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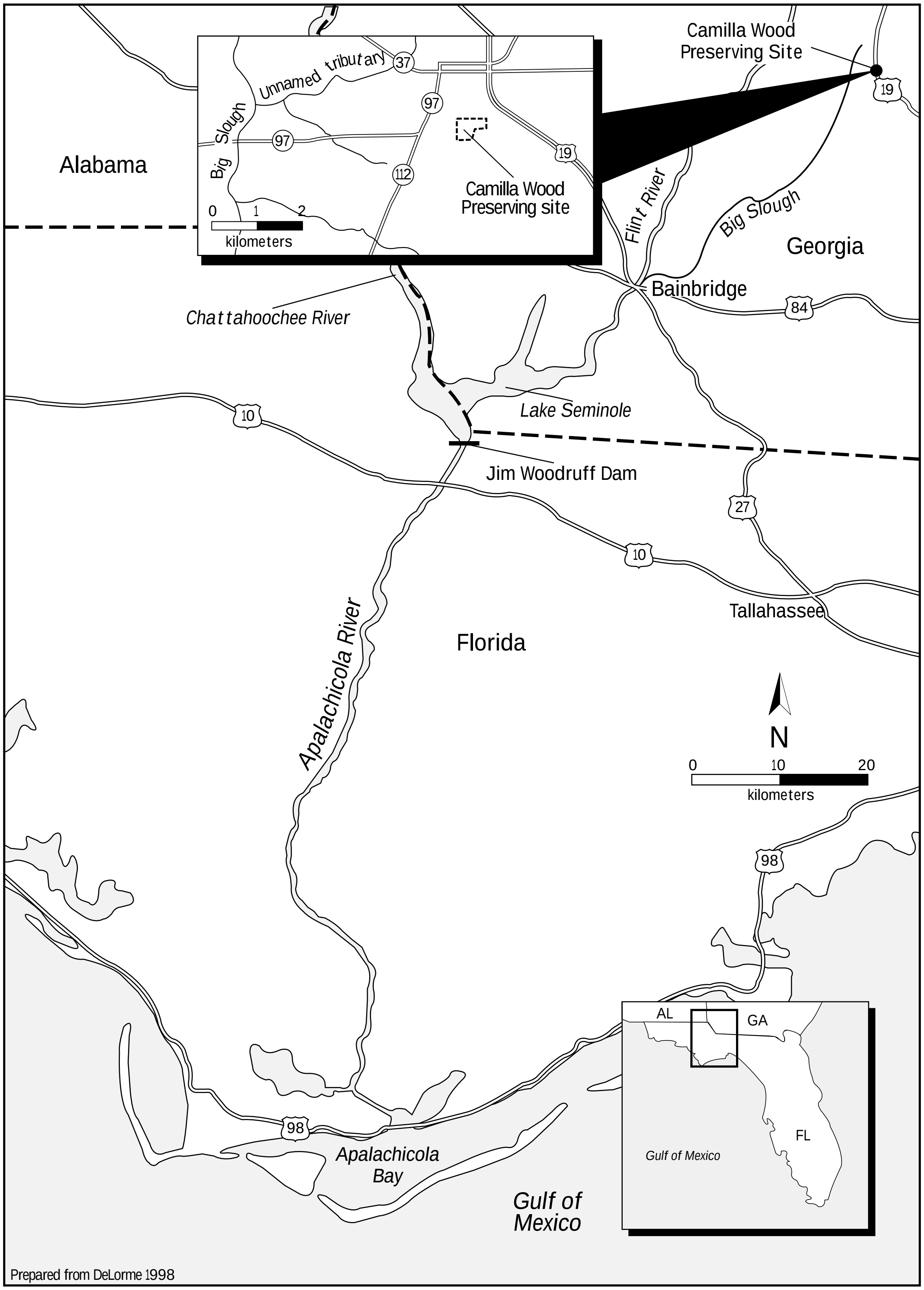
# Camilla Wood Preserving

Camilla, Georgia
CERCLIS #GAD008212409

## Site Exposure Potential

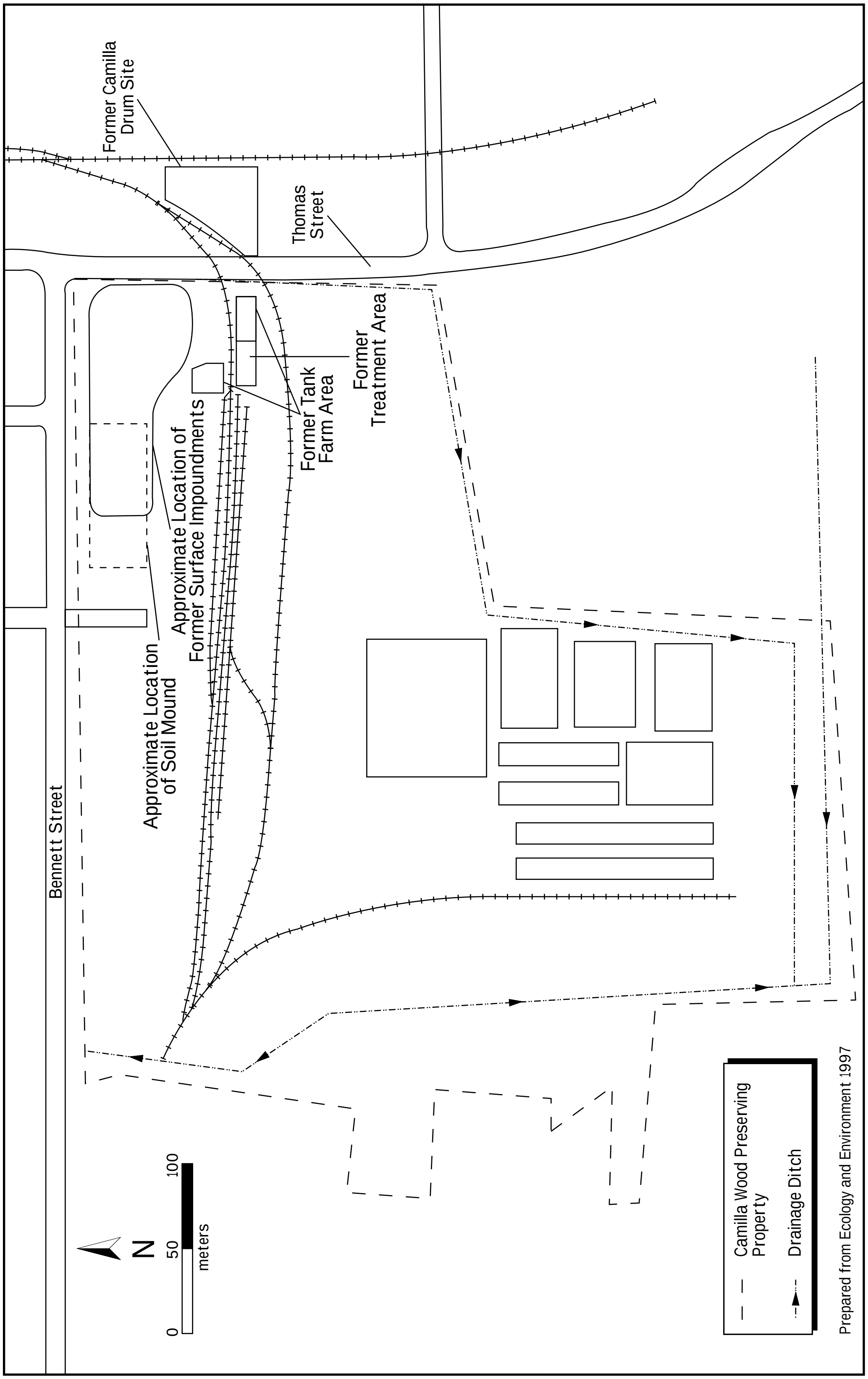
The Camilla Wood Preserving facility is located within the Flint River basin, in Camilla, Mitchell County, Georgia (Ecology and Environment 1997). The 20-hectare site is a filled cedar swamp, about 2 km from a tributary of Big Slough, which flows south approximately 45 km to the Flint River (EPA 1998). The Flint River joins the Chattahoochee River to form the Apalachicola River, which flows south to Apalachicola Bay on the Gulf of Mexico (Figure 1).

The Camilla Wood Preserving facility treated wood with creosote or PCP from 1947 until operations ceased in 1991. Creosote was the only preservative used from the start of operations until the 1970s, when a second treatment process using ten-percent PCP in diesel fuel was added. The facility now consists of filled surface impoundments, a soil mound, a former tank farm, and a former treatment area. Immediately east of the wood preserving facility is the former Camilla Drum Site, which produced PCP and transferred the wood preservative to the wood treatment facility via an underground pipeline (Ecology and Environment 1997; Figure 2). The evaluation of contamination at the Camilla Wood Preserving facility includes the Camilla Drum property.



Prepared from DeLorme 1998

Figure 1. The Camilla Wood Preserving site and the Flint River Basin.



Prepared from Ecology and Environment 1997

Figure 2. The Camilla Wood Preserving site in Camilla, Georgia.

Wastewater from steam treating of wood products, preservative recovery, and cleaning of drums, tanks, and storage areas was discharged to five surface impoundments located on the northeastern portion of the property during early operations. At a later, unspecified time, an on-site treatment system processed waste streams before discharging them to the City's wastewater treatment plant. In the 1960s, on-site drainage and some wastewater were discharged to two on-site injection wells, which are believed to be connected to the upper Floridan aquifer. The upper Floridan aquifer is a deep aquifer, below both the water table aquifer and the carbonate aquifer. These wells reportedly were sealed in 1971, but their exact location is unknown (Ecology and Environment 1997).

There have been several mitigation actions at the site. In 1982, stained soils from four of the surface impoundments were excavated and transferred to the fifth surface impoundment, the 620,000-L evaporation pond. The four remediated impoundments were backfilled. As a result, the exact size and location of these former impoundments is uncertain (State of Georgia 1996). In 1991 and 1992, the site perimeter was fenced, and 360,000 L of wastewater were treated on-site. Mitigation actions were then interrupted because of a lapse in funding (EPA 1998).

In 1994, nearly 2 million L of standing water were treated on-site and then directed to the evaporation pond. In addition, four drums of arsenic-containing waste, approximately 3,800 $m^3$ of contaminated soil, and 116,000 L of PCP and creosote from on-site storage tanks were shipped off-site for disposal. In October 1994, EPA collected dioxin samples from adjacent properties, and subsequently removed approximately 175,000 $m^3$ of soil (EPA 1998).

Potential contaminant transport pathways to NOAA trust resources are erosion and stormwater runoff to small, unnamed tributaries of Big Slough, and subsurface migration of groundwater and non-aqueous phase liquid (NAPL; Figure 1). The shallow groundwater aquifer is encountered within 2 meters bgs and flows westerly toward Big Slough. The deeper Upper Carbonate Aquifer is encountered about 18 m bgs and flows to the southwest. Drainage ditches on the southern and western perimeter of the site do not appear to discharge directly to tributaries of Big Slough (Figure 2; Ecology and Environment 1997).

The Camilla Wood preserving site was proposed for listing on EPA's National Priorities List on March 6, 1998 (63 FR 11340). A Site Assessment Report was completed in July 1997 (Ecology and Environment 1997).

## NOAA Trust Habitats and Species

The NOAA trust habitat of concern near the site is Big Slough, a small, slow-flowing tributary of the Flint River. The low-gradient stream is generally less than 10 m wide and 0.5 to 3 m deep. Sediments are generally fine sands to silts (Partridge, personal communication, 1998).

The catadromous American eel is the only trust species that has been observed in Big Slough near the site. The species is found throughout the Flint River basin.

Striped bass have access to the slough and may occupy the lower reaches, but the species has not been documented near the site. There are striped bass in the Flint River, which runs parallel to Big Slough for most of its length (Figure 1; Partridge personal communication 1998).

There is neither recreational nor commercial fishing near the site, but there is recreational fishing on the lower slough near the confluence with the Flint River. There are no health advisories on the slough (Partridge personal communication 1998).

## Site Related Contamination

Data collected during field investigations indicate that soils and groundwater on the site contain highly elevated concentrations of numerous PAHs associated with creosote, including naphthalene, phenanthrene, anthracene, fluoranthene, and pyrene (Ecology and Environment 1997). Other SVOCs such as PCP, dibenzofuran, and methyl-phenols also were observed at highly elevated concentrations. These complex organic substances and dioxins are the contaminants of concern to NOAA. In many source areas, soils are saturated with PAHs and contamination extends to over 10 m bgs. High PAH concentrations have also been observed in groundwater (Table 1).

PAHs have been detected in soils between the surface and 9 m bgs in an area that extends from the northern perimeter of the site along Bennett Street to the south-central corner near the former treatment area. Concentrations of individual PAHs within this area consistently exceed screening guidelines. Several individual PAH compounds had soil maxima above 1,000 mg/kg. Below 9 m, concentrations generally decreased to less than 1 mg/kg; except just north of the former Tank Farm Area, where percent-level concentrations (>10,000 mg/kg) were observed at 11 m bgs. This sample was collected in saturated soils containing dense non-aqueous phase liquid (DNAPL). Detectable concentrations of PAHs have been observed as deep as 17 m bgs. A similar areal and vertical distribution was observed for PCP and dibenzofuran.

PAHs were observed in over 90 percent of monitoring wells sampled during the Site Assessment (Ecology and Environment 1997). The highest concentrations were observed in the shallow aquifer on the northern and eastern portions of the site. Naphthalene consistently exceeded 10,000 mg/L while phenanthrene, pyrene, and fluoranthene consistently exceeded 1,000 mg/L. Naphthalene and phenanthrene exceeded AWQC by over an order of magnitude.

PAHs also were observed in the Upper Carbonate aquifer.

PCP was observed in over 90 percent of monitoring wells sampled. The maximum reported concentration was 19,000 mg/L. The distribution of PCP in groundwater was similar to the PAHs; however, high concentrations (up to 3,600 mg/L) also were observed beneath the former Camilla Drum portion of the site. Concentrations of PCP in the Upper Carbonate consistently exceeded screening guidelines by over an order of magnitude.

The extent of contaminated groundwater and DNAPL movement off the site, and the potential for discharge to Big Slough, have not been investigated. Surface water and sediment investigations in Big Slough have not been conducted in association with the site.

## Summary

The Camilla Wood Preserving site is a former wood treating facility that used creosote and PCP from 1947 to 1991. Despite previous remedial actions, soils and groundwater at the site are highly contaminated with PAHs, PCP, and other phenols. Subsurface concentrations of PAHs and phenols indicate the presence of DNAPL contaminants. Chlorinated dioxins also may be present in site soils and NAPL. Groundwater concentrations of numerous individual PAHs, methyl-phenols, and PCP exceed ecological screening guidelines. Groundwater flow is toward a tributary of Big Slough, a NOAA trust habitat that supports populations of American eel and downstream populations of striped bass. Surface water and sediment in Big Slough have not been sampled.

Table 1. Maximum concentrations of contaminants of concern in groundwater and soils at the site (State of Georgia 1996; Ecology & Environment 1997).

| | Groundwater (µg/L) | AWQC[a] (µg/L) | Site Soils (mg/kg) | Soil Guideline (mg/kg) |
|---|---|---|---|---|
| PAHs | | | | |
| Acenaphthylene | 380 | NA | ND | NA |
| Acenaphthene | 3,500 | 520 [b] | 4,800 | NA |
| Anthracene | 1,500 | NA | 2,900 | NA |
| Benz(a)anthracene | 1,000 | NA | 1,400 | NA |
| Chrysene | 820 | NA | 1,400 | NA |
| Fluoranthene | 3,900 | 3,980 [c] | 7,100 | NA |
| Fluorene | 3,600 | NA | 5,100 | NA |
| 2-Methylnaphthalene | 3,100 | NA | 4,300 | NA |
| Naphthalene | 15,000 | 620 [b] | 12,000 | NA |
| Phenanthrene | 8,900 | 6.3 [d] | 11,000 | NA |
| Pyrene | 4,500 | NA | 3,800 | NA |
| Phenolic Compounds | | | | |
| 2,4-Dimethylphenol | 11,000 | 2,120 [c] | 2.7 | 1.0 [f] |
| 2-Methylphenol | 8,000 | NA | 1.1 | 1.0 [f] |
| 4-Methylphenol | 28,00 | NA | 4.2 | 1.0 [f] |
| Pentachlorophenol | 19,000 | 13 [e] | 9,900 | 0.035 [g] |

a: Ambient water quality criteria for the protection of aquatic organisms. Freshwater chronic criteria presented (EPA 1993).
b: Data are not sufficient to establish criteria, concentrations shown above are the lowest observed effect level for chronic toxicity (EPA 1993).
c: Data are not sufficient to establish criteria, concentrations shown above are the lowest observed effect level for acute toxicity (EPA 1993).
d: Proposed ambient water quality chronic criterion (EPA 1993).
e: Chronic criterion is pH-dependent; concentration shown above corresponds to pH of 7.8.
f: Remediation standard for recreational/residential use in British Columbia.
g: Remediation standard to protect adjacent aquatic habitat in British Columbia.

NA: Screening guidelines not available.

## References

British Columbia Regulation 375 / 96, Contaminated Sites Regulation. June 13, 1997.

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