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A Survey-Level Report of the Birds Point-New Madrid Floodway
Riverside Access Lanes, Near the Tom Bird Blue Hole and
Outlet Crevasse #2, New Madrid and Mississippi Counties, Missouri--
A Negative Finding

U.S. Army Corps of Engineers
Memphis District

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Staff Archeologist

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Abstract

On 9 July and 16 July 1985, intensive cultural resources surveys were conducted by the Environmental Analysis Branch of the U.S. Army Corps of Engineers, Memphis District over approximately 3 acres. The project is located near the Tom Bird Blue Hole, Township 27N, Range 18E, Section 29 NE 1/4, Mississippi County, and Inflow/Outflow Crevasse #2, Township 22N, Range 15E, Section 6 NW 1/4 New Madrid County, Missouri. The proposed project includes cutting trees riverside of the levee in order to form access lanes for flat bottomed boats to enter during floods. A records and literature search indicated one site 23NM234, near the outlet crevasse location. This site is riverside of the levee near an access lane, but not in the project right-of-way. Also, two sites, UR1 and 23MI136, are adjacent to Tom Bird Blue Hole but are landside of the levee, thus not in the project right-of-way.

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INTRODUCTION

An intensive cultural resources survey was conducted by Doug Prescott and Don Martin on 9 July, and Jimmy McNeil and Doug Prescott on 16 July 1985. The total area surveyed included approximately 3 acres. The survey consisted of visual inspection of proposed barge access lanes to the levee. The pedestrian survey and literature search of these areas was in accordance with requirements outlined in the National Historic Preservation Act of 1966 (Public Law 89-665) and the National Environmental Policy Act of 1969 (Public Law 91-190).

STUDY AREA AND PROJECT DESCRIPTION

The project is located near the Tom Bird Blue Hole in Township 27N, Range 18E, Section 29NE1/4, Mississippi County, Wickliffe, KY-MO-IL, topographic map. The access lanes will be at each end of the blue hole where the levee makes its bend (Figures 1 and 2). Here existing trees will be removed from along the levee side. The right-of-way extends 33.53 meters (110 feet) from the riverside levee crown.

The second area is near the Inflow/Outflow Crevasse #2, Township 22N, Range 15E, Section 6 NW1/4, New Madrid County, Bayouville, MO quadrangle map. An access lane 33.53 meters (110 feet) wide will be cut through the trees to allow barges to reach the levee. Then trees within 33.53 meters of the riverside levee crown and parallel to the levee will be cut (Figures 3 and 4).

The purpose of the project is to remove trees from access areas so flat bottomed boats/barges can reach the levee during major flood periods. In order for explosives to be loaded, or detonated, for operation of the New Madrid Floodway, flat bottomed boats must be able to reach the levee. Thus, trees must be removed from the proposed access lanes. However, the access lanes have been designed so they pass over cleared fields everywhere except near the levee, thus requiring a minimum of tree removal. The exposed ground surfaces will not be affected by prop-wash as the lanes will not be operated until there is at least 15 feet (4.57 meters) of water over the land surface.

ENVIRONMENTAL SETTING

GEOLOGY AND PHYSIOGRAPHY

The Birds Point-New Madrid Floodway area is situated in the braided relict alluvium deposited by the Mississippi-Ohio River complex. The area consists of predominately all the low land lying between the Sikeston Ridge (a ridge extending southward to New Madrid) on the west and the Mississippi River on the east and south. There is a gradual change from the low country on the east to a series of low, sandy ridges with swampy sloughs between them. These low ridges are in reality fingerlike tongues of sand which stretch southward and have survived previous stream erosion. These are found only in the western portion of the lowland (Figure 5).

WICKLIFE QUADRANGLE
KENTUCKY - MISSOURI - ILLINOIS

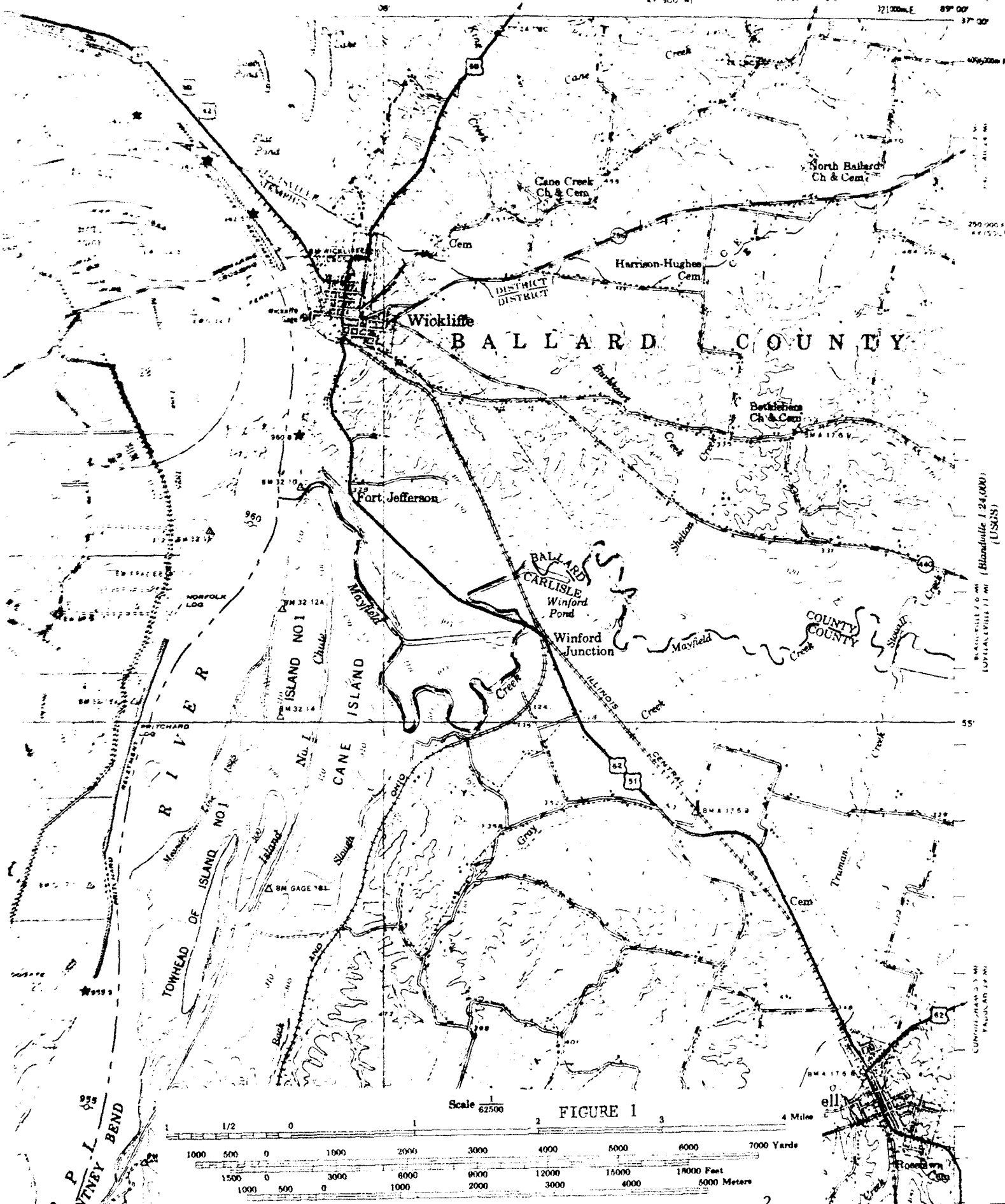
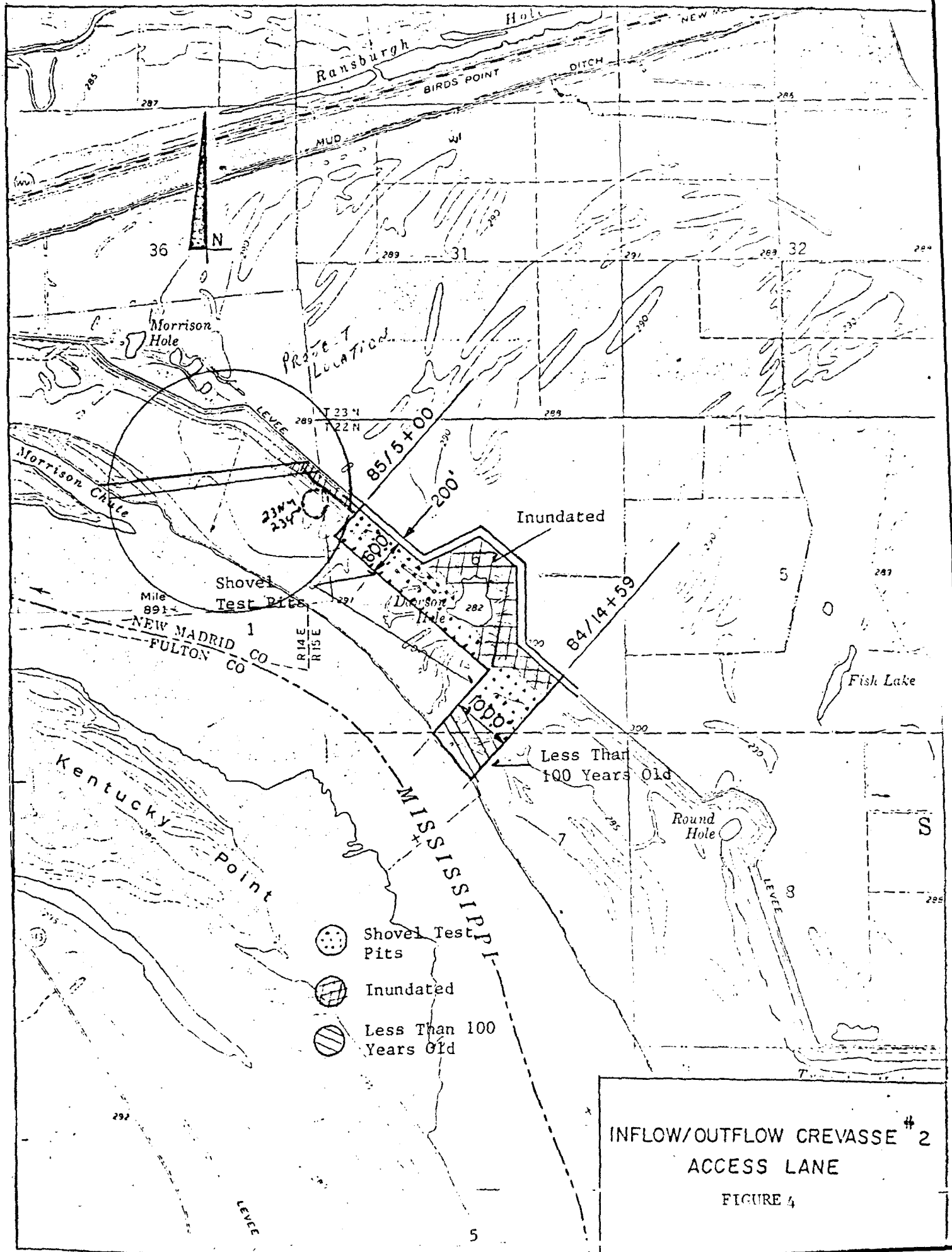


FIGURE 1

Contour interval 5 and 20 feet changing on the 320 foot contour



FIGURE 3. Project Location



The top strata consists of Recent or Pleistocene deposits of alluvium composed of sand, silts, and clays to a depth of 0.35 to 6.10 meters (1-20 feet). The substrata consists predominately of fine to medium sand with some local graveliferous strata to a depth of 37 to 60 meters (120-200 feet) below the top strata. The area is underlain by the Wilcox formation of the lower Eocene which is composed of lignitic sands, silty sands, and silty clay with some gravel.

Regional structure of the area is controlled by the Mississippi Embayment, a southerly plunging syncline whose axis is basically outlined by the present course of the Mississippi River. The Floodway area is located on the western limb of the syncline, and as a result, the strata dips at a low angle southeastward. The project area is located within the Seismic Risk Zone 3. The New Madrid earthquakes of 1811 to 1938 affected the project areas and included ten earthquakes with intensities ranging from IV to X on the modified Mercalli scale.

The following data was compiled from geologic mapping experience in all portions of this physiographic region by Saucier in 1964 and 1974. Within the impacted areas, an outline of specific topstratum deposits is presented:

- 1) Natural levee; "low ridges which flank both sides of streams that periodically overflow their banks."

- 2) Point bar; "sediments laid down in broad shallow basins during periods of stream flooding."

- 3) Abandoned channels or clay plugs; "partially or wholly filled segments of stream channels formed when the stream shortens its course."

- 4) Braided-relict alluvial fan; "sediments that were laid down by rapidly shifting, aggrading streams during the earlier stages of valley alluviation."

- 5) Swale-like areas; "of various origins containing thick fine-grained deposits which are found within the point bar surface" (Saucier 1964).

Some of these topstratum deposits ". . . may exist discreetly, e.g. point bar, abandoned channel, and braided-relict alluvial fan, while others are laid down over previous deposits: a natural levee may be veneered over point bar, abandoned channel, and braided relict alluvial fan deposits, and swale-like areas occur on point bar deposits with or without an overlying natural levee. These deposits, whether occurring discreetly or in combination, are the land surface on or near which human habitation has occurred" (Saucier 1964).

Human occupation predating 6,000 years before present would necessarily have occurred on braided stream terraces, because these land areas were the oldest land forms extant. The later and more stable aboriginal settlements were agriculturally inclined, and the intense cultivation demanded certain variables in soil characteristics such as particle size, fertility, periodic flooding, and soil management by interplanting (Ward 1965). A fine sandy

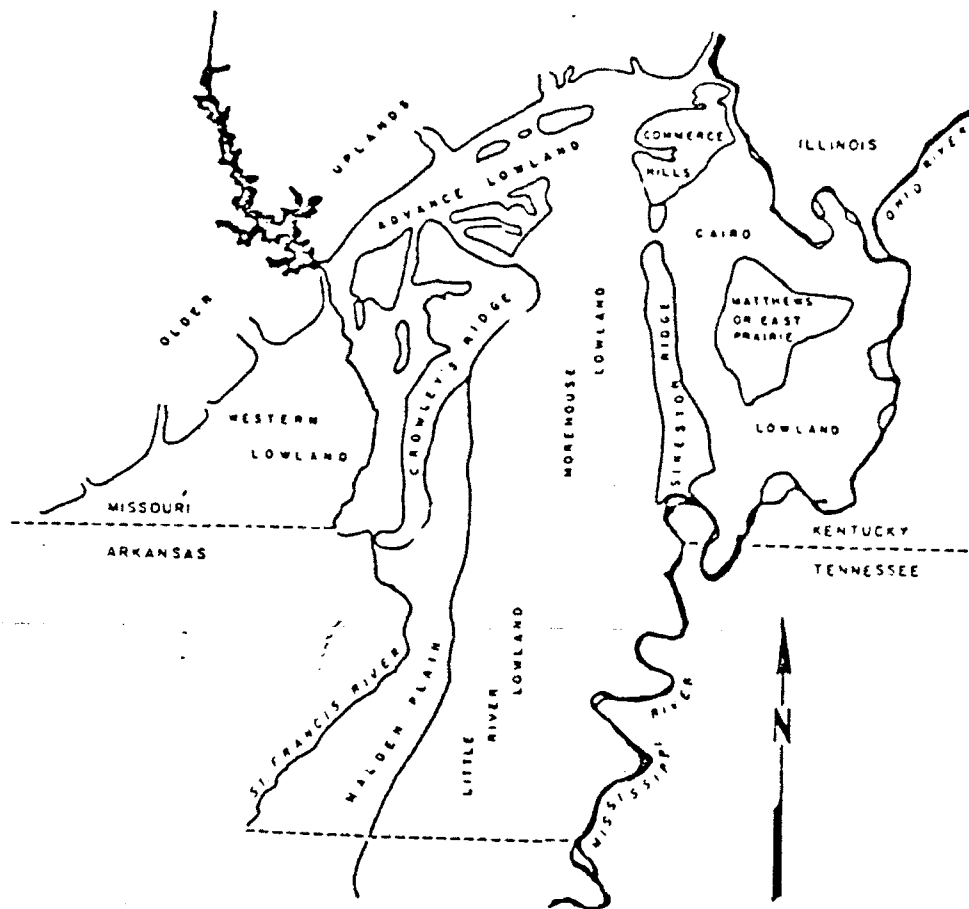


FIGURE 5 Physiographic Regions in Southeast Missouri
(Adapted from J. R. Williams 1971:39)

loam is characteristically found on later aboriginal sites in the area; i.e. site location is controlled by dependence of the later Indian peoples on intensive maize cultivation within the limits of their technological capabilities.

SOILS

Four major soil associations are extant in the New Madrid Floodway vicinity: Sharkey-Alligator, Commerce-Caruthersville, Lilbourn-Dundee, and Tiptonville-Reelfoot (Tanderich and Reagan, 1978).

Soils of the Sharkey-Alligator association are nearly level, poorly drained, and clayey. The particles composing the soils are small and result from deposition off and away from the natural levees. Sedimentation from slackwater pools and back swamps is the most common method of production of these soils. These, then, are normally found in broad, shallow lenses.

Commerce-Caruthersville soils are found in a 1.5-5 kilometer (1-3 mile) wide strip along the banks of the Mississippi (Brown 1977). These soils are loamy and occur in nearly level patches. These are relatively recent alluvial deposits; they are somewhat poorly drained in some areas and moderately drained in others. Minor soils in this association include: Bowdre, Sharkey, Crevasse, Sikeston (Brown 1977). This association occupies the present Mississippi River floodplain, and areas not protected by levees are periodically flooded.

The Lilbourn-Dundee association soils are poorly drained on nearly level to depressional terraces or natural levees that are loamy throughout. The association is composed of low to depressional terraces or natural levees that have little difference in the elevation of the two soils. The minor soils in this association are in the Canalou and Jackport series. The Canalou soils occur on higher levels of the terraces and they are more sandy. The Jackport soils occur on the lower parts of the terraces and have clayey textures.

The Tipton-Reelfoot association is represented by deep, moderately well and somewhat poorly-drained soils on old, natural levees that are silty throughout. These soils consist of nearly level to those that are gently sloping on high terraces or old natural levees. The majority of these slopes are nearly level. The gently sloping areas occur along and around the sloughs and channels adjacent to this association. Tiptonville soils are nearly level and are moderately well-drained; Reelfoot soils, on the lower part of the terraces, are nearly level and are somewhat poorly-drained.

The minor soils in the Tipton-Reelfoot association are in the Bowdre, Dubbs, Roellen, and Towsahgy series. The Bowdre soils are ridgetops or terraces on elevations similar to the Tiptonville. The Dubbs and Towsahgy soils are on the higher parts of the terraces and are well-drained. Roellen soils are in low slackwater areas in small spots within and in areas around this association (Festervand, et al., 1977).

CLIMATOLOGY AND VEGETATION

The National Weather Service Records at Cairo, Illinois, maintained since 1871, reveal that average monthly temperatures in the area range from -1°C (30°F) in January to 27°C (81°F) in July. The maximum observed temperature was 42°C (106°F) and minimum was -14°C (16°F).

Precipitation. Annual precipitation varies from 69 to 203 cm (27-80 inches) with a normal rate of precipitation for the area of about 127 cm (50 inches). The heaviest rainfall generally occurs in the period of January-May.

Winds and Growing Season. The prevailing winds are from the southwest. The growing season has a length of approximately seven months with the first and last killing frost occurring in the early parts of November and April, respectively.

Vegetation. A description of a model of biotic communities was presented as developed from U.S. Government Land Office survey notes and plats, historical accounts, and ecological studies of adjacent areas. The following summary describes these biotic communities, which are typical of those that exist in the project vicinity presently or that did exist in the area previously to settlement and exploitation (Lewis 1974):

Cottonwood-Sycamore Natural Levee Forest

"Sycamore, cottonwood, and elm formed the dominant aboreal species with an undergrowth of lianas and cane. Large mammals included deer, mountain lion, bear, and possibly elk. Smaller mammals, such as opossum, raccoon, cottontail rabbit, red and gray fox, eastern fox, gray squirrel, bobcat, and striped skunk were locally abundant. Important avian fauna included several gallinaceous species, in addition to parakeets and passenger pigeons. The community was restricted to natural levees of the active river channel, locally occurring on Sharkey soils and infrequently inundated."

Sweet Gum-Elm "Cane Ridge" Forest

"Dominant plant species were sweetgum, elm, and hackberry with a dense cane undergrowth. Mammalian populations were essentially the same as in the previously described biotic community. This community appears to have been very widespread in the region and was situated on almost any soil of the region except clays or newly-deposited lands. It was not normally inundated except in times of high floods."

Sweet Gum-Elm-Cypress Seasonal Swamp

"This biotic community differs from the sweetgum-elm "cane ridge" forest in the presence of scattered bald cypress (7% of the sample), little undergrowth, and subjected to seasonal periods of inundation. During relatively dry periods, the large floodplain mammals probably wandered in and out of this community. Smaller mammalian populations would have similarly limited their activities in this biotic community to dry periods except for swamp rabbits, wood rats, and possibly more aquatic mammals in the damper

fringes. This community appears to have developed in the floodplain interior on the lower portions of old backslope remnants and other low areas in the clay soils."

Willow and/or Cottonwood Water Edge Brush

"Willow and cottonwood in a variety of combinations formed the main component of this short-lived community. Undergrowth was probably limited to vines and then only in the more mature examples. As this community was frequently inundated, mammal populations would have fluctuated between the more terrestrial species and water-loving species such as mink, river otter, beaver, and muskrat. The community is characteristic of "newly made" ground along the river and in the interior on the fringes of bayous, swamps, and lakes."

Cypress Deep Swamp

"Bald cypress and probably water tupelo were dominant plant species with little under brush beyond vines. As this community is normally under at least a light sheet of water throughout the year, large mammalian species more or less avoided these areas. Some of the smaller species, such as mink, river otter, beaver, and muskrat, were present. Avian fauna included waterfowl in relatively small numbers. These were heronries, like those known from Reelfoot Lake, Tennessee during historic times, during the summer months. Fish, such as buffalo, catfish, fresh- water drum, and sunfish penetrated the deeper portions of the community."

Water Millet-Lily Marsh

"This community included the grassy and aquatic plant covered lake and slough edges just beyond the depth where trees, such as the bald cypress, could flourish. Animal populations of this community include a large number of waterfowl and aquatic mammals, as well as fish, turtles and amphibians."

Rivers, Bayous, and Open Lakes

"A considerable expanse of the surface of south Mississippi and New Madrid Counties was formerly lakes, bayous, and rivers. The community, as described here, is actually a "lump" category for the wide range of fish, reptiles, amphibians, and aquatic mammals and birds found throughout the water covered expanses of the region."

Fields and Second Growth Areas

"Those areas, for the most part created by human exploitation, provided animal populations with a subsistence supplement in the late summer and fall in the form of ripening crops and post-harvest gleanings. After abandonment of the plot or village area, the dense tangle of second growth vegetation provided both food and shelter to local animal populations" (Lewis 1974).

Previous Investigations

Southeast Missouri, and particularly the Cairo Lowlands, has long been the focus of intensive archaeological interest. Early professional field investigations, primarily focused on large civic-ceremonial centers, included the work of Swallow (1875), W.B. Potter (1880), Cyrus Thomas (1891, 1894), Gerard Fowke (1910), and Clarence B. Moore (1916). Two residents of the region, Houck (1908) and Beckwith (1911), also reported on prehistoric sites in the area. The first extensive archaeological excavation in southeast Missouri was conducted by Walker and Adams (1946) at the Matthews site on Sikeston Ridge, New Madrid County. The archaeology of southeast Missouri, including Sikeston Ridge, was summarized by Chapman (1947; 1975) and Griffin (1952). A major archaeological survey, including the Lilbourn, Otter Slough, Barker, Spanish grant and survey sites in the general New Madrid vicinity, was conducted in the early 1950's as part of the Central Mississippi Archaeological Survey (S. Williams 1954). A subsequent survey, focusing on Early Archaic (Dalton) sites, was conducted by James A. Ford and Alden Redfield (Redfield 1971). Several sites were tested and/or excavated during land-leveling salvage work (J. Williams 1967, 1968, 1974). Several fortified Mississippian villages were described by J. Williams (1964), who also investigated the Woodland (Baytown) sequence in the Cairo Lowlands (J. Williams 1974). Marshall (1965) surveyed the proposed route of Interstate 55 along Sikeston Ridge, in New Madrid County. Most recent research in the area has been a description and comparison of two large ceremonial centers, Lilbourn, at the southern tip of Sikeston Ridge in New Madrid County, and Towosahgy, in the Cairo Lowlands, Mississippi County (Chapman 1974, 1976).

Recent cultural resource surveys have been conducted at New Madrid (C. Price and Harris 1976; J. Price and Harris 1978; McNerney 1979), North Lilbourn (Price 1976), and East Prairie (Harris 1977). Tandarich (1978) provided an excellent archaeological review of the Mississippi County Spillway area. Greer (1978) presents an informative synopsis of Southeast Missouri, northwest of the project vicinity, in his pipeline survey study. Kekkonan, Martin, and McNeil conducted a survey of Crevasses #1 and #2 in the Floodway in 1983.

Previous investigations within the regions adjacent to the study areas indicate that its highest potential for prehistoric occupation exists for the Late Archaic through the Mississippian Periods.

RESULTS OF THE RECORDS SEARCH

ARCHIVAL AND CARTOGRAPHIC REVIEW

A review of the National Register of Historic Places did not reveal any listings of prehistoric, historic, or architectural cultural resources of known significance for the study areas.

A review of the Missouri Archaeological Survey site records resulted in one previously recorded site being in proximity to Inflow/Outflow Crevasse #2. Site 23NM234 is described as a Mississippian village site. The site was reported to the Missouri Archaeological Survey in 1964 by a local collector.

Data pertaining to the surficial extent, artifact content, or other site attributes was unavailable from official records or from the original recorder (Jones 1983). Two sites, UR1 and 23MI136, are adjacent to Tom Birds Blue Hole, but are landside of the levee, thus out of the proposed right-of-way. These sites will in no way be affected by the proposed project.

SURVEY METHODOLOGY AND RESULTS

Access lanes are to be 33.53 meters (110 feet) wide where they enter the levee (areas where trees must be removed); and, 33.53 meters wide, measured from the riverside levee crown outward. Thus, most of the right-of-way, paralleling the levee, is on the existing levee and its toe. The remaining area is borrow area that has been borrowed approximately one meter deep. All borrow area within the right-of-way was checked for remaining original ground surface and archeological sites--none were found.

CONCLUSIONS

No archeological sites were discovered within the project right-of-way. Thus, it is recommended that the access lanes project proceed as planned within the right-of-way boundaries described in this report. However, if cultural resources are discovered during the course of construction or should any part of the proposed project be relocated, or if additional project areas are proposed, these conditions will be reported immediately to the Missouri Office of Historic Preservation and District Archeologist, U.S. Army Corps of Engineers, Memphis District for appropriate action.

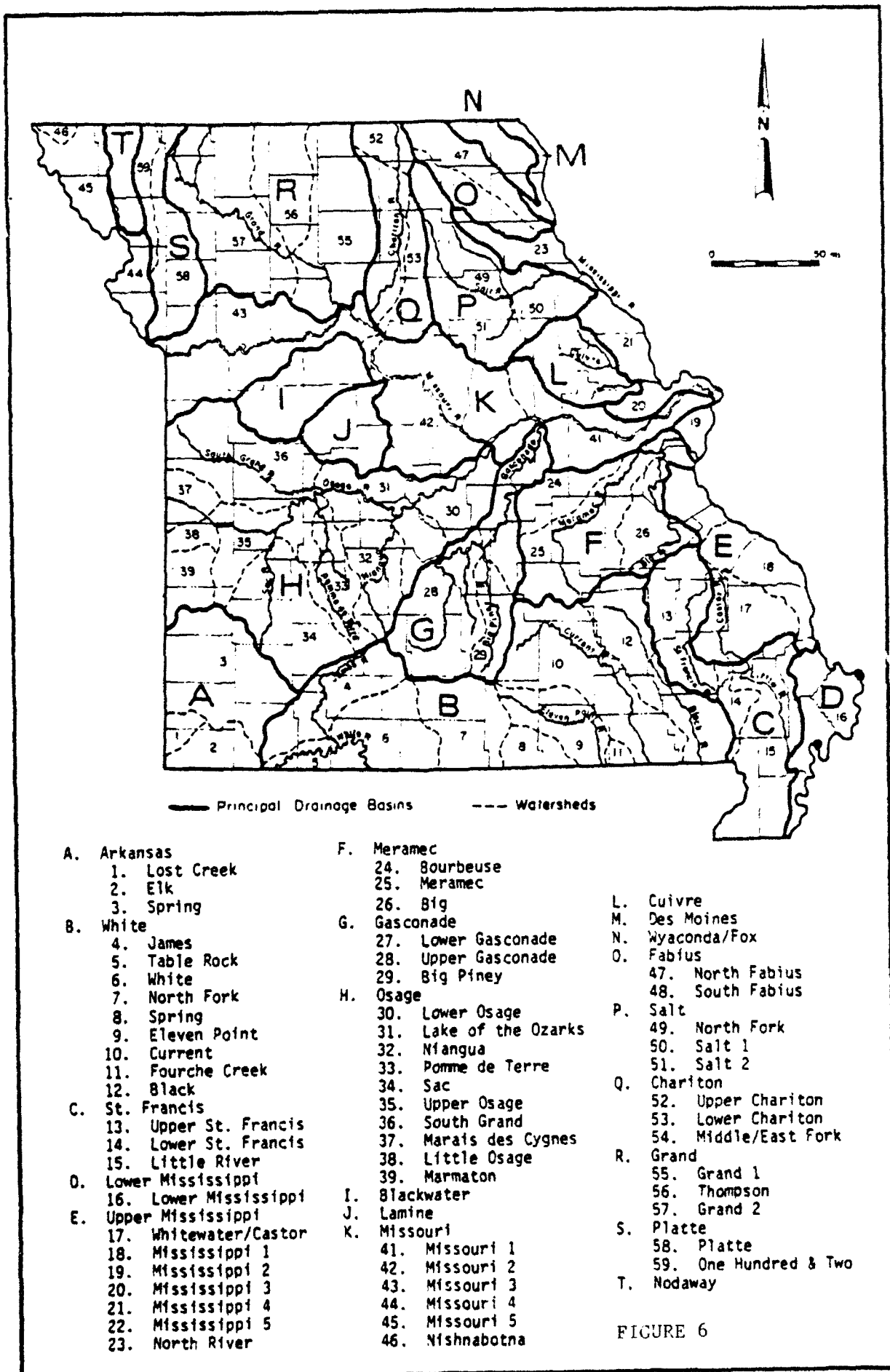


FIGURE 6

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CULTURAL RESOURCE SURVEY PROJECT SUMMARY SHEET

Missouri Department of Natural Resources Historic Preservation Program

A Survey Level Report of the Birds Point-New Madrid Floodway Riverside
Report Title: Access lanes near the Tom Bird Blue Hole and Outlet Crevasse # 2, New
Madrid and Mississippi Countries, Missouri-A Negative Finding.
Counties: New Madrid and Mississippi Author(s): Jimmy McNeil
Institutional Affiliation of Author(s): U.S. Army Corps of Engineers, Memphis District
Federal Agency Involved/Client: U.S. Army Corps of Engineers, Memphis District
Date of Report: July 1985 Date of Field Invest.: July 1985
Legal Description of Survey Area/Unit: Tom Bird Blue Hole T27N, R18E, SEC29NE 1/4; CREVASSE #2, T22N,
R15E, Sec.6 NW1/4 Total Acres Surveyed: 3
Historic Preservation Program Drainage: D16

Elevation of Survey Area/Unit: Max. 320 msl Min. 290 msl Avg. msl
Terrain: Flat
Vegetation: Trees, briars, grass, bushes
Visibility (as % of survey area/unit): 50% overall
Type:
Nature of Soil (as % of survey area/unit): Aeolian % Colluvial % Alluvial 30 % Other 70 %
Raw Lithic Material Available: Type None Source levee fill
Legal Location:
Nearest Permanent Water Source: Spring Stream River X Lake Other
Distance 1,000 - 2,000 Ft. Name Mississippi River
Closest Tributary: Distance Name Order

Number of Sites in Survey Area/Unit:

Prev. Recorded	<u> </u> Prehistoric	Rec. by Pres. Invest.	<u> </u> Prehistoric
	<u> </u> Historic Archaeo.		<u> </u> Historic Archaeo.
	<u> </u> Historic		<u> </u> Historic
	<u> </u> Architectural		<u> </u> Architectural
	<u>X</u> None		<u>X</u> None

Type of Investigations (Mark all applicable):

<u> </u> Literature Search	<u> </u> Testing (Phase II)
<u> </u> Reconnaissance Survey	<u> </u> Excavation (mitigation)
<u>X</u> Intensive Survey - All resources	<u> </u> Research only
<u> </u> Intensive Survey - Archaeological only	<u> </u> Other Fieldwork <u> </u>
<u> </u> Intensive Survey - Architect.-Historic only	<u> </u> Other <u> </u>

List all sites located within survey area/unit or discussed in report (attach continuation sheet if necessary).