WETLANDS AND WATERS OF THE UNITED STATES EVALUATION FOR JACINTOPORT TRACTS

May, 1990

McClelland consultants

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

1.1 PURPOSE AND OBJECTIVES

This report summarizes the findings of the field surveys to determine the extent of wetlands and waters of the United States on nine parcels of land comprising approximately 1,300 acres in the Jacintoport area of metropolitan Houston, Harris County, Texas (Figure 1). The study area within which these parcels are located is roughly bounded by Market Street Road on the north, Penn City Road on the west, the Houston Ship Channel on the South and Sheldon Road on the east. The locations of the individual parcels are indicated in Figure 2.

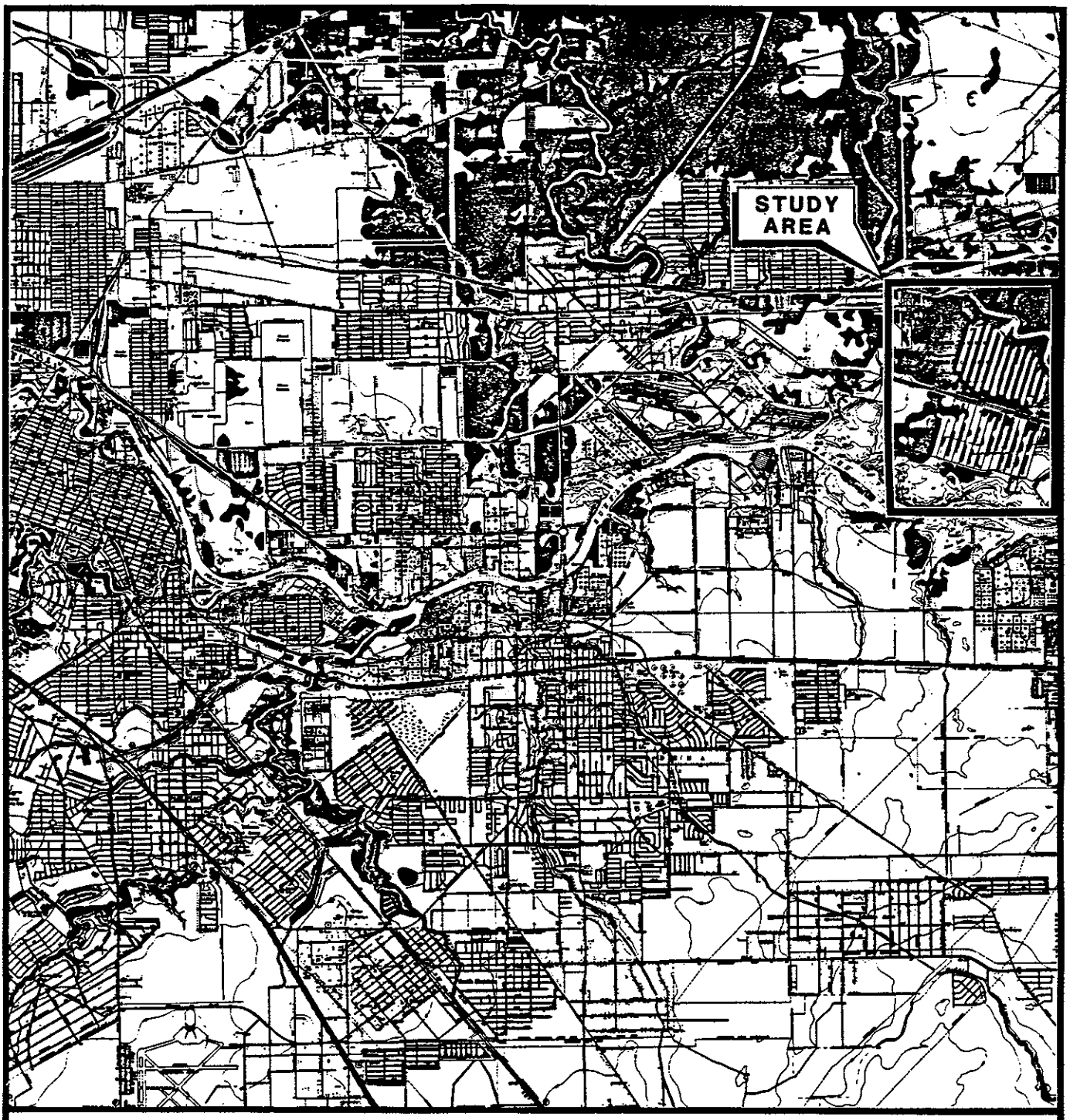
The services of McClelland Consultants (West) Incorporated were retained to delineate the wetland areas on each of the properties that are subject to federal jurisdiction and to provide baseline information that will assist in development planning on the individual sites. The objective of this report is to provide information necessary for later determination of permit requirements pursuant to Section 404 of the Clean Water Act of 1977, Chapter 33 of the United States Code (Federal Water Pollution Control Act). To facilitate this determination, hydrologic and biologic field data has been evaluated to provide environmental analyses and conclusions as they pertain to federal permit requirements. Determination of impacted areas associated with construction of improvements on the subject parcels can be conducted following refinement of planning efforts.

1.2 SECTION 404 PERMIT

Regulatory authority for protection and utilization of the nation's water resources lies with the U.S. Army Corps of Engineers (ACOE). Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the United States without a permit from ACOE. The 404 permit generally covers any activities which disturb waters of the U.S. or their tributaries, streams, lakes or wetland areas.

Figure 1

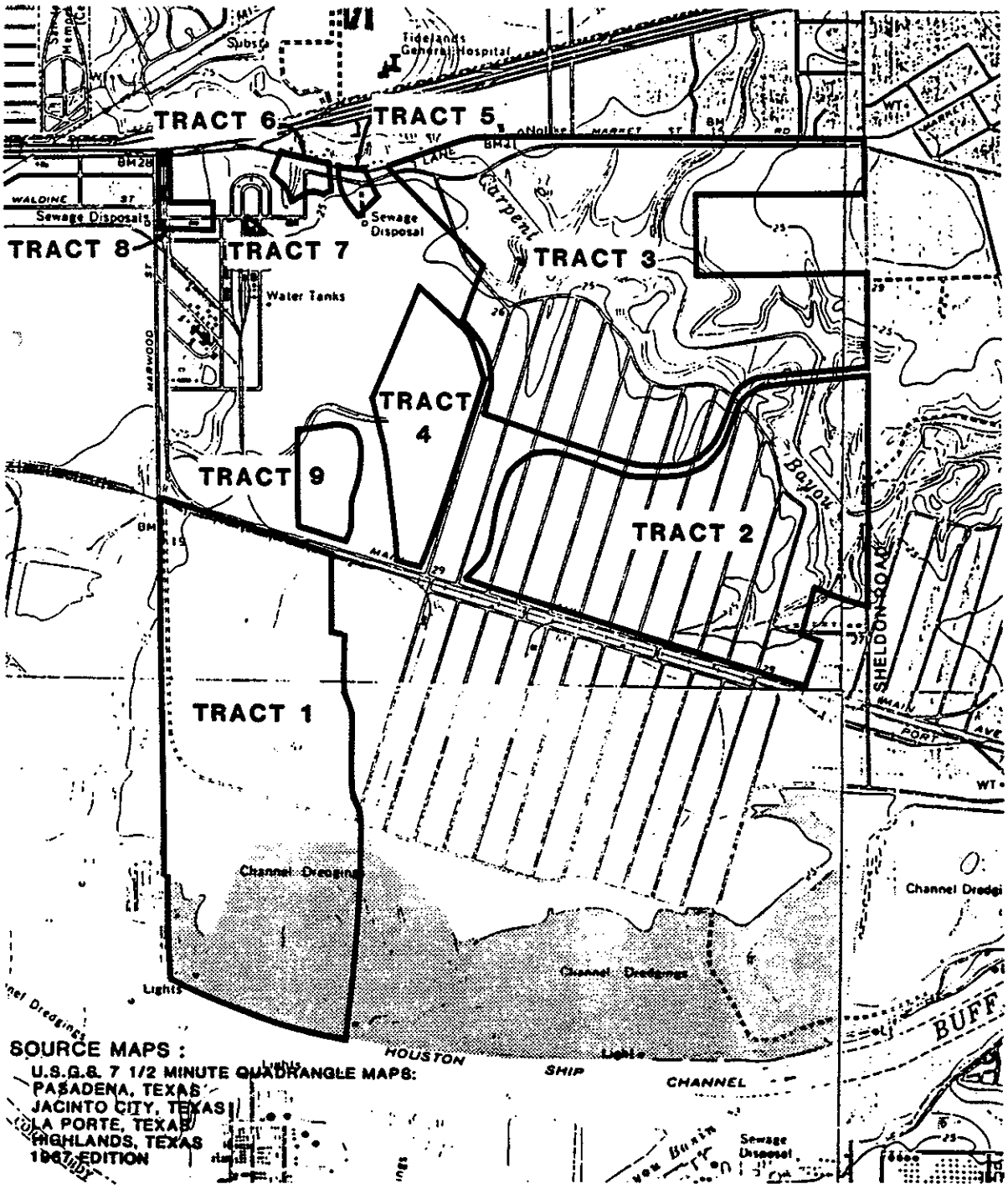
Figure 2



REGIONAL LOCATION MAP

McClelland consultants

FIGURE 1



LOCATION MAP

McClelland consultants

FIGURE 2

Strictly defined, waters of the United States include perennial or intermittent streams which are tributary to navigable waters or waters which could be used for interstate or foreign commerce. Wetlands are areas within the boundaries of jurisdictional waters that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions (U.S. Office of the Federal Register, 1987). Wetlands are a valuable resource which serve important functions relating to wildlife habitat, breeding and nesting areas, food chain production, cover and movement corridors. To maintain the physical, biological and chemical integrity of waters of the United States, ACOE regulates all projects which may impact water resources.

A key criterion used to determine the acreage of impacted waters of the United States is the area between the "ordinary high water marks". The term "ordinary high water mark" is defined in the Code of Federal Regulations (1987) as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of (waterborne) litter or debris, or other appropriate means that consider the characteristics of the surrounding areas".

While acreage of disturbed waters of the United States is of prime consideration, a 404 permit will not be granted unless a proposed project is in compliance with other specific conditions and guidelines. Prior to issuance of a 404 permit, ACOE will evaluate the site and proposed project in terms of practicable alternatives, characteristics of fill material, characteristics of substrate and other criteria. In particular, impacts to the biologic environment are assessed in detail and are reviewed by the U.S. Fish and Wildlife Service (USFWS).

2.0 STUDY AREA DESCRIPTION

2.1 EXISTING LAND USES

Land uses in the study area include industrial and transportation facilities, oil and gas production, pipelines and vacant land. An abandoned ordnance storage facility occupies approximately 625 acres on both sides of Jacintoport

Boulevard in the central portion of the study area. The ordnance facilities include roads, pads and "igloos" for weapons and ammunition storage. Areas between igloos and roads have returned to a forested condition. The southern portion of the study area, adjacent to the Houston Ship Channel has historically been used as a deposition area for channel dredgings. An abandoned manufacturing/shipping facility lies in the southwest corner of the study area, adjacent to the western border of Tract 1.

2.2 TOPOGRAPHY

Elevation within the study area ranges from sea level to approximately 30 feet adjacent to Jacintoport Boulevard within Tract 1. Slopes are generally flat with a negligible grade except for banks of drainages which range from gently sloping adjacent to portions of the Houston Ship Channel to steep along minor drainages and portions of the Carpenter's Bayou. Surface water in the general area drains north and south from Jacintoport Boulevard to the Carpenter's Bayou and the Houston Ship Channel respectively.

2.3 SOILS

The general soils map of the Soil Survey of Harris County, Texas (USDA Soil Conservation Service, 1976) indicates three major soil associations in the study area. These are:

- The Midland-Beaumont association, a clayey prairie soil association which includes poorly drained, very slowly permeable, loamy and clayey soils;

- The Aldine-Ozan association, a loamy forested soil association which includes somewhat poorly to poorly drained, very slowly permeable and slowly permeable soils; and,

- The Nahatch-Voss-Kaman association, a forested bottom land association which includes moderately well drained to poorly drained, rapidly permeable to very slowly permeable, loamy, sandy and clayey soils.

The Nahatch-Voss-Kaman association in the study area lies adjacent to the Houston Ship Channel and includes Ijam series soils. Substantial areas of this soil type consist of dredge material deposited adjacent to the channel. During field surveys, it appeared that some of these depositions have been overlaid with imported soils of a non-local origin. These surface soils were not identified. Individual soil series are discussed in further detail in the descriptions of individual parcels.

2.4 VEGETATION

Vegetational classification used in this survey coincides generally with Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al., 1979). The study area is classified under Bailey (1976, 1978) as Humid Temperate Domain, Subtropical Division, Louisianian Province, Southeastern Floodplain Forest. Wetlands and waters in the area include Estuarine, Palustrine and Riverine systems, in streambed, emergent wetland, aquatic bed, scrub-shrub and forested wetland classes, as well as open water habitats.

The majority of the study area has been altered from pristine conditions. Developed areas are generally devoid of native plant communities but do contain ornamental landscape trees, shrubs and lawns. Ruderal (disturbance-adapted) plants occupy waste places within and surrounding developed areas. Areas not recently disturbed are returning to forested conditions, with oaks (Quercus spp.), willows (Salix nigra) and sweet gum (Liquidambar styraciflua) (tending to dominate lower and wetter sites and pines (Pinus taeda) forming the dominant overstory in areas with slightly higher relief. Understory vegetation in forested areas is sparse, consisting of vines and shrubs. In heavily shaded areas soils and forest litter dominate the understory with grasses and forbs occurring at forest/non-forest ecotones.

3.0 DETERMINATION OF 404 PERMIT REQUIREMENTS

Development on subject properties may necessitate the dredging of existing soils and the discharge of fill materials into wetlands and/or waters of the United States. Guidelines have been developed by the Administrator of the Environmental Protection Agency (EPA) in conjunction with the Secretary of the

Army that are designed to implement policies of the Clean Water Act. These guidelines are used by ACOE to evaluate applications and make determinations of compliance with Section 404 of the Act.

Within the guidelines, EPA has established four primary conditions which must be satisfied before a determination of compliance can be made. Table 1 evaluates the subject properties in relation to each of the four primary conditions and their respective subsections.

4.0 WETLANDS DETERMINATIONS

This section discusses the actual and potential occurrence of wetlands and waters of the United States on each of the subject properties. The Federal Manual for Identifying and Delineating Jurisdictional Wetlands prepared by the Federal Interagency Committee for Wetland Delineation (1989) was used as a guide in evaluating each of the sites. Methodologies outlined in the Federal Manual were used, based on the three major criteria for wetland determination: hydrophytic vegetation, hydric soils, and wetland hydrology. Several of the parcels exhibit conditions that make wetland determination difficult because indicators of one or more of the criteria may be absent or altered as a result of human activities. Wetland determinations for each of the subject parcels are discussed below according to identified criteria and potential problem wetlands. Findings from field surveys and the study of aerial photographs were compared to National Wetlands Inventory maps (U.S. Department of the Interior, 1979) for the subject properties, and refinements to wetlands identified on these maps were made. At the time of the field surveys (March 21-23), rain had not been recorded in the area for seven days. Detailed descriptions of soil types present in the study area are not included in this report but may be obtained from the county soils survey.

4.1 TRACT 1

4.1.1 Site Description

This site consists of 401+ acres in the southwest corner of the study area. This parcel is bounded on the north by Jacintoport Boulevard, on the east by the

Table 1. Conditions for Section 404(b)(1) Compliance

Condition	Applicable to Subject Parcels	Discussion
1. That no discharge of fill material shall be permitted if there is a practicable alternative which would have a less adverse environmental impact.	Yes	Proposed development will be subject to detailed alternatives analysis and additional environmental assessment by the U.S. Army Corps of Engineers. At this time it is unknown whether less impacting alternatives exist which will satisfy the goals of the project.
2. That no discharge of fill material shall be permitted if it:		
a) Violates any state water quality standard.	Yes	Proposed development will be subject to Texas water quality standards.
b) Violates any federal toxic effluent standard.	No	Proposed development is not known to involve toxic effluent.
c) Jeopardizes the continued existence of species listed as threatened or endangered under the Endangered Species Act of 1973, as amended, or destroys or modifies critical habitat of such species.	Yes	No federally listed species are known to occur on any of the subject parcels.
d) Violates any protection requirements of designated marine sanctuaries.	No	There are no designated marine sanctuaries on the property.
3. That no discharge of fill material shall be permitted if it will cause or contribute to significant degradation of waters of the United States. Effects contributing to significant degradation include:		
a) Significantly adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites.	Yes	Subject to evaluation by ACOE and USFWS.

Table 1. Conditions for Section 404(b)(1) Compliance (Continued)

Condition	Applicable to Subject Parcels	Discussion
3. (Continued)		
b) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their by-products outside of the disposal site through biological, physical, and chemical processes.	Yes	Fill material to be discharged will be evaluated for potential contamination.
c) Significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability. Such effects may include, but are not limited to loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy.	Yes	A detailed restoration plan and mitigation program will be required for development. With adequate mitigation, the proposed project will not significantly impact the diversity, productivity or stability of riparian systems.
d) Significantly adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.	Yes	The proposed project may alter the aesthetic character of the environment. Recreational and economic values may be enhanced.
4. That no discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.	Yes	Subject to project design considerations and mitigation to offset impacts.

right-of-way for the East Texas Turnpike, on the west by Penn City Road, and the south border extends into the existing Houston Ship Channel. Average elevation on the site is approximately 20 feet above mean sea level (MSL). A steep bank and short sandy "beach" occupy the border area of the site at the ship channel. Several unpaved roads and a natural gas pipeline traverse the site. The southern one-third of the site appears to have been used as a deposition area for material dredged from the Houston Ship Channel. Topographic variation in the northern portion of the site is minimal except for raised road banks. Topography in the southern one-third of the site is variable from uneven deposition or settling of deposited material, but generally trends downward to the south. A shallow pond of approximately one acre existed on this parcel at the time of the field survey, 1,500 feet north of the ship channel and 500 feet west of the Beltway. Another shallow pond of about 800 square feet appears to have been recently excavated on the Ozan soils in the north-central portion of Tract 1. This tract is identified entirely as "u" indicating upland habitat on the National Wetlands Inventory maps (USGS Jacinto City and Pasadena quadrangles).

4.1.2 Vegetation

Considerable variation exists in the composition of the vegetational communities of Tract 1. The southern one-third of the property includes grassy meadows, a sparse cattail marsh and young hardwood trees. The timing of the field survey precluded positive identification of grasses and forbs in this area, since the majority of these plants had not yet flowered.

North of the dredge deposition area, forested conditions exist, dominated mainly by hardwood species including post oak (Quercus stellata), willow oak (Quercus phellos) and several other oak species that were just leafing out at the time of the field surveys. Pines (Pinus taeda) begin to appear in undisturbed areas approximately due west of the toll station on the Beltway and become increasingly dominant as elevation gradually increases toward the northern border at Jacintoport Boulevard. The forested area in the northwestern portion of Tract 1, approximately coincidental with the mapped Midland soils (see below) is of a younger stand age than the area coinciding with the Aldine soils. Aerial photograph review indicates that this area was cleared and recleared prior to 1944

and 1953, respectively. Dominant plant species that could be identified were classified as facultative (FAC-) or wetter in the National List of Plant Species that Occur in Wetlands: South Plans [Region 6] (Reed, 1988).

4.1.3 Soils

As indicated on the map at the back of this report, four soils series are mapped within this tract. These soils include Aldine (Am), Ijam (Is), Midland (Md) and Ozan (Oa) series (USDA-SCS, 1976). The Is, Md and Oa soils series are included in the Hydric Soils of the United States (USDA-SCS, 1987). The Oa soils occupy a band approximately 500 feet wide, trending southwest-northeast across Tract 1.

Areal extent of soil types appeared during field surveys to correspond to that indicated in the Soil Survey of Harris County, Texas. Acreage by soil series is as follows:

- Aldine, 122 acres;
- Ijam, 151 acres;
- Midland, 100 acres: and,
- Ozan, 29 acres.

It should be noted that the Ijam soils north of the ship channel did not exhibit identifiable profiles typical of this series. This condition is consequent to deposition of soils onto the site. Soil strata were not uniform and indicated deposition of land surface material as well as mineral and organic soils from deep water sources.

4.1.4 Hydrology

As indicated in the site description above, the topographic variation in the southern portion of this tract varies. Concave slopes on the Ijam soils have led to surface ponding in this area. The Ozan soils appear to correspond with a historic channel that has filled in. Soils in this area were saturated at the time of the survey. Saturation was not present in the Aldine and Midland series soils except for minor ponding adjacent to road beds and in the natural gas

pipeline corridor which is maintained free of trees. Water was evident in a north-south channel which appeared to have been excavated at the southwest corner of Tract 1. This channel may have been constructed to divert runoff from the now-abandoned manufacturing/shipping facilities adjacent to the southwest corner of the tract. Open water is present in the Houston Ship Channel which occupies approximately 16 acres within the boundaries of Tract 1.

4.1.5 Disturbance Factors

Approximately one-third (120 acres) of Tract 1 represents a disturbed area. The area of disturbance, excluding pipelines rights-of-way and roads on this tract coincides roughly with the extent of Ijam soils on the site. The General Soils Map of the county soil survey identifies this area as Nahatche-Voss-Kaman soils associated with bottom land forested areas. This area is not presently in a forested condition. Review of aerial photography (1944-1989) indicates that disturbance had initially occurred prior to the Clean Water Act of 1977, and would not be subject to retroactive wetland determination. The isolated ponds and drainages on the site do, however, support hydrophytic vegetation and exhibit wetland hydrology; as such, these areas are considered wetlands.

4.1.6 Wetland/Waters Determinations

Based on site reconnaissance and review of aerial photographs and wetlands inventory maps, the following acreages of Tract 1 meet required criteria for classification as wetlands or waters of the United States according to Cowardin:

- Estuarine, (subtidal) open water, excavated; [E1OWLx] 16 acres
- Estuarine, intertidal flat, sand, regularly exposed; [E2FL2N] 5 acres
- Palustrine, emergent, (persistent), semipermanent, excavated; [PEM1Yx] 6 acres
- Palustrine, open water (permanent); [POWH] 0.5 acres

Detailed information concerning the field delineation of wetlands on Tract 1 is presented in Appendix 1.

4.2 TRACT 2

4.2.1 Site Description

This tract consists of an irregularly shaped 343-acre parcel bounded by Sheldon Road and existing industrial uses to the east and southeast corner, Jacintoport Boulevard on the south, and an unimproved railroad right-of-way that traverses the study area in north-east-north direction. Major features of the site are a portion of an abandoned ordnance storage facility, a powerline easement and a reach of Carpenter's Bayou. A small pond of about 500 square feet is located between the ordnance facility perimeter road and Carpenter's Bayou, immediately northeast of the third access road (from the east).

Topography of the site is relatively flat except for raised roads and the nearly vertical banks of the bayou in the northwest portion of the tract. Elevation of the site is approximately 25 feet MSL except within the zone of tidal influence in Carpenter's Bayou. The bayou appears to have been diked at some time, although these dikes are breached and no longer functional. The abandoned ordnance facility consists of NNE-SSW oriented roads approximately 450 apart, with concrete "igloo" bunkers evenly spaced (450 feet apart on-center) westerly of the access roads. Each of these bunkers is fronted by an unpaved apron. The roads and bunkers are slightly elevated above average grade for the site. It should be noted that the area east of Carpenter's Bayou was not surveyed in detail owing to a lack of access and the understanding that no development is being planned for this area.

4.2.2 Vegetation

This tract is vegetated primarily in mixed hardwood/evergreen forest. Loblolly pines (Pinus taeda) dominate overstory vegetation from Jacintoport Boulevard north to the powerline right-of-way, and diminish to codominance as elevation decreases toward Carpenter's Bayou, and subdominance in the northwest quarter of the tract. Review of aerial photography (1953) indicates that the eastern one-half of each of the "rows" (the side on which the bunkers were located) was cleared of vegetation, at least as far south as the powerline corridor. Regrowth has favored hardwoods over pines, although pines are dominant

to codominant on the western one-half of each row. Older areas exhibited stratification of the tree layer with pines and willow oaks (Quercus phellos) in the upper layer, and subordinate oaks and magnolias in the middle layer, with a sparse to lacking understory.

Seasonally wet areas surrounding bunkers contain isolated populations of cattail (Typha latifolia) and rushes (Juncus spp.). The powerline corridor is maintained in a treeless condition and is vegetated with grasses, forbs and herbs. This corridor appears to be regularly mowed. The roads are generally free of vegetation except for occasional grasses growing between wheel ruts, although the canopies of pines, oaks and elms overhang and completely cover the road in places. Understory vegetation is sparse to dense and is dominated by poison ivy (Toxicodendron radicans) and blackberry (Rubus sp.). Sweet gum (Liquidambar styraciflua) is common within the hardwood forest and is colonizing wet areas around bunkers as an emergent aquatic. All dominant vegetation consisted in majority, of facultative (FAC-) or wetter species.

4.2.3 Soils

This tract contains three identified soil types: Aldine very fine sandy loam (Am), Aldine urban land complex (An) and Ozan loam (Oa). Ozan soils occur from the west bank of Carpenter's Bayou in the east central portion of the tract to past Sheldon Road. The limits of the Aldine urban land complex soils are generally coincidental with the perimeter road of the ordnance storage facility. The Aldine very fine sandy loams occupy the area between the north and west boundaries of the site and Carpenter's Bayou. Of these soils, only the Ozan loam is listed as hydric.

4.2.4 Hydrology

The portion of this tract on which the abandoned ordnance storage facility occurs drains gently toward Carpenter's Bayou. Between the perimeter road and the bayou, this gradient increases irregularly within the drainage. A small channel crosses the site from the southwest and becomes indistinct in the vicinity of an active oil drilling site between Tracts 2 and 3 (see map at the back of this report for location of drill site). Runoff is conducted under access roads

by concrete culverts and contained water at the time of the field surveys. The majority of runoff from the ordnance facility drains to Carpenter's Bayou by culverts and seepage through and under the perimeter road.

4.2.5 Disturbance Factors

As discussed above, much of this site has been disturbed by flood control efforts and development and operation of the ordnance storage facility. Clearing, grading and road building have altered drainage patterns and created micro-relief around munitions bunkers. Field surveys, combined with review of recent (1990) aerial photography indicates that approximately one-tenth acre surrounding each of the bunkers is topographically lower, and contains at least seasonally saturated soils. Of the 48 bunkers on Tract 3, five were excluded from this calculation because they have been recently cleared and are dry. The area around these bunkers supported emergent aquatic vegetation at the time of the surveys and occupies approximately 4 acres on the tract. Ponding adjacent to roads and within the manufactured channel account for approximately one additional acre. These areas were planimetered and are not delineated on the map at the back of this report.

4.2.6 Waters/Wetlands Determination

The determination of waters and wetlands on Tract 2 was accomplished by a combination of aerial photograph interpretation, field checking, and extrapolation based on known sample areas. The National Wetlands Inventory maps describe the entire area of the ordnance storage facility as upland. The jurisdictional waters and wetlands on Tract 2 include the following acreages:

- Estuarine (subtidal), open water, excavated and unexcavated; [E1OWl(x)] 34 acres
- Palustrine, open water, permanent; [POWH] .1 acres

- o Palustrine, open water, permanent, excavated; [POWHx] 3.0 acres

- o Palustrine, emergent, persistent, [PEM1Fdr] 4.0 acres

For detailed information concerning the field delineation, see Appendix 1.

4.3 TRACT 3

4.3.1 Site Characteristics

This tract occupies 487 acres and is contiguous with Tract 2 along the southern border, separated only by the railroad right-of-way. The parcel is irregularly shaped and extends westward to Appelt Drive, north and west to a powerline easement, northeast to Carpenter's Bayou, northwest to Market Street Road, along which it runs parallel eastwardly to Sheldon Road. The boundary of Tract 3 runs south along Sheldon Road, excluding the Cactus Pipe and Supply Company property, to the railroad right-of-way where it crosses Sheldon Road. Major features of the site include munitions bunkers, roads, Carpenter's Bayou and a lake of approximately one acre between the ordnance facility perimeter road and the bayou, in approximately the geographic center of the tract.

4.3.2 Vegetation

Vegetation on Tract 3 is similar in composition and level of disturbance to Tract 2 (see Section 4.2.2 above). The portion of the site north and east of the bayou (which was not surveyed in detail) appears from aerial photographs and site reconnaissance to have been plowed, windrowed, or otherwise disturbed. Pines are dominant north of the bayou, codominant between the bayou and the perimeter road and subdominant within the perimeter of the ordnance storage facility. The area immediately north of Appelt Drive where it curves northwest has been recently cleared (about one acre) surrounding a bunker.

A marshy area with emergent aquatic vegetation was observed between the first and second bunkers south of the perimeter road, between the first and second north-south access roads east of Appelt Drive. Similar but smaller areas, generally with no standing water also occur surrounding several of the other bunkers. A sewage treatment facility is present and in operation approximately

600 feet north of the perimeter road. The area between the sewage treatment plant and the perimeter is severely disturbed with only isolated trees present, and little understory vegetation.

4.3.3 Soils

Soils present on Tract 3 include Aldine very fine sandy loam (Am), Aldine urban land complex (An), Atasco fine sandy loam (AtB) and Beaumont urban land complex (Bc). Of these, only the Beaumont series (6 acres) is listed as hydric. Although the Atasco loam is not listed as hydric, this soil type characteristically occurs along stream channels, as it does along the unnamed seasonal drainage tributary to Carpenter's Bayou in the north-central portion of the tract.

4.3.4 Hydrology

All of Tract 3 drains into Carpenter's Bayou. The general slope and gradients on this site are similar to those described for Tract 2. Drainage is somewhat impaired within the ordnance storage facility, and consequently surface water and saturated soils accumulate in this area.

4.3.5 Disturbance Factors

Factors operating to affect wetland determination in Tract 2 also affect Tract 3. Natural or man-made drainages and microrelief have resulted in ponded and slow draining water on the ordnance storage facility site. Flood control dikes in the northwest portion of the site have held and the area adjacent to the channel on Tract 3 west of the small lake is not subject to tidal inundation.

4.3.6 Waters/Wetland Determination

The boundaries of waters and wetlands for Tract 3 were determined using the same methods and criteria used in Tract 2. Acreages for Tract 3 waters/wetlands are listed below:

- Estuarine (subtidal), open water; [E1OWL] 80 acres

- o Palustrine, open water, permanent, excavated; [POW1Hx] 2 acres
- o Palustrine, open water, permanent; [POWH] 1 acre
- o Palustrine, emergent, persistent, [PEM1Fdr] 3.3 acres

For detailed information concerning the field delineation, see Appendix 1.

4.4 TRACT 4

4.4.1 Site Characteristics

This tract consists of 81 acres, to the west of Tracts 2 and 3. The site is bordered by Jacintoport Boulevard to the south, Appelt Drive to the east and northeast, an unpaved road from Appelt Drive south to the East Texas Turnpike, and by the turnpike south to Jacintoport Boulevard. A powerline right-of-way, approximately 150 feet in width bisects the site from north to south. From the powerlines to Appelt Drive, the vegetation has been substantially altered since 1974 judging from aerial photographs. A total of three munitions bunkers are present on the site, just west of Appelt Drive in the east central portion of the tract. Topographic relief on the site is very low, except for an unnamed drainage which crosses the central portion of the site and is culverted under the Beltway. This drainage is tributary to Green's Bayou approximately one mile southwest of the tract. Average elevation on Tract 4 is 25 feet MSL.

4.4.2 Vegetation

The western one-half of the site is in mixed evergreen/hardwood forest. Pines tend to dominate in areas of slightly higher elevation (at the north and south ends of the tract) grading into predominately hardwood communities in the lower central portion. Vegetation within the powerline corridor consists almost exclusively of grasses and sedges and appears to be maintained in this condition. The area east of the powerline corridor is severely disturbed. Some fairly large (up to 40 feet) pines and a few oaks remain in the northern end of this area, but the southern end is limited to pine saplings subordinated by small willows, grasses and rushes.

4.4.3 Soils

All of the mapped soils on the site are within the Aldine series; all but a narrow strip of this adjacent to Appelt Drive (An, urban land complex) is Aldine very fine sandy loam (An). Mapped soils do not coincide entirely with field observations (see Section 4.4.5 below).

4.4.4 Hydrology

This parcel drains toward the central portion where runoff collects and discharges to the southwest through a culvert under the East Texas Turnpike ultimately flowing into Green's Bayou.

4.4.5 Disturbance Factors

Extensive clearing on the eastern half of the property has resulted in alteration to the plant communities. Grasses and forbs dominate these disturbed areas. The central area appears to contain Ozan series soils as an extension of those found to the west of the site. The vegetational association present in this area (within and east of the powerline corridor) is not readily identifiable as a wetland vegetation type, particularly since many of the grasses and sedges were not yet in flower at the time of field surveys. Within the 3.1-acre area identified on the map surface water was present to a depth of one and one-half feet in places, and the soils met the description for the Ozan series. This portion of Tract 4 is consequently considered a jurisdictional wetland.

4.4.6 Waters/Wetland Determination

The determination of waters and wetlands on Tract 4 was accomplished by a combination of aerial photograph interpretation, field checking, and extrapolation based on known sample areas. The acreage determined to be jurisdictional wetlands includes:

o	Palustrine, emergent, narrow leaved-persistent, semipermanent, partially drained/ditched;	[PEM5Fd]	7.8 acres

4.5 TRACT 5

4.5.1 Site Description

This site consists of seven acres approximately 75 feet south of Market Street Road, east of Appelt Drive. The southeastern boundary abuts Matlack Trucking, and the eastern boundary is not marked, but coincides with the line of forested/cleared land perpendicular to Market Street Road. Approximately three acres have been deforested and presently exist as upland grassland. An abandoned sewage treatment facility occupies about one acre near the southern boundary of the site.

4.5.2 Vegetation

The vegetation of Tract 5 consists of anthropogenic grassland, successional hardwood forest and mixed hardwood/evergreen forest in the central portion of the site.

4.5.3 Soils

Soils mapped for the site consist solely of Vamont clay (VaA). This soil is listed as hydric.

4.5.4 Hydrology

Tract 5 is slightly higher than surrounding topography consequent to road building surrounding the site. This parcel drains by sheet flow to streets north and west of the site.

4.5.5 Disturbance Factors

Disturbance at and surrounding the site has altered drainage patterns such that water does not settle at the site. Further, the grassland area appears to be maintained in a treeless condition.

4.5.6 Waters/Wetland Determination

Although the site is mapped as containing a hydric soil, at the time of the field surveys the soils were dry, and there was no evidence of recent inundation or saturation. Consequently, no wetlands are delineated on this site.

4.6 SITE 6

4.6.1 Site Description

This parcel occupies 10 acres, roughly pentagonal in shape, and is bounded by the East Texas Turnpike, Market Street Road, Appelt Drive, and a truck yard. A road, not recently used or graded, bisects the site from south to north. A second road runs parallel to and south of Market Street Road, the length of the site. A minor swale exists between this road and Market Street Road. A shallow vegetated channel traverses the site draining northwest to southeast. This channel has shallow, incised banks and contained water at the time of the survey. The perimeter areas of the site (approximately three acres) at the east and west sides have been deforested. The area in the northeast is presently in grassland; the western portion is disturbed with scattered trees, grasses and bare ground. This site is identified as upland on the National Wetlands Inventory map.

4.6.2 Vegetation

Approximately seven acres of the site are in mixed hardwood evergreen forest. The channel that traverses the site is not vegetated with emergent aquatic plants, but is overhung by cottonwoods and willows. The forested area consists primarily of pines and black willows, with slippery elm in the understory. Scattered poison oak and blackberry vines occupy the narrow ecotone between the channel and the forested area.

4.6.3 Soils

Mapped soils on Tract 6 include the Vamont clay series (VaA) and the Midland urban complex (Mu). Both of these soils are listed as hydric.

4.6.4 Hydrology

There is little topographic relief on this parcel. The forested portion of the site appears to drain toward the shallow channel, which averages approximately one foot deep and two feet wide. This channel appears to roughly coincide with the contact zone of the Vamont and Midland soil types. At the time of the surveys, the forested area of the site was saturated with minor ponding in isolated locations under 100 square feet average. The channel on site flows to a culvert which passes under the northbound off-ramp of the East Texas Turnpike into a south-trending grassy channel.

4.6.5 Disturbance Factors

The perimeter portions of this parcel may have historically reflected wetland conditions, but deforestation, grading and alteration of drainage patterns has altered the vegetational community structure.

4.6.6 Waters/Wetland Determination

Based upon soils, hydrology and vegetation, the following is considered a jurisdictional wetland on Tract 6:

o	Palustrine, forested, evergreen-deciduous;	[PFO67]	4 acres
o	Palustrine, unconsolidated bottom,	[PUB3]	0.1 acres

4.7 TRACT 7

4.7.1 Site Description

Tract 7 is one acre, triangular in shape, and in a developed condition with a building, parking lot, lawns and decorative landscape trees. The site is bordered by Talcott Avenue to the south, the East Texas Turnpike to the east and north, and a truck parking yard to the west.

4.7.2 Vegetation

No identifiable hydrophytic plant associations occupy the site.

4.7.3 Soils

The site is mapped as Midland urban complex (Mu), which is listed as a hydric soil series.

4.7.4 Hydrology

Drainage patterns on Tract 7 have been altered to conduct runoff into streets and drains surrounding the site. No channels or saturated soils exist on the site.

4.7.5 Disturbance Factors

Although the site is underlain by (historically) hydric soils, other wetland indicators are completely lacking.

4.7.6 Waters/Wetland Determination

No waters of the United States or jurisdictional wetlands occur on Tract 7.

4.8 TRACT 8

4.8.1 Site Description

Tract 8 is an L-shaped parcel of eight acres bordered by Market Street Road, Penn City Road, Bomford Avenue, Talcott Avenue and a truck parking yard. The site is developed with buildings, driveways, a turning lane with median strip, lawns and landscape trees and shrubs. The area is flat except that the median for the turning lane is slightly below average grade.

4.8.2 Vegetation

Except for a few remnant pine trees, no natural plant communities occur within Tract 8.

4.8.3 Soils

The two mapped soils for this parcel are Midland urban complex (Mu) and Aldine urban land complex (An). The contact for these two soils is approximately midway between Bomford and Talcott Avenues. Both soil types are listed as hydric.

4.8.4 Hydrology

Tract 8 is well drained, and did not show any signs of recent saturation or inundation anywhere on the parcel.

4.8.5 Disturbance Factors

This tract represents essentially developed environmental conditions. The hydric soils do not presently retain water, nor do they support any identifiable hydrophytic plant association.

4.8.6 Waters/Wetland Determination

No waters or jurisdictional wetlands occur on Tract 8.

4.9 TRACT 9

4.9.1 Site Description

This tract is roughly rectangular in shape, occupying 27 acres immediately west of the East Texas Turnpike, and north of Jacintoport Boulevard. Overall topographic relief on Tract 9 is less than two feet, with the exception of an improved drainage that parallels the northern tract boundary.

4.9.2 Vegetation

This parcel is densely forested, with loblolly pine dominating the overstory. Understory is a poorly stratified layer of hardwoods and a sparse to lacking ground cover of vines. Cattails, willows, rushes and bulrush (Scirpus sp.) occur in the drainage.

4.9.3 Soils

Soils mapped on Tract 9 are of the Aldine very fine sandy loam series (Am). This soil series is not listed as hydric.

4.9.4 Hydrology

Drainage on this parcel occurs by sheet flow northward to the existing channel. The surface of the tract was relatively plan with little microrelief. No saturated soils or standing water were present at the time of the field survey.

4.9.5 Disturbance Factors

With the exception of the manufactured channel and the an overgrown, narrow roadway, no major disturbance was in evidence on the site.

4.9.6 Waters/Wetland Determination

Tract 9 does not support hydric soils except in the manufactured channel at the northern border of the site. The dominant overstory vegetation is loblolly pine which is classified as FAC- by Cowardin. The flat portion of the site from the channel bank to Jacintoport Boulevard is not considered a wetland. The area below the high water mark in the unnamed channel at the northern border includes the following wetland classification:

- Palustrine, emergent, persistent, saturated/semipermanent, excavated; [PEM1Yx] 0.2 acres

4.10 TOTAL WETLANDS ON STUDY AREA PARCELS

Based on the totals by parcel for each of the properties analyzed within the study area, a net total of 164 acres of wetlands and waters of the United States occur on Tracts 1-9 combined.

5.0 ADDITIONAL CONSIDERATIONS

Following refinement of development plans, the proponent for development of the subject parcels is advised to meet with ACOE and applicable state and local authorities to determine specific requirements and documentation required for proposed permit evaluations.

6.0 BIBLIOGRAPHY AND REFERENCES

Behler, J. and F. Kin, 1979. The Audubon Society Field Guide to North American Reptiles and Amphibians. A.A. Knopf, Inc., New York, N.Y.

Chow, V., 1964. Handbook of Applied Hydrology. McGraw-Hill, New York.

Correll, O. and H. Correll, 1975. Aquatic and Wetland Plants of the Southwestern United States (2 volumes). Stanford University Press, Stanford, CA.

Correll, O. and H. Correll, 1970. Manual of the Vascular Plants of Texas. Texas Research Foundation, Renner, Texas.

Cowardin, L., V. Carter, F. Golet, and E. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States. USDI Fish and Wildlife Service FWS/OBS-79/31, Washington, DC.

Dunne, T. and L. Leopold, 1978. Water in Environmental Planning. W.H. Freeman and Company: New York.

Federal Interagency Committee for Wetland Delineation, 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USDA Soil Conservation Service, Washington, DC. Cooperative technical publication.

Harrold, L. G. Schwab, B. Bondurant, 1982. Agricultural and Forest Hydrology. Ohio State University, Columbus, Ohio.

Reed, P. Jr. 1988. National List of Plant Species that occur in Wetlands: South Plains (Region 6). U.S. Fish and Wildlife Service Biological Report 88-26.6.

USDA - Soil Conservation Service, 1972. Hydrology, Section 4, National Engineering Handbook. Washington, D.C.

USDA - Soil Conservation Service, 1976. Soil Survey of Harris County, Texas.

USDA - Soil Conservation Service, 1987. Hydric Soils of the United States. Second Edition.

United States, Office of the Federal Register. National Archives and Records Administration, 1987. Code of Federal Regulations 40. U.S. Government Printing Office, Washington, D.C.

United States, Office of the Federal Register. National Archives and Records Administration, 1987.

Vines, R., 1984. Trees, Shrubs and Woody Vines of the Southwest. University of Texas Press, Austin, Texas.

APPENDIX 1

APPENDIX 1

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

REPORT OF FINDINGS

Introduction

Jones/Smith Environmental Services (JSES) was asked by Mr. Robert T. Clarke, Jr. of McClelland Consultants, Inc. to further identify and delineate jurisdictional wetlands as presented in the main body of this report. The data in this appendix is presently at the request of the U.S. Army Corp of Engineers and is intended to enhance the information in the report. Appendix 1 specificly identifies and delineates jurisdictional wetlands present on one entire parcel (Tract 1) and portions of two others (Tracts 2 and 3) in the vicinity of Channelview, Harris County, Texas. Tract 1 is located east of Penn City Road at its intersection with Houston Ship Channel. Tracts 2 and 3 are situated north of Jacintoport Boulevard and east of Appelt Road. The work was performed on behalf of the James H. Glanville Company. The James Glanville proposes to construct ship docking and industrial facilities on Tract 1 and deposit dredged material on portions of Tracts 2 and 3.

During the period August 31 through September 4, 1990, Mr. Richard D. Jones and Mr. R. Darrell Smith conducted field investigations at the various tracts. Wetlands which were found were delineated with wooden stakes or, in the case of certain wooded portions of Tract 1, from aerial photographs after field verification.

Methods

Wetlands were identified using the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (Federal Interagency Committee for Wetland Delineation, 1989). In applying the manual, the plant community assessment procedure of the routine onsite determination method was utilized. Decisions regarding the wetland/non-wetland boundary were made based upon the mandatory criteria specified in the manual.

The National Wetland Indicator Status of each plant was determined from Reed (1988). Hydric soils were identified using the Harris County list of hydric soils provided by the U.S. Department of Agriculture, Soil Conservation Service (SCS), from discussions with Mr. Frank Wheeler of the SCS, and from Hydric Soils of the United States (NTCHS, 1987). Interpretations of soils on the site were facilitated by the Soil Survey of Harris County, Texas (Wheeler, 1976). Soil colors were recorded using Munsell nomenclature (1975). Data gathered from the site have been recorded on data forms. Figure B indicates the location of data points and Attachment 1 presents the data forms.

Results and Discussion

Data were collected from various representative locations (Figure B) on the tracts. Several major cover types were identified. In Tract 1, five non-wetland and five wetland

communities were identified. The portions of Tracts 2 and 3 inspected possess two non-wetland and three wetland cover types. According to the classification system developed by Cowardin et al. (1979), the wetland areas would be considered as palustrine emergent or palustrine forested.

Tract 1

Non-wetland cover types identified on the portion of Tract 1 where dredged material has been placed consist of an Annual Sumpweed / French Tamarisk association and an Eastern Baccharis /Pink Wildbean association. Wetland communities on this same portion of the tract are composed of: (1) Cattails and associated species, (2) a Rusty Flatsedge / Perennial Saltmarsh Aster association, (3) an Eastern Cottonwood / French Tamarisk association, and (4) two ephemeral ponds surrounded by BlackWillows.

With the exception of the wetland areas, the Annual Sumpweed /French Tamarisk association covered almost the entire disposal site. A few salt tolerant species such as Eastern Baccharis were also found at various locations. The Eastern Baccharis / Pink Wildbean association was located at the base of the disposal levee adjacent to the Houston Ship Channel. This association was growing on a mixture of sand, shell, and old lumber, and was located above the high tide line of the channel. The area identified as "Wet Channel" on Figure B is an upland drainage ditch situated entirely above mean high water.

The wetlands identified were found exclusively in depressions. These depressions pond water long enough for hydrophytic vegetation to establish, and then dry out in the summer (seasonally wet). Cattails tended to be found in the lowest parts of the depressions, with less water tolerant species grading away from the center (Areas DD to FF, HH to JJ and LL). The width of the transition zone varied with the particular wetland.

The Eastern Cottonwood / French Tamarisk association was present in shallow depressions at two locations (Areas AA and BB) on the southeast corner of the site. Associated vegetation included Spikerush and Broomsedge Bluestem. Areas CC and KK were small seasonally wet ponded areas with a fringe of Black Willow around the edges.

Area GG was primarily composed of Rusty Flatsedge and Perennial Saltmarsh Aster, but also contained zones of Seaside Heliotrope, Spikerush, Eastern Baccharis, and Maidencane. With the exception of a mowed pipeline right-of-way, the entire area had a dense growth of Annual Sumpweed, probably due to recent dry weather. Aerial photographs of the site indicate standing water in this area at certain times of the year.

Non-wetland cover types identified on the remainder of Tract 1 consist of a Loblolly Pine / Yaupon association, a Texas Sugarberry / Yaupon association, and a large Chinese

Tallow / Southern Dewberry dominated area. Wetland communities consist of a Sweet Gum / Chinese Tallow association, an assemblage of Willow Oaks and related species, and a cleared area dominated by Beakrush and Green Flatsedge.

The Chinese Tallow / Southern Dewberry association covered the vast majority of the site. Loblolly Pines and Yaupon were present on sandy knolls. The Texas Sugarberry / Yaupon association was found on the western edge of the property, in an area that possessed what appeared to be Bernard soils.

The Sweet Gum / Chinese Tallow dominated wetlands were located in Areas OO, QQ and the eastern portion of Area RR. These areas had a herbaceous understory of Swamp Smartweed. The Willow Oak assemblage was located in Areas MM, PP, SS, and the western portion of RR. Both of these associations were located in depressions. Area NN, a cleared site located immediately east of a pipeline right-of-way, was dominated by Beakrush and Green Flatsedge, with lesser amounts of Sugarcane Plume Grass.

Tracts 2 and 3

Tracts 2 and 3 possess non-wetland communities of Sweet Gum /Chinese Tallow / Yaupon and Willow Oak / Southern Dewberry. Wetland communities consist of: (1) an Ovate False Fiddle-leaf / Green Flatsedge association, (2) a Green Ash / Chinese Tallow association, and (3) a Willow Oak / Yaupon association.

The two upland associations were scattered throughout the tracts. The Ovate False Fiddle-leaf / Green Flatsedge and Green Ash /Chinese Tallow associations were found adjacent to earthen ammunition bunkers. It appears that the wetlands are situated in borrow areas for the bunkers. Areas E to H, J, L to N, P, R, S, and W are emergent wetlands. Areas A to D, I, K, Q, T, and V to Y are forested. Areas O and U were what appeared to be natural depressional wetland areas dominated by Willow Oak and Yaupon.

A small stream was also present on Tract 3. The portion of the stream on this tract had a surface area of 1.2 acres from bank to bank. Although the stream has been "improved," it remains a water of the United States.

Conclusions

Wetlands (a subset of waters of the United States) are present on the site. These areas were staked and surveyed or otherwise delineated during JSES's site inspection (Clarke Survey, Figure C). Total acreages for the delineated wetlands are presented in Tables 2 and 3.

On Tract 1, a total of 12.78 acres of forested wetlands and 7.88 acres of marsh were delineated, for a total of 20.66 acres. On Tracts 2 and 3, 2.69 acres of forested wetlands, 1.55 acres of marsh, and a stream, 1.2 acres were identified, for a total of 5.44 acres. The total wetlands impacted for the entire project will be 26.10 acres.

Since the proposed project will impact the wetlands identified, a Department of the Army permit must be obtained prior to performance of the work. A mitigation plan will be prepared, if necessary.

JONES/SMITH
ENVIRONMENTAL SERVICES

Richard D. Jones

R. Darrell Smith

RDJ/RDS/egs(a:APPENDIX/C)

LITERATURE CITED

Cowardin, Lewis M., Virginia Carter, and Edward T. LaRoe. 1979. Classification of wetland and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service. Washington, D.C. 103 pp.

Federal Interagency Committee for Wetland Delineation. 1969. Federal manual for identifying and delineating jurisdictional wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service. Washington, D.C. Cooperative Technical Publication. 76 pp. plus appendices.

Munsell Color. 1975. Munsell soil color charts. Kollmorgen Corporation. Baltimore. 24 pp.

National Technical Committee on Hydric Soils. 1987. Hydric Soils of the United States. U.S.D.A. Soil Conservation Service. Washington, D.C.

Reed, Porter B. 1988. National list of plant species that occur in wetlands: south plains (Region 6). Biol. Rept. 88(26.6). U.S. Fish and Wildlife Service. Washington, D.C. 94 pp.

Wheeler, Frankie F. 1976. Soil survey of Harris County, Texas. U.S.D.A. Soil Conservation Service. Washington, D.C. 140 pp. plus maps.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 3, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Upland # 1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ___ No X (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Pinus taeda*	Loblolly Pine	FAC-	Tree
2.	*Ilex vomitoria*	Yaupon	FAC-	Shrub
3.	*Smilax smallii*	Lance-leaf Greenbriar	FACU	Herb
4.	*Vitis cinerea*	Pigeon Grape	FACW-	Vine
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 75
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of vegetation FAC or wetter.

SOILS

Series/phase: mapped as Ozan Subgroup:[2] Typic Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes ___ No X Gleyed? Yes ___ No X.
Matrix Color: 10YR 5/2 (dry) Mottle Colors: ___
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes ___ No X.
Rationale: Profile does not match Ozan or a recorded inclusion. 0 - 6" loam, 10YR 3/3. >6" loam.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
None observed.
Is the wetland hydrology criterion met? Yes ___ No X.
Rationale: No hydrology indicators observed.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ___ No X.
Rationale for jurisdictional decision: Soil and hydrology parameters not met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 3, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Upland # 2
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Gaura lindheimeri*	White Gaura	UPL	Herb
2.	*Ambrosia trifida*	Great Ragweed	FAC	Herb
3.	*Strophostyles umbellata*	Pink Wildbean	FACU	Herb
4.	*Baccharis halimifolia*	Eastern Baccharis	FACW-	Shrub
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 25
Is the hydrophytic vegetation criterion met? Yes ___ No X.
Rationale: Less than 50% of species FAC or wetter.

SOILS

Series/phase: mapped as Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes___ No___ Gleyed? Yes ___ No X.
Matrix Color: _____ Mottle Colors: _____
Other hydric soil indicators: None observed.
Is the hydric soil criterion met? Yes ___ No X.
Rationale: Area consisted of sand and shell which was buried by lumber and debris.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: _____
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: _____
List other field evidence of surface inundation or soil saturation.
None observed.
Is the wetland hydrology criterion met? Yes ___ No X.
Rationale: No observed hydrology. Wakes of large ships do not reach area.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ___ No X.
Rationale for jurisdictional decision: None of parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is at the base of an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). The site is between the disposal levee and the bayou. The soil consists of sand and shell, buried by old lumber and other debris. The dominant plant is a vine, which is densely covering the debris.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 4, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Upland # 3
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ___ No X (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Celtis laevigata*	Texas Sugarberry	FAC	Tree
2.	*Ilex vomitoria*	Yaupon	FAC-	Shrub
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Bernard inclusion Subgroup:[2] Vertic Argiaquoll
Is the soil on the hydric soils list? Yes ___ No X Undetermined ___
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 7.5YR 3/2 Mottle Colors: 2.5YR 3/4
Other hydric soil indicators: None observed.
Is the hydric soil criterion met? Yes ___ No X.
Rationale: Soil matches profile of non-hydric Bernard series. Area mapped as Midland.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
None observed.
Is the wetland hydrology criterion met? Yes ___ No X.
Rationale: No observed hydrology.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ___ No X.
Rationale for jurisdictional decision: Soil and hydrology parameters not met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 2, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Populus deltoides*	Eastern Cottonwood	FAC	Tree
2.	*Tamarix gallica*	French Tamarisk	FACW-	Shrub
3.	*Eleocharis sp.*	Spikerush	FW-OB	Herb
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: Various Mottle Colors: Various
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Ijam soils consist of dredged material. Area is depressional. Loamy sand.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). It consists mostly of relatively dry sandy to clayey material, with a few depressional places. The depressions are evident from aerial photography. The entire site is approximately 15 feet above the high tide line of the bayou.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 2, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #2
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Populus deltoides*	Eastern Cottonwood	FAC	Tree
2.	*Tamarix gallica*	French Tamarisk	FACW-	Shrub
3.	*Andropogon virginicus*	Broomsedge Bluestem	FACU+	Herb
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 66
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: Various Mottle Colors: Various
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Ijam soils consist of dredged material. Area is depressional. Loamy sand.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). It consists mostly of relatively dry sandy to clayey material, with a few depressional places. The depressions are evident from aerial photography. The entire site is approximately 15 feet above the high tide line of the bayou.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 3, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #3
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ___ No X (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Liquidambar styraciflua*	Sweet Gum	FAC	Tree
2.	*Sapium sebiferum*	Chinese Tallow	FACU+	Tree
3.	*Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
4.	*Polygonum hydropiperoides*	Swamp Smartweed	OBL	Herb
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 50
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: See WDM Problem Area 1, page 56, step 4.

SOILS

Series/phase: Ozan Subgroup:[2] Typic Glossaqualf
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 7/2 (dry) Mottle Colors: Unreadable
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Profile matches Ozan. Area is depressional.
0 - 2" loam, 10YR 4/2. >2" loam. Mottles few, fine, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres present.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator. Presence of hydric soil.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 4, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #4
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ___ No X (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Quercus phellos*	Willow Oak	FACW	Tree
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Midland inclusion Subgroup:[2] Typic Ochraqualf
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 6/1 (dry) Mottle Colors: 5YR 5/8 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Profile matches Midland. 0 - 2" loam, 10YR 6/1. >2" silty clay. Area is depressional. Mottles common, fine, prominent.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 4, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #5
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes ___ No X (If yes, explain on back)

****

VEGETATION

Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1. *Quercus phellos*	Willow Oak	FACW	Tree
2. *Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW, and/or FAC 50
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: See WDM Problem Area 1, page 56, step 4.

SOILS

Series/phase: Midland inclusion Subgroup:[2] Typic Ochraqualf
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 6/1 (dry) Mottle Colors: 5YR 5/8 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Profile matches Midland. 0 - 2" loam, 10YR 6/1. >2" silty clay. Area is depressional. Mottles common, fine, prominent.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 2, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Typha latifolia*	Broad-leaf Cattail	OBL	Herb
2.	*Iva annua*	Annual Sumpweed	FAC	Herb
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter. The *Iva* appears to be an invader present as a result of recent dry weather.

SOILS

Series/phase: Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: Various Mottle Colors: Various
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Ijam soils consist of dredged material. Area is depressional. Sandy clay.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Photographic evidence of inundation.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Photographic evidence of inundation. WDM page 34, Step 7 would apply if *Iva* is discounted.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). It consists mostly of relatively dry sandy to clayey material, with a few depressional places. The depressions are evident from aerial photography. The entire site is approximately 15 feet above the high tide line of the bayou.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 3, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #2
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Aster tenuifolius*	Perennial Saltmarsh Aster	OBL	Herb
2.	*Cyperus odoratus*	Rusty Flatsedge	FACW	Herb
3.	*Iva annua*	Annual Sumpweed	FAC	Herb
4.	*Heliotropium curassavicum*	Seaside Heliotrope	FACW	Herb
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter. The *Iva* appears to be an invader present as a result of recent dry weather.

SOILS

Series/phase: Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: Various Mottle Colors: Various
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Ijam soils consist of dredged material. Area is depressional. Sandy clay.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres. Photographic evidence of inundation.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Photographic evidence of inundation. Field indicator.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). It consists mostly of relatively dry sandy to clayey material, with a few depressional places. The depressions are evident from aerial photography. The entire site is approximately 15 feet above the high tide line of the bayou.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 3, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #3
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Tamarix gallica*	French Tamarisk	FACW-	Shrub
2.	*Typha latifolia*	Broad-leaf Cattail	OBL	Herb
3.	*Suaeda linearis*	Annual Seepweed	OBL	Herb
4.	*Iva angustifolia*	Narrow-leaf Sumpweed	UPL	Herb
5.				
6.	*Algal mat*			
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 75
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter. The *Iva* appears to be an invader present as a result of recent dry weather.

SOILS

Series/phase: Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: Various Mottle Colors: Various
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Ijam soils consist of dredged material. Area is depressional.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Photographic evidence of inundation.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Photographic evidence of inundation.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). It consists mostly of relatively dry sandy to clayey material, with a few depressional places. The depressions are evident from aerial photography. The entire site is approximately 15 feet above the high tide line of the bayou.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 3, 1990
Project/Site: Tract 1 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #4
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Salix nigra*	Black Willow	FACW+	Tree
2.	*Typha latifolia*	Broad-leaf Cattail	OBL	Herb
3.	*Polygonum hydropiperoides*	Swamp Smartweed	OBL	Herb
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Ijam Subgroup:[2] Vertic Fluvaquent
Is the soil on the hydric soils list? Yes X No ___ Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: Various Mottle Colors: Various
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil mapping. Ijam soils consist of dredged material. Area is depressional. See WDM page 34, Step 7.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No ___.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Photographic evidence of inundation. Adventitious roots on willows.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Photographic evidence of inundation. See WDM page 34, Step 7.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Site is an old dredged material disposal area adjacent to Buffalo Bayou (Houston Ship Channel). It consists mostly of relatively dry sandy to clayey material, with a few depressional places. The depressions are evident from aerial photography. The entire site is approximately 15 feet above the high tide line of the bayou. This particular depression is a linear area adjacent to the disposal levee. It may be a borrow ditch.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Aug. 31, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Upland # 1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Liquidambar styraciflua*	Sweet Gum	FAC	Tree
2.	*Ilex vomitoria*	Yaupon	FAC-	Shrub
3.	*Callicarpa americana*	American Beauty Berry	FACU	Herb
4.	*Smilax smallii*	Lance-leaf Greenbriar	FACU	Herb
5.	*Vitis rotundifolia*	Muscadine Grape	FAC-	Vine
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 60
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No X Undetermined ___
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes___ No X Gleyed? Yes ___ No X.
Matrix Color: 10YR 6/2 (dry) Mottle Colors: ___
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes ___ No X.
Rationale: Soil matches profile of Aldine. Although B&A horizon not encountered at >14", soil mapping appears to be correct.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
None observed
Is the wetland hydrology criterion met? Yes ___ No X.
Rationale: No indicators of hydrology observed.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ___ No X.
Rationale for jurisdictional decision: No indicators of soil or hydrology present. These two parameters not met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Aug. 31, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Upland # 2
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Quercus phellos*	Willow Oak	FACW	Tree
2.	*Ilex vomitoria*	Yaupon	FAC-	Shrub
3.	*Callicarpa americana*	American Beauty Berry	FACU	Herb
4.	*Rubus trivialis*	Southern Dewberry	FAC	Herb
5.	*Vitis rotundifolia*	Muscadine Grape	FAC-	Vine
6.	*Pinus taeda*	Loblolly Pine	FAC-	Sapling
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 83
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 3/1 (dry) Mottle Colors: 7.5YR 6/8 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes ___ No X.
Rationale: Soil has been disturbed, possibly filled. 0 - 4" clay loam. 4 - >14" clay. Mottles common, fine, distinct. Does not match profile.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
None observed
Is the wetland hydrology criterion met? Yes ___ No X.
Rationale: No indicators of hydrology observed.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ___ No X.
Rationale for jurisdictional decision: No indicators of soil or hydrology present. These two parameters not met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was probably filled.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Aug. 31, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Upland # 3
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1. *Liquidambar styraciflua*	Sweet Gum	FAC	Tree
2. *Ilex vomitoria*	Yaupon	FAC-	Shrub
3. *Callicarpa americana*	American Beauty Berry	FACU	Herb
4. *Smilax smallii*	Lance-leaf Greenbriar	FACU	Herb
5. *Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
6.			
7.			
8.			
9.			
10.			

Percent of dominant species that are OBL, FACW, and/or FAC 40
Is the hydrophytic vegetation criterion met? Yes ___ No X.
Rationale: Less than 50% of species FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 7/2 (dry) Mottle Colors: 10YR 7/8 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes ___ No X.
Rationale: Soil has been disturbed, possibly filled. 0 - 5" clay loam, 10YR 5/3, 5 - 8" clay loam, 10YR 6/1. >8" loam. Mottles few, fine, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
None observed
Is the wetland hydrology criterion met? Yes ___ No X.
Rationale: No indicators of hydrology observed.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes ___ No X.
Rationale for jurisdictional decision: No indicators present. Parameters not met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was probably filled.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Aug. 31, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Fraxinus pennsylvanica*	Green Ash	FACW-	Tree
2.	*Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
3.	*Sapium sebiferum*	Chinese Tallow	FACU+	Herb
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 33
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: See WDM Problem Area 1, page 56, step 4.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 6/1 (dry) Mottle Colors: 10YR 5/8 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Site has been excavated. A depressional area remains. 0 - 6" sandy clay. >6" clay loam. Mottles common, fine, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Water marks at 6". Rhizospheres present. Water-stained leaves.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Several field indicators of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met. See next page for comments.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was excavated for borrow material to use in creating an ammunition bunker.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 1, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #2
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Quercus phellos*	Willow Oak	FACW	Tree
2.	*Ilex vomitoria*	Yaupon	FAC-	Shrub
3.	*Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
4.	*Campsis radicans*	Trumpet Creeper	FAC	Herb
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 75
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 5/1 (dry) Mottle Colors: 10YR 6/6 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil color. Soil may have been disturbed. Area is now a depression. 0 - 6" loamy clay. >6" clay. Mottles common, fine, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Water stained leaves. Rhizospheres.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicators of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site may have been excavated. The soil profile does not match the mapped series nor any possible inclusion.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 4, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Forested Wetld #3
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Quercus phellos*	Willow Oak	FACW	Tree
2.	*Liquidambar styraciflua*	Sweet Gum	FAC	Tree
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of species FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 7/1 (dry) Mottle Colors: 10YR 5/8 (dry)
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Soil color. Soil may have been disturbed. Area is now a depression. 0 - 3" silt loam. >3" loamy clay. Common, fine, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site may have been excavated. The soil profile does not match the mapped series nor any possible inclusion.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Aug. 31, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #1
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Liquidambar styraciflua*	Sweet Gum	FAC	Tree
2.	*Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
3.	*Hydrolea ovata*	Ovate False Fiddle-leaf	OBL	Herb
4.	*Cyperus virens*	Green Flatsedge	FACW	Herb
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 75
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of vegetation FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes X No ___.
Matrix Color: 5G 6/1 Mottle Colors: 7.5 YR 5/8
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Gleyed soils. Site has been excavated. A depressional area remains. 0 - 2" sandy clay. >2" clay. Mottles many, medium, distinct.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Water marks at 4". Rhizospheres present.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Several field indicators of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met. See next page for comments.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was excavated for borrow material to use in creating an ammunition bunker.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Aug. 31, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #2
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Liquidambar styraciflua*	Sweet Gum	FAC	Sapling
2.	*Hydrolea ovata*	Ovate False Fiddle-leaf	OBL	Herb
3.	*Cyperus virens*	Green Flatsedge	FACW	Herb
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 100
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of vegetation FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes___ No X Histic epipedon present? Yes___ No X
Is the soil: Mottled? Yes X No___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 6/1 Mottle Colors: 10YR 5/6
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Site has been excavated. A depressional area remains. 0 - 3" clay, 5YR 4/2 w/ 10YR 4/6 mottles. >3" clay. Mottles many, coarse, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes X No ___.
Depth to free-standing water in pit/soil probe hole: 12"
List other field evidence of surface inundation or soil saturation.
Water marks at 6". Rhizospheres present.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Several field indicators of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met. See next page for comments.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was excavated for borrow material to use in creating an ammunition bunker.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 4, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #3
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Sapium sebiferum*	Chinese Tallow	FACU+	Tree
2.	*Hydrolea ovata*	Ovate False Fiddle-leaf	OBL	Herb
3.	*Diodia virginiana*	Virginia Buttonweed	OBL	Herb
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 66
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: Greater than 50% of vegetation FAC or wetter.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 5/1 Mottle Colors: 2.5Y 4/8
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Site has been excavated. A depressional area remains. 0 - 2" loam, 10YR 7/1 w/ 10YR 5/8 mottles. >2" loamy clay. Many, medium, distinct.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres present.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met. See next page for comments.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was excavated for borrow material to use in creating an ammunition bunker.

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD[1]

Field Investigator(s): Richard D. Jones & Darrell Smith Date: Sept. 4, 1990
Project/Site: Tracts 2 & 3 State: Texas County: Harris
Applicant/Owner: James H. Glanville Plant Community #/Name: Marsh #4
Note: If a more detailed site description is necessary, use the back of data form or a field notebook.

****

Do normal environmental conditions exist at the plant community?
Yes X No ___ (If no, explain on back)
Has the vegetation, soils, and/or hydrology been significantly disturbed?
Yes X No ___ (If yes, explain on back)

****

VEGETATION

	Dominant Plant Species	Common Name	Indic. Stat.	Strat.
1.	*Sapium sebiferum*	Chinese Tallow	FACU+	Tree
2.	*Hydrolea ovata*	Ovate False Fiddle-leaf	OBL	Herb
3.	*Carex sp.*	Sedge	FC-OB	Herb
4.	*Sapium sebiferum*	Chinese Tallow	FACU+	Sapling
5.				
6.				
7.				
8.				
9.				
10.				

Percent of dominant species that are OBL, FACW, and/or FAC 50
Is the hydrophytic vegetation criterion met? Yes X No ___.
Rationale: See WDM Problem Area 1, page 56, step 4.

SOILS

Series/phase: Mapped as Aldine-Urban Subgroup:[2] Aeric Glossaqualf
Is the soil on the hydric soils list? Yes ___ No ___ Undetermined X
Is the soil a Histosol? Yes ___ No X Histic epipedon present? Yes ___ No X
Is the soil: Mottled? Yes X No ___ Gleyed? Yes ___ No X.
Matrix Color: 10YR 7/1 Mottle Colors: 10YR 4/4
Other hydric soil indicators: None observed
Is the hydric soil criterion met? Yes X No ___.
Rationale: Site has been excavated. A depressional area remains. 0 - 3" clay loam, 10YR 5/1 w/ 10YR 4/6 mottles. >3" clay. Common, fine, faint.

HYDROLOGY

Is the ground surface inundated? Yes ___ No X Surface Water Depth: ___
Is the soil saturated? Yes ___ No X.
Depth to free-standing water in pit/soil probe hole: ___
List other field evidence of surface inundation or soil saturation.
Rhizospheres present.
Is the wetland hydrology criterion met? Yes X No ___.
Rationale: Field indicator of hydrology present.

JURISDICTIONAL DETERMINATION AND RATIONALE

Is the plant community a wetland? Yes X No ___.
Rationale for jurisdictional decision: All three parameters met. See next page for comments.

[1] This data form can be used for the Hydric Soil Assessment Procedure and the Plant Community Assessment Procedure.
[2] See classification according to "Soil Taxonomy."

Entire site was an old munitions storage depot. All types of work, including soil movement, occurred at various points on the site beginning at the close of World War II. Due to the age of the work, it is difficult to tell exactly which areas were disturbed and which were not. This particular site was excavated for borrow material to use in creating an ammunition bunker.

Table 2

Wetland Designation	Wetland Type	Community Type	Surface Area
AA	Forested	Cottonwood / Tamarisk	0.38 A
BB	Forested	Cottonwood / Tamarisk	0.60
CC	Forested	Black Willow	0.14
DD	Marsh	Cattail association	0.09
EE	Marsh	Cattail association	0.38
FF	Marsh	Cattail association	0.22
GG	Marsh	Flatsedge / Aster	3.69
HH	Marsh	Cattail association	0.13
II	Marsh	Cattail association	0.07
JJ	Marsh	Cattail association	1.33
KK	Forested	Black Willow	0.01
LL	Marsh	Cattail association	0.71
MM	Forested	Willow Oak association	0.14
NN	Marsh	Beakrush / Flatsedge	0.64
OO	Forested	Sweet Gum / Tallow	0.41
PP	Forested	Willow Oak association	0.07
QQ	Forested	Sweet Gum / Tallow	0.20
RR	Forested	Willow Oak association	7.36
SS	Forested	Willow Oak association	3.47
		Total	20.66

Table 3

Wetland Designation	Wetland Type	Community Type	Surface Area
A	Forested	Green Ash / Tallow	0.02 A
B	Forested	Green Ash / Tallow	0.04
C	Forested	Green Ash / Tallow	0.13
D	Forested	Green Ash / Tallow	0.69
E	Marsh	Fiddle-leaf / Flatsedge	0.09
F	Marsh	Fiddle-leaf / Flatsedge	0.08
G	Marsh	Fiddle-leaf / Flatsedge	0.14
H	Marsh	Fiddle-leaf / Flatsedge	0.07
I	Forested	Green Ash / Tallow	0.07
J	Marsh	Fiddle-leaf / Flatsedge	0.05
K	Forested	Green Ash / Tallow	0.09
L	Marsh	Fiddle-leaf / Flatsedge	0.02
M	Marsh	Fiddle-leaf / Flatsedge	0.29
N	Marsh	Fiddle-leaf / Flatsedge	0.21
O	Forested	Willow Oak / Yaupon	0.37
P	Marsh	Fiddle-leaf / Flatsedge	0.02
Q	Forested	Green Ash / Tallow	0.04
R	Marsh	Fiddle-leaf / Flatsedge	0.36
S	Marsh	Fiddle-leaf / Flatsedge	0.04
T	Forested	Green Ash / Tallow	0.05
U	Forested	Willow Oak / Yaupon	0.83
V	Forested	Green Ash / Tallow	0.20
W	Marsh	Fiddle-leaf / Flatsedge	0.18
X	Forested	Green Ash / Tallow	0.04
Y	Forested	Green Ash / Tallow	0.12
		Total	4.24