Appendix E

Wetland Delineation, Wetland Rapid Assessment, and Applicant Wetland Mitigation Agreement

FILE NO. 2008-01138

Proposed Recessed Excavation and Private Boat Docks

Sailboat Hollow Development

In an Embayment of Tennessee River Mile 271.3, Right Bank, Wilson Lake, Lauderdale County, Alabama

TVARAM Field Form Quantitative Rating

Site: Sailboat Hollow, Wilson Res.	Rater(s): Simbeck, Moore	Date: 18 March, 2009

2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [x] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):

Wetland delineation; project files

14	16
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [x] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [x] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [ ] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

13	29
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [x] Precipitation (1) [unless BR/CM primary source (5)]
- [x] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [x] 100-year floodplain (1)
- [ ] Between stream/lake and other human use (1)
- [x] Part of wetland/upland (e.g., forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [x] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [ ] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [x] Regularly inundated/saturated (3) [BR/CM (4)]
- [ ] Seasonally inundated (2) [BR/CM (4)]
- x [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [ ] Recovered (7)
- [x] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] ditch	[ ] point source (nonstormwater)
[ ] tile (including culvert)	[ ] filling/grading
[ ] dike	[ ] road bed/RR track
[ ] weir	[ ] dredging
[ ] stormwater input	[ ] other _____

8	37
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [x] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [x] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [x] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[x] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[x] woody debris removal
x selective cutting	[ ] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

37
subtotal this page

Site: Sailboat Hollow, Wilson Res.	Rater(s): Simbeck/Moore	Date: 18 March, 2009

37
subtotal previous page

Metric 5. Special Wetlands

10 max 10 pts. | **47** subtotal

15 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq.m, sphagnum or other moss (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [x] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [x] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5); in-reservoir buttonbush (4); other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality) : <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

Metric 6. Plant Communities, Interspersion, Microtopography

4 max 20 pts. | **51** subtotal

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [2] Forest
- [ ] Mudflats
- [1] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [x] Moderate (3)[BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [ ] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rate, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [x] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

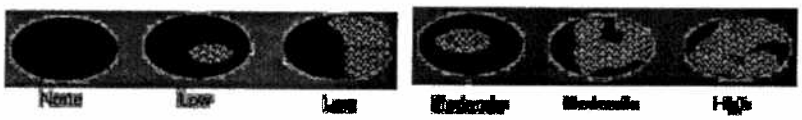
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <02 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [1] Coarse woody debris >15 cm (6 in.)
- [ ] Standing dead >25 cm (10 in.) dbh
- [ ] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion

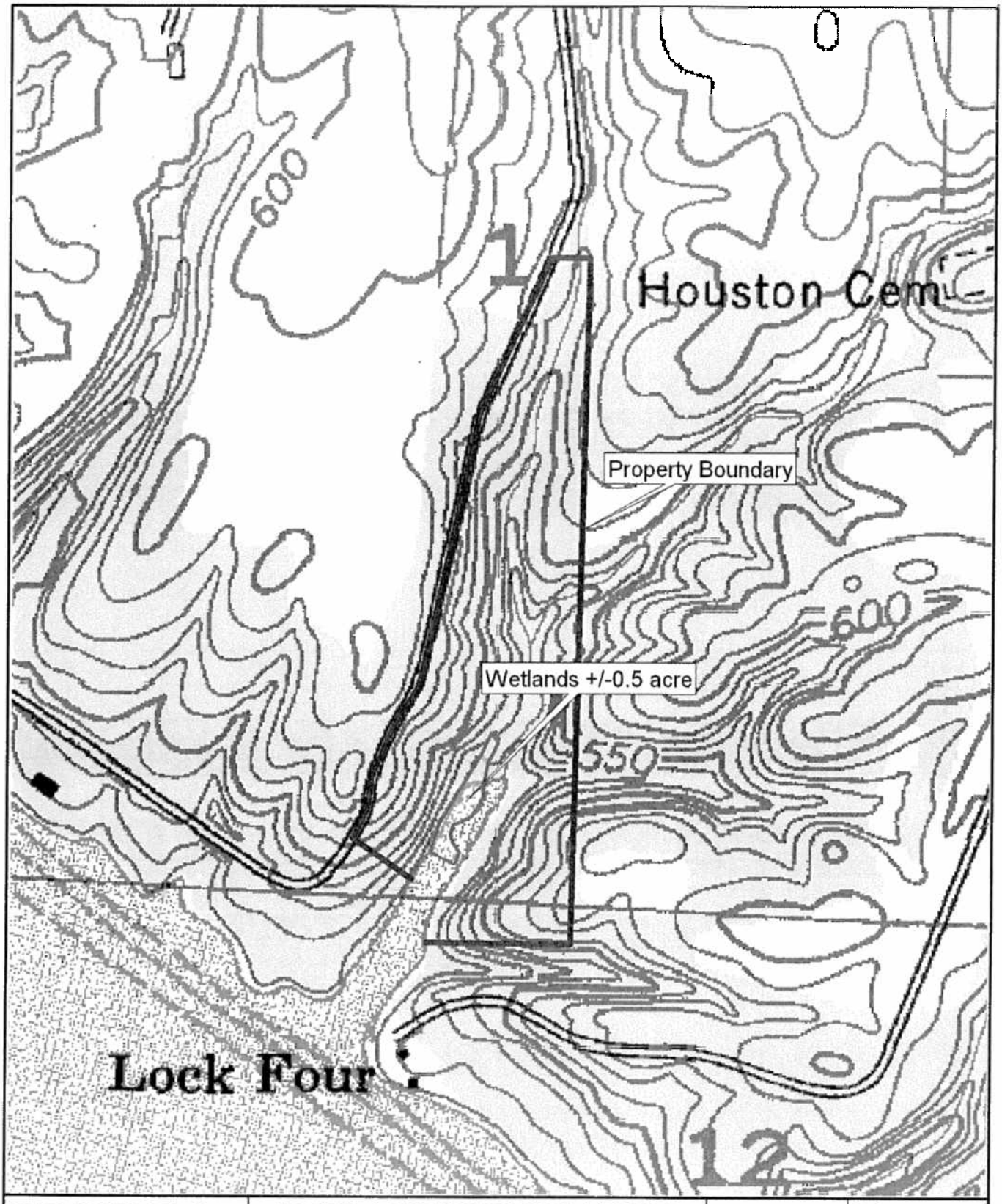


Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

51 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html



GEO-SOURCE, Inc. *Environmental Consultants* 462 N. Court Street Florence, Alabama 35630 Phone (256)767-2000	WETLANDS DELINEATION Bubba Doss Property Section 1, T3S, R9W Lauderdale County, Alabama	Drawn by: N/A Project No.: 08-38	Scale: 1:6,400 Date: August 2008

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NASHVILLE DISTRICT
WESTERN REGULATORY FIELD OFFICE
2042 BELTLINE ROAD SW
BUILDING C SUITE 415
DECATUR AL 35601-9990

Wetland JD Concurrance

September 10, 2008

Western Regulatory Field Office

SUBJECT: File No. LRN-2008-01138; Jurisdiction Determination and Wetland Verification of a Wetland Adjacent to an Un-named Tributary of Tennessee River Mile 271.3, Right Bank, Lauderdale County, Alabama

Bubba Doss
2400 Hwy 101
Rogersville, Alabama 35801

Dear Mr. Doss:

This is in response to a request made by Mr. Brad Dethero of GEO-Source, Inc. on your behalf, to determine if Waters of the United States are located at the above location. Enclosed with this letter is a copy of a map sent to us indicating the location of the wetlands. Your project has been assigned File No. LRN-2008-01138.

An onsite inspection was conducted September 5, 2008 to verify the boundaries of the identified wetland and to determine if they were waters of the United States (US). There was a wetland site and a stream located is in the middle of the property. The 0.8 acre site was found to meet all the required characteristics to be classified as wetland; i.e., presence of hydric soils, a predominance of hydrophilic vegetation, and evidence of sufficient hydrology. An additional 1.08 acre of aquatic emergent resource was also identified. (Emergent plants within the fringe of the lake in 1 to 2 feet of water) A jurisdictional stream also crosses the property which is also waters of the United States. I concur with the wetland delineation submitted by GEO-Source, Inc.

The wetland is adjacent and/or contiguous to waters of the U.S. and subject to Corps of Engineers' regulatory jurisdiction under Section 404 of the Clean Water Act. **A Department of the Army (DA) Permit will be needed if work is planned in this area.** Please be advised that this jurisdictional determination reflects current policy. If this office has not specifically revalidated this determination after a 5-year period, it shall automatically expire. Enclosed is the Notification of Applicant Options (NAO) which explains available options regarding this determination.

We understand the above location may be developed in the future. We advise all applicants to avoid wetland disturbance; those that can not avoid loss of wetlands must mitigate. Our permit process involves a sequenced approach to evaluating impacts to waters of the U.S. You

must first clearly demonstrate that impacts have been avoided to the maximum extent practicable. Remaining unavoidable impacts would then have to be mitigated by minimization and finally, compensating for the losses of aquatic resources.

We appreciate your awareness of our regulatory program. If you have any questions, please contact David Monroe at the above address or telephone (256) 350-5620.

Sincerely,

David Monroe
Manager, Western Field Office
Operations Division

Copy Furnished:

GEO-Source, Inc.
Mr. Brad Dethero
115A Helton Court
P.O. Box 3301
Florence, Alabama 35630

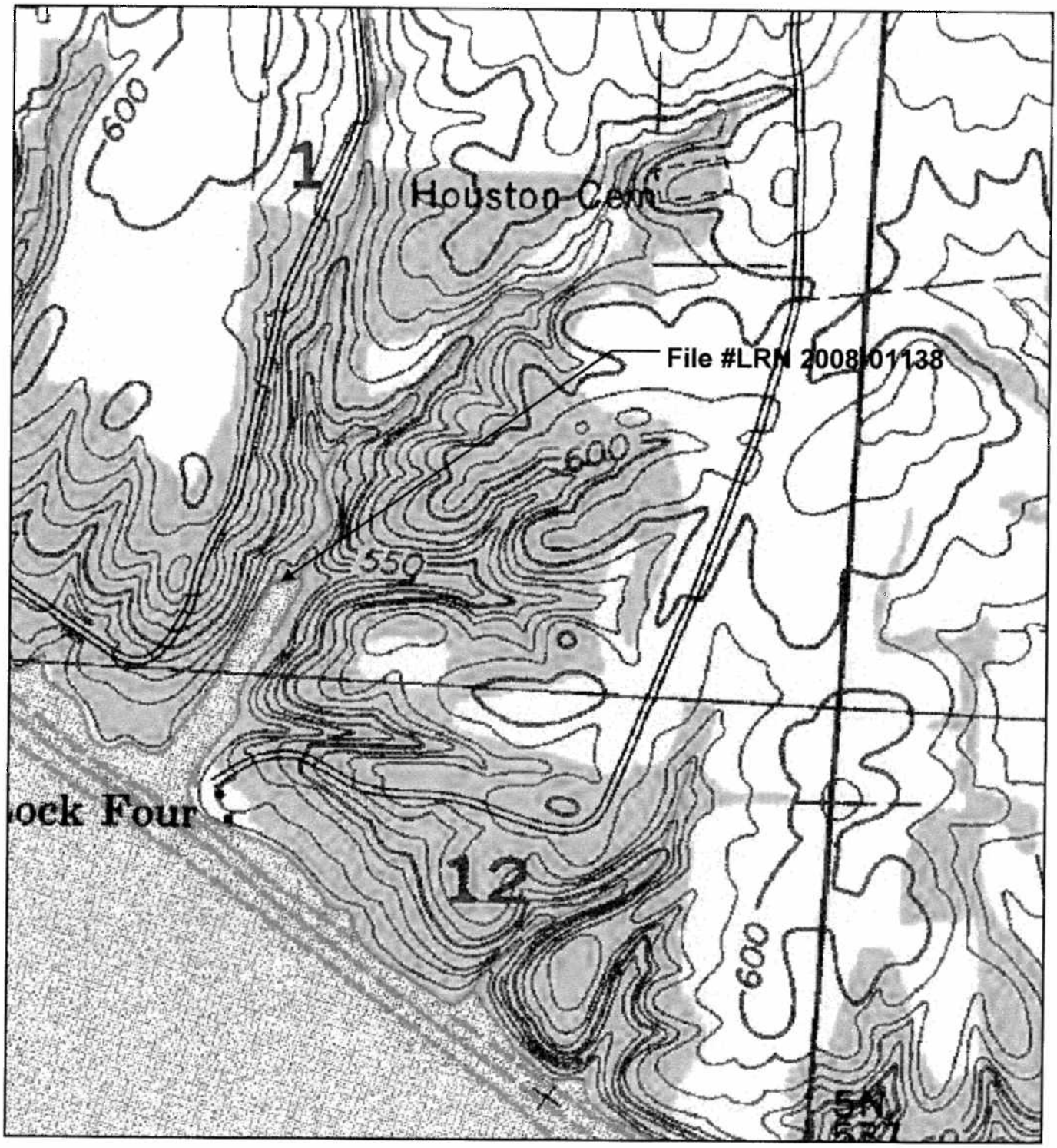
TVA, Muscle Shoals
Samantha Strickland

CELRN-OP-F
Lisa Morris

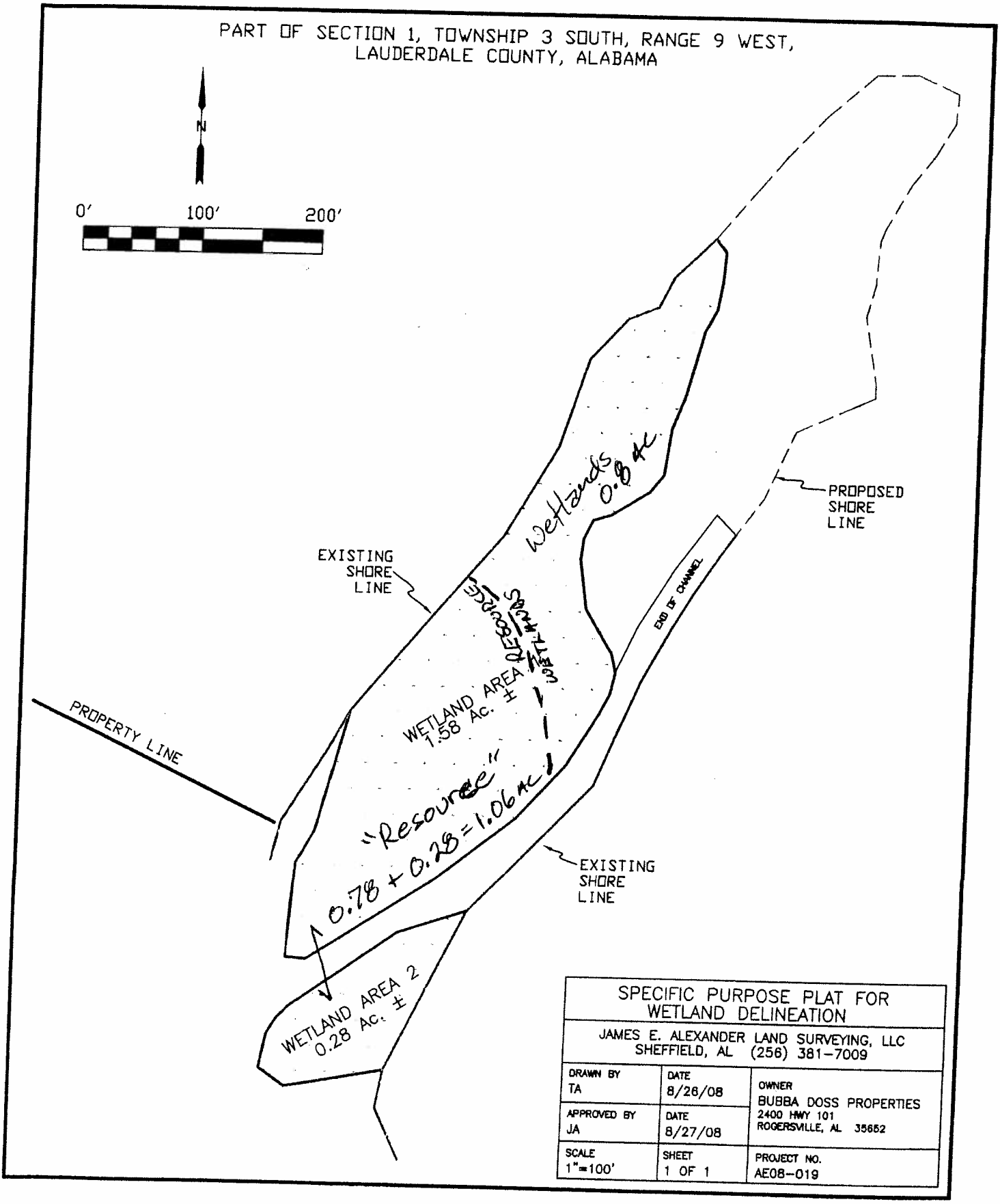
Enclosures

19 SEP 2008

US Army Corps of Engineers
Western Regulatory Field Office
2042 Beltline Road SW
Building C, Suite 415
Decatur, Alabama 35601
(256) 350-5620
(256) 350-5499 fax



PART OF SECTION 1, TOWNSHIP 3 SOUTH, RANGE 9 WEST,
LAUDERDALE COUNTY, ALABAMA



SPECIFIC PURPOSE PLAT FOR WETLAND DELINEATION		
JAMES E. ALEXANDER LAND SURVEYING, LLC SHEFFIELD, AL (256) 381-7009		
DRAWN BY TA	DATE 8/26/08	OWNER BUBBA DOSS PROPERTIES 2400 HWY 101 ROGERSVILLE, AL 35652
APPROVED BY JA	DATE 8/27/08	
SCALE 1"=100'	SHEET 1 OF 1	PROJECT NO. AE08-019

GEO-SOURCE, Inc.

Wetland Delineation

Environmental Services & Project Management

August 18, 2008

David Monroe
U.S. Army Corps of Engineers
2042 Beltline Road SW
Building C, Suite 415
Decatur, Alabama 35601

Re: Wetlands Delineation
Bubba Doss Property
Lauderdale County, Alabama

Dear Mr. Monroe,

This correspondence is to serve as a Wetlands Delineation Report for the referenced property, located in an inlet along the north shore line of the Tennessee River (right descending bank) between Mile 271 and Mile 272. The purpose of the study was to delineate the inland extent of wetlands from the terminus of the slough. A great amount of emergent vegetation has established in the north portion of the slough, apparently on sediment washed from upstream sources, which makes the lake/land interface unclear on aerial photographs. A marshy zone of saturated soil with shrubby vegetation is assumed to demarcate this interface.

The study site is located in the East ½ of the Southwest ¼ of Section 1, T3S, R9W, in Lauderdale County, Alabama as indicated on the Location Map in Appendix 1 of this report. This location was verified through review of a recent boundary survey conducted by Ronnie E. Wiggington, Registered Land Surveyor. The study site is situated in the Tennessee Valley Subunit of the Highland Rim Physiographic Region of Alabama, characterized by fertile, rolling plains on either side of the river corridor. This area is underlain by Mississippian aged carbonate (limestone) geologic formations. Specifically, these carbonate formations consist of the lower stratigraphy of the Tuscumbia Limestone and the upper stratigraphy of the Fort Payne Chert. The Tuscumbia Limestone and Fort Payne Chert are similar formations described as light gray limestones interbedded with secondary chert nodules. The limestone bedrock is subject to the development of sinkholes, cavities and other karst features derived from dissolution in water through joints and fractures which are common in limestone.

The study area is a narrow valley confined by strongly sloping to steep slopes of Bodine cherty silt loam (with limestone bedrock outcrops), which form a stark contrast with the Pruitton soils of the valley floor which are on slopes of 0 to 2 percent with aspect toward the south and the slough (Appendix 1: USDA Soils

115A Helton Court • P.O. Box 3301 • Florence, AL 35630 • Phone: (256) 767-2000 • Fax: (256) 766-7343

Map). An unnamed stream through the valley is indicated as a "blue line stream" on the Wheeler Dam 7.5 Minute Series topographic map (1971). This stream was found dry with a gravelly bed. A small falls exists up the west fork of the stream and was found flowing at the time of the delineation however the overflow immediately drains to a subsurface stream below the falls and does not re-emerge in the course of the stream bed. Vicinity residents indicate that the stream flows through the stream bed during and following heavy rain events, particularly during the late winter and early spring. The entire valley system from a point beginning approximately downstream of the falls is represented by Cowardin et al as wetlands in the National Wetlands Inventory (Appendix 1: NWI Map). This system is indicated as a palustrine, broadleaf hardwood forested wetland with a temporary hydrologic regime. However this study suggests that the stream below the falls is ephemeral, since the normal flow is subsurface. Wetlands occur in a marshy zone between non-wetland soils of the bottomland forest and the slough of Wilson Lake. A narrow lobe of the wetlands extends north for a distance from the slough in a watercourse along the west edge of the valley.

The property on which the study site is situated appears to have remained forested and undeveloped throughout its land use history. The shore lines south of the Property have been developed for residential use on the west side and as a marina for the Muscle Shoals Sailing Club on the east side. A substantial amount of sediment has accumulated in the north end of the slough as is indicated by the amount of emergent vegetation in the slough currently compared with 35 years ago (Appendix 1: Aerial Photographs). The 1973 aerial photograph indicates little to no such vegetation. Some portion of the study area, and which has been delineated as wetlands, appears to have been an open water portion of the slough in the past (Appendix 2: Photograph 1).

Because of the narrowness of the valley, a baseline was not created for the wetlands delineation. Actual plots were established in a more or less south-to-north orientation up the middle of the valley, with lateral plots occurring to the east and west as necessary to determine the location of the wetlands boundary. The sample plots were identified with red flagging tape indicating sample plot number. Each plot was evaluated for hydrophytic vegetation, hydric soil characteristics and wetland hydrology through the "Comprehensive Method" described by the U.S. Army Corps of Engineers (USACE) in their Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. Nine (9) sample plots were established in the valley from a base point located near the interface between the slough of Wilson Lake and the bottomland forest. The sample plot locations were measured from the base point as follows:

Sample Plot	Location
000	15' North of Base Point
000 L	40' East of Sample Point 000
001	60' North of Base Point

001 L	40' East of Sample Point 001
002	120' North of Base Point
003	100' North of Sample Point 002
004	100' North of Sample Point 003
005	100' North of Sample Point 004
005 L	40' West of Sample Point 005

Hydrophytic Vegetation

Hydrophytic vegetation refers to the sum total of macrophytic plant life growing in water or on a substrate that is anaerobic for some duration as a result of excessive water content (Corps of Engineers Wetlands Delineation Manual, 1987). Sample plot vegetation is typically categorized into four types: trees (individuals greater than 3" in diameter at breast height), saplings and shrubs (woody individuals greater than 3.2' in height but less than 3" diameter at breast height), herbaceous vegetation and woody vines. The sample plot radii for the four categories of vegetation are provided below.

Vegetative Type	Plot Size
Trees	30' radius
Saplings/shrubs	10' radius
Herbaceous cover	$(3.28)^2$ quadrant
Woody vines	10' radius

If the total percentage for all species of dominant vegetation equals or exceeds 50% obligate, facultative wetland or facultative species, a positive is indicated for the presence of hydrophytic vegetation.

The vegetation found within the study area consists of a variety of tree, shrub and herbaceous plants indicative of bottomland and marshy sites. The applicant had recently hand-cleared the majority of the shrubs and understory and much of the herbaceous layer, except in the obvious marshy areas (Appendix 2: Photograph 2). The tree species are largely comprised of facultative and facultative wetland species such red maple (*Acer rubrum*), boxelder (*Acer negundo*), yellow-poplar (*Liriodendron tulipifera*), sweetgum (*Liquidambar styraciflua*), sycamore (*Platanus occidentalis*) and elm species (*Ulmus* spp.). The obligate wetland species of black willow (*Salix nigra*) is also represented in the south portion of the site. The cleared understory vegetation had been accumulated in large piles for burning and appears to consist predominantly of privet (*Ligustrum* spp.), an exotic species. Based on the wetlands status of these species, and the absence of substantial understory vegetation, a positive was assumed for wetland vegetation for all plots in this study.

Wetland Hydrology

Wetland hydrology is the sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation (Corps of Engineers Wetlands Delineation Manual, 1987). The hydrology of each sample plot was evaluated on the basis of inundation, soil saturation as well as other indicators such as, but not limited to, drift lines, sediment rings on trees, water marks, subsurface saturation depth, surface drainage patterns, buttressed tree trunks and proximity to creeks and other drainages. These features and indicators are recorded on copies of Data Form 1 in Appendix 3.

A marshy zone exists at the interface between the impounded portion of the slough and the bottomland hardwood forest in the study area (Appendix 2: Photograph 3). Much of the marshy zone is saturated or actually has standing water at the ground surface. Water courses along either edge of the valley extend north from the slough (Appendix 2: Photographs 4 and 5). An impounded portion of a streambed exists along the east edge of the valley and has a distinct bank and bottom, representative of an aquatic system. A watercourse along the west edge of the valley however is shallower with a gradual slope to its deepest point, representative of a wetland. The area of land between these two water courses represents the majority of the study area. Small and subtle drainage channels were observed within many of the sample plots illustrating the flow patterns toward the marshy zone and into the slough. Where these features are most evident, other indicators such as buttresses of tree trunks and woody drift were also observed. These features and indicators are likely the result of small fluctuations in the Wilson Reservoir pool elevation. All of the sample plots exhibited a positive indicator status for wetland hydrology.

Hydric Soils

Hydric soils are defined as those saturated, flooded or ponded for a sufficient duration during the growing season to develop anaerobic conditions favoring growth and regeneration of hydrophytic vegetation. The soil encountered in each plot was characterized by series and phase as well as certain indicators. Soil samples were specifically evaluated for matrix color, mottling and gleyed condition as well as other physical attributes noticed when sampling (i.e., sulfur smell, mineral concretions, etc.). A hydric soil determination was made based on the soil properties encountered and the basis for the determination was documented on copies of Data Form 1, presented in Appendix 3.

The study site is occupied only by the Pruitton (Pr) soil series as indicated on the USDA Soils Map in Appendix 1. Pruitton soils formed in loamy alluvium washed from soils that formed in material weathered mainly from cherty limestone and possibly from loess. These soils are deep and well-drained, mostly found on nearly level (0 to 2 percent) slopes on flood plains. In a representative profile,

Pruitton silt loam is brown silt loam 9 inches thick. The upper part of the subsoil is brown silt loam 17 inches thick. The lower part of the subsoil is dark yellowish-brown silt loam to a depth of 38 inches. The underlying material is brown fine sandy loam to a depth of 45 inches. Below this, to a depth of 52 inches, it is yellowish-brown cherty sandy loam mottled with dark brown and contains about 35 percent chert fragments 1/8 inch to 1 inch in diameter.

Soil pits were dug at each sample location to a total depth of approximately 24 inches. Over the next several hours, many of the pits filled with water to varying degrees. The pit at Sample Point 000 filled completely to the ground surface indicating the soil as saturated whereas the pit at Sample Point 005 did not take on any water (Appendix 2: Photographs 6 and 7). Other soil pits yielded water to depths of between 9 and 26 inches below ground surface. As the pits were being dug, excavated soil and pit walls were examined for hydric soil indicators such as strong mottling, gley, reduction spots, mineral streaking, etc. Where strong evidence of such indicators was noticed within the top 16" of the soil profile, a positive indicator for hydric soils was given.

Wetlands Determination

Wetlands associated with the study area were identified and delineated in the valley portion of the subject property. These wetlands generally occur as a marshy zone marking the interface between the bottomland forest of the valley and the open water of a slough on Wilson Lake. A walkable portion of the wetland area was measured with a tracking GPS and found to contain 0.35 acre. Because a portion of the wetlands are inundated and thickly overgrown, it is estimated that the entire wetland complex contains approximately 0.5 acres. The inland boundary of these wetlands is marked with pink pin flags emboldened with the words "Wetland Delineation" (Appendix 2: Photograph 8).

A stream corridor that exists through the valley is inundated by Wilson Lake for a short distance inland. The stream appears to be ephemeral above this elevation to a small falls that exist along the west fork of the stream. The falls may be intermittent or perennial, as suggested by the blue line on the topographic map, however the discharge drains underground at the splash pool. No flow occurs in the surface portion of the stream reach between the falls and the lowest portion of the stream which is impounded by Wilson Lake.

A representation of the wetland area is presented on the Wetlands Delineation Map in Appendix 1. It should be noted that quantifications of wetland area acreage, as well as the mapped illustration, in this report are estimates only. A boundary survey of the wetland areas should be performed by a Registered Professional Land Surveyor in order to obtain accurate acreages and lengths.

Should you have any questions pertaining to this report, please feel free to contact me at 256/767-2000.

Sincerely,

Brad Dethero, RF (AL No. 2047)

Enclosure

Cc: Bubba Doss / Bubba's Marine Construction
Tennessee Valley Authority

APPENDIX 1

Location Map

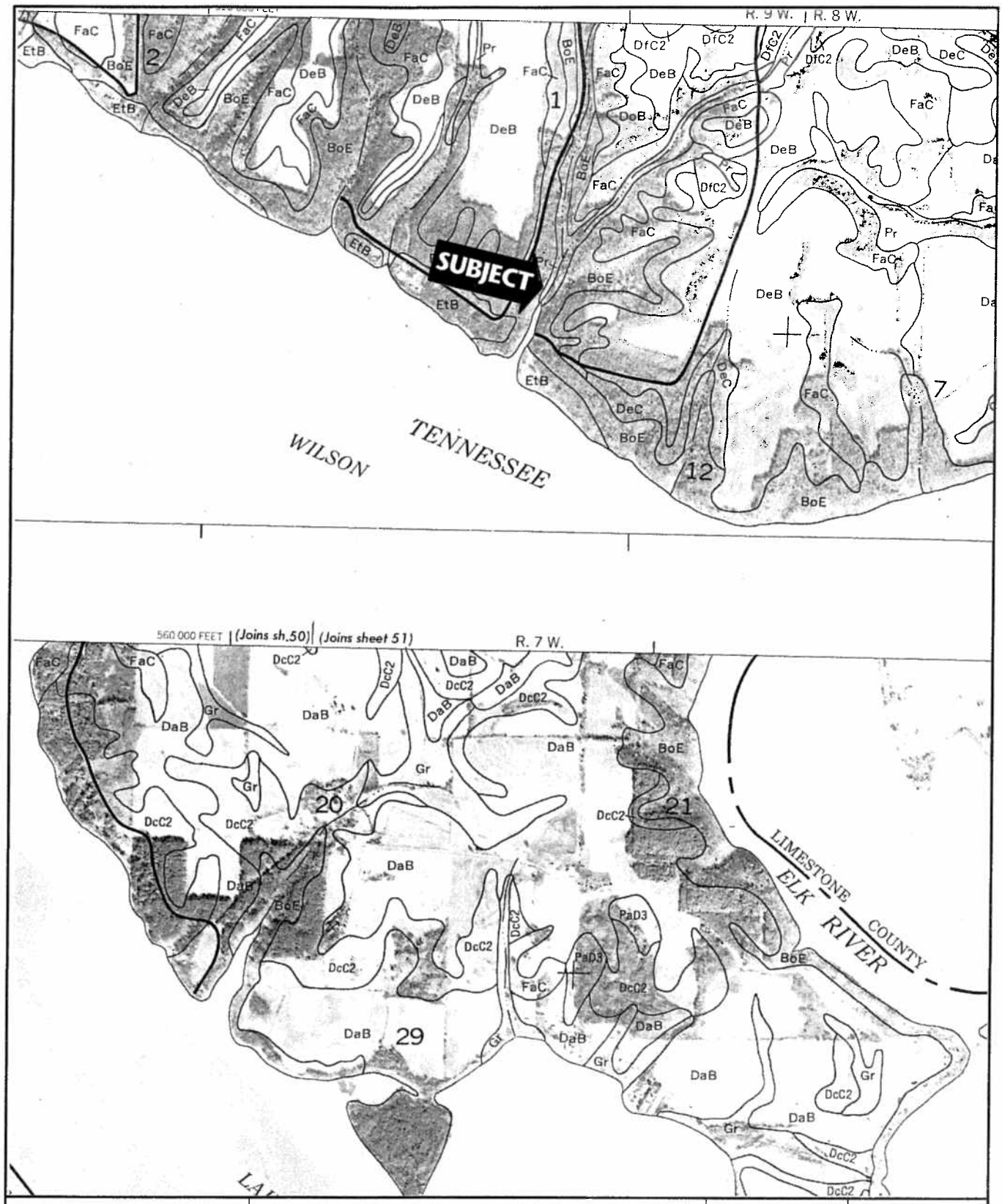
NWI Map

USDA Soils Map

Aerial Photograph (Recent)

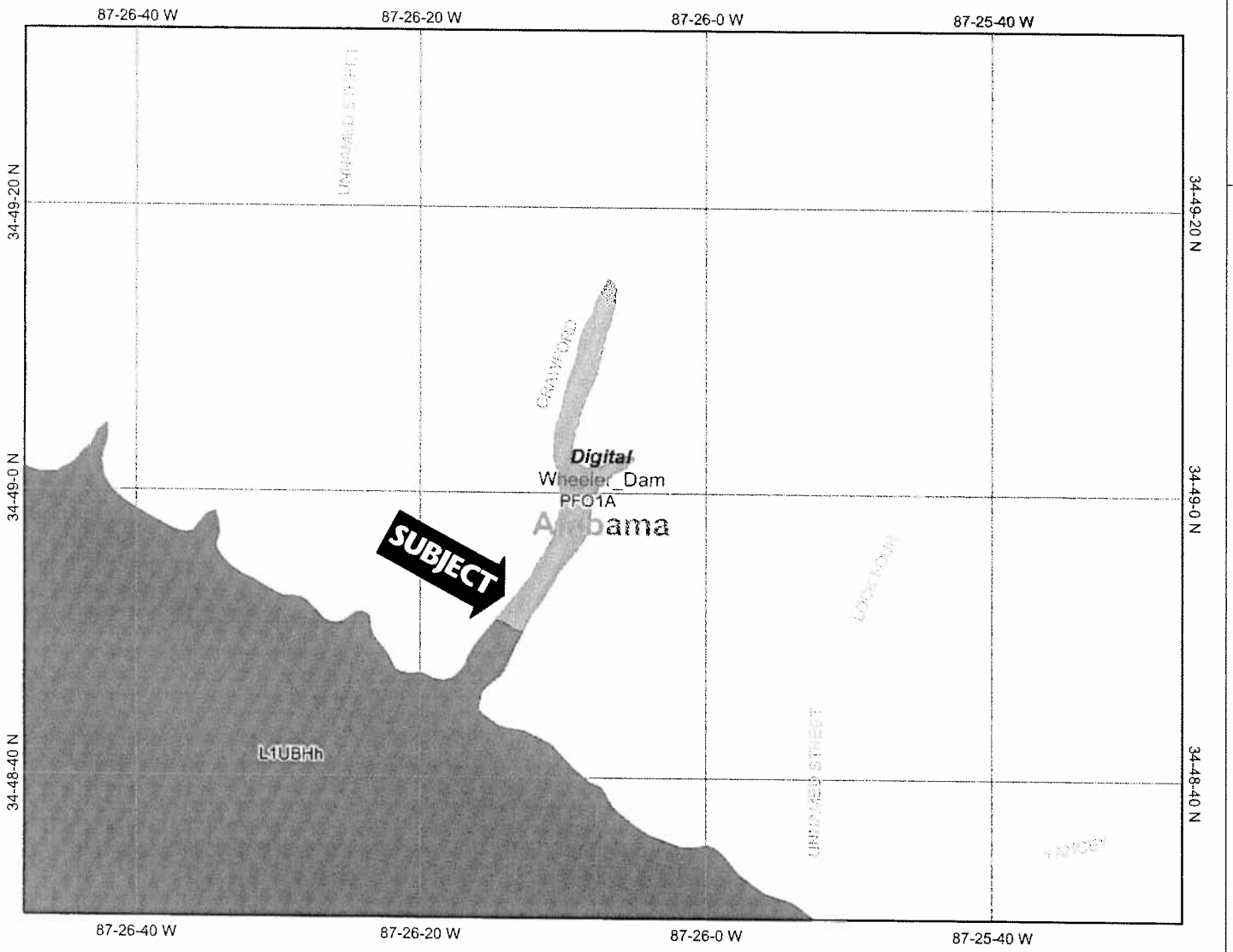
Aerial Photograph (1973)

Wetlands Delineation Map



GEO-SOURCE, Inc. Environmental Consultants 462 N. Court Street Florence, Alabama 35630 Phone (256)767-2000	USDA SOILS MAP (Sheet 49) Bubba Doss Property Section 1, T3S, R9W Lauderdale County, Alabama	Drawn by: N/A Project No.: 08-38	Scale: 1:20,000 Date: August 2008

NWI Map



Map center: 34° 49' 1" N, 87° 26' 7" W

Legend

Ohio_wet_scan

- 0
- 1
- Out of range

Interstate

Major Roads

Other Road

- Interstate
- State highway
- US highway

Roads

Cities

USGS Quad Index 24K

Lower 48 Wetland Polygons

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Lower 48 Available Wetland Data

- Non-Digital
- Digital
- No Data
- Scan

NHD Streams

Counties 100K

States 100K

South America

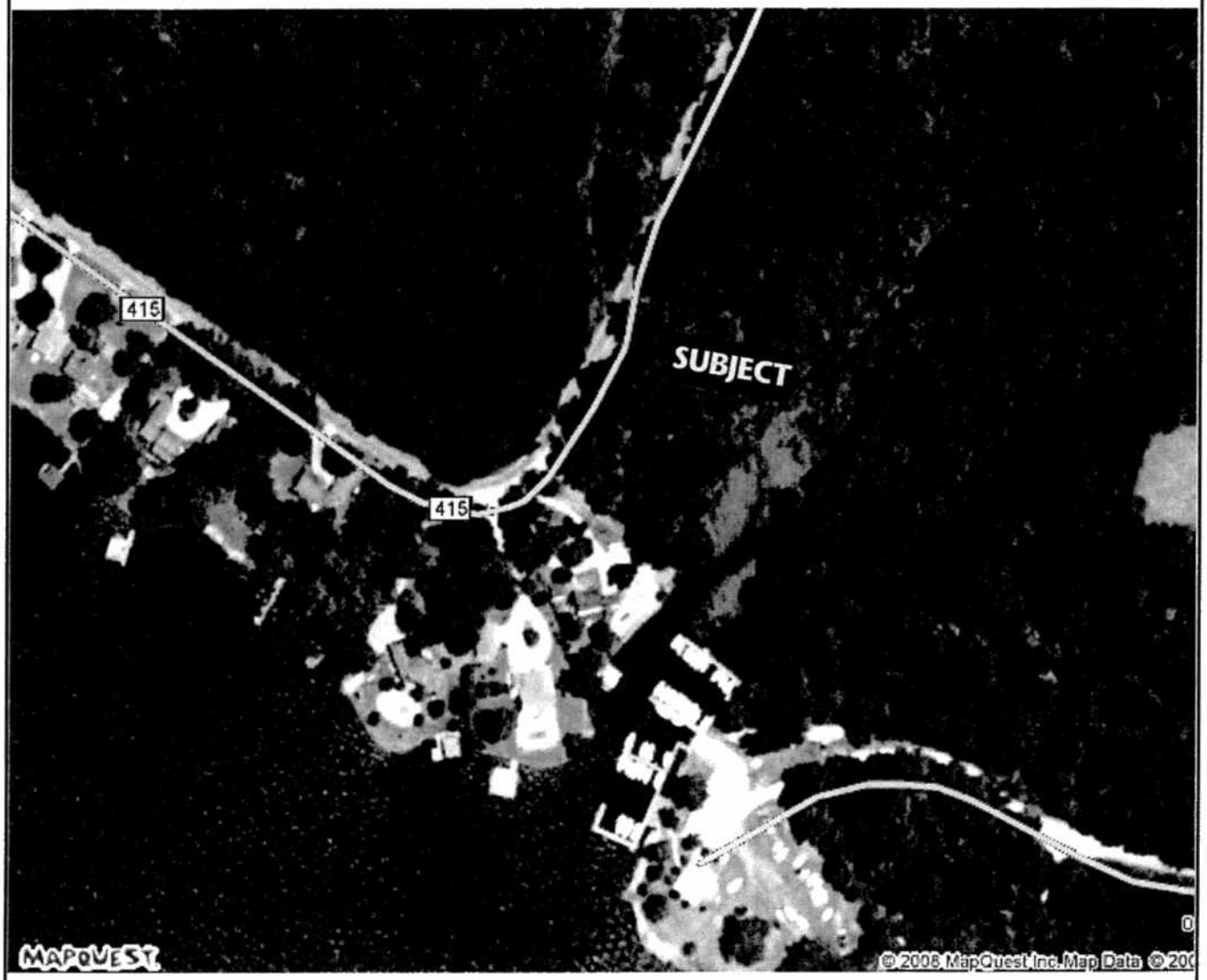
North America

N

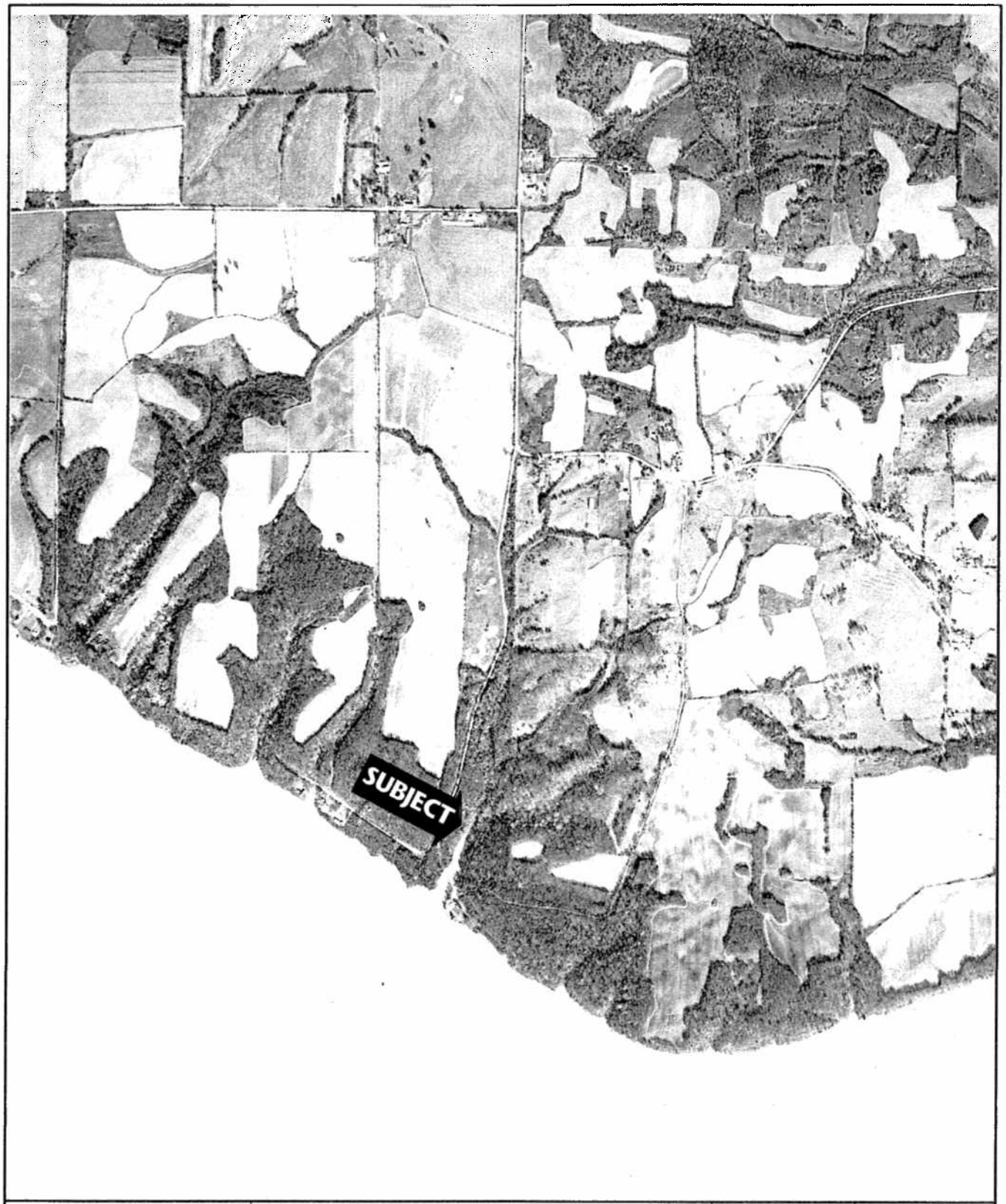
Scale: 1:13,498

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Notes: Map illustrating location of proposed subdivision for Bubba Doss.



GEO-SOURCE, Inc. *Environmental Consultants* 462 N. Court Street Florence, Alabama 35630 Phone (256)767-2000	AERIAL PHOTOGRAPH (Recent) Bubba Doss Property Section 1, T3S, R9W Lauderdale County, Alabama	Drawn by: N/A Project No.: 08-38	Scale: Unknown Date: August 2008



GEO-SOURCE, Inc. *Environmental Consultants* 462 N. Court Street Florence, Alabama 35630 Phone (256)767-2000	AERIAL PHOTOGRAPH (1973) Bubba Doss Property Section 1, T3S, R9W Lauderdale County, Alabama	Drawn by: N/A Project No.: 08-38	Scale: 1:20,000 Date: August 2008

APPENDIX 2

Representative Photographs

TVA PHOTOS

Photograph 1: Sedimentation of the slough has resulted in emergent vegetation taking place of the open water.

Photograph 2: A view north across north end of study area.

Photograph 3: A view across the marshy area near the edge of the slough.

Photograph 4: The confined stream at the east edge of the valley.

Photograph 5: A wetland drainage at the west edge of the valley.

Photograph 6: The pit dug at Sample Point 000 filled completely with water.

APPENDIX 3

Sample Plot Data Forms

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 000 Section: 1
Latitude: 34° 48.893' Longitude: -87° 26.204' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-wet On Hydric Soils List? Yes ___ No X Mottled: Yes X No ___ Mottle Color: Black, reddish-brown, gray
Matrix Color: 10YR 4/3 Gleyed: Yes X No ___ Other Indicators: Iron Streaking
Hydric soils: Yes X No ___ Basis: mottling beneath thin organic layer

Hydrology

Inundated: Yes ___ No X Depth of standing water: At surface Saturated soils: Yes X No ___
Depth to saturated soil: <1" Other indicators: Standing water near pit
Wetland hydrology: Yes X No ___ Basis: Saturated soil, inundated areas w/i plot

Atypical situation: Yes _____ No X
Normal Circumstances: Yes _____ No X : understory vegetation cleared by hand

Wetland Determination: Wetland X Nonwetland _____

Comments:

At marshy point between bottomland and lake/slough.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 000 L Section: 1
Latitude: 34° 48.895' Longitude: -87° 26.196' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes X No ___ Mottle Color: Black, reddish-brown, gray
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: Minerals
Hydric soils: Yes X No ___ Basis: strong mottling @ 9" depth

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes ___ No X
Depth to saturated soil: 9" Other indicators: Shallow drainage features
Wetland hydrology: Yes X No ___ Basis: Indicators

Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland X Nonwetland ___

Comments:

Near bank of stream along east side of valley. Area appears to be on upper end of transition zone to wetlands.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 001 Section: 1
Latitude: 34° 48.893' Longitude: -87° 26.195' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes X No ___ Mottle Color: Slight
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: Mineral streaking
Hydric soils: Yes X No ___ Basis: Indicators

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes___ No X
Depth to saturated soil: 12' Other indicators: Bare/saturated soil in plot, drainage features
Wetland hydrology: Yes X No ___ Basis: Indicators

Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland X Nonwetland ___

Comments:

Appears to be in transition zone from upland to marshy area.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 001 L Section: 1
Latitude: 34° 48.895' Longitude: -87° 26.196' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes X No ___ Mottle Color: Gray, black, reddish-brown
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: None
Hydric soils: Yes ___ No X Basis: Mottling occurs >16"

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes ___ No X
Depth to saturated soil: 13" Other indicators: Drainage features; 15' from stream bank
Wetland hydrology: Yes X No ___ Basis: Drainage features

Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland ___ Nonwetland X

Comments:

Appears to be upslope of the transition zone to wetlands. Soil is consistent brown to 16".

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 002 Section: 1
Latitude: 34° 48.906' Longitude: -87° 26.189' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes X No ___ Mottle Color: Gray, black, reddish-brown
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: Mineral concretions at depth
Hydric soils: Yes ___ No X Basis: Mottling occurs >16"

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes ___ No X
Depth to saturated soil: 14" Other indicators: Drainage features, buttressed trunks
Wetland hydrology: Yes X No ___ Basis: Indicators

Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland ___ Nonwetland X

Comments:

Appears to be within an upland lobe adjacent to wetland areas (westward). Soil typical of description for Pruitton.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 003 Section: 1
Latitude: 34° 48.924' Longitude: -87° 26.180' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes X No ___ Mottle Color: Reddish-brown
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: None
Hydric soils: Yes ___ No X Basis: Mottling is >16"

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes ___ No X
Depth to saturated soil: 18" Other indicators: Drainage features, trees buttressed (slight)
Wetland hydrology: Yes X No ___ Basis: Indicators

Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland ___ Nonwetland X

Comments:

Upland site - soil is constant brown & not reduced to 16", well below rooting zone.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 004 Section: 1
Latitude: 34° 48.933' Longitude: -87° 26.169' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes __ No X Mottle Color: N/A
Matrix Color: 10YR 4/3 Gleyed: Yes ____ No X Other Indicators: None
Hydric soils: Yes __ No X Basis: Lack of indicators

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes___ No X
Depth to saturated soil: 26" Other indicators: Slight drainage features
Wetland hydrology: Yes ___ No X Basis: Lack of significant features

Atypical situation: Yes ____ No X
Normal Circumstances: Yes ____ No X : understory vegetation cleared by hand

Wetland Determination: Wetland _____ Nonwetland X

Comments:

Soil grades from brown to yellowish brown sandy clay loam.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 005 Section: 1
Latitude: 34° 48.946' Longitude: -87° 26.167' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes ___ No X Mottle Color: N/A
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: None
Hydric soils: Yes ___ No X Basis: Lack of indicators

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes ___ No X
Depth to saturated soil: >28" Other indicators: Surface drainage features
Wetland hydrology: Yes X No ___ Basis: Drainage features; proximity to water courses

Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland ___ Nonwetland X

Comments:

Greater amount of stream gravel & cobble stones in this area - well drained, dry wash-looking streams on either side of upland site.

Determined by: JBD

DATA FORM 1

WETLAND DETERMINATION

Applicant Name: DOSS Application Number: TBD Project Name: Doss Property
State: AL County: Lauderdale Legal Description: Township: 3S
Date: 8/14/2008 Plot No.: 005 L Section: 1
Latitude: 34° 48.950' Longitude: -87° 26.169' Range: 9W

Vegetation (list the three dominant species in each vegetation layer (5 if only 1 or 2 layers). Indicate species with observed morphological or known physiological adaptations with an asterisk.

Trees - Species	Indicator Status	Herbs - Species	Indicator Status
1.		7.	
2.		8.	
3.		9.	
Saplings/shrubs - Species		Woody vines - Species	
1		10.	
5.		11.	
6.		12.	

% of species that are OBL, FACW, and/or FAC: 100% (w/exotics) Other Indicators: _____
Hydrophytic vegetation: Yes X No ___ Basis: _____

Soil

Series and phase: Pruitton-dry On Hydric Soils List? Yes ___ No X Mottled: Yes __ No X Mottle Color: N/A
Matrix Color: 10YR 4/3 Gleyed: Yes ___ No X Other Indicators: None
Hydric soils: Yes __ No X Basis: Lack of indicators

Hydrology

Inundated: Yes ___ No X Depth of standing water: N/A Saturated soils: Yes___ No X
Depth to saturated soil: 20" Other indicators: In drainage channel
Wetland hydrology: Yes X No ___ Basis: Drainage feature

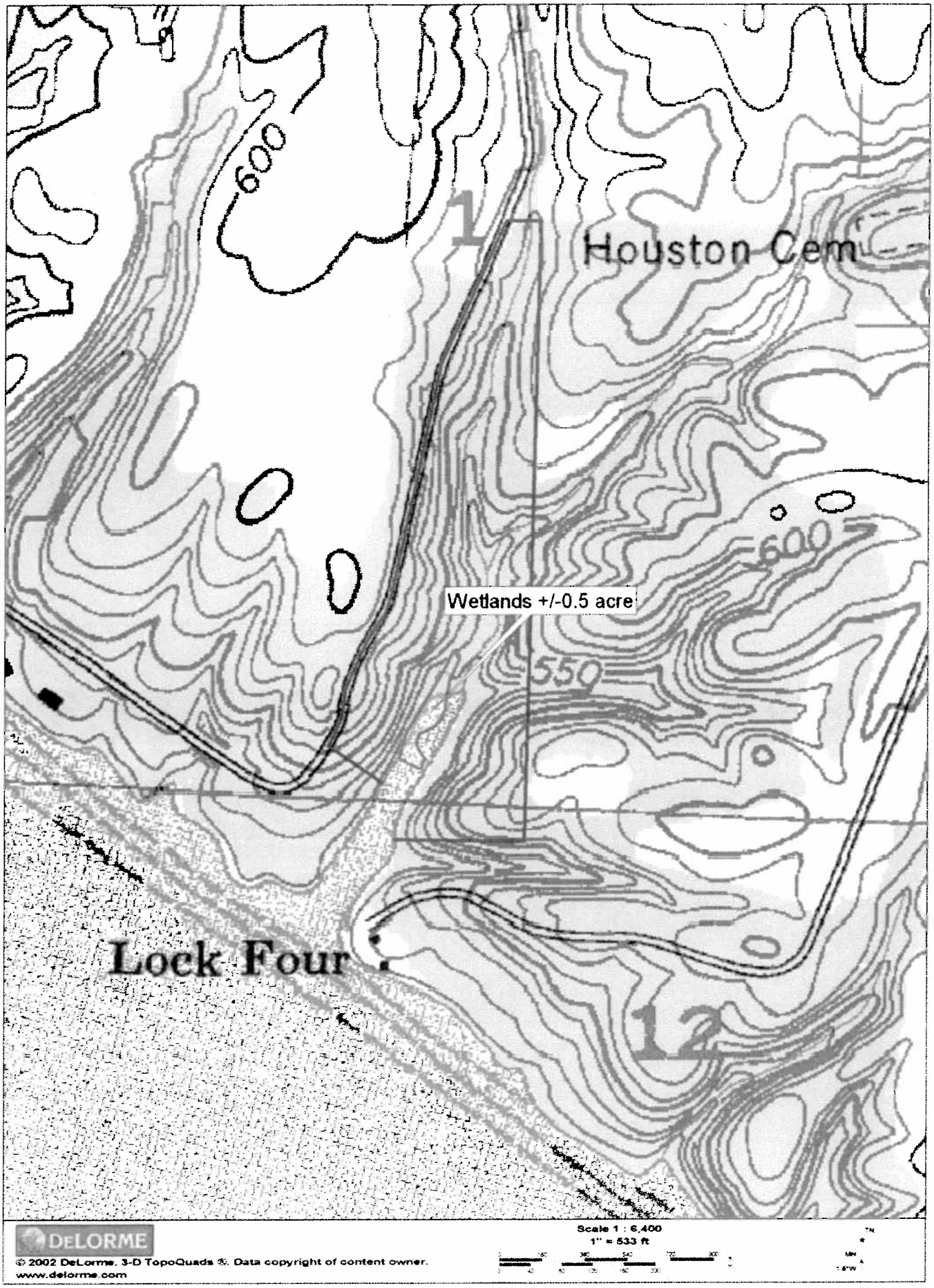
Atypical situation: Yes ___ No X
Normal Circumstances: Yes ___ No X : understory vegetation cleared by hand

Wetland Determination: Wetland ___ Nonwetland X

Comments:

Plot center is in middle of dry wash just upstream of terminus of marshy portion. Soil is not reduced at all.

Determined by: JBD


600
1
Houston Cem
600
Wetlands +/-0.5 acre
550
Lock Four
12
DELORME
Scale 1 : 6,400
1" = 533 ft
© 2002 DeLorme. 3-D TopoQuads ®. Data copyright of content owner.
www.delorme.com