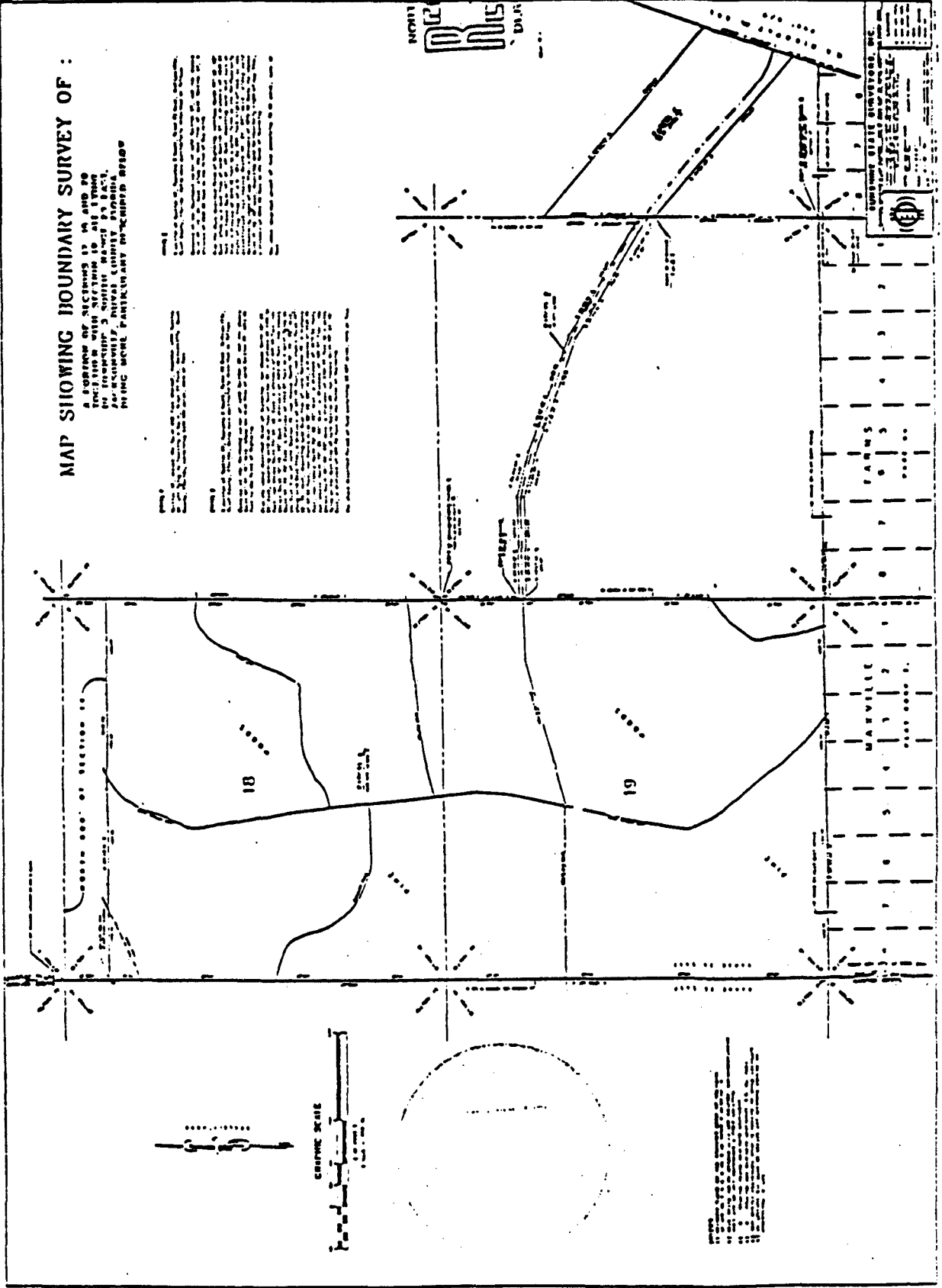
MAP SHOWING BOUNDARY SURVEY OF :

**A PORTION OF SECTIONS 18 AND 19
TOWNSHIP 35 NORTH RANGE 10 EAST
IN DEERFIELD COUNTY, IOWA**

**AS SHOWN BY THE ORIGINAL SURVEY RECORDS
HOLDING HERE PARTICULARLY INCORPORATED RECORD**

SECTION 18

SECTION 19



DEERFIELD COUNTY IOWA
JUN 13 1877
JACKSONVILLE IOWA
BY JACKSONVILLE IOWA

DEERFIELD COUNTY IOWA
JUN 13 1877
JACKSONVILLE IOWA
BY JACKSONVILLE IOWA

SECTION 18

SECTION 19

SECTION 20

SECTION 21

SECTION 22

SECTION 23

SECTION 24

**TRAIL RIDGE LANDFILL
WETLAND IMPACTS AND MITIGATION PLAN**

I. INTRODUCTION

Waste Management, Inc. is proposing the development of Trail Ridge Landfill in western Duval County (Figure 1). Of the approximately 560 wetland acres occurring on the property, only 4.44 acres of relatively low quality wetlands would be impacted, (refer to Trail Ridge Landfill Wetlands Assessment Report. Wetlands impacted by jurisdiction are Corps of Engineers, 4.44 acres; St. Johns River Water Management District, 3.17 acres; and Florida Department of Environmental Regulation, 1.61 acres. To offset the wetland impacts, conversion of 4.76 acres of uplands into high quality wetlands would occur as mitigation.

The following report provides a general overview of the property, a detailed description of the wetland impacts, and the plan for mitigation creation.

II. SITE DESCRIPTION

The tract consists of approximately 1,280 acres in western Duval County between U.S. 301 and the Baker County line. The land was previously owned by the Gilman Paper Company and has been intensively managed for pulpwood. The property is surrounded on all sides by forest land. A network of unpaved logging roads exists throughout the property. The design plans produced by England, Thims & Miller, Inc., propose the development of separate Class I and Class III landfill cells along with two stormwater ponds/borrow pits, and the widening and improvement of the existing, dirt roads.

III. WETLAND IMPACTS

Development of this site as a landfill would involve 4.44 acres of wetland impacts, the majority of which (2.54 acres) would occur as a result of filling portions of roadside ditches and swales. The remainder of the impacts would consist of filling a 0.8-acre isolated, shallow, pine/cypress wetland, 0.9 acre of bay/pine seepage slope and 0.20 acre of wetland pine plantation. Except for these 4.44 acres of impact, the remaining wetlands will not be disturbed.

A. Road Impacts

The majority of the wetland impacts would occur as a result of widening an existing logging road. This road extends for 1.6 miles from U.S. 301 to the edge of the property and would serve as the main access to the landfill. From the eastern property line it continues for an additional 0.4 mile to the Class I landfill cell. The road is currently an unpaved logging road. It will be widened to 24 feet and paved with asphalt. In addition, the existing corrugated metal pipes under the road will be replaced with reinforced concrete pipes.

From U.S. 301 the entrance road extends for approximately 3,000± feet through a pine plantation. The vegetation here consists of rows of planted slash pine (Pinus elliotti) with an understory and ground cover of saw palmetto (Serenoa repens), gallberry (Ilex glabra), and bracken fern (Pteridium aquilinum). The roadside swales here average 4 to 5 feet across and 1 to 2 feet deep. The swales are considered jurisdictional wetlands only where they intersect adjacent wetlands.

Within the upland pine plantation there are ten depressional, wetland areas. The eastern three areas are jurisdictional only by the U.S. Army Corps of Engineers (CE). The road widening will entail impacting 0.24 acres of these three wetlands. The dominant plant species are not on the state's list of wetland plants. The dominant vegetation consists of blackberry (Rubus cuneifolius), Amphicarpum muhlenbergianum, wiregrass (Aristida stricta), and panic grass (Dicanthelium sp.). The remaining seven wetland areas are wholly owned and isolated. Six of these areas are each less than 0.5 acres in size. The vegetation in all seven areas consists of St. John's wort (Hypericum fasciculatum), yellow-eyed grass (Xyris sp.) and red root (Lachnanthes caroliniana). The road widening will entail impacting 0.17 acres (CE/SJRWMD) of swales in these seven depressional areas.

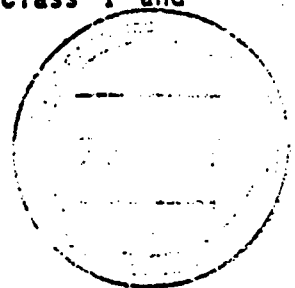
From the edge of the pine plantation the entrance road continues for 3,000± feet through a pine swamp known locally as Hell's Bay. There are ditches along both sides of the road all the way across the swamp. The ditches measure approximately 8 feet across and 2-3 feet deep. Under normal conditions the ditches contain at least 12 inches of water. The vegetation within the ditches consists of pickerelweed (Pontederia cordata), water lily (Nymphaea odorata), and bladderwort (Utricularia sp.). The existing ditches serve to drain the adjacent swamp. During the past 12 months, standing water has not been observed in the swamp on either side of the road.

The vegetation of the pine swamp south of the road consists of a canopy of slash pine mixed with scattered red maple (Acer rubrum), tupelo (Nyssa sylvatica var. biflora), and cypress (Taxodium distichum). The swamp on the north side of the road has been recently clear-cut. The dominant ground cover vegetation there now includes such species as sedges (Cyperus spp.), beak rushes (Rhynchospora spp.), and cinnamon fern (Osmunda cinnamomea).

The entrance road across the swamp will be widened approximately 10 feet on each side. This will result in filling most of the roadside ditches (1.24 acres SJRWMD/DER/CE and 0.17 acres CE only).

From the western edge of Hell's Bay, the entrance road continues into the property to the Class I landfill cell. Wetland impacts due to this portion of roadwork include filling wetland pine plantation (0.65 acres CE) and a narrow slough (0.07 acres DER/SJRWMD/CE).

Widening West Fiftone Road would entail filling 0.3 acres (DER/SJRWMD/CE) of bay/pine seepage wetlands between the Class I and Class III landfill cells.



Two wetland impacts would occur as a result of construction of the Class I landfill cell. These impacts include filling an isolated cypress/pine depressional wetland and a narrow finger of bay/pine seepage slope. The cypress/pine wetland is an isolated, shallow, depressional area comprising 0.80 acres (SJRWMD/CE). Following prolonged heavy rains, it will hold some standing water (<1 foot); however, it is dry during much of the year. The vegetation within the cypress/pine wetland consists of a canopy of slash pine and cypress with an understory of scattered myrtle-leaved holly (Ilex myrtifolia) and a ground cover of black-stemmed chain fern (Woodwardia virginica).

The bay/pine wetland consists of 0.60 acres (SJRWMD/CE) and occurs as a narrow finger of seepage slope along the north side of West Fiftone Road. The vegetation here consists of a canopy of tupelo, slash pine and various bay trees with and ground cover of fetterbush (Lyonia lucida) and sweet gallberry (Ilex coriacea).

Wetland impacts will be mitigated with 4.76 acres of wetland creation. An area of upland pine plantation surrounded by a cypress/gum swamp and a pine/bay wetland will be scraped down to form two depressional areas at or below the water table.

IV. MITIGATION PLAN

A. Existing Site Conditions

The mitigation site is located in the northeastern portion of the property in an area bounded by Hat Road to the north, West Fiftone Road to the west, Sellers Road to the south, and the property line to the east (Figure 2). The site is characterized as an upland finger surrounded by forested wetlands on three sides.

1. Elevations

The U.S. Geological Survey Map (Maxville, Florida, 1970) indicates that the elevations within the mitigation site range from +95 to +100 feet N.G.V.D. To more accurately describe the area, a site-specific topographic survey was conducted by Sunshine State Surveyors. Elevations were found to range from 100.8 feet on the upland ridge to the south to 94.7 on the wetland fringe to the north. The site slopes downhill gradually to the east.

2. Soils

The Soil Conservation Service (Soil Survey of Duval County, 1978) indicates that the upland soil of the mitigation area is Leon fine sand and the wetland soil is Wesconnett fine sand.

Leon fine sand is a poorly drained soil typically found in broad pine flatwood areas. Under natural conditions this soil has a water table at a depth of less than 10 inches for two to four months and at a depth of 10 to 30 inches for two to eight months during most years. There is often a weakly cemented layer about 18 inches below the surface.

Wesconnett fine sand is a very poorly drained soil in shallow depressions and large drainageways. Under natural conditions this soil has a water table at a depth of 0 to 10 inches, or the soil is covered by water for six to twelve months during most years.

3. Hydrology

There is a ditch that extends across a section of the mitigation site. This section of upland-cut ditch is less than 35 square feet in cross section and contains less than 3 feet of standing water at the point where it intersects the DER wetland line. The ditch averages 18 to 20 feet across from top-of-bank to top-of-bank and 12 to 18 inches deep. Water periodically flows east through the ditch from the tupelo swamp to the wet pine plantation. During much of the year, the ditch appears to be dry.

4. Vegetation

The upland pine plantation is characterized by a 15 to 20 year old row-planted slash pine that is approaching canopy closure. The understory and ground cover mostly consist of gallberry, saw palmetto, bracken fern, huckleberry (Vaccinium sp.), broomsedge (Andropogon sp.), wire grass (Aristida stricta), and Aronia arbutifolia.

The wet pine plantation to the east has been clear-cut, bedded, and row-planted with slash pine about 15 to 20 years ago. Logging debris and soil have been pushed into windrows. Other vegetation in this area include scattered tupelo, sweet bay (Magnolia virginiana), loblolly bay (Gordonia lasianthus), red maple, wax myrtle (Myrica cerifera), possumhaw viburnum (Viburnum nudum), maidencane (Panicum hemitomon), panicum (Dichanthelium sp.), bluestem (Andropogon sp.), and Asiatic coinwork (Centella asiatica).

The wetland to the west and south is a moderately deep cypress-hardwood swamp dominated by tupelo and cypress and scattered sweetbay, swamp bay (Persea palustris), and red maple. The dominant shrub is fetterbush with some Virginia willow (Itea virginica) and wax myrtle. Royal fern (Osmunda regalis), cinnamon fern, net-leaved chain fern (Woodwardia areolata), and sphagnum moss (sphagnum sp.) are also found.

Wetland vegetation within the ditch itself consists of rush (Juncus sp.), Dicanthelium sp., yellow-eyed grass (Xyris sp.), buttonbush (Cephalanthus occidentalis), sphagnum moss, and some slash pine. Along the edge of the ditch or berm is wild grape (Vitis sp.), saw palmetto, red chokeberry (Aronia arbutifolia), sweet gallberry, wax myrtle, black stemmed chain fern, poison summac (Toxicodendron vernix) and scattered tupelo, swamp bay, and sweet bay.



B. Proposed Site Conditions

1. Elevations

The elevation of the wetland creation area will range from +99 feet at the western edge to +94.5 feet near the eastern end. It is proposed that the existing rim of the tupelo swamp be maintained (+99 feet) to prevent draining it. The mitigation area will be scraped down to form two shallow depressional bowls each with a transitional and submerged zone (Figure 5). Each transitional zone will be scraped down to the average water table to establish saturated soil conditions. Each submerged zone will be scraped down to a maximum of 1 foot below the average water table to establish areas of intermittent/seasonal standing water. The edge of the eastern depressional bowl will approach the elevation of the wet pine plantation (+95 feet).

2. Soils

The mitigation basins area will be over-excavated approximately 0.5 foot and backfilled with the upper soil layer from the impacted wetlands. This mulch will provide a source of propagules (seeds, roots, tubers, etc.) that will help establish naturally occurring wetland ground cover vegetation.

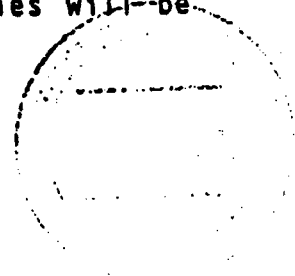
3. Hydrology

The two depressional creations within the mitigation area are designed to be contiguous with the surrounding wetland systems, thus promoting regular and periodic inundation of the site. Fluctuations in the water table are normal and are expected to cause the soils in the mitigation area to be periodically saturated or flooded with water.

The upland-cut portion of the drainage ditch will be realigned. It will curve to the north and outfall into the western basin. Water coming through the ditch will be allowed to sheet flow across the transition zone into the submerged zone.

4. Vegetation

The design of the mitigation area is to create a cypress/hardwood swamp. To accomplish this a variety of wetland tree and shrub species will be planted. The trees will average 4 to 6 feet in height in three-gallon containers to be planted on 10-foot centers or approximately 440 trees/acre. The shrubs will average 2 to 4 feet in height in one-gallon containers to be planted along all edges. Throughout the transitional zones, transitional wetland species will be planted, such as:



red maple (Acer rubrum)
sweetgum (Liquidambar styraciflua)
laurel oak (Quercus laurifolia)
wax myrtle (Myrica cerifera)
fetterbush (Lyonia lucida)

The deeper, submerged zones will be planted with such wetland species as:

cypress (Taxodium distichum)
tupelo (Nyssa sylvatica var. biflora)
sweet bay (Magnolia virginiana)
button bush (Cephalanthus occidentalis)
Virginia willow (Itea virginica)

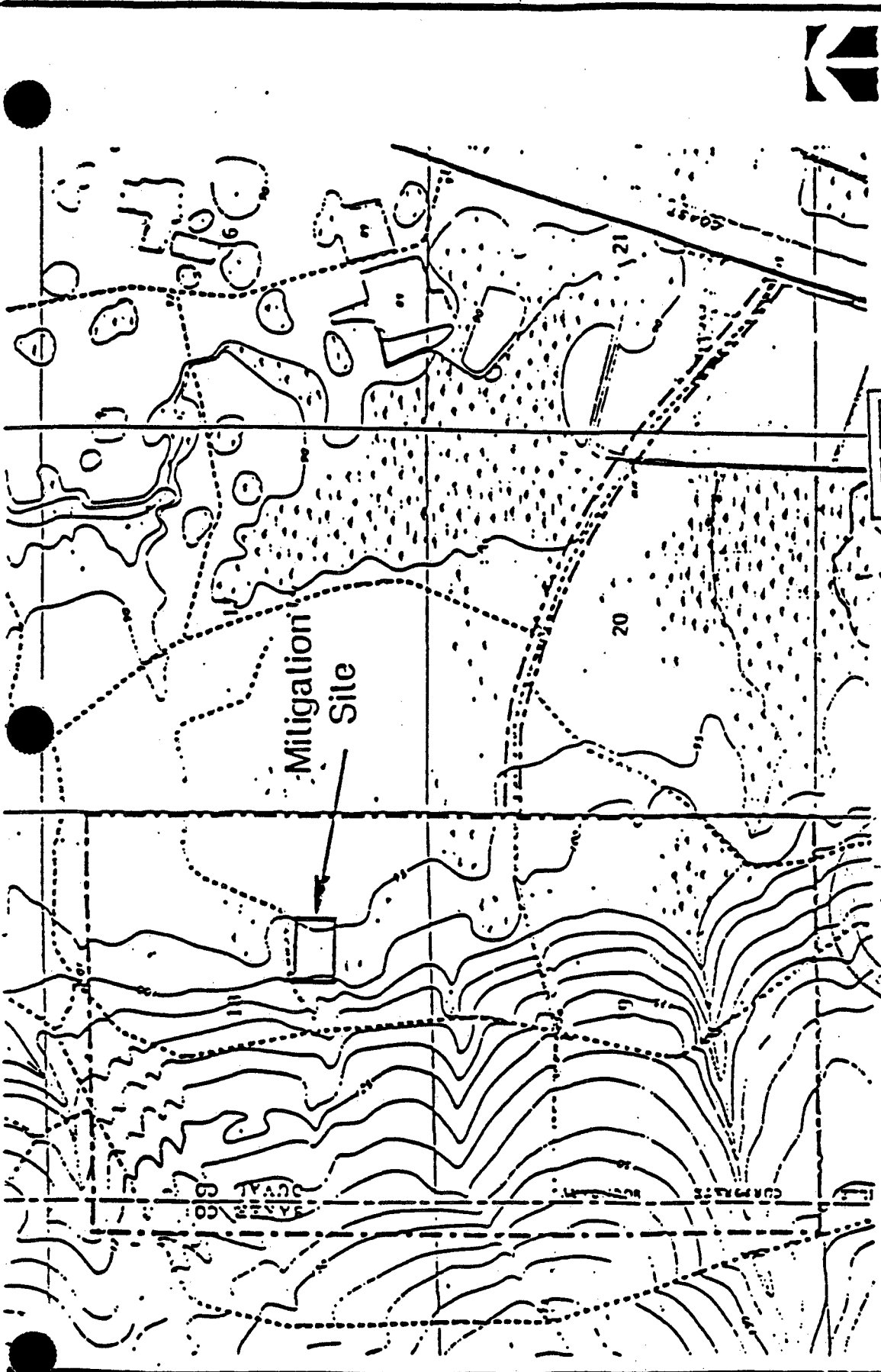
WETLAND CREATION RATIO

<u>Jurisdiction</u>	<u>Wetland Impacted</u>	<u>Wetlands Created</u>	<u>Ratio</u>
Corps of Engineers	4.44 AC	4.76 AC	1.07:1
St. Johns River Water Management District	3.17 AC	4.76 AC	1.50:1
Florida Department of Environmental Regulation	1.61 AC	4.76 AC	2.8:1

5. Maintenance and Monitoring

The creation area will be inspected every six months for two years following planting. Monitoring reports will be forwarded to the appropriate regulatory agencies. Standard mitigation requirements will be met, such as ensuring 75 percent survival of plantings. Routine maintenance will be performed as necessary to control nuisance weed species and to ensure success of the planting.





Proj No.	09-395
Date	JUNE 11, 1980
Scale	1" = 2000'
Drawing No.	13

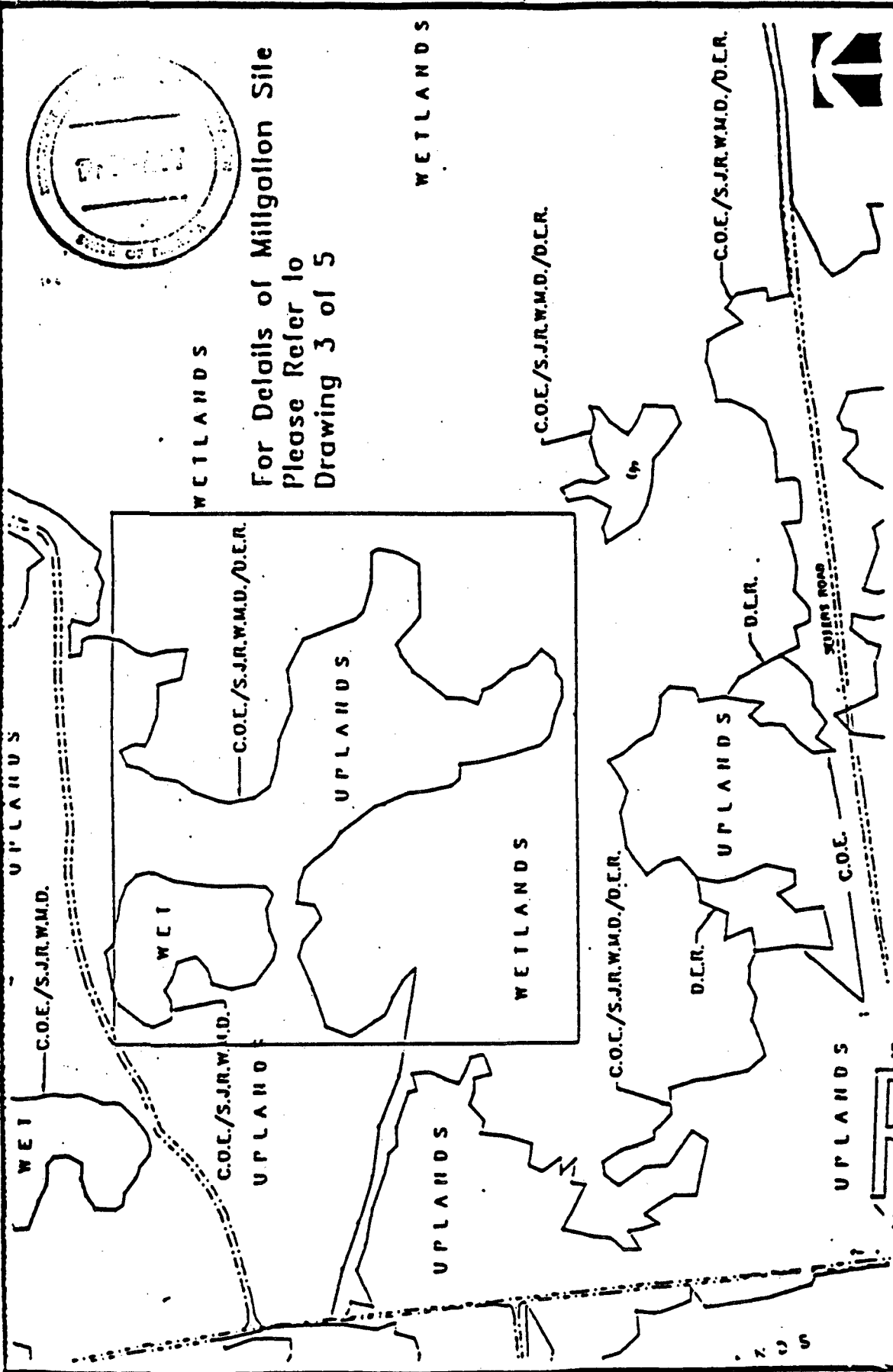
JUN 13 1980

Figure 1 Location Map
 Trail Ridge Landfill
 Mitigation Plan

ENVIRONMENTAL,
 SERVICES, INC.

DER


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 6-11-80



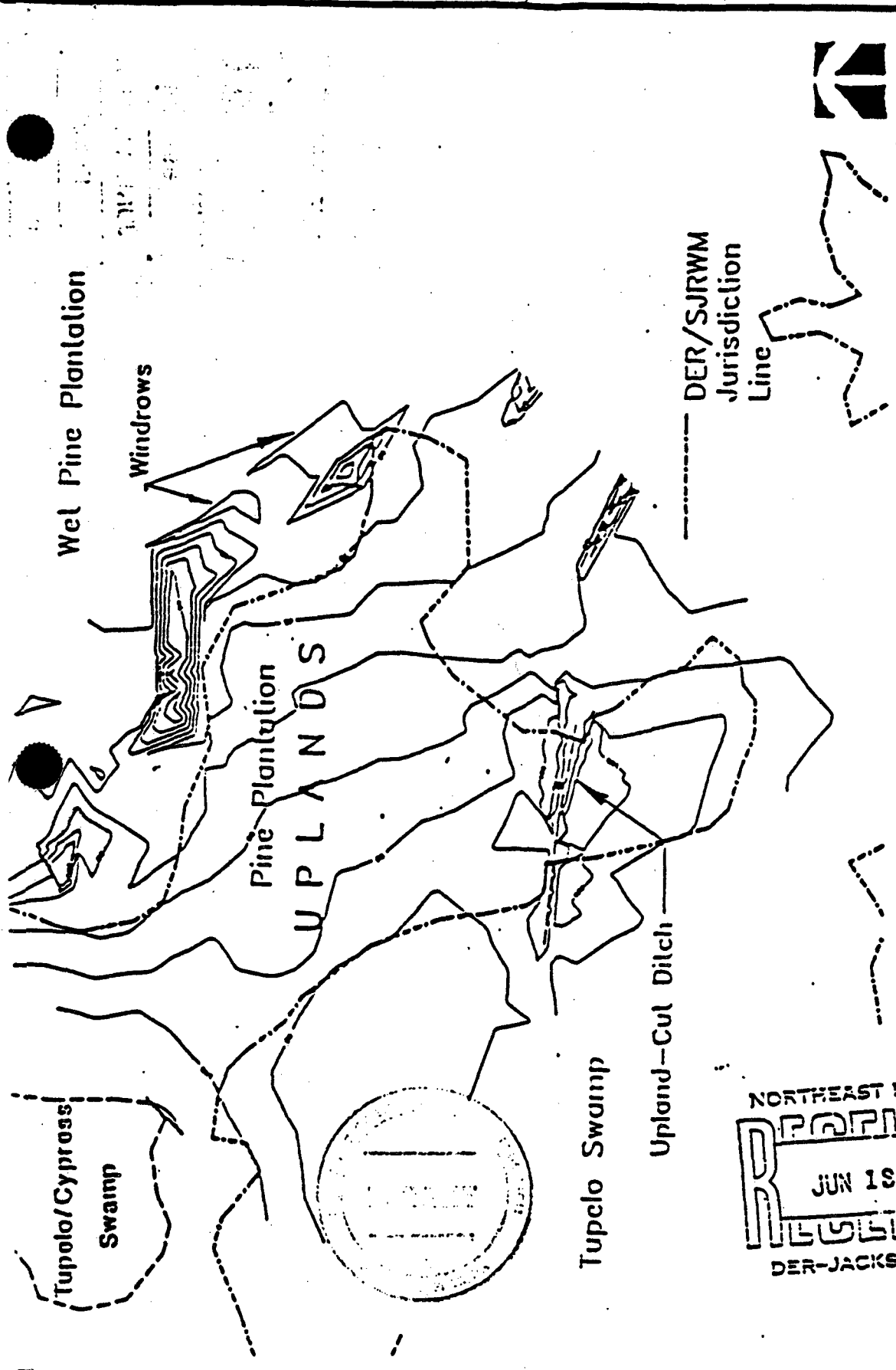
For Details of Millgallon Site
Please Refer to
Drawing 3 of 5

Proj No.	89-395
Date	JUNE 11, 1990
Scale	1"=300'
Drawing No.	14

Figure 2 Millgallon Site Location
Trail Ridge Landfill
Mitigation Plan

 ENVIRONMENTAL
SERVICES, INC.
 JUN 13 1990
 JACKSONVILLE, FL

Humell
6-11-90



Proj No.	09-395
Date	JUNE 11, 1980
Scale	1"=150'
Drawing No.	15

Figure 3 Existing Conditions
Trail Ridge Landfill
Mitigation Plan

NORTHEAST DISTRICT
REGISTERED
 JUN 18 1980
 DER-JACKSONVILLE

ENVIRONMENTAL SERVICES, INC.

DER

Spencer
6-11-80

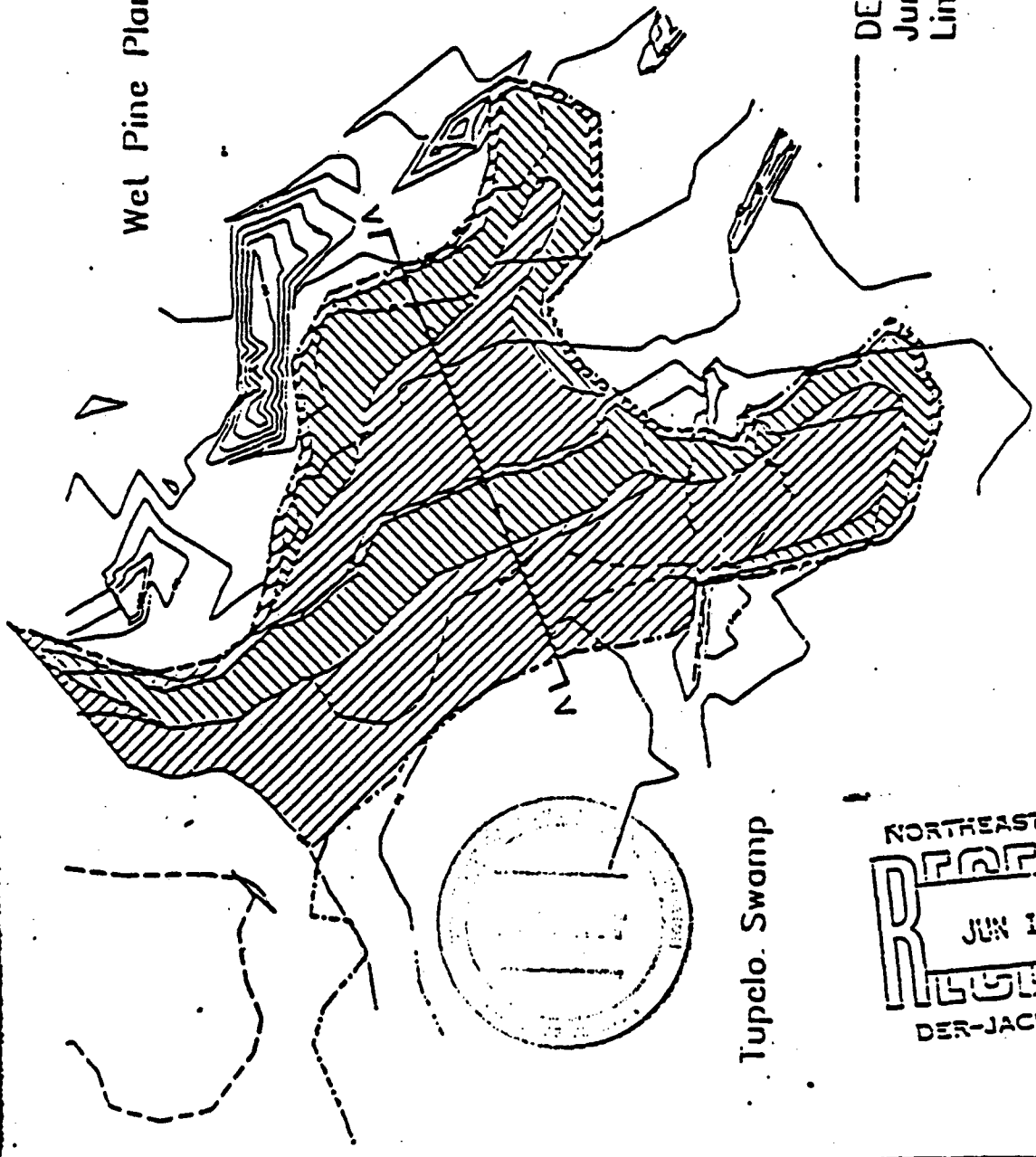
... ..

Wet Pine Plantation

Transitional Zone
3.0 acres

Submerged Zone
1.76 acres

DER/SJRW
Jurisdiction
Line



Proj No. 09-395

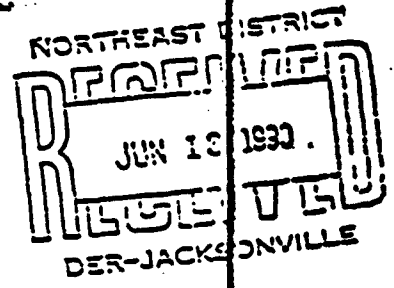
Date JUNE 11, 1990

Scale 1"=150'

Drawing No. 16

Figure 4 Proposed Conditions
Trail Ridge Landfill

Mitigation Plan



R. J. B. ENVIRONMENTAL SERVICES, INC.

DER

Lyman
6-11-90

DER/S.R.V.I.D. Jurisdiction Line

DER/S.R.V.I.D. Jurisdiction Line

Transitional Zone

Submerged Zone

Transitional Zone

Submerged Zone

Tupelo Swamp

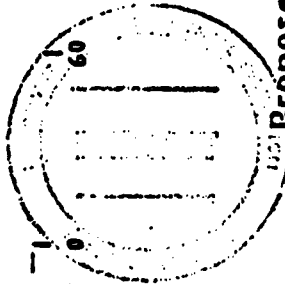
Wet Pine Plantation

Existing Grade

Proposed Grade

100 -
99 -
98 -
97 -
96 -
95 -
94 -

120 100 210 300 360 420 480



Proposed Planting Schedule

Transitional Zone

Red Maple
Sweetgum
Laurel Oak
Wax Myrtle
Fetterbush

Submerged Zone

Cypress
Tupelo
Sweet Bay
Buttonbush
Virginia Willow

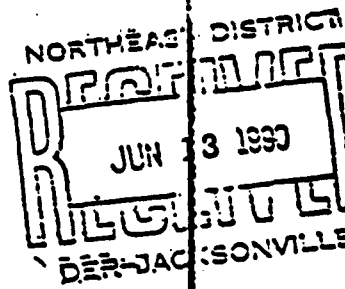


Figure 5 Mitigation Cross-Section
Trail Ridge Landfill
Mitigation Plan

Proj No. 89-395

Date JUNE 11, 1980

Scale as shown

Drawing No. 17

ENVIRONMENTAL SERVICES, INC.

DER

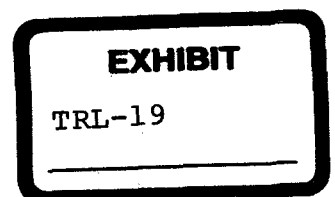
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**THE HISTORIC PRESERVATION COMPLIANCE REVIEW PROGRAM
OF THE FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES:**

A guide to the historic preservation provisions of state and federal environmental review laws.

Prepared by Louis D. Tesar, Administrator
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NOVEMBER, 1990 FINAL DRAFT DOCUMENT
(Revision of May, 1988 and
January and September, 1990 Review Drafts)



**THE HISTORIC PRESERVATION COMPLIANCE REVIEW PROGRAM
OF THE FLORIDA DEPARTMENT OF STATE
DIVISION OF HISTORICAL RESOURCES**

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- A-5. National Historic Preservation Act (Public Law 89-665), as amended
- A-6. 36 C.F.R. Part 800 (Protection of Historic Properties)
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- B-1. 36 C.F.R. Part 60 (National Register of Historic Places)
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COMPLIANCE REVIEW PROCESS FLOW CHART ... IN PREP

AGENCY ORGANIZATION CHART ... IN PREP

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November, 1990 FINAL DRAFT DOCUMENT
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1. Introduction.

1.1. Purpose.

This manual has two purposes. First, it is a guide for Florida Department of State, Division of Historical Resources staff in the historic preservation compliance review program. Second, it is intended for use by citizens, planners, developers, consultants, and federal, state and local agencies. Because of this range of users, it has been organized as a basic explanatory document with appendices. The appendices contain more detailed information on specific subject matter, while the text guides the reader through the process.

1.2. Background Statement.

The historic preservation compliance review program of the Florida Department of State, Division of Historical Resources is integrated with that agency's registration, survey and planning, and other programs. It is a part of Florida's Comprehensive Historic Preservation Plan, and one of the measures taken to implement that plan.

This manual had its origin in *Guidelines for Archaeological and Historic Site Assessment Survey, Test Excavation, and/or Mitigative Excavation or Historic Documentation Field Methodology and Report Content for Projects Conducted in the State of Florida* (Tesar 1982). In 1988, in response to user requests, efforts were begun to upgrade those guidelines to formal standards. Based on user comments, a May 1, 1988 draft document was prepared for agency and public review. That document was revised in January 1990, and again circulated (over 100 copies) for review. This manual is the result. It has received substantive and editorial assistance from other Division of Historical Resources' staff, representatives of both the federal Advisory Council on Historic Preservation and the state Historic Preservation Advisory Council, the Southeast Regional Office of the National Park Service, various regional planning councils, state agency representatives, consultants, lawyers, the Florida Archaeological Council, and interested citizens. All of those who participated in the review of this document are acknowledged as its coeditors, and are thanked for their time and effort.

1.3. Function.

This manual describes the manner and procedures for dealing with both prehistoric and historic archaeological sites, historic structures, historic landscapes, and associated features under federal and state environmental impact review laws and regulations. It borrows from comparable federal documents, as part of its purpose is to present a uniform Federal-State process.

1.4. Periodic Amendments.

This manual will be amended periodically in response to changes in applicable laws and regulations. Notice of changes will be provided to agencies and individuals known to be using this manual. Indeed, the loose-leaf format is to facilitate photocopying and replacement of specific changed text pages. Amended pages will contain a revision date in the lower right corner. An updated cumulative amendment sheet will be provided with amended pages so that users can determine if their documents contain all amendments.

1.5. Availability of Copies.

Copies of this document may be obtained from the Florida Department of State, Division of Historical Resources, Bureau of Historic Preservation, R. A. Gray Building, 500 South Bronough Street, Tallahassee, Florida 32399-0250.

There is a charge for production, postage and handling costs. For order information please write to the Bureau of Historic Preservation.

1.6. Model for Local Government Programs.

In addition to its primary purpose, this manual is intended to serve as a model for local governments wishing to establish historic preservation compliance review programs parallel to the state and federal programs. Such programs will expedite project reviews at the local level and will serve as the foundation for Programmatic Agreements (PAs) between local governments and the Division of Historical Resources (DHR). Such PAs will allow local governments to act on behalf of DHR in providing review comments on certain categories of development activities. The Advisory Council on Historic Preservation document, Preparing Agreement Documents: How to Write Determinations of No Adverse Effect, Memoranda of Agreement, and Programmatic Agreements under 36 CFR Part 800 (September, 1989), will serve as the basis for language contained in such documents. That document contains examples of uniform language for various circumstances, as well as explanations of when such provisions are recommended.

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2. Historic Preservation Overview.

2.1. What Are Historic Resources?; Why Be Concerned About The Past?

Our society has become increasingly aware of the value of studying and preserving examples of our Nation's heritage, especially during the past 25 years. This heritage is embodied in prehistoric and historic archaeological sites, historic structures, historic landscapes and related features. They are referred to

collectively as historic properties or resources, or more generally as cultural resources -- a term that also includes folk life and the arts.

Historic resources are defined in s. 267.021(3), Florida Statutes, as:

any prehistoric or historic district, site, building, object, or other real or personal property of historical, architectural, or archaeological value. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state.

Historic resources are non-renewable. Once archaeological sites are destroyed or historic structures demolished, unless a record has been made, the information which they contain on national, state and community prehistory and history is irretrievably lost.

Archaeological sites consist of artifacts and other associated remains and features (such as human burials, structural remains, post molds, pits, and wells). Historic structures and associated properties, generally speaking, are those which are 50 years or more in age, although there are exceptions. Not all historic structures or archaeological sites merit full preservation consideration. Such consideration is focused on those sites and properties deemed to be "significant." The significance of archaeological remains and other historic resources is determined by the criteria established for eligibility for listing in the **National Register of Historic Places**. While preservation in place is the preferred alternative, once sufficient interpretative and evaluative information has been gathered, it is recognized that the informational value -- the contribution of a site to our understanding of prehistory and history, is derived primarily through site excavation and subsequent analysis of the recovered data and its reporting to the profession and public at large. Thus, it is through the careful recording of these remains, the activities which led to the creation of an archaeological site may be interpreted and, thereby, contribute to our understanding of an area's prehistory and/or history. Without a record of their distribution and association with other artifacts and features, the artifacts and features by themselves are of little scientific value beyond a comparison with similar artifacts and features that have been interpreted on the basis of past studies.

Archaeological remains often are overlooked when structures are evaluated and recorded. Features and artifacts in the context of historic archaeological resources associated with (or predating) the structures contribute to our understanding of an area's history in ways which the structures fail to convey and historic documentation alone fails to record. Likewise, historic records, including photographs and illustrations, add to our understanding of archaeological and historic sites by documenting the form and features of such properties, and by providing a glimpse of the lives of those who constructed and utilized those resources. Together, this complex of remains and information creates a record and an example of our prehistoric and historic heritage through time, and thereby contributes to our overall quality of life.

Historic structures reflect the personality and individuality of architects and the community. They respond to the social and physical environment of an area, and are constrained by available building materials and technological limitations. They often have associated landscaping and other above ground features (i.e., driveways, fountains, and monuments), as well as below ground associated archaeological features and artifacts. They serve as focal points for a community's residents and visitors, giving them a sense of place, a uniqueness, and/or a link to their past as they progress into the future.

2.2. Public and Private Involvement.

Stewardship of our shared past is reflected in the historic preservation efforts of individuals and organizations, both public and private. Numerous individuals and organizations are at work in communities across the state. A few of note include the Florida Historical Society, the Florida Anthropological Society, the Florida

Archaeological Council, the Archaeological Conservancy, the Nature Conservancy, the Trust for Public Lands, and the Florida Trust for Historic Preservation. Their preservation efforts include, but are not limited to, (1) site acquisition, (2) historic resource survey, evaluation and recording of identified sites and properties, (3) the fostering of public awareness, and (4) assistance in making statutory changes.

Government responses to public demand for historic preservation include: (1) federal, state and local parks and preserves; (2) sensitive adaptive use and interpretation of archaeological sites and historic structures as museums, living history exhibits, and rehabilitated or renovated structures; (3) educating the public about historic resource values and our prehistoric and historic heritage; and, (4) implementation of a host of pertinent legal measures.

2.3. Legal Authority.

As a regulatory program, the historic preservation compliance review program of the Florida Department of State, Division of Historical Resources must comply with the historic preservation requirements of federal and state laws and regulations. The procedures for compliance with Federal historic preservation laws are contained in the Code of Federal Regulations, primarily in title 36 CFR Part 800 (**Protection of Historic Properties**). The authority for establishing historic preservation standards under state law is contained in 267.031(1) and 267.061(3), F.S. That is done by a rule, in this case, to formalize implementation of the provisions of this document.

Florida has enacted a comprehensive historic preservation statutory framework which complements that of the federal government. Over twenty Florida Statutes have provisions pertaining to the issue of historic preservation. Additional special acts found in the **Laws of Florida** deal with scenic and historic highways. Further, many federal laws and regulations have historic preservation provisions (See Appendices).

The **Florida Historical Resources Act** (Chapter 267, F.S.; See Appendices) is Florida's primary historic preservation legislation and the cornerstone of its historic preservation policy. In many respects, Chapter 267 parallels the provisions of the federal **National Historic Preservation Act** of 1966 (Public Law 89-665), as amended.

Subsection 267.061(1), F.S., declares State policy regarding historic properties and the issue of historic preservation. Because of its importance, paragraph (a) is quoted in its entirety:

The rich and unique heritage of historic properties of this state, representing more than 10,000 years of human presence, is an important legacy to be valued and conserved for present and future generations. The destruction of these nonrenewable historical resources will engender a significant loss to the state's quality of life, economy, and cultural environment. It is therefore declared to be state policy to:

1. Provide leadership in the preservation of the state's historical resources;
2. Administer state-owned or state-controlled historic resources in a spirit of stewardship and trusteeship;
3. Contribute to the preservation of nonstate-owned historic resources and to give encouragement to organizations and individuals undertaking preservation by private means;
4. Foster conditions, using measures that include financial and technical assistance, for a harmonious coexistence of society and state historic resources;
5. Encourage the public and private preservation, and utilization of elements of the state's historically built environment; and,
6. Assist local governments to expand and accelerate their historic preservation programs and activities.

Subsection 267.061(2), F.S., presents the historic preservation requirements of state agencies in the Executive Branch, and could serve as a model for local governments. Subsection 267.061(3), F.S., establishes the Division

of Historical Resources of the Florida Department of State as Florida's primary historic preservation agency, and enumerates its responsibilities. Finally, subsections 267.061(4) and (5), F.S., establish the positions of the State Archaeologist and the State Historic Preservation Officer within the Division of Historical Resources.

2.4. State Historic Preservation Officer.

The Office of the State Historic Preservation Officer (SHPO) is established in the Division of Historical Resources (s. 267.061(5), F.S.). The Division's Director has been designated as the SHPO, while the Chief of the Bureau of Historic Preservation serves as the Deputy SHPO, and the Administrator of the Historic Preservation Compliance Review Section is delegated authority to sign for the SHPO on routine environmental review matters.

The SHPO is the individual responsible for conducting an approved state historic preservation program as provided in subsection 101(b) of the National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665; 16 U.S.C. 470f), as amended (See Appendices). The SHPO provides the first consultation step in reviewing federally involved (i.e., funded, assisted, licensed or permitted) projects or "undertakings" in accordance with the provisions of Section 106 of the NHPA.

2.5. Section 106.

Section 106 of the NHPA (16 U.S.C. 470f) requires that every Federal agency head "take into account" how each agency undertaking could affect historic properties or resources (both prehistoric and historic archaeological sites and historic structures and associated properties) listed, or eligible for listing, in the National Register of Historic Places. The procedures for this process are contained in Title 36 C.F.R., Part 800 (Protection of Historic Properties; See Appendices). These procedures were revised effective October 1986, and earlier versions should be discarded.

The 36 CFR 800 or "Section 106" process has been incorporated into this manual as part of Florida's uniform historic preservation compliance review program. This unified Federal-State process avoids confusion.

2.6. Florida's Historic Preservation Policy.

The cornerstone of Florida's historic preservation policy includes, but is not limited to, the elements of identification, evaluation, registration, protection, enhancement, and education.

2.6.1. Identification involves all levels of property inventory efforts and often is combined with the evaluation of identified properties. These efforts are coordinated through the Division of Historical Resources. Federal and state agencies, local communities, private industry, concerned citizens, and organizations assist in efforts to identify and protect elements of Florida's prehistoric and historic heritage. Planned identification efforts usually are undertaken as part of a historic resource survey.

2.6.2. Evaluation involves an assessment of the significance of a site or group of sites in terms of the criteria used to determine eligibility for listing in the National Register of Historic Places. While properties usually must be 50 years of age or older to merit consideration, there are exceptions (See Appendices). National Register eligibility criteria, listed in 36 CFR 60.4, are applied to sites and properties, individually or as a group, that:

- a. are associated with events that have made a significant contribution to the broad pattern of our history; or
- b. are associated with the lives of persons significant in our past; or

- c. embody the distinct characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. have yielded, or may be likely to yield, information important in prehistory or history.

Please read 36 CFR Part 60 (See Appendices) for greater detail on this issue, including circumstances in which a property would be excluded from National Register eligibility consideration.

2.6.3. Registration occurs on two levels. The first is a general record entered into the Florida Master Site File (FMSF), while the second is listing in the National Register of Historic Places (NRHP). The FMSF is a comparative data base of all recorded sites. It includes site records for properties which no longer exist. It contains the comparative data used in determining site significance. It also includes evaluation information on sites and properties, including: (1) unevaluated, (2) not significant/NR eligible, (3) locally designated, (4) considered NR eligible by the SHPO, (5) formally determined NR eligible by the Keeper of the National Register, and (6) listed in the National Register. The FMSF also is used to determine whether a site or property is recorded and as a means of predicting the likelihood of site occurrence in as yet uninventoried areas. The NRHP, in contrast to the FMSF, only includes properties formally determined eligible and listed in the NRHP for their national, state or local significance individually or as a group.

2.6.4. Protection includes:

- * Rehabilitation (i.e., sensitive adaptive reuse) of historic structures to permit their continued use as offices, residential units, etc. The Secretary of the Interior's **Standards for Rehabilitation and Guidelines for Rehabilitating Historic Structures** (1983 with 1990 amendments) guide rehabilitation activities.
- * Restoration of historic structures as house museums, and the like to reflect their historic period of occupancy.
- * Passive recreation and greenspace conservation use of archaeological sites as parks, nature trails, and the like.
- * Data recovery at archaeological sites which primarily satisfy National Register eligibility criteria D only.

Protection is not required or even the most appropriate alternative in all instances, and normally is not considered for sites and properties unless they are determined to be National Register eligible. Protection responsibilities are assigned to all federal and state land management agencies whose properties contain significant historic resources, as well as to those federal, state, and local agencies, and land developers whose activities are governed by the provisions of historic preservation law and might affect significant historic resources. The Division of Historical Resources provides technical assistance in the former, and follows the procedures of the historic preservation compliance review process in the latter.

2.6.5. Enhancement includes the restoration of vandalized surface features of a site (you cannot replace the lost data, only take cosmetic measures), the rehabilitation or restoration of historic structures and associated features, and the like. These activities are undertaken by public and private agencies, as well as by individuals and organizations of concerned citizens.

2.6.6. Education covers a broad range of topics, including, but not limited to:

- * publication of books, articles, technical assistance bulletins, land management plans, and local government comprehensive plans concerned with historic preservation issues, policies and procedures.

- * preparation of classroom lecture material concerned with Florida's prehistoric and historic heritage, historic resources, and historic preservation issues.
- * development of exhibits and film media highlighting the historic resources and historic preservation programs of state and local governments.
- * historic tours, public archaeology programs, market days and celebrations in historic districts, and other activities drawing attention to the historic resources representing the prehistoric and historic heritage of the state and our communities.
- * informing public officials and community residents of the marketing values of preserved historic resources to a community, including stability of restored neighborhoods, improved property values associated with preservation areas, and tourism.

2.7. Florida's Historic Preservation Constituency and Its Role.

Florida has a broad historic preservation constituency. This constituency, as those for other environmental and social issues, consists primarily of concerned citizens supported by a corps of professionally trained individuals. The efforts of this constituency are facilitated by the programs of the Florida Department of State, Division of Historical Resources. This interlocking approach is essential (1) to achieve a broad public understanding of the state's prehistoric and historic heritage and (2) to locate, identify, evaluate, protect and otherwise manage the historic resources which represent that heritage.

Florida's historic preservation constituency is represented by a number of state-wide organizations, including the Florida Anthropological Society, the Florida Archaeological Council, the Nature Conservancy, the Trust for Public Lands, the Archaeological Conservancy, the American Planning Association, the American Institute of Architects, and the Florida Trust for Historic Preservation, as well as numerous local historical societies, preservation organizations, architectural/design review boards, and chapters of the Florida Anthropological Society.

Florida's historic preservation constituency works with the Division of Historical Resources in many ways, such as:

- * identifying and evaluating historic resources (prehistoric and historic archaeological sites, historic structures and associated features).
- * preparing Florida Master Site File (FMSF) site forms for historic resources and submitting those forms for recording in the FMSF.
- * nominating individually significant properties, as well as groups of "contributing" properties in a historic district, for listing in the National Register of Historic Places.
- * helping to educate owners of National Register eligible properties to the fact that listing (or not listing) their properties in the National Register will not alter the applicability of state and federal environmental review laws and regulations to such properties. However, listing is important if owners of income producing properties wish to take advantage of federal investment tax credits available for rehabilitating such properties.
- * supporting public acquisition of significant historic resources to ensure their preservation and interpretation for the public benefit. This would include rehabilitation of significant historic structures, in lieu of their demolition, when they can serve the purpose of proposed new construction.

- * encouraging local school systems to expand curricula to include courses which use Florida's historic resources as examples of our prehistoric and historic heritage, and which show the contribution that the preservation of such resources (including the rehabilitation of historic school structures) makes toward improving our quality of life and sense of place.
- * working to ensure that local government officials and planners recognize the importance of historic resources and include procedures to identify, evaluate, record, protect and interpret significant historic resources in local government comprehensive plans, as well as in implementing ordinances and procedures.
- * working with local Chambers of Commerce and others to prepare brochures, signage, and other materials promoting historic resources as economically sound investments and tourist attractions.
- * educating state legislators and other government officials about the importance of historic preservation, and especially emphasizing appreciation for their continued support of such efforts.

These are but a few examples. Florida's historic preservation constituency is an important force in the state's many and diversified historic preservation efforts.

2.8. Definitions of Survey Type.

The identification process is often referred to by the term "survey," although an archaeological and historic site survey (which seeks to locate and identify historic resources) is distinct from a land survey (which establishes property boundaries and elevations). Furthermore, there are several types of historic resource surveys depending on the survey goals and the qualifications of those performing the survey. These include:

2.8.1. Architectural Reconnaissance Survey. A cursory architectural survey (often called a "windshield survey") which generally identifies structures built over 50 years ago. Because of its non-thorough nature, generally identifying only the most obvious historic structures, this type of survey is often conducted by interested individuals (such as members of local historical societies or by students in architecture or historic preservation studies). Professionals should be involved to assure that all historic structures have been properly identified. A minimum of historical background research and evaluation usually accompanies this type of survey. As with all historic resource surveys, Florida Master Site File forms are completed for all identified historic properties with special attention given to properties considered to be significant.

At a minimum, architectural reconnaissance surveys include:

- 1) archival research of the area to be surveyed;
- 2) a survey boundary map with all properties 50 years of age or older identified on the map. These should be coded to distinguish between those properties considered to be significant versus those considered not to be significant. (Vacant lots, parks, and non-historic structures should also be indicated.);
- 3) photographs of all identified historic properties. These should be black-and-white 35mm prints (two exterior views), must be keyed to the survey boundary map, and should be identified by street address; and,
- 4) an inventory of identified historic structures and associated features by address, including information on architectural style, condition, date of construction (known or estimated), and significance. The list should be keyed to the survey boundary map and to the photographs.

While lacking in most past architectural reconnaissance surveys, it is now recognized that consideration of the National Register potential of historic properties in the surveyed area is important. Such surveys are an essential first step for local governments attempting to identify historic structures in their jurisdiction. Survey data are used to complete the future land use, coastal and housing mapping and other requirements of local government comprehensive plans. The historic resources data also are needed to expedite review of Community Development Block Grant applications and other federally involved projects. However, in any survey of this type, it is recognized that both prehistoric and historic archaeological sites are not considered, although they may be an issue of concern. Those planning this type of survey are encouraged to read *A Guide to Delineating Edges of a Historic District* (1976), prepared by the National Trust for Historic Preservation.

2.8.2. Archaeological Reconnaissance Survey. A cursory archaeological survey usually conducted to identify and map sites, and to obtain data on site types and distribution. Field methodology in this type of survey involves minimal sub-surface testing or none. Therefore, archaeological reconnaissance surveys are inadequate for locating and identifying more than the most obvious, exposed sites. Also, it is acknowledged that historic structures and features are generally not noted in such surveys and remain an issue to be addressed.

This type of survey is often conducted by interested individuals (such as Florida Anthropological Society members or anthropology field schools). Please remember that owner permission is required to enter private or public property, and thereby to avoid arrest for trespassing. Reconnaissance surveys produce Florida Master Site File forms and informal survey reports. Such information is of value to local government planners and to the Division of Historical Resources as it contributes further to our understanding of an area's history and prehistory. It also aids in the review of proposed development project impacts by providing general information, with recognized biases, on the kind and character of historic resources known or deemed likely to be present in a project area.

2.8.3. Thematic Survey. An intensive survey conducted to identify and nominate historic resources directly related to one another by type, style, architect, historical association, or any other clearly defined "theme." These may represent "historic contexts," the cultural-historical-geographical units, such as the various archaeological cultures, defined in Florida's Comprehensive Historic Preservation Plan; or, they may be restricted to certain site types. Examples include historic bridges, Fort Walton temple mound complexes, Seminole War era fort sites, and buildings designed by architect Addison Mizner. The historic properties identified in such surveys are generally spread across a geographic area, rather than clustered in defined districts.

When historic structure types are the theme, care must be given to include associated subsurface archaeological features. The potential occurrence and significance of such features, if unevaluated, should be identified in the resulting reports and completed site forms. Finally, it is noted that by definition thematic surveys exclude and fail to identify historic resources which are not included within the theme.

2.8.4. Multiple Property Listing Survey. Although similar to a thematic survey, the focus of this type survey is shifted to all significant historic resources, not just those limited to a more restricted period of significance or theme. For all practical purposes, the procedures for conducting this type of survey are the same as those for Site Assessment Surveys.

2.8.5. Site Assessment Survey. An intensive survey focusing on both archaeological sites and historic architectural resources, and associated features. Generally undertaken in response to environmental review laws and regulations, this type of survey also occurs as a result of both federal and state land management laws and regulations. Its goal is to locate and evaluate historic resources in terms of their eligibility for listing in the National Register. This survey type: (1) results in a formal survey report, including completed Florida Master Site File forms for all identified sites regardless of their significance; (2) evaluates specific project impacts to significant historic resources; (3) forms the basis for recommended measures to avoid and preserve or mitigate project impacts to significant historic resources; and (4) provides data used in developing local preservation plans and land management plans. Detailed field and historic research and documentation is required to evaluate key resources (See standards in Chapter 4 for greater detail).

Again, the need to consider the archaeological potential associated with all historic structures, whether or not the structures are considered significant, is stressed. Florida Master Site File forms must be completed for all historic properties, whether or not they are "considered significant" by the surveyor. Surveys are NOT comprehensive nor complete unless all prehistoric and historic sites and properties are identified and reported.

For those unfamiliar with the Florida Master Site File, it is recommended that the administrator of that program be contacted to obtain copies of the following publications:

- 1) "The Florida Master Site File" (1989) by Marion F. Smith, Jr. and R. Douglas Walton, Jr. This 20-page document, published in **The Florida Anthropologist** 42(1):57-76, describes the FMSF program.
- 2) "Guide to the Archaeological Site Form of the Florida Master Site File" (1989) by Marion F. Smith, Jr. This document of about 90 pages, published as **Florida Archaeological Reports 8** by the Division of Historical Resources, Bureau of Archaeological Research, is an instruction manual pertaining to archaeological site forms.
- 3) "Guide to the Historic Structure Form of the Florida Master Site File" (November, 1987 Preliminary Draft) by Marion F. Smith, Jr. This document of about 80 pages is being prepared as a companion document to the above referenced guide and is an instruction manual pertaining to historic structure forms.
- 4) "Guide to the "Historical Cemetery Form of the Florida Master Site File" (in preparation Nov. 1990), by Sharyn Thompson. This document of about 10 pages is an instruction manual for completion of cemetery forms.
- 5) "Florida Master Site File Guidelines for Users" is a two page introduction to the Site File.

NOTE: Of the above survey types, only comprehensive site assessment surveys satisfy the historic preservation requirements of environmental laws and regulations. Other survey types provide only limited samples of historic resources, which are useful to those planning more comprehensive work or evaluating the potential for site occurrence within an area.

2.9. Historic Preservation Partnership.

Historic preservation is the concern of us all, although professional expertise often is required to ensure that historic resources are identified, described, analyzed, evaluated and reported completely and sufficiently. Professional archaeologists, historians and architectural historians, frequently cooperate with interested individuals and organizations. Knowledgeable local individuals frequently assist such professionals by volunteer and paid work. Compliance review staff in the Florida Division of Historical Resources frequently contact interested individuals known to be knowledgeable in their community's historic resources and, in turn, are contacted by such individuals when they become aware of development projects or threats to sites known to them. This partnership is an important aspect of Florida's historic preservation efforts. The historic preservation compliance review portion of these efforts is described in the following chapter.

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3. Historic Preservation Compliance Review Program.

3.1. Uniform Procedures.

The historic preservation compliance review program is a uniform procedure for reviewing projects under the historic preservation requirements of federal and state laws, rules and regulations. This procedure is based on

36 C.F.R., Part 800 (Protection of Historic Properties), which implements Section 106 of the National Historic Preservation Act (Public Law 89-665), as amended. This uniform system ensures that the same information and agency response can satisfy the historic preservation requirements of federal and state laws and regulations, thus avoiding duplication of efforts.

3.2. When Will the Division of Historical Resources Review a Project?

Not all projects are subject to review by the Division of Historical Resources (DHR) under federal or state historic preservation laws and regulations. Rather, consultation with the DHR occurs when a project or undertaking might affect significant historic resources. The action might involve a direct physical effect, such as a development project, or an indirect effect, such as a planning or management document which will govern decisions on development or property management which might affect significant historic resources.

Some of the more frequent examples of when a project will come under DHR's historic preservation compliance review program include activities which:

- * involve a direct federal action (ss. 106 and 110 of NHPA);
 - * involve a federal grant, loan guarantee, license, or permit for activities affecting the environment (s. 106 of NHPA);
 - * are undertaken or assisted by a state agency of the Executive Branch (s. 267.061(2), F.S.);
 - * involve one of Florida's designated historic highways (various special acts in Laws of Florida, see Appendices);
 - * involve state owned lands or state owned sovereignty submerged lands (Chapters 253 and 267, F.S.);
 - * require a permit or license under Chapter 403, F.S.;
 - * may be determined to be a Development of Regional Impact or a Florida Quality Development under ss. 380.06 or 380.061, F.S., respectively; or,
 - * involve a local historic preservation ordinance which includes project review by the Division of Historical Resources in its implementation (Chapters 125 and 163, F.S.).
- NOTE: Some counties and municipalities without historic preservation staff have requested and been granted Division assistance in local historic preservation compliance review matters.

When in doubt, please contact Division of Historical Resources/State Historic Preservation Officer compliance review staff for clarification at (904) 487-2333; FAX (904) 488-3353.

3.3. Compliance Review Program Responsibilities and Consultation.

Chapter 267, F.S., the Florida Historical Resources Act, establishes the Florida Department of State, Division of Historical Resources as Florida's primary historic preservation agency. The Division is divided into four functional units: the Bureau of Historic Preservation, the Bureau of Archaeological Research, the Florida Folklife Programs, and the Museum of Florida History. Only the first two are involved in compliance review activities.

The Bureau of Archaeological Research, among its other duties, (1) administers the Florida Master Site File, (2) administers the state's shipwreck salvage program, and (3) permits conduct of archaeological research on state-owned and -controlled lands and sovereignty submerged lands. The Bureau Chief is the State

Archaeologist, the designated contact person under certain circumstances when human remains are discovered (See s. 872.05, F.S.; also see Chapters 1A-31 and 1A-32, F.A.C.)

The Bureau of Historic Preservation serves as the staff of the State Historic Preservation Officer for the federally approved state historic preservation program. The Bureau is divided into four functional units or sections:

1) The Survey and Registration Section coordinates activities involving inventory, evaluation and nomination of properties for listing in the **National Register of Historic Places**.

2) The Architectural Preservation Services (APS) Section (1) coordinates the review of investment tax certification activities, (2) provides technical assistance in the review of architectural documents to certify their compliance (a) with the Secretary of the Interior's **Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings** (Standards and Guidelines) and (b) with the **Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER)** standards, and (3) provides technical assistance through the Florida Main Street Program.

3) The Grants and Education Section coordinates the grants-in-aid program and develops/assists in the development of historic preservation educational materials and activities. Survey and planning grants are used to fund projects which collect data used by the Division, communities, developers and others in compliance review, resource management and other activities.

4) The Historic Preservation Compliance Review Section (Compliance Review) coordinates the agency's (1) *environmental review program*, (2) local government comprehensive planning assistance and plan review activities, and (3) state land acquisition and management activities. The latter involves coordination with the Bureau of Archaeological Research.

The Compliance Review Section's *environmental review* activities involve two of the other sections within the Bureau of Historic Preservation. The Survey and Registration Section is consulted by compliance review staff in matters pertaining to National Register eligibility, and the APS is consulted in matters pertaining to project compliance with the Standards and Guidelines or with HABS/HAER standards. Such consultation provides an opportunity to identify projects which also may be received by the agency as Federal Investment Tax Credit projects. The standards for tax credit work are more rigorous than those for activities permitted under routine compliance review procedures. Under such circumstances the compliance review response often includes notification of the applicability of the stricter standards.

Compliance Review staff also depend heavily on the use of the **Florida Master Site File** maintained by the Division's Bureau of Archaeological Research (BAR), and often consult with BAR staff in matters relating to archaeological site impacts.

The project review process routinely includes consultation with staff of historic preservation boards created under Chapter 266, F.S., similar bodies created under local ordinances (including Certified Local Governments), and knowledgeable professional and avocational archaeologists, architects, and historians throughout the state. For matters concerning Florida's historic Native Americans, it also involves consultation with the Governor's Council on Indian Affairs, especially when Native American human remains are involved and the provisions of Chapter 872, F.S., apply.

3.4. Blending Development with Historic Preservation.

Florida's historic preservation program is based on the belief that the best environment in which to live and work is one which harmoniously blends elements of our prehistoric and historic heritage with new land uses and construction. Preservation of historic resources is the preferred action. At the same time, it is recognized that pure preservation of every historic property is unrealistic and not always in the public interest.

Federal and state historic preservation procedures do not insist on preservation in every case. The solution resulting from the historic preservation compliance review process can range from complete preservation to unmitigated loss of a historic property or archaeological site, depending on its significance, location, size and physical characteristics. However, the decision about how to treat historic properties **MUST** result from meaningful consideration of cultural and historic values, and the options available to preserve them. In short, the compliance review process ensures that historic preservation is weighed along with project costs and other factors in determining the projected tangible and intangible benefits of the completed project. The assumption is made that while historic preservation may add to project costs, such added cost is worthwhile and is part of the social cost of development.

A very important factor in historic preservation activities is timing. Consideration of historic properties must occur very early in the planning stage so that preservation concerns can receive open, positive, and balanced consideration as the project is planned. Early review enables applicants to determine whether or not historic resources are known or likely to be present in the project area, what actions may be necessary to identify and evaluate such resources, and what modification of project plans, if any, may be necessary. Early review reduces the potential for conflict and delay, and has positive economic benefits.

3.5. What Should a Project Applicant Submit for Review?

The primary factor delaying the review of historic resource impacts is the submission of incomplete project information. Unnecessary delays cost the applicant in dollars and waste limited DHR/SHPO staff time.

Two classes of information are important. The first class is required and involves a description of the project itself so that an informed assessment may be made by compliance review staff of the likelihood of site presence and possible project impacts to historic resources. The second is optional and concerns project related historic resources information known to the project applicant. Providing such information helps expedite project review.

The project applicant or consultant may call compliance review staff at (904) 487-2333 for assistance in determining the level and type of information to submit to facilitate and expedite project review, and the sources of information pertinent to historic preservation which the project applicant may contact for assistance.

If the project area was investigated previously for historic resources, was a copy of the resulting report reviewed by compliance review staff? If not, a copy should be submitted for review. If any such report has been reviewed previously by compliance review staff, simply:

- 1) refer to the survey report by name, author, and report date, and indicate on copies the survey report boundary maps the boundary of the current project;
- 2) include a copy of the DHR/SHPO letter reviewing the subject report; and,
- 3) if significant or potentially significant sites were identified during the site assessment survey, indicate what action is planned for the preservation or mitigation of adverse project impacts to such sites. Note: Usually, no further action is required for non-significant sites, unless (1) there is reason to believe that the site was misevaluated or (2) unexpected significant features are discovered (See 4.13. Emergency Discovery Situation).

If the scope of work and project boundaries remain unchanged, DHR/SHPO compliance review staff will prepare a current response repeating the earlier conclusions concerning historic resources and potential project impacts and recommendations, unless current data indicate that a revised opinion is warranted. The latter can occur when it has been determined that the field methodology used on a project has since been determined to have missed or misevaluated sites in similar environmental settings.

Historic resource information also may be found in the land use, housing, coastal, historic preservation, and other elements of local government comprehensive plans. Check such documents to determine whether the project area involves any identified significant historic structures or archaeological sites. When used, please include a copy of the document title page, narrative, pertinent map(s), resource listings, and so forth with the project review request. Citation of the information source alone is NOT acceptable.

Unfortunately, some communities have chosen to include only minimal historic resources information in their comprehensive plans, thus limiting plan usefulness. This is unfortunate since it can delay project reviews and increase project environmental review costs (when the project applicant must hire someone to conduct needed studies and to prepare a report on the results) compared to those for comparable projects occurring in communities with adequate historic preservation provisions and data in their plans. It is hoped that communities with minimal plans will correct the problem when those plans are updated.

Checking the National Register of Historic Places for a listing of properties is also useful. However, the National Register is NOT a complete listing of identified significant properties. It does not list those properties formally "Determined Eligible" by the Keeper of the National Register, nor those properties considered eligible for listing by the DHR/SHPO. Please note, while the National Register requires owner permission to list properties, no such permission is required to evaluate properties when projects affecting them come under state or federal environmental review laws and regulations. However, an owner can deny property access thereby limiting such evaluations and preventing project approval until the problem is resolved, or the affected site deleted from project actions.

Another source is the Florida Master Site File, a comprehensive listing of "recorded" historic resources, including those listed in the National Register. However, that source only contains information on recorded sites, and does not provide an assessment of the likelihood of unrecorded site occurrence. Consultation with DHR/SHPO compliance review staff is essential to identify both known and expected historic resource locations, and to determine an appropriate course of action.

3.6. Project Applicant Submission Check-list.

The Project Applicant Submission Check-list has been developed to help avoid project review delays that may result when information is omitted from data submitted to the DHR/SHPO for review. Obviously, all categories of information identified on the list will not apply to every project. If the project activity is subject to the terms of a Memorandum of Agreement (MOA) or Programmatic Agreement (PA), then the project applicant need only cite that document and comply with its provisions. It is suggested that users contact DHR/SHPO Compliance Review staff at (904) 487-2333 if there are any questions on the kind and level of information to submit.

PROJECT APPLICANT SUBMISSION CHECK-LIST FOR COMPLIANCE REVIEW PROJECTS

1) Contact Person ___:

* Please provide the name, phone number and address of the individual to contact for further information, and to whom to send written responses.

2) Purpose of Review ___:

* Identify the state, federal and local agencies for whom the project is being reviewed (i.e., Corps of Engineers, Department of Environmental Regulation, Department of Community Affairs.)

3) Project Location and Size ___: Identify the following:

year projects, the agency and the DHR/SHPO often prepare MOAs or PAs delineating procedures to be followed. Correspondence for activities coming under the provisions of such documents should cite them, and follow applicable Agreement stipulations.

3.7.1. Step 1. Determining Completeness of Project Document Submission. (DHR/SHPO action)

Early planning is encouraged. When documents are received for review by the DHR/SHPO Compliance Review Section, they are first entered into the electronic project file to start a record of project review status and activities. Requests for reviews to determine project impacts, if any, to historic resources are processed in the order in which they are received. Requests for review **MUST** be written and include a map accurately depicting the project location and its boundaries. Please provide applicable information indicated on the **Applicant Submission Check-list**, or that required by any applicable MOA or PA.

If incomplete and/or insufficient information has been provided for review, additional information will be requested and the **project review period WILL NOT BEGIN until the necessary information is received**. The lead federal or state agency is notified of the problem. Environmental reviews generally are processed by Compliance Review staff within 10-15 workdays of receipt of necessary information. However, most federal and state regulations allow up to 30 days from the date of receipt of complete and sufficient project information for project reviews. Written responses must be prepared within this period, unless an exception is granted by the consulting parties for a longer or shorter review period.

3.7.2. Step 2. Processing Preliminary Project Submissions. (DHR/SHPO action)

Once a project has been recorded and the review information determined to be complete and sufficient, Compliance Review staff research various sources to determine whether the nature or location of project activities are such that prehistoric or historic archaeological sites or structures may be affected.

If the answer is NO, then correspondence is prepared stating the agency's opinion that historic resources are unlikely to be affected by proposed project activities. Upon receipt of such notification the project may proceed without further DHR/SHPO involvement, unless (1) unexpected, potentially significant historic resources are discovered, or (2) the project location or scope is changed.

If the answer is YES, then Compliance Review staff review data in the **Florida Master Site File** (1) to determine if any sites or structures are known to occur on or near the subject property, (2) to determine whether any previous historic resource surveys have occurred on or near the property, and (3) to assess from that information the likelihood of presently unrecorded, potentially significant historic resources occurring within the project impact area. If previous site assessment survey work has occurred, the result and its reliability in terms of current historic resource data and survey methodology are evaluated. Appropriate local government comprehensive plans, regional policy plans, and state and federal land management plans also will be consulted, as needed. Finally, since project applicants sometimes fail to provide such information, staff determine whether the proposed undertaking involves compliance with the terms of any applicable Memorandum of Agreement (MOA) or Programmatic Agreement (PA), or is included in activities "categorically excluded" from DHR/SHPO review.

A determination of the expected occurrence of historic resources involves a review of the known site distribution within the surrounding area, the results of previous survey efforts, staff experience, and consultation with others familiar with an area's historic resources. The process involves identifying the physiographic and other parameters in which known sites are located, and then determining whether similar conditions exist or once existed within the project boundaries. This establishes the basis for determining the likelihood of prehistoric and historic archaeological site occurrence on the tract. It also notes the presence of any older structures and features identified on agency reference maps, or observed by those knowledgeable about the

- * County (or counties) and, if applicable, municipality in which the project is located.
- * Section, Township and Range coordinates for properties included in the project area. NOTE: Use latitude and longitude for offshore areas.
- * Street address, if applicable.
- * Project dimensions and acreage.

4) Location Map ___:

- * Depict the project boundaries to scale on a USGS Quadrangle map.
- * In urban settings, also depict the project boundaries on a street map.
- * Current aerial photographs of the project area are also helpful.

5) Nature of Project Activities ___:

- * Describe proposed project activities (i.e., nature of proposed housing rehabilitation activities; or, nature and extent of proposed land clearing and ground disturbing activities).

6) Description of Project Area or Structure ___: Please describe the following:

- * Present appearance of property (i.e., pasture, wooded, orange groves, etc.)
- * Past land use activities (i.e., logging, agriculture, mining, borrow pits, etc.)
- * For projects in improved subdivisions, the nature of improvements to date (i.e., roads, water and sewer lines, completely built out, etc.)
- * For rehabilitation activities, indicate the known or estimated construction date for each property, provide photographs of exterior elevations, identify the photographs and key them to the project location map.

7) Site Numbers and Significance ___: If known, provide the following information for identified archaeological sites and historic structures:

- * Florida Master Site File site number.
- * National Register of Historic Places: listed Yes/No (Y/N), formally determined eligible Y/N; or considered eligible by SHPO Y/N. If yes, date _____.
- * Locally designated landmark (under the authority of a local ordinance).

NOTE: The Florida Master Site File staff may be reached at (904) 487-2299 or FAX (904) 488-3353 for assistance in identifying FMSF and NR properties.

3.7. The Six Steps in the Historic Preservation Compliance Review Process.

The following steps are for first time projects. They begin after the applicant has completed the above data collection and submission step, and submitted that information to the DHR/SHPO for review, either directly or through the involved federal agency (or at the agency's direction through the State Clearinghouse. For multi-

year projects, the agency and the DHR/SHPO often prepare MOAs or PAs delineating procedures to be followed. Correspondence for activities coming under the provisions of such documents should cite them, and follow applicable Agreement stipulations.

3.7.1. Step 1. Determining Completeness of Project Document Submission. (DHR/SHPO action)

Early planning is encouraged. When documents are received for review by the DHR/SHPO Compliance Review Section, they are first entered into the electronic project file to start a record of project review status and activities. Requests for reviews to determine project impacts, if any, to historic resources are processed in the order in which they are received. Requests for review **MUST** be written and include a map accurately depicting the project location and its boundaries. Please provide applicable information indicated on the **Applicant Submission Check-list**, or that required by any applicable MOA or PA.

If incomplete and/or insufficient information has been provided for review, additional information will be requested and the **project review period WILL NOT BEGIN until the necessary information is received**. The lead federal or state agency is notified of the problem. Environmental reviews generally are processed by Compliance Review staff within 10-15 workdays of receipt of necessary information. However, most federal and state regulations allow up to 30 days from the date of receipt of complete and sufficient project information for project reviews. Written responses must be prepared within this period, unless an exception is granted by the consulting parties for a longer or shorter review period.

3.7.2. Step 2. Processing Preliminary Project Submissions. (DHR/SHPO action)

Once a project has been recorded and the review information determined to be complete and sufficient, Compliance Review staff research various sources to determine whether the nature or location of project activities are such that prehistoric or historic archaeological sites or structures may be affected.

If the answer is NO, then correspondence is prepared stating the agency's opinion that historic resources are unlikely to be affected by proposed project activities. Upon receipt of such notification the project may proceed without further DHR/SHPO involvement, unless (1) unexpected, potentially significant historic resources are discovered, or (2) the project location or scope is changed.

If the answer is YES, then Compliance Review staff review data in the **Florida Master Site File** (1) to determine if any sites or structures are known to occur on or near the subject property, (2) to determine whether any previous historic resource surveys have occurred on or near the property, and (3) to assess from that information the likelihood of presently unrecorded, potentially significant historic resources occurring within the project impact area. If previous site assessment survey work has occurred, the result and its reliability in terms of current historic resource data and survey methodology are evaluated. Appropriate local government comprehensive plans, regional policy plans, and state and federal land management plans also will be consulted, as needed. Finally, since project applicants sometimes fail to provide such information, staff determine whether the proposed undertaking involves compliance with the terms of any applicable Memorandum of Agreement (MOA) or Programmatic Agreement (PA), or is included in activities "categorically excluded" from DHR/SHPO review.

A determination of the expected occurrence of historic resources involves a review of the known site distribution within the surrounding area, the results of previous survey efforts, staff experience, and consultation with others familiar with an area's historic resources. The process involves identifying the physiographic and other parameters in which known sites are located, and then determining whether similar conditions exist or once existed within the project boundaries. This establishes the basis for determining the likelihood of prehistoric and historic archaeological site occurrence on the tract. It also notes the presence of any older structures and features identified on agency reference maps, or observed by those knowledgeable about the

historic resources in the project area. From this information (1) an assessment is made of the kind and character of historic resources, if any, which might be present within a project area and (2) the type of field methodology considered appropriate to identify and evaluate any such resources is determined.

Local governments increasingly have become involved in historic preservation matters by hiring qualified staff and establishing local review processes which parallel federal and state procedures and standards. In the future, Programmatic Agreements implementing counterpart regulations developed under 36 C.F.R. 800.7 will be entered into with many local governments. Under such agreements, much of the preliminary project historic resource impact evaluation process eventually may be undertaken by local governments acting as the DHR/SHPO's representative, thus strengthening the cooperative role between the DHR/SHPO and local governments, and providing them with the means of expediting the historic preservation review of certain categories of projects.

3.7.2.1. No Effect Determination: Project Proceeds Without Further DHR/SHPO Review.

The DHR/SHPO usually will issue an opinion that a project will have "no effect" on or is unlikely to affect National Register or National Register eligible ("significant") historic resources, IF:

- * the nature of proposed project activities is such that it will not affect historic resources or the qualities which would make such resources eligible for listing in the National Register; or,
- * the potential for site occurrence is low or non-existent based on the absence of sites in similar environments which have been investigated at a level considered appropriate to identify and evaluate any sites which might have occurred in such locales; or,
- * there is documentation of prior (non-project or project applicant initiated or permitted) extensive ground disturbing activities that may have severely altered or destroyed the integrity of any sites present within the identified area. (NOTE: If there is evidence that the project applicant initiated or permitted actions which would disturb or destroy the integrity of any site known or expected to occur on a property, a site assessment survey may be recommended to evaluate the degree of site disturbance/destruction and to determine what portions of any (potentially) significant sites remain and merit preservation or mitigation of further adverse project impacts through archaeological salvage excavation); or,
- * the area previously was surveyed for historic resources at a level determined to be complete and sufficient in terms of current historic resource data, and identified sites have been determined NOT to be significant; or,
- * the project has been planned to avoid adverse impacts to and protect and preserve identified National Register listed or National Register eligible sites, or locales deemed likely to contain such resources. (Also see 3.7.4.2. (Potentially) Significant Sites Identified: Conditional No Adverse Effect Determination).

Upon receipt of the DHR/SHPO's written "no effect" response, the project (or identified portion of the project) may proceed without further DHR/SHPO review, unless (1) the project boundaries or scope are changed, or (2) unexpected significant historic resources are discovered. The review results are recorded and the review document filed.

3.7.2.2. When Site Assessment Surveys Are Recommended.

Site assessment surveys are recommended only when historic resources are known to occur on a property and/or when there is reason to expect that presently unrecorded resources may be present. However, the reason for such recommendations may be unclear to project applicants who, for instance, may believe that past land use destroyed whatever sites were present.

Until recently agricultural practices and building construction techniques primarily affected only the upper 8"-12" (20-30cm) of soil, leaving more deeply buried archaeological site remains in a relatively undisturbed condition. In most earlier historic structure studies the associated subsurface archaeological resources were not considered. Likewise, in many early archaeological surveys, historic structures were not noted. Further, many previous historic structure studies were NOT comprehensive nor complete, having failed to identify structures and features which today would be considered eligible for listing in the National Register. Likewise, many areas investigated and determined not to contain significant sites, under previously acceptable archaeological field methodology (such as no or limited subsurface testing), are now believed to have been assessed inadequately based on the identification of significant sites in similar areas subjected to current survey standards. In addition, environments and locales previously evaluated by DHR/SHPO staff and others as unlikely to contain potentially significant unrecorded sites based on then accepted negative survey results for similar nearby locales, based on current data may be reevaluated and site assessment survey recommended. Finally, sites and structures evaluated as not significant prior to 1980 may merit reconsideration in light of more current data. This is particularly true of structures dating from 1930-1940 which at that time may not have been considered old enough to merit evaluation.

The DHR/SHPO will recommend that a project applicant have a site assessment survey conducted by a professionally capable agency or individual when there is reason to believe that project activities may affect significant historic resources. The survey purpose is to locate and assess the significance of any historic resources within a tract known or deemed likely to contain such sites. They are recommended when:

- * there is a moderate to high likelihood of presently unrecorded significant historic resources occurring within a tract, and/or
- * there are known sites on the property which have not been assessed to determine their significance or for which there is outdated site assessment data (such that an opinion of significance based on such information may be in error).

Please note that except for some State-owned or -controlled upland and submerged lands under Chapter 267, F.S., jurisdiction, DHR/SHPO staff generally do not perform site assessment survey work. That restriction avoids the issue of conflict of interest, as DHR/SHPO Compliance Review staff review the completeness and sufficiency of survey work. It also avoids public competition with the private sector, which has many professionals capable of performing the work.

3.7.3. Step 3. Conducting Site Assessment Surveys. (Agency action with professional assistance)

The purpose of site assessment surveys is to provide data for the DHR/SHPO and other agencies to determine whether a proposed project may affect significant historic resources. They also provide a basis for evaluating measures to avoid, minimize or mitigate any adverse project impacts to such resources and to enhance any beneficial effects.

When site assessment survey is recommended, the DHR/SHPO response often will be accompanied by a map of the project tract designating areas of particular concern based on known and expected archaeological site distribution and possible historic structures and related features, such as mills, quarries, and wharves or landings. The designation of such locales, based on available information, is to aid in project planning and budgeting and should not be interpreted as representing all likely site locales or historic structures and related features. Failure of DHR/SHPO staff to designate a historic structure and related features or an area of archaeological concern on a project map shall not be construed to preclude the field investigator from investigating such omitted areas which in her/his evaluation are likely to contain significant sites. Indeed, it is expected (1) that the archaeologist will include a random or discretionary sample of the remaining property area to ensure that archaeological site location data are valid, and (2) that the historian/architectural historian will investigate all involved historic structures and related features.

However, recommendations may be restricted to less than the entire project boundaries when there is reason for DHR/SHPO Compliance Review staff to believe, based on available information, that historic resources are unlikely to occur in identified portions of the project area. Unless an area has been specifically excluded from survey requirements, it should be presumed that the entire property will be investigated with particular attention paid to indicated areas of expected site occurrence. Finally, it should be noted that site assessment surveys are **not** recommended unless there is reason to believe that significant archaeological sites, historic structures, or related features may be present.

Prior to developing a final scope of work, submitting project bids, and initiating field work, both the project applicant and the field archaeologist and historian/architectural historian, if needed, are urged to contact the DHR/SHPO Compliance Review staff to resolve any questions. Draft language should be submitted in writing to obtain a formal written response. Because of misunderstandings which can occur during lengthy telephone conversations, telephone responses are considered to be informational only, and are **not** formal agency opinions.

Site assessment surveys must comply with the standards presented in Chapter 4 of this manual. Failure to do so will result in the work being determined to be incomplete and insufficient. This can add to development project costs and delay of project approval, since additional work will be necessary to prepare a product which will be judged to be complete and sufficient.

The electronic file established for all compliance review activities facilitates efforts to monitor the status of projects for which site assessment or other work has been requested. Refer to the DHR Project Number, if known, when contacting DHR/SHPO Compliance Review staff regarding project review status. That number occurs on DHR/SHPO project review correspondence, either under the preparer's name in the upper right corner or else in the reference box below the recipient's address.

3.7.4. Step 4. Reviewing Site Assessment Survey Results. (DHR/SHPO action)

The product of site assessment surveys is a report which identifies significant, potentially significant, and non-significant sites, as well as non-site areas. A survey which simply locates sites **WITHOUT** adequately evaluating their significance in terms of National Register eligibility criteria or establishing their vertical and horizontal limits is **NOT** a site "assessment" survey. Likewise, a survey which relies only on surface inspection and inadequate (i.e., less than 30 cm diameter) subsurface testing, if any, generally will be considered unacceptable, and is **NOT** a site assessment survey. If there is any doubt about the adequacy/inadequacy of proposed survey efforts, **PLEASE** contact DHR/SHPO Compliance Review staff for technical assistance prior to beginning such work.

The DHR/SHPO must receive a copy of the complete site assessment survey report to review. **Project review and approval, with or without conditions, cannot be completed until the report has been reviewed by DHR/SHPO Compliance Review staff.** Submission of site assessment survey reports should occur as early as possible in planning project development. It is recommended that a draft of the report, including FMSF site forms, be submitted for review to identify any deficiencies needing correction to ensure acceptance of the final report as complete and sufficient, and avoid delays in project approval.

When a site assessment survey report is received by DHR/SHPO Compliance Review staff, the title and other data are entered into the electronic file, a search is conducted of agency files, if needed, to determine what was recommended for survey and evaluation, and the document is assigned to knowledgeable staff for review to determine:

- 1) Was the site assessment investigation and resulting report prepared by professionally qualified individuals knowledgeable in the historic resources being investigated? (This evaluation is conducted to meet Department of the Interior, National Park Service requirements for activities

conducted under each state's federally approved historic preservation program. The evaluation is based on the information contained in resumes submitted by consulting professionals to the DHR/SHPO for this purpose and/or on information contained in resumes attached to the survey report submitted for review.)

- 2) Does the report satisfy the information requirements presented in Chapter 4 of this manual for report content?
- 3) Is the site data compared with the historic context data contained in **Florida's Comprehensive Historic Preservation Plan**?
- 4) Are **Florida Master Site File** site forms, including (large scale) site location map attachments (and photographs for structures), properly completed for all new and revisited sites?
- 5) If National Register eligible sites or properties are identified, is the information complete and sufficient enough to make a final determination of significance?
- 6) If not, what is missing?
- 7) Is the property considered to be significant individually or otherwise? If so, under what National Register eligibility criteria? If not, why?
- 9) Does the DHR/SHPO concur with all of the site evaluations? If not, which site evaluations are lacking and why?

Four factors must be stressed at this point:

- 1) While brief presentations of the results of a site assessment survey may be included in the environmental impact statement, Application for Development Approval, or similar project documents prepared for general public review, such information is insufficient for DHR/SHPO project review. Therefore, a copy of the report, including completed **Florida Master Site File** site forms and attachments, from which the information has been derived **MUST** be provided to the DHR/SHPO for review and comment.
- 2) Field methodology and reporting criteria are critical (see accompanying standards in Chapter 4 of this manual). Inadequate field methodology generally will result in the report results being determined to be incomplete and insufficient. It must be remembered that the process of conducting archaeological fieldwork itself destroys irreplaceable information and, therefore, must be done so as to address more or less explicit research problems. This can be done in several ways, through (1) direct studies based on the current project parameters and goals, (2) synthesis of current data with that recorded by others, or (3) recovery and distribution of information relevant to research problems of regional or statewide scope. Large projects and smaller ones performed in regions archaeologically well known should use direct studies, syntheses, or both.
- 3) Failure to survey or adequately survey any portion of a project area identified for such survey, generally means that project activities may not proceed within such locales until they have been surveyed and the resulting report determined to be complete and sufficient by the DHR/SHPO. A recommendation that project development be delayed in areas excluded from recommended survey until such survey work has been completed by the project applicant's consultants and reviewed by DHR/SHPO Compliance Review staff will occur on a case-by-case basis. There are often valid reasons to request reconsideration and exclusion from survey of selected locales; however, such reasons must be presented to the DHR/SHPO along with a request for reconsideration of the DHR/SHPO recommendation for the affected areas to avoid problems. Efforts should be made to avoid or minimize unresolved problems as they can delay project approval.
- 4) The survey report is not considered to be complete unless it includes completed **Florida Master Site File** forms for those archaeological sites, historic structures, and Historic cemeteries within the project area (whether or not they are considered National Register eligible). These site forms may be bound with the report

or submitted as a separate enclosure. Each form must include a site location map (i.e., [a photocopied portion of] a U.S.G.S. topographic quadrangle map on which the site location is identified). In addition to the U.S.G.S. maps, historic structure forms must include at least one clearly focused black-and-white photograph (no photocopies) of the structure's principal elevation, and should include a street map or property appraiser's land ownership map on which the location of the structure is sketched to scale. (With prior approval of the FMSF Supervisor, site form text data can be submitted on floppy disks (or by modem) and FMSF staff will assume the responsibility for printing the site forms from those data. In such circumstances, site photographs and maps must be clearly identified to assure proper collation when the text is printed.)

See Appendices for copies of archaeological and historic structure site forms (they may be photocopied). Copies also may be obtained without charge from the FMSF by calling (904) 487-2299, or by writing to the Division of Historical Resources, FAX (904) 488-3353.

When DHR/SHPO Compliance Review staff complete their review of a project report, they file copies of the report title page, the FMSF Survey Log Sheet completed for the report, the report conclusions and recommendations, the survey boundary map, and the review correspondence with previous project documents. The full report (including completed FMSF site forms), along with a copy of the review correspondence, is routed to the FMSF for processing where staff plot the survey area on county survey maps and assign a sequential report number which will appear on the survey map, on the FMSF Survey Log Sheet and on the report itself. The report is then filed for use in future research and historic context development efforts. Identified (archaeological) site locations and National Register historic site and district boundaries are added to the U.S.G.S. Quadrangle map and county maps in the FMSF work area, and the site data are entered into both the electronic and paper files.

3.7.4.1. No Significant Sites Identified: No Effect Determination.

No further consideration is required for those sites considered by the DHR/SHPO not to be significant nor for areas determined not to contain (potentially) significant sites, unless (1) unexpected site remains are later discovered (see 4.13. Emergency Discovery Situation) or (2) information is presented indicating that the non-significance opinion was based on flawed data. Project activities, with respect to the issue of historic preservation, may proceed in such "no effect" areas upon receipt of confirming DHR/SHPO correspondence. HOWEVER, this "no effect" determination will be reconsidered if unexpected historic resources (especially human burials and associated artifacts) are subsequently discovered. While such finds are unlikely, they are possible since the field methodology sufficient to preclude such instances would be prohibitively costly. Likewise, if supplemental information indicating that the original data was flawed is received, the no effect opinion will be reconsidered.

3.7.4.2. (Potentially) Significant Sites Identified: Conditional No Adverse Effect Determination.

As noted, significance is evaluated in terms of the criteria for eligibility for listing in the **National Register of Historic Places**. If a historic resource satisfies National Register eligibility criteria, then it is considered significant. If it does not satisfy those criteria, then it is not considered significant. However, if the resource appears likely to satisfy those criteria, but insufficient data exist to render a final opinion of National Register eligibility, then it is declared to be potentially significant until further work is conducted to resolve the issue.

When (potentially) significant archaeological sites or historic structures and related features are identified, the DHR/SHPO must comment on whether the project will affect those resources. In making his evaluation of potential project effect, the DHR/SHPO considers information provided by the consulting archaeologists, historians, architectural historians, the involved agency and others knowledgeable about the project's historic resources. If the effect is adverse, then alternatives to avoid, minimize, or mitigate that effect must be considered. If the proposed project activities cannot be modified to avoid the adverse effect to a potentially significant site (versus one definitely determined to be significant), then further work is warranted to resolve the significance issue. Archaeological test excavation is recommended for potentially significant archaeological sites; and, historical and architectural documentation is recommended for potentially significant historic

structures, associated landscapes, and related features. The purpose of such work is to provide sufficient data to make a final determination of significance for such historic resources.

Further work is not necessary at (potentially) significant sites for which there is a firm commitment in writing in the form of a formal deed restriction (i.e., a preservation covenant or a conservation easement) by the project developer or a development order preservation stipulation, for instance, to include such site locations in permanently designated preservation areas. However, since this restricts the class of land use, the DHR/SHPO generally recommends (1) that further work be conducted to determine what areas of each site best characterize the site, and (2) that a commitment be made only to preserve in perpetuity those more restricted intra-site areas. The purpose of historic preservation laws and regulations is to protect and preserve significant elements of our prehistoric and historic heritage, not to protect unreasonably all resources regardless of their significance. Further, for those significant site areas for which preservation is not possible, formal archaeological excavation, analysis and report preparation sufficient to mitigate the loss of the affected site areas is an option. Likewise, HABS/HAER documentation occurs to mitigate impacts to affected significant structures.

In-place preservation is often accomplished by (1) a conservation easement (see s. 704.06, F.S.) or restrictive covenant being added to a deed, (2) donation to a preservation organization for conservation and preservation purposes, or (3) restricted use of the property to assure perpetual preservation of a significant site or structure as a condition of a Development Order or Planned Unit Development (PUD) approval. A copy of such deed restrictions or conveyances must be provided to the DHR/SHPO to evidence compliance with the preservation conditions. Such conveyances or development restrictions carry with them a commitment by the developer, the recipient organization, or a local preservation group or neighborhood association to protect involved properties from site looting, vandalism, deterioration, or future development.

Beach nourishment and other projects involving submerged resources, as with upland projects, have the option of avoiding without further study -- along with a suitable buffer area (i.e., 50-100m/150-300') around areas containing identified magnetic or side-scan sonar anomalies or sub-bottom core sample areas which are interpreted as representing potential shipwreck remains or submerged terrestrial sites. Under such circumstances the identified areas contain unevaluated resources, which may or may not be significant. Regardless, the DHR/SHPO urges that identified anomalies be "ground-truthed" to permit at least a preliminary identification of the resource and its significance.

[NOTE: For federal undertakings on federally-owned lands, it may be necessary to investigate such resources to determine their significance in order to comply with Section 110 of the National Historic Preservation Act. In addition, compliance with Department of Defense Directive 4710.1 (Archaeological and Historic Resources Management dated June 21, 1984) is required for agencies under military control and management.]

Under the above circumstances, a "conditional no (adverse) effect" determination is made when the DHR/SHPO stipulates the conditions under which an adverse project effect may be avoided, and the project applicant amends the project to include the stipulated conditions. A non-federally involved undertaking may proceed when the project applicant has notified the DHR of its acceptance of the conditions and has made any necessary changes in project design to comply with those conditions. For federally involved undertakings, the Advisory Council on Historic Preservation must also be consulted before a project is authorized to proceed. Finally, if a project activity designed to avoid adverse impacts to significant sites subsequently is changed such that it could affect such sites, the "conditional no adverse effect" opinion must be reconsidered.

(NOTE: The National Oceanographic and Atmospheric Administration, which oversees implementation of the federal Coastal Zone Management Act, will not accept "conditional no adverse effect" opinions. Under that agency's procedures, only a "consistent" or "inconsistent" determination is accepted. This means that consultation early in the project planning process or early submission of a federal grant application must occur to provide the project applicant with an opportunity to make any needed changes in the manner in which a project will be conducted so that it may be determined "consistent" when it is subsequently reviewed.

With few exceptions, project approval will be denied for projects determined to be "inconsistent" with the provisions of the state laws contained in Florida's approved coastal management program.)

The Council is notified of SHPO opinions of effect and adverse effect, with or without conditions. However, it is the responsibility of the project applicant to formally notify the Council of its project and to provide sufficient information (generally in the form of a Case Report (See 4.15. Case Report) for the Council to evaluate project effects and proposed alternatives. The response of the project applicant and Council is awaited to complete project review actions. If the Council does not accept the terms of the conditions, further consultation is required. Likewise, if the project applicant does not accept the conditions, then arbitration by the Council is required, if the involved federal agency chooses to proceed with project approval. Non-acceptance often leads to federal denial of project approval.

The project applicant is encouraged to contact the Council to determine specifically what should be submitted for Council review. The Council may be reached by writing or calling:

Advisory Council on Historic Preservation
The Old Post Office Building, #809
1100 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 786-0505; FAX (202) 786-1172

3.7.5. Step 5 Review of Site Significance Evaluation Report. (DHR/SHPO action)

When the DHR/SHPO Compliance Review staff receive a report prepared to make a final determination of significance, it is recorded and assigned to qualified agency staff for review to determine its completeness and sufficiency with respect to the standards discussed in this document. Questions in this review are essentially the same as in 3.7.4.

The staff of the DHR/SHPO's Survey and Registration Section routinely assist Compliance Review Section staff in this process. Indeed, the Survey and Registration Section makes National Register eligibility decisions for the Compliance Review Section. The staff of Florida's historic preservation boards and others knowledgeable in an area's local resources also are consulted when there are particular questions concerning resources in their areas.

3.7.5.1. No Effect Determination for Non-Significant Properties.

If (1) an archaeological site or (2) a historic structure and any associated archaeological resources and features is considered by the DHR/SHPO not to be National Register eligible and if there is no objection to that opinion from the project applicant or other affected parties, then the DHR/SHPO will issue a determination of "no effect" and the project may proceed as planned with respect to the issue of historic preservation. No further consultation or action is recommended for undertakings involving non-significant sites.

However, if previously unidentified historic resources are discovered or potentially significant unidentified features of sites assessed as non-significant are discovered, then project activities affecting those discoveries should be halted until they have been evaluated to determine their significance. Undertakings not affecting those discoveries may proceed while the evaluation is ongoing (See 4.13. Emergency Discovery Situation.) Also, if the DHR/SHPO determines that the agency's National Register eligibility opinion was based on erroneous information, reconsideration of that opinion will occur and the "no effect" determination may be voided.

3.7.5.2. Significant Sites Identified: Determination of Effect.

When National Register or National Register eligible ("significant") sites have been identified, the involved agency and the DHR/SHPO must make a determination of effect. There are three possible determinations: 1) "no effect," 2) "conditional no adverse effect," or 3) "adverse effect."

If a "no effect" determination is agreed upon, then with respect to the issue of historic preservation, the project may proceed as planned. However, this determination will be reconsidered (1) if substantive changes in project design or the location of project ground disturbing activities are made, or (2) if new information (such as the discovery of human remains during project site preparation or construction) becomes available.

If it is determined that the proposed project activities will have an "adverse effect" on significant sites, then proceed to 3.7.6. Step 6 to consult on project alternatives to avoid, minimize or mitigate project impacts. Such consultation will lead to (1) agreement on conditions necessary to avoid the adverse effect of the project or, (2) a continued "adverse effect" determination and agreement on measures to mitigate project impacts (See 3.8. Mitigation of Project Impacts) if the project is not terminated.

For federally involved projects, as noted earlier, the Advisory Council on Historic Preservation must be provided with project information and requested to concur with the terms of the "conditional no adverse effect" opinion. If the Council does not concur with the opinion as stated, then further consultation is required. If the Council concurs with the stated conditions, then the project may proceed in accordance with the terms of those conditions. For non-federally involved projects, only agreement among the involved agency, the project applicant (if other than the agency), and the DHR is required. If the conditions are minor, then the applicant may evidence acceptance of the conditions by submitting an amended project description which evidences that the project has been appropriately modified. In more complex circumstances, the conditions are stated as formal stipulations in a project Memorandum of Agreement or Programmatic Agreement (See 4.17. Memorandum of Agreement/Programmatic Agreement).

If the project cannot be modified to avoid the "adverse effect," then consultation is required to investigate measures to minimize or mitigate such impacts. The Advisory Council on Historic Preservation is always notified when a Federal agency is involved in an adverse effect determination. The Council will be a consulting party in any adverse effect action (See Step 6 below). The Council is not involved in non-federally involved projects. The resulting correspondence is logged and copies filed.

<h3>3.7.6. <u>Step 6. Consultation Process for Significant Historic Resources.</u> (Agency, DHR/SHPO and Council)</h3>
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When significant historic resources will or may be affected by project activities, consultation among the project applicant, the DHR/SHPO, and for federally involved projects, the Advisory Council on Historic Preservation (Council) is essential. The purpose of this consultation is to evaluate project alternatives to avoid, minimize, or mitigate project impacts to significant sites. (When human remains are involved, the provisions of Chapter 872, F.S., apply and consultation with concerned parties, such as the Governor's Council on Indian Affairs, also must occur (See 4.14. Treatment of Human Remains). On a broader level, public comments are encouraged from interested citizens on proposed project impacts to historic resources in their community. Such public comments must be considered by the agency proposing the project, the DHR/SHPO, and the Council in evaluating project alternatives and in formulating project recommendations.

When the Council is consulted on an adverse effect action the agency initiating the undertaking generally is required to prepare a **Case Report** which (1) describes the undertaking and the affected historic properties, (2) assesses the adverse effect, (3) discusses alternatives to avoid or mitigate it, and (4a) describes preservation measures which will be undertaken or (4b) describes the reasons why it should be concluded that preservation is not possible and discusses mitigation measures which will be undertaken. Both the Council and the DHR/SHPO must receive copies of the **Case Report** for review; and, their comments must be considered

before the agency makes a final decision on the manner in which the project will be undertaken. (See 4.15. Case Report for further details.)

Consultation routinely leads to one of the following:

(1) When project alternatives to avoid or minimize adverse project impacts are considered to be feasible and prudent, the DHR/SHPO (and Council for federally involved projects) will recommend that project approval be "conditioned" upon the project applicant modifying the project to incorporate stipulated measures to avoid or minimize identified project impacts.

(2) When preservation is not possible, the DHR/SHPO (and Council, if applicable) will recommend that the project's impact be mitigated by data recovery at the involved site or sites through archaeological excavation or through the documentation of the architectural fabric and other pertinent historic data for any involved structures and associated features. Historic structures often have associated subsurface and surface archaeological remains which also must be considered in mitigation efforts. Further, any such work must be under the direct supervision of individuals qualified to perform the work.

This process also generally requires the preparation of a Memorandum of Agreement (MOA) stipulating the measures to be taken to avoid, minimize or mitigate adverse project impacts. The procedures for this are contained in 36 C.F.R. Part 800 (Protection of Historic Properties). Standardized language for such agreements may be found in **PREPARING AGREEMENT DOCUMENTS: How to Write Determinations of No Adverse Effect, Memoranda of Agreement, and Programmatic Agreements under 36 C.F.R. 800** (September, 1989) issued by the Advisory Council on Historic Preservation.

If archaeological salvage excavation or documentary measures are undertaken to mitigate project impact, the resulting report must be submitted to the DHR/SHPO Compliance Review staff for review and comment. It generally is the DHR/SHPO's recommendation that agencies NOT (1) issue final development orders or permits, or (2) grant funding assistance, or (3) take any other action that would allow an adverse project impact to significant historic resources until the mitigative work has been conducted and the results reviewed and accepted by the DHR/SHPO. For structures being documented to **Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER)** standards, it is recommended that approval to proceed with structural modifications or demolition NOT OCCUR until the documentation has been accepted by the National Park Service for federally involved projects and by DHR for non-federal projects. In federally involved projects, an informational copy of the documentation must be provided to the DHR/SHPO concurrent with its submission for NPS review and approval.

Upon completing DHR/SHPO review of mitigative work, (1) review comments regarding the completeness and sufficiency of the mitigative work are recorded, (2) copies of the completed **Florida Master Site File Survey Log Sheet**, the title page of the mitigation report, the report conclusions and recommendations (if applicable), and the review correspondence are filed, and (3) the project report, along with a copy of the resulting correspondence, is routed to the Florida Master Site File for processing. If the work is determined to be complete and sufficient, project activities may proceed in affected site areas. If the work is determined to be deficient, further consultation is required to resolve the issues of concern.

3.8. Mitigation of Project Impacts.

While preservation of significant historic resources is the preferred alternative, it is not always possible to accomplish that goal. When a project will have an adverse effect on a site or property, consultation occurs on measures to avoid, minimize or mitigate that adverse effect.

In historic preservation and environmental contexts, the term "mitigation" is used for efforts to minimize or offset project impacts through data recovery or other measures. Mitigation actions are taken to preserve a record of the affected resource.

Typical mitigation measures include:

- * Limiting the size of the undertaking.
- * Modifying the undertaking through redesign, reorientation of the project site, or other similar actions to minimize site alteration or destruction. Note: If the work is modified to avoid impacts, then the project has "no effect" and is not a mitigation action.
- * Repairing, rehabilitating or restoring the affected property in a manner sensitive to the qualities which make it historically significant.
- * Recovering data through archaeological excavation, analysis, and reporting when archaeological resources principally of scientific value are to be destroyed. (NOTE: Recovery field work must be completed and the results accepted by the DHR/SHPO before the undertaking proceeds within the affected site area. Occasionally this acceptance may occur prior to completion of the analysis and report preparation phase of the project PROVIDED THAT THERE IS A FIRM GUARANTEE THAT A FINAL REPORT WILL BE COMPLETED BY A STIPULATED DATE AND THAT A COPY OF THAT REPORT WILL BE PROVIDED TO THE DHR/SHPO).
- * Documenting (i.e., drawings, photographs and histories) buildings or other structures to HABS/HAER standards, the results of which must be accepted prior to their demolition, substantial alteration, or the like.

Mitigation actions generally result in both technical and popular reports. Mitigation actions may be the subject of "conditional no adverse effect" opinion or a project Memorandum of Agreement (MOA) which specify how the undertaking will be carried out to minimize and otherwise mitigate project effects. The MOA may be a two-party agreement or a three-party agreement. For federally involved two-party agreements, the undertaking agency and the DHR/SHPO are signatory agencies while the Council is a concurring party. In federally involved three-party agreements, the Council also is a signing party and takes a more active role. Other agencies formally participating in the undertaking may be invited to sign the MOA as concurring parties (See 4.17 for more detail).

3.9. Programmatic Agreement.

If an agency has recurring program activities such as those on the National Forests in Florida or in Community Development Block Grant programs, then a Programmatic Agreement (PA) should be prepared to accomplish the systematic, consolidated review of categories of undertakings, rather than continue with individual project reviews, except for those identified in the PA. The involved agency, the DHR/SHPO, and the Council (for federally involved projects) are signing parties for a PA. The PA establishes a framework for expediting the review of routine agency activities (See 4.17 for more detail).

3.10. Categorical Exclusions.

Many agencies have recurring categories of project activities which, because of their nature or location, will always be determined to have "no effect" on significant historic resources. Those agencies are encouraged to work with the DHR/SHPO to identify such activities or undertakings and prepare appropriate documents "categorically excluding" them from DHR/SHPO review. When the activities are federally involved, the concurrence of the Council is required. Such actions reduce needless paperwork by providing what amounts to generic "no effect" determinations for all activities identified for exclusion.

3.11. Use of Significant Sites Limited, But Not Precluded.

The applicability of this section has limitations. There is a distinction between public and private property. Historic preservation laws affect the use of both federal and state property (See ss. 106 and 110 of NHPA and Chapters 253 and 267, F.S., in Appendices). For private property, however, there are no similar constraints unless:

- * human remains and associated artifacts and features are involved (See Section 4.14. Treatment of Human Remains; and, see ss. 872.02 and 872.05, F.S., in Appendices).
- * the activities come under federal or state environmental impact review laws.
- * local zoning, building, historic preservation or related ordinances apply.

Thus, unless the above circumstances apply, a property owner may destroy a significant archaeological site or historic structure on his/her property using her/his own resources. Environmental review laws constrain the decisions of involved federal or state agencies for project activities coming under their jurisdiction.

Owner awareness of the importance and value of historic preservation, persuasive reasoning, tax benefits, and community sentiment are all essential ingredients in protecting sites on private property. If a significant resource cannot otherwise be protected, public acquisition of the property or a conservation easement may be necessary to assure its protection.

Measures to protect significant sites are often part of the conditions for approving development projects. Such conditions rarely prohibit use of the land occupied by an archaeological site or require that a historic structure must be restored and used as a museum. Rather, the categories of use are such that they preserve or enhance the historically significant elements of the site(s) and/or structures in question. **The community stewardship and positive contribution of a developer in preservation actions should be publicised, rather than the compliance review aspects of such activities.**

For archaeological sites, some of the categories of use which most frequently occur in development project approval involve:

- 1) designation of the site areas as greenbelt, nature preserve, or passive recreation areas (including site interpretation); and
- 2) inclusion within filled or otherwise undisturbed portions of golf courses or parking lots, or other such uses which do not disturb the existing ground surface or which restrict any such ground disturbance to depths shallower than 20cm (8") above the uppermost identified undisturbed zone of site cultural material. Thus, for more deeply buried sites there are many kinds of shallow or exposed construction activities which may occur without adversely affecting underlying significant archaeological resources.

One of the conditions often required for project approval when preservation in-place (rather than data recovery actions to mitigate project impacts) occurs is the recording of deed restrictions or easements for the affected property (See ss. 193.501(6)(f), 193.505 and 704.06(3), F.S., in Appendices). When such actions are initiated by the property owner (rather than as an administrative down-zoning action), in addition to a lower property tax valuation (actually a tax deferral) for the restricted area, if the restricted property is conveyed to a conservation organization or governmental body, the difference between the prerestricted value and the restricted value may be (an eligible donation) deductible from individual or corporate income taxes. Consultation with knowledgeable legal counsel is urged. Copies of any such restrictions or easements must be provided to the DHR/SHPO to evidence compliance with preservation conditions of project approval.

If they have not already been claimed as a business expense, data recovery costs may be tax deductible if the recovered artifacts and other cultural material (, as well as project field notes and copies of project reports,) are donated to an accredited museum or similar agency. Again, consultation with knowledgeable legal counsel is urged.

If a site preservation area later is reconsidered for development, as a condition of project approval, it is recommended that the requirement to mitigate project impacts be considered to have been deferred and not waived. For example, if a golf course is redesigned such that previously preserved site areas will be adversely affected, site mitigation would be required. For this reason, the locations of preserved site areas generally are marked on site development maps to assure that their presence is not overlooked in any ongoing grounds maintenance, landscaping, or development actions, and to facilitate protective monitoring efforts. Likewise, project approval documents may include penalty provisions (equal to or greater than the mitigation costs) for violations of preservation conditions.

For historic structures and associated features sensitive development uses generally involve restoration, rehabilitation or maintenance activities (and sensitive new construction) designed to preserve those qualities which make them significant. This generally involves compliance with the provisions of the **Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings** (Standards for Rehabilitation). Because there has been confusion on this issue, it is stressed that compliance with the Standards for Rehabilitation IS NOT restoration to a property's historic condition and appearance; it IS work which embodies the concept of sensitive adaptive use to bring a property up to code and adapt it to current needs while retaining those architectural features, landscaping and other details which contribute to its historic character and uniqueness. It also can accommodate sensitive new construction in the vicinity of the significant historic properties.

Preservation easements (in this case facade easements) for historic structures can result in a tax deductible donation. Sections 193.505 and 704.06(3), F. S., and the current federal tax law regarding donations should be consulted. For income producing properties listed in the National Register, compliance with the Standards for Rehabilitation is required for eligibility for federal Investment Tax Credits. The DHR/SHPO maintains a staff capable of providing technical assistance in preservation matters, although they cannot provide tax counseling. For further information, please contact the Architectural Preservation Services Section at (904) 487-2333; FAX (904) 488-3353.

3.12. Summary of Compliance Review Process.

For most projects received by the DHR/SHPO, the information provided by the project applicant (including a records check of the data contained in the **Florida Master Site File** and consultation with others familiar with area resources) will be sufficient to permit project review. From such information, it often is concluded that a project is unlikely to affect significant historic resources because of its location, the extent of previous ground disturbing activities, its nature or design. Furthermore, when site assessment surveys are recommended and sites are located and assessed, many of the identified sites are:

- * determined not to be significant; or,
- * determined to be significant, but located such that their preservation can be accommodated with little or no change in project plans.

Under such circumstances, an undertaking may proceed as planned, unless unexpected (potentially) significant archaeological resources and/or human remains are discovered during construction (See 4.13. Emergency Discovery Situations and 4.14. Treatment of Human Remains).

Some sites, determined to be significant on the basis of the survey data, are located where they will be affected by project activities. For such sites, additional consideration must be given in the manner discussed in 3.7.5.2 through 3.11 above.

In addition to the Florida Master Site File, data sources which may be used in evaluating project impacts to historic resources include:

- * Certified Local Government documents;
- * local government comprehensive plans in which historic resources or resource areas have been identified in a manner which parallels that of the DHR/SHPO;
- * the historic preservation provisions of Regional Policy Plans;
- * Florida's Comprehensive Historic Preservation Plan which defines historic contexts and associated data used in determining site significance;
- * the publications of local historical and anthropological organizations, such as the Florida Anthropological Society and its chapters or the Florida Trust for Historic Preservation;
- * consultation with those knowledgeable in area resources.

By consulting such documents and contacting local preservation boards and knowledgeable individuals, DHR/SHPO comments can be anticipated.

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**4. Standards for Conducting, Reporting, and Reviewing
Archaeological and Historic Site Assessment Survey Activities**

4.1. Introduction.

Archaeological and historic site assessment surveys are conducted to locate and evaluate historic resources in project development areas in order to provide information needed to comply with environmental laws and regulations. Since they are in response to regulatory requirements, (1) field methodology and reporting must meet **minimum** professional standards, and (2) the evaluation of such work must follow **uniform procedures**.

The following text has been prepared to accomplish these goals. It provides a basis for preparing scopes of services and contract work bids by establishing uniform minimum professional standards by which to judge the adequacy of the work performed and that of the resulting report.

4.2. Selecting a Qualified Consultant.

When an archaeological and historic site assessment survey is performed, it is essential that adequate historic resource identification and evaluation data are collected and reported to meet the requirements of Federal and State environmental laws and regulations, as well as to satisfy local government comprehensive planning and specific land management planning needs. The field methodology guidelines and reporting standards contained in this document establish **minimum** standards designed to achieve that goal. To assure that complete and sufficient fieldwork, analysis and reporting occurs, it generally is essential that the work be performed by qualified individuals.

Qualified individuals are those:

- (1) who are familiar with the kind and character of archaeological sites, historic structures, and the like known or expected to be present in that portion of Florida in which the proposed project occurs; and,
- (2) who, because of that familiarity, are capable of (a) locating such sites and properties and (b) recognizing when and explaining why each such site or property is or is not significant in terms of National Register eligibility criteria (See 36 C.F.R. 60.4 in Appendices) as they relate to the historic contexts to which they belong (See Florida's Comprehensive Historic Preservation Plan); and,
- (3) who are capable, when necessary, of recognizing and adjusting field methodology to take into account environmental changes that have occurred as a result of sea level and water table changes, as well as changes associated with historic agricultural, drainage, mining, and similar extensive land use practices; and,
- (4) who, when such resources are present, have demonstrated an ability, as appropriate, (a) to determine the horizontal and vertical limits and integrity of an archaeological site, and to identify and analyze associated artifacts and features; or, (b) to identify, describe, map, photograph and illustrate the architectural details of historic structures and associated features, and to conduct and report the findings on any pertinent historical events, individuals or the like associated with the structures; and,
- (5) who have demonstrated an ability to report on all of the above both within the report text and in new and updated FMSF site forms accompanying such reports in a manner meeting the reporting standards contained in Chapter 4 of this document.

Professional training and experience usually are necessary for someone to satisfy the above qualifications. The public sometimes misunderstands what distinguishes a professional archaeologist, historian, architectural historian or historical architect from individuals with a hobbyist or avocational interest in the subject of the profession. As with most professions, nearly anyone can understand the basics of a profession, but intensive training is required to be considered a professional. The requirements for such professional designation are contained in 36 C.F.R. 61, Appendices A -- Professional Qualifications Standards (See 36 C.F.R. 61 in Appendices), and in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (Federal Register 51(46):8248-8252, March 10, 1986).

These Federal standards are used by the DHR/SHPO to evaluate the professional qualifications of individuals (1) applying to perform archaeological research on state-owned or state-controlled lands and sovereignty submerged lands (See 267.12, F.S., and 1A-32, F.A.C.), (2) conducting historic preservation work on state or state-assisted projects of state agencies of the Executive Branch (See 267.061, F.S., and 1A-37, F.A.C.), (3) conducting historic preservation work in compliance with Federal and State environmental review laws and regulations, and (4) conducting historic preservation work funded or assisted by historic preservation grants administered by DHR. Evaluation of such qualifications is required by the U.S. Department of the Interior, National Park Service (NPS) as a condition of continued approval of Florida's (and other states') historic preservation program.

It is noted, however, that the NPS does not require that all historic resource site assessment survey work be conducted by professionally qualified individuals. What is required is that the fieldwork, analysis and reporting be conducted by professionally qualified individuals or that the work be reviewed by professionally qualified SHPO staff and certified by such staff to meet professionally acceptable standards for the identification, evaluation, analysis, recording and reporting aspects of such work.

Nevertheless, it is recommended that project applicants have professionally qualified individuals perform site assessment surveys and prepare the resulting reports. It is further recommended that the project's Principal Investigator personally supervise the fieldwork by being on-site not less than 25% of the fieldwork period. Work deemed to be inadequate (because it fails to comply with the fieldwork, analysis and reporting standards

contained in this chapter) may result in project delays and additional cost to perform work which should have been done initially. Hiring professionally qualified individuals limits the risk of such occurrences.

The DHR/SHPO is limited in the type of assistance which may be provided to project applicants seeking to hire preservation consultants. Upon request, staff may distribute lists of consultants provided to the agency by professional organizations, such as the Florida Archaeological Council. However, staff may not comment on the relative qualifications or past performance of the listed individuals. The list is informational and does not constitute a recommendation for nor certification of the performance of any of the listed individuals. Further, a project applicant may choose to hire individuals not included on such lists. In all instances project applicants are urged to seek sealed competitive bids from consultants and, prior to making a final selection, to investigate the past performance of bidding consultants by contacting previous clients.

DHR/SHPO Compliance Review staff can assist in the review of project scopes of work and in the review of consultant responses to requests for proposals. Comments on such documents will focus on their completeness and sufficiency with respect to proposed field methodology. In all instances, it is expected that the resulting reports will satisfy the standards contained in Chapter 4 of this manual. DHR/SHPO staff will not comment on project costs, beyond urging that competitive bids be obtained and cautioning that a disproportionately low bid may (but not necessarily) mean that the consultant is (1) unfamiliar with an area's historic resources and conditions or (2) attempting to do less than the minimum effort required to assure that all such resources are located, bounded vertically and horizontally, and properly evaluated, or (3) attempting to obtain the project contract with a low bid with the intent to later compel a contract amendment to complete the project to an acceptable standard.

When in doubt, please contact DHR/SHPO Compliance Review staff when the work to be performed is in response to staff environmental review recommendations. Their telephone number is (904) 487-2333; FAX (904) 488-3353.

4.3. Archaeological and Historic Sites: Separate But Equal.

In practice, a site assessment survey involves both prehistoric and historic site inventory and evaluation, and results in a single consolidated report. Because of a human tendency to reoccupy former sites, historic structures and districts often have underlying, non-associated, earlier archaeological resources in addition to associated historic archaeological components. Thus, a survey of an area containing historic structures which fails to identify and evaluate archaeological resources cannot be considered adequate, except in the more limited framework of the structural evaluation. Likewise, a survey which addresses the archaeological resources without identifying and evaluating the historic structures in the area is not considered to be complete and sufficient. Further, it is possible for a structure to be so altered or deteriorated that it may not be considered architecturally or historically significant; however, its grounds may contain significant archaeological resources. Caution must be used in qualifying statements of significance and in asserting the comprehensiveness of survey efforts.

While both archaeological sites and historic structures and associated features should be considered equally in site assessment efforts, most large area development projects occur in undeveloped areas which lack existing historic structures. Thus, at least in rural areas, most site assessment survey work deals with archaeological resources. Archaeological site assessment and historic structure assessment differs sufficiently to merit separate treatment in this manual; however, the reporting requirements are presented in a merged format, with notations when the lack of either resource type merits the omission of certain categories of data.

4.4. Archaeological Site Assessment Survey Field Methodology.

Much of the archaeological site assessment survey field methodology considered adequate in the past is now considered to have been inadequate with respect to locating, bounding, and assessing archaeological sites. The

problem stems from the manner in which such surveys were conducted and the presumptions of the survey archaeologists of the time. Presumptions often made in the absence of archival or other background work.

Examples of changing field methodology and assumptions are as follows:

4.4.1. Coastal Shell Middens. Historically these sites have been in locations selected for resettlement by Europeans and others. Thus, historic home sites and garden plots ("shell fields") were located on such sites. Further, many large sites were mined for shell to use in road construction and other projects. It was presumed for years that such sites were too disturbed to yield useful data. Yet, we now recognize that historic house sites and garden plots, which disturb as much as the upper 30cm (12") of midden, leave the underlying content of most sites relatively undisturbed. Likewise, we have learned that shell mining, often left the earliest midden features and marginal areas of the site undisturbed - both of which might contain important information. Indeed, much of Florida's early ceramic seriation studies were based on observations of exposed profiles at mined sites.

Finally, Europeans and other Old World colonists were not the first to use coastal shell middens as garden plots. Native Americans also cultivated shell fields; thus, house sites and other features may be located inland, adjacent to but not on such middens. The "site area," in such circumstances, extends beyond the limits of shell middens, although most previously recorded site boundaries are limited to the shell midden boundaries (and, therefore, may or may not accurately bound the site limits).

Mechanical augers and probe rods may be used to establish the location and limits of shell midden deposits, *per se*; however, the overall "site" area has not been bounded adequately until the area toward the interior has been investigated to determine the presence or absence of associated house post molds, hearths, and similar features. Furthermore, associated burial mounds or cemeteries often are located toward the interior of many larger shell village middens. Indeed, the latter are often in locations which would be considered of "low" site occurrence probability for village site locations. Also, there may be wetland components of coastal midden sites. Finally, no assessment of site integrity or characterization of site remains can occur without formal testing. This generally will consist of at least one 50cm x 50-100cm unit excavated to pre-midden levels per 900-2500 square meters in sites that consist of shallow, scattered midden deposits. Fewer units are permissible within the boundaries of thicker (over 50cm deep), large shell middens which appear to be relatively uniform in composition over the entire site area. However, as with shallower middens, the potential for associated site areas outside the shell midden portion of the site must be assessed

4.4.2. Historic Archaeology in Urban Settings. In the past, it was assumed that archaeological resources in most urban settings were too disturbed to yield useful information from excavation. However, the excavation of such resources throughout Florida (e.g., Pensacola, St. Augustine, Tallahassee, Tampa, and Miami) and elsewhere has demonstrated that such remains are not as disturbed as previously presumed. Trash disposal in back and side yards, as well as other features, present an opportunity to compare the archaeological results against historical journals and other documents.

Indeed, historic archaeology is a specialized subdiscipline which focuses on both rural and urban settings, and has developed specific site evaluation techniques. Historic documents should be used as an aid to developing sampling strategies in urban settings. While metal detectors and augers may be used to help locate site features, adequate site assessment requires formal testing -- generally at least one 1m x 1m unit excavated to culturally sterile levels, per 400-900 square meters, depending on the expected features in the area being investigated. Such site assessment units generally should NOT be placed within the known or suspected boundaries of historic frame structures, unless they were destroyed by fire, as few artifacts, trash or well features, for example, will be found in such locales. The locations selected should be based on the archaeologist's knowledge of historic land use patterns and historic documents, and should be designed to maximize data recovery. It is understood that prehistoric site remains often underly more recent historic archaeological site components.

4.4.3. Dark Earth Middens in South Florida. Most archaeological sites in the Everglades-Big Cypress Swamp area of South Florida are composed of organic humus with bone and shellfish remains, as well as artifacts, other features, and associated human remains. In the past, because of the shallowness of the limerock in that region, archaeologists misevaluated site presence when informal shovel testing encountered concreted zones mistakenly interpreted as the underlying limerock. The concretion zones are, in part, the result of fire-slaked bone and shell combined with organic leaching of such materials to concrete at the top of the water table. While more recent archaeological resources occur in the humus above such zones, Archaic period site remains often occur within and below such concretion zones. Special care must be taken to evaluate such sites, and the survey methodology must be adjusted to account for concreted zones.

Shovel testing and auguring, and even probing in more densely occupied sites, may be used to establish site boundaries. At least one 50cm by 50-100cm unit per 400-900 square meters is recommended to evaluate site significance. Nearly all recorded dark earth midden sites are, perhaps not unexpectedly, located on hammock tree islands in the Everglades and Big Cypress Swamp areas. On the larger tear-drop shaped tree islands, the northern ends generally contain evidence of occupation. Care must be given in evaluating dark earth midden sites, since human burials often occur within such site areas or in associated burial mounds which often are located on the south side of the midden. The procedures contained in Chapter 872, F.S. (Offenses Concerning Dead Bodies and Graves) MUST be followed when human remains are discovered (See 4.14. Treatment of Human Remains). Also, dark earth middens in this environment generally have wet site components which need to be identified and assessed. The wet components are generally adjacent to the upland site area and frequently associated with canoe landing locations.

4.4.4. Deep Sandy Interior Environments. For many years, the amount of relatively recent alluvial and wind blown soil accretion in Florida and other coastal states was not recognized. Survey archaeologists presumed that evidence of sites in such environments could be found exposed on or very near the present ground surface and that the quantity of artifacts found reflected site use intensity. There often was a further presumption that many artifacts implied potential significance, while few artifacts meant non-significance. Because of these assumptions, archaeologists relied on ground exposure (e.g., plowed fields, dirt roads, fire breaks, gopher tortoise holes, and erosional gullies) to locate sites and dug few test pits, or judgmentally dug shovel tests which rarely exceeded the depth of the shovel blade. The result was that few sites were located, and that most located sites were classified as insignificant lithic scatters, disturbed by roots, animals and other natural factors.

Furthermore, the problem was compounded by failing to consider environmental changes associated with rising sea levels. Thus, buried sites in presently low lying saturated sandy soil areas were not discovered because such locales were not investigated. Likewise, because of leaching of sandy soils, easily identified stratigraphic features often are not present. Also, recent environmental changes resulting from artificial drainage projects resulted in formerly wet areas being considered too dry to have been suitable for occupation. Finally, shallow shovel tests of less than 50cm in depth and small test unit size (30cm diameter or square holes, or smaller) are less likely than larger/deeper (at least 50cm square units by at least 1m deep) units, screened through at least 0.625cm mesh hardware cloth, to adequately identify and characterize sites types and distribution represented by scattered concentrations of lithic remains. This conclusion has been made apparent by the results of several projects using larger, more closely spaced test units. Thus, areas formerly considered to have low site occurrence probability must be reevaluated in light of current data.

Today, sampling strategies in sandy environments are expected to be based on larger, more closely spaced test units in proximity to present or former water resources. Furthermore, lower lying areas currently in wetland edges, or even underwater when sinkholes, springs, or prairie-lake environments are involved should not be discounted without testing. The nature of the testing is governed by environmental conditions and expected resources. The assessment of sites located in deep sandy environments generally requires at least one 50cm x 50-100cm test unit excavated to culturally sterile soil for every 900 square meters of suspected site area. Field methodology should consist of a mixture of fixed transects and judgmentally placed units, and should be structured to account for environmental changes. Gross bioturbation (as an explanation of diminished site integrity) must be demonstrated, not presumed.

4.4.5. Wet Sites and Wet Components of Dry Sites. Wet sites and wet components of dry sites represent a class of site types which, until recently, have not received adequate attention. These sites were formed in wet conditions or in upland areas which are now submerged or at least in saturated soils. They generally are associated with rivers, lakes, springs and sink holes, as well as submerged coastal areas. When the environment remains saturated, preservation of organic cultural remains is favored. When water tables fluctuate, organic preservation is poor; however, if the site is sealed under wetland conditions gross bioturbation of the site is less likely. It is essential that paleoenvironmental conditions be considered when planning research strategy for sites in or near wetlands or in submerged contexts.

In river valleys, such as the Apalachicola River Valley, sites may be deeply buried under one to two (or more) meters of alluvium. Elsewhere, they occur in now submerged river valleys (the deep water bays of Florida). Likewise, the remains of relic river channels may be observed in Florida's nearshore coastal areas, especially in the Gulf of Mexico. In all of these circumstances, sites tend to occur most frequently along natural levees, particularly at the confluence of streams or springs tributary to the river. These are relic locations similar to those of more recent occupations. (The edges of escarpments overlooking river bottomlands, particularly adjacent to upland drainages, are also favored locations, as are other locations which maximize the number of environments which could be utilized.)

Wet sites around lakes tend to occur near deep water basins and near points where springs or streams enter the lake, or where streams exit the lake. Older sites often are masked by more recent sites or are found in now-low lying lake edge terraces. Sinkholes and springs, throughout time, have been points of occupation or exploitation. The sinkholes served as oases in the then drier interior uplands and as sources of fresh water in the now inundated nearshore coastal plain areas. Some of today's lakes were once shallow wet prairies, while others were swamp basins. Paleoindian, Archaic and more recent occupation occurred around these features. Sites around sink holes, springs and spring-heads generally occur at points of access to such features. Both upland and submerged features are expected. Field methodology must be appropriate to the environment and expected site types.

Because of their relative lack of alluviation, sinkholes and river channels in karst environments have a disproportionate number of discovered sites. This does not mean that other environments were essentially less occupied, but rather that soil accretion in non-karst environments makes it more difficult to locate sites.

Wet sites associated with upland sites include garbage accumulations from the associated upland site. Historic wharfs and landings also often have associated upland components. The examples are quite varied from region to region. Field methodology must be based on a review of the literature to determine the kind and character of wet sites expected to occur in any given region. The use of backhoes as part of a sampling strategy is permissible in conditions where shovel testing is not practical. Soil cores also may provide useful data. Because of the wide range of site types and circumstances, proposed field methodology should be developed in consultation with DHR/SHPO Compliance Review staff.

4.4.6. Field Methodology Conclusions. Other examples of different site types could be given. Obviously, field methodology must be based on the types of sites known or expected for the current and/or paleo environment in the project area. Field Methodology must be sufficient to leave little doubt that all or nearly all sites were:

- 1) identified;
- 2) bounded horizontally and vertically;
- 3) presented in the resulting report at a level sufficient to permit (a) an assessment of their National Register eligibility, and (b) permit recommendations of appropriate Site treatments; and,
- 4) Recorded and submitted to the Florida Master Site File in an acceptable form (i.e., on standard FMSF forms with photographic and map attachments).

When in doubt, please contact DHR/SHPO Compliance Review staff to discuss appropriate field methodology for the project area. However, such informal discussions **do not** constitute official agency opinions. Official agency opinions are written responses to written submissions. The time to locate and identify significant sites is before, not during, construction. It is important to design survey field strategies to avoid construction discoveries.

There are several types of archaeological survey field methodology. In most instances, a combination of judgmental and systematic sample testing along transects is probably most efficient. A survey which uses only systematic sampling at fixed transect intervals (i.e., excavation only at fixed grid intervals) generally will be considered inadequate, often failing to locate sites which would have been located with common sense/judgmental sampling. In addition, simple systematic testing incurs the risk of falling in between the intervals of regularly spaced cultural features. A stratified systematic but unaligned strategy is recommended. Likewise, a survey which relies on judgmental work alone fails to check "unexpected" site environments, and thus may fail to identify significant historic resources.

An archaeological site assessment survey which fails to use subsurface testing, except for some categories of marine magnetometer and side-scan sonar survey or resistivity studies, generally will NOT be acceptable. Excavated material should be screened through 0.318cm or 0.635cm (1/8" or 1/4") hardware cloth in sandy environments, or through larger screen with a small nested underscreen at shell middens to facilitate artifact recovery. With the exception of dark earth middens in South Florida and dense, continuous shell middens (although the associated activity areas outside of shell middens are often misevaluated), sample testing throughout Florida has demonstrated that 30cm x 30cm (or smaller) subsurface units dug to less than 50cm in depth consistently fail to provide adequate site data when compared to the results larger units (50cm x 50cm or larger) dug to 100cm+ placed in the same locales. The increased number of smaller test units, while offsetting the deficiencies of the smaller test unit size, is not as important as the quality of those tests. Evaluations based on the more limited data are questionable. Further, the use of soil augers as the primary means of subsurface testing is unacceptable. Thus, except in dense, easily defined shell or dark earth middens or at easily recognized earthworks and historic ruins, excavating a large number of small (e.g., 30cm x 30cm x 50cm) test units is NOT more effective than excavating fewer tests of adequate size.

Based on the above considerations, the following general conclusions and recommendations are offered to those planning to conduct fieldwork in Florida. With the exception of dense coastal shell middens, cultural remains and associated artifact concentrations in most areas in Florida are only around 20-30m in diameter or else are composed of many such concentrations scattered over the "site" area. Test spacing that exceeds 30m intervals in areas deemed likely to contain small sites or artifact clusters (characterized by little more than a light artifact scattering) will be considered inadequate, unless it is supplemented with judgmental testing deemed likely to offset the limitations of the structured testing intervals. The spacing of testing intervals must be based on ranked site occurrence probability zones (i.e., high, medium and low) for the area investigated. A review of the data in the Florida Master Site File and studies on the kinds of historic resources known to occur in the geographic region being investigated is essential to establish site probability ranking. Again, environmental changes must be considered in the development and conduct of field methodology. Sampling intervals in all instances must be based on site expectancy for the specific environment (including consideration of paleo-environment and recent (within the past 75 years) land use changes. Test intervals in high site occurrence probability zones generally should proceed at 25 meter intervals, while those in moderate probability areas generally should proceed at approximately 50 meter intervals. Testing in low probability areas should generally proceed on a judgemental basis with approximately ten percent of such areas subjected to testing. Judgmental testing also should always be employed in areas of high and moderate site potential to supplement fixed transect interval testing. Finally, it is recognized that the occurrence probability of different site types varies (i.e., the low occupation site probability zone often is the high probability area for burials associated with occupation sites). Thus, it is important to structure field investigation methodology to assure that isolated Woodland burial mounds, charnel ponds, and the like are not overlooked. Likewise, wetland site components occur in low site occupation site probability areas.

Site assessment survey efforts must be structured to locate and evaluate most, if not all, of the sites located in the project area. However, it sometimes occurs that when recovered site material is analyzed it is determined that insufficient data exist to make a final evaluation judgement on some sites. In such circumstances, additional work is needed to collect the necessary data. This work generally consists of a limited amount of test excavation to fully characterize and evaluate the significance of the involved sites.

4.5. Archaeological Test Excavation to Evaluate Significance.

Archaeological test excavation projects are conducted when an archaeological site (1) appears to be significant on the basis of site assessment survey results, but for which there are insufficient data to make a final determination of significance; or (2) has been deemed significant on the basis of surface features, such as mounds or historically significant structures, but for which there is not sufficient data on the associated below surface archaeological features to determine their significance. Since the purpose of a site assessment survey is to locate, bound, and assess the significance of sites, including subareas of sites, projects should be designed to minimize the circumstances under which subsequent test excavations must occur.

While prehistoric burial sites and historic cemeteries represent a special class of site with distinct research and testing goals, generally, the goal of archaeological test excavation projects is to determine:

- 1) the horizontal and vertical dimensions of a site,
- 2) the historic contexts and their components represented at the site, including an assessment of the chronological placement of the period(s) of site occupation,
- 3) apparent site function(s) based on type and distribution of artifacts and associated features keyed to historic context components,
- 4) an assessment of site integrity, and
- 5) an assessment of the data potential and related research questions which might be answered through site excavation. (Note: Many pertinent research questions have been identified in Florida's Comprehensive Historic Preservation Plan for each historic context.)

In other words, the goal is to determine site integrity and demonstrate how recovered data could contribute to an understanding of the area's prehistory or history in terms of National Register eligibility criterion D. Site significance also may be based on association with historically significant events or individuals, or structural or engineering significance, although information pertinent to such criteria generally is not obtained through archaeological test excavation.

When archaeological test excavation is conducted to determine whether a site is eligible for listing in the National Register, the field methodology must be structured to gather sufficient data to make a final determination of significance (e.g., the site's potential to contribute further to our understanding of the archaeological culture) based on known site data (e.g., a synthesis of pertinent FMSF data), and then a testing strategy must be designed and implemented to recover data to answer outstanding research questions. These data must be reported in detail sufficient to document conclusions. Site assessments also include a large scale (1"=200' or 1"=100') map or aerial photograph marked and labeled with site boundaries, permanent reference points or datums, positive and negative artifact or site feature presence test or excavation units, and major modern cultural and environmental features. Both natural and cultural stratification in test units should be reported in narrative and/or illustrative form.

Field methodology should maximize data recovery, since site destruction generally follows archaeological test excavation in which it is concluded that (1) the site is not considered significant, or (2) it is significant but the level of work conducted during the testing phase recovered sufficient data to mitigate project impacts to the

affected site. On the other hand, if testing only samples a site's capacity to yield significant cultural data, then test excavation results will form the basis for planning salvage excavation activities, unless the site is set aside in a permanently designated preservation area.

It is not uncommon for site assessment work to integrate test excavation work into a single effort resulting in a single report. The reports resulting from these activities are critical to the project review and assessment process. The DHR/SHPO evaluates site significance, project impact, sufficiency of survey or data recovery techniques, and recommendations deriving from information in project reports. The information contained in such reports must, therefore, be adequate to satisfy historic resource assessment data needs, and **MUST** be provided to the DHR/SHPO for review and comment to complete the project review process.

4.6. Archaeological Salvage Excavation.

Archaeological salvage excavation occurs when a significant/National Register eligible site will be affected adversely by project activities. **If only part of a site area is affected, salvage work generally will be restricted to the affected site area if adequate measures will be taken to protect and preserve the remaining site area.** The purpose of such work is to mitigate (i.e., offset the loss resulting from) a project's adverse effect on a significant site by recovering the data which would be lost by the site's destruction.

Archaeological salvage excavation occurs when it has been determined that preservation is not possible. Except in those instances when portions of the affected site area are set aside for preservation, such projects generally represent the final opportunity to recover the data contained in a site. Projects are designed to maximize data recovery and to answer specific research questions on the historic resources represented at the affected site. Further, data recovery methodology is tailored to specific site conditions, material and environment. It is acknowledged that with continuing technological innovations, it is not practical to itemize all possible data recovery techniques in this manual. Rather, consultation with DHR/SHPO Compliance Review staff and others knowledgeable in specific historic resources and associated historic contexts is essential. Some guidance, however, may be offered, and is reflected in the report content outline (See 4.11).

4.7. Historic Structures and Features Site Assessment Field Methodology.

An age of 50 years or greater usually must be attained for a structure and associated features to be considered historic and to merit evaluation of its historic significance (See 36 CFR, Part 60 in Appendices). However, properties less than 50 years old may be considered to be historically significant (See the copy of National Register Bulletin 22, "Guidelines for Evaluating and Nominating Properties That Have Achieved Significance Within the Last Fifty Years," in the Appendices). Also, in evaluating the significance of historic structures, the proposed treatment of a property has too often influenced significance assessments. The two issues are separate and **MUST NOT** be confused.

Historic structures and associated features are quite varied and include more than residential, public, and commercial buildings. Historic roads, battlefields, landscapes, bridges, various types of mills, smoke houses, barns, corn-cribs, monuments, docks, blacksmith shops, carriage houses, wells, outhouses, dumps and the like also must be considered; but too often such secondary structures have been overlooked in past survey efforts.

Failure to evaluate the significance of a historic structure or secondary features in a surveyed area is particularly important. The exclusion of an identifiable historic structure or feature from a National Register nomination or eligibility determination (if such features are known to exist) generally is taken to imply that (1) the excluded feature is not significant or (2) it is not a contributing element of the involved property. Likewise, failure to describe ALL historic structures and associated features, and to discuss the reasons why each is or is not considered significant generally will result in the project site assessment report being considered inadequate.

The above factors are important considerations in subsequent compliance review assessments of project impacts to National Register eligible properties. Compliance Review staff must be careful in reviewing the information in older survey reports, especially when questions have been raised concerning the significance of "unreported" historic structures located within a project area. The problem can be avoided if all structures have been reported to at least the level of the Historic Structures Form of the **Florida Master Site File**. The client is paying for a **COMPREHENSIVE** site assessment survey, and it is essential that the DHR/SHPO receive sufficient site data to permit agreement with the conclusions represented by the report's author(s). Without such data, the project surveyor's conclusions regarding each property's significance are not substantiated.

While historic structures are often the focus of historic resource surveys in urban settings (where archaeological resources have often been overlooked), the reverse is frequently the case in rural settings. The purpose of a site assessment survey is to identify and evaluate the entire realm of historic resources, including all types of prehistoric and historic archaeological sites, historic structures and associated features.

When dealing with historic structures and associated features, biases in significance evaluations based on social order and similar factors must be avoided. The mansion is no more important than a cook's or worker's cottage or shack. Each must be evaluated in its own right and considered as part of a complex. Likewise, in addition to evaluating the individual merits of a property, the possibility of individually indistinct properties having merit/significance as contributing elements of a historic district also must be considered. **All of the National Register eligibility criteria contained in 36 CFR 60.4 must be considered.** Finally, the issue of site significance must not be influenced by consideration of possible or proposed treatments. Thus, a deteriorated structure which is among only a few examples of its type may be considered National Register eligible, while documentation prior to demolition (rather than rehabilitation) may be considered the appropriate treatment. The likely or planned demolition of a structure is not grounds for determining it not to be significant.

Florida Master Site File site forms must be completed for all identified historic structures and associated features, whether or not they are considered by the project surveyor to be significant in terms of the criteria for listing in the National Register. The site data recorded as a result of a site assessment survey often will be the only information reported on structures determined not to be significant. Comparative statements by the project surveyor asserting, for instance, that a structure is not significant because there are better examples of its type or that it is significant because it is the best example of its type must be substantiated by data on the properties upon which the comparison is based (i.e., a review of the FMSF indicates that there are only ## other examples of the resource being evaluated). Thus, at least minimum site form data must be presented for all historic structures so that the basis for evaluation of significance/non-significance is documented. (Note: National Register nomination surveys are distinct from site assessment surveys, since the former do not require site form data for non-contributing properties. However, that omission also limits their usefulness in compliance review decisions, unless there is evidence that the DHR/SHPO was provided data sufficient to concur with the conclusion of non-significance for the omitted properties.)

The **Florida Master Site File** form (with attachments) information, along with other information included in the site assessment survey report, will form the basis of evaluating (1) the completeness and sufficiency of a site assessment survey report and the data upon which it is based, (2) recommendations for further site evaluation (if necessary), and (3) recommendations for the kinds of treatments considered appropriate for identified significant properties. In addition to completed **Florida Master Site File** site forms, that portion of each report identifying historic structures in the project area must contain:

- 1) a map, generally referred to as a base map, of the survey area identifying the location of all historic structures (those older than 40-50 years) and associated features, whether or not they are considered to be significant by the historic resources surveyor. However, the historic properties should be coded to distinguish between those properties considered to be individually significant, those considered to be significant only as contributing properties in a potential historic district, and those considered not to be significant. For interpretive purposes, the map also should depict parks, vacant lots, and non-historic structures so that the boundaries of any potential historic dis-

tricts may be defined;

- 2) a photographic record of principal exterior views of all historic structures identified to street address, construction date (known or estimated), style and condition. (This photographic record must be keyed to the base map and listing of inventoried properties); and,
- 3) a listing of inventoried structures identified on the survey base map and in the photographic record. This listing must be keyed to the base map and photographs, and identify properties by street address, date of construction (known or estimated), architectural style or type, condition, and significance (i.e., considered to be significant individually or as a contributing property in a historic district or multiple resource inventory area; or, considered not significant).

NOTE: Florida Master Site File numbers must be indicated on the maps, photographs and lists. FMSF site file numbers will be assigned on the basis of preliminary data in advance of receipt of the survey report and site forms for newly recorded sites. Please contact the FMSF staff at (904) 487-2299; FAX (904) 488-3353 for assistance.

4.8. Historic Structure Significance Evaluation Questions.

Sometimes it will not be clear whether a structure and associated features are significant/National Register eligible. This most often occurs (1) when the historic events associated with a property of marginal architectural significance are incompletely understood, or (2) when a resource type is common in a region more familiar to the researcher and not recognized as being uncommon in the area being investigated. Under such circumstances, additional research is recommended to collect sufficient data to resolve the problem. Consultation with DHR/SHPO Compliance Review staff and Survey and Registration staff is recommended to determine the type of data needed to permit a final evaluation of significance. Additional background research in local historical documents and consideration of FMSF site type distribution data can help avoid significance evaluation problems.

4.9. Mitigation of Impacts to Significant Structures and Features.

There are two ways to mitigate adverse project impacts to significant historic structures and associated features. First, a project may be designed to minimize project impacts on such properties when they are to be retained and integrated into new project design. The Manual of Mitigation Measures, prepared by the Advisory Council on Historic Preservation, provides guidance in this process. Landscape buffer areas are also options. Second, the resource may be recorded prior to its demolition, relocation or substantial modification through documentation meeting Historic American Building Survey/Historic American Engineering Record (HABS/HAER) standards. The National Park Service administers this program and has issued various HABS/HAER documents. The DHR/SHPO's Architectural Preservation Services Section may be contacted for technical assistance and further information on this issue.

4.10. Site Assessment Survey Report Content Outline.

Site assessment survey reports may vary in content depending upon the particular project, or the terms of a Programmatic Agreement. There is no established minimum or maximum report length. Reports may vary from a few pages to several hundred pages. However, in all instances they must: (1) identify for whom, by whom, when and why the work was performed, as well as the location of the area surveyed (including a project location map); (2) discuss field methodology and its justification; and, (3) present survey findings and conclusions. The Florida Master Site File Survey Log Sheet must be completed and submitted with all reports.

Likewise, Florida Master Site File site forms with attached maps (and photographic attachments for structures) must be completed for all identified archaeological sites, historic structures, and historic cemeteries, whether or not they are considered significant.

Individuals and agencies planning to conduct site assessment surveys are encouraged to contact the DHR/SHPO's Compliance Review staff concerning the particular minimum needs of a specific project prior to initiating survey work or preparing a scope of services to be performed. To avoid misunderstandings which can occur in lengthy unstructured conversations, a written proposal should be provided to serve as the basis for the agency's response. This suggested consultation may be particularly helpful in determining the amount of background research necessary for a project. If deemed appropriate or necessary, please call the "Compliance Review Section" at (904) 487-2333, or schedule to meet with Compliance Review staff on the 4th Floor of the R.A. Gray Building at 500 South Bronough Street, Tallahassee, Florida.

Lengthy site assessment survey reports, including completed FMSF site forms with attachments, should be submitted to the DHR/SHPO Compliance Review staff for informal review in the DRAFT stage to allow for the identification of any problems which may be corrected before submission of the FINAL report for formal review. Site assessment survey reports should be submitted as early as possible in the planning process to permit the DHR/SHPO's comments to be considered in project development. Otherwise, project plans may require costly adjustments to meet DHR/SHPO recommendations.

The following outline has been prepared to guide report preparation and content. While the identified information is important, the order in which it is presented is the decision of the author(s). Specifically, topics may be combined into single chapters, rather than presented separately as indicated in the outline. To avoid confusion in the use of the following outline, topics are separated into REQUIRED and recommended or optional information. Required information MUST be included with every report, unless one of the stated reasons for its exception applies.

4.10.1. FLORIDA MASTER SITE FILE SURVEY LOG SHEET. (REQUIRED)

This completed form must accompany every site assessment survey report, both letter and formal styles. (See Appendices for sample copies or contact the FMSF at (904) 487-2333 [FAX (904) 488-3353] for copies.)

4.10.2. TITLE PAGE. (Recommended for lengthy formal reports.)

This page includes the following information:

- * Report Title;
- * Sponsoring Agency or Organization;
- * Research Organization;
- * Author(s) (Note: The research organization may be the author); and,
- * Date of Report.

4.10.3. ABSTRACT. (Optional)

4.10.4. TABLE OF CONTENTS. (Recommended for lengthy reports.)

This includes any List of Tables and List of Figures.

4.10.5. REPORT TITLE AND AUTHORS. (REQUIRED)

This information must be placed at the top of the first page of report text in both letter and formal reports. It is noted that some firms identify corporate authors. In such instances, the introductory text should include the names of those who actually supervised/conducted the fieldwork, analysis, and report preparation.

4.10.6. INTRODUCTION. (REQUIRED)

This may be the first one or two paragraphs in a letter report, or the first descriptive section/chapter in a formal report.) It includes:

- * A statement of when, why and for whom the work was performed;
- * If not identified on the Title Page, mention of who conducted the field work, analysis and report preparation. Alternatively, this may be included in pertinent report subsections.
- * Mention of the project location, including a general project location map;
- * A general description of the nature and extent of the project;
- and
- * Other information (Optional)

4.10.7. ENVIRONMENTAL BACKGROUND: DESCRIPTION OF PROJECT AREA AND VICINITY. (REQUIRED, except when relatively recent (within the past 75 years) man-made filled land is involved, in which case only the Description of Project Location and Area need be presented)

4.10.7.1. Description of Project Location and Area.

This is a narrative description of the project location. Except for underwater areas off the coast of Florida, project coordinates should be in terms of township, range and section and parts of sections in rural settings and by street boundaries and town/city name in urban settings. It must include a project location map, preferably a USGS quadrangle or similar map of 1:24,000/ 7.5 min. scale for all upland areas (plus a street map in urban settings) with the project boundaries delineated to scale on the map. For underwater areas off Florida's coast, the written description may be in terms of latitude/longitude or loran C coordinates for the survey area corner boundaries, and the map may be a nautical bathymetric chart showing the project boundaries and depicting bottom contours and features. Also, UTM coordinates should be provided for each site location, and for the project corner boundaries, as this information can be used in future digitized mapping programs.

The size of the project tract in acres or hectares must be noted. For powerlines, pipelines, canals, and roads the project corridor length and width should be noted. In such projects, associated construction contractor laydown areas, holding ponds, haul roads and borrow pits are also part of the project impact area.

4.10.7.2. Description of Geologic and Physiographic Features.

This may be a very brief overview to indicate survey conditions and an awareness of geologic conditions. It is not necessary to present the geologic development of an area prior to 50,000 B.P. unless it is of relevance to a project. For instance, where prehistoric and early historic Native American archaeological sites are the focus, geologic conditions over the last 10,000-12,000 years, during which human occupation has been documented for Florida, should be presented. As noted above, this may be omitted when the subject of the study is relatively recent (within the past 75 years) man-made (i.e., filled) land.

Geological information is of particular relevance to archaeological resources, and certainly is a factor in the location of historic structures and related features. However, as noted, the amount of detail necessary in this presentation is minimal in reports where historic structures and related features, including associated archaeological components, are the primary resource, and earlier prehistoric and historic archaeological site remains are lacking.

It is noted that some information identified for inclusion in this section may not be available or pertinent to the kinds of historic resources being investigated. Professional judgment should be used. The following guide is offered:

1. Where native American and early European settlement sites are the focus of research, information of relevance includes topographic features, drainage, ground slope, soils, water sources, clay, hard

mineral outcrops, and other near surface, (ca. pre-1900) exploitable features, the effects of sea level and water table changes within the last 50,000 years, evidence of changes in ecological communities and erosion, and so on.

2. For historic communities established around planned streets, information of relevance includes the relationship of the community's layout to the environment in which it was established as well as adaptations to or changes made to that environment.
3. For underwater or wetlands locales, where submerged terrestrial sites or shipwrecks are the focus of research, information of relevance to wet site location and preservation includes (1) depth below surface, (2) topographic features, (3) types of sediments and rock outcrops, (4) current flow or wave surge conditions, (5) prevailing winds and their seasonality, (6) water chemistry and ambient temperature, (7) the effects of sea level changes and water table changes within the last 50,000 years, and (8) the results of magnetometer, side-scan, and other survey data.

4.10.7.3. Environment: Past and Present Conditions.

The purpose of this section is to provide data on the environmental conditions in which sites do and do not occur. Caution is urged in evaluating altered environments.

This may be a brief summary statement of the present environment to indicate survey conditions and a general awareness of known or suspected past environmental conditions. Information on the paleo-environment may not be relevant to the report and survey methodology, when only Late Archaic and post-Archaic period (after 3000 B.C.) -- especially post-A.D. 1600 -- sites are involved. In the latter circumstances, discussion of the paleo-environment may be omitted. For most projects, only a brief summary of the paleo-environment is required. However, a more detailed presentation is essential when a survey investigates Paleo-Indian to Archaic period site distribution.

4.10.7.4. Historic Land Use Patterns.

This may be a brief presentation to indicate survey conditions and potential site alteration. Only a general overview is required except where land use patterns relate to site integrity and significance issues.

The purpose of this section is to identify known environmental changes and factors influencing site integrity. Please note that without supporting data from formal archaeological testing, asserting gross bioturbation as a factor of site disturbance generally WILL NOT BE SUFFICIENT to declare a prehistoric archaeological site not to be significant. It is recognized that information on historic land use may not be available, in which case the investigator should note its absence and do the best that she/he can on the basis of observed vegetative communities, erosion patterns, fence lines and roads.

4.10.8. LITERATURE REVIEW/BACKGROUND RESEARCH: DISCUSSION OF PREHISTORY/HISTORY.

(REQUIRED, except when the report is on phased activities in which the information is presented in the initial report of a series, in which case reference to that source is all that is required in subsequent volumes.)

This review should list previous studies in and around the project area, including syntheses of the types of historic resources known or expected to occur in the region. Its purpose is not to review the historical development of archaeological and historic studies in Florida, although the author is not prohibited from making such a presentation. Its purpose is to demonstrate an awareness of the location, field methodology, and findings of previous researchers, especially the information contained in the Florida Master Site File, in Florida's Comprehensive Historic Preservation Plan, and in professional publications on the resources likely to be encountered, as well as those actually encountered, during a site assessment survey. That data is critical to development of an adequate field methodology/research design and to evaluate site significance. In areas

containing historic structures or locales of known historic activities, its purpose also is to identify pertinent research data and conclusions, and to obtain information on the variety and frequency of structure types and significant individuals or events which may be associated with the project area.

This section, which summarizes the information derived from the Literature Review, may be divided into two parts: Archaeological Review and Historic Review. The amount of detail devoted to each depends on the project's location, as well as the type of project. However, even in historically undeveloped locales, at least a brief statement on the general historic background of an area should be included in the report to justify the omission of a more detailed presentation. Likewise, the evaluation of historic structures and associated features on a man-made island would not require a review or discussion of archaeological data, beyond any associated historic archaeological features expected to have been the result of the project under investigation. However, if there is documentation of historic settlements, landings, wharfs, trails, cemeteries and the like within or near (i.e., within a mile) of the project area that data should be presented and discussed, as it relates to evaluating expected resource potential and interpreting discovered resources, or the absence of such resources, within the project area.

4.10.8.1. Archaeological Review.

This review presents a summary of the area's history and prehistory based on the archaeological record. Please consult the above 4.10.7 introductory paragraphs for limitations on the level of archaeological research expected, and when such background research may be excluded and a brief explanation of its exclusion presented in its place.

The archaeological review provides a regional framework for the analysis of recovered artifacts and evaluation of site significance, as well as data with which to develop testable hypotheses, including site location predictive models. It usually consists of an explicit synthesis of FMSF records pertinent to the project area and to identified resources, and must be linked to the historic contexts presented in **Florida's Comprehensive Historic Preservation Plan**. The purpose of this review is to demonstrate that the survey archaeologist is aware of the types of sites (both functional and chronological) expected to occur in a given area based on previous survey results in similar physiographic conditions in the same region. Conversely, if sites are not located, it provides the basis for discussing their absence in the survey area in contrast to their presence in other areas. This information is important, since archaeological site assessment surveys are recommended on the basis of known or expected site occurrence.

4.10.8.2. Historical Review.

This review presents a summary of the area's history. Sources of information include tax rolls, deeds, surveyor's notes, plat maps, Sanborn insurance maps, newspaper articles, biographies, and photographs. Please note the introductory paragraphs to this subsection concerning limitations on the level of historic background research expected, and when such research may be omitted with an explanation justifying the exclusion presented in its place.

The purpose of this subsection is to outline the major course of historical development in the area as it relates to the project tract. Particular attention should be given to land use history for the subject tract, and to information relating to potentially significant historic structures and other features, some of which may only remain as archaeological features. Historic plat maps and land surveyor's field and diary notes are important sources of information. The historical review should contain, if possible, information on architects or historically significant individuals or events associated with any structures or features located within the project area. This information must be keyed to historic contexts presented in **Florida's Comprehensive Historic Preservation Plan**. Furthermore, it should usually present an explicit synthesis of FMSF records pertinent to the project area and identified resources.

4.10.9. FIELD METHODOLOGY/RESEARCH DESIGN. (REQUIRED)

Many factors influence survey field methodology and research design, including the size of the study area, its location (rural/urban; uplands/wetlands/ coastal/submerged), vegetative cover, and land use during the past 50-100 years. However, since it is likely that the initial site assessment survey will represent the only time that a property is surveyed to identify archaeological sites, historic structures, historic cemeteries, and the like, the project should be designed to maximize data recovery. Field methodology generally should be based on a synthesis of known site data and archival data, as appropriate.

4.10.9.1. Archaeological Survey Techniques, Including Subsurface Survey Strategy. (REQUIRED)

This is an explicit justification for the methods employed to locate and assess the significance of archaeological sites (including features associated with historic structures). Particular attention should be paid to subsurface testing methodology, which should be related to the general size, kind, and character of archaeological sites known or expected to be present in the project area. Methods for the location of sites and data recovery must be explicitly justified in terms of environmental conditions, site expectations and research problems addressed.

Roadway, powerline, and pipeline corridors and rights-of-way represent special circumstances with respect to expected field methodology and survey limits. The purpose of site assessment surveys in project corridors and rights-of-way is to identify the horizontal and vertical boundaries of significant sites such that a decision may be made on whether to move the proposed project impact area so as to avoid adverse impacts to significant sites. Thus, while most corridor and rights-of-way survey efforts will be restricted to the proposed boundaries of such corridors and rights-of-way, IF significant resources are identified within a project's planned boundaries, it is essential that a sufficient sample of any such site areas extending outside the corridor/right-of-way be mapped and evaluated to facilitate a determination on whether site avoidance is possible. This is one of the most important aspects of the project. It is also essential that the survey archaeologist understand that the boundaries of a large potentially significant site do NOT have to be fully established outside of the project right-of-way, nor does further evaluation work need to be conducted once potential significance has been established. Any such additional work would be the subject of archaeological test or salvage excavation, if it is determined that site avoidance is not possible during project effect consultation.

4.10.9.2. Historic Structure and Related Features Survey Methodology. (REQUIRED, if structures exist).

This describes the methodology used to identify and evaluate any historic structures and associated features, including associated archaeological features, in the project tract.** The FMSF structure forms and archaeological site forms itemize the minimum level of data which must be collected. When in doubt, please call the DHR/SHPO's Compliance Review staff at (904) 487-2333.

** NOTE: Modified survey area conditions apply to historic structures and related features when roadway, powerline, and pipeline corridors and rights-of-way are involved. If a potential historic district is located within a project corridor or right-of-way, it is important to fully evaluate the boundaries of such a district within the project area. However, that portion of the district extending outside of the project boundary need be established only to a level sufficient to permit a determination of whether avoidance of project impacts is possible. Likewise, individual National Register eligible properties and associated contributing features located adjacent to but outside the corridor or right-of-way need to be identified so that an evaluation of project effects on such properties may be made.

4.10.9.3. Research Problems. (Generally optional for small site assessment survey projects, and not applicable when late 19th and early 20th century structures with associated archaeological and other features are the only historic resources expected).

This includes a discussion of the hypotheses to be tested and the analytical techniques required to test them. These hypotheses should be such that their investigation will contribute further to our understanding of the historic contexts in an area. Computer and paper records of the Florida Master Site File are of increasing value

(as the system is upgraded) in establishing a background for relevant hypotheses. Please also refer to Florida's Comprehensive Historic Preservation Plan for a more detailed presentation of historic contexts.

4.10.9.4. Mapping. (REQUIRED)

Mapping is important. It is recommended that project maps be based on U.S.G.S. Quadrangle maps and/or on Florida Department of Transportation County road maps. The captions for these maps should include the names of the source maps (i.e., Tallahassee Quadrangle) and at least the Townships and Ranges depicted. Survey maps, in addition to project boundaries, should depict the location of the surveyor's transects and judgmentally surveyed areas, and must identify any areas which were NOT physically inspected, as well as any areas in which subsurface testing did not occur. The map should be coded and keyed (i.e., unshaded = uninvestigated; hatched = surface inspection only; and, cross-hatched = both surface and subsurface inspection). The location of identified archaeological sites and historic structures and their associated features also must be indicated. A large scale map or aerial photograph (1":200' or 1":100') should also be used to depict for individual sites (1) their known or suspected boundaries, (2) the approximate location and type of subsurface testing techniques employed and their results, and, where appropriate, (3) resistivity or similar sampling locations and their results. Whenever a detailed map representing a portion of the surveyed area is used, a vicinity inset map must be included. Prior consultation with DHR/SHPO staff should occur to assure that any variance from this mapping requirement is acceptable. Detailed site maps or photos should be attached to individual site forms. If the map attachments identify more than one site location, the location of the site identified in the site form should be highlighted on the map.

It is recognized that a narrative description of survey methodology for pipe and power lines, limited (less than 20m/60' wide) roadway expansion projects, and similar small or restricted scale projects generally is of sufficient detail to preclude the need for mapping test hole locations in low to moderate site occurrence probability areas. For example, it is understood that a narrative description of 30m transects within a 150m wide corridor means that a grid of five transect lines spaced 30m apart was established and arbitrary test holes dug every 30m along each transect grid intersection point. Likewise, when transects are combined with judgmental units, it is understood that the judgmental units are in addition to the transect units and are placed anywhere within the project study area in which resources might be expected. Judgmentally placed test units to evaluate site significance are distinct from judgmental units used to locate sites.

4.10.9.5. Constraints on Investigations. (REQUIRED, if any)

While they should be avoided and minimized, it is recognized that project surveyors sometimes encounter constraints to planned survey efforts. Constraints on investigations include limitations on access and testing ability, such as poor ground visibility (such that all data are derived from shovel tests) or thick fill or other features preventing adequate shovel testing; or, other environmental limitations such as inaccessible landscape, flooding, inclement weather, and the like; or, more mundane reasons such as hunters, attack dogs, or uncooperative property owners.

NOTE: If it has been documented that an area identified for survey has been the subject of extensive fill (over one meter thick) or that the area has been extensively altered (such as an alternating ditched and ridged tomato field) then, except in specific areas of high site occurrence probability, subsurface testing generally may be discontinued in those portions of the project area. However, the resulting report must discuss the rationale for such discontinued testing, or a shift to judgmentally used mechanical excavation equipment to remove the fill if buried sites are expected.

Failure to conduct subsurface testing in areas where sites are expected to occur and/or failure to fully evaluate any historic structures, means that the inadequately surveyed portion of the project area and the unevaluated structures remain unassessed. Unless convincing evidence is presented to justify reconsideration and exclusion of an area from survey requirements, the DHR/SHPO generally will recommend that project activities not be allowed to proceed within such locales until they have been surveyed and the resulting documentation of survey results accepted as complete by the DHR/SHPO.

If there are difficulties in obtaining access to a portion of the recommended survey area or to involved structures, then a report on the portion of the property surveyed may be submitted for review. Thus, decisions affecting work in those areas need not be delayed while arrangements are made to complete the survey of the unsurveyed portion(s) of the project tract. An effort should be made by the contracting agency and by the archaeological and historical survey firm to avoid or minimize such instances as they can delay project approval and development.

4.10.9.6. Description of Data Collection Techniques. (REQUIRED)

The manner in which the horizontal and vertical limits, internal integrity, and other necessary site assessment data were obtained for identified archaeological sites must be described. Likewise, it is important to describe the manner of data collection and sources used in evaluating structures and associated features.

4.10.9.7. Listing and Justification for Any In-Field Modifications of the Proposed Research Strategy.

When a project scope of work has been reviewed and approved by the DHR/SHPO any modifications by a contract archaeologist to approved methodology or sample areas must include the concurrence of DHR/SHPO Compliance Review staff to avoid problems in subsequent report review. The contracting agency also will be notified and MUST AGREE to any such changes. Indeed, the contracting agency should take the lead in any such negotiated changes in project scope of work.

4.10.10. LABORATORY METHODS AND ANALYSIS. (REQUIRED, except as noted, for archaeological site remains. At a minimum, a description of what was found at each site must be included in the report and in accompanying site forms. Of course, if no sites are identified, this subsection may be omitted.)

4.10.10.1. Method for Artifact Processing and Analysis. This may be a brief explanatory statement.

4.10.10.2. Method for Chronological Dating and Historic Context Determination. This may be a brief statement based on artifact types, radiocarbon dating, relative stratigraphic position, etc.

4.10.10.3. Other Special Analytical Methods and Techniques. (Optional) This includes such specialized topics as paleoecological studies including soils, pollen, faunal and ethnobotanical analyses.

4.10.10.4. Discussion of Changes in Proposed Laboratory Methods and Analysis. (Optional)

4.10.10.5. Discussion of Results. This is self-explanatory.

4.10.11. SURVEY RESULTS. (REQUIRED).

If no archaeological sites, historic structures, historic cemeteries, or associated features are found, this may be a brief presentation. However, with respect to archaeological resources, an analysis of the reason(s) for site absence must be presented. This should be linked to a synthesis of FMSF site file data pertinent to the study area. Site predictive models for the area may be adjusted and such locales may be excluded from archaeological survey requirements in the future based on negative survey results; or, the level of detail required for minimum fieldwork methodology may be modified and tested on other area projects before the DHR/SHPO decides whether to exclude a given area or environment from historic resource study on future projects.

When sites are found, in addition to site location data, this section must contain an assessment of site significance in terms of the National Register eligibility criteria. These evaluations are based on a comparison with similar sites for the historic context(s) in which they occur. It is important to remember that this will probably represent the only information recorded for archaeological sites and historic structures and associated

features determined not to be significant. If preservation is the choice, test excavation data may represent the only information available for identified sites. Further, such data will form the basis for recommending treatments, including both documentation and rehabilitation, of identified significant historic structures. Finally, information on the types of areas in which sites are NOT located is as important as that for where sites are located. Both kinds of information are used in identifying archaeological zones of sensitivity for use in future planning and zoning decisions. They also guide future compliance review decisions on whether or not to recommend archaeological or historic site assessment survey work in a given environment, and the minimum acceptable field methodology for such work.

4.10.11.1. Site-by-Site Description. (REQUIRED)

Every site (both prehistoric and historic archaeological sites, historic cemetery, and historic structures and associated features, including archaeological features) in a project area, or affected by a project, must be identified by FMSF site number and must be described, however briefly, in the site assessment survey report. Sites considered to be significant must be described in detail. Descriptions of artifact types and locations are sufficient for isolated non-diagnostic artifacts; however, isolated diagnostic artifacts also should be reported on standard FMSF archaeological site forms if the artifacts are believed to derive from a meaningful context. The location and approximate boundaries of each site, identified by FMSF site number, must be depicted to scale on the appropriate portions of 7.5 minute U.S.G.S. Quadrangle maps or their equivalents and attached to each site form. If more than one site is plotted on a map attachment, the site identified in the site form must be highlighted. In addition to quadrangle maps, use detailed street maps for depicting site locations in urban settings. Finally, site locations may be plotted by latitude and longitude on nautical charts in marine settings.

These descriptions need not repeat the detailed information contained in the FMSF site forms included with every site assessment survey report. However, they must provide information on the location, size, historic contexts, architectural detail or type (if applicable), artifact sample size and type, site function (if apparent), pertinent historic documentation and other such information needed to assess site significance, since this is the information upon which compliance review decisions primarily will be based. The FMSF forms will be used to supplement these data. Also, much of the site data in the narrative portion of the text may be consolidated into comparative tables or lists. An opinion on site significance (i.e., significant or non-significant) and/or the need (if any) for further work for potentially significant sites before a final opinion of site significance is possible, also should be made. If the project archaeologist or architectural historian concludes that a site is not significant because "there are many better examples of its type in the area," then the site numbers and at least the general locations of those better examples must be given. The assertion without supporting documentation has no merit.

If threats to the identified (potentially) significant sites and properties exist, recommendations for further test or mitigative archaeological excavation, structural documentation, or preservation opportunities in lieu of the adverse impacts generally should be offered. The latter will assist the client and the DHR/SHPO when they consult formally on this issue. It is recognized that, since final project design and consultation requires considerations of measures to avoid, minimize or mitigate project impacts, the consultant, lacking information on the full scope of a project, will be limited in offering mitigation alternatives. Therefore, such comments are advisory only and do not substitute for the formal consultation process. Indeed, for transportation projects, since the agency must demonstrate that there is no feasible or prudent alternative to adverse project effects on (potentially) significant sites or structures before authorizing project activities to proceed, reports prepared for agencies, such as the Florida Department of Transportation, may be limited to site identification and evaluation, and need not address effect or treatment issues, since those will be the subject of subsequent interagency consultation.

4.10.12. CONCLUSIONS AND RECOMMENDATIONS. (REQUIRED)

4.10.12.1. Comparative Site Information.

When sites are located, the following information must be tabulated: (1) site distribution, (2) chronological position, (3) comparison to other sites, and (4) other related comparative information. Further, an effort

should be made to generate or refine archaeological site distribution models and historic context descriptions for historic resources in the area in which the project occurs. The detail for this section will be determined by the nature and size of the project, and the number of involved historic resources. When in doubt, please discuss this matter with DHR/SHPO Compliance Review staff.

NOTE: Subsections 4.10.10. and 4.10.11. are often combined. The architectural historian or historic architect describes and assesses the significance of historic structures and associated features, while qualified archaeologists describe and evaluate the archaeological remains associated with historic structures, as well as describing those which occur independently of historic structures. However, if there are few (less than 20) historic (pre-1940) structures located in or immediately adjacent to a project area DHR/SHPO staff can assist by providing a preliminary assessment of architectural significance. To receive such assistance, the following information must be furnished: (1) clearly focused photographs of the major elevations of each property, which are keyed to the project location map and describe the direction of the view which was photographed; (2) property address; and (3) approximate construction date. In such circumstances, however, while structural significance may be evaluated, the issue of a property's association with a significant historic event or individual remains unassessed and must be settled by historical background research.

4.10.12.2. Summary of Survey Results.

This includes, but is not limited to, (1) a discussion of why each site or group of sites is considered significant or not significant, (2) a discussion of the types of locations and circumstances in which sites are located and those in which sites were not located, and (3) a brief summary of how the project contributed to our understanding of the historic contexts represented in the area. The latter should be linked to a synthesis of FMSF and other pertinent data.

4.10.12.3. Project Impacts to Significant Sites.

This includes a discussion of the types of project impacts which may threaten (potentially) significant sites within or adjacent to the project tract. Again, these are suggestions offered by the consultant for consideration when the agency and the DHR/SHPO (and the Council in federally involved projects) formally consult on measures to avoid, minimize or mitigate adverse project impacts.

4.10.12.4. Recommendations.

This is a summary of (1) additional site assessment work which may be needed, (2) the possible measures to avoid or mitigate project impacts to significant sites, and (3) the various preservation alternatives which the project developer may wish to consider.

DHR/SHPO Compliance Review staff may be contacted to discuss this issue during report preparation, since they are familiar with a wide range of examples from studies dealing with similar resources. These recommendations provide the project applicant with a clear understanding of options so that significant historic resources may be given fair consideration in selecting project alternatives.

4.10.13. **REFERENCES CITED.** (REQUIRED, when any written source is cited in the report).

This is a listing of references cited in the text. Use the style guide published in the *American Antiquity* 48:429-442. Reference to unpublished materials located in the Florida Master Site File report archives should always include file numbers (e.g., Master Site File Manuscript 2023).

4.10.14. APPENDICES.

4.10.14.1. Florida Master Site File Forms. (REQUIRED)

A single set of site forms WITH MANDATORY MAP ATTACHMENTS (e.g., USGS quadrangle with site plotted and identified for each site form) and STRUCTURAL PHOTOGRAPH ATTACHMENTS (e.g., original, clearly focused black-and-white photographs (NO PHOTOCOPIES) for each structures form) MUST accompany the survey report. The site forms may or may not be physically bound into the survey report. The maps and any photographs MUST be attached** to the proper site forms and MUST have written on them the FMSF number to avoid confusion. ** NOTE: If the FMSF site form text is to be conveyed on electronic media, please contact the supervisor of the FMSF to determine the proper manner to identify and convey maps and photographs.

No site forms are necessary for isolated artifact finds, unless they will contribute further to an understanding of the area's history and prehistory. However, site forms must be completed for all archaeological sites and historic structures, regardless of their significance. Detailed narratives on significance will not be pertinent to non-significant structures, although a sentence stating why the property is not considered significant must be included. Use both archaeological and structural site forms for historic sites with both kinds of resources. For historic cemeteries, use the FMSF historic cemeteries form Either contact the Supervisor of the Florida Master Site File at (904) 487-2299 [FAX (904) 488-3353] to obtain copies of site forms or copy those included as examples in the appendices of this manual.

If site forms are bound in the final project report, a separate set must be provided for inclusion in the Florida Master Site File files. The DHR/SHPO encourages surveyors to submit site form information on media that are computer readable. Thus, with the concurrence of the Florida Master Site File Supervisor, the computer data may be submitted in lieu of paper forms, except for the photographs, maps and other attachments.

Likewise, while generally not required for compliance review purposes, the DHR/SHPO encourages the completion and submission of National Register nomination forms for sites and properties considered eligible for listing in the National Register of Historic Places. Listing in the National Register does not make an archaeological site or historic structure subject to any federal or state environmental review laws or regulations that do not already apply to the property simply because it satisfies the criteria of eligibility for listing in the National Register (See 36 CFR 60.4 and 36 CFR 800). Thus, listing does not carry any additional federal or state burden for the property owner. However, listing in the National Register does formally acknowledge the significance of a site or property. Further, it makes the property eligible for certain kinds of grant assistance and tax benefits for which it would otherwise be ineligible until it was formally determined eligible for listing. Please contact the DHR/SHPO Survey and Registration Section at (904) 487-2333 for guidance and technical assistance on nominating sites and properties to the National Register.

4.10.14.2. Peer Reviews (Optional);

4.10.14.3. Scope of Work (Optional);

4.10.14.4. Ancillary Studies (Optional);

4.10.14.5. Vitae/Resumes of Key Project Staff (REQUIRED, unless on file in DHR/SHPO Compliance Review Section files.)

Abbreviated or complete vitae/resumes of the Principal Investigator and Field Supervisor (and those of any specialists employed on the project) must be included in each report, if they are not in the DHR/SHPO Compliance Review files. The role which each played must be clearly described. This documentation is required to verify professional expertise, both in the field and during analysis and report preparation, and to satisfy federal program audit requirements for the historic preservation program administered by the DHR/SHPO.

4.10.14.6. Location of Artifacts, Field Notes, and so forth. (REQUIRED)

The report must contain information on the proposed curation location of artifacts, field notes, feature and burial forms, plan maps, stratigraphic profiles, and so forth. Please note that if there is any question on the adequacy of field methodology and observations, a copy of the field notes and other data may be required for review to help resolve such questions. Also, when the Bureau of Archaeological Research curates artifacts, certain conditions must be met (See Appendices). Regardless of who curates the artifacts, a copy of the field notes and analysis sheets should accompany such collections to facilitate their use and interpretation by others. Finally, regardless of where they are placed, recovered artifacts should be curated in accordance with professionally accepted standards.

4.11. Test and/or Mitigative Salvage Excavation Reports Content Outline.

While archaeological test excavation and mitigative salvage excavation projects have different goals, their report preparation format is essentially the same -- except in degree and detail. The following outline, presented to point out topical material which must or should be addressed, is not intended to serve as an absolute report format. Furthermore, the omission of categories of information from this outline should not prohibit their inclusion where appropriate.

4.11.1. FLORIDA MASTER SITE FILE SURVEY LOG SHEET. (REQUIRED)

4.11.2. TITLE PAGE. (REQUIRED; See Site Assessment Survey Report Outline.)

4.11.3. TABLE OF CONTENTS. (REQUIRED; Use the same format as in survey reports)

4.11.4. REPORT TITLE AND AUTHOR. (REQUIRED report heading)

4.11.5. INTRODUCTION. (REQUIRED; Use the same format as in survey reports. The project boundary map must be included in this section.)

4.11.6. DESCRIPTION OF PROJECT LOCATION AND AREA. (REQUIRED; Use the same format as in survey reports)

4.11.7. LITERATURE REVIEW/BACKGROUND RESEARCH. (REQUIRED)

This should focus on what is particularly relevant to the area's history and prehistory as it relates to (1) the historic contexts represented at the site, (2) appropriate field methodology and analysis techniques for the kind and character of site and the site data to be collected, and (3) a review of relevant environmental (and paleo-environmental) factors.

It should not be a detailed review of the area's prehistory and history from Paleo-Indian to modern times if only a Middle Mississippian archaeological culture is represented. However, it should contribute to an understanding of the site's position within the known cultural framework such that its capacity to contribute further to that framework can be assessed and such that the information derived may expand that framework. Thus, it should at a minimum provide a synthesis of relevant data in the FMSF.

4.11.8. ENVIRONMENTAL BACKGROUND. (REQUIRED)

This should provide sufficient background information for the reader to understand the relationship of the site area to its surroundings. For mitigative salvage excavation projects, it may be appropriate to have a specialist conduct pollen analysis, geological studies, faunal studies, ethnobotanical studies, and paleo-environmental

studies. If such work already exists, it may be cited and summarized to the extent necessary to interpret the site adequately.

4.11.9. FIELD METHODOLOGY/RESEARCH DESIGN. (REQUIRED)

This is the most critical aspect of the project. Each aspect should be discussed in detail:

- 1) Hypotheses to be Tested.
- 2) Mapping Techniques.
- 3) Excavation Techniques.
- 4) Description of Data Collection Techniques.
- 5) Constraints on Investigations.
- 6) Other Information of Relevance to the Project.

For further information on the content of the above topics, please refer to the Site Assessment Survey Report Content Outline.

4.11.10. LABORATORY METHODS AND ANALYSIS. (REQUIRED; Use the same format as in site assessment survey reports).

4.11.11. EXCAVATION RESULTS. (REQUIRED)

This is a formal presentation of findings, including a discussion of the site's position within a historic context or contexts (the cultural/historical framework) and any intra-site variability. This section also must include any maps depicting site subareas, features, and artifact distribution data.

4.11.12. CONCLUSIONS AND RECOMMENDATIONS. (REQUIRED)

For test excavation projects, this includes (1) a discussion of site significance, (2) a restatement of testable hypotheses, (3) the need for additional work (if any), (4) potential project impacts, and (5) preservation alternatives. For mitigative salvage excavation projects, this includes (1) a summary of project findings and (2) the possibility of setting aside a portion of the site for preservation where possible. For both test and mitigative salvage excavation projects, this also should include a discussion of (1) site function, particularly at multi-component sites, and (2) how and in what manner the information furthers our understanding of the historic contexts represented.

4.11.13. REFERENCES CITED. (REQUIRED; Use the same format as site assessment survey reports)

4.11.14. APPENDICES.

- 1) Updated Florida Master Site File Forms (REQUIRED)
- 2) Other. The remainder of this section is the same as for site assessment survey reports.

4.12. <u>Archaeological Monitoring.</u>

Archaeological monitoring occasionally will be recommended as an alternative when (potentially) significant archaeological remains might be encountered during project work AND when adequate archaeological testing

in advance of the work to locate, evaluate and delimit significant site remains would prove too lengthy and costly to justify such action. An example would include new development in an area of known/expected site occurrence where a meter or more of fill, or more recent structural remains occur on top of such areas. Another example would be when upland Native American sites indicate the likelihood of encountering (potentially) significant isolated finds, such as dugout canoes or human remains, in adjacent wetlands. When such monitoring is agreed upon, it is understood that:

- 1) a professionally qualified individual will supervise the monitoring, and
- 2) the monitoring archaeologist will be empowered to stop work within a restricted area (defined by the apparent distribution of discovered material PLUS a protective buffer) of the project whenever apparently significant archaeological remains are found. Project work may continue elsewhere on the project tract.

The monitoring archaeologist will, as with any other archaeological project, record observations in a field notebook, by tape recorder and photographic means, and must prepare a final report documenting and reporting upon the results of such monitoring efforts. A copy of the report must be submitted to the DHR/SHPO for review. Because of the possible added project cost of monitoring, it is not commonly used, and is reserved for unusual circumstances.

Monitoring may not be considered appropriate in instances where site expectancy is high. For instance, when the subject tract could not be investigated until after it was acquired and/or parking lots and buildings raised and removed. This most often occurs in urban redevelopment projects and in highway construction projects. In such instances, supplemental testing is warranted and recommended to avoid delays which are likely to occur should monitoring be used and significant resources discovered.

4.13. Emergency Discovery Situation.

From time to time archaeological site remains will be found in unexpected locations, or in situations where in spite of an apparently adequate site assessment survey they were not located and evaluated. This includes such instances as the finding of dug-out canoes or human burials in wetland conditions. When the possibility of such remains is suspected, archaeological monitoring is generally recommended. When it is not, the DHR/SHPO depends on the cooperation of the agency undertaking the project to stop work in the "immediate vicinity" (generally no more than a 3m/10' radius) of the discovery. Every effort is made by DHR/SHPO staff to expedite the processing of emergency discovery consultation activities to avoid project delays.

When unexpected potentially significant archaeological resources are discovered, two actions should occur. First, project construction activities should be halted in the immediate vicinity of such discoveries (generally a 10'-20' wide buffer area around the discovered resource and its likely area of occurrence in as yet undisturbed project areas). Second, except in circumstance when human remains are discovered (See 4.14. Treatment of Human Remains), the DHR/SHPO Compliance Review staff should be contacted promptly by calling (904) 487-2333 to determine an appropriate course of action. Be prepared to discuss (1) the circumstances pertaining to the discovery, (2) what measures are being taken to protect the discovered resource from further disturbance until it has been evaluated, (3) a description of what was discovered and where the discovered materials will be kept to expedite their analysis (if needed), and (4) whether the project might be modified to avoid further disturbance to the discovered resource.

From the above information the DHR/SHPO generally will reach one of four conclusions. They are as follows: (1) (based on the telephone description) the resource does not appear to be significant and work may be allowed to proceed in the affected project area, (2) the resource might be significant and a qualified archaeologist must be retained to collect data needed to evaluate site significance, (3) the resource is clearly significant and mitigation of project impacts is recommended, or (4) the resource is (potentially) significant and because of the developer's commitment to modify project activities to avoid further disturbance of the identified resource area, project development should be allowed to proceed with such modifications. Because of

workload and staffing limitations, the DHR/SHPO will rarely be able to conduct an on site evaluation of the discovered resource. The DHR/SHPO will identify qualified individuals whom the project applicant may contact to conduct the needed evaluation or other work and to report the results for DHR/SHPO review.

4.14. Treatment of Human Remains.

Historic cemeteries come under either the provisions of ss. 872.02 or 872.05, F.S., depending whether they retain their markers or not. If the cemeteries are still in use or received interments during the past 75 years, the the District Medical Examiner must be notified of any proposed activities affecting the interments. If the cemetery has not been actively used during the past 75 years then the State Archaeologist takes the lead in determining appropriate actions and treatments for any affected remains. Preservation in place and reinterment in the same or similar location for any disinterred remains is preferred.

When unexpected human remains are encountered during project construction, the provisions of Chapter 872, Florida Statutes (1987) apply (See 872.05, F.S., in Appendices). When such remains are encountered all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner or the State Archaeologist, whoever has jurisdiction. Notify the local law enforcement agency whose responsibility it is to notify the District Medical Examiner. If the remains are determined to have been buried less than 75 years or if they are involved in a criminal investigation, the Medical Examiner has jurisdiction. If neither of these conditions is true, notify the State Archaeologist at (904) 487-2299. Be prepared to discuss (1) the circumstances pertaining to the discovery, (2) what measures are being taken to protect the remains in place until a decision is made concerning their disposition, (3) the cultural and biological characteristics of the remains (if known), (4) the proposed effect of the project on the burial site, and (5) whether the human remains can be preserved in place or whether they must be removed.

4.15. Case Report.

When it is determined that a proposed undertaking will have an adverse effect on a National Register eligible property, further consultation with the DHR/SHPO and Council (for federally involved undertakings) is required. The applicant is required to provide documentation describing what alternatives were considered in an effort to avoid or minimize the adverse effect. That documentation is generally presented in the form of a **Case Report** submitted for DHR/SHPO and Council (if federal) for review.

The **Case Report** contains information describing the undertaking and the affected historic properties. It also presents an assessment of the adverse effect(s) and the alternatives which were considered to avoid or minimize that adverse effect. Finally, it concludes with a description of the preservation measures which are proposed to avoid the adverse effect, or else presents the reasons why avoidance of adverse impacts is not possible and discusses mitigation measures which are proposed to mitigate the adverse effect. The **Case Report** must evidence a good faith effort to evaluate alternatives, and each alternative must be fully described. Simply stating that an alternative was considered and determined not to be feasible is not acceptable.

Both the DHR/SHPO and Council will review the **Case Report** and either accept its representations and conclusions, or recommend that additional specified alternatives be investigated before a final conclusion is reached. This review and consultation generally leads to the preparation of a project Memorandum of Agreement or a Programmatic Agreement, depending on the scope and duration of the project (See 4.17. Memorandum of Agreement/Programmatic Agreement).

4.16. Historic Structure Mitigation Measures.

When it has been determined that a project will have an adverse impact on a significant historic structure, the mitigation of such adverse project impacts is accomplished through documentation in accordance with **Historic**

American Buildings Survey/Historic American Engineering Record (HABS/HAER) standards. Information on these standards may be found in the appendices. Visual impacts may be mitigated by several means, examples of which may be found in the **Manual of Mitigation Measures**. The terms of mitigation are generally contained in project Memoranda of Agreement.

Historic structure documentation must be submitted to the DHR/SHPO for review and acceptance prior to initiating the adverse impacts which led to the preparation of the documentation. Furthermore, for federally involved projects, acceptance of the documentation as complete and sufficient by the National Park Service HABS/HAER office also is required.

4.17. Memorandum of Agreement/Programmatic Agreement.

When a project is determined to have an adverse effect and consultation leads to the conclusion that the adverse effect is unavoidable, the consulting parties generally prepare a project Memorandum of Agreement to stipulate the measures which will be taken to minimize or mitigate the adverse effect. When a multi-year project is proposed and contains project activities which may adversely affect significant historic resources, a Programmatic Agreement is generally prepared to stipulate the procedures which will be followed and the measures which will be undertaken to assure that adverse effects are avoided, minimized or mitigated. Standardized language for such agreements may be found in **PREPARING AGREEMENT DOCUMENTS: How to Write Determinations of No Adverse Effect, Memoranda of Agreement, and Programmatic Agreements under 36 C.F.R. 800** (September, 1989) issued by the Advisory Council on Historic Preservation.

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5. Conclusions.

Historic preservation is the concern of us all. Historic resources are the tangible remains of our prehistoric and historic cultural heritage. They provide a sense of place and contribute to our quality of life. They have both direct and indirect economic value. Environmental review laws provide one of the means to assure that impacts to historic resources are given fair and equal consideration with other factors in the development and redevelopment of our state.

The primary purpose of the historic preservation compliance review program is to assure that historic preservation laws and regulations are met in planning, management, and development decisions and actions. However, it is more than a compliance program, since the agency routinely provides information on tax and other incentives appropriate to a project. Furthermore, the purpose of the program is not to unnecessarily burden developers and other agencies with the review of projects which will consistently be determined to have no effect on significant historic resources. Thus, program actions are periodically reviewed to identify such classes of projects, and efforts are undertaken to formally exclude them from the need for individual project review with respect to the issue of historic preservation. Finally, the DHR/SHPO makes an effort to enter into Programmatic Agreements with agencies to establish procedures whereby project actions which could affect historic resources may proceed without individual project review if they are conducted within certain guidelines.

When project undertakings are reviewed, consideration is given to the nature of the proposed activity and its location with respect to potential impacts to known or expected historic resources. If it can be concluded that because of the nature of the activity or because of the location of project activities that significant historic resources are unlikely to be affected, then a letter confirming that no effect opinion is prepared. Upon receipt of that correspondence from the DHR/SHPO, the project undertaking may be allowed to proceed AS PLANNED with respect to the issue of historic preservation. However, if there is a change in the scope of work or the project location, or if unexpected (potentially) significant historic resources are subsequently discovered, the no effect opinion will need to be reconsidered. It is noted that the majority of the projects reviewed by the

DHR/SHPO receive a no effect opinion at the initial project review step. Site assessment survey is not recommended unless there are known historic resources present and/or unless there is reason to expect that presently unknown, potentially significant historic resources are present in the project impact area.

When a site assessment survey, archaeological test or mitigation excavation, or historic structure documentation report is received by the DHR/SHPO Compliance Review staff for review as part of the environmental review process, the completeness and sufficiency of the field work, analysis and report results and content will be judged on the basis of the standards and report content presented and cited in Chapter 4 of this manual. If the report reflects those standards, and if there is no substantive reason to question its veracity, then the results generally will be accepted as reported. For more detail on project review procedures, see Chapter 3 of this manual.

The qualifier generally is used above for those circumstances in which, through no fault of his/her own, the archaeologist, historian, or architectural historian, as the case may be, was not aware of information available at the time of her/his background research and when such information is available to the DHR/SHPO at the time of the report's receipt and review. Such information may be in two forms:

- 1) it may show that field methodology previously believed to be sufficient to evaluate historic resources in a given environment has been shown to be lacking in some manner; and/or,
- 2) new information has become available on aspects of a historic context which would alter opinions of site significance from what they were prior to the receipt of such information.

It is understood that if DHR/SHPO staff formally reviewed and approved project fieldwork methodology in writing prior to the initiation of the project, then the resulting report will not be determined to be incomplete or insufficient if the approved field methodology was followed. That does not, however, mean that all of the conclusions presented in the report will be accepted, as the DHR/SHPO must take into account the new information and other factors in the review of report results and conclusions.

The DHR/SHPO Compliance Review staff routinely convey relevant information, or information on sources to contact for such information, to survey archaeologists, historians, architectural historians and others involved in the inventory and evaluation of historic resources when they are contacted prior to an individual or agency initiating project fieldwork. If new information becomes available to DHR/SHPO staff, but not to the historic resources surveyor, after the field methodology and site potential have been discussed and agreed to and fieldwork initiated based on that information, then, as noted above, that new information will not be considered in evaluating the completeness and sufficiency of the survey field methodology and report content. HOWEVER, if the survey archaeologist or historian/architectural historian overlooks or ignores information which was available at the time the project was undertaken, especially information provided to her/him by DHR/SHPO compliance review staff, then that omission will be considered in evaluating the completeness and sufficiency of field methodology and report content, especially if it is believed that significant historic resources may have been either not identified or identified and misevaluated as a consequence of such omissions.

Furthermore, concepts of site significance change as new information becomes available. Sites which might have been considered significant prior to intensive, detailed research at similar nearby sites, may no longer be considered to be as significant as they would have been prior to such work. Likewise, sites that may have been considered nonsignificant prior to the development of new research methodologies may be reevaluated in light of such information and considered to be significant. Also, a disturbed archaeological site which may have been considered to be significant when it was the one of few known examples of its type, may later be reevaluated as non-significant when subsequent survey discovers other better preserved examples of its historic context type. Furthermore, many structures formerly evaluated as non-significant when the focus of National Register eligibility criteria was on properties of "national" significance, may now be considered to be significant when the expanded "state" and "local" significance criteria are applied. Finally, a property which might be a borderline case and considered not to be significant because of its then less than 50 years age, or because better examples of its type were extant when the original opinion on significance was made, might be reconsidered and

determined to be significant because of its older age or because the better examples are subsequently destroyed. The point is that significance is often based on a site's research potential and is always based on a comparison with other similar site types of the historic contexts represented.

Finally, as an aid to users of this document, the Appendices contain copies of laws, information of organizations, information of reference and technical assistance materials, sample language for permitting agencies, and the like pertaining to historic preservation and historic resources. Reader comments and suggestions are encouraged. Those comments will be considered when amendments to this document are planned. The comments may be formal, or they may be informal notes written on photocopies of the pages of this manual.

Historic preservation is the concern of us all. We must all be stewards of the past. Please help Florida protect its significant historic resources while building and conserving, as needed, to meet our State's needs.

**TRAIL RIDGE LANDFILL
WETLAND IMPACTS AND MITIGATION PLAN**

I. INTRODUCTION

Waste Management, Inc. is proposing the development of Trail Ridge Landfill in western Duval County (Figure 1). Of the approximately 560 wetland acres occurring on the property, only 4.44 acres of relatively low quality wetlands would be impacted, (refer to Trail Ridge Landfill Wetlands Assessment Report. Wetlands impacted by jurisdiction are Corps of Engineers, 4.44 acres; St. Johns River Water Management District, 3.17 acres; and Florida Department of Environmental Regulation, 1.61 acres. To offset the wetland impacts, conversion of 4.76 acres of uplands into high quality wetlands would occur as mitigation.

The following report provides a general overview of the property, a detailed description of the wetland impacts, and the plan for mitigation creation.

II. SITE DESCRIPTION

The tract consists of approximately 1,280 acres in western Duval County between U.S. 301 and the Baker County line. The land was previously owned by the Gilman Paper Company and has been intensively managed for pulpwood. The property is surrounded on all sides by forest land. A network of unpaved logging roads exists throughout the property. The design plans produced by England, Thims & Miller, Inc., propose the development of separate Class I and Class III landfill cells along with two stormwater ponds/borrow pits, and the widening and improvement of the existing, dirt roads.

III. WETLAND IMPACTS

Development of this site as a landfill would involve 4.44 acres of wetland impacts, the majority of which (2.54 acres) would occur as a result of filling portions of roadside ditches and swales. The remainder of the impacts would consist of filling a 0.8-acre isolated, shallow, pine/cypress wetland, 0.9 acre of bay/pine seepage slope and 0.20 acre of wetland pine plantation. Except for these 4.44 acres of impact, the remaining wetlands will not be disturbed.

A. Road Impacts

The majority of the wetland impacts would occur as a result of widening an existing logging road. This road extends for 1.6 miles from U.S. 301 to the edge of the property and would serve as the main access to the landfill. From the eastern property line it continues for an additional 0.4 mile to the Class I landfill cell. The road is currently an unpaved logging road. It will be widened to 24 feet and paved with asphalt. In addition, the existing corrugated metal pipes under the road will be replaced with reinforced concrete pipes.

EXHIBIT

TRL-20

From U.S. 301 the entrance road extends for approximately 3,000± feet through a pine plantation. The vegetation here consists of rows of planted slash pine (Pinus elliotti) with an understory and ground cover of saw palmetto (Serenoa repens), gallberry (Ilex glabra), and bracken fern (Pteridium aquilinum). The roadside swales here average 4 to 5 feet across and 1 to 2 feet deep. The swales are considered jurisdictional wetlands only where they intersect adjacent wetlands.

Within the upland pine plantation there are ten depressional, wetland areas. The eastern three areas are jurisdictional only by the U.S. Army Corps of Engineers (CE). The road widening will entail impacting 0.24 acres of these three wetlands. The dominant plant species are not on the state's list of wetland plants. The dominant vegetation consists of blackberry (Rubus cuneifolius), Amphicarpum muhlenbergianum, wiregrass (Aristida stricta), and panic grass (Dicanthelium sp.). The remaining seven wetland areas are wholly owned and isolated. Six of these areas are each less than 0.5 acres in size. The vegetation in all seven areas consists of St. John's wort (Hypericum fasciculatum), yellow-eyed grass (Xyris sp.) and red root (Lachnanthes caroliniana). The road widening will entail impacting 0.17 acres (CE/SJRWMD) of swales in these seven depressional areas.

From the edge of the pine plantation the entrance road continues for 3,000± feet through a pine swamp known locally as Hell's Bay. There are ditches along both sides of the road all the way across the swamp. The ditches measure approximately 8 feet across and 2-3 feet deep. Under normal conditions the ditches contain at least 12 inches of water. The vegetation within the ditches consists of pickerelweed (Pontederia cordata), water lily (Nymphaea odorata), and bladderwort (Utricularia sp.). The existing ditches serve to drain the adjacent swamp. During the past 12 months, standing water has not been observed in the swamp on either side of the road.

The vegetation of the pine swamp south of the road consists of a canopy of slash pine mixed with scattered red maple (Acer rubrum), tupelo (Nyssa sylvatica var. biflora), and cypress (Taxodium distichum). The swamp on the north side of the road has been recently clear-cut. The dominant ground cover vegetation there now includes such species as sedges (Cyperus spp.), beak rushes (Rhynchospora spp.), and cinnamon fern (Osmunda cinnamomea).

The entrance road across the swamp will be widened approximately 10 feet on each side. This will result in filling most of the roadside ditches (1.24 acres SJRWMD/DER/CE and 0.17 acres CE only).

From the western edge of Hell's Bay, the entrance road continues into the property to the Class I landfill cell. Wetland impacts due to this portion of roadwork include filling wetland pine plantation (0.65 acres CE) and a narrow slough (0.07 acres DER/SJRWMD/CE).

Widening West Fiftone Road would entail filling 0.3 acres (DER/SJRWMD/CE) of bay/pine seepage wetlands between the Class I and Class III landfill cells.

B. Landfill Impacts

Two wetland impacts would occur as a result of construction of the Class I landfill cell. These impacts include filling an isolated cypress/pine depressional wetland and a narrow finger of bay/pine seepage slope. The cypress/pine wetland is an isolated, shallow, depressional area comprising 0.80 acres (SJRWMD/CE). Following prolonged heavy rains, it will hold some standing water (<1 foot); however, it is dry during much of the year. The vegetation within the cypress/pine wetland consists of a canopy of slash pine and cypress with an understory of scattered myrtle-leaved holly (Ilex myrtifolia) and a ground cover of black-stemmed chain fern (Woodwardia virginica).

The bay/pine wetland consists of 0.60 acres (SJRWMD/CE) and occurs as a narrow finger of seepage slope along the north side of West Fiftone Road. The vegetation here consists of a canopy of tupelo, slash pine and various bay trees with and ground cover of fetterbush (Lyonia lucida) and sweet gallberry (Ilex coriacea).

Wetland impacts will be mitigated with 4.76 acres of wetland creation. An area of upland pine plantation surrounded by a cypress/gum swamp and a pine/bay wetland will be scraped down to form two depressional areas at or below the water table.

IV. MITIGATION PLAN

A. Existing Site Conditions

The mitigation site is located in the northeastern portion of the property in an area bounded by Hat Road to the north, West Fiftone Road to the west, Sellers Road to the south, and the property line to the east (Figure 2). The site is characterized as an upland finger surrounded by forested wetlands on three sides.

1. Elevations

The U.S. Geological Survey Map (Maxville, Florida, 1970) indicates that the elevations within the mitigation site range from +95 to +100 feet N.G.V.D. To more accurately describe the area, a site-specific topographic survey was conducted by Sunshine State Surveyors. Elevations were found to range from 100.8 feet on the upland ridge to the south to 94.7 on the wetland fringe to the north. The site slopes downhill gradually to the east.

2. Soils

The Soil Conservation Service (Soil Survey of Duval County, 1978) indicates that the upland soil of the mitigation area is Leon fine sand and the wetland soil is Wesconnett fine sand.

Leon fine sand is a poorly drained soil typically found in broad pine flatwood areas. Under natural conditions this soil has a water table at a depth of less than 10 inches for two to four months and at a depth of 10 to 30 inches for two to eight months during most years. There is often a weakly cemented layer about 18 inches below the surface.

Wesconnett fine sand is a very poorly drained soil in shallow depressions and large drainageways. Under natural conditions this soil has a water table at a depth of 0 to 10 inches, or the soil is covered by water for six to twelve months during most years.

3. Hydrology

There is a ditch that extends across a section of the mitigation site. This section of upland-cut ditch is less than 35 square feet in cross section and contains less than 3 feet of standing water at the point where it intersects the DER wetland line. The ditch averages 18 to 20 feet across from top-of-bank to top-of-bank and 12 to 18 inches deep. Water periodically flows east through the ditch from the tupelo swamp to the wet pine plantation. During much of the year, the ditch appears to be dry.

4. Vegetation

The upland pine plantation is characterized by a 15 to 20 year old row-planted slash pine that is approaching canopy closure. The understory and ground cover mostly consist of gallberry, saw palmetto, bracken fern, huckleberry (Vaccinium sp.), broomsedge (Andropogon sp.), wire grass (Aristida stricta), and Aronia arbutifolia.

The wet pine plantation to the east has been clear-cut, bedded, and row-planted with slash pine about 15 to 20 years ago. Logging debris and soil have been pushed into windrows. Other vegetation in this area include scattered tupelo, sweet bay (Magnolia virginiana), loblolly bay (Gordonia lasianthus), red maple, wax myrtle (Myrica cerifera), possumhaw viburnum (Viburnum nudum), maidencane (Panicum hemitomon), panicum (Dichanthelium sp.), bluestem (Andropogon sp.), and Asiatic coinwork (Centella asiatica).

The wetland to the west and south is a moderately deep cypress-hardwood swamp dominated by tupelo and cypress and scattered sweetbay, swamp bay (Persea palustris), and red maple. The dominant shrub is fetterbush with some Virginia willow (Itea virginica) and wax myrtle. Royal fern (Osmunda regalis), cinnamon fern, net-leaved chain fern (Woodwardia areolata), and sphagnum moss (sphagnum sp.) are also found.

Wetland vegetation within the ditch itself consists of rush (Juncus sp.), Dicanthelium sp., yellow-eyed grass (Xyris sp.), buttonbush (Cephalanthus occidentalis), sphagnum moss, and some slash pine. Along the edge of the ditch or berm is wild grape (Vitis sp.), saw palmetto, red chokeberry (Aronia arbutifolia), sweet gallberry, wax myrtle, black stemmed chain fern, poison summac (Toxicodendron vernix) and scattered tupelo, swamp bay, and sweet bay.

B. Proposed Site Conditions

1. Elevations

The elevation of the wetland creation area will range from +99 feet at the western edge to +94.5 feet near the eastern end. It is proposed that the existing rim of the tupelo swamp be maintained (+99 feet) to prevent draining it. The mitigation area will be scraped down to form two shallow depressional bowls each with a transitional and submerged zone (Figure 5). Each transitional zone will be scraped down to the average water table to establish saturated soil conditions. Each submerged zone will be scraped down to a maximum of 1 foot below the average water table to establish areas of intermittent/seasonal standing water. The edge of the eastern depressional bowl will approach the elevation of the wet pine plantation (+95 feet).

2. Soils

The mitigation basins area will be over-excavated approximately 0.5 foot and backfilled with the upper soil layer from the impacted wetlands. This mulch will provide a source of propagules (seeds, roots, tubers, etc.) that will help establish naturally occurring wetland ground cover vegetation.

3. Hydrology

The two depressional creations within the mitigation area are designed to be contiguous with the surrounding wetland systems, thus promoting regular and periodic inundation of the site. Fluctuations in the water table are normal and are expected to cause the soils in the mitigation area to be periodically saturated or flooded with water.

The upland-cut portion of the drainage ditch will be realigned. It will curve to the north and outfall into the western basin. Water coming through the ditch will be allowed to sheet flow across the transition zone into the submerged zone.

4. Vegetation

The design of the mitigation area is to create a cypress/hardwood swamp. To accomplish this a variety of wetland tree and shrub species will be planted. The trees will average 4 to 6 feet in height in three-gallon containers to be planted on 10-foot centers or approximately 440 trees/acre. The shrubs will average 2 to 4 feet in height in one-gallon containers to be planted along all edges. Throughout the transitional zones, transitional wetland species will be planted, such as:

red maple (Acer rubrum)
 sweetgum (Liquidambar styraciflua)
 laurel oak (Quercus laurifolia)
 wax myrtle (Myrica cerifera)
 fetterbush (Lyonia lucida)

The deeper, submerged zones will be planted with such wetland species as:

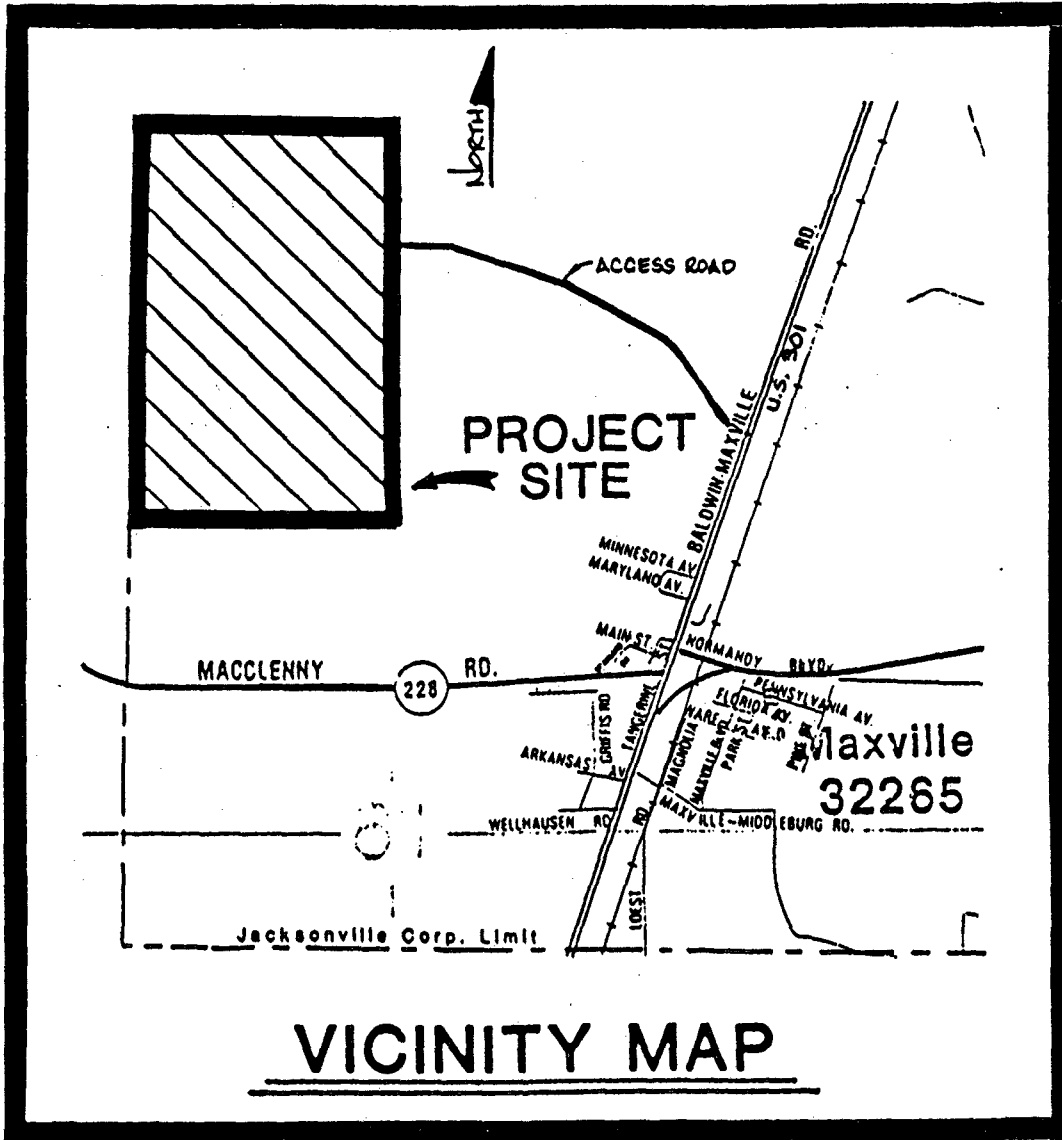
cypress (Taxodium distichum)
 tupelo (Nyssa sylvatica var. biflora)
 sweet bay (Magnolia virginiana)
 button bush (Cephalanthus occidentalis)
 Virginia willow (Itea virginica)

WETLAND CREATION RATIO

<u>Jurisdiction</u>	<u>Wetland Impacted</u>	<u>Wetlands Created</u>	<u>Ratio</u>
Corps of Engineers	4.44 AC	4.76 AC	1.07:1
St. Johns River Water Management District	3.17 AC	4.76 AC	1.50:1
Florida Department of Environmental Regulation	1.61 AC	4.76 AC	2.8:1

5. Maintenance and Monitoring

The creation area will be inspected every six months for two years following planting. Monitoring reports will be forwarded to the appropriate regulatory agencies. Standard mitigation requirements will be met, such as ensuring 75 percent survival of plantings. Routine maintenance will be performed as necessary to control nuisance weed species and to ensure success of the planting.



VICINITY MAP



England-Thims
& Miller, Inc.

VICINITY MAP

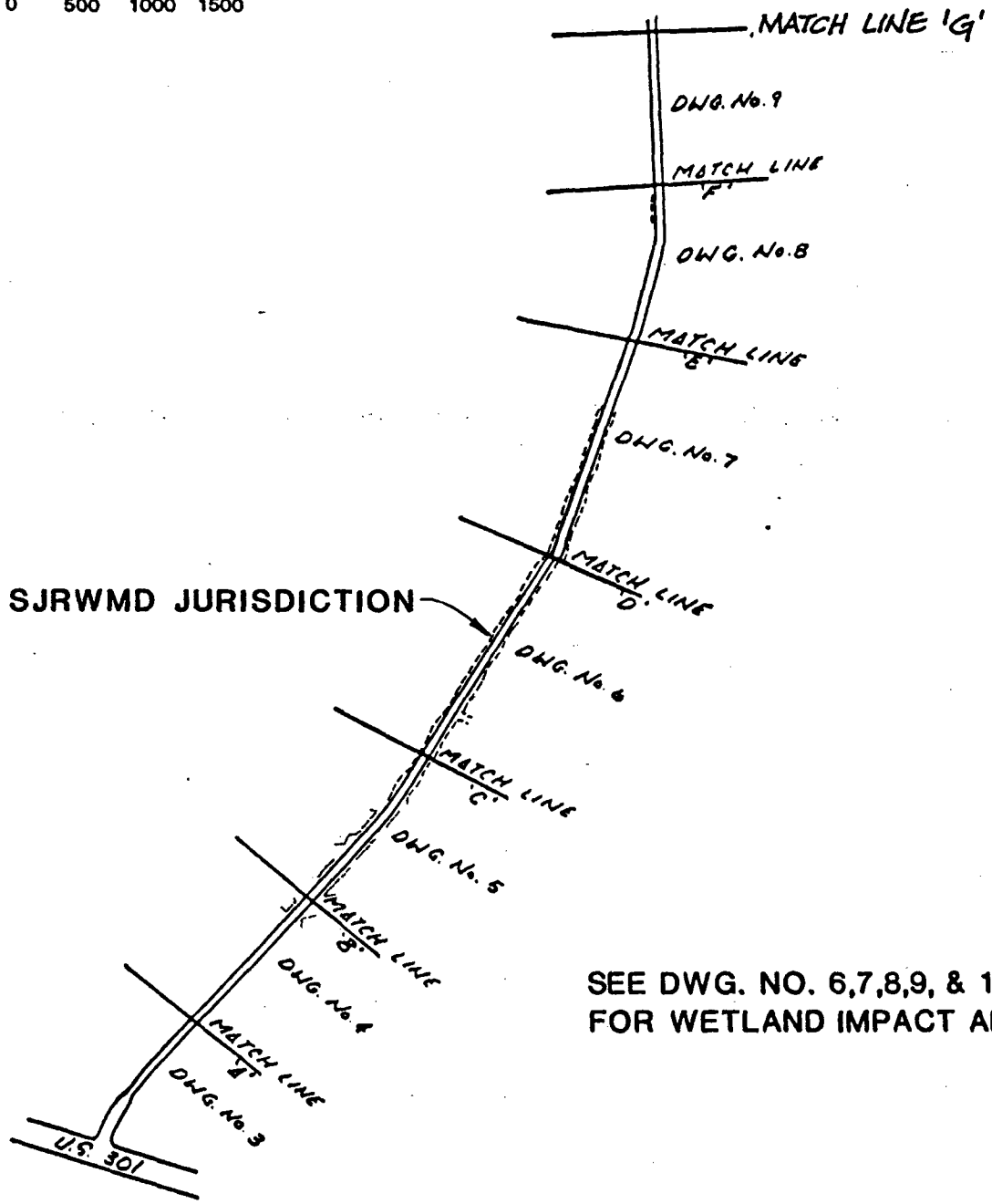
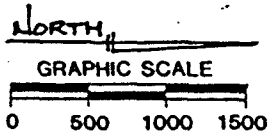
TRAILRIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. E89-113

DATE JUNE 11, 1990

SCALE 1" = 4000'

DRAWING NO. 1



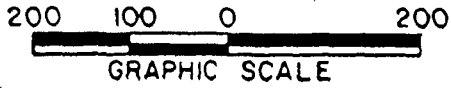
SEE DWG. NO. 6, 7, 8, 9, & 11
FOR WETLAND IMPACT AREAS



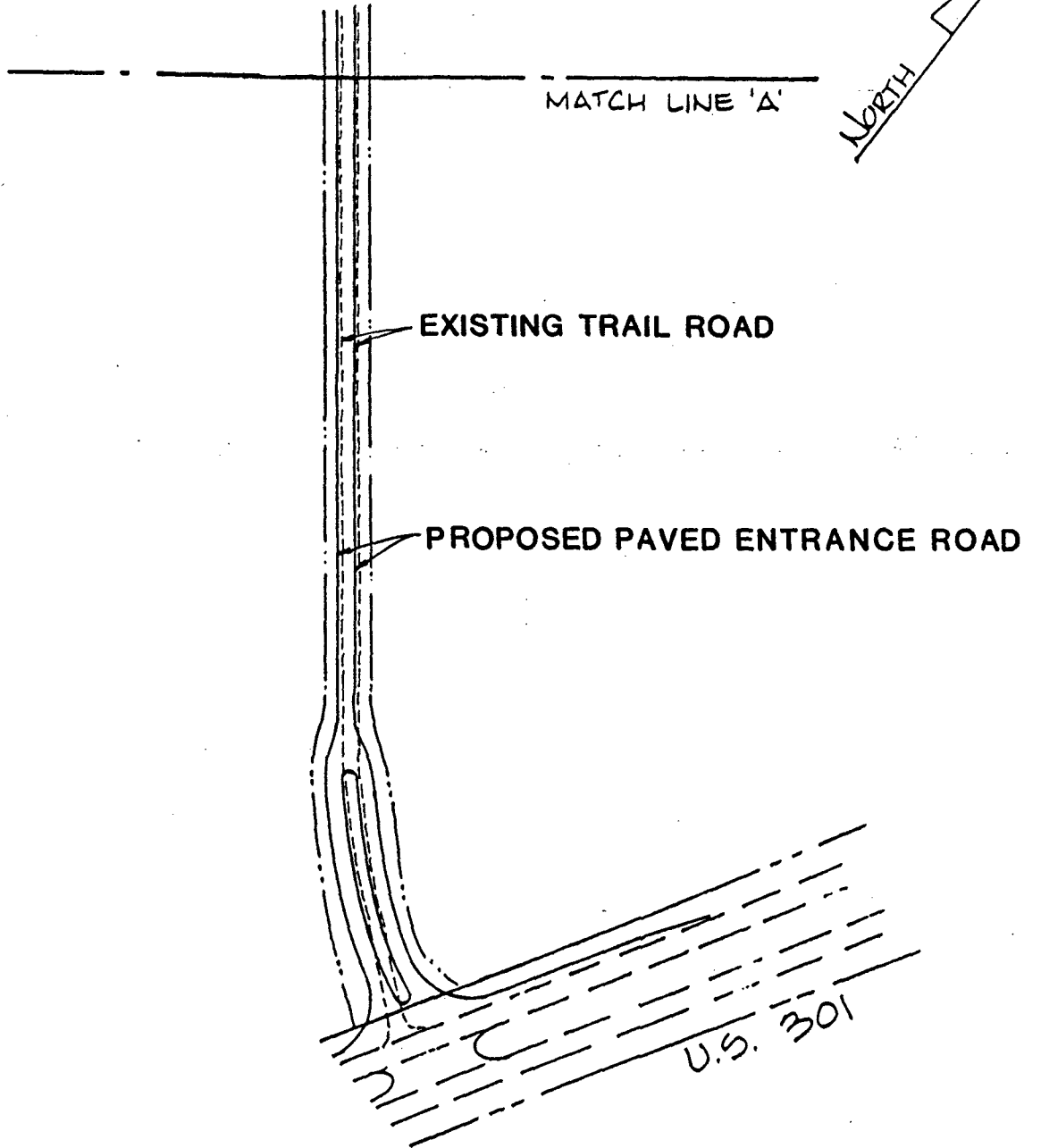
SITE PLAN
ENTRANCE ROAD

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

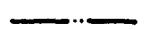


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NO SJRWMD IMPACTS THIS SHEET



LEGEND

-  LIMITS OF CONSTRUCTION
-  SJRWMD WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

TOTAL ST. JOHNS RIVER WATER MANAGEMENT DISTRICT WETLAND IMPACTS - 3.17 Ac.



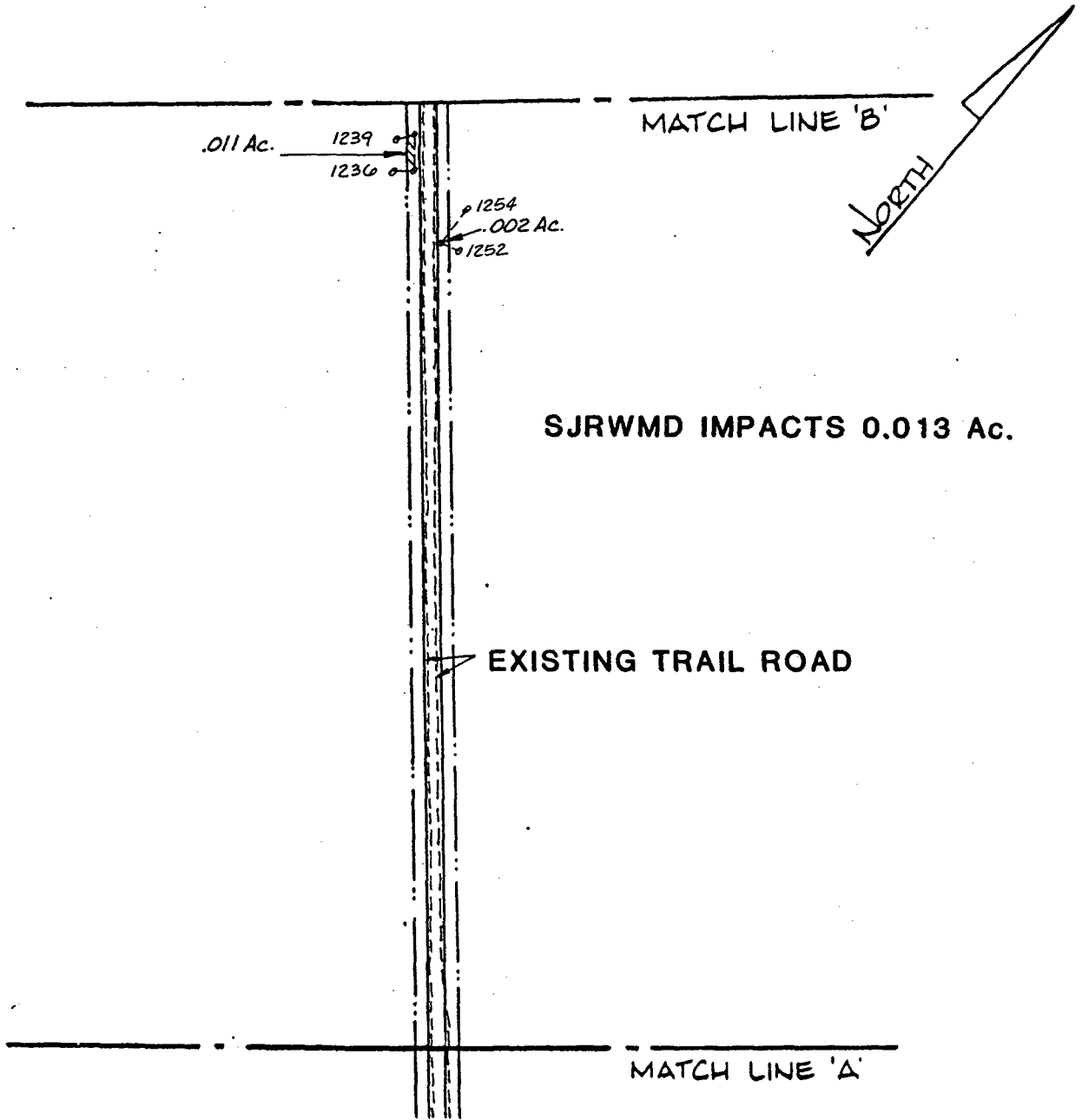
SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.


PROJ. NO.	89-113
DATE	JUNE 11, 1990
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GRAPHIC SCALE



LEGEND

-  LIMITS OF CONSTRUCTION
-  SJRWMD WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVT.



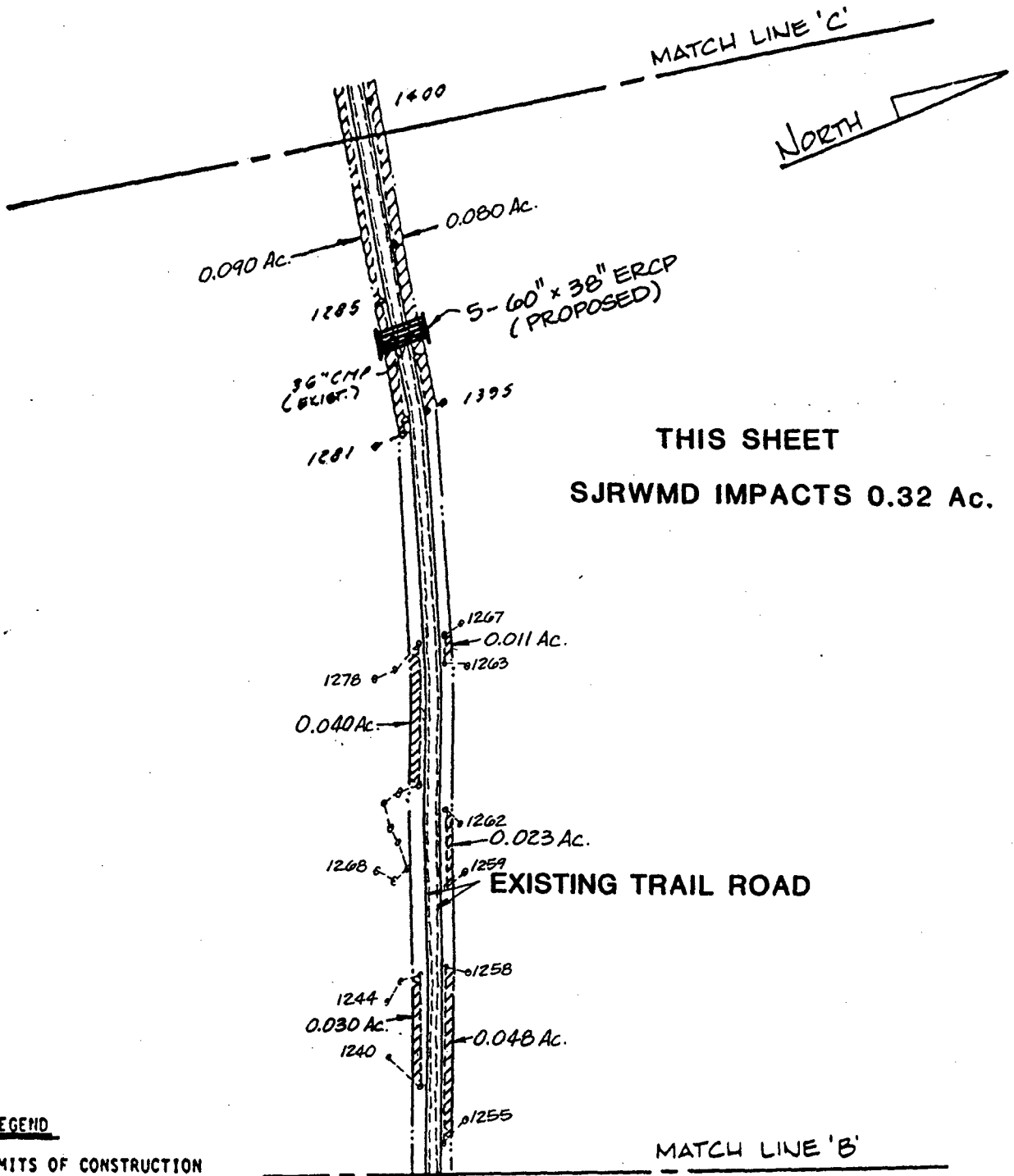
SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
DATE JUNE 11, 1990
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GRAPHIC SCALE



LEGEND

- LIMITS OF CONSTRUCTION
- ////// SJRWMD WETLAND IMPACT
- ===== PROPOSED 24' ASPHALT PAVT.

SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

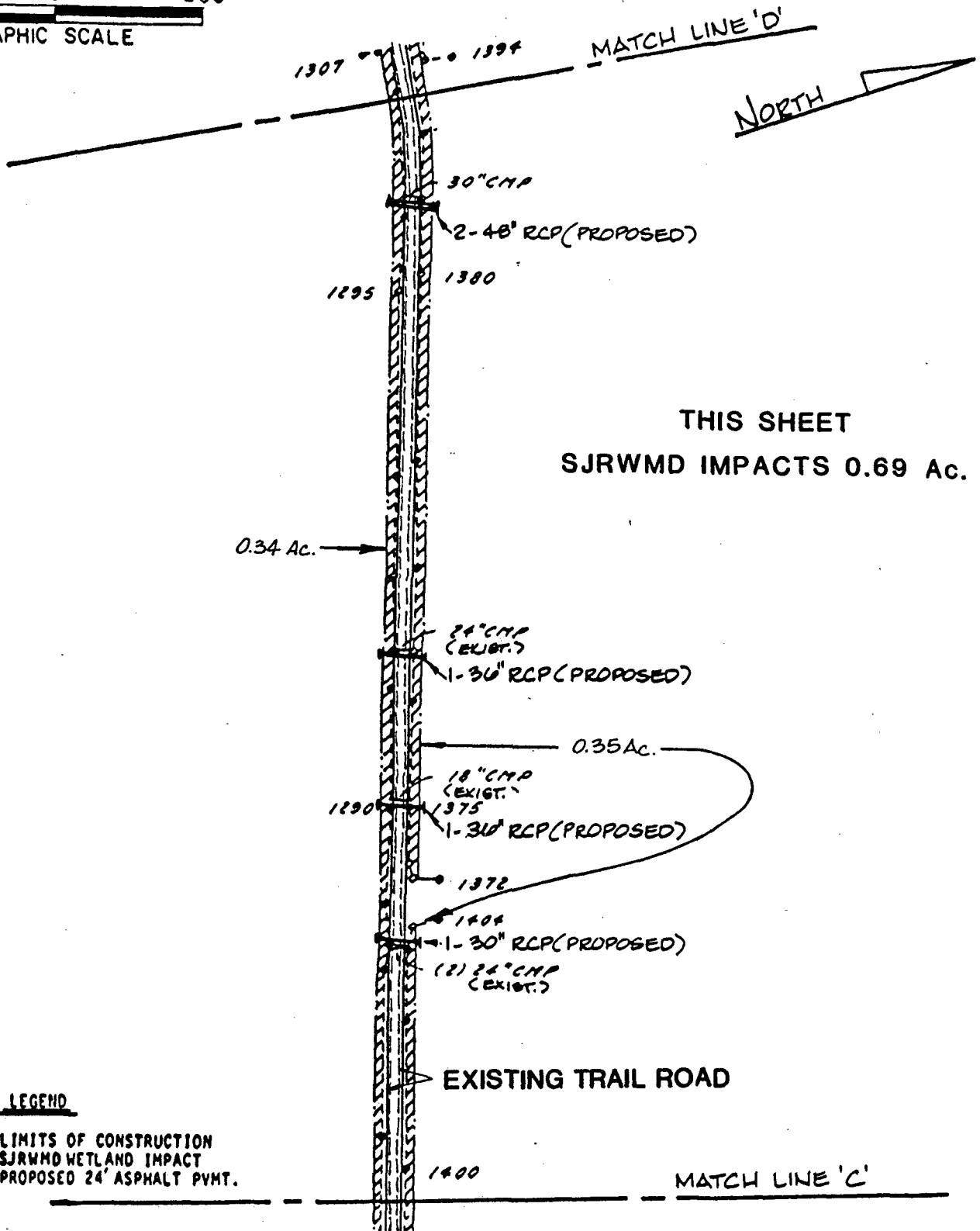
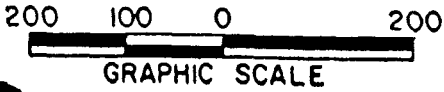
DATE JUNE 11, 1990

SCALE GRAPHIC

DRAWING NO. 6

SJRWMD

England-Thims
& Miller, Inc.



THIS SHEET
SJRWMD IMPACTS 0.69 Ac.

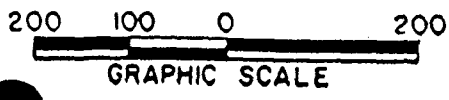
LEGEND

- LIMITS OF CONSTRUCTION
- ////// SJRWMD WETLAND IMPACT
- ==== PROPOSED 24' ASPHALT PAVT.

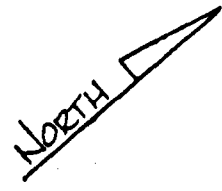
SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
DATE JUNE 11, 1990
SCALE GRAPHIC
DRAWING NO. 7



MATCH LINE 'E'



0.17 Ac.

THIS SHEET
SJRWMD IMPACTS 0.38 Ac.




1300

EXISTING TRAIL ROAD

1385

0.21 Ac.

LEGEND

-  LIMITS OF CONSTRUCTION
-  SJRWMD WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

1310

1390

1307

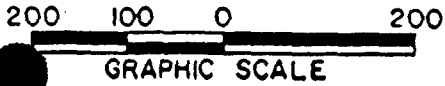
1394

MATCH LINE 'D'

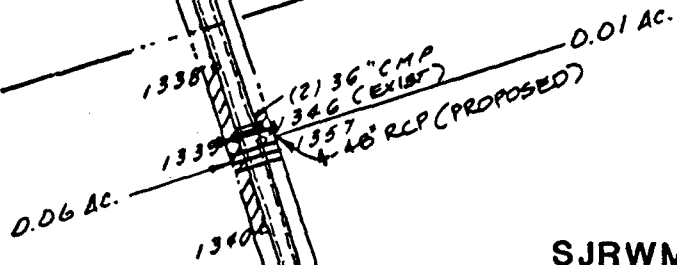


SITE PLAN
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO.	89-113
DATE	JUNE 11, 1990
SCALE	GRAPHIC
DRAWING NO.	8



MATCH LINE 'F'






THIS SHEET
SJRWMD IMPACTS 0.07 Ac.

EXISTING TRAIL ROAD

MATCH LINE 'E'

LEGEND

-  LIMITS OF CONSTRUCTION
-  SJRWMD WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.



England-Thims
& Miller, Inc.

SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

DATE JUNE 11, 1990

SCALE GRAPHIC

DRAWING NO. 9

200 100 0 200



GRAPHIC SCALE



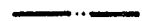


PROPERTY LINE

MATCH LINE 'G'

EXISTING TRAIL ROAD

MATCH LINE 'F'

LEGEND

-  LIMITS OF CONSTRUCTION
-  SJRWMD WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

THIS SHEET
NO SJRWMD IMPACTS

SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

DATE JUNE 11, 1990

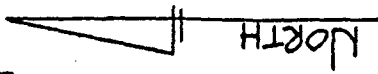
SCALE GRAPHIC

DRAWING NO. 10

SJRWMD



England-Thims
& Miller, Inc.



CLASS III
SECTION 18
SECTION 19

THIS SHEET
SJRWMD IMPACTS 0.30 AC.
PROPOSED DBL. 48" CMPS.

LIMITS OF JURISDICTION

CLASS I

EXISTING TRAIL ROAD

LEGEND

- LIMITS OF CONSTRUCTION
- SJRWMD WETLAND IMPACT
- PROPOSED 24' ASPHALT PVMF.

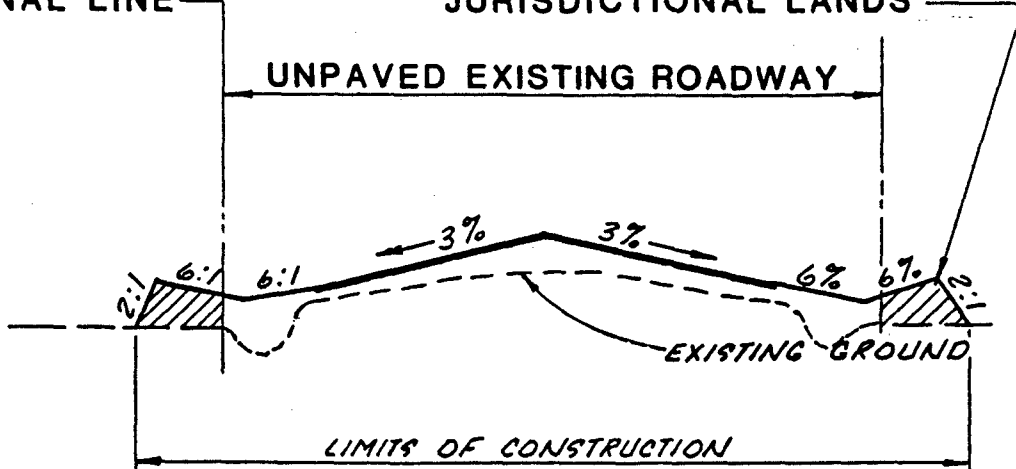
**England-Thims
& Miller, Inc.**
Consulting & Design Engineers
3031 St. Johns Blvd. S.E., Jacksonville, FL 32226

SITE PLAN
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

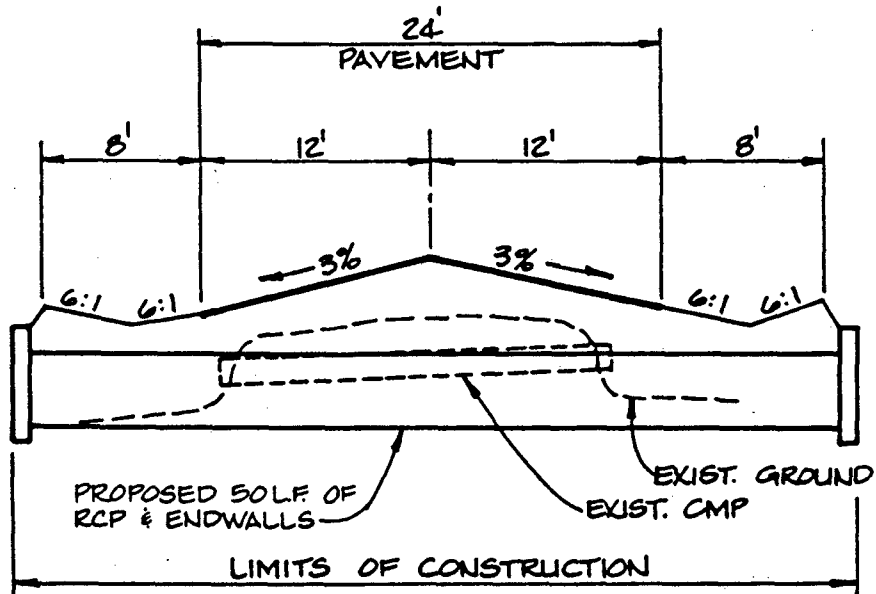
PROJ. NO.	89-113
DATE	JUNE 11, 1990
SCALE	GRAPHIC
DRAWING NO.	11

SJRWMD
JURISDICTIONAL LINE

IMPACTS TO SJRWMD
JURISDICTIONAL LANDS



TYPICAL SECTION WHERE
IMPACTING SJRWMD JURISDICTION



TYPICAL CULVERT REPLACEMENT



ROADWAY SECTIONS

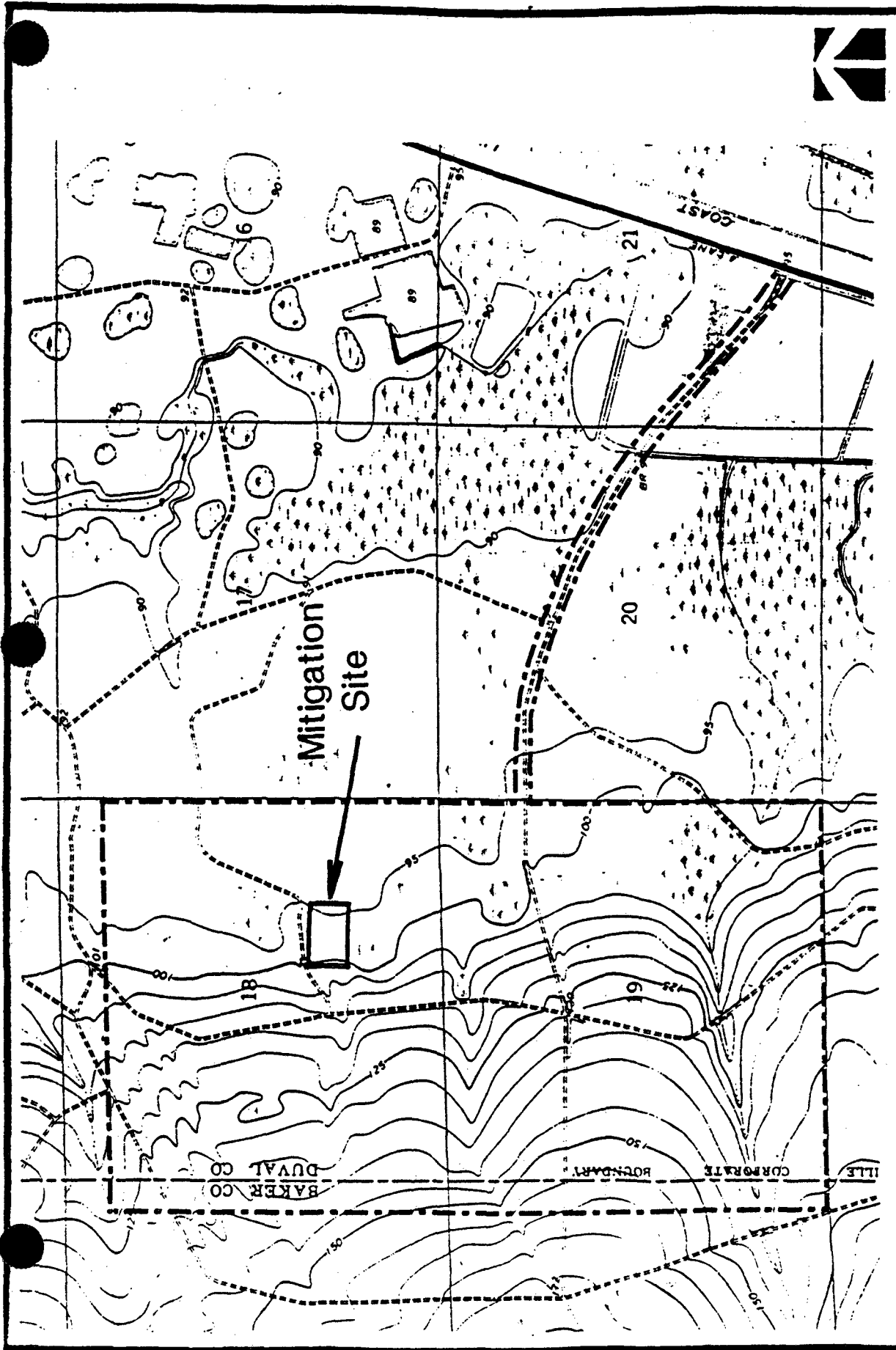
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

DATE JUNE 11, 1990

SCALE 1" = 10'

DRAWING NO. 12



SJRWMD

Proj No. 89-395

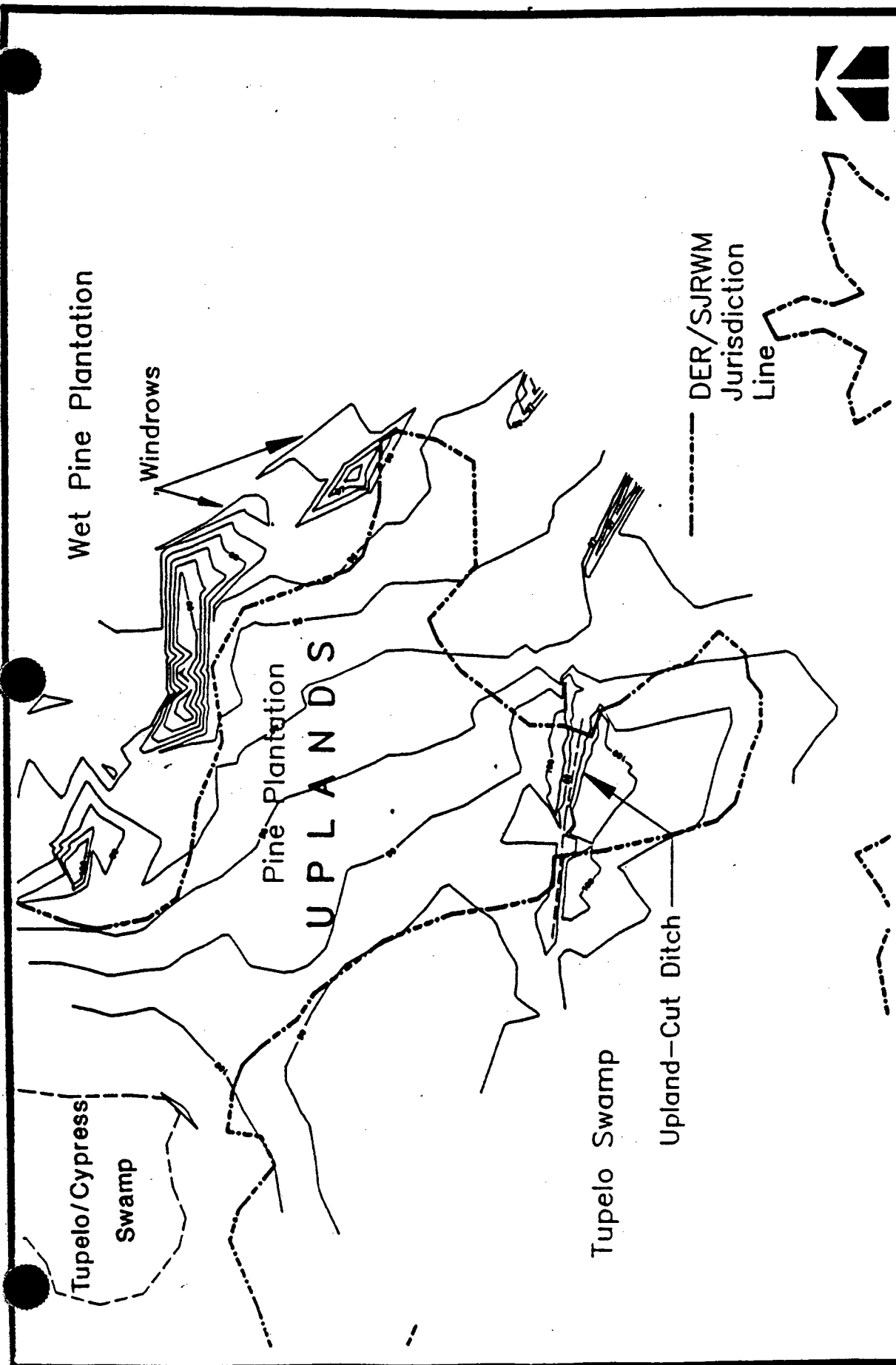
Date JUNE 11, 1990

Scale 1" = 2000'

Drawing No. 13

Figure 1 Location Map
Trail Ridge Landfill
Mitigation Plan

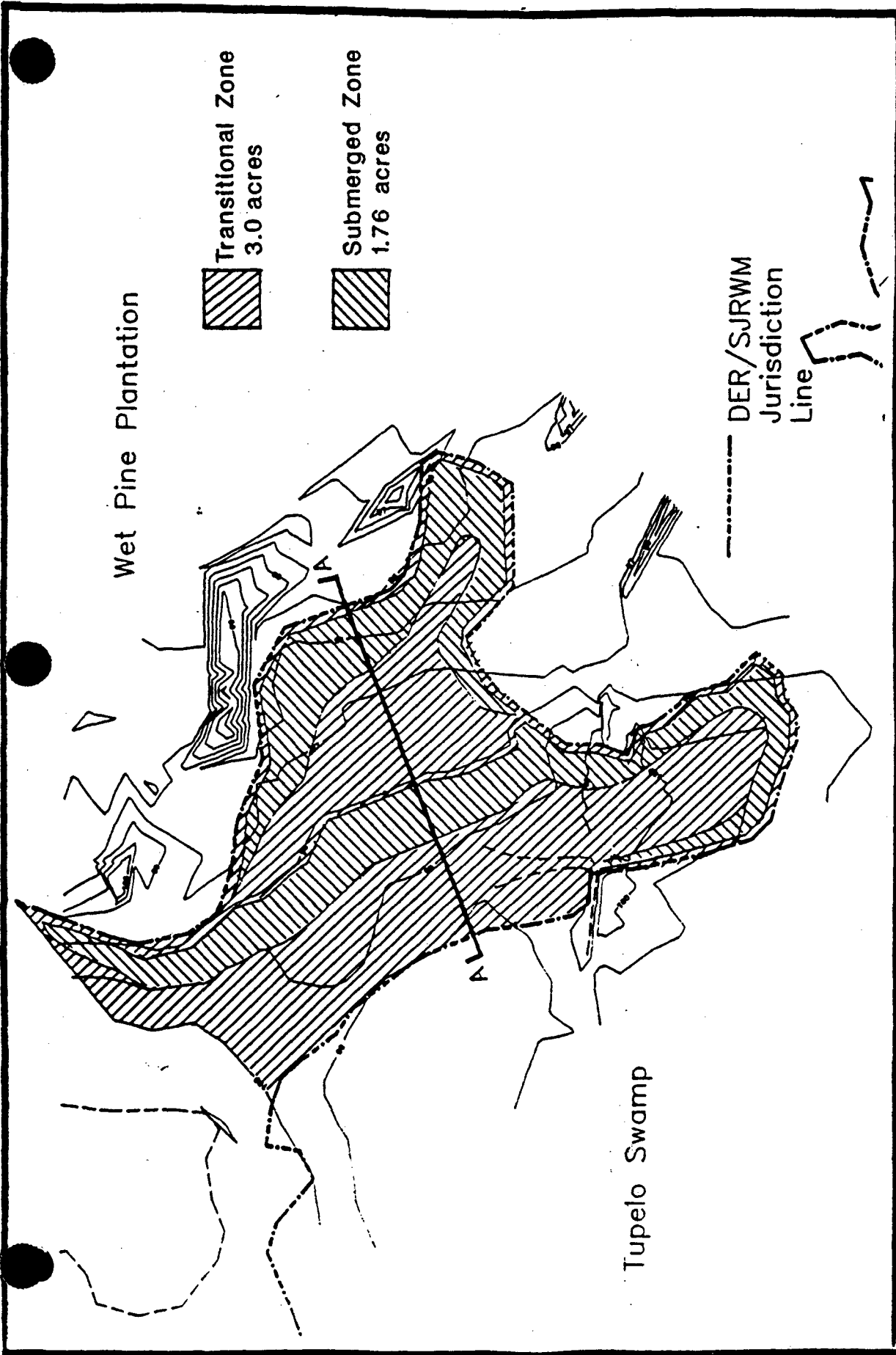
ENVIRONMENTAL
SERVICES, INC.



Proj No.	89-395
Date	JUNE 11, 1990
Scale	1"=150'
Drawing No.	15


Figure 3 Existing Conditions
 Trail Ridge Landfill
 Mitigation Plan

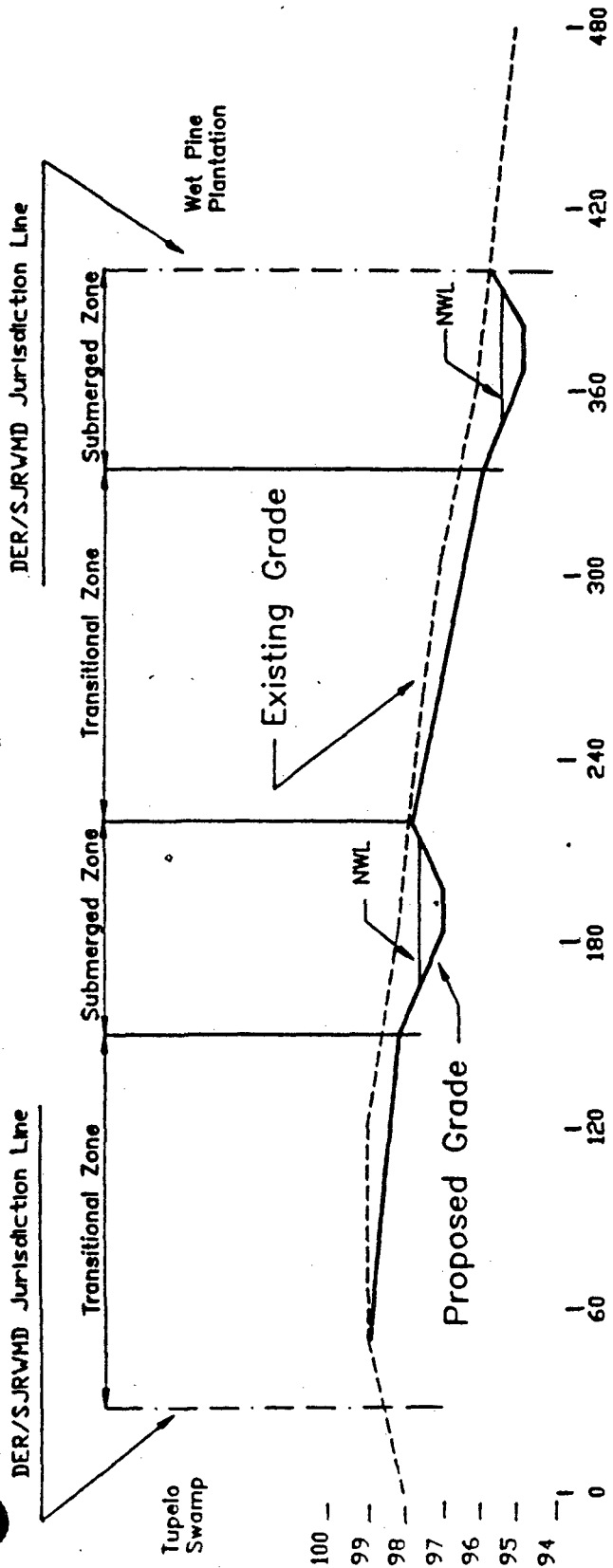
ENVIRONMENTAL SERVICES, INC.



Proj No.	89-395
Date	JUNE 11, 1990
Scale	1"=150'
Drawing No.	16

Figure 4 Proposed Conditions
Trail Ridge Landfill
Mitigation Plan

 ENVIRONMENTAL SERVICES, INC.



Proposed Planting Schedule

<u>Proposed Planting Zone</u>	Red Maple Sweetgum Laurel Oak Wax Myrtle Fetterbush
<u>Submerged Zone</u>	Cypress Tupelo Sweet Bay Buttonbush Virginia Willow

Figure 5 Mitigation Cross-Section
Trail Ridge Landfill
Mitigation Plan

Proj No.	89-395
Date	JUNE 11, 1990
Scale	as shown
Drawing No.	17

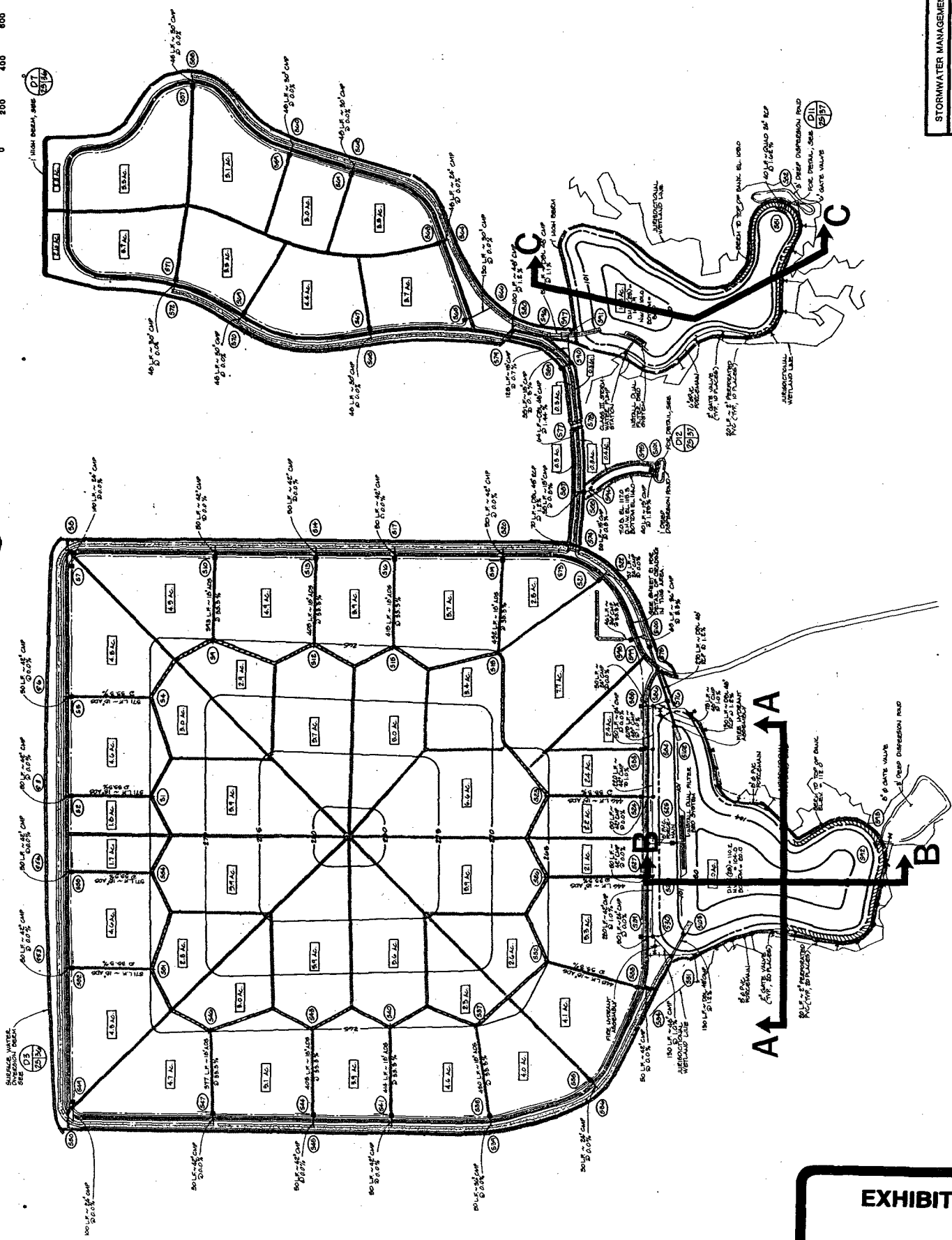
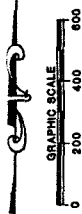
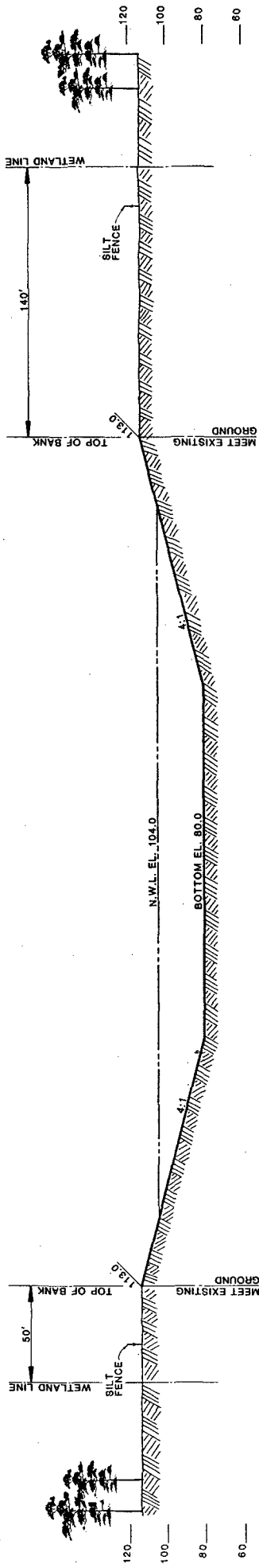


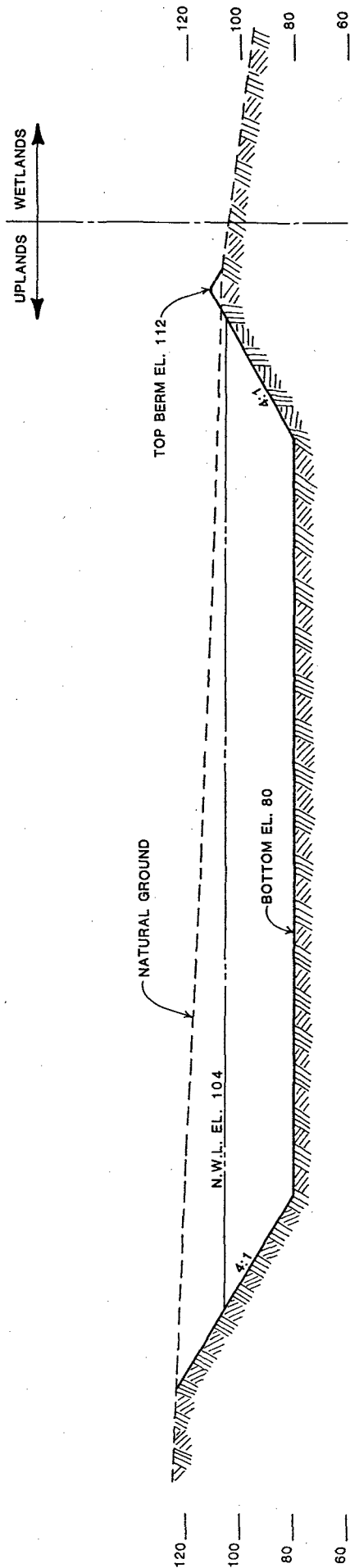
EXHIBIT
 TRL-21A



CROSS SECTION A-A
 CLASS I - STORMWATER / BORROW AREA

SCALE: 1" = 20'

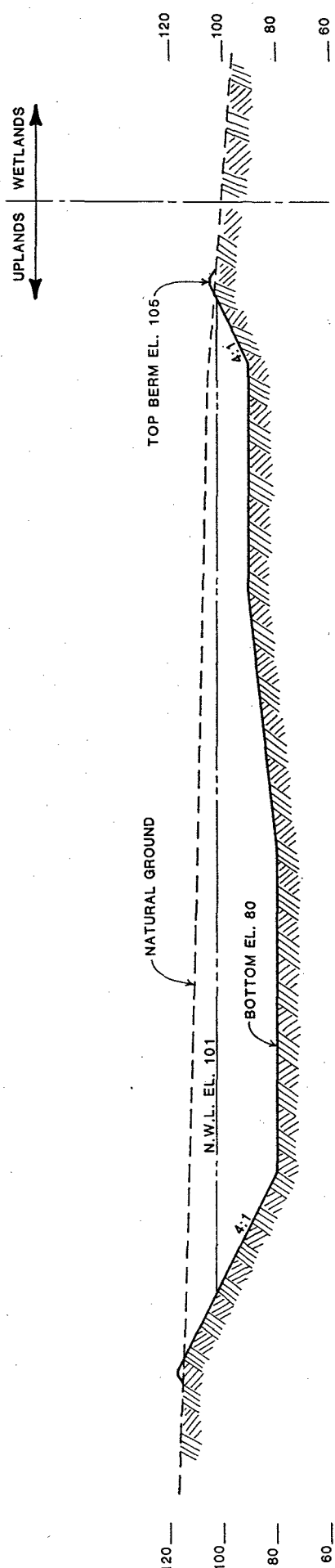
EXHIBIT
 TRL-21B



**CROSS SECTION B-B
CLASS I - BORROW AREA**

SCALE: 1" : 60' HORIZONTAL
 SCALE: 1" : 20' VERTICAL

EXHIBIT
 TRL-21C



**CROSS SECTION C-C
CLASS III - STORMWATER / BORROW AREA**

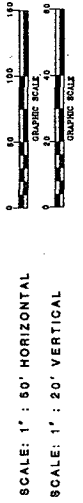
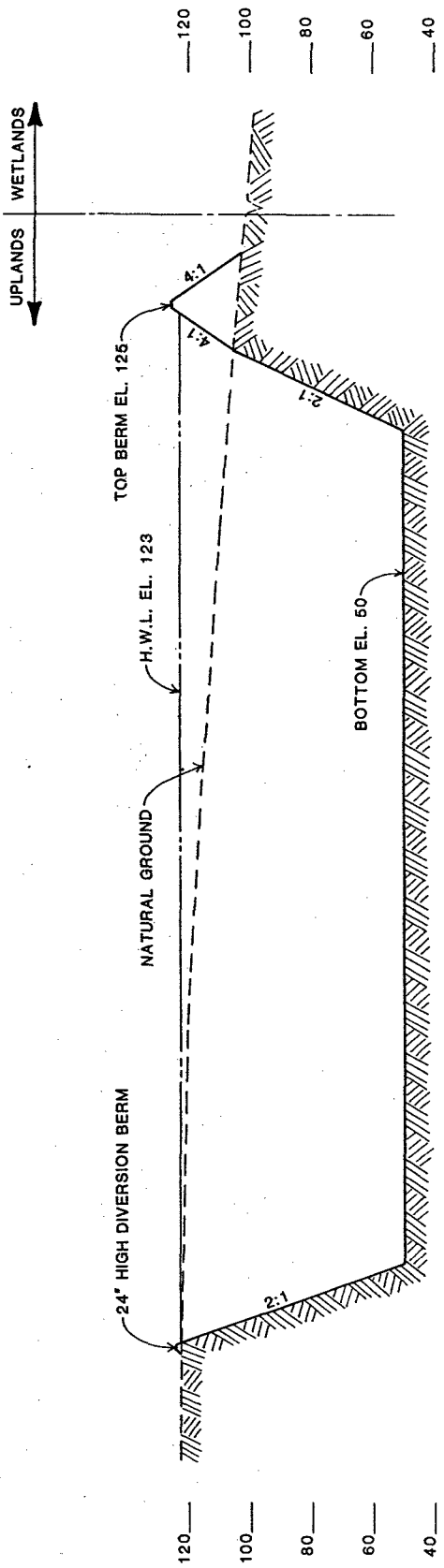


EXHIBIT
TRL-21D

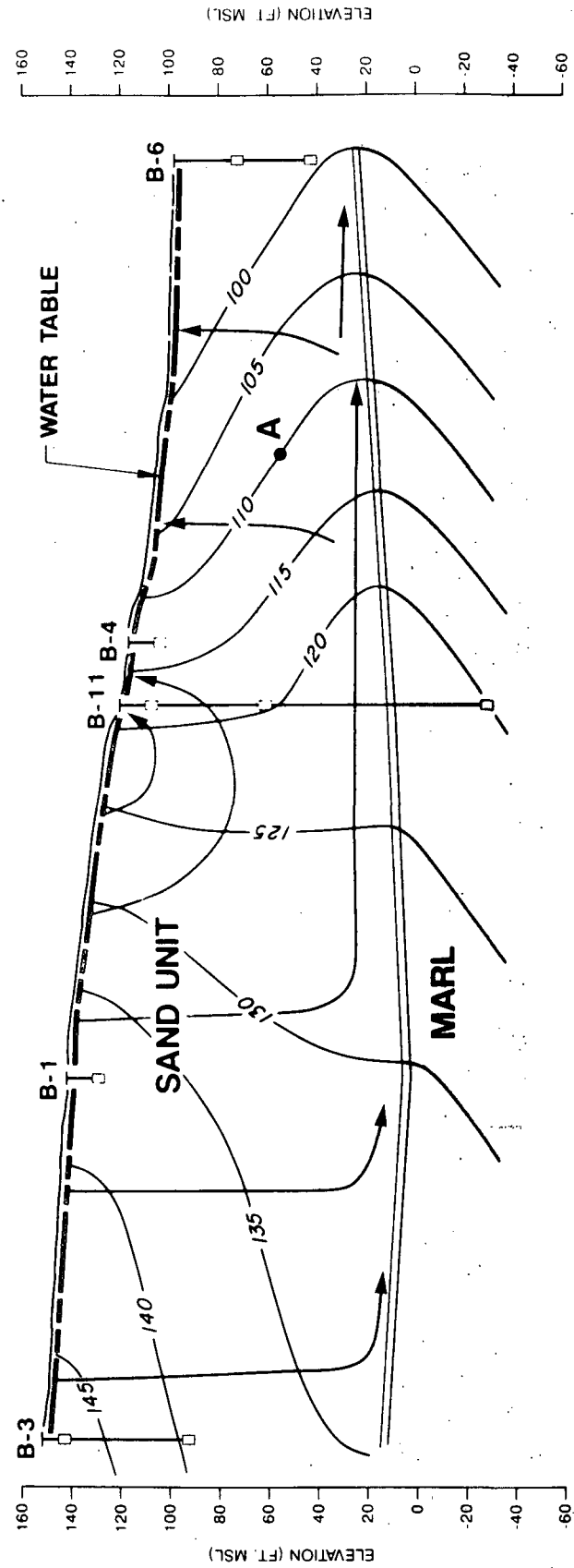
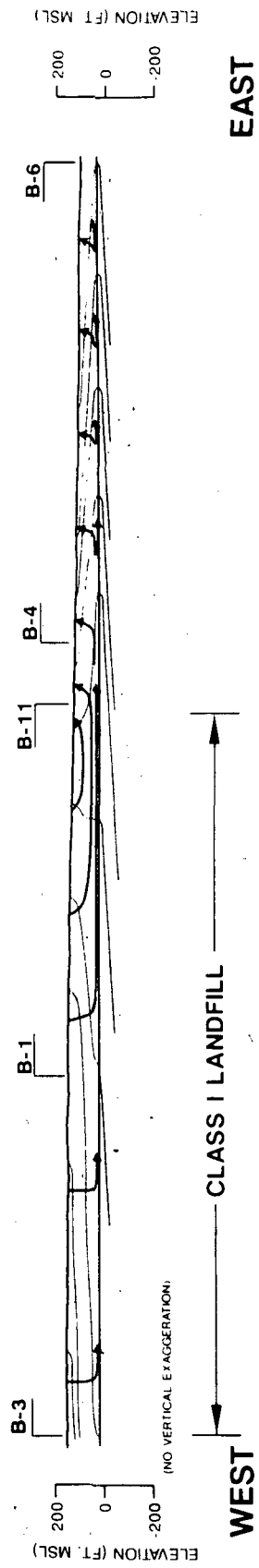


**CROSS SECTION
NORTH BORROW AREA**



EXHIBIT

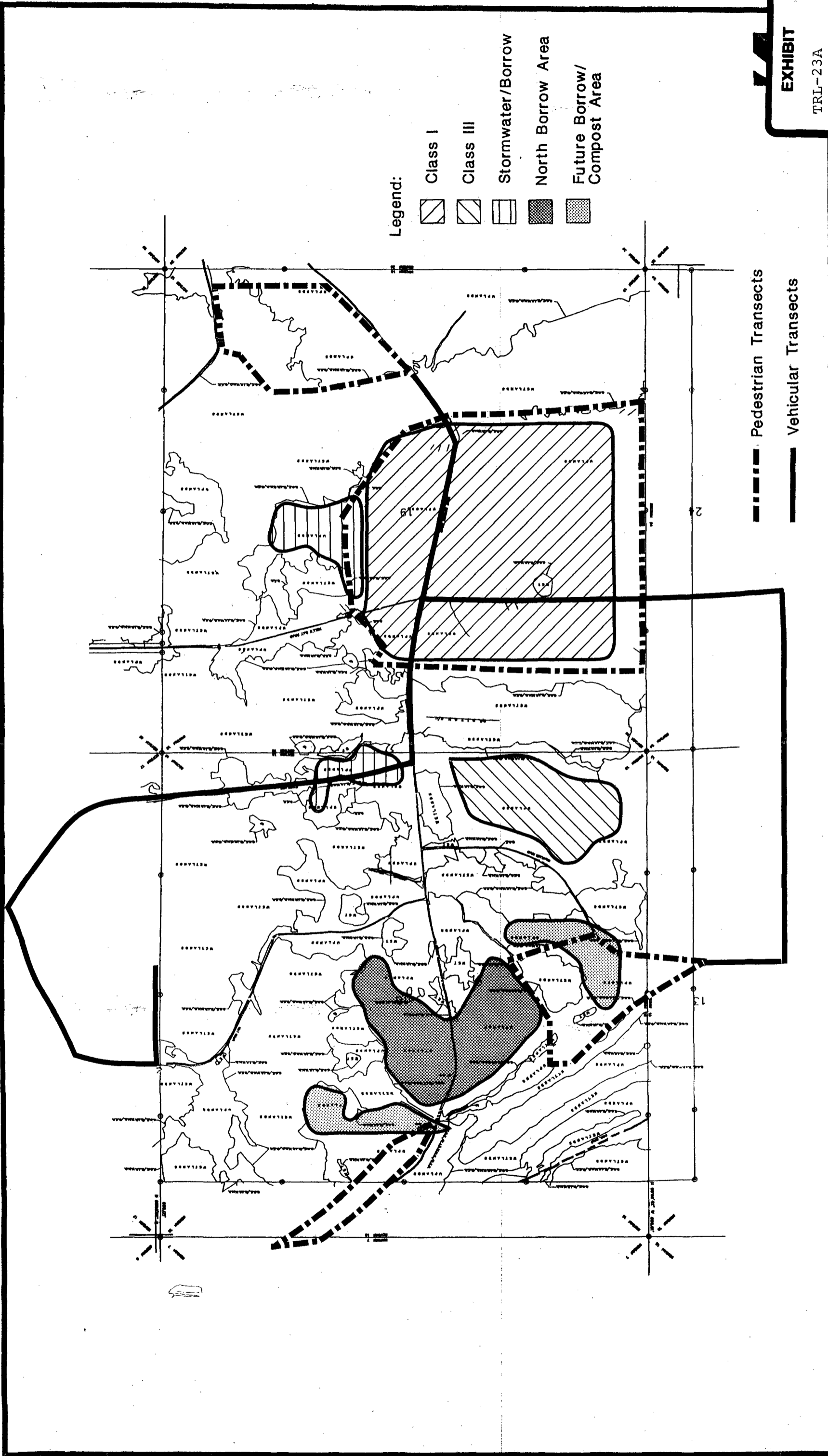
TRL-21E








LEGEND
 —/30— POTENTIOMETRIC CONTOURS
 → FLOW LINES

SITE HYDROSTRATIGRAPHIC SECTION

EXHIBIT
 TRL-22



Legend:

-  Class I
-  Class III
-  Stormwater/Borrow
-  North Borrow Area
-  Future Borrow/Compost Area



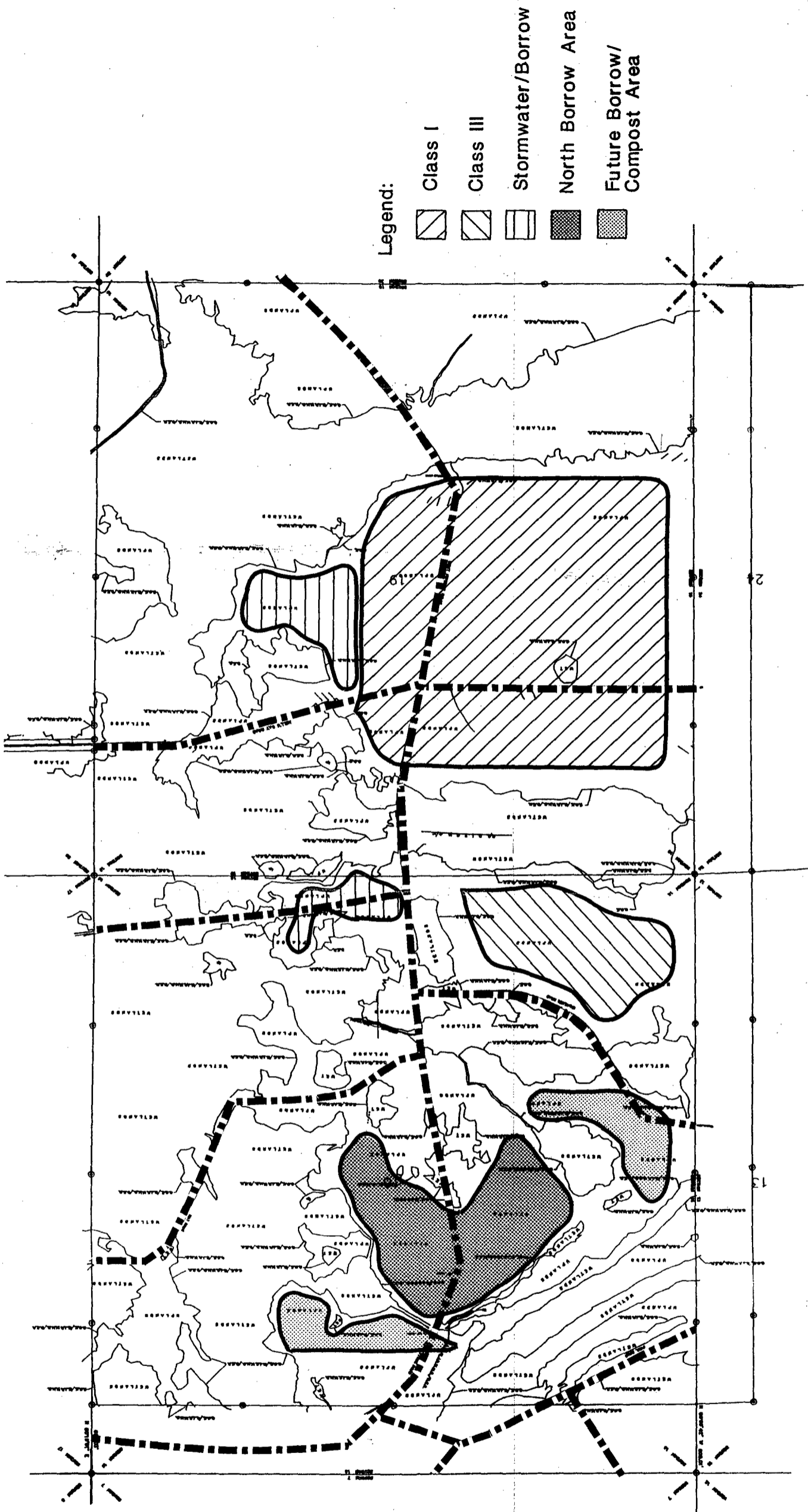
-  Pedestrian Transects
-  Vehicular Transects

EXHIBIT
TRL-23A

Black Bear Transects

Trail Ridge Landfill, Inc.

Scale: 1"=1000'



Legend:

- Class I
- Class III
- Stormwater/Borrow
- North Borrow Area
- Future Borrow/Compost Area

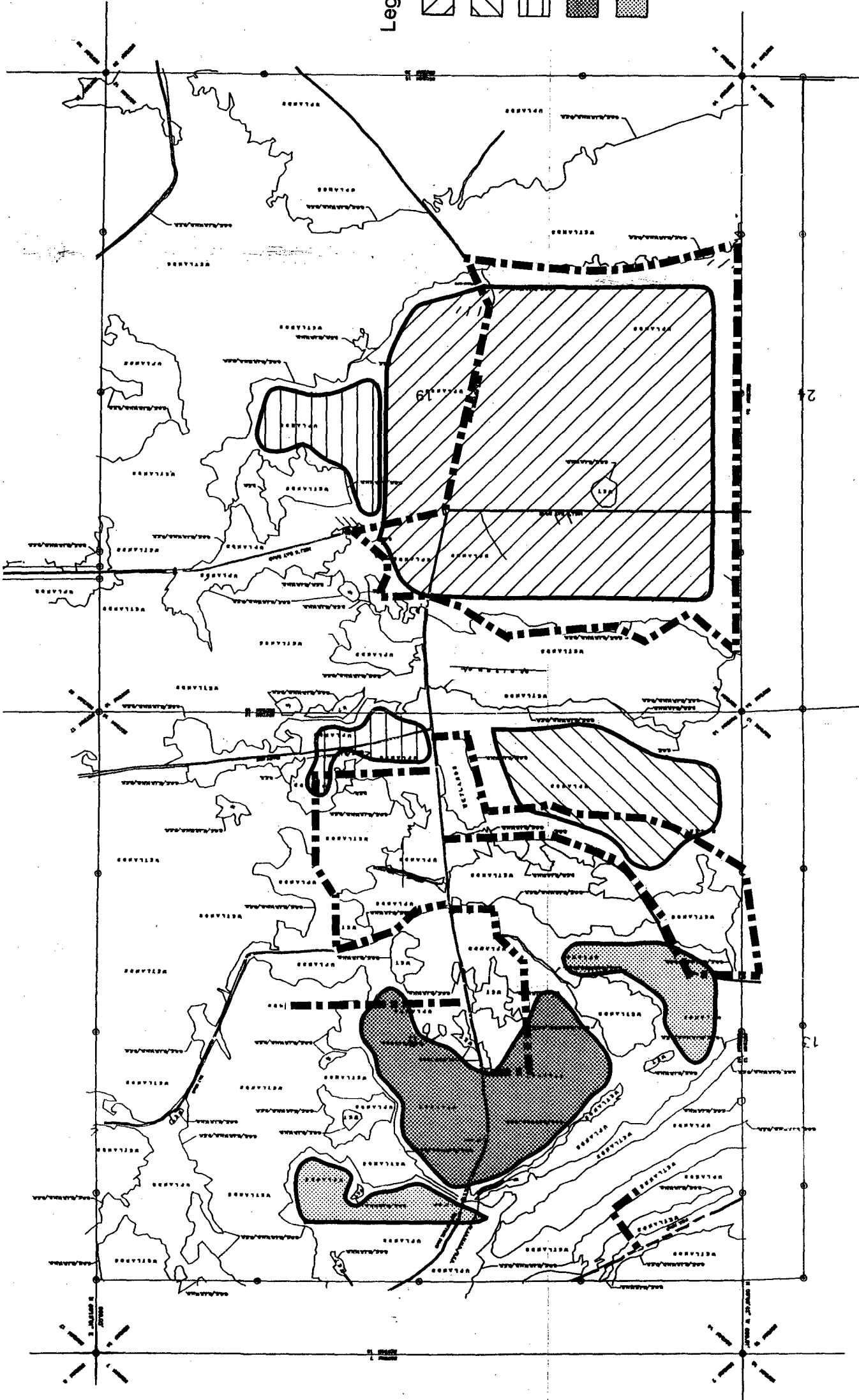
--- Pedestrian Transects

EXHIBIT
TRL-23B

Trail Ridge Landfill, Inc.

Black Bear Transects

Scale: 1"=1000'



Legend:







-  Class I
-  Class III
-  Stormwater/Borrow
-  North Borrow Area
-  Future Borrow/Compost Area

EXHIBIT
TRL-23C

 Pedestrian Transects

Trail Ridge Landfill, Inc.

Black Bear Transects

Scale: 1"=1000'

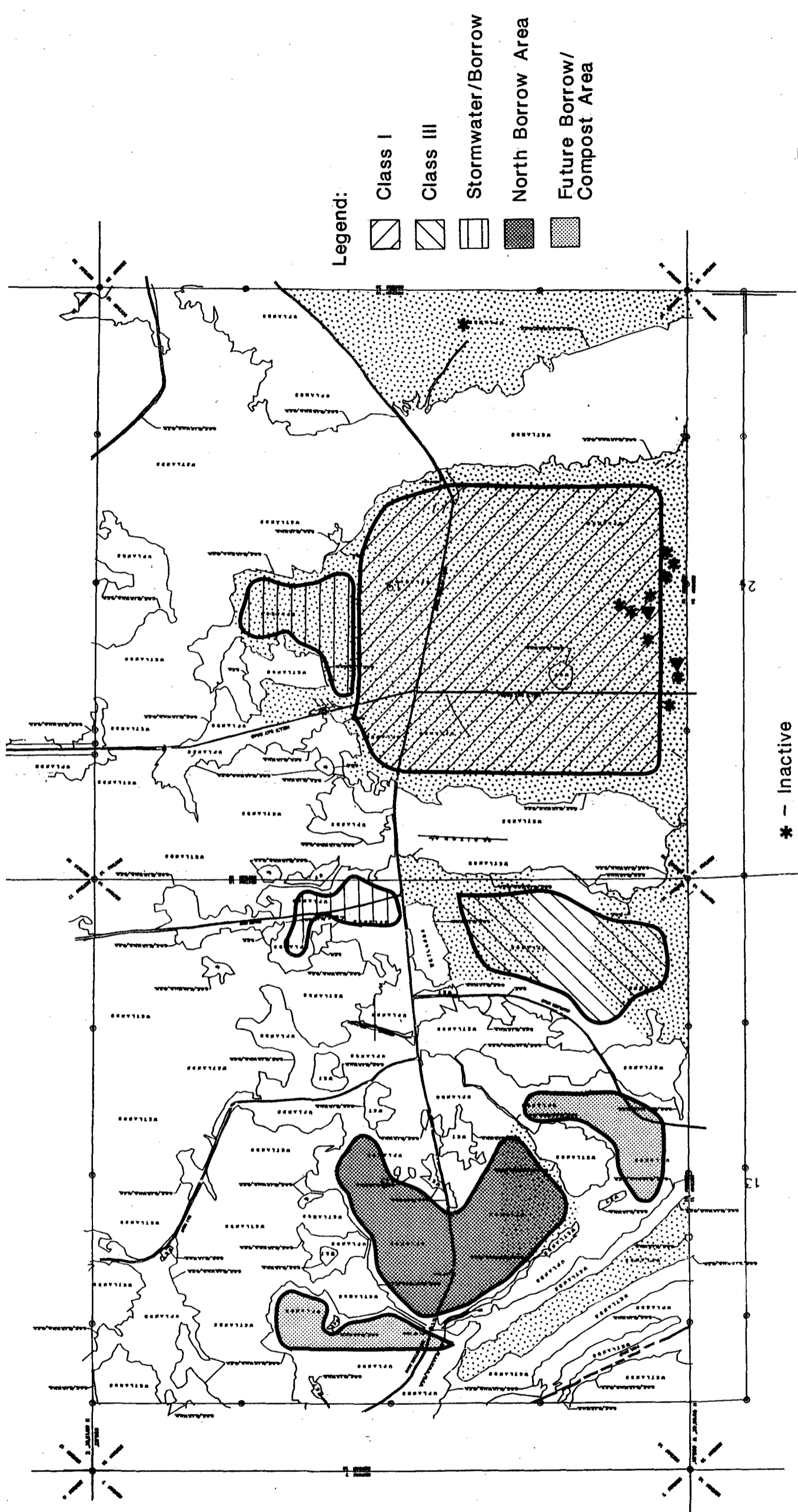


EXHIBIT
TRL-23D

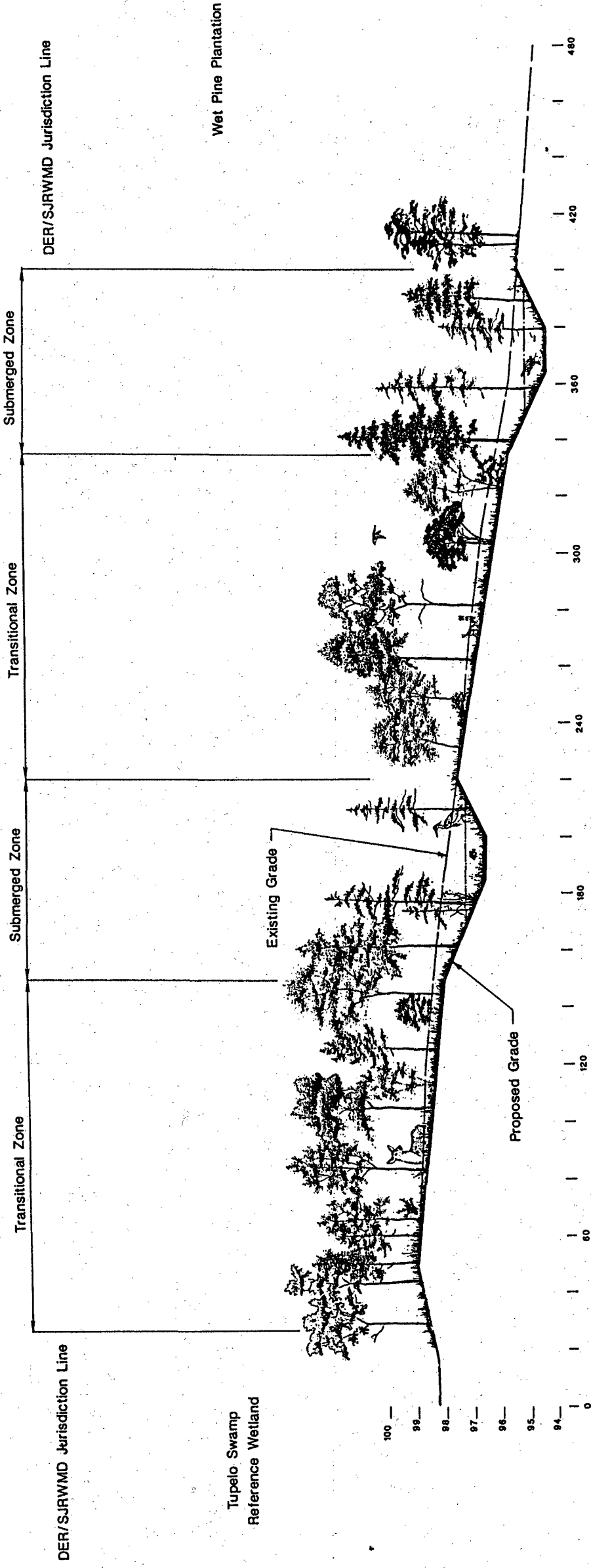
Trail Ridge Landfill, Inc.

Gopher Tortoise Transects

Scale: 1"=1000'

Cross-Section A/A

Note: Trees shown in cross-section are representations of species to be planted and not drawn to scale.



Proposed Planting Schedule

<u>Trees</u>	<u>Transitional Zone</u>	<u>Submerged Zone</u>
Red Maple - <i>Acer rubrum</i>	Cypress - (<i>Taxodium distichum</i>)	Tupelo - <i>Nyssa sylvatica</i> var. <i>biflora</i>
Sweetgum - <i>Liquidambar styraciflua</i>	Sweet Bay - <i>Magnolia virginiana</i>	Buttonbush - <i>Cephalanthus occidentalis</i>
Laurel Oak - <i>Quercus lauriflora</i>	Virginia Willow - <i>Itlea virginica</i>	
<u>Shrubs</u>	Wax Myrtle - <i>Myrica cerifera</i>	
Fetterbush - <i>Lyonia lucida</i>		

The trees will average 4 to 6 feet in height in three-gallon containers to be planted on 10-foot centers or approximately 440 trees/acre.

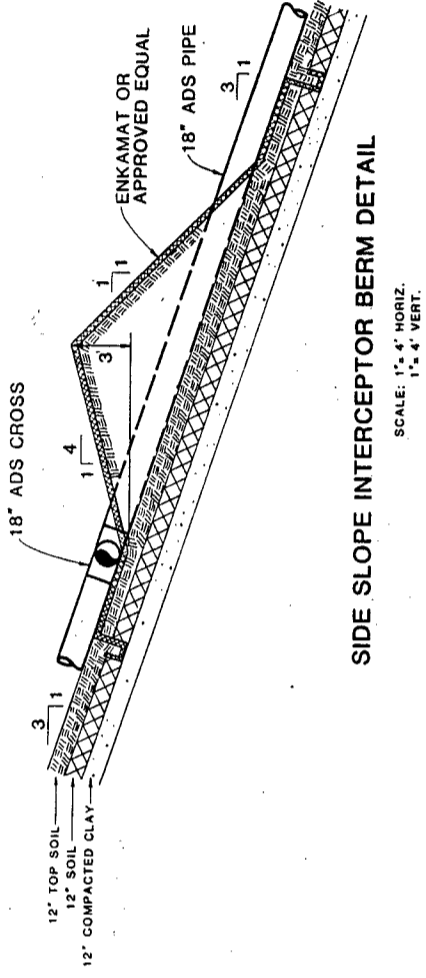
The shrubs will average 2 to 4 feet in height in one-gallon containers to be planted along all edges.

REVISIONS	BY

Trail Ridge Landfill, Inc.

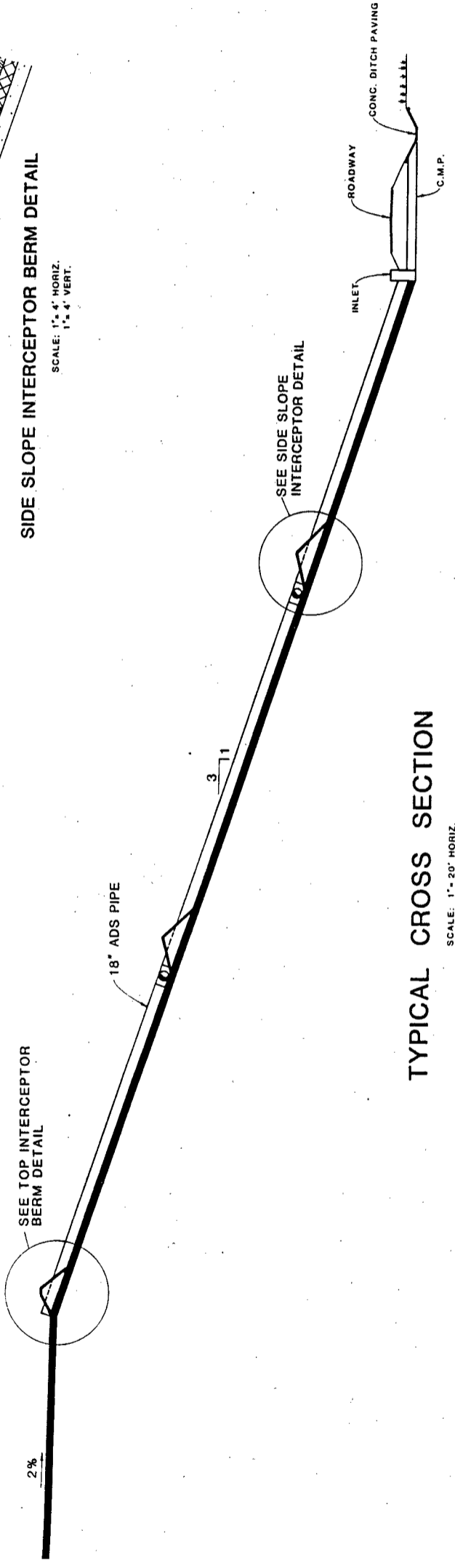
Date	
Scale	
Drawn	
Job	
Sheet	
Of	
Sheets	

EXHIBIT
TRL-26



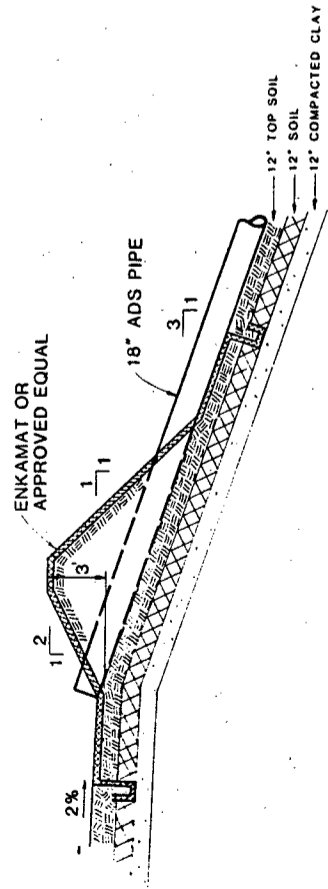
SIDE SLOPE INTERCEPTOR BERM DETAIL

SCALE: 1" = 4' HORIZ.
1" = 4' VERT.



TYPICAL CROSS SECTION

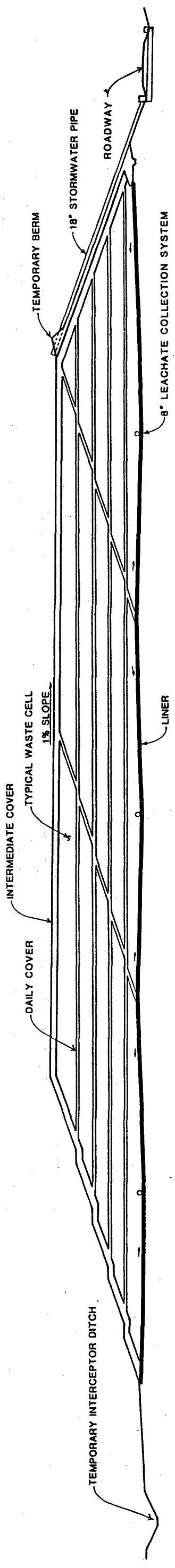
SCALE: 1" = 20' HORIZ.
VERT. SCALE EXAGGERATED FOR CLARITY



TOP INTERCEPTOR BERM DETAIL

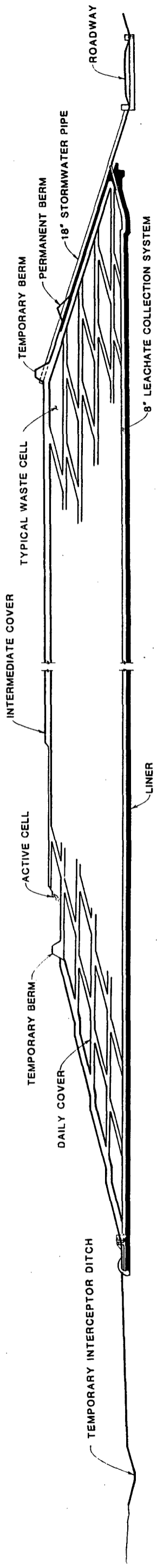
SCALE: 1" = 4' HORIZ.
1" = 4' VERT.

EXHIBIT
TRL-28



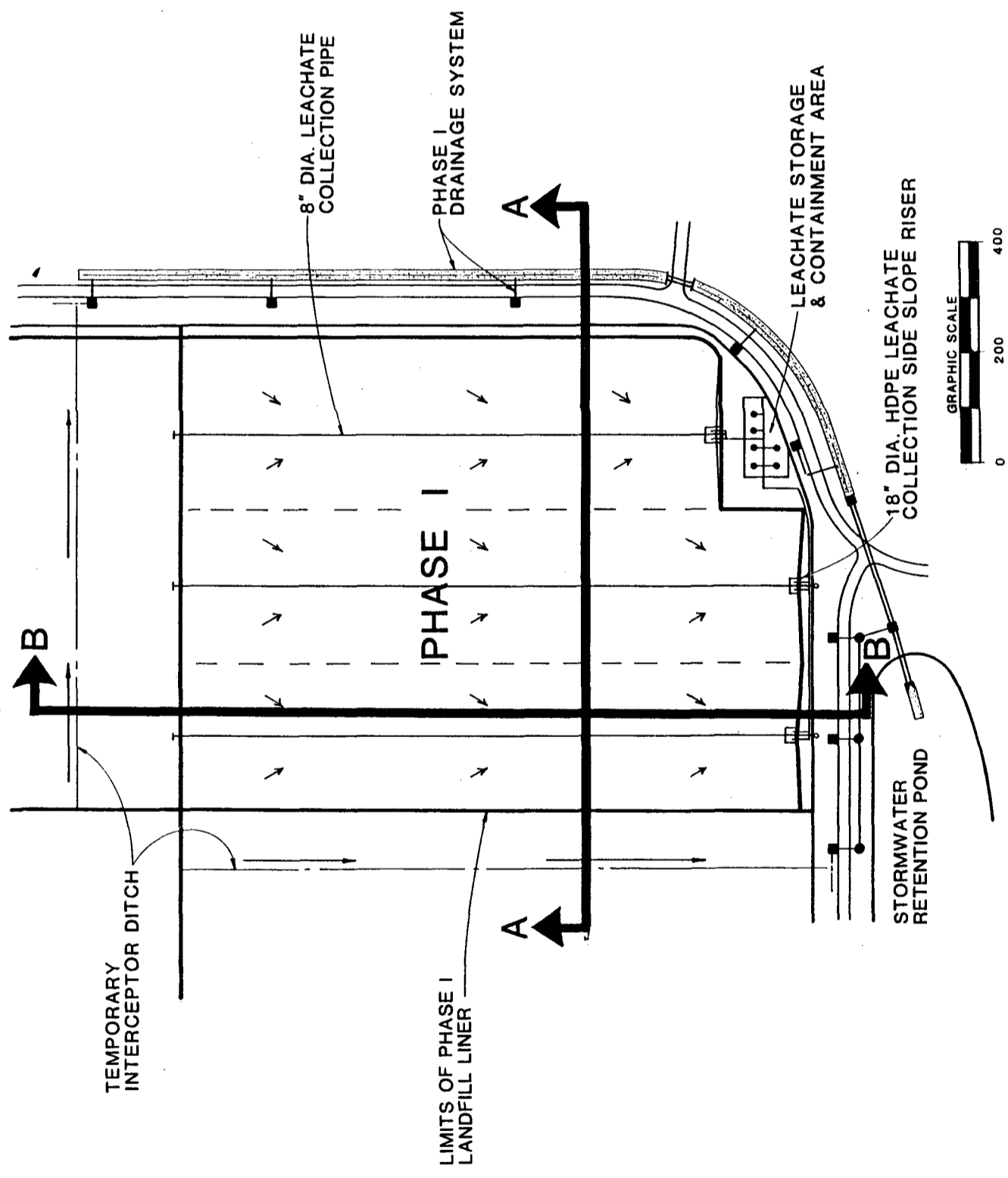
PHASING PLAN
SECTION A-A

SCALE: 1" = 30'
VERTICAL SCALE ENLARGED FOR CLARITY

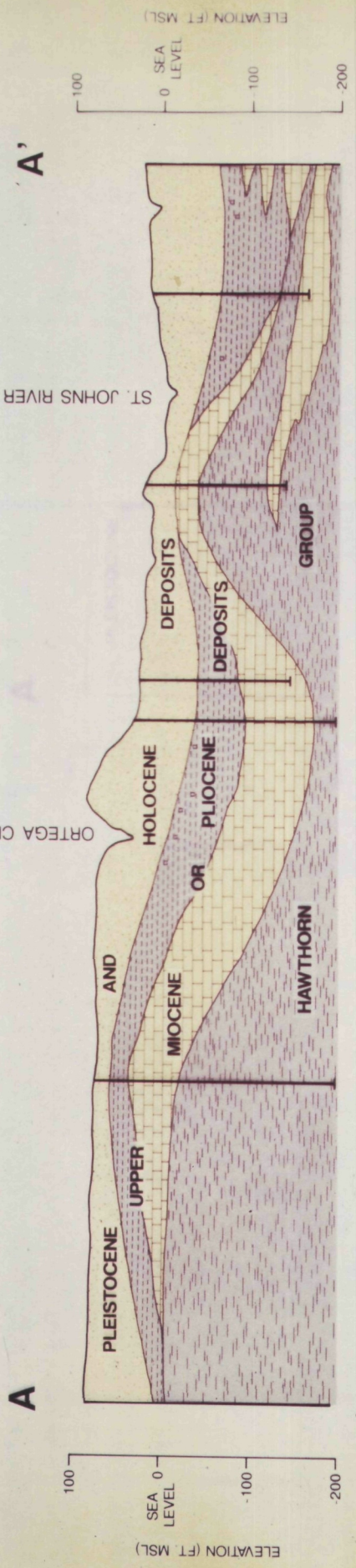


**PHASING PLAN
SECTION B-B**

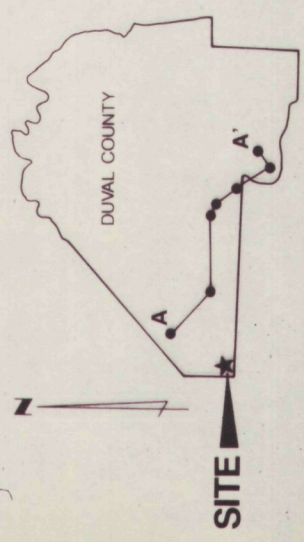
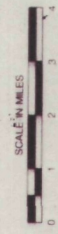
SCALE: 1" = 30'
VERTICAL SCALE EXAGGERATED FOR CLARITY



PHASING PLAN VIEW



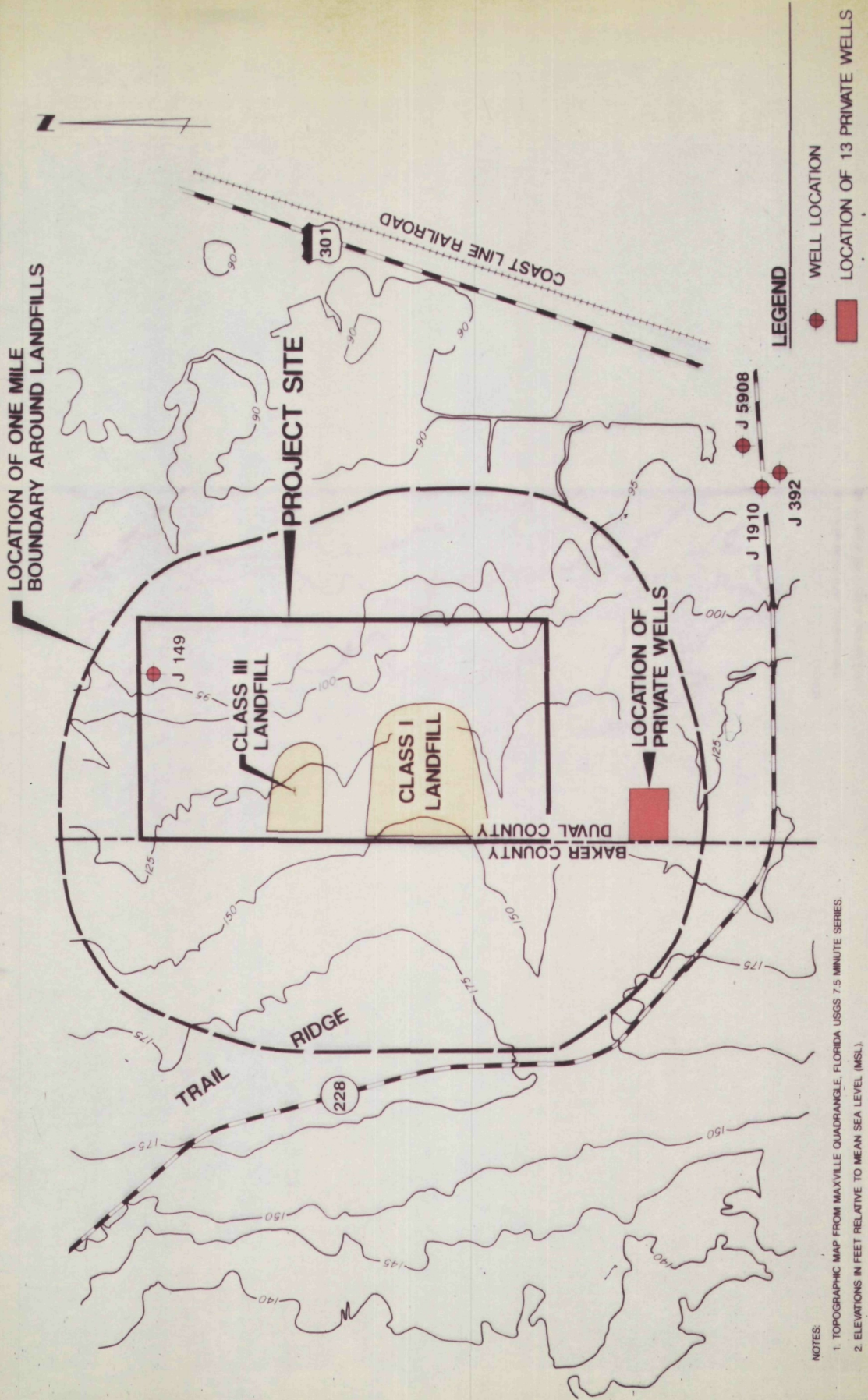
- LEGEND**
- SAND WITH MINOR SILTY CLAY
 - CLAY AND SAND
 - SANDY LIMESTONE
 - MARL



REFERENCE
 FAIRCHILD, R.W. THE SHALLOW AQUIFER SYSTEM IN DUVAL COUNTY, FLORIDA
 FLA. DEPARTMENT OF NATURAL RESOURCES, REPORT #59

REGIONAL SURFICIAL HYDROGEOLOGY
 (FROM FAIRCHILD, 1972)

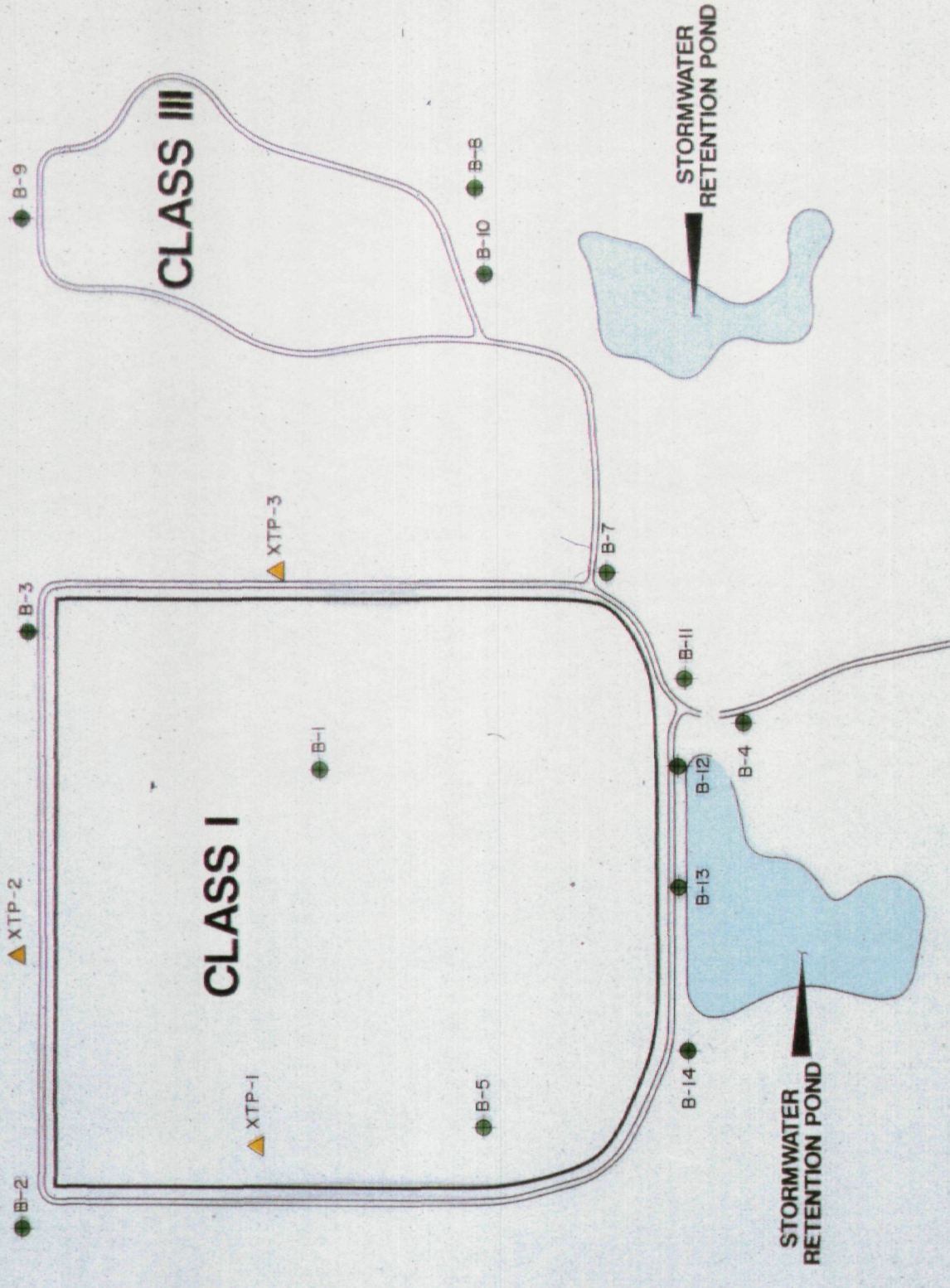
EXHIBIT
 TRL-33



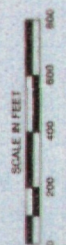
NOTES:
 1. TOPOGRAPHIC MAP FROM MAXVILLE QUADRANGLE, FLORIDA USGS 7.5 MINUTE SERIES.
 2. ELEVATIONS IN FEET RELATIVE TO MEAN SEA LEVEL (MSL).

REGIONAL WELL SURVEY LOCATION MAP

EXHIBIT
 TRL-35



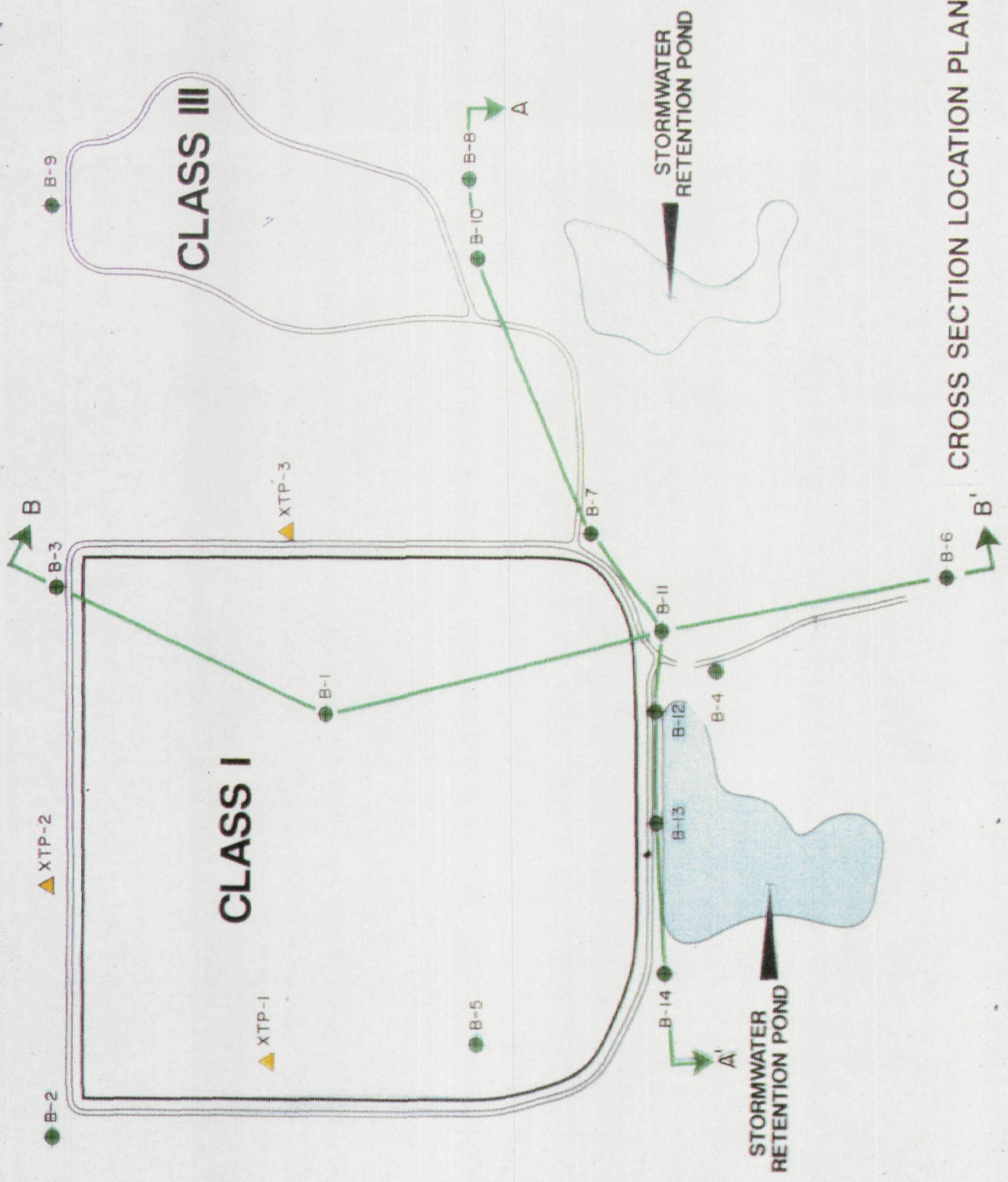
LEGEND
▲ TEMPORARY PIEZOMETER LOCATION
● BORING LOCATION



BORING LOCATION PLAN

EXHIBIT

TRL-36



- LEGEND**
- ▲ TEMPORARY PIEZOMETER LOCATION
 - BORING LOCATION
 - ↔ CROSS SECTION LOCATION

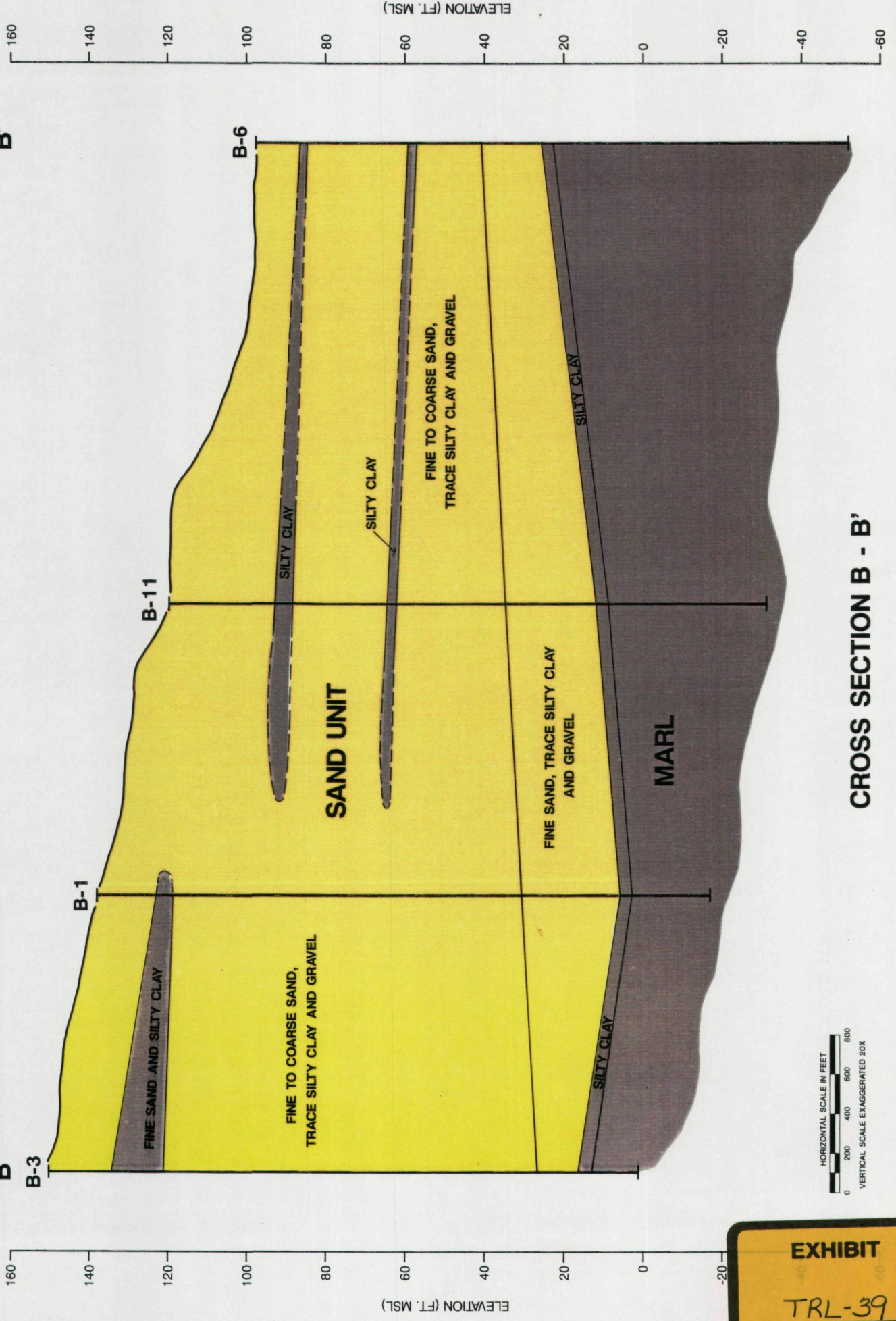


CROSS SECTION LOCATION PLAN

CLASS I LANDFILL

WEST
B

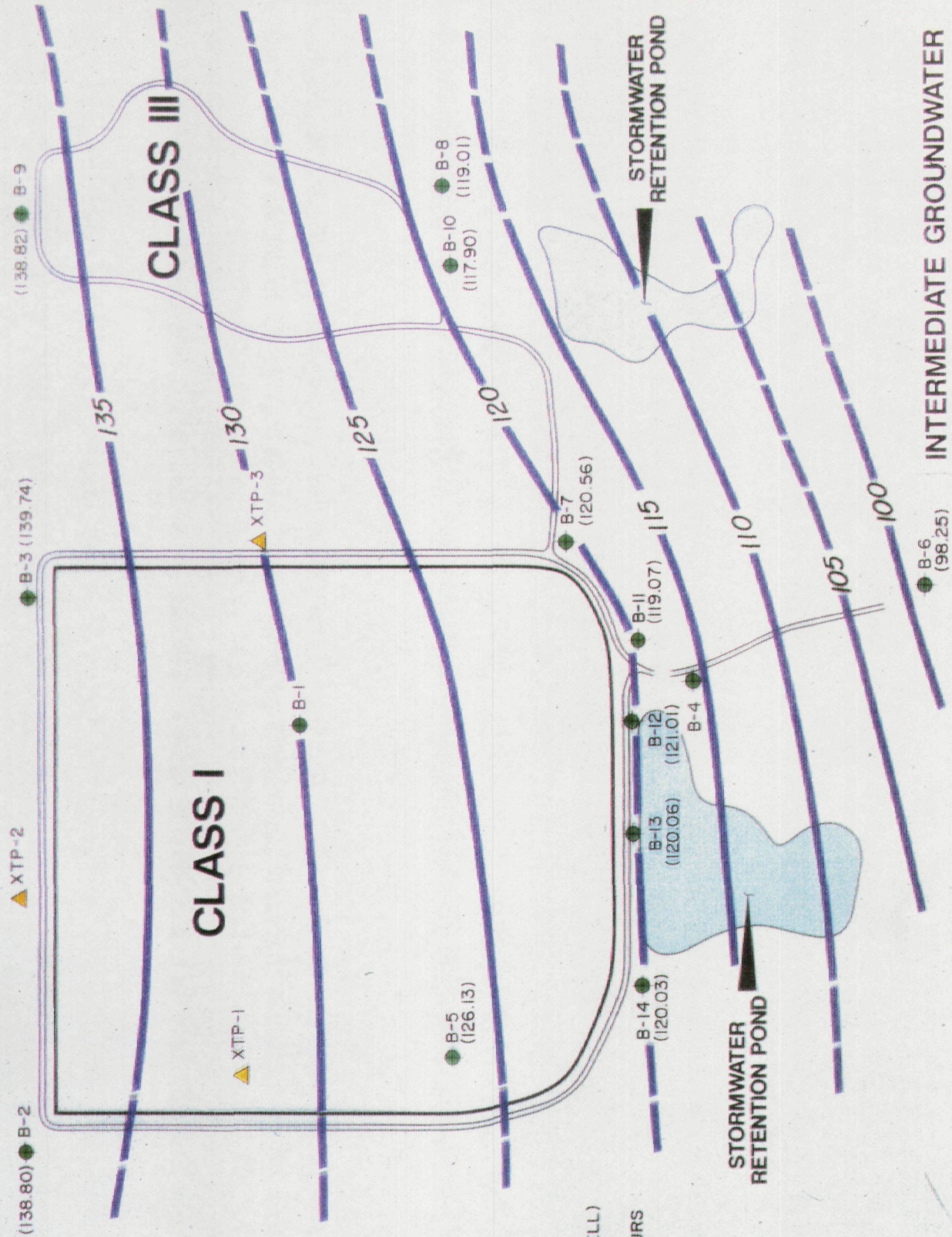
EAST
B'







CROSS SECTION B - B'

EXHIBIT
 TRL-39

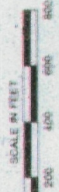
HORIZONTAL SCALE IN FEET
 0 200 400 600 800
 VERTICAL SCALE EXAGGERATED 20X



LEGEND

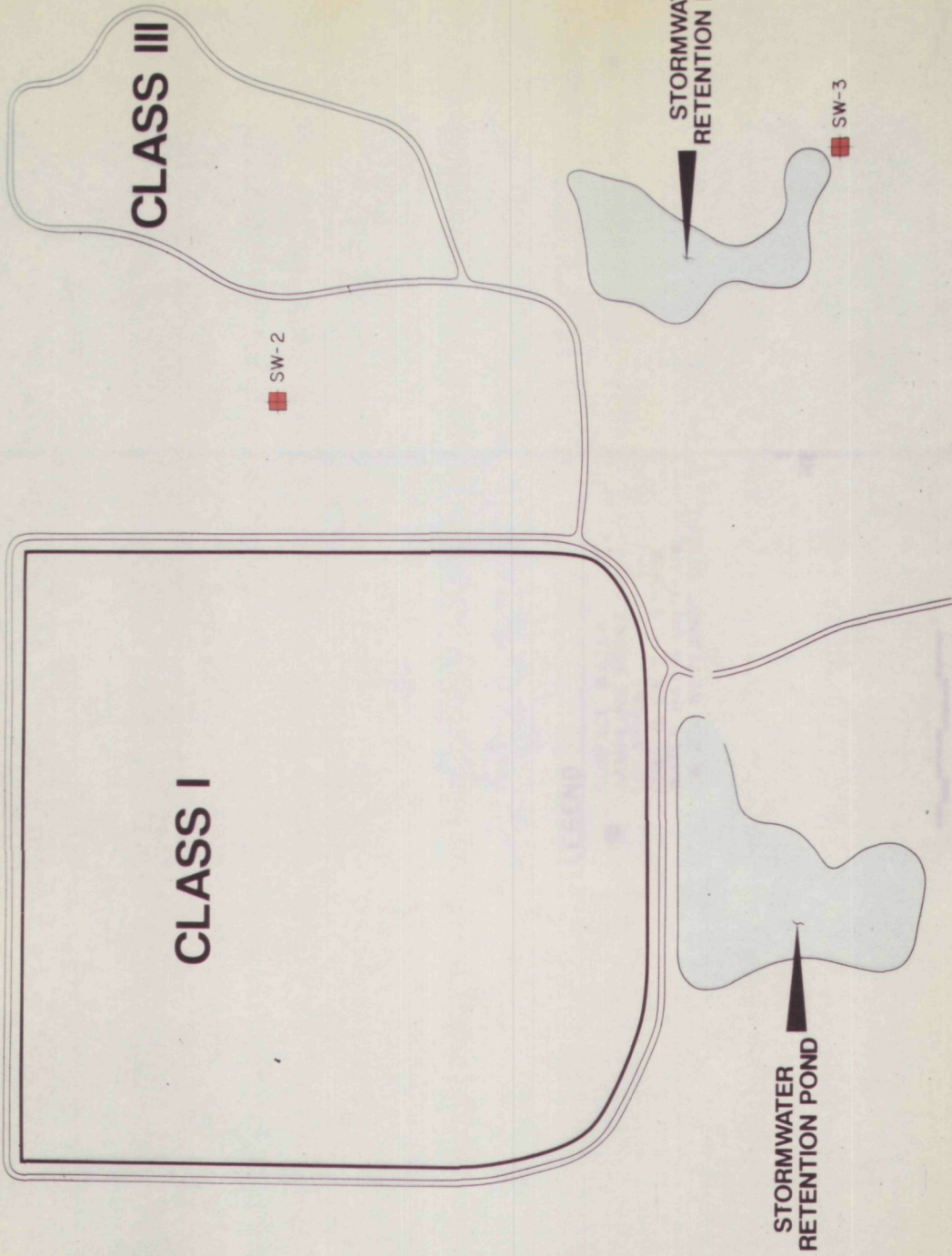
-  TEMPORARY PIEZOMETER LOCATION
-  BORING LOCATION (INTERMEDIATE WELL)
-  GROUNDWATER ELEVATION CONTOURS (DASHED WHERE INFERRED)
-  GROUNDWATER RETENTION POND

(120.06)
GROUNDWATER ELEVATION MEASURED MARCH 30, 1990



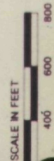
INTERMEDIATE GROUNDWATER CONTOURS

EXHIBIT
TRL-40



LEGEND

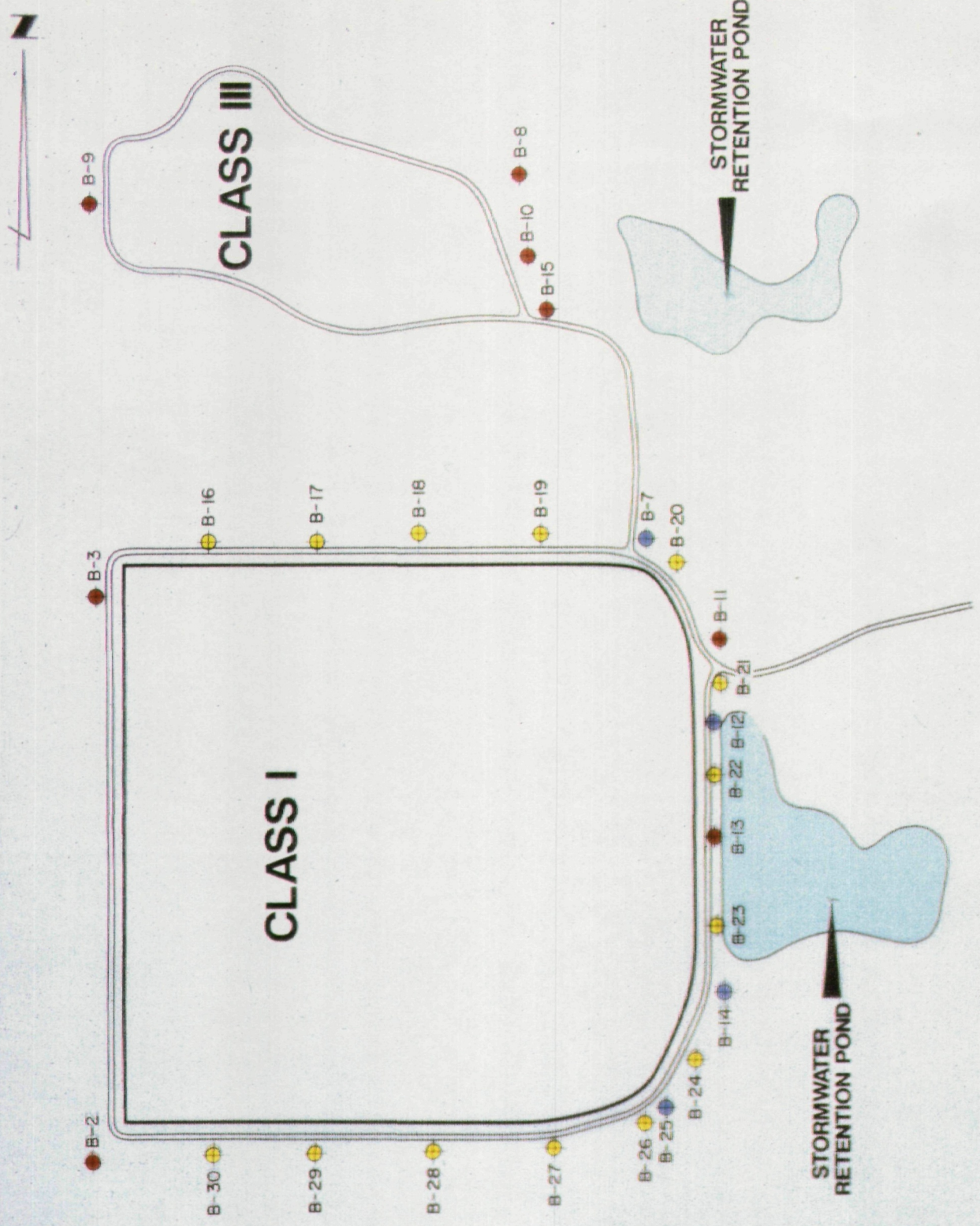
- SURFACE WATER SAMPLING POINT LOCATION (SW-1 & SW-3 - STORM WATER BASIN OUTFLOW, SW-2 - WETLANDS DITCH)



SURFACE WATER MONITORING SYSTEM

EXHIBIT
TRL-41

GROUNDWATER MONITORING SYSTEM



- LEGEND**
- SHALLOW MONITORING WELL LOCATION
 - SHALLOW AND INTERMEDIATE MONITORING WELL CLUSTER LOCATION
 - SHALLOW, INTERMEDIATE AND DEEP MONITORING WELL CLUSTER LOCATION

EXHIBIT
TRL-42

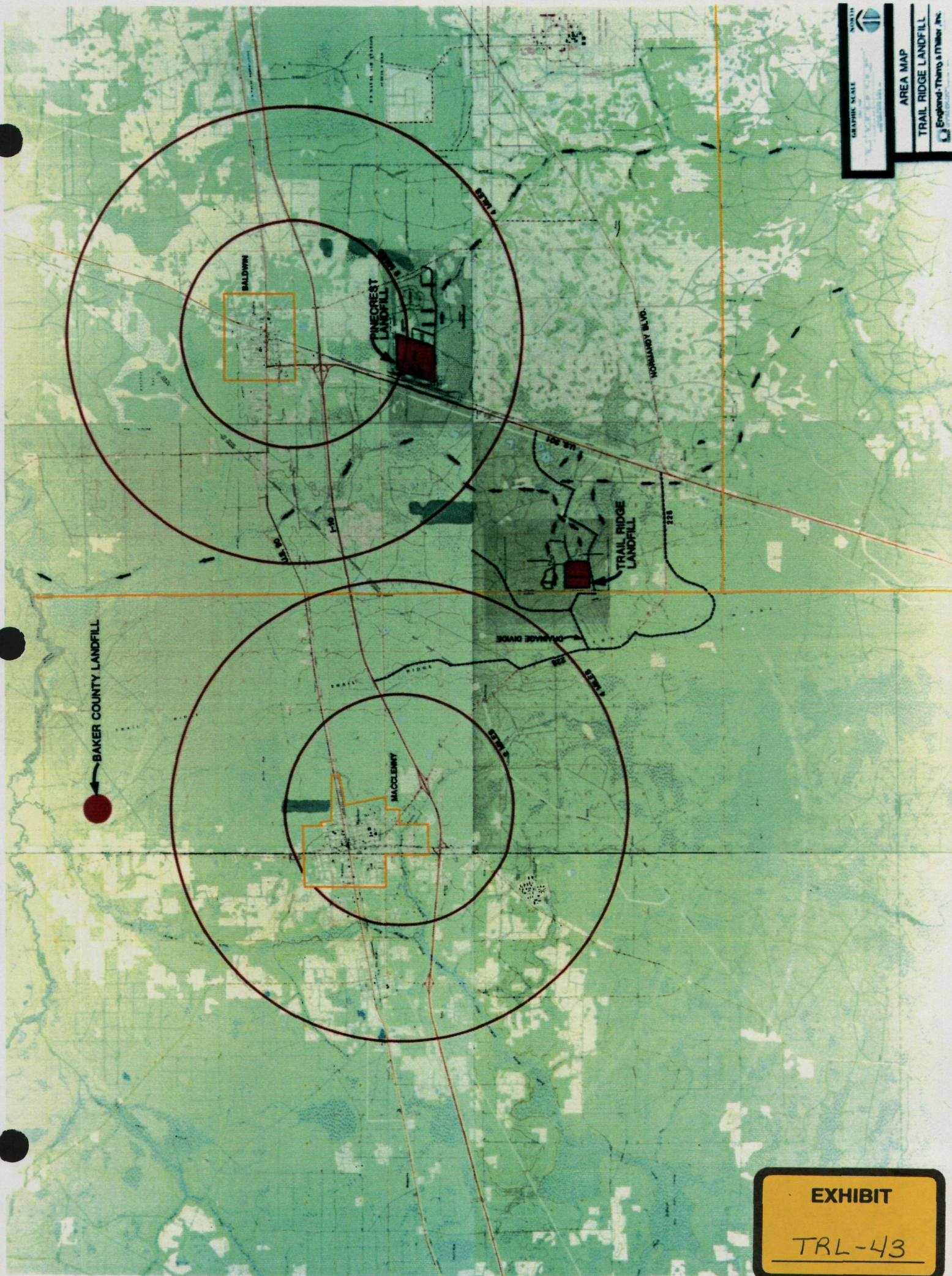
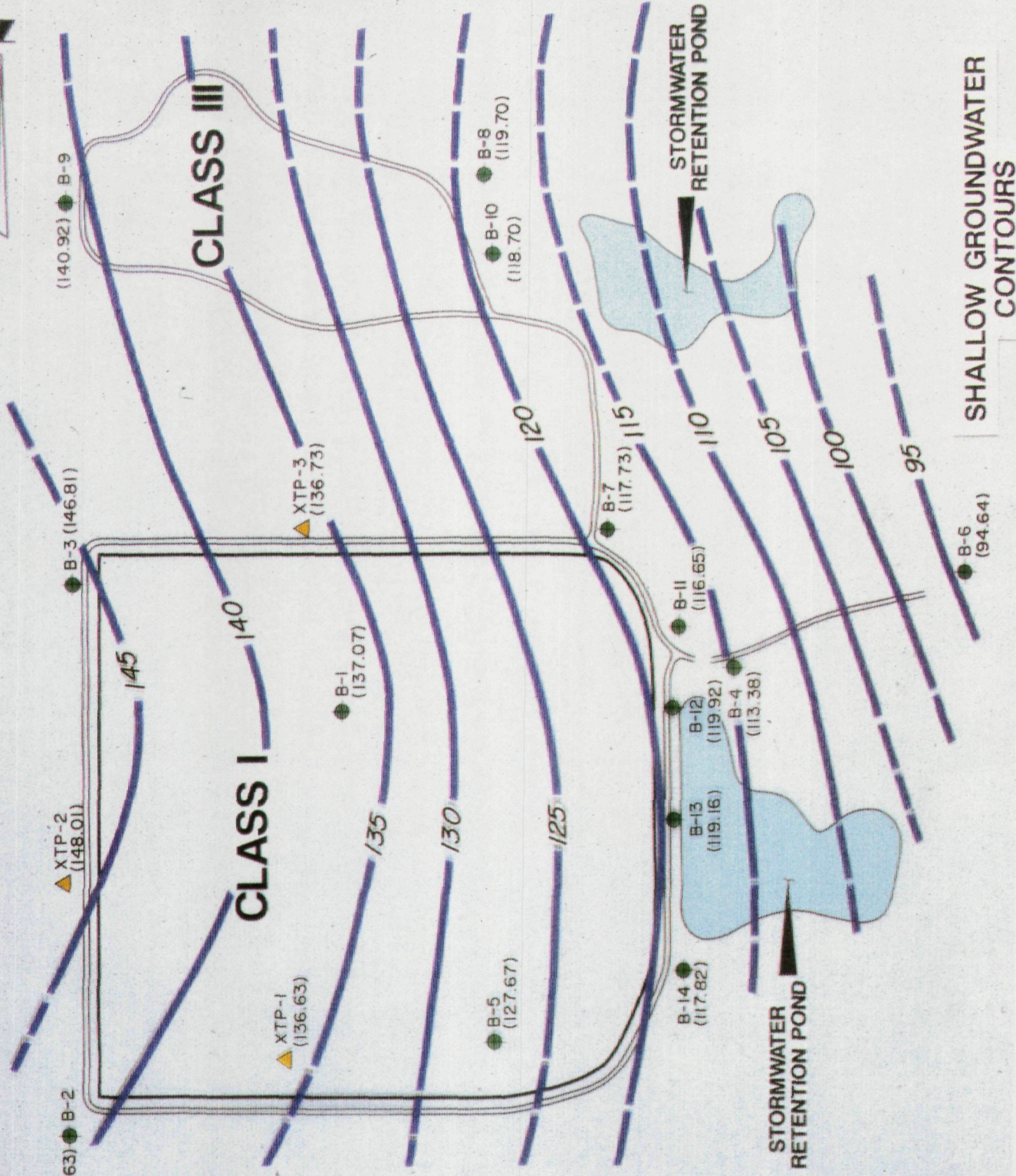




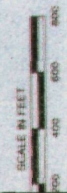


EXHIBIT
TRL-43



- LEGEND**
-  TEMPORARY PIEZOMETER LOCATION
 -  BORING LOCATION (SHALLOW WELL)
 -  GROUNDWATER ELEVATION CONTOURS (DASHED WHERE INFERRED)
 -  GROUNDWATER ELEVATION MEASURED MARCH 30, 1990



EXHIBIT

TRL-44



TRAIL RIDGE LANDFILL
England, Thriss & Thriss, INC.

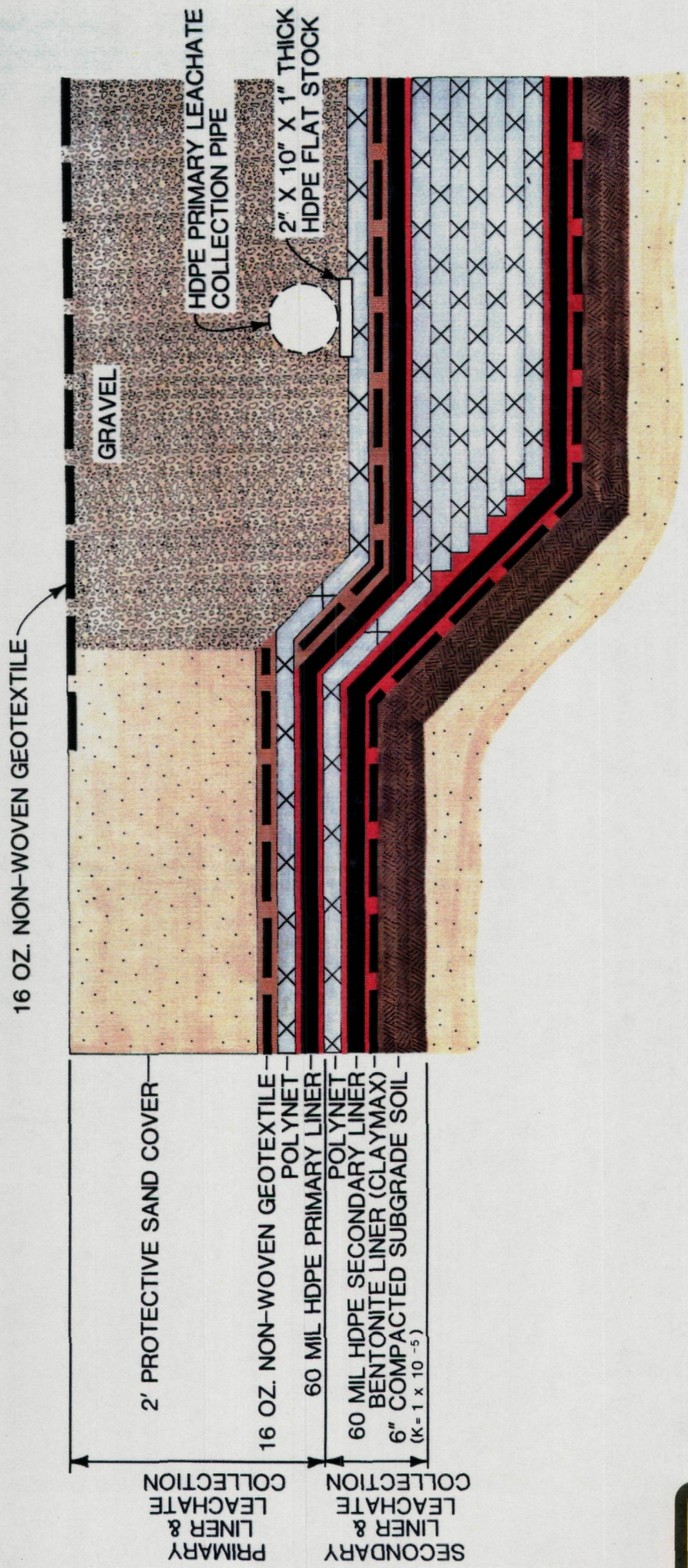
EXHIBIT
TBL-45

Scale
1 inch = 1 mile

STATE OF ARIZONA
COUNTY OF MARICOPA

U.S. 301

LINER CROSS SECTION



2' PROTECTIVE SAND COVER
 16 OZ. NON-WOVEN GEOTEXTILE
 60 MIL HDPE PRIMARY LINER
 60 MIL HDPE SECONDARY LINER
 BENTONITE LINER (CLAYMAX)
 6" COMPACTED SUBGRADE SOIL
 (K=1 x 10⁻⁵)

PRIMARY LINER & LEACHATE COLLECTION
 SECONDARY LINER & LEACHATE COLLECTION

EXHIBIT
TRL-46

APPENDIX I.

**Florida Department of Environmental Regulation Dredge and Fill
Permit Application.**

EXHIBIT

TRL-53

INTRODUCTION

The construction of the Trail Ridge Landfill has been planned to minimize impacts to Florida Department of Environmental Regulation (FDER) wetland systems. No dredging or filling is required in FDER jurisdictional wetlands to construct the Class I or Class III landfill area. However, widening of the existing entrance road is required to access the site. This FDER wetland impact is primarily confined to filling existing roadside ditches and culvert replacement required to widen the existing roadway. Silt screens and slope stabilization is proposed where fill is placed adjacent to jurisdictional wetland.

A wetland assessment (see Appendix III) has been completed to aid in identifying areas which may be impacted by the proposed project. 1.61 acres of Department of Environmental Regulation wetlands shall be impacted by fill activities. These impacts are for roadway crossings only. 4.44 acres of Corps of Engineers wetlands impact have been identified and previously permitted with the Corps (Permit No. 89NWQ-91177). 4.76 acres of mitigation is being proposed on-site.

Calculations which indicate how stormwater runoff will be treated to meet or exceed State Water Quality Standards can be reviewed in Appendix II.

A wildlife inventory and assessment along with an archaeological and cultural review has also been completed and are included as Appendix IV and V respectfully.

JOINT APPLICATION
 C.O.E. Permit No. 89NWQ-9117 /FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION
 previously issued For Activities in the Waters of the State of Florida

CORPS APPLICATION NUMBER (official use only) _____ DER APPLICATION NUMBER (official use only) _____

1. APPLICANT'S NAME AND ADDRESS

TRAIL RIDGE LANDFILL INC.
 NAME
 PO BOX 6987
 STREET
 JACKSONVILLE FL 32236
 CITY STATE ZIP
 TELEPHONE NUMBER (Day) (904) 737-4800 (Night) ()

2. Name, address, zip code and title of applicant's authorized agent for permit application coordination
 England, Thims & Miller, Inc.
 3131 St. Johns Bluff Road South
 Jacksonville, Florida 32216
 Attention: Douglas C. Miller, P.E.
 Telephone Number (904) 642-8990

3. NAME OF WATERWAY AT LOCATION OF THE ACTIVITY. _____ DER Code _____
 Headwaters of Deep Creek _____ W/W Code _____

4. LOCATION WHERE PROPOSED ACTIVITY EXISTS OR WILL OCCUR.

<u>Northwest of Intersection</u>	18, 19	3S	23E
Street, road or other descriptive location	20, 21	Township	Range
Maxville SR 301/CR 228	30° 13' 20"	82° 02' 30"	
Incorporated city or town	Latitude	Longitude	
Duval	Tax Assessors Description: (if known)		
County	Map No.	Subdiv. No.	Lot No.

5. NAME AND ADDRESS INCLUDING ZIP CODE OF ADJOINING PROPERTY OWNERS WHOSE PROPERTY ALSO ADJOINS THE WATERWAY.
 Gilman Timberland and Land Development Company
 P. O. Box 878
 St. Mary's Georgia 31558

6. PROPOSED USE
 Private Single Dwelling [] Private Multi-dwelling [] Public []
 Commercial [] Other [x] (Explain in remarks) Entrance Road to
 Municipal solid waste facility

7. DESCRIPTION OF PROJECT (Use additional sheets, if necessary)

A. Structures: 1. New work [] Maintenance of existing structure []

2. Piers, docks and uses: Commercial [] Private [] Public []

a. Single pier [] length _____ width _____

b. Number of piers [] length _____ width _____

c. Number of boat slips [] length _____ width _____

d. Number of finger piers [] length _____ width _____

e. Other (please describe) _____

3. Seawalls, revetments, bulkheads: length _____

a. Type: Vertical [] Riprap [] Slope: _____ Horizontal: _____ Vertical _____

b. Material to be used _____

4. Other type of structure _____

B. Excavation or Dredging: New Work [] Maintenance work [] Total acreage involved _____

1. Access Channel [] or Canal [] Length _____ ft. Width _____ ft. Depth _____ ft.

2. Boat Basin [] or Boat Slip [] Length _____ ft. Width _____ ft. Depth _____ ft.

3. Other _____ Length _____ ft. Width _____ ft. Depth _____ ft.

4. Cubic yards: Total for project _____

a. _____ cyd. waterward/ _____ cyd. landward of ordinary/mean high water

b. Type of material to be excavated/dredged _____

C. Fill:

1. Amount of material

a. Cubic yards placed waterward of ordinary/mean high water _____

b. Cubic yards placed landward of ordinary/mean high water 5384 C.Y.

c. Total acreage to be filled 1.61 Total acreage of wetlands involved 1.61

2. Containment for fill

a. Dikes [] b. Seawall, etc. [] c. Other (please explain) _____

Roadway and drainage culverts

3. Type of fill material to be used Clean Sand

4. Source of fill material to be used On-site upland borrow pit

COE Work Code [] [] [] []

DER Code 253 403

8. Date activity is proposed to commence Pending
DER approval to be completed six months after
commencement

9. Previous permits for this project have been _____ OER / _____ Corps /
A. Denied (date) _____
B. Issued (date) _____ 89NWO-91177
C. Other (please explain) _____

Differentiate between existing work and proposed work on the drawings.

10. Remarks (See Instruction Pamphlet for additional information required for all applications and certain activities. Use additional sheets if necessary.)

11. AFFIDAVIT OF OWNERSHIP OR CONTROL of the property on which the proposed project is to be undertaken

I CERTIFY THAT: (please check appropriate space)

I am the record owner, lessee, or record easement holder of the property described below.

I am not the record owner, lessee, or record easement holder of the property described below, but I will have before undertaking the proposed work the requisite property interest. (Please explain what the interest will be and how it will be acquired.)

LEGAL DESCRIPTION OF PROPERTY SITUATED IN Duval COUNTY, FLORIDA
(Use additional sheets if necessary)

See attached

Stephen D. Ferguson
Signature

Stephen D. Ferguson

County,

(Signed and subscribed before me at Florida, this 15th day of June, 1990

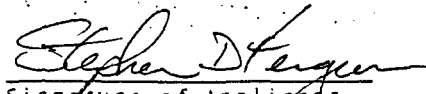
Rowland
Colman B. Odum
NOTARY PUBLIC

Notary Public, State of Florida
My commission expires Sept. 19, 1992

11. Application is made for a permit(s) to authorize the activities described herein.

- A. I authorize the agent listed in Item 12 to negotiate modifications or revisions, when necessary, and accept or assent to any stipulations on my behalf.
- B. I understand I may have to provide any additional information/data that may be necessary to provide reasonable assurance or evidence to show that the proposed project will comply with the applicable State Water Quality Standards or other environmental standards both before construction and after the project is completed.
- C. In addition, I agree to provide entry to the project site for inspectors with proper identification or documents as required by law from the environmental agencies for the purpose of making preliminary analyses of the site. Further, I agree to provide entry to the project site for such inspectors to monitor permitted work if a permit is granted.
- D. Further, I hereby acknowledge the obligation and responsibility for obtaining all of the required state, federal or local permits before commencement of construction activities. I also understand that before commencement of this proposed project I must be granted separate permits or authorizations from the U.S. Corps of Engineers, the U.S. Coast Guard, the Department of Environmental Regulation, and the Department of Natural Resources, as necessary.

I CERTIFY that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities.


Signature of Applicant
Stephen D. Ferguson.

6/12/90
Date

NOTE: THIS APPLICATION MUST BE SIGNED by the person who desires to undertake the proposed activity or by an authorized agent. If an agent is applying on behalf of the applicant, attach proof of authority for the agent to sign and bind the applicant.

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

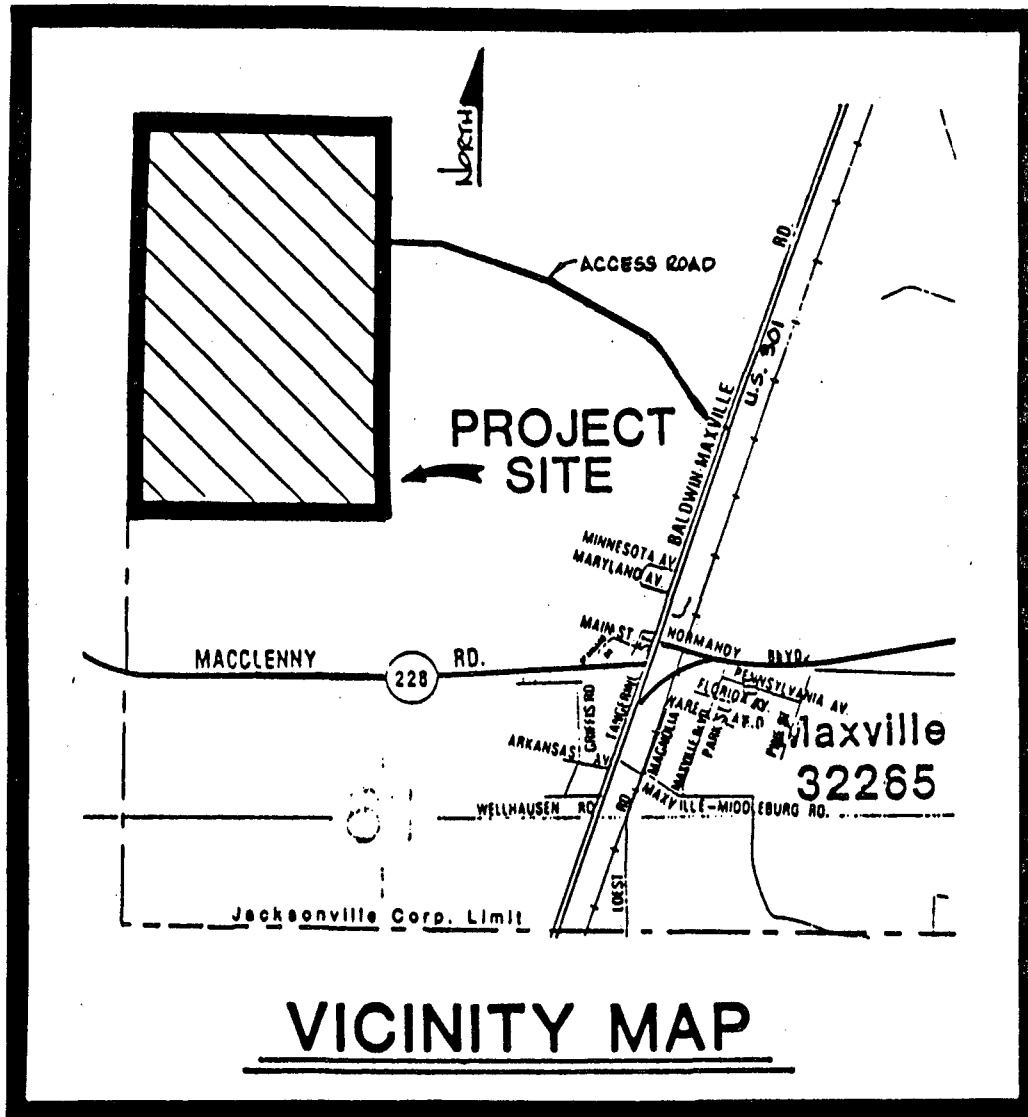
NOTICE TO PERMIT APPLICANTS


This is a Joint Application; it is NOT a Joint Permit!

You Must Obtain All Required Local, State, and Federal

Authorizations or Permits Before Commencing Work!!

For your information: Section 370.034, Florida Statutes, requires that all dredge and fill equipment owned, used, leased, rented or operated in the state shall be registered with the Department of Natural Resources. Before selecting your contractor or equipment you may wish to determine if this requirement has been met. For further information, contact the Chief of the Bureau of Licenses and Motorboat Registration, Department of Natural Resources, 3900 Commonwealth Boulevard, Tallahassee, Florida 32303. Telephone Number 904/488-1195. THIS IS NOT A REQUIREMENT FOR A PERMIT FROM THE DEPARTMENT OF ENVIRONMENTAL REGULATION.

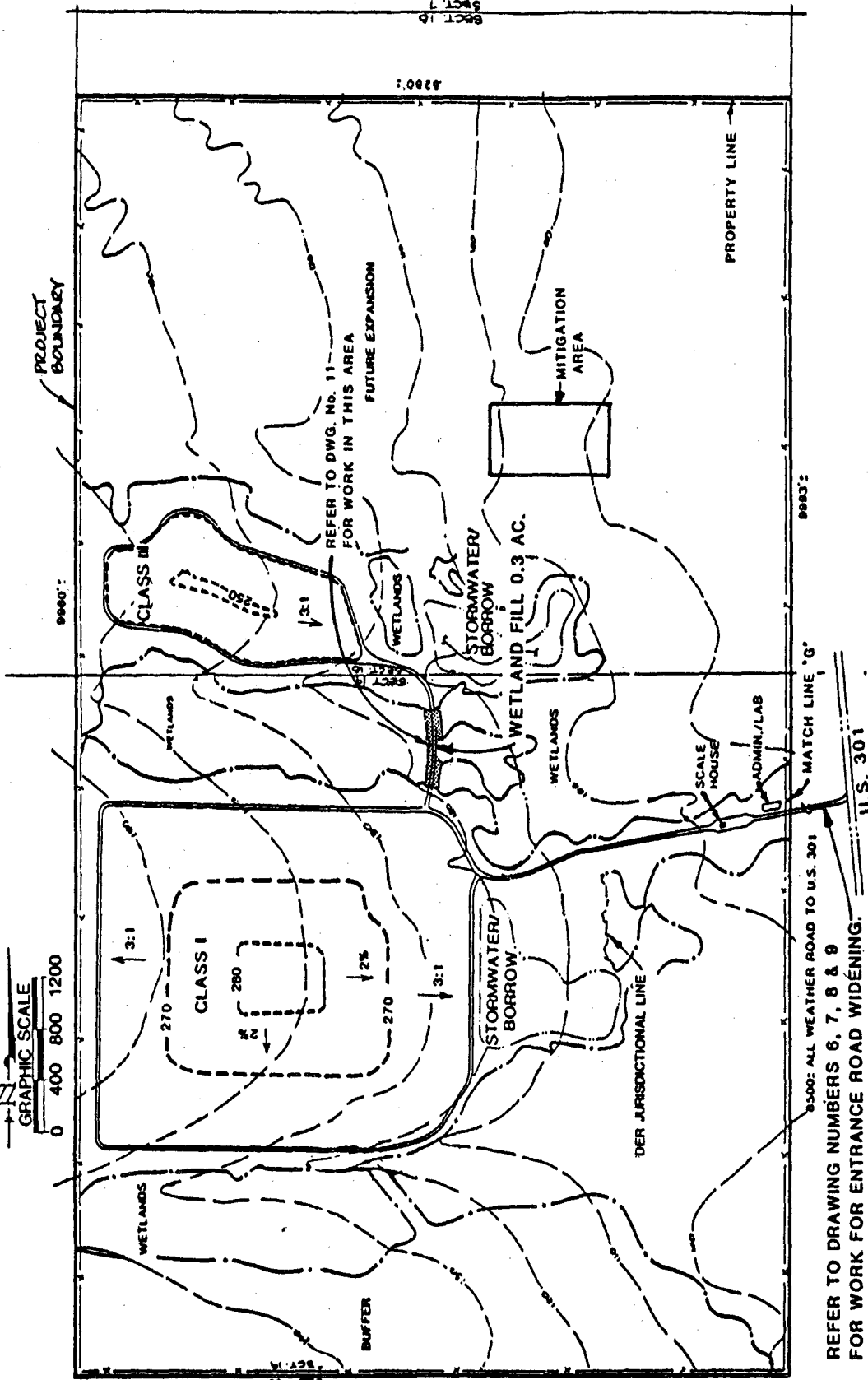



**England-Thims
& Miller, Inc.**

VICINITY MAP
TRAILRIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. E89-113
DATE JUNE 11, 1990
SCALE 1" = 4000'
DRAWING NO. 1

DER



REFER TO DRAWING NUMBERS 6, 7, 8 & 9
FOR WORK FOR ENTRANCE ROAD WIDENING.

3500: ALL WEATHER ROAD TO U.S. 301



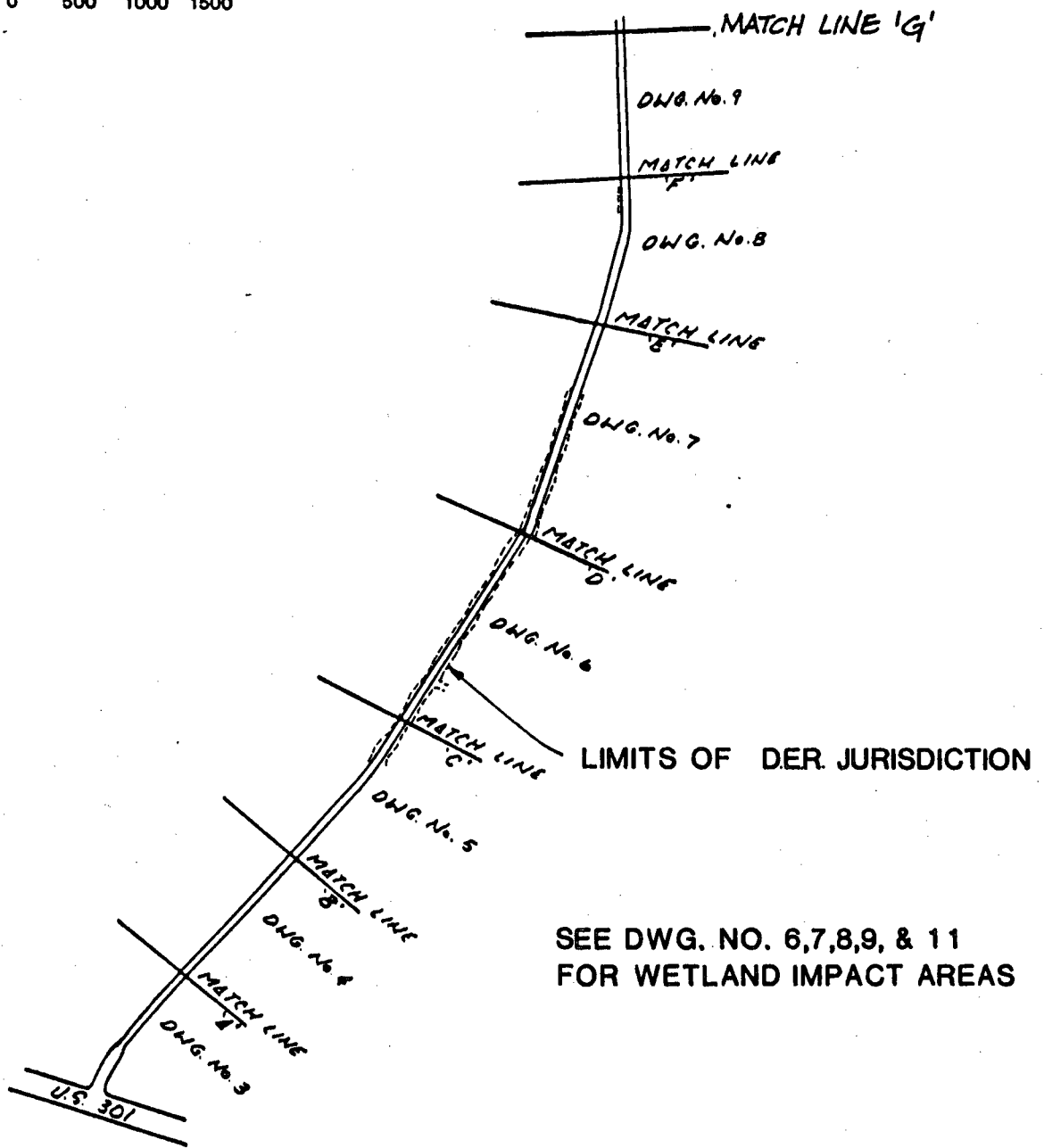
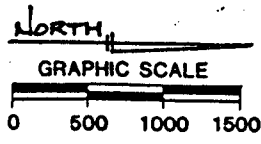
SITE PLAN
TRAIL RIDGE LANDFILL
FOR: TRAIL RIDGE LANDFILL

PROJ. NO. E 89-113-8

DATE JUNE 11, 1990

SCALE SEE GRAPHIC

DRAWING NO. 2



England-Thims
& Miller, Inc.

SITE PLAN
ENTRANCE ROAD

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

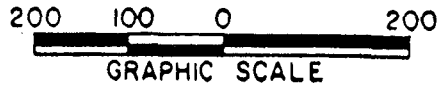
PROJ. NO. E89-113

DATE JUNE 11, 1990

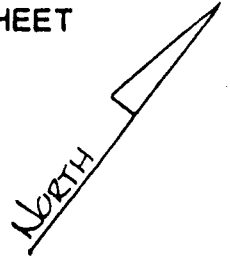
SCALE SEE GRAPHIC

DRAWING NO. 3

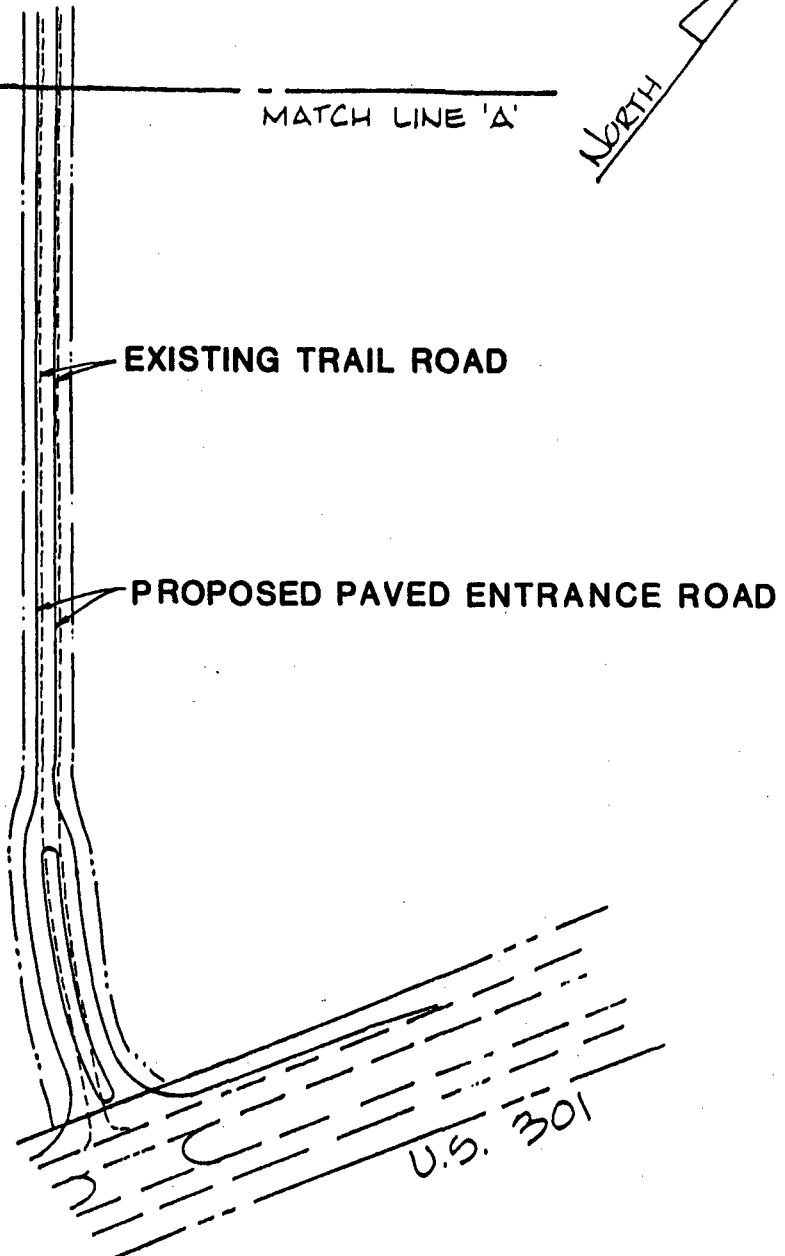
DER



NO D.E.R. IMPACTS THIS SHEET



MATCH LINE 'A'






EXISTING TRAIL ROAD

PROPOSED PAVED ENTRANCE ROAD

U.S. 301

LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

TOTAL DEPARTMENT OF ENVIRONMENTAL
REGULATION WETLAND IMPACTS
1.61 ACRES TOTAL FILL 5384 C.Y.



SITE PLAN
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

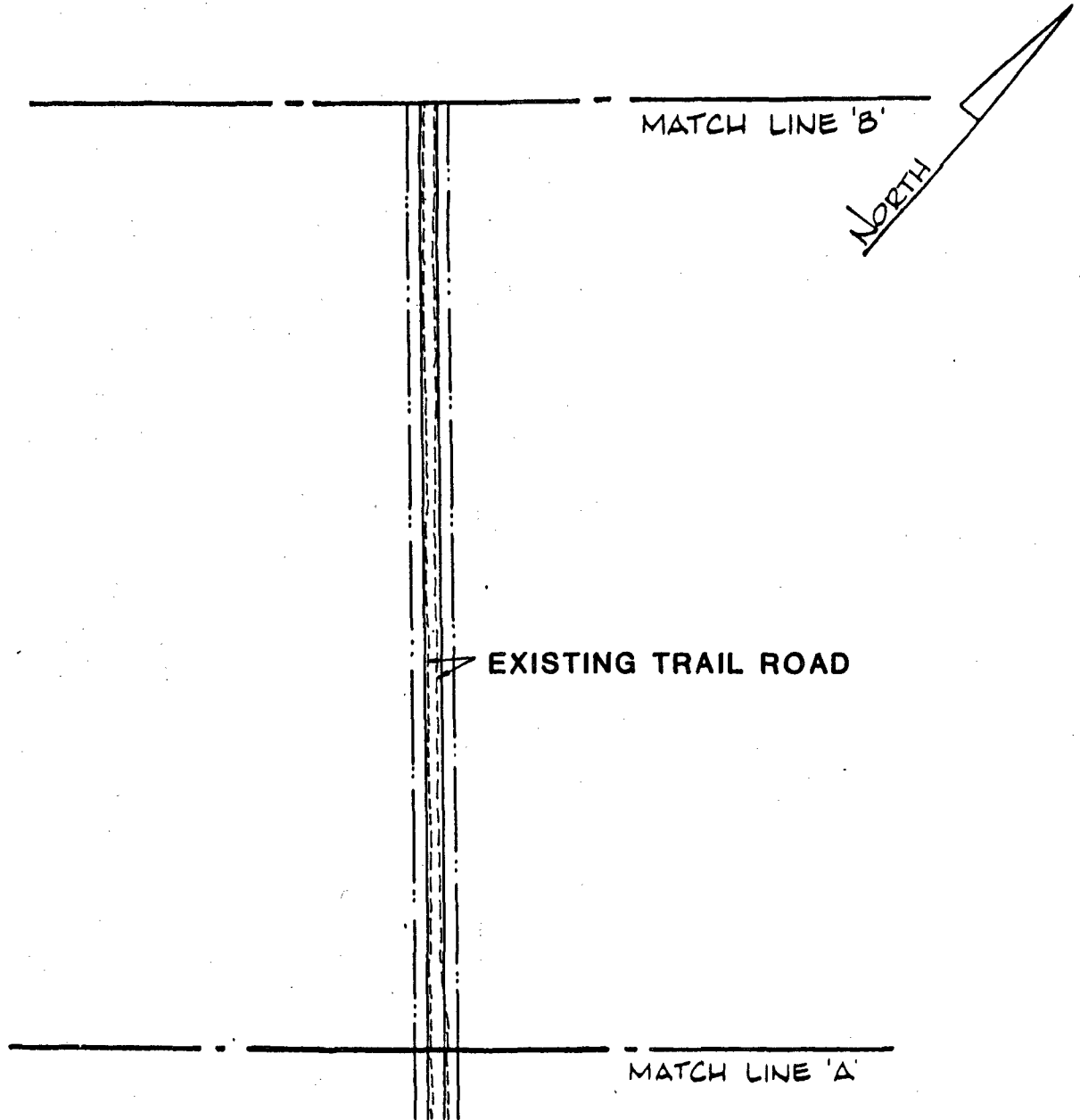
PROJ. NO.	89-113
DATE	JUNE 11, 1990
SCALE	GRAPHIC
DRAWING NO.	4

DER

200 100 0 200

GRAPHIC SCALE

NO D.E.R. IMPACTS THIS SHEET



LEGEND

- LIMITS OF CONSTRUCTION
- ////// D.E.R. WETLAND IMPACT
- ==== PROPOSED 24' ASPHALT PVMT.



England-Thimms
& Miller, Inc.

SITE PLAN

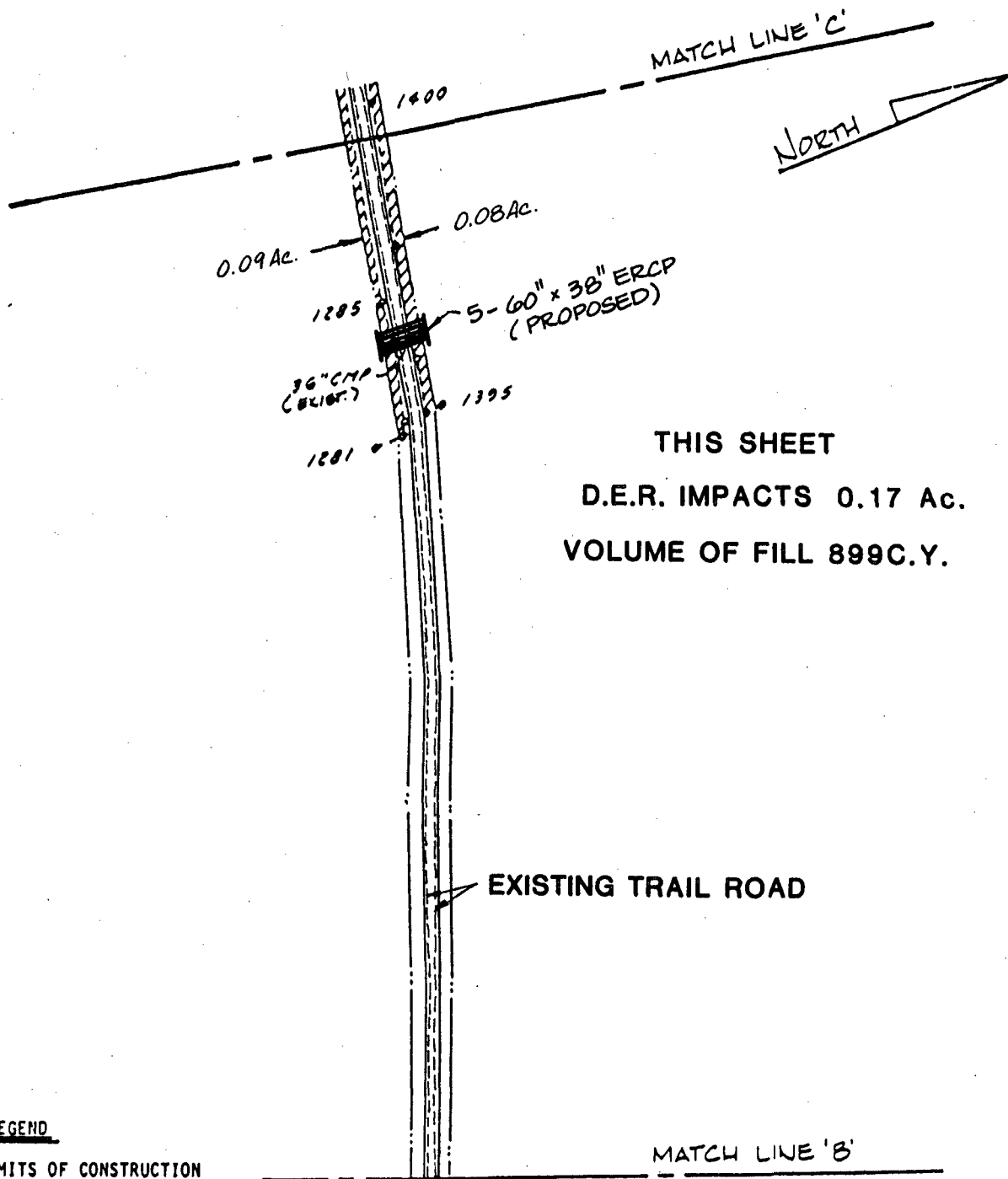
TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
DATE JUNE 11, 1990
SCALE GRAPHIC
DRAWING NO. 5

DER




200 100 0 200

GRAPHIC SCALE



THIS SHEET
 D.E.R. IMPACTS 0.17 Ac.
 VOLUME OF FILL 899C.Y.

LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

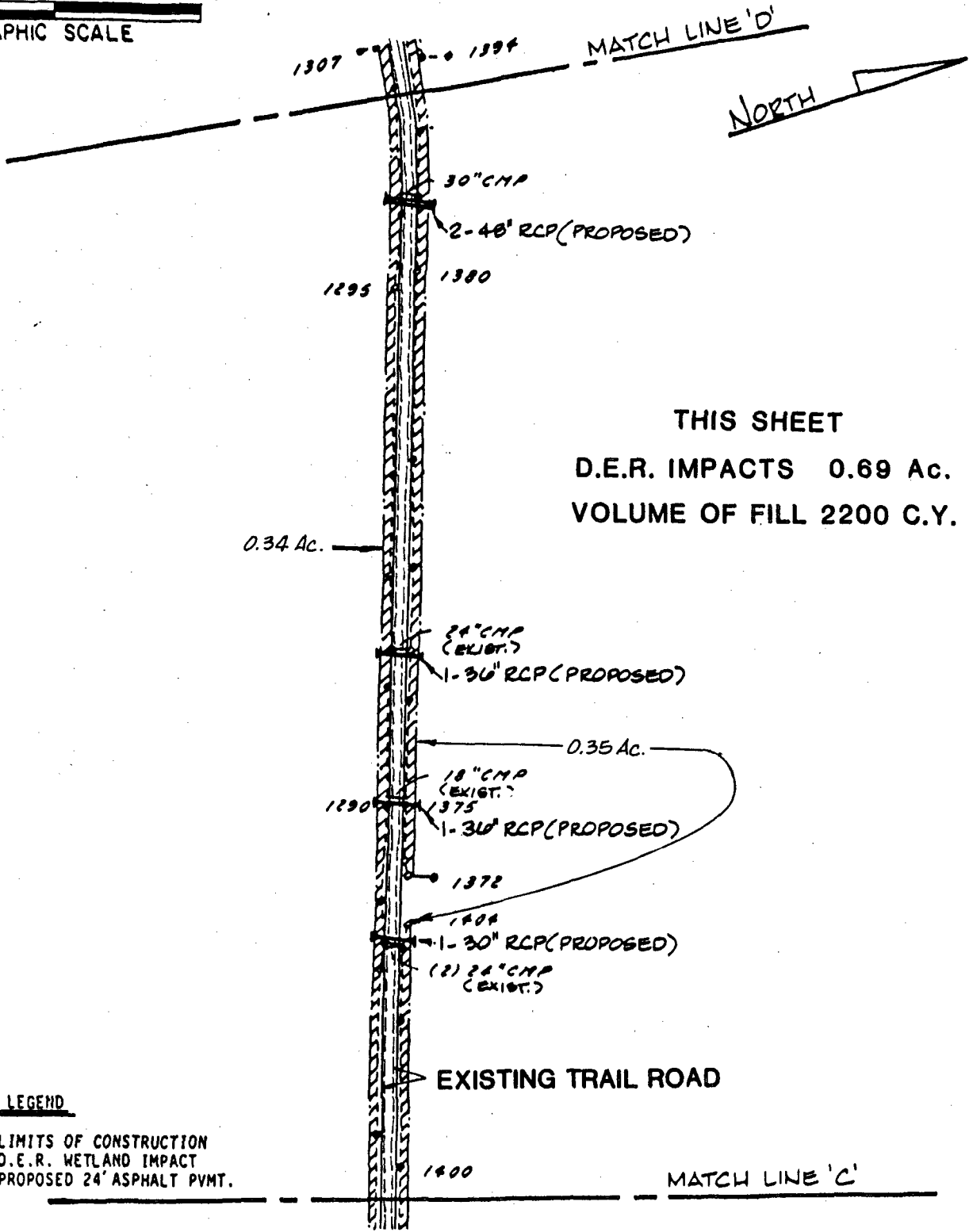
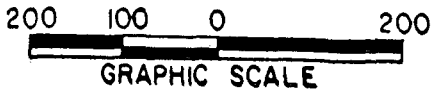


SITE PLAN

TRAIL RIDGE LANDFILL
 TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
 DATE JUNE 11, 1990
 SCALE GRAPHIC
 DRAWING NO. 6

DER



THIS SHEET
D.E.R. IMPACTS 0.69 Ac.
VOLUME OF FILL 2200 C.Y.

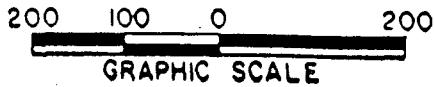
LEGEND

- LIMITS OF CONSTRUCTION
- //// D.E.R. WETLAND IMPACT
- ==== PROPOSED 24" ASPHALT PVMT.



SITE PLAN	PROJ. NO. 89-113
	DATE JUNE 11, 1990
TRAIL RIDGE LANDFILL TRAIL RIDGE LANDFILL, INC.	SCALE GRAPHIC
	DRAWING NO. 7

DER



MATCH LINE 'E'



0.17 Ac.

1300

EXISTING TRAIL ROAD

1385

0.21 Ac.

1310

1390




1307

1394

MATCH LINE 'D'

THIS SHEET
D.E.R. IMPACTS 0.38 Ac.
VOLUME OF FILL 1292 C.Y.

LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

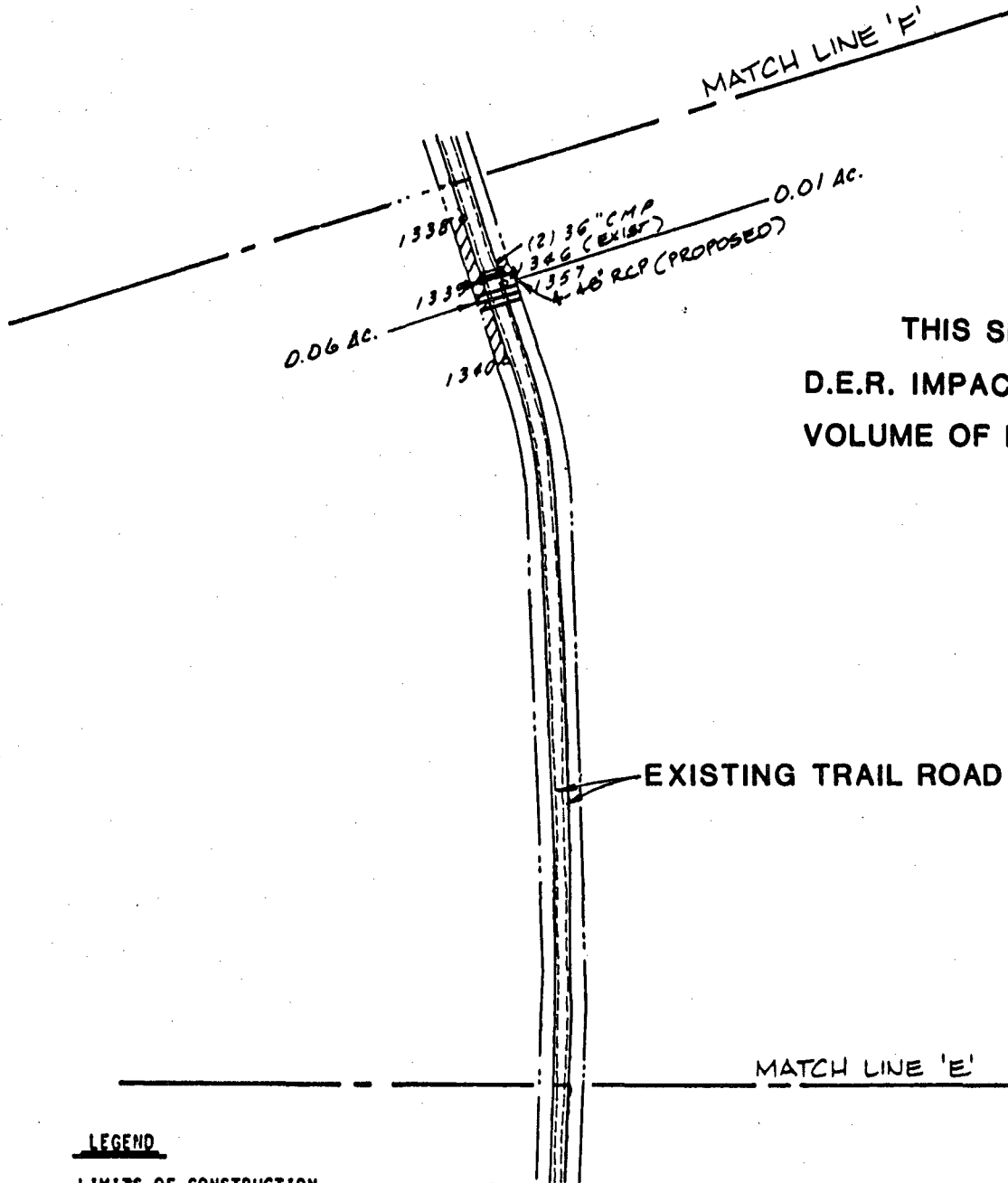


SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113
DATE JUNE 11, 1990
SCALE GRAPHIC
DRAWING NO. 8

DER



THIS SHEET
D.E.R. IMPACTS 0.07Ac.
VOLUME OF FILL 69C.Y.

LEGEND

- LIMITS OF CONSTRUCTION
- D.E.R. WETLAND IMPACT
- PROPOSED 24' ASPHALT PVT.



England-Thimms
& Miller, Inc.

SITE PLAN

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

PROJ. NO. 89-113

DATE JUNE 11, 1990

SCALE GRAPHIC

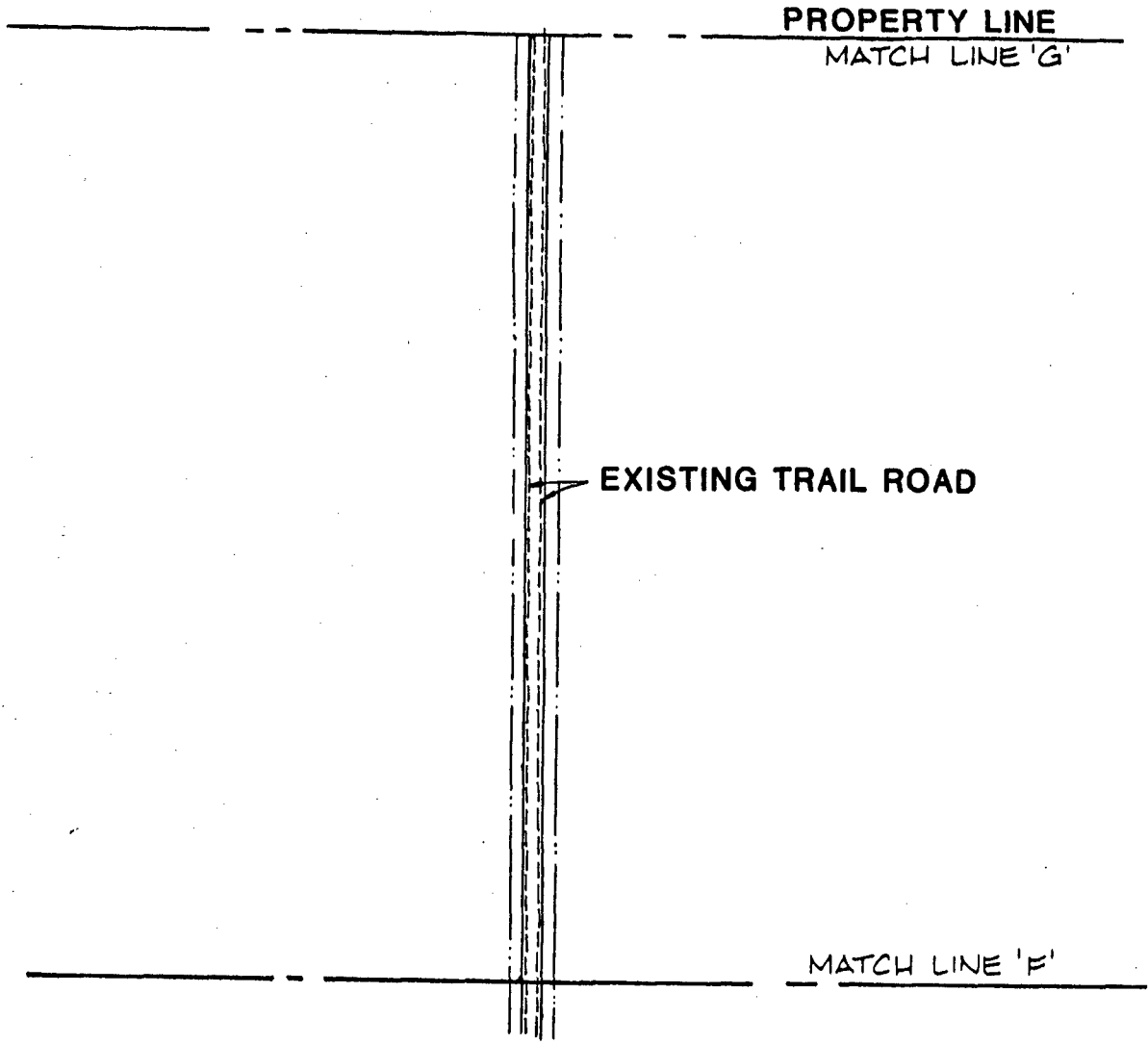
DRAWING NO. 9

DER

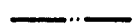


200 100 0 200



GRAPHIC SCALE



LEGEND

-  LIMITS OF CONSTRUCTION
-  D.E.R. WETLAND IMPACT
-  PROPOSED 24' ASPHALT PVMT.

**THIS SHEET
NO D.E.R. IMPACTS**



**England-Thimys
& Miller, Inc.**

SITE PLAN

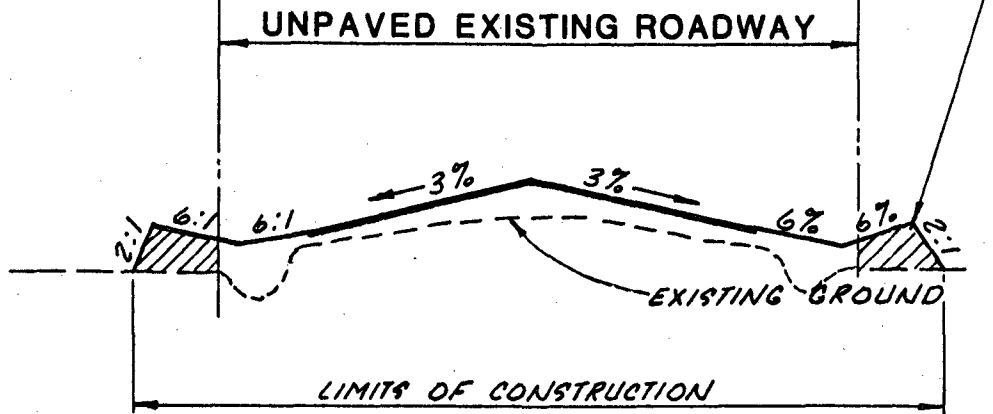
**TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.**

PROJ. NO.	89-113
DATE	JUNE 11, 1990
SCALE	GRAPHIC
DRAWING NO.	10

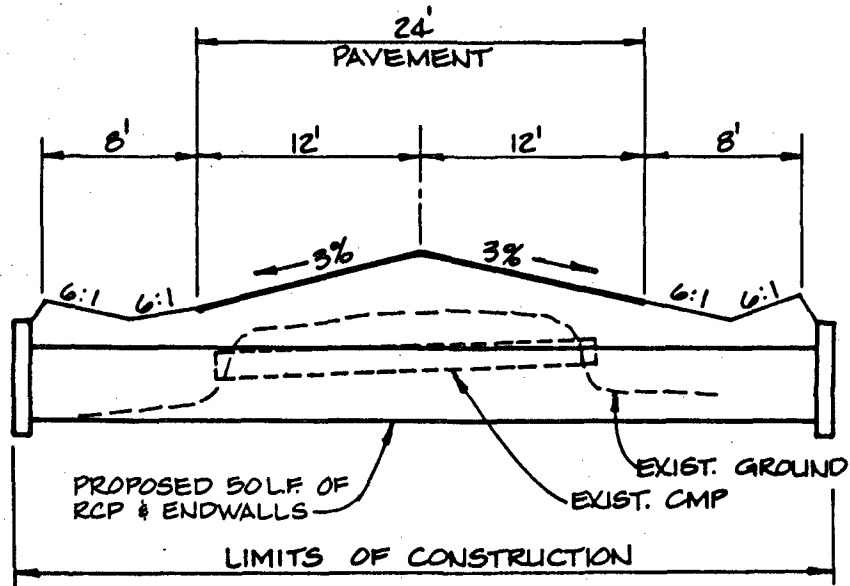
DER

D.E.R.
JURISDICTIONAL LINE

IMPACTS TO D.E.R.
JURISDICTIONAL LANDS



TYPICAL SECTION WHERE
IMPACTING D.E.R. JURISDICTION



TYPICAL CULVERT REPLACEMENT



England-Thims
& Miller, Inc.

ROADWAY SECTIONS

TRAIL RIDGE LANDFILL
TRAIL RIDGE LANDFILL, INC.

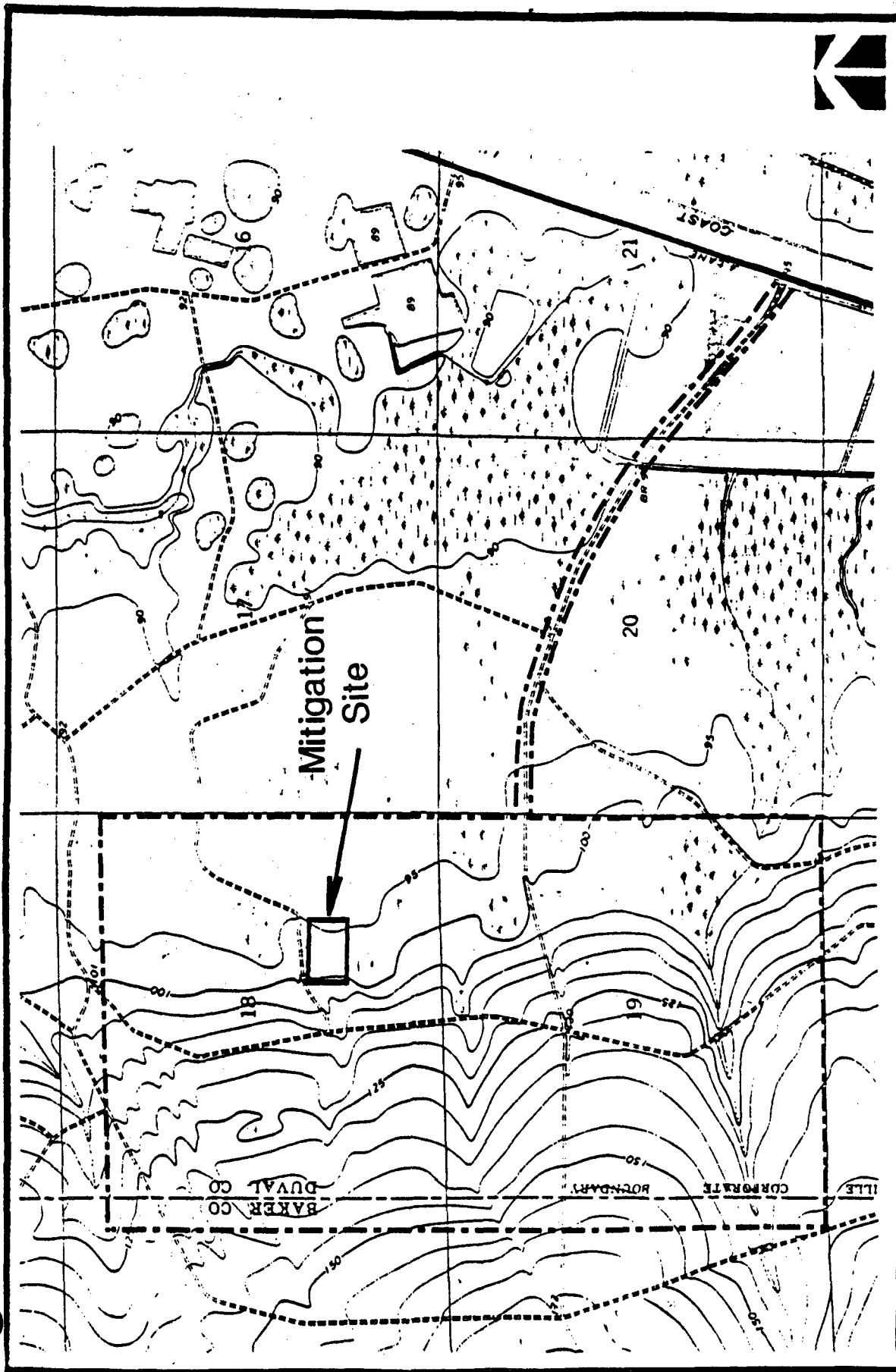
PROJ. NO. 89-113

DATE JUNE 11, 1990

SCALE 1"-10'

DRAWING NO. 12

DER



Proj No. 89-395

Date JUNE 11, 1990

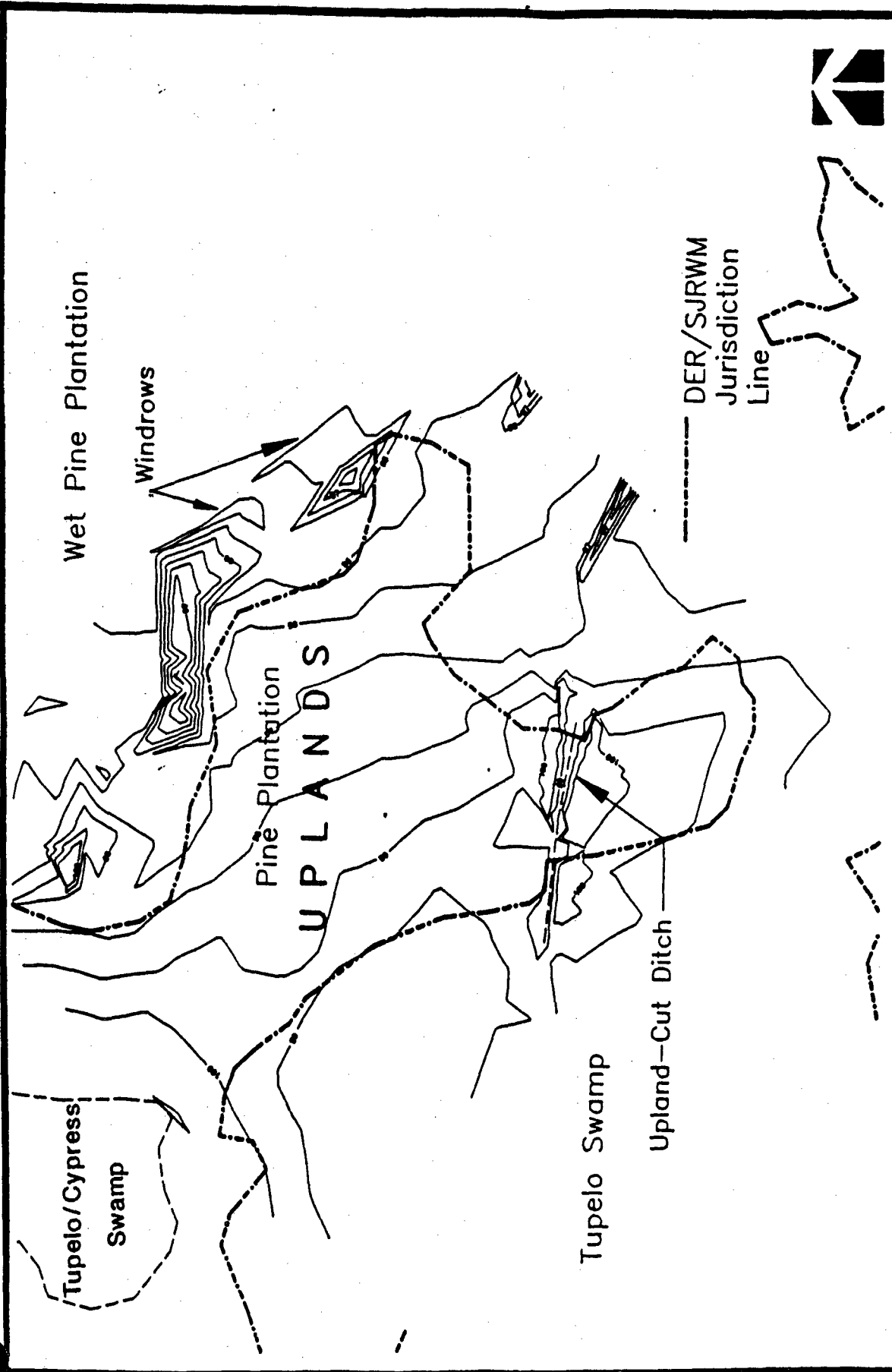
Scale 1" = 2000'

Drawing No. 13

Figure 1 Location Map
Trail Ridge Landfill
Mitigation Plan

 ENVIRONMENTAL SERVICES, INC.

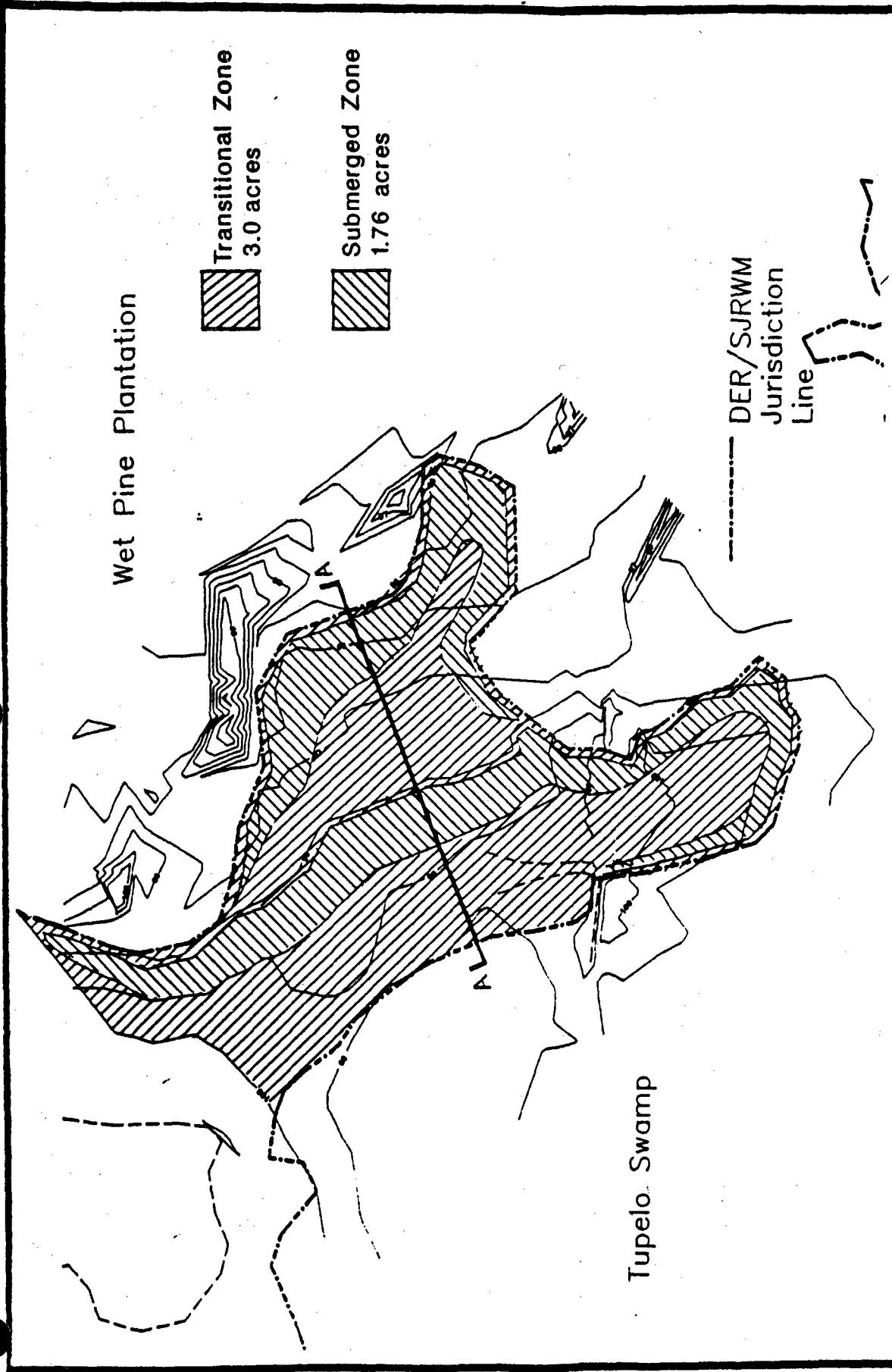
DER



Proj No.	89-395
Date	JUNE 11, 1990
Scale	1"=150'
Drawing No.	15

Figure 3 Existing Conditions
Trail Ridge Landfill
Mitigation Plan

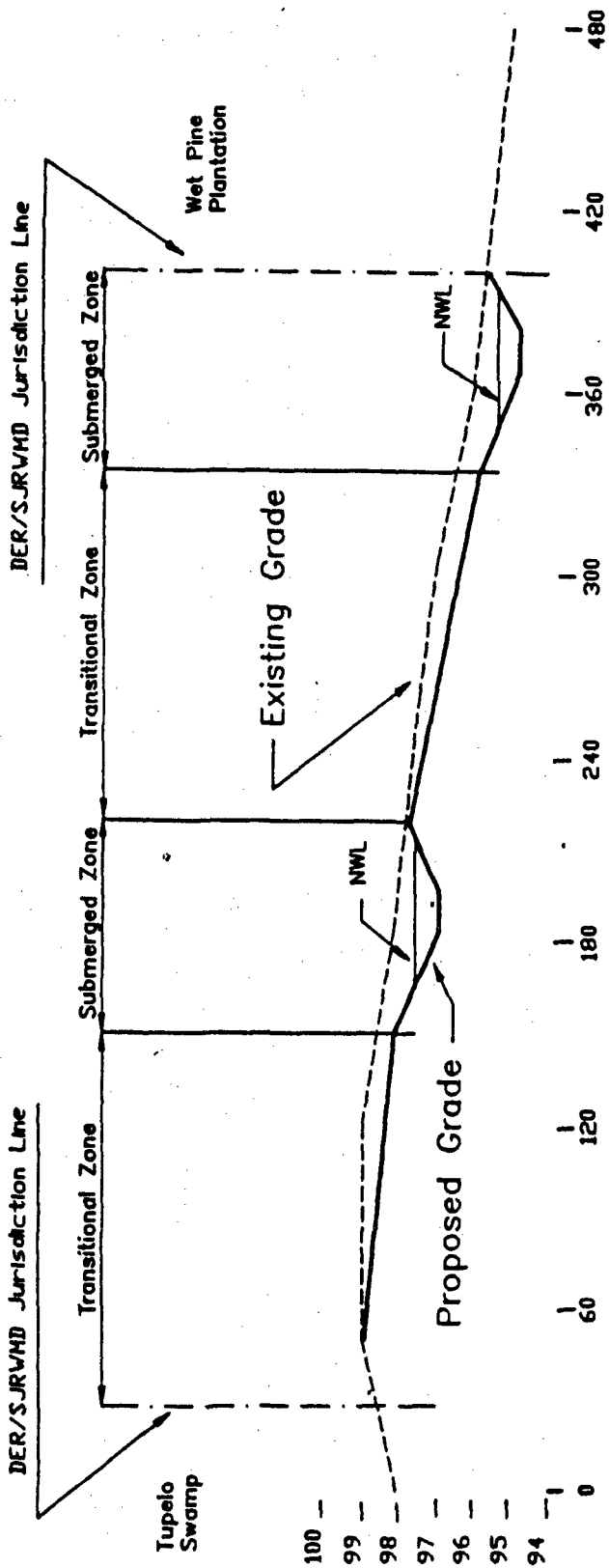
 ENVIRONMENTAL SERVICES, INC.



<p>Figure 4 Proposed Conditions Trail Ridge Landfill Mitigation Plan</p>	<p>Proj No. 89-395</p>
	<p>Date JUNE 11, 1990</p>
	<p>Scale 1"=150'</p>
	<p>Drawing No. 16</p>



DER



Proposed Planting Schedule

Transitional Zone

Red Maple
Sweetgum
Laurel Oak
Wax Myrtle
Fetterbush

Submerged Zone

Cypress
Tupelo
Sweet Bay
Buttonbush
Virginia Willow



**ENVIRONMENTAL
SERVICES, INC.**

Figure 5 Mitigation Cross-Section
Trail Ridge Landfill
Mitigation Plan

Proj No. 89-395

Date JUNE 11, 1990

Scale as shown

Drawing No. 17

MEMORANDUM OF CORPORATE ACTION

The Board of Directors of Save Trail Ridge and the Environment, Inc. (formerly Save Trail Ridge and the Environment Association), hereby authorize the dismissal of all petitions now pending before the DOAH under Case No. 90-7295 relating to Wetland Resource Permit Number 161821182 and Case No. 91-0336 relating to Solid Waste Facility Construction and Operation Permit SC16-184444 and authorize the President and a majority of the Board to direct it's attorneys to file the appropriate pleadings to implement this action.

Marjella Boy
Lolli Solomons
David Phillips

TRL-57

ARTICLES OF INCORPORATION

The undersigned, acting as incorporator(s) of a Corporation pursuant to Chapter 617, Florida Statutes, adopt(s) the following Articles of Incorporation of such corporation:

ARTICLE I

The name of the corporation shall be: **SAVE TRAIL RIDGE AND THE ENVIRONMENT, INC.**

The principal place of business of this corporation shall be: **Paul Coleman Road, No. 22002
Maxville, Florida 32234**

ARTICLE II

The period of the duration of this corporation is **Perpetual**. The effective date shall unless dissolved according to law. **commence with filing with the Secretary of State.**

ARTICLE III

The purpose (purposes) for which the corporation is organized is (are): **SEE ATTACHED**

ARTICLE IV

The qualifications for members and the manner of their admission are: **TO BE PROVIDED IN
BYLAWS**

ARTICLE V

The number constituting the Initial Board of Directors, trustee or managers, (circle one) of the corporation is THREE, and the names and addresses of the persons who are to serve initially are: (not less than 3)

NAME	ADDRESS
David Phillips	Paul Coleman Road, Maxville, Florida 32234
Ellen Long	22002 Paul Coleman Road, Maxville, Florida 32234
Sollie Solomons	Paul Coleman Road, Maxville, Florida 32234

ARTICLE III

The primary purpose of this corporation shall be:

1. To promote the conservation, preservation and wise use of the natural resources and environmentally valuable or sensitive lands in the Trail Ridge area of Duval and adjacent counties.
2. To promote the preservation of archaeological and historical sites and other historic and cultural resources of the Trail Ridge area of Duval and adjacent counties.
3. To influence government action and take other actions in order to protect the natural and historic resources of the Trail Ridge area of Duval and adjacent counties.
4. To exercise all of the powers enumerated in Section 617.021, Florida Statutes, to achieve the objectives of the corporation.
5. Notwithstanding any other provision of these articles, the purposes for which Save Trail Ridge and the Environment, Inc. is organized are exclusively religious, charitable, scientific, literary, and educational within the meaning of Section 501(C)(3) of the Internal Revenue Code or the corresponding provision of any future United States Internal Revenue law.
6. Notwithstanding any other provision of these articles, this organization shall not carry on any other activities not permitted to be carried on by an organization exempt from federal income tax under Section 501(c)(3) of the Internal Revenue Code of the corresponding provision of any future United States Internal Revenue law.

ARTICLE VI

This corporation is organized under a non-stock basis.

ARTICLE VII

In the event of dissolution, the residual assets of the organization will be turned over to one or more organizations which themselves are exempt as organizations described in Section 501(c)(3) and 170(c)(2) of the Internal Revenue Code of 1954 or corresponding sections of any prior or future law, or to the Federal, State, or Local Government for exclusive public purpose.

ARTICLE VIII

The name and address of each incorporator is

Ellen Long
22002 Paul Coleman Road
Maxville, Florida 32234

IN WITNESS WHEREOF, the undersigned incorporator(s) has (have) executed these Articles of Incorporation this 30th day of October, 1990

Signature(s) of Incorporator(s)

Ellen Long

Print name here: Ellen Long

Print name here:

Print name here:

STATE OF FLORIDA
COUNTY OF DUVAL

THE FOREGOING instrument was acknowledged and sworn to before me this 30 day of October, 1990, by Ellen Long (name of Incorporator) of Save Trail Ridge and the Environment, Inc. (name of corporation)

(SEAL)

Regina Hernandez
Notary Public

My Commission Expires: Notary Public, State of Florida
My Commission Expires, Dec 26, 1992

**CERTIFICATE OF DESIGNATION
REGISTERED AGENT/REGISTERED OFFICE**

Pursuant to the provisions of section 607.0501, Florida Statutes, the undersigned corporation, organized under the laws of the state of Florida, submits the following statement in designating the registered office/registered agent, in the state of Florida.

1. The name of the corporation is: SAVE TRAIL RIDGE AND THE ENVIRONMENT, INC.

2. The name and address of the registered agent and office is:

Oxstal, Hoffman, Fernandez and Cole, P.A.

(NAME)

Suite C, 2700 Blair Stone Road, Tallahassee, Florida 32301

(P.O. BOX NOT ACCEPTABLE)

(CITY/STATE/ZIP)

SIGNATURE

Ellen Long

(corporate officer) Ellen Long

TITLE Director

DATE October 30, 1990

HAVING BEEN NAMED AS REGISTERED AGENT AND TO ACCEPT SERVICE OF PROCESS FOR THE ABOVE STATED CORPORATION AT THE PLACE DESIGNATED IN THIS CERTIFICATE, I HEREBY ACCEPT THE APPOINTMENT AS REGISTERED AGENT AND AGREE TO ACT IN THIS CAPACITY. I FURTHER AGREE TO COMPLY WITH THE PROVISIONS OF ALL STATUTES RELATING TO THE PROPER AND COMPLETE PERFORMANCE OF MY DUTIES, AND I AM FAMILIAR WITH AND ACCEPT THE OBLIGATIONS OF MY POSITION AS REGISTERED AGENT.

SIGNATURE

Tom Imscho

For the Firm.

DATE

Nov. 1, 1990

REGISTERED AGENT FILING FEE: \$35.00

FILED
OCT 31 11:34
TALLAHASSEE, FLORIDA

**MAPS
SCANNED
SEPARATELY**