

a layer of gray (10YR 5/1) fine sand at least 10 inches thick, with black (10YR 2/1) mottles. The profile described above does not agree with the typical pedon.

The stakes delineating this wetland begin with "W11-1" on the west side of the wetland. The stakes proceed counterclockwise to stake "W11-11."

Pipeline Easement

Easement Wetland 1 is a contiguous to the small stand of cypress trees along the eastern boundary of the site designated as Wetland 5. This wetland occurs on the northern side of the roadway designated as the pipeline easement. It is delineated by stakes designated "EW1-1" through "EW1-4." Because this wetland is a continuation of one previously described, a soil profile and Routine Wetland Determination Data Form were not completed.

Easement Wetland 2 is a wetland forested mixed community located east of the DU-9 site. The dominant canopy species include pond cypress, loblolly bay, slash pine, swamp gum, and swamp bay. The understory is composed of fetterbush and wax myrtle. The herbaceous component is dominated by prairie iris, Virginia chain fern, many-head rush, and redroot.

No standing water was noted within the wetland, and the soils were not saturated above a depth of at least 16 inches during this investigation. The SCS Soils Survey maps this area as Riviera fine sand, frequently flooded. The soils were characterized during the delineation as an 8 inch surface layer of very dark gray (10YR 3/1) mucky fine sand, underlain by approximately 5 inches of grayish brown (10YR 5/2) fine sand with dark gray mottles (10YR 3/1). Under this horizon is a layer at least 4 inches thick of light gray (10YR 7/2) fine sand.

The stakes delineating this wetland begin with "EW2-1" through "EW2-4" on the west side of the wetland, and continue with "EW2-5" through "EW2-8" on the east side of the wetland.

Easement Wetland 3 is a small salt marsh along the western shoreline of the ICWW. The dominant species include smooth cordgrass (*Spartina alterniflora*), saltgrass (*Distichlis spicata*), black rush (*Juncus roemerianus*), and sea oxeye daisy (*Borrchia frutescens*).

No standing water was noted within the wetland, and the soils were saturated below a depth of 3 inches during this investigation. The SCS Soils Survey maps this area as Riviera fine sand, depressional. The soils were characterized during the delineation as a 12 inch thick surface layer of gray (10YR 5/1) fine sand with black (10YR 2/1) mottles. Under this layer is a horizon at least 5 inches thick of very pale brown (10YR 8/2) fine sand. The upper portions of the profile agree with the typical pedon for Myakka fine sand.

The stakes delineating this wetland begin with "EW3-1" on the southwest side of the wetland. The stakes proceed north to stake "EW3-6."

MITIGATION OPTIONS

A number of Federal, State, and local regulatory agencies may have jurisdictional authority over the wetlands within the DU-9 Management Area. These agencies include the Corps, the St. Johns River Water Management District (SJRWMD), and the Florida Department of Environmental Protection (FDEP). These regulatory agencies may require mitigation for unavoidable wetland impacts. Acceptable compensatory wetland mitigation may include the following: 1) wetland creation/restoration; 2) wetland enhancement; 3) wetland preservation; 4) upland preservation, and 5) mitigation banking.

Several factors are typically considered in establishing mitigation ratios to estimate the acreage of mitigation required and to prepare a mitigation plan that adequately compensates for proposed wetland impacts:

- Quality and type of wetlands proposed for impact
- Quality and type of wetlands proposed as mitigation
- Potential for success of proposed mitigation plan
- Special designations or classifications of impact and/or mitigation area
- Presence of exotic or nuisance species in impact and/or mitigation area
- Protection of mitigation area
- Financial responsibility of mitigation area

The following identifies several mitigation options generally acceptable to regulatory agencies to compensate for wetland impacts:

1. Wetland Creation/Restoration

To utilize this option, new wetlands are created from upland areas or restored from historic wetlands which have been severely altered. At least 3 to 5 years of monitoring is typically required by the agencies to document that site-specific success criteria are met. Periodic maintenance of existing vegetation and removal of nuisance species are typically necessary to maintain the integrity of the mitigation area.

2. Wetland Enhancement

To utilize this option, the functions of existing wetlands are enhanced through removal of historically-placed hydrological alterations, planting and re-introducing desirable wetland vegetation, or removing nuisance and exotic vegetation. At least 3 to 5 years of monitoring of enhanced areas is generally required by the permitting agencies to ensure the mitigation area meets site-specific success criteria. Periodic maintenance is generally necessary to maintain the integrity of the mitigation area.

3. **Wetland Preservation**

Wetland preservation is typically provided in association with other forms of mitigation. Wetlands can be preserved on or off-site. To utilize this option, a conservation easement is placed over the wetland preservation area and dedicated to a specified governmental agency or conservation-oriented organization.

4. **Upland Preservation**

Preservation of uplands adjacent to wetlands or adjacent to significant or critical upland habitat can serve as mitigation for wetlands impacts. To utilize this option, a conservation easement is placed over the upland preservation area and dedicated to a specified governmental agency or conservation-oriented organization.

5. **Mitigation Banking**

Mitigation banks are preserved areas designated for enhancement or restoration by a private or public entity. These areas are permitted as a bank by the Corps and/or the SJRWMD/FDEP. Mitigation banks allow a developer to purchase credits from the bank without the associated obligations of monitoring and maintenance, which are typically required with other types of wetland mitigation. There are currently no permitted mitigation banks serving the drainage basin in which Dredged Material Management Area SJ-14 occurs (Gipe, 1998; Evans, 1998).

CONCLUSIONS/RECOMMENDATIONS

The following conclusions and recommendations are provided to assist the Corps with planning for dredging activities associated with the Dredged Material Management Area DU-9 site:

- The site was determined to contain wetlands jurisdictional to the Corps and the SJRWMD/FDEP.
- The wetlands were considered to be of good quality, although they show signs of inadequate hydrology and minor invasion by nuisance and exotic species that do not necessarily relate to the dry conditions associated with the weather immediately prior to and during the June 1998 site investigation. Continued lack of suitable hydrology may influence future community structure and composition.
- The Corps and the SJRWMD/FDEP should be contacted to determine if wetland field reviews or pre-application meetings are necessary.
- Current project plans provide for avoidance of the majority of the wetlands within the DU-9 site. Although impacts are expected to be relatively minor (approximately 1.1 ha (2.7 acres)), compensatory mitigation for unavoidable impacts may be required.

Additionally, it is expected that Wetland 10 (located immediately adjacent to the perimeter ditch and road) and Wetland 9 (which is bisected by the berm) will be wholly included in the wetland impact total, raising the total impact acreage to 1.34 ha (3.3 acres).

- Wetlands not proposed for impact will need to be protected from construction-related activities. Standard Best Management Practices (BMPs) such as turbidity barriers, silt screens, and slope stabilization are typical conditions of State permit issuance and are recommended regardless of permitting status. It is not likely that preservation of the remaining wetlands on-site would provide sufficient mitigation for the impacts proposed within the DU-9 site, and other mitigative measures should be investigated.

Appendix A

Information Sources Utilized for the Dredged Material Management Area DU-9 Project

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 103 pp.

Environmental Laboratory. 1987. "Corps of Engineers Wetlands Delineation Manual." Technical Report Y-87-1. U.S. Army Engineer Waterway Experiment Station. Vicksburg, MS.

Evans, M. 1998. Personal Communication. U.S. Army Corps of Engineers. Jacksonville, FL.

Florida Association of Environmental Soil Scientists, Hydric Soils of Florida Handbook, 2nd edition. 1995.

Florida Department of Revenue. Black and White Aerial Photography. December 1995. Scale: 1 in. = 200 ft.

Florida Department of Transportation. September 1985. Florida Land Use, Cover and Forms Classification System, Level III.

Florida Game and Fresh Water Fish Commission. Official Lists of Endangered and Potentially Endangered Fauna and Flora in Florida. 1 August 1997. Prepared by T.H. Logan.

Gipe, T.G. 1998. Personal Communication. St. Johns Water Management District. Palatka, FL.

Kollmorgen Instruments Corp. 1992. Munsell Soil Color Charts. Kollmorgen Instruments Corp. Newburgh, N.Y.

Mosura, E.L. 1992. Environmental Site Documentation for Proposed Dredged Material Management Areas in St. Johns County, DU-9. Prepared for Taylor Engineering, Inc. for the Florida Inland Navigation District. Water and Air Research, Inc., Gainesville, FL.

Soil Survey of St. Johns County, Florida. 1996. United States Soil Conservation Service. Sheets 21 and 22. Scale 1 : 15840.

United States Army Corps of Engineers, Section 404 of the Clean Water Act (33 U.S.C. 1344).

USFWS National Wetland Inventory Map: Palm Valley, FL, circa 1988. Scale = 1 : 24000.

USGS Topographic Survey Map: Palm Valley, FL, circa 1964, revised 1981. Scale = 1 : 24000.

Ward, D.B. (ed.) 1992. Rare and Endangered Biota of Florida, Volume V. Plants. Florida Committee of Rare and Endangered Plants and Animals. University Presses of Florida. Gainesville, FL.

Wunderlin, R.P. 1982. Guide to the Vascular Plants of Central Florida. University Presses of Florida. Tampa, FL.

Appendix B

**Routine Wetland Determination Data Forms for the
Dredged Material Management Area DU-9 Project**

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/OLR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? Yes <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? Yes <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W1</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Pinus elliotii</i>	C	FACW	9. <i>Eupatorium capillifolium</i>	H	FACU
2. <i>Myrica cerifera</i>	S	FAC	10. <i>Furcraea sibirica</i>	H	OBL
3. <i>Quercus laurifolia</i>	S	FACW	11. <i>Rhynchospora inundata</i>	H	OBL
4. <i>Eriochloa hieracifolia</i>	H	FAC-	12. _____		
5. <i>Juncus effusus</i>	H	FACW+	13. _____		
6. <i>Fimbristylis miliacea</i>	H	OBL	14. _____		
7. <i>Nyssa aquatica</i>	H	OBL	15. _____		
8. <i>Hydrocotyle umbellata</i>	H	OBL	16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 82%

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input checked="" type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) _____
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>716</u> (in.) Depth to Saturated Soil: <u>716</u> (in.)	Remarks: <u>algal mats; aquatic mosses</u>

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FLND</u> Investigator: <u>DSS/CUR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W2</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Pinus elliotii</u>	<u>C</u>	<u>FACW</u>	9. <u>Bacopa caroliniana</u>	<u>H</u>	<u>OBL</u>
2. <u>Sagittaria setifera</u>	<u>S</u>	<u>FAC</u>	10. <u>Andropogon glaucus</u>	<u>H</u>	<u>FACW+</u>
3. <u>Mynaca centron</u>	<u>S</u>	<u>FAC+</u>	11. _____	_____	_____
4. <u>Baccharis halimifolia</u>	<u>S</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>Polypodium dumetatum</u>	<u>H</u>	<u>FACW+</u>	13. _____	_____	_____
6. <u>Juncus elliotii</u>	<u>H</u>	<u>FACW+</u>	14. _____	_____	_____
7. <u>Juncus polycephalus</u>	<u>H</u>	<u>OBL</u>	15. _____	_____	_____
8. <u>Centella asiatica</u>	<u>H</u>	<u>FACW</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC... (excluding FAC): 100%

Remarks: _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input checked="" type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>716</u> (in.)</p> <p>Depth to Saturated Soil: <u>716</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks) _____</p>
Remarks: _____	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>FIND/USAGE</u> Investigator: <u>DJS/CLR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W3</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium ascendens</u>	<u>C</u>	<u>OBL</u>	9. <u>Rhynchospora imundissima</u>	<u>H</u>	<u>OBL</u>
2. <u>Acer rubrum</u>	<u>C</u>	<u>FAC</u>	10. <u>Cadua Placida</u>	<u>H</u>	<u>OBL</u>
3. <u>Quercus laevis</u>	<u>C</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Ilex cassine</u>	<u>S</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Sagittaria arifolia</u>	<u>S</u>	<u>FAC</u>	13. _____	_____	_____
6. <u>Sabal palmetto</u>	<u>S</u>	<u>FAC</u>	14. _____	_____	_____
7. <u>Chasmodon laxum</u>	<u>H</u>	<u>FACW</u>	15. _____	_____	_____
8. <u>Saururus cernuus</u>	<u>H</u>	<u>OBL</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC... 100%
 (excluding FAC-).

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) _____
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>7/6</u> (in.) Depth to Saturated Soil: <u>7/6</u> (in.)	Remarks:

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DJS/CLR</u>	Date: <u>6/17/98</u> County: <u>St. Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W4</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Pinus serotina</u>	<u>C</u>	<u>FACW+</u>	9. _____		
2. <u>Pinus elliottii</u>	<u>C</u>	<u>FACW</u>	10. _____		
3. <u>Vex cassia</u>	<u>S</u>	<u>FACW</u>	11. _____		
4. <u>Persea palustris</u>	<u>S</u>	<u>FACW</u>	12. _____		
5. <u>Andropogon apiculatus</u>	<u>H</u>	<u>FACW+</u>	13. _____		
6. <u>Juncus polycephalus</u>	<u>H</u>	<u>OBL</u>	14. _____		
7. <u>Juncus sp.</u>	<u>H</u>	<u>FACW+</u>	15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC 100%
 (excluding FAC).

Remarks: _____

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 inches <input checked="" type="checkbox"/> Water-Stained Leaves <input checked="" type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) _____
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>>16</u> (in.)	
Remarks: _____	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>FIND/USACE</u> Investigator: <u>BIS/CLR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>WS</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium ascendens</u>	<u>C</u>	<u>OBL</u>	9. <u>Woodwardia areolata</u>	<u>H</u>	<u>OBL</u>
2. <u>Pinus serotina</u>	<u>C</u>	<u>FACW+</u>	10. <u>Junus repens</u>	<u>H</u>	<u>OBL</u>
3. <u>Pinus elliotii</u>	<u>C</u>	<u>FACW</u>	11. <u>Junus elliotii</u>	<u>H</u>	<u>FACW+</u>
4. <u>Picea palustris</u>	<u>C</u>	<u>FACW</u>	12. <u>Junus palcephalus</u>	<u>H</u>	<u>OBL</u>
5. <u>Gordonia lasianthus</u>	<u>C/S</u>	<u>FACW</u>	13. <u>Sphagnum sp</u>	<u>H</u>	<u>OBL</u>
6. <u>Nyssa sylvatica</u>	<u>C/S</u>	<u>OBL</u>	14. <u>Ludwigia repens</u>	<u>H</u>	<u>OBL</u>
7. <u>Opuntia cuneata</u>	<u>H</u>	<u>FACW+</u>	15. _____		
8. <u>Opuntia rogersii</u>	<u>H</u>	<u>OBL</u>	16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC... (excluding FAC): _____

Remarks: _____

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> No Recorded Data Available	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <p>Secondary Indicators (2 or more required):</p> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) _____
<p>Field Observations:</p> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>7/6</u> (in.) Depth to Saturated Soil: <u>11</u> (in.)	Remarks: _____

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/CLR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W6</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium ascendens</u>	<u>C</u>	<u>OBL</u>	9. <u>Carex sp</u>	<u>H</u>	<u>---</u>
2. <u>Pinus elliotti</u>	<u>C</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Pinus serotina</u>	<u>C</u>	<u>FACW+</u>	11. _____	_____	_____
4. <u>Gordonia lasianthus</u>	<u>S</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Nyssa caroliniana</u>	<u>S</u>	<u>FAC+</u>	13. _____	_____	_____
6. <u>Iris hexagona</u>	<u>H</u>	<u>OBL</u>	14. _____	_____	_____
7. <u>Panicum hemiltonianum</u>	<u>H</u>	<u>OBL</u>	15. _____	_____	_____
8. <u>Juncus obtusus</u>	<u>H</u>	<u>FACW+</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC... (excluding FAC-): 89%

Remarks: The Carex was not identified to species level, and was therefore not utilized in the dominance calculation

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) _____
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>> 16</u> (in.) Depth to Saturated Soil: <u>5"</u> (in.)	Remarks: _____

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/CUR</u>	Date: <u>6/17/98</u> County: <u>St. Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W7</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Taxodium ascendens</i>	C	OBL	9. <i>Polygonum punctatum</i>	H	FACW+
2. <i>Nyssa sylvatica</i>	C	OBL	10. <i>Ornithogalum regalis</i>	H	OBL
3. <i>Pharus elliptici</i>	C	FACW	11. _____	_____	_____
4. <i>Erodium lasianthus</i>	C	FACW	12. _____	_____	_____
5. <i>Munira cerifera</i>	S	FAC+	13. _____	_____	_____
6. <i>Pontederia cordata</i>	H	OBL	14. _____	_____	_____
7. <i>Woodwardia areolata</i>	H	OBL	15. _____	_____	_____
8. <i>Woodwardia virginica</i>	H	OBL	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"> <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other </p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>7/6</u> (in.)</p> <p>Depth to Saturated Soil: <u>7/6</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
Remarks: _____	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>FIND/USACE</u> Investigator: <u>DJS/CR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>WB</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium ascendens</u>	<u>C</u>	<u>OBL</u>	9. _____		
2. <u>Pinus oclottii</u>	<u>C</u>	<u>FACW</u>	10. _____		
3. <u>Rosea palustris</u>	<u>S</u>	<u>FACW</u>	11. _____		
4. <u>Nyssa caribaea</u>	<u>S</u>	<u>FAC</u>	12. _____		
5. <u>Woodwardia arolata</u>	<u>H</u>	<u>OBL</u>	13. _____		
6. <u>Eriocaulon decarpanae</u>	<u>H</u>	<u>OBL</u>	14. _____		
7. <u>Andropogon virginica glauca</u>	<u>H</u>	<u>FAC-</u>	15. _____		
8. <u>Woodwardia virginica</u>	<u>H</u>	<u>OBL</u>	16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC: 88%
 (excluding FAC-).

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input checked="" type="checkbox"/> Drift Lines <input checked="" type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands
<p>Field Observations:</p> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>> 16</u> (in.) Depth to Saturated Soil: <u>11</u> (in.)	<p>Secondary Indicators (2 or more required):</p> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Remarks:	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DW-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/CLR</u>	Date: <u>6/17/98</u> County: <u>St Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W9</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <i>Taxodium ascendens</i>	C	OBL	9. <i>Woodwardia virginiana</i>	H	OBL
2. <i>Pinus elliottii</i>	C	FACW	10. <i>Carex</i> sp	H	---
3. <i>Ilex glabra</i>	S	FACW	11. <i>Andropogon virginicus</i>	H	FAC-
4. <i>Persea palustris</i>	S	FACW	12. _____		
5. <i>Fimbrina serotina</i>	H	OBL	13. _____		
6. <i>Rhynchospora fascicularis</i>	H	FACW+	14. _____		
7. <i>Lobelia cardinalis</i>	H	OBL	15. _____		
8. <i>Spartina patens</i>	H	FACW+	16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC... (excluding FAC-) 90%

Remarks: *The Carex was not identified to species level, and was therefore not used in the dominance calculations*

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input checked="" type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input checked="" type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) _____
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: <u>>16</u> (in.) Depth to Saturated Soil: <u>11</u> (in.)	Remarks: _____

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/CUR</u>	Date: <u>6/17/98</u> County: <u>St. Johns</u> State: <u>FL</u>						
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%;"> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/></td> <td style="text-align: center;">No <input checked="" type="radio"/></td> </tr> </table>	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Yes <input type="radio"/>	No <input checked="" type="radio"/>	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Yes <input type="radio"/>	No <input checked="" type="radio"/>						
Yes <input type="radio"/>	No <input checked="" type="radio"/>						
Yes <input type="radio"/>	No <input checked="" type="radio"/>						
Community ID: <u>W10</u> Transect ID: _____ Plot ID: _____							

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium ascendens</u>	<u>C</u>	<u>OBL</u>	9. _____		
2. <u>Pinus elliottii</u>	<u>C</u>	<u>FACW</u>	10. _____		
3. <u>Gorbonia lasianthus</u>	<u>C</u>	<u>FACW</u>	11. _____		
4. <u>Nycticia aculeata</u>	<u>S</u>	<u>FAC+</u>	12. _____		
5. <u>Ilex cassine</u>	<u>S</u>	<u>FACW</u>	13. _____		
6. <u>Woodwardia virginica</u>	<u>H</u>	<u>OBL</u>	14. _____		
7. <u>Woodwardia arifolia</u>	<u>H</u>	<u>OBL</u>	15. _____		
8. <u>Lachnanthes caroliniana</u>	<u>H</u>	<u>OBL</u>	16. _____		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: _____

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other _____</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>7/16</u> (in.)</p> <p>Depth to Saturated Soil: <u>7/16</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other: (Explain in Remarks) _____</p>
Remarks: <u>Aquatic masses</u>	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/CUR</u>	Date: <u>6/17/98</u> County: <u>St. Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>W11</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Gordonia lasianthus</u>	<u>C</u>	<u>FACW</u>	9. _____		
2. <u>Persea palustris</u>	<u>C</u>	<u>FACW</u>	10. _____		
3. <u>Pinus Elliottii</u>	<u>C</u>	<u>FACW</u>	11. _____		
4. <u>Lyonia lucida</u>	<u>S</u>	<u>FACW</u>	12. _____		
5. <u>Nerica cecileia</u>	<u>S</u>	<u>FAC+</u>	13. _____		
6. <u>Weddickardia virginica</u>	<u>H</u>	<u>OBL</u>	14. _____		
7. <u>Sphagnum sp</u>	<u>H</u>	<u>OBL</u>	15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: _____

HYDROLOGY

<p><u> </u> Recorded Data (Describe in Remarks):</p> <p><u> </u> Stream, Lake, or Tide Gauge</p> <p><u> </u> Aerial Photographs</p> <p><u> </u> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>76</u> (in.)</p> <p>Depth to Saturated Soil: <u>76</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><u> </u> Inundated</p> <p><u> </u> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><u> </u> Drift Lines</p> <p><u> </u> Sediment Deposits</p> <p><u> </u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><u> </u> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><u> </u> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><u> </u> Other (Explain in Remarks)</p>
Remarks: <u>Aquatic Mosses</u>	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DSS/CUR</u>	Date: <u>6/17/98</u> County: <u>St. Johns</u> State: <u>FL</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>EW 2</u> Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Taxodium ascendans</u>	<u>C</u>	<u>OBL</u>	9. <u>Woodwardia virginica</u>	<u>H</u>	<u>OBL</u>
2. <u>Pinus elliotii</u>	<u>C</u>	<u>FACW</u>	10. <u>Juncus polycephalus</u>	<u>H</u>	<u>OBL</u>
3. <u>Parsea palustris</u>	<u>C</u>	<u>FACW</u>	11. <u>Lachnanthes caroliniana</u>	<u>H</u>	<u>OBL</u>
4. <u>Nyssa sylvatica</u>	<u>C</u>	<u>OBL</u>	12. _____	_____	_____
5. <u>Spartina lasiocarpa</u>	<u>C</u>	<u>FACW</u>	13. _____	_____	_____
6. <u>Lyonia lucida</u>	<u>S</u>	<u>FACW</u>	14. _____	_____	_____
7. <u>Mlyica cerifera</u>	<u>S</u>	<u>FAC+</u>	15. _____	_____	_____
8. <u>Iris hexagona</u>	<u>H</u>	<u>OBL</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW, or FAC ... (excluding FAC-). 100%

Remarks: _____

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Leaf Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other: (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>>16</u> (in.)</p> <p>Depth to Saturated Soil: <u>>16</u> (in.)</p>	
<p>Remarks: _____</p>	

DATA FORM
 ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>DU-9</u> Applicant/Owner: <u>USACE/FIND</u> Investigator: <u>DJS/CUR</u>	Date: <u>6/17/98</u> County: <u>St. Johns</u> State: <u>FL</u>				
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Yes <input checked="" type="radio"/> No <input type="radio"/></td> <td style="text-align: center;">Yes <input type="radio"/> No <input checked="" type="radio"/></td> </tr> <tr> <td style="text-align: center;">Yes <input type="radio"/> No <input checked="" type="radio"/></td> <td style="text-align: center;">Yes <input type="radio"/> No <input checked="" type="radio"/></td> </tr> </table>	Yes <input checked="" type="radio"/> No <input type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>
Yes <input checked="" type="radio"/> No <input type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>				
Yes <input type="radio"/> No <input checked="" type="radio"/>	Yes <input type="radio"/> No <input checked="" type="radio"/>				
Community ID: <u>EW 3</u> Transect ID: _____ Plot ID: _____					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Spartina alterniflora</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Distichlis spicata</u>	<u>H</u>	<u>FACW+</u>	10. _____	_____	_____
3. <u>Juncus roemerianus</u>	<u>H</u>	<u>OBL</u>	11. _____	_____	_____
4. <u>Borreria frutescens</u>	<u>H</u>	<u>OBL</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

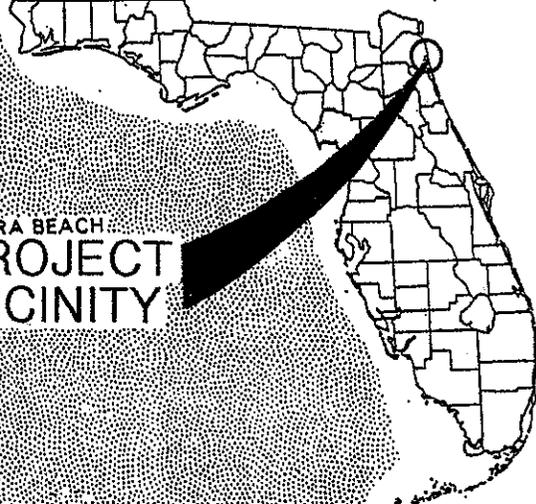
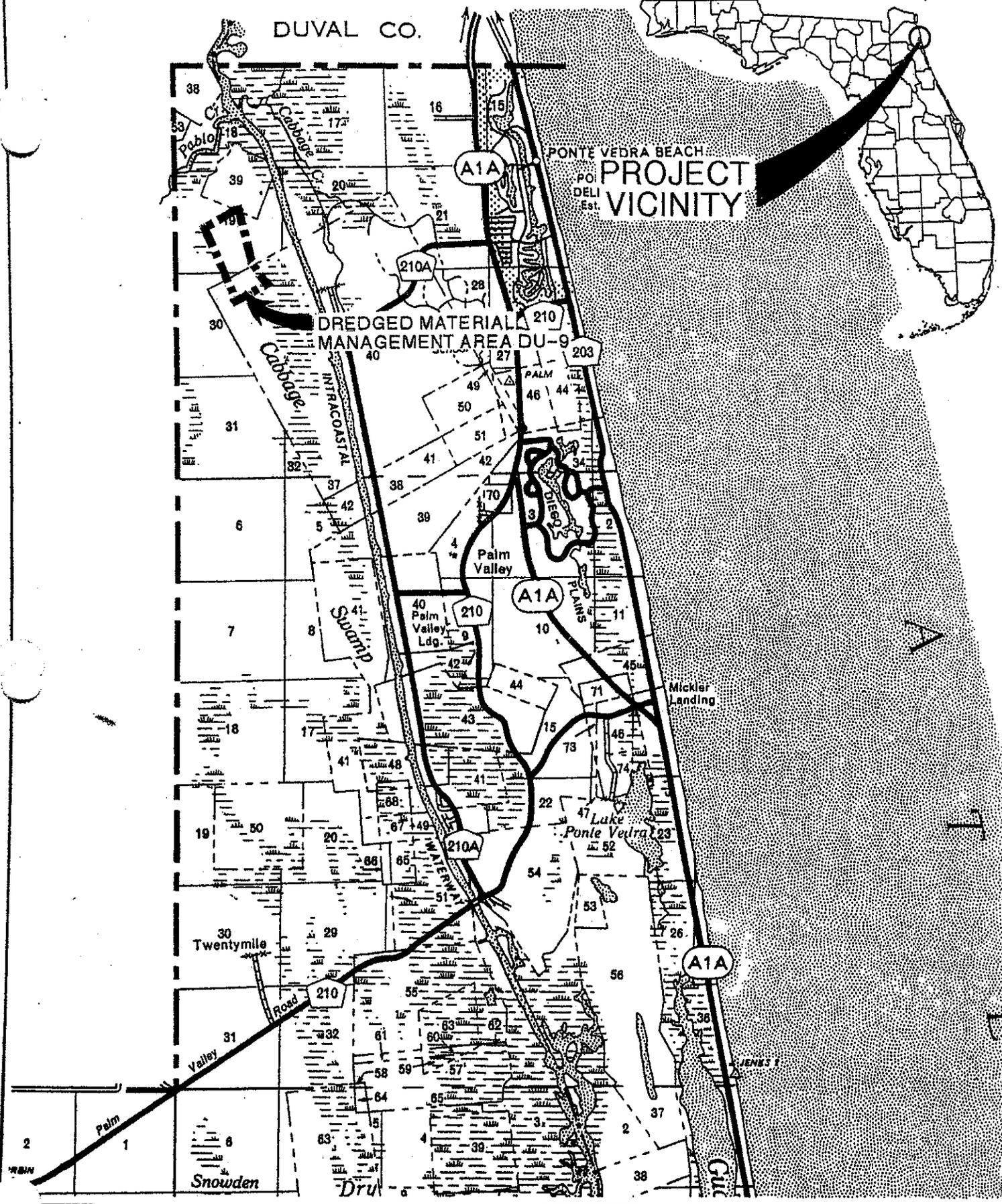
Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-): 100%

Remarks: _____

HYDROLOGY

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;"><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;"><input type="checkbox"/> Aerial Photographs</p> <p style="margin-left: 20px;"><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drill Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input checked="" type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other: (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: <u>6</u> (in.)</p> <p>Depth to Saturated Soil: <u>3</u> (in.)</p>	
<p>Remarks: _____</p>	

DUVAL CO.



PONTE VEDRA BEACH
 POI
 DELI
 Est.
PROJECT VICINITY

DREDGED MATERIAL MANAGEMENT AREA DU-9

Lotspeich and Associates, Inc.
 ECOLOGICAL CONSULTANTS

422 W. Fairbanks Ave., Suite 201 (407) 740-8482
 Winter Park, FL 32789-5079 FAX (407) 645-1305

**Dredged Material Management Area DU-9
 Wetland Delineation Report**

U. S. Army Corp of Engineers
 Jacksonville District

Location Map



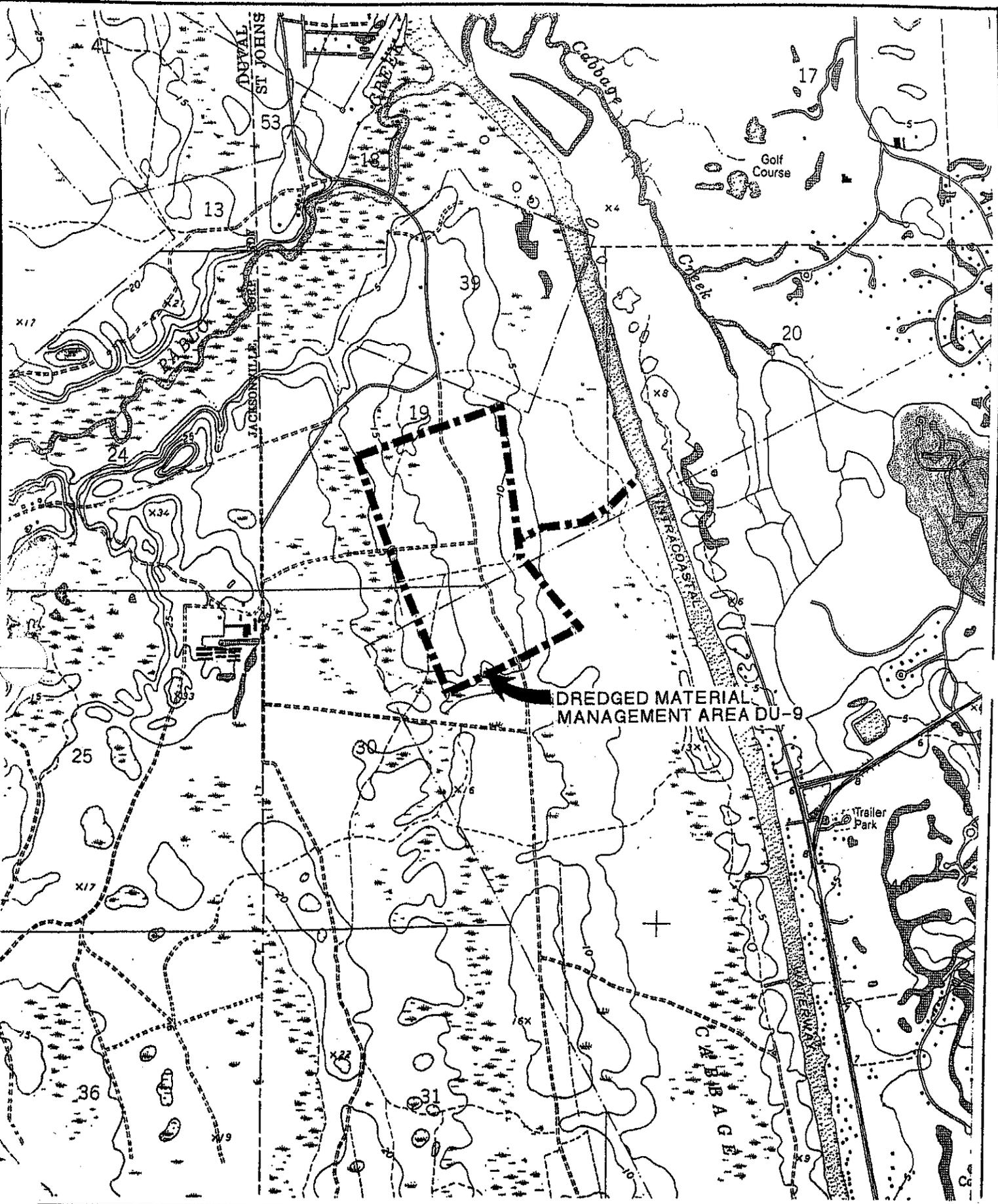
NORTH

Not to Scale

Figure 1

DWC No. : 56034d30.dwg Prepared by : DJS

Job No. 94056034 Date : 30 Apr. 1998



Lotspeich and Associates, Inc.
 ECOLOGICAL CONSULTANTS
 422 W. Fairbanks Ave., Suite 201 (407) 740-8482
 Winter Park, FL 32789-5078 FAX (407) 646-1305

**Dredged Material Management Area DU-9
 Wetland Delineation Report**
 U. S. Army Corp of Engineers
 Jacksonville District

U.S.G.S. Topographic Survey Map
 Palm Valley, FL Quad. ctr 1964, p.r. 1992

WC No. : 56034d30.dwg

Prepared by : DJS

Job No. 94058034

Date : 30 Apr. 1998

 NORTH

SCALE : 1 - 24000
 Figure 2



DREDGED MATERIAL
MANAGEMENT AREA DU-9

Lotspeich and Associates, Inc.
ECOLOGICAL CONSULTANTS

422 W. Fairbanks Ave., Suite 201 (407) 740-8482
Water Park, FL 32789-5079 FAX (407) 645-1506

Dredged Material Management Area DU-9
Wetland Delineation Report

U. S. Army Corp of Engineers
Jacksonville District

U.S. SCS Soil Survey Map
St. Johns County, Florida



NORTH

SCALE: 1 - 20000

Figure 3

DWG No. : 56034d30.dwg

Prepared by : DJS

Job No. 94056034

Date : 30 Apr. 1998



Soil Legend

St. Johns County, Florida

U.S. Department of Agriculture

Soil Conservation Service

issued: October 1983

1		Adamsville fine sand			
2		Astatula fine sand, 0 to 8 percent slopes	34	▲	Tocoi fine sand
3		Myakka fine sand	35	▲◇	Hontoon muck
4	▲◇	Myakka fine sand, depressional	36	▲◇	Riviera fine sand, frequently flooded
5	▲◇	St. Johns fine sand, depressional	38	▲	Pits
6		Tavares fine sand, 0 to 5 percent slopes	40	▲	Pottsburg fine sand
7	▲	Immokalee fine sand	41	▲◇	Tomoka muck
8		Zolfo fine sand	42	▲◇	Bluff sandy clay loam, frequently flooded
9		Pomona fine sand	44		Sparr fine sand, 0 to 5 percent slopes
11	▲	Smyrna fine sand	45		St. Augustine fine sand, clayey substratum
12		Ona fine sand	46	▲	Holopaw fine sand
13	▲	St. Johns fine sand	47	▲◇	Holopaw fine sand, frequently flooded
14		Cassia fine sand,	48	▲◇	Winder fine sand, frequently flooded
15		Pomello fine sand, 0 to 5 percent slopes	49	▲◇	Moultrie fine sand, frequently flooded
16		Orsino fine sand 0 to 5 percent slopes	50		Narcoossee fine sand, shelly substratum
18	▲◇	Floridana fine sand, frequently flooded	51		St. Augustine-Urban land complex
19	▲	Pompano fine sand	52	▲◇	Durbin muck, frequently flooded
21	▲	Wabasso fine sand	53		Immokalee-Urban land complex
22	▲◇	Manatee fine sandy loam, frequently flooded	54		Astatula-Urban land complex
23		Paola fine sand, 0 to 8 percent slopes	55		Arents, 0 to 2 percent slopes
24	▲◇	Pellicer silty clay loam, frequently flooded	57		Adamsville Variant fine sand
25	▲◇	Parkwood fine sandy loam, frequently flooded	58	▲	EauGallie fine sand
26	▲◇	Samsula muck	61	▲◇	Riviera fine sand, depressional
27		Ona-Urban land complex	62	▲◇	Floridana fine sand
28	◇	Beaches	63	▲◇	Placid fine sand
29		Satellite fine sand	64		Ellzey fine sand
30	▲◇	Wesconnett fine sand, frequently flooded	65	▲	Riviera fine sand
31		Fripp-Satellite complex	66	▲◇	Terra Ceia muck, frequently flooded
32		Palm Beach sand, 0 to 5 percent slopes	67	▲◇	Tisonia mucky peat, frequently flooded
33		Jonathan fine sand	68	▲	Winder fine sand
			69	▲◇	Bakersville muck

LEGEND

- ▲ Denotes hydric soils U.S. Army Corps of Engineers, January 1987.
- ◇ Denotes hydric soils St. Johns River Water Management District.

APPENDIX X

WETLAND MITIGATION PLAN

November 3, 1999

Ms. Lauren P. Milligan, Environmental Specialist
FL Department of Environmental Protection
Bureau of Beaches and Coastal Systems
Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

RE: DU-9 Dredged Material Management Area, File No. 552969359 (C9832)

Dear Ms. Milligan:

This letter is in response to your April 21, 1997, request for additional information for the above referenced Environmental Resource permit application for the DU-9 Dredged Material Management Area.

The enclosed information addresses RAI items 8 through 11 concerning the Project Mitigation Plan.

Item 8. Please submit a detailed mitigation plan for the proposed project, using the attached ERP Mitigation Proposal Format as a guide.

Response: See Attachment A.

Item 9. Please provide scaled plan view and cross-sectional drawings showing the existing grades in the mitigation site and proposed final elevations (including mucking). The plan view drawing should depict the grades in one-foot contours and both should reference ordinary low water and ordinary high water on-site.

Response: See Attachment A, Figures 3 - 4.

Item 10. Please describe the mucking, grading, mulching, planting, and vegetation monitoring plans.

Response:

Mucking

Hydric soils from the impacted wetlands will be excavated to a depth of 6 to 8 in. The collected material will be relocated to the mitigation site and spread on the surface of the unplanted areas.

Grading

The mitigation area will be excavated to a depth of +13.0 ft NGVD in the unplanted areas and +13.5 ft to +14.5 ft NGVD in the planted areas. Final elevations including mucking in the unplanted areas will be about +13.5 ft NGVD. Final elevations in the planted areas will range from +13.5 ft to +14.5 ft NGVD.

Planting

Native wetland trees (see Attachment A, Table 2) will be planted in 50% of the mitigation area. Planting elevations will range from +13.5 ft to +14.5 ft NGVD.

All tree saplings planted will range from 4 to 6 feet in height. Trees will be planted on approximate 10 ft centers and at a density of 420 trees per acre with a goal of establishing 336 trees per acre. Unplanted areas will be allowed to revegetate by natural recruitment.

Vegetation Monitoring

Three permanent sampling transect lines will be established to monitor planted and recruited vegetation. Sampling transects will extend longitudinally within the mitigation area. Permanent markers (i.e. PVC pipe) will be used to identify these lines for sampling consistency. All of the planted trees located within 20 ft of either side of each transect line will be sampled. Data collected will include each tree's total height, basal diameter, general condition, and water depth at each tree. Recruited vegetation will be observed and percent cover noted. Photographs will be taken to document the condition and appearance of the mitigation wetland. Annual inspections will continue for a period of 3 years following initial planting. Mitigation will be deemed successful if, after a three-year period, the planted vegetation exhibits 80% survival and the unplanted area exhibits at least 80% cover by desirable wetland species.

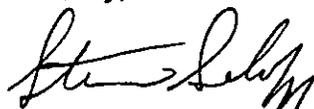
Item 11. Please describe long-term management plans for maintaining the mitigation wetlands

During construction of the mitigation area, exotic vegetation, primarily Chinese tallow (*Sapium sebiferum*), will be removed from adjacent areas to minimize exotic recruitment. During annual site inspections, the need for further exotic removal will be determined. If necessary following inspections, exotic vegetation will be removed by hand clearing and herbicide treatment.

The mitigation area is located within the natural buffer area of the DU-9 site and will not be disturbed. If mitigation success criteria have not been met within the given time frame, we will develop modifications to the mitigation plan in consultation with the FDEP.

I believe this response addresses the remaining issues in your last request for additional information. Please contact me at (904)731-7040 with any questions about this response.

Sincerely,



Steven J. Schropp, Ph.D.
Principal Scientist

:bls

Attachments

cc: David Roach

ATTACHMENT A

**MITIGATION PROPOSAL FOR DREDGED MATERIAL MANAGEMENT AREA DU-9
ST. JOHN'S COUNTY, FLORIDA**

1. *Applicant Name* David K. Roach
 Title Executive Director, Florida Inland Navigation District
 Address 1314 Marcinski Road
 Jupiter, Florida 33477
 Telephone (561) 627-3386
 Fax (561) 624-6480

Agent Name R. Bruce Taylor, Ph.D., P.E.
 Title President, Taylor Engineering, Inc.
 Address 9000 Cypress Green Drive, Suite 200
 Jacksonville, Florida 32256
 Telephone (904) 731-7040
 Fax (904) 731-9847

2. *File No.* DEP: 552962379 CORPS: N/A

3. *Mitigation Goals*

a. *Adverse impacts that must be offset to yield a permitable project. Include a list of type(s) of waters adversely affected, acreage(s) of and functions provided by each type.*

The construction of DU-9 will impact a total wetland area of 3.13 acres. The types of wetlands impacted include 2.89 ac. of cypress (621) and 0.24 ac. of bay swamp (611) as defined by the Florida Land Use, Cover and Forms Classification System (FLUCCS). The expected impacts resulting from construction include filling these areas and, in some cases, changing the natural hydrology (see Table 1).

b. *Proposed mitigation to offset unpermittable adverse impacts:*

On-site wetland creation.

Proposal Description

The DU-9 mitigation plan involves creating 6.3 acres of wetland area on the northwestern side of the property (see Figure 2). The mitigation area will be excavated to elevations typical of the existing on-site wetlands. Native trees will be planted in 50% of the mitigation area. The remaining 50% will be allowed to revegetate by natural recruitment. The target types for the wetlands to be created are cypress (FLUCCS code 621) and bay swamp (FLUCCS code 611). The mitigation area lies adjacent to an existing wetland area classified as stream and lake swamp (FLUCCS code 615).

c. *Area(s) of impact requiring mitigation:* 3.13 ac. or 136,343 sq. ft.

Created: 6.3 ac. or 274,428 sq. ft.

- d. *Ecological type and functions to be created, enhanced, or preserved.*

The target ecological types of wetlands to be created are cypress (FLUCCS code 621) and bay swamp (FLUCCS code 611).

- e. *Is this mitigation project being required by another agency? If so, please indicate which agency(s) and the specific impact sites for which it is being applied.*

This mitigation plan will also satisfy the U.S. Army Corps of Engineers mitigation responsibilities for DU-9.

4. *Proposal Specifics*

- a. *Please attach a schedule for implementation of the mitigation project. The schedule must include all aspects of the mitigation work: earthwork, planting, mulching, structure installation, periodic maintenance during establishment, etc.*

Mitigation, including all earthwork and planting, will occur concurrently with the DU-9 containment basin construction. Construction is anticipated to begin in the summer of 2000.

- b. *Species present or to be planted.*

See Table 2.

- c. *Describe earthwork (excavated, mulched, etc.)*

Wetland creation will include clearing the existing vegetation, excavating the existing soil, recontouring, and planting 50% of the area with native wetland vegetation. The mitigation area will be excavated to an elevation of +13.0 ft NGVD in unplanted areas and +13.5 ft to +14.5 ft NGVD in planted areas. Hydric soils from the impacted wetlands will be excavated to a depth of 6 to 8 in. and spread on the unplanted areas. With the addition of the hydric soils, final elevations in the unplanted areas will be about +13.5 ft NGVD.

Proposed range of wetlands in NGVD:

+13.5 ft to +14.5 ft

Plan and cross-sectional drawings nos.:

See Figures 3 – 4.

SCS soil type(s) to be excavated:

The USDA Soil Conservation Service (SCS) Soil Survey for St. John's County indicated that the soil type to be excavated from the mitigation area is Zolfo fine sand (soil no. 8). This soil, somewhat poorly drained, has an estimated seasonal high groundwater level ranging from 2.0 to 3.5 ft below the ground surface.

According to the SCS Soil Survey, the soils to be excavated from the impacted wetlands are Wesconnett fine sand (soil no. 30) and Myakka fine sand (soil no. 3). Both soils are very poorly drained with an estimated seasonal high groundwater level ranging from 0 to 1 ft.

Soil borings. Describe subsoil characteristics in strata that will become surficial substrate, including grain size characteristics and water table proximity.

Soil characteristics of the mitigation area can be inferred from a boring taken about 100 ft from the southeast corner of the mitigation site boundary. According to the Soil Survey for St. John's County, the boring location falls within the same soil type as the mitigation area. Surface soils to a depth of approximately 2 ft are described as fine to medium grain sand, predominantly fine grain, with trace gravel. From 2 to 4 ft, the soils are described as fine to medium grain sand with trace amounts of silt and organic material. From 4 to 6 ft, the soils are described as clean sand with trace organics from 4 to 5 ft, and no organics from 5 to 6 ft. The water table was noted at 3.0 ft below ground surface. With an excavation depth of about 3.5 ft in the planted areas, surficial soils will consist of fine to medium grain sand with trace amounts of silt and organic material. With an excavation depth of about 4.5 ft in the unplanted areas, surficial soils will consist of fine to medium grain clean sand with trace amounts of organic material. However, hydric soils from the impacted wetlands will cover the soils in the unplanted areas.

- d. *Hydrology. Describe in narrative and graphic forms how the site will connect to waters of the State.*

The mitigation wetland will adjoin an existing wetland that extends off site. As shown on the USGS Palm Valley 7.5 Minute quadrangle map, the existing wetland is part of a larger wetland system that extends to Pablo Creek about 3,000 ft north of DU-9.

Describe the proposed water source, referring to figures.

The primary sources of water for the mitigation site are rain, runoff and percolation, inflow from the adjacent wetland, and seasonal rises in the groundwater table.

Describe design water level (in NGVD): referencing proposed seasonal high water level (SHWL), seasonal low water level (SLWL), and normal water level (NWL).

Measured water levels are unavailable for this site. However, field observations indicate seasonal high water levels to be 6 to 8 in. above ground surface in existing adjacent wetlands. The excavation plan for the mitigation area is designed to create ground elevations that will support similar seasonal hydrology.

5. *Protection proposed for mitigation site, such as easement, fencing, etc.*

A perimeter fence located around the entire DU-9 site will remain in place following mitigation. This fence will prohibit public access and protect the site from vandalism and illegal trash dumping.

6. *Exotic and nuisance species control proposed (when appropriate), including species, techniques, frequency, criteria and management, disposal methodology and location, and provide documentation of previous success.*

Exotic and nuisance species removal will occur in two stages. The first stage will involve the mechanical removal of exotic species within the mitigation site followed by recontouring and planting with native wetland vegetation. The second stage will involve the hand removal of exotic species followed by treatment with an appropriate herbicide in the infested areas surrounding the mitigation site, including the natural wetlands north and south of the mitigation site. The removal effort will focus primarily on Chinese tallow (*Sapium sebiferum*), the most obvious exotic species observed during site inspections. Annual inspections following construction will determine the need for further removal of exotic species. If necessary following inspections, exotic vegetation will be removed by hand clearing and herbicide treatment.

7. *Full estimated cost of the mitigation project (include and itemize costs of land acquisition, earthmoving, planting, consultant fees, monitoring, and anticipated contingency work):*

N/A. State and federal agencies will perform this work.

\$ _____ *(Note: mitigation proposals costing in excess of \$25,000 will require a detailed breakdown of costs (which should be supplied as an attachment) and the posting of sufficient financial responsibility, except when the work is associated with a federal, state, county, municipal government, state political subdivision, an investor-owned utility regulated by the P.S.C., or a rural electric cooperative).*

8. *No permit can be issued until the applicant has the full authority and ability to use the proposed mitigation site. Prior to initiating any dredging or filling, it is necessary that the permittee have sufficient legal interest in the mitigation site property described above for the period of time necessary to successfully complete the mitigation. This may consist of (check appropriate box):*

- Fee title (provide copy)*
 License or consent of use (provide copy)
 Lease or easement (provide copy)
 Written authorization from property owner (provide original, notarized affidavit of authorization, with copy of title).

I am not the record owner, lessee, or record easement holder of the property described below, but I will have the requisite property interest in the mitigation site before a permit is issued for the proposed work (Please explain in detail what the interest will be and how it will be acquired).

ATTACH LEGAL DESCRIPTION OF PROPERTY ON WHICH PROJECT IS TO OCCUR.