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TENNESSEE-TOMBIGBEE INDUSTRIAL SITING PROJECT

(A Study of Physical and Environmental Factors of Potential Industrial Sites)

October 31, 1977

Prepared by:

Department of Geology and Geography
Mississippi State University
Hilbun Hall
Mississippi State, Mississippi

Project Staff:

Eric Hoin, Project manager
James J. Redfearn, graduate
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Gregory Guth, undergraduate
Robert Brown, undergraduate
Ira E. Owen, Jr. undergraduate
Jack V. Cowart, undergraduate
Pat Kraft, undergraduate
Michael Bass, undergraduate

Dr. Gary K. Higgs, faculty advisor
Assistant Professor of Geography

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TABLE OF CONTENTS

INTRODUCTION

In conjunction with the development of the Tennessee-Tombigbee Waterway in Northeast Mississippi comes the very real need for the establishment of a controlled plan of economic growth. The controlled growth concept has proven essential to the prudent use of land resources in many parts of the country where growth has occurred. The principal underlying the need is the fact that unplanned growth has lead to environmental damage and placing industry and scarce resources in less than optimal situations. To maximize the benefits of the resources invested within the Tennessee-Tombigbee Waterway, proper allocation of land and capital should be made using the best available data. Land will be allocated to the highest and best use with minimal waste.

In line with the optimal land use concept, Mississippi Research and Development Center has been charged with selection of suitable industrial sites adjacent to the Tenn-Tom Waterway. The R and D Center, in turn, has requested Mississippi State University's Geology and Geography Department to Handle a portion of the siting research--the subject of this report. Specifically, the Geology and Geography Department of Mississippi State is responsible for the assessment of

the physical factors related to industry site selection. In the Tenn-Tom area numerous industrial sites were specified by R and D through separate reports of the Tennessee Valley Authority and Meta Systems (for Tombigbee River Valley Water Management District). This report also evaluates additional sites outside TVA and Meta reports, but with less emphasis on land detail. These "secondary" sites have been identified as a separate phase of this study and have value from a local growth standpoint.

The actual assignments handled by Mississippi State's Geology and Geography Department are covered below. Tasks will be explained at greater length throughout the report.

(Physical Factors)	-Slope of land and length of slope
	-Soil types present: bearing capacity and water-holding capacity
	-Update existing land cover and use
	-Local relative relief
	-Subsurface features and geology
(Environmental Factors)	-Vulnerability of land to erosion
	-Dangers of atmospheric and water pollution and effects on related or adjacent land uses
	-Destruction of irreplaceable natural resources

In conducting this study extensive use was made of LANDSAT imagery and CCT digital data, besides conventional high-altitude imagery (conventional and infra-red photos), topographic mapping, and ground truth of all the primary sites (including soil sampling). It is also necessary to acknowledge those faculty and staff members who provided factual aid and direction.

Dr. Floyd V. Brent -	Soil Scientist - Agronomy Mississippi State University
Dr. Donald Keady -	Associate Professor - Geology Mississippi State University
Dr. Gary K. Higgs -	Assistant Professor Geography Mississippi State University
Mr. B. Barton -	Miss. State Soils Test Lab Tupelo, MS
Soil Conservation Service Offices -	Columbus - Fulton - Iuka

SITES

Tennessee Valley Authority

and Meta Systems

PRESENTATION OF SITES

The following section contains information concerning each of the seventeen sites specifically assigned to Mississippi State University's Department of Geology and Geography. The sites (eleven Meta Systems and six TVA) are each given equal coverage and are presented separately. Every site is accompanied by a topographic map which also shows soil configuration and layout of profile lines which appear within the report. Soil configuration is based on current U. S. Department of Agriculture soil surveys for the respective counties or from local Soil Conservation Service offices. Soil data is supplemented through optical processing and signature extension on LANDSAT images. Profile lines are intended to emphasize land forms of interest and to provide a general perception of the site. Accompanying the profiles is a brief description of the relative relief for the particular site. NOTE: A complete description of soil types and characteristics is included in Appendix B.

In addition to map and profile pages, information pertaining to current land use, erosion hazard, and environmental effects--again on a site by site basis--is also included. Current land use is derived from LANDSAT imagery tapes by use of the JSC MDAS and the LARS EOD1 and . . . simply a statement of the present employment of the site.

Location of farms, woodlots, subdivisions, etc. have been noted using infra-red and aerial (black and white) photographic images and checked by ground truth. Erosion hazard was developed after an examination of soil type (from LANDSAT imagery and soil surveys) of the landforms found on the site (due to the uniformity of climate, this usual aspect of erosion was disregarded). Environmental effects--the danger of atmospheric and water pollution and effects on related or adjacent land use; as well as the destruction of irreplaceable natural resources--are important factors to consider when allocating land to its highest and best use. Removal or damage of certain resources can be noted for each site to a certain extent. Loss of agricultural land, hunting areas or cutting of bottomland hardwoods is something one can envision if sites are to be cleared for industrial use. However, it is much more difficult to determine how an industry is going to effect the surrounding area in terms of air and water pollution. To fulfill the environmental portion of this report, the physical resources which would potentially be lost are noted for every site. However, the difficulty of determining pollution dangers without first knowing what type industry is to be established presents problems. Latest state air and water pollution regulations were used in an effort to determine those industries

which might present pollution problems and where the most favorable sites for these industries are located.

LOCATION OF SITES

Lowndes County

Lowndes County Bluff No. 1 (South) - T19S/R18W Sections 11, 14, 15

Lowndes County No. 2 (Columbus) - T19N/R18E Sections 29 and 32

Lowndes County West (TVA) - T19N/R17E Sections 15-18; 8-10; 3 and 4

Columbus Air Force Base (TVA) - T16S/R18W Sections 25-27 and 34-36

Clay County

Clay County - T17S/R7E Section 35

Monroe County

Aberdeen North (TVA) - T14S/R8E Sections 21 and 22

Aberdeen Southwest - T14S/R19W Sections 26, 27, 34 and 35; T15S/R8E Sections 5-8 and 18

Aberdeen Southeast (TVA) - T14S/R18W Section 31; T15S/R18W Sections 6 and 7; T15S/R19W Sections 1 and 12

Monroe County Airport - T14S/R19W Sections 1, 2, 11 and 12

Amory - T13S/R19W Sections 1-3 and 34-36

Amory Southeast (TVA) - T13S/R19W Sections 1 and 12; R18W Sections 6 and 7

Amory Northeast (TVA) - T12S/R18W Sections 17, 18, 20 and 21

Smithville - T11 and 12S/R8E Sections 1, 2, 6, 10-12, 31 and 36

Itawamba County

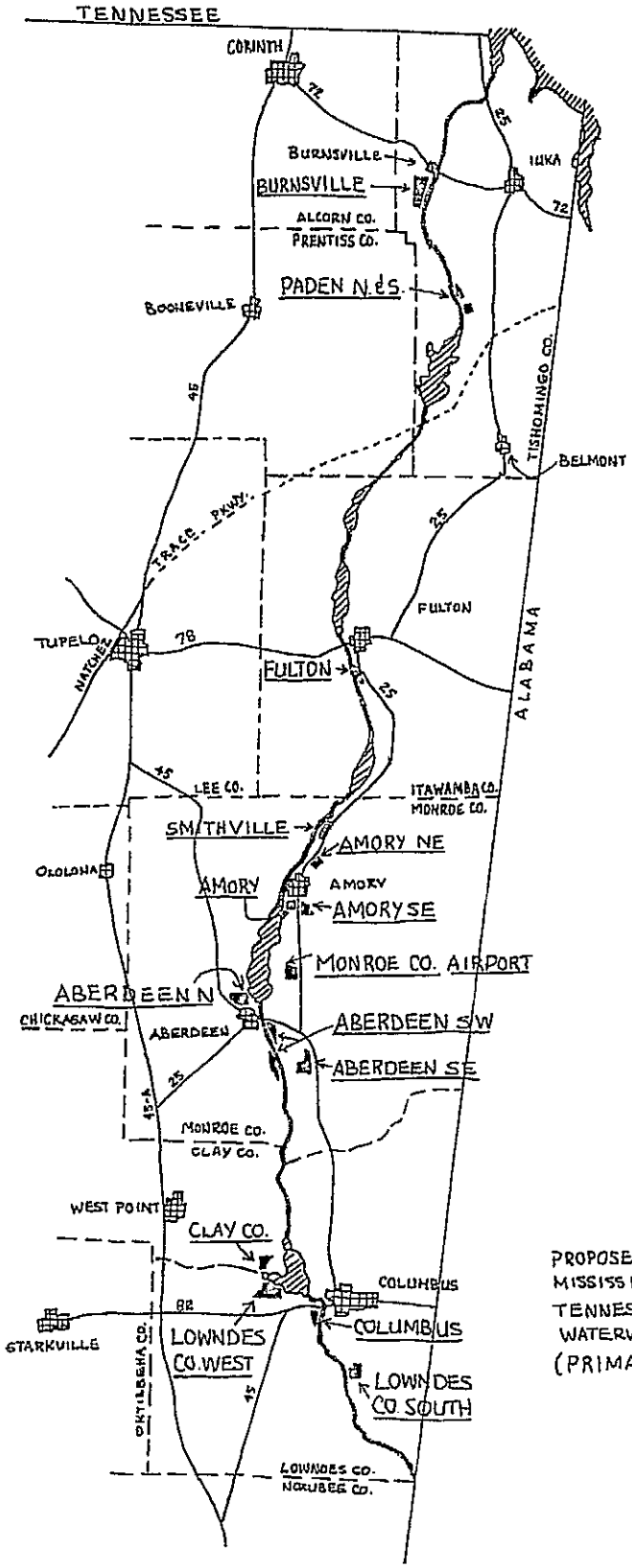
Fulton - T10S/R8-9E Sections 1, 6, 7 and 12

Tishomingo County

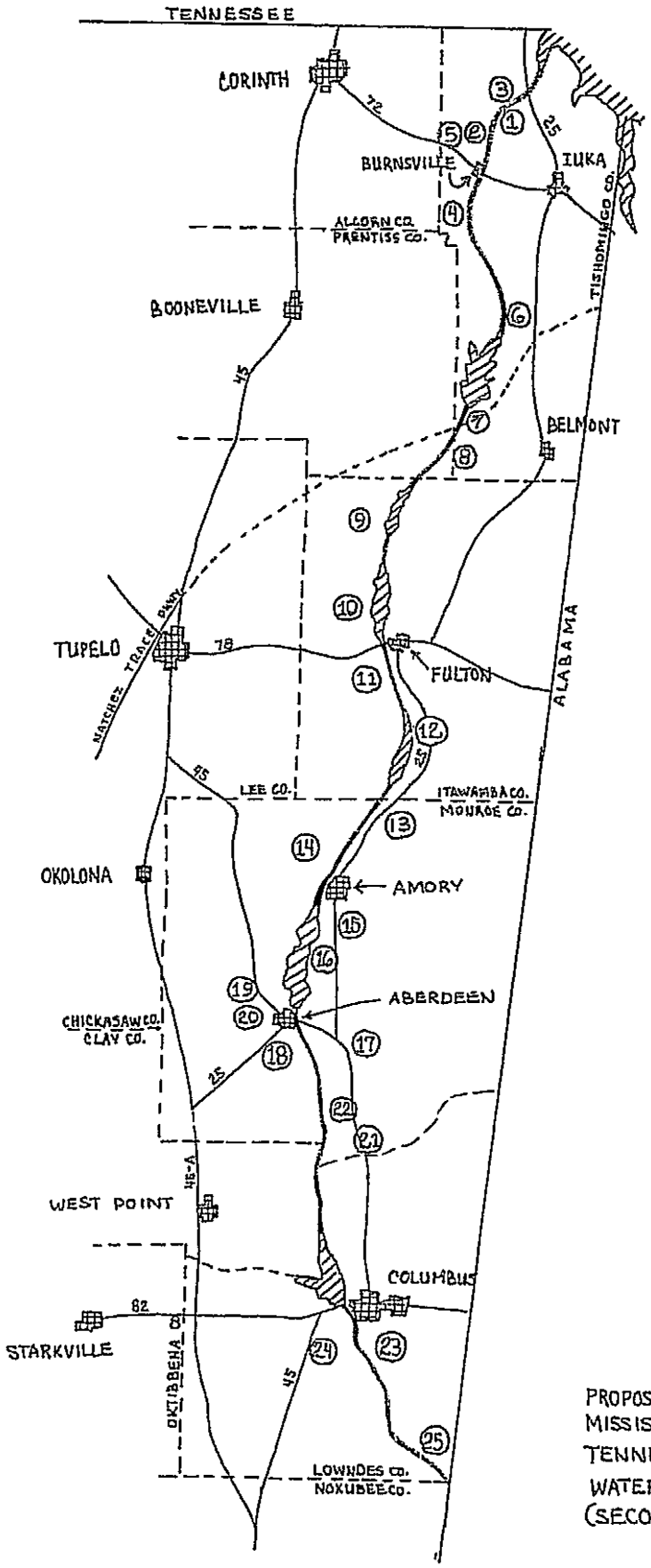
Paden Panther Creek (South) - T5/R10E Sections 8, 16, 17

Paden Black Branch (North) - T5/R10E Sections 5, 6, 8

Burnsville T3S/R9E Sections 14, 23, 26



PROPOSED INDUSTRIAL SITES, MISSISSIPPI SECTION OF THE TENNESSEE-TOMBIGBEE WATERWAY CORRIDOR (PRIMARY SITES)



NO.	NAME
1.	YELLOW CR. – SE
2.	BURNSVILLE – N
3.	DOSKIE
4.	HOLTS SPUR
5.	BURNSVILLE – W
6.	PADEN – S
7.	NATCHEZ TRACE
8.	MOORES MILL
9.	WALKERS BRIDGE
10.	MANTACHIE – E
11.	FULTON – W
12.	WHITE SPRINGS
13.	SMITHVILLE – E
14.	NETTLETON
15.	BECKER – NE
16.	BECKER – SW
17.	LACKEY
18.	ABERDEEN – S
19.	ABERDEEN – NW
20.	ABERDEEN – W
21.	HAMILTON – S
22.	HAMILTON
23.	CLAYBURN
24.	COLUMBUS – W
25.	FORRESTON

PROPOSED INDUSTRIAL SITES, MISSISSIPPI SECTION OF THE TENNESSEE – TOMBIGBEE WATERWAY CORRIDOR (SECONDARY SITES)

Lowndes Co. Bluff No. 1 (South)

Current Land Use

The Lowndes County South site adjacent to Hooker Chemical Company is largely woodland. A large pond for recreation purposes has only recently been built in a gully within 150 yards of the Tombigbee River. Part of this land is apparently owned by Hooker Chemical which allows certain segments of the public (Boy Scouts, hunters) to use the land for camping, hunting, etc. As mentioned before, much of this area is wooded (about 70% or 420 acres) with mixed pine and hardwood stands. This area appears both on sequential LANDSAT images and upon field inspection to be well drained.

Some small scale habitation occurs along the main access road to the south and east. There is also limited agriculture. Access to the site is via a paved county road of light-medium duty type which connects with Miss. Hwy. 69. RR connections are already present with a siding extending from the main line of the St. Louis & San Francisco RR. Below Hooker Chemical entrance the road becomes gravel.

Erosion

The high bluff just east of the river is composed of fine sandy loam which is situated on steeply sloping

land. The soil is well-drained and the run-off is the chief hazard. The soils are slightly to moderately eroded, and the run-off is usually not rapid enough to cause erosion. Most of the site lies east of the bluff on a nearly level to gently sloping terrace. The fine sandy loams are moderately well drained and only slightly eroded. A deep ravine is located in the northwest area of the site, formed in silt loam soil. This area is lower lying and is at present only slightly eroded, as the ravine has been dammed.[1]

Anticipated Resource Losses

Assuming that most of this site would have to be cleared prior to any industrial development, the considerable stands of mixed pine and hardwood in the western portion would have to be removed. Besides aesthetic loss of a wooded bluff-top situation, there is also certain losses of land in timber and valuable wildlife habitat. Currently this site adjoins property which has considerable recreation (hunting and camping) use through the courtesy of Hooker Chemical Company. Any large-scale development would encroach on this recreational function. Land clearance would also increase siltation directly into the Tombigbee River.

LOWNDES COUNTY BLUFF NO 1 (SOUTH)
Based on Corps of Engrs.
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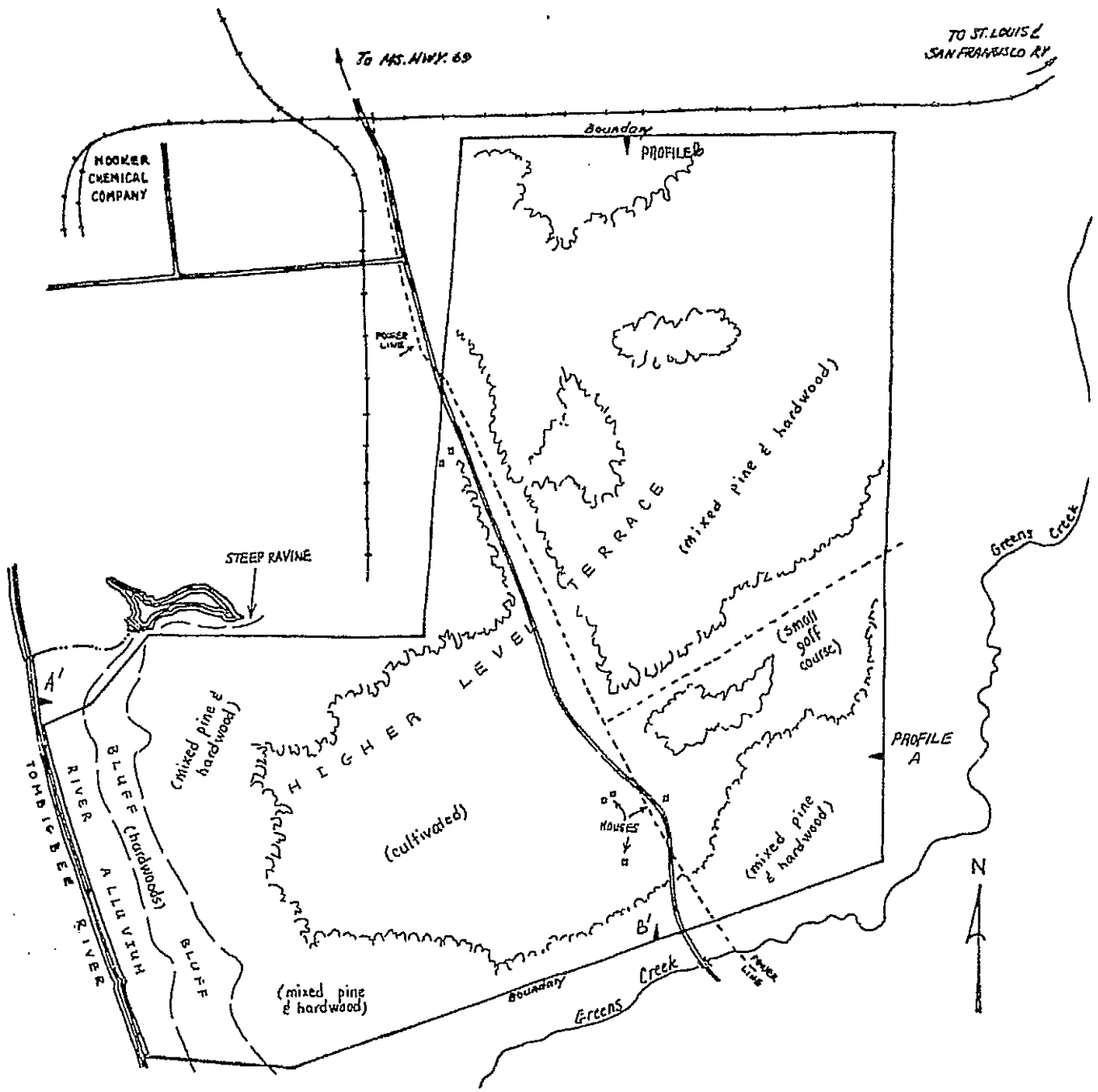
0 500 1000
(LAND FORMS)
(LAND USE)



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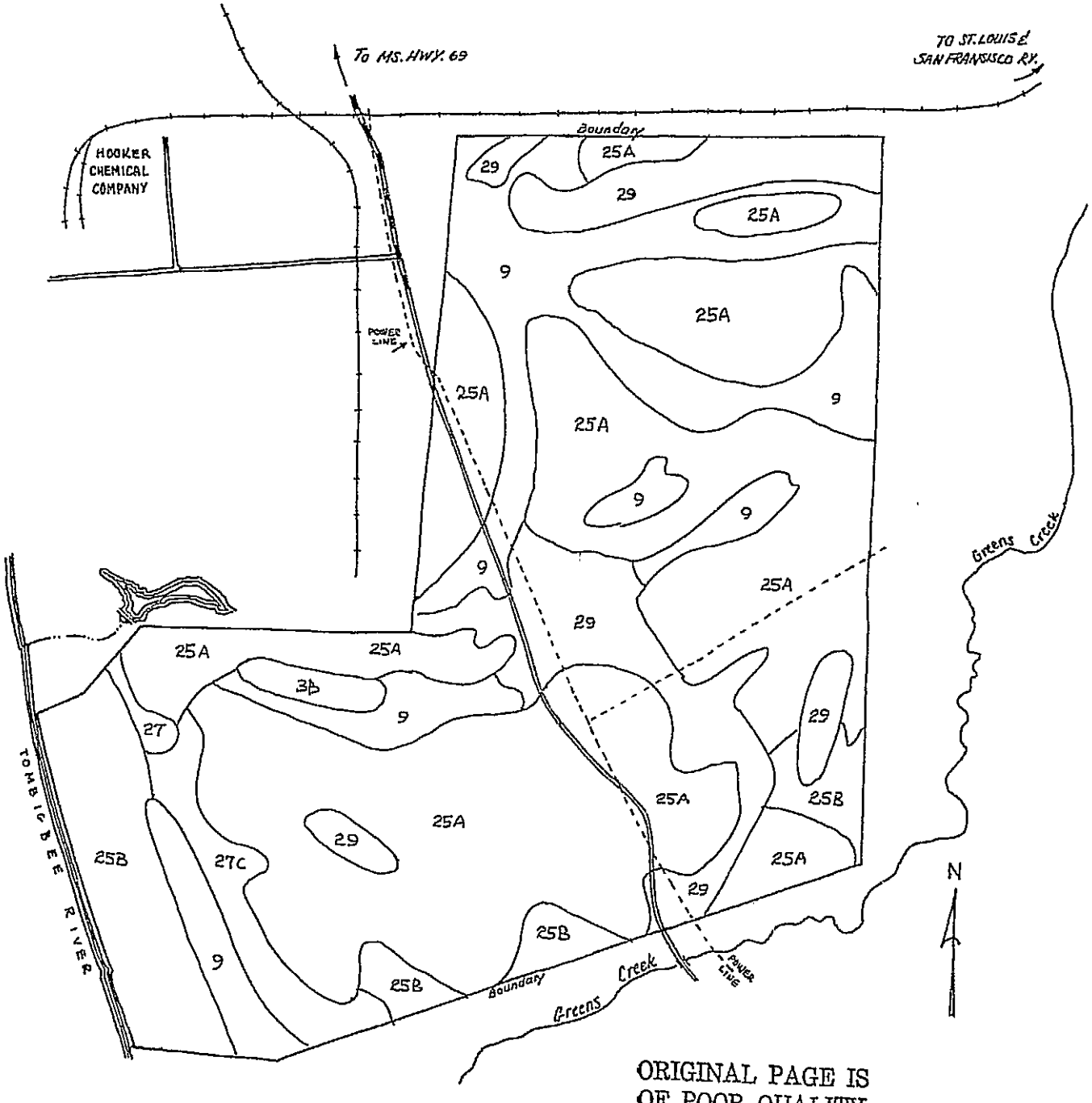
OF POOR QUALITY

LOWNDES COUNTY BLUFF NO. 1 (SOUTH)
Based on Corps of Engrs.
1: 12,000
0 500 1000
(SOILS)



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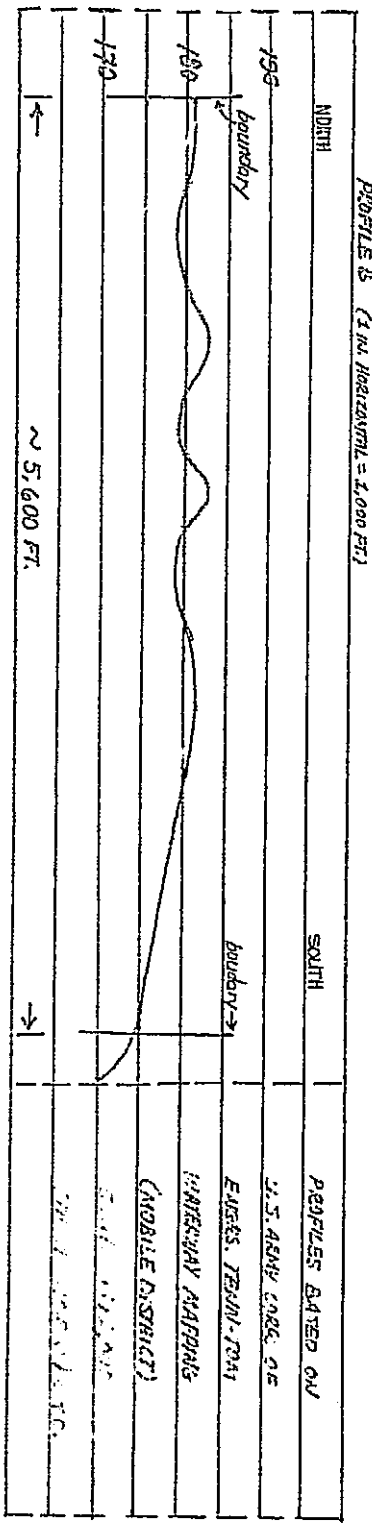
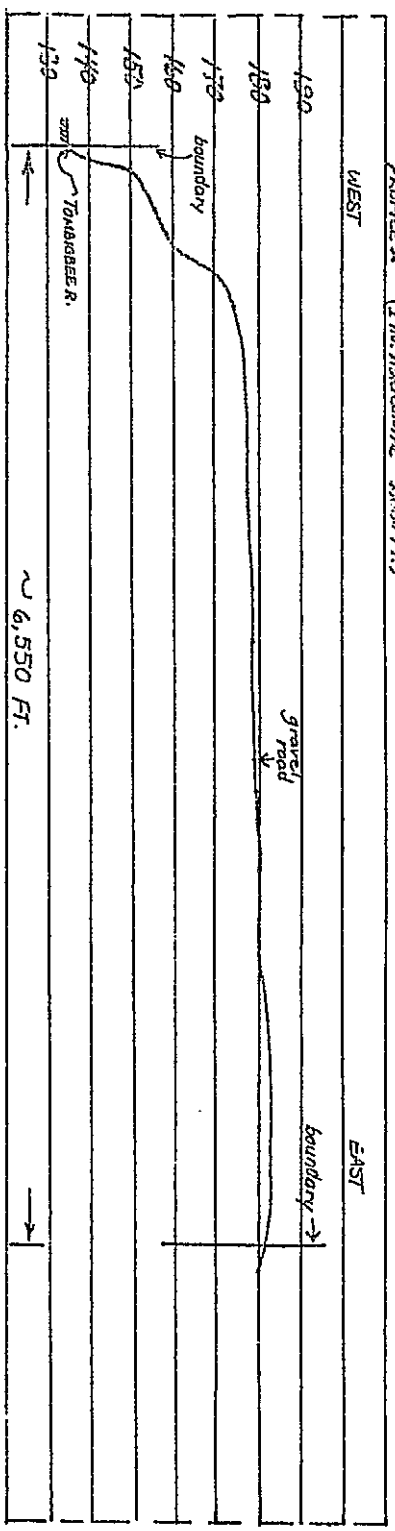
SITE: LOWNDES CO. BLUFF NO. 1 (META)





RELATIVE RELIEF:

Site is divided into two parts. The first part is just east of the Tombigbee and is a high bluff rising 35-45 FT. above the river. Most site area lies east of the bluff and is basically level terrace. Max. elevation 184 FT., min. 174 FT. There is a gentle southward slope. However, a deep ravine marks the NW boundary of the site. The ravine is more than 30 FT. deep in places. Has recently been dammed and now backs a considerable pond.

ALSO: referred to as Lowndes Co. South.

Lowndes Co. No. 2 (Columbus)

Current Land Use

This site is southwest of the city of Columbus. The majority of the somewhat better drained east side is in homogeneous pine groves. The western and northwestern parts are the poorly drained remnant of an old river channel and are cloaked in wetland forest. This entire site is almost uniformly level and all of it lies below the 170 foot flood elevation provided by the Meta Systems report (the ICG RR to the north of the site is built up at least 15 to 20 feet). Elevations vary from 159 feet to 162 feet. Nearly the entire area is forested and much of it is exceedingly wet--apparently for long periods of the year. LANDSAT signature analysis and classification through isoclass and EOD 1L computer programs plus M-DAS often classified the soil on this site as water because of very wet conditions. The area is apparently uninhabited (no cultural features). A TVA transmission line extends roughly along the northern boundary.

Erosion

The loamy sand soils of the eastern boundary on the river are the highest in elevation. They are extensively drained as they occupy the broad stream terrace

on nearly level land and are occasionally flooded. They are only slightly eroded and present a slight erosion hazard. The sandy soils and silt loams in the areas to the west are very swampy. (MDAS analysis tends to classify this area as water with intermittent dry periods.) They are somewhat poorly drained soils on nearly level to gently sloping flood plains, and tend to be slightly to moderately eroded. Since this area contains little relief variation, it is susceptible to severe flooding and has a moderate erosion hazard.[1]

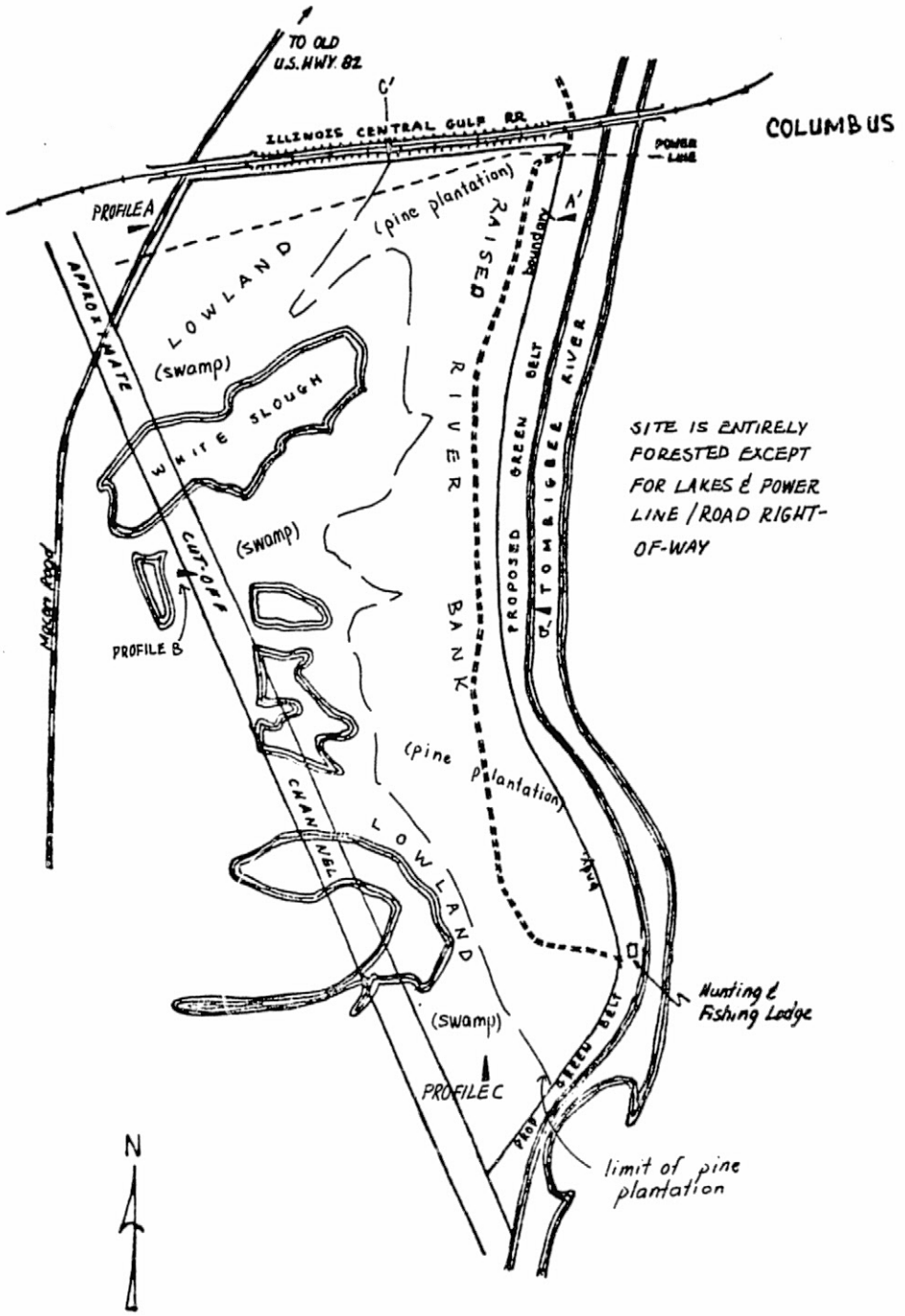
Anticipated Resource Losses

The eastern half of this site consists of a pine plantation of some 110 acres, most likely being developed for pulpwood. Within the southeast corner of the site, located on the river, is a hunting and/or fishing lodge. The structure is built on stilts, verifying the LANDSAT interpretation that the area has a tendency to flood.

The northwest area of the site is a prime hunting and fishing area consisting of about 100 acres. The area abounds in wildlife, and White Slough Lake is used locally for fishing.

This entire site must be filled to bring it above anticipated flood levels. All land forms would therefore be altered beyond recognition. Excellent pine regeneration land would cease to exist and adjacent wetlands and

the Tombigbee River could receive extreme amounts of siltation through run-off. A "green belt" is planned to coincide with the western Tombigbee River bank.



LOWNDES COUNTY NO. 2
(COLUMBUS)
Based on Corps of Engrs.
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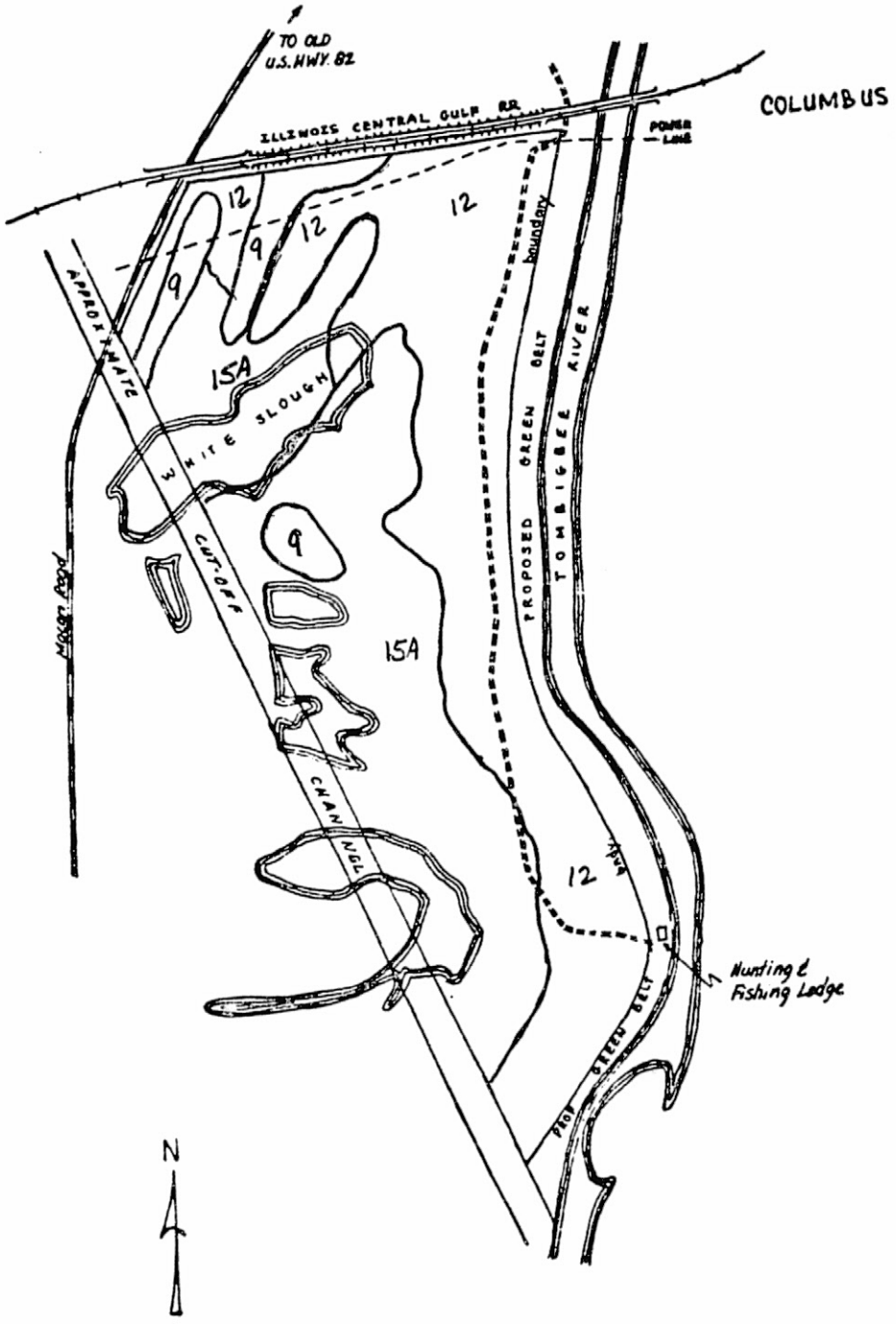
(LAND FORMS & USE)



LOWNDES COUNTY NO. 2
(COLUMBUS)
Based on Corps of Engrs.
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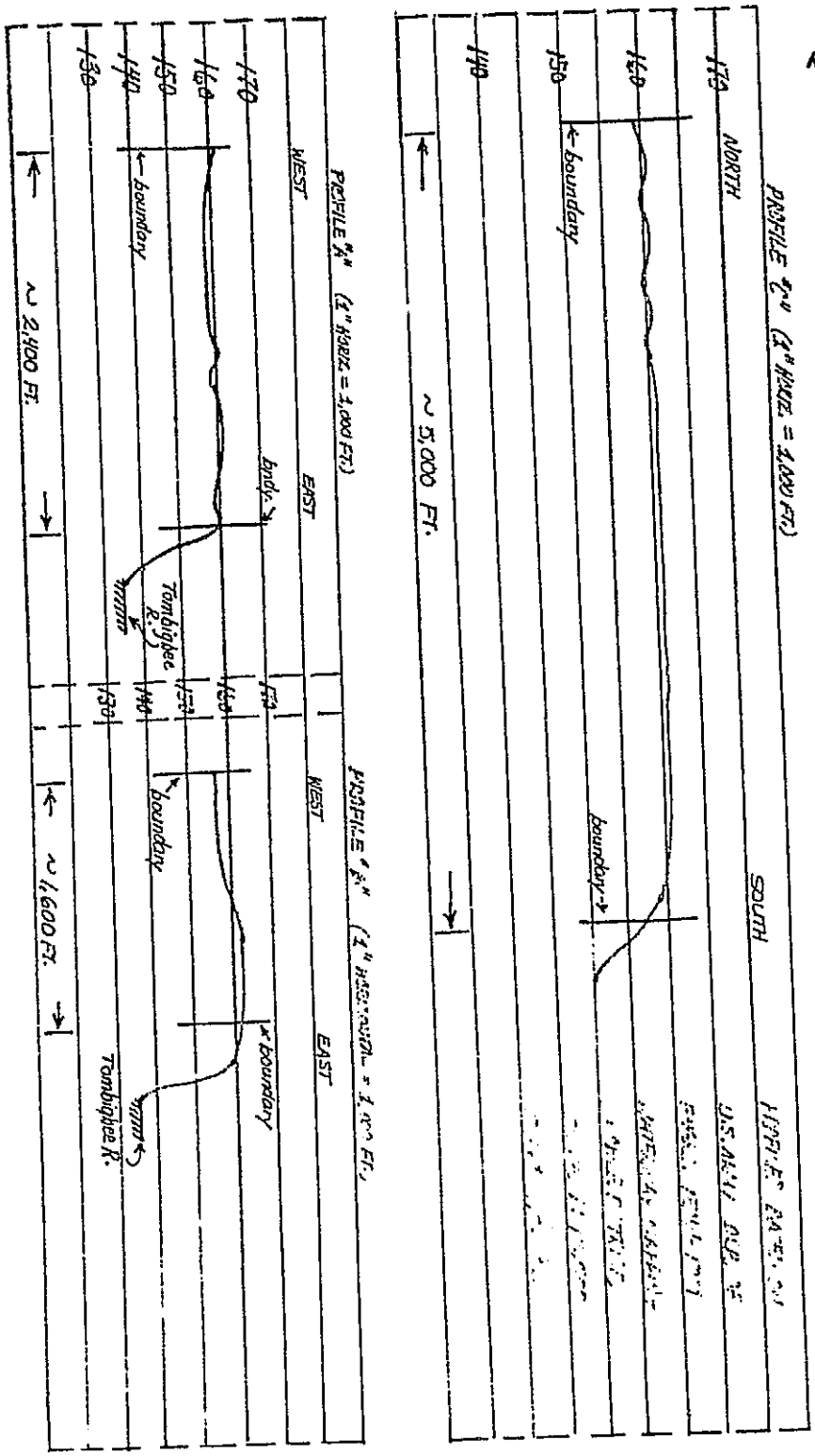
0 500 1000

(SOILS)

SITE: LOWNDE CO. SITE NO.2 (META)



RELATIVE RELIEF:

There is very little physical relief on this site. Highest elevations of 161-162 FT. occur on eastern edge of site. Somewhat lower areas to the west are very swampy. Lowest elevation is about 158 FT. Mean elevation would be about 160 FT. Flood level anticipated is 170 FT. (META). Site is to built up using fill from cut-off.

ALSO: referred to as Columbus.

Lowndes County West

Current Land Use

This is a very large site, but it is characterized by a homogeneous agricultural land use pattern throughout except for an area of bottomland woods along the southern bank of Tibbee Creek (determined from LANDSAT signature analysis and ground truths). The entire upland area stretching south from the Tibbee Creek bluffs is gently rolling or rather flat (mainly around the basins of streams) and is in pasture or crop use (over 3000 acres). Fenced pastures predominate in the broader eastern portion of the site. The narrow western end of the site is devoted more to crop raising than to livestock. One small woodlot (8 acres) occurs in the south-central region; otherwise trees are absent except for some stream banks, fence rows, and around the several farmsteads of approximately one pixel in size. Farmsteads are usually set back from any roads and are scattered throughout the site. Farm ponds are also present for livestock use. Several TVA power lines cross the site from north to south.

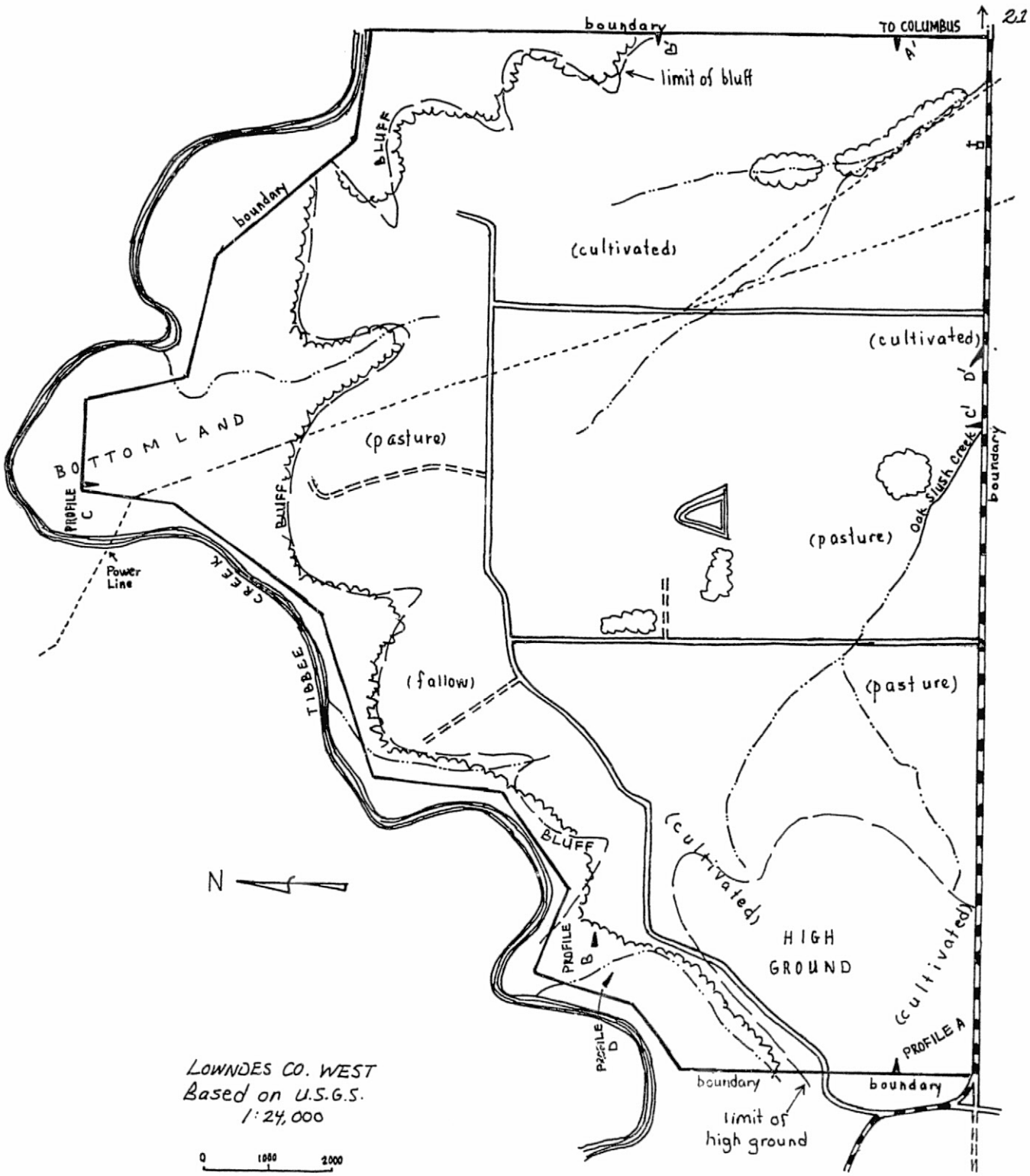
Erosion

Lying south of Tibbee Creek is a high bluff primarily composed of a thin veneer of silty clay overlying

chalk. These soils are well drained on the ridgetops and are severely eroded, containing many rills and deep gullies. As this material has a high shrink-swell potential, it poses a moderately high hazard of further erosion, especially as the underlying chalk will be exposed. The silt loams and silty clays of the southwest corner occupy nearly level uplands, being somewhat poorly drained to well drained depending on soil type and slope. As the land slopes to the east, elevation decreases and the drainage becomes poorer.[1]

Anticipated Resource Losses

The Lowndes West site is, for the most part, devoted to pasture land and crops acreage. Development would also result in the loss of some prime bottomland hardwood species, and the loss of wildlife habitat associated with those bottomland sites.



LOWNDES CO. WEST
Based on U.S.G.S.
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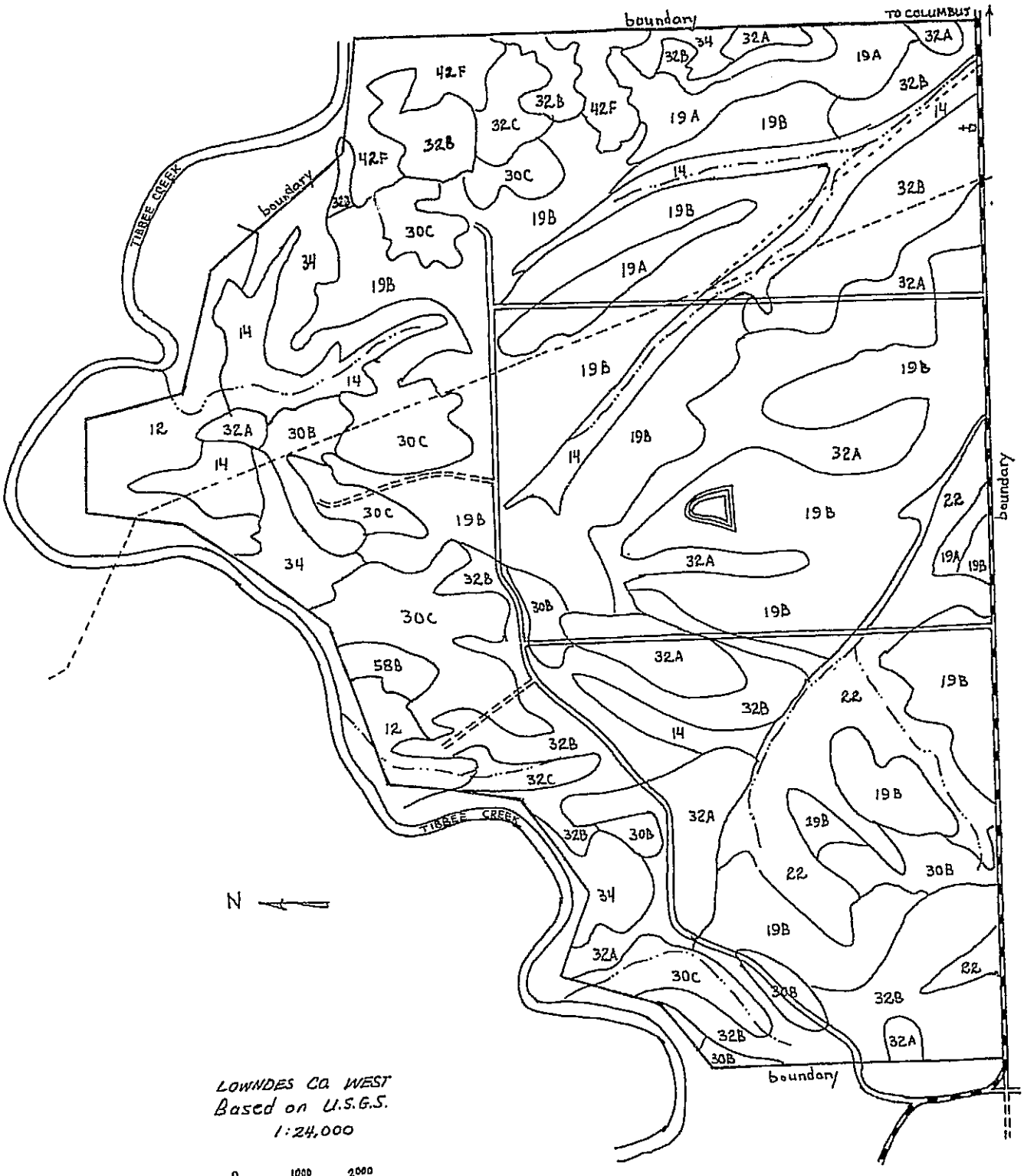
(LAND FORM & USE)


boundary
TO COLUMBUS
42F
32B
32C
34
32A
19A
19B
14
+D
30C
30B
12
22
58B
TIBBEE CREEK
boundary
N
LOWNDES CO. WEST
Based on U.S.G.S.
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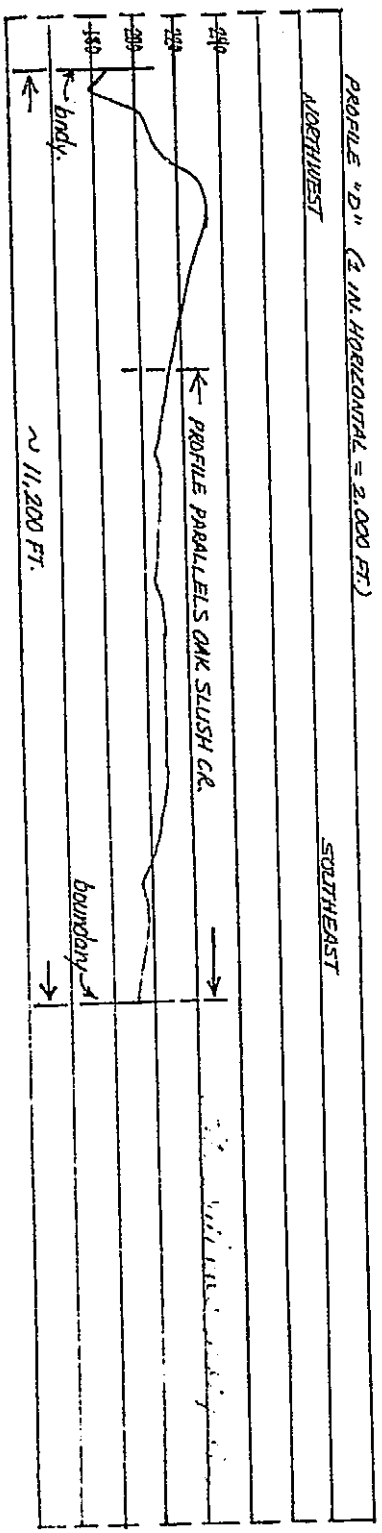
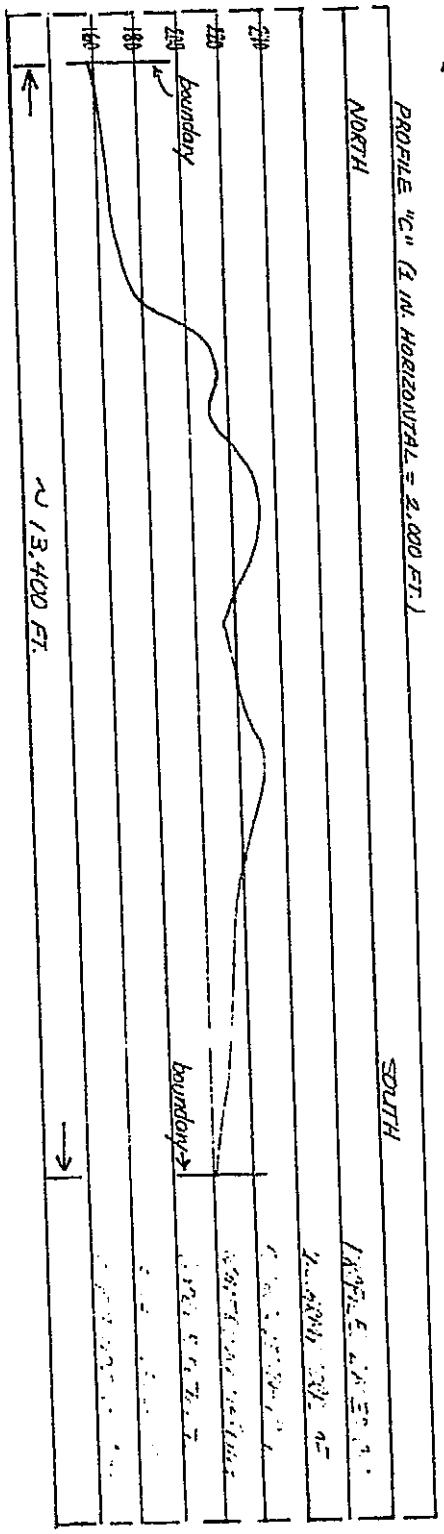
0
1000
2000
(SOILS)

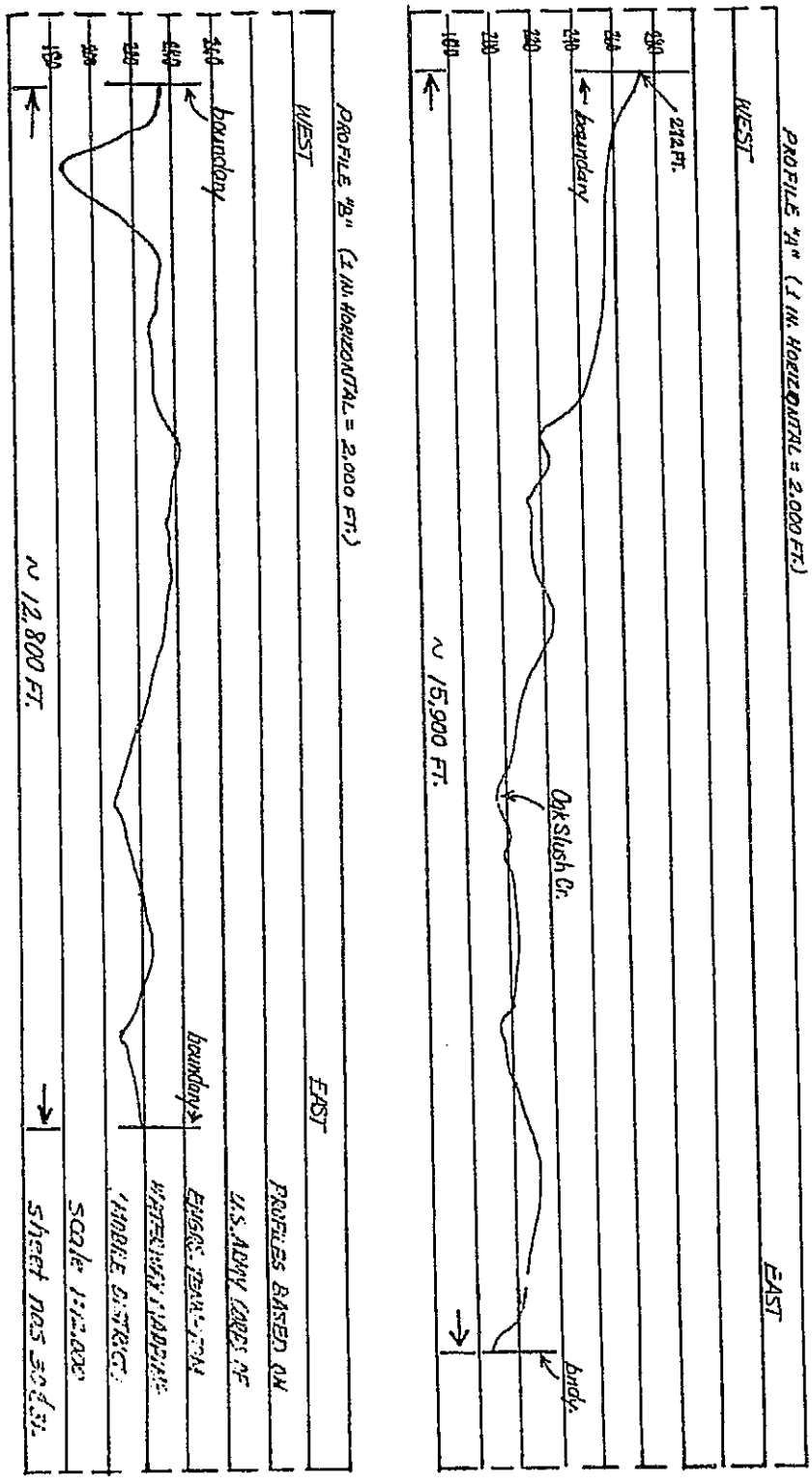




RELATIVE RELIEF:

This large site can be divided into two principal areas. First, is a considerable bluff line running along the south bank of the Tibbee Cr. floodplain. These bluffs may rise from 160 to 220 FT. and are drained by numerous small streams which have cut deep ravines in the bluff face. Some bottomland areas (150-160 FT.) have also been included. The second, and more important area lies south of the bluffs. Here in the SW corner is the highest elevation - 272. FT. From the SW the high

SITE: LOWNDES CO. WEST (TVA) - cont'd



RELATIVE RELIEF:

(from preceeding page) ground continues in an arc for 1.5 mi. to the NE (remaining 1/2 - 3/4 mi. south & east of Tibbee Cr.). This high ground varies from 224-249 FT. Moderate, rolling slopes (200-230 FT.) occur south of this "ridge". These areas are drained by broad stream basins. Lowest elevation along Oak Slush Cr. is 194 FT. Farther east along a smaller tributary the creek elev. dips to 180 FT.

Columbus Air Force Base

Current Land Use

This site has considerable variability in distribution of land forms. LANDSAT MDAS analysis and ground truth determined that forests of mixed pine and hardwood cover nearly all the western and northwestern edge of the site. In a number of areas the forest has died (presumably to excessive standing water) and only snags remain. A higher terrace to the east of the western bottomland has been cleared of most trees and is in cultivation. The St. Louis and San Francisco RR generally follows the drier terrace upland. The central portion of the site is another flat drainage basin, also considerably wooded with pine and hardwood. This central area is higher than the western bottomland; but, again, it is largely covered with poorly-drained woodland. Another higher terrace lies to the east of the central section. This terrace has been cleared of most forest except where streams cut into the terrace. Some cleared area is in cultivation or pasture while several small sub-divisions have been developed around the local roads.

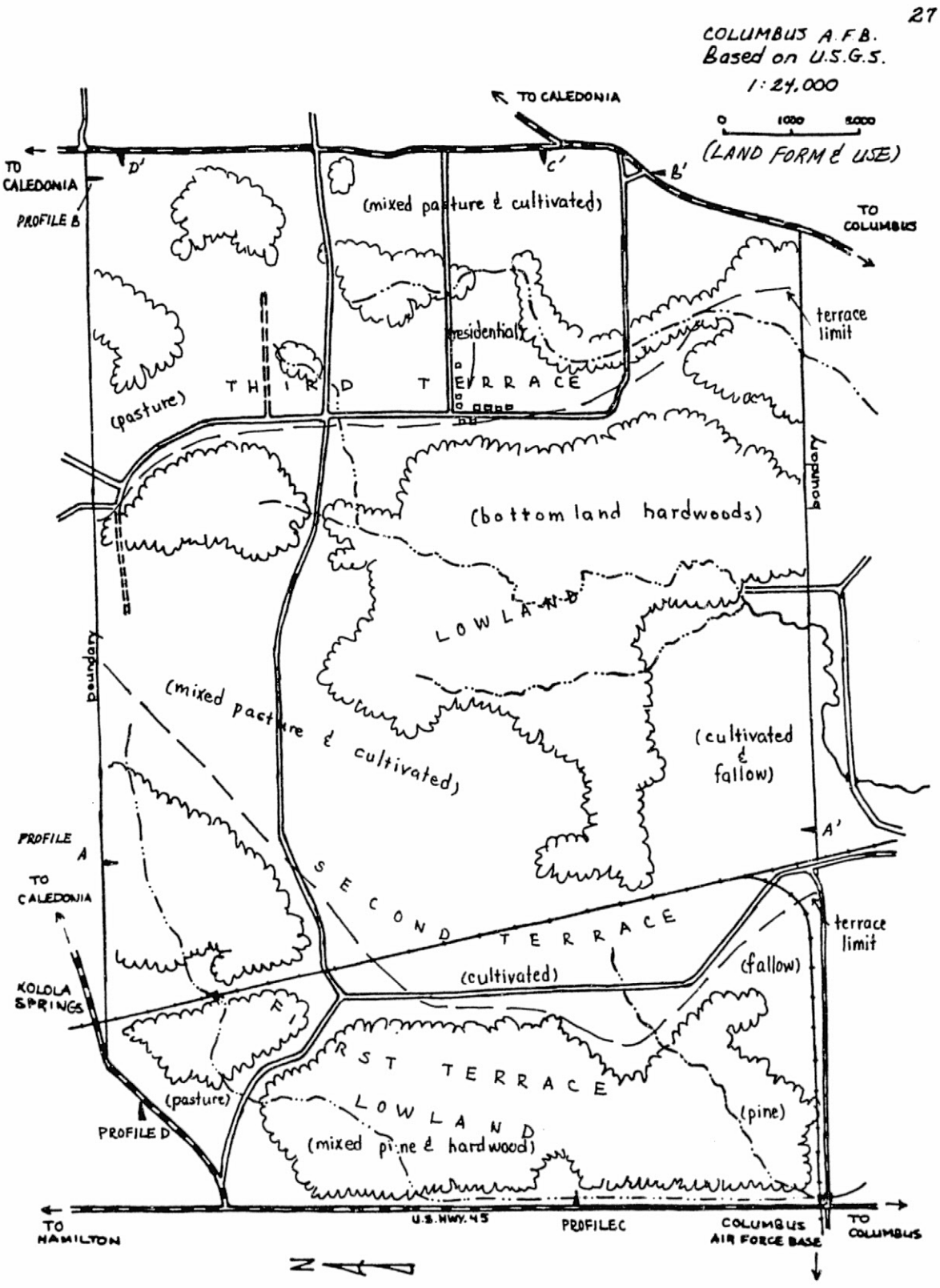
Erosion

This site is dominated by a broad, flat ridge which extends in an arc from the southwest corner of the

site to the northern border and back down to the southeast corner. The ridge soils are principally fine sandy loams or loams and are moderately well-drained. Slopes are gentle and long, especially in the north where the ridge loses much of its distinctness from surrounding lowlands. Erosion is slight to moderate. Within the arms of the ridge is a lowland area of flat topography and poor drainage. Lowlands also occur on the western and northwestern boundaries. Poorly drained silty loams are the dominant soils. Erosion is minimal.[1]

Anticipated Resource Losses

Columbus A.F.B. is dominated by bottomland hardwood and pasture with upland terraces in cultivation. This site has considerable potential for small wildlife habitat as much of it has good cover and is poorly drained. Most wooded areas have only limited commercial value. The most important resource on this site is farmland occupying the desirable, well-drained terrace rims. These sites would probably be picked first by industry resulting in permanent loss of agricultural acreage. (about 900 acres)



COLUMBUS A.F.B.
Based on U.S.G.S.
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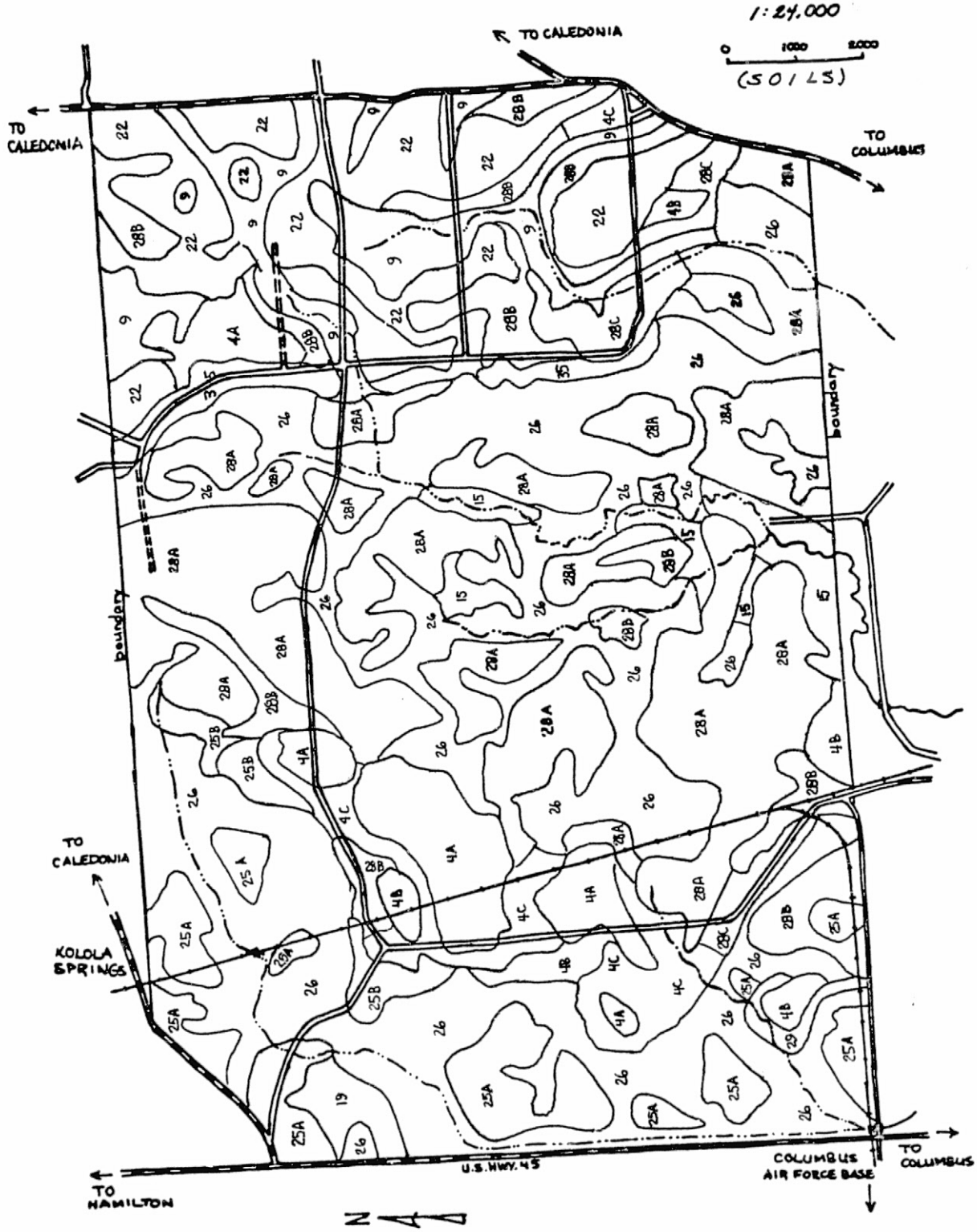
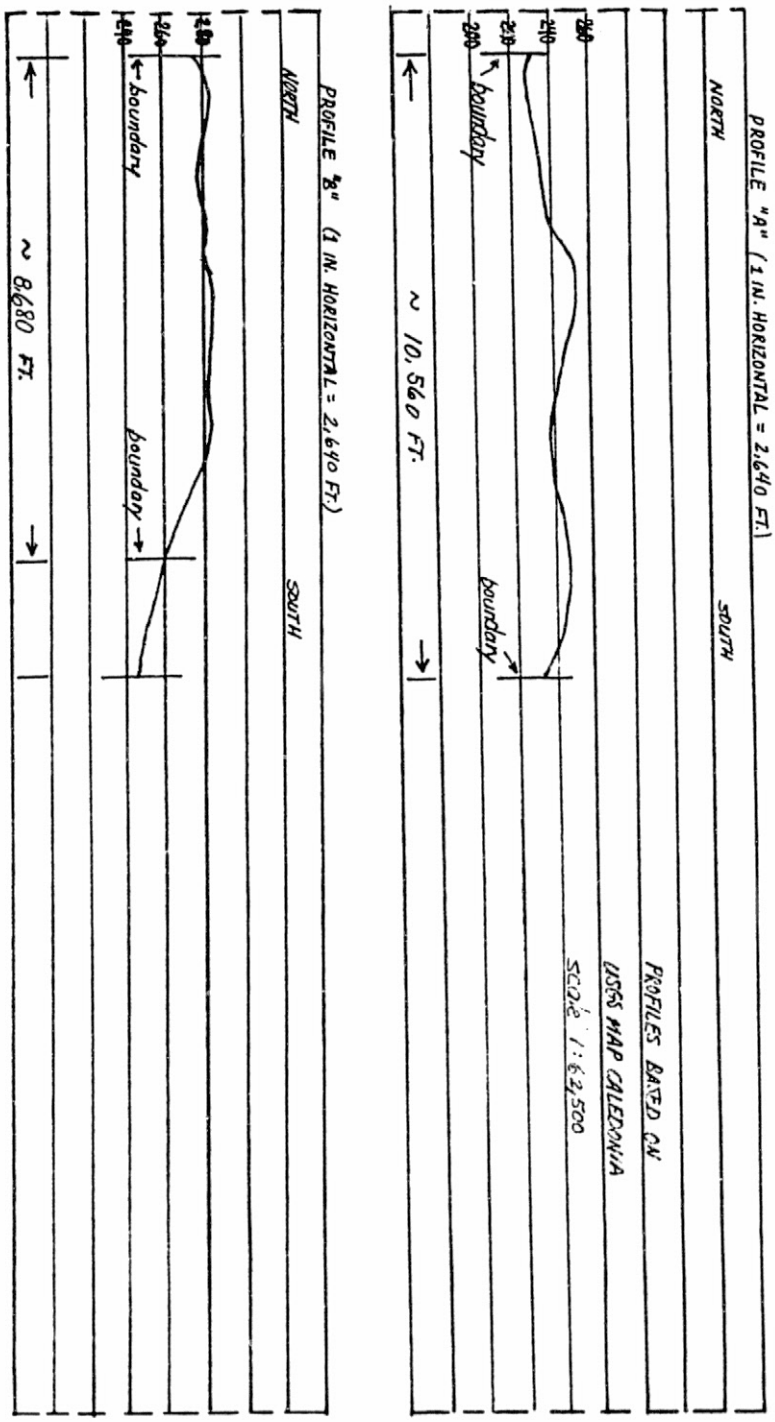
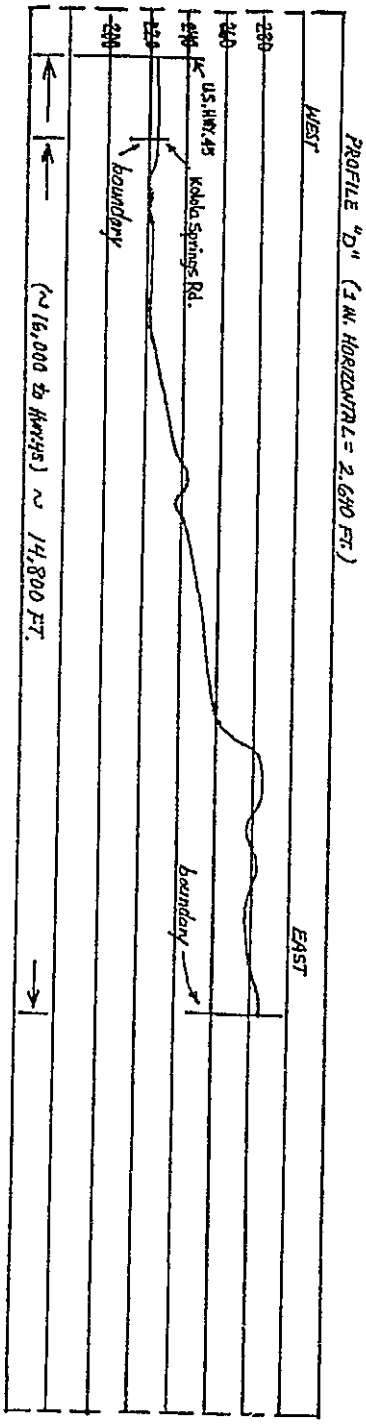
0 1000 2000
(SOILS)

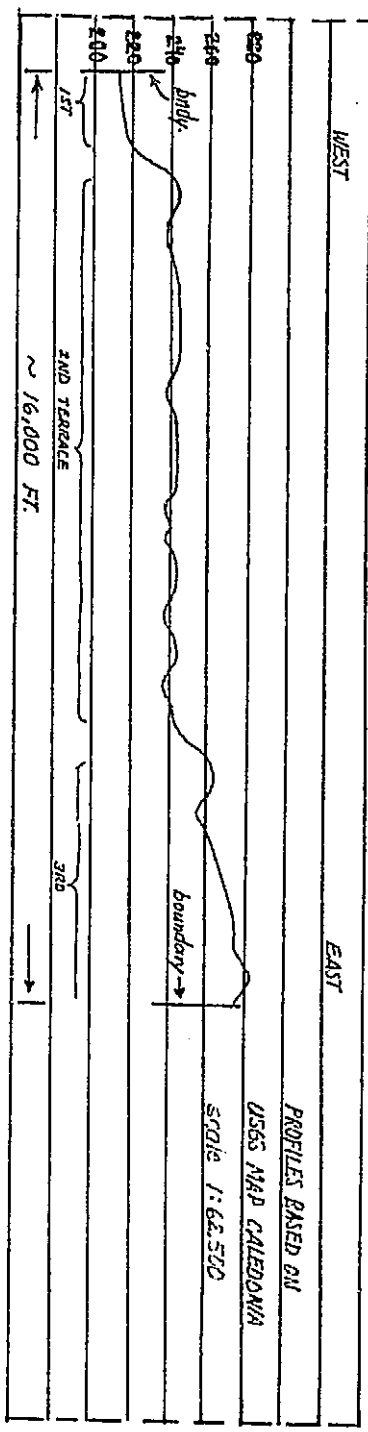




RELATIVE RELIEF:

This site is dominated by a succession of terraces, the lowest in the west and the highest to the east The low western terrace is some 210-20 FT. It extends approximately north to south before curving to the NE. (lies ½ mi. east of Hwy. 45 except in NE). The central terrace is between 235-240 FT. Although drained by a small stream, this area has a generally flat topography. A Third terrace extends north to south some 2½ mi. east of and parallel to Hwy. 45. This terrace extends





RELATIVE RELIEF:

(cont'd from preceeding page) through the site's eastern boundary. Two small streams drain this third terrace and cut into the terrace escarpment. This portion is between 250 - 280 FT.

CLAY

Current Land Use

MDAS analysis has determined that much of this site is in open cultivated land and pasture with adjacent bottomland hardwoods. However, certain wooded portions do exist principally through the central area. Woods comprise about 45-50 acres of the site. The cleared areas are used for agriculture and pasturage. Most higher elevations in this site have some sort of structure (house, barn, outbuilding) present, perhaps indicating a drainage problem primarily with Mayhew soils at lower elevations. Only a few homes exist in this site. A TVA transmission line runs generally fror NW to SE through this area. Access is currently provided by Columbus and Greenville Railroad and by two gravel roads: one running north about 3 miles and one of about 2-1/2 miles heading east. Both roads connect with Mississippi Highway 50. (Two-lane, medium duty).

Erosion

The entire site is a clayey soil except for a small ridge of loam in the center of the site. Along the southern boundary, the soil becomes a silty clay loam. The entire site is nearly level (except for the

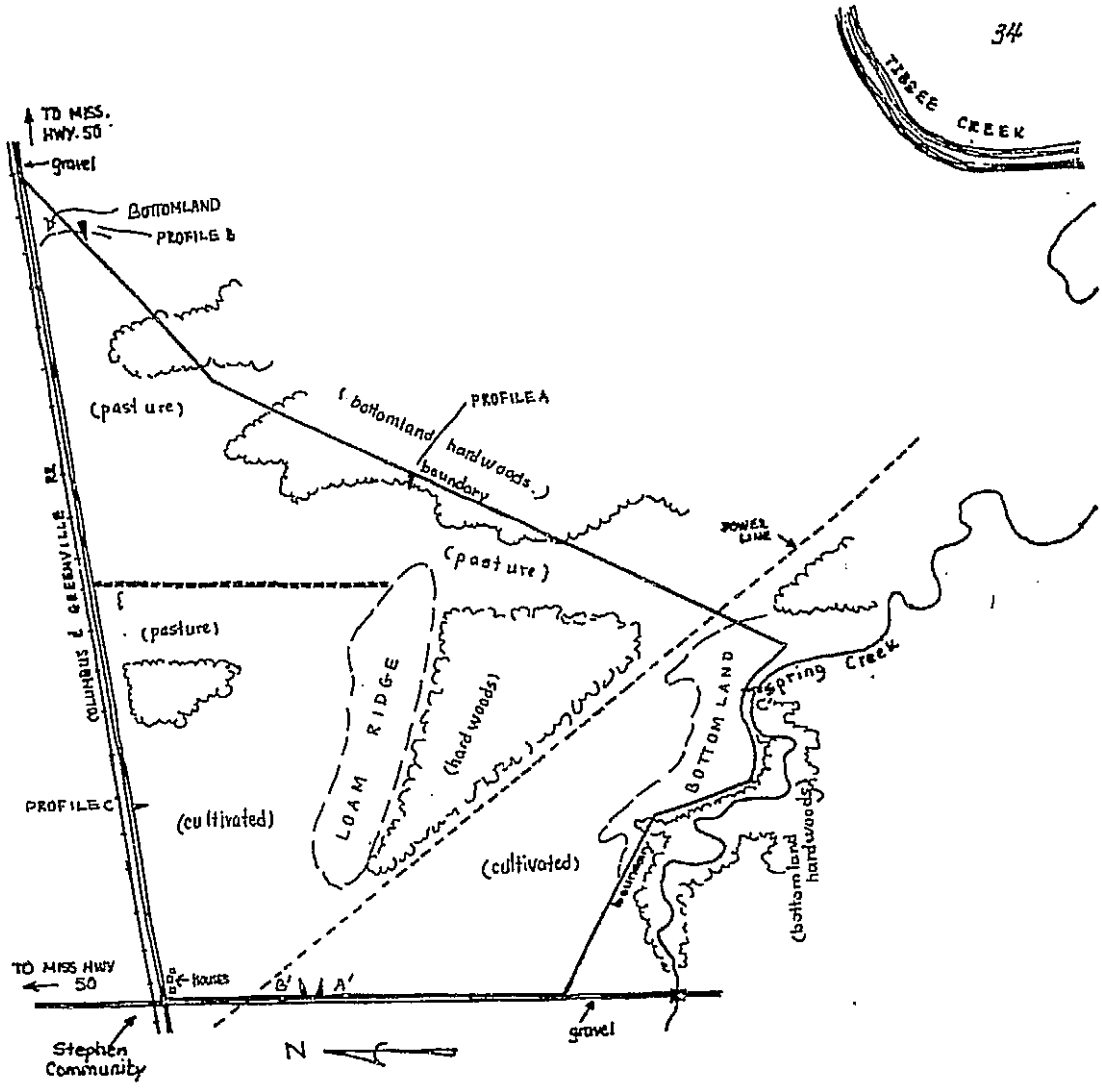
central rise) and slopes to the south and east. The poorly drained clayey soils and silty clay loams located on the broad flats of uplands have rather high water retention, as the water moves through the soil slowly. This results in sheet erosion being hazardous on the site with the clayey and silty clay loams being highly susceptible to detachment and transport by rain. These soil areas exhibit a maximum rate of soil erosion (primarily sheet erosion). The small central rise is composed of loam and is strongly sloping; since this soil is moderately well drained, a moderate erosion hazard exists here due to the slope of the ridge. This site is therefore prone to considerable erosion if soils are left exposed. All soil types are suspect.[2]

Anticipated Resource Losses

Farm and pasture land, surrounded by bottomland hardwood timber, dominate most of the area included in this site. Lowland hardwoods constitute a majority of the area surrounding the site.

Due to the conditions mentioned above, care must be exercised in construction of any large, hard surfaced areas, so as to not promote any further sheet erosion problems. Under such erosion problems Spring Creek and Tibbee Creek, located southwest and southeast, respectively, would both have a possible problem of increased

sedimentation load. Development will encourage the migration of any existing wildlife away from this area.



CLAY COUNTY
Based on Corps of Engrs.
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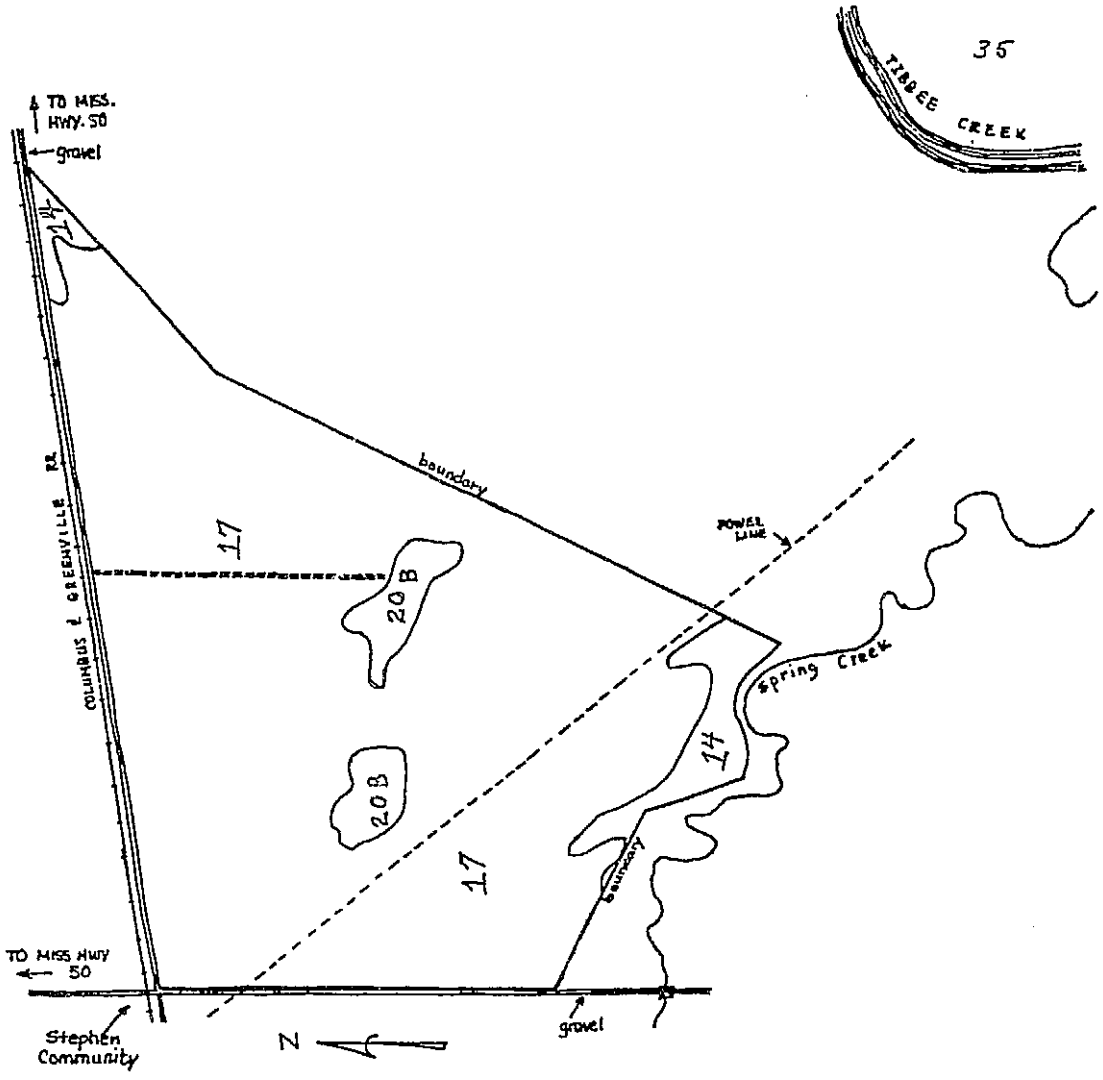
(LAND FORMS & LAND USE)



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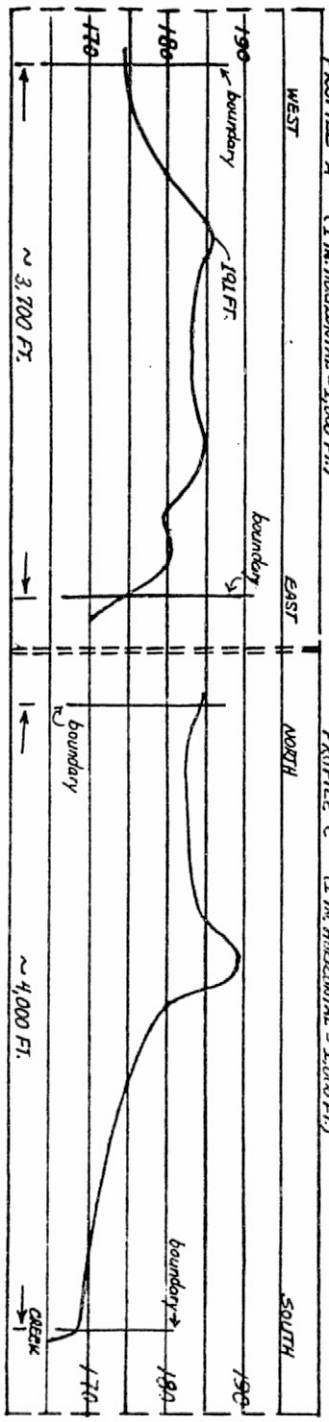
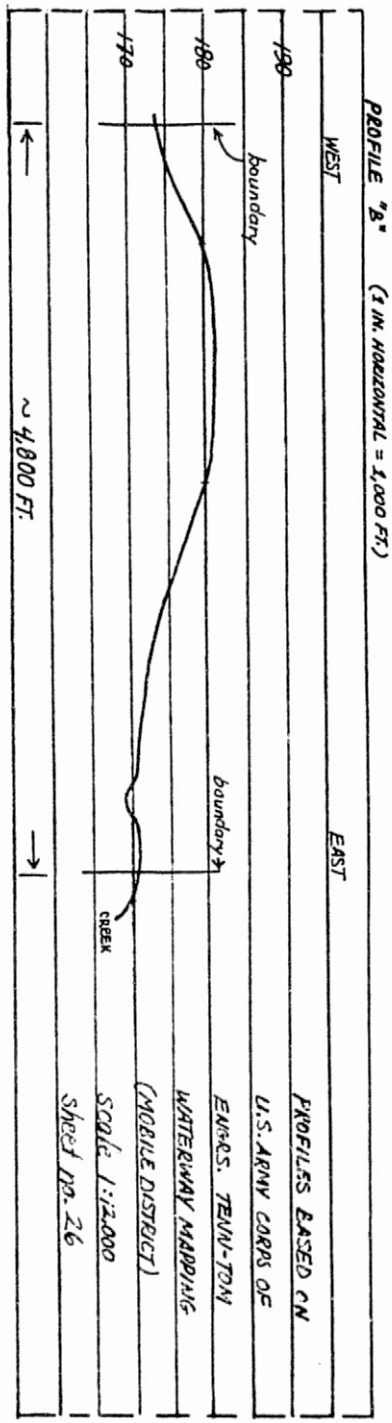
(SOILS)





RELATIVE RELIEF:

Site is predominately level and slopes gradually towards Tibbee Creek to the south and Lee Cr. to the east. However, a small rise occurs almost in the middle of the site. This rise is some 5-10 FT. higher than surrounding areas (is composed of loam instead of clay). Site elevations vary from 191 FT. on Ora ridge to 181 FT. north of the ridge and 169 FT. on southern and eastern boundaries.

Aberdeen North

Current Land Use

There is much diversity in land use on this site. LANDSAT optical analysis indicates that considerable rural residential land use has developed along the county road which crosses the site. In addition, ground truth has determined that the bluffs on the western edge of the site are being developed into middle and upper income subdivisions. Land southwest of Mattubby Creek is mostly devoted to agriculture (soybeans). Northeast of the creek pasture and woodlot use predominate with some agriculture also present. Almost all stream courses have growth of bottomland and hardwoods.

Erosion

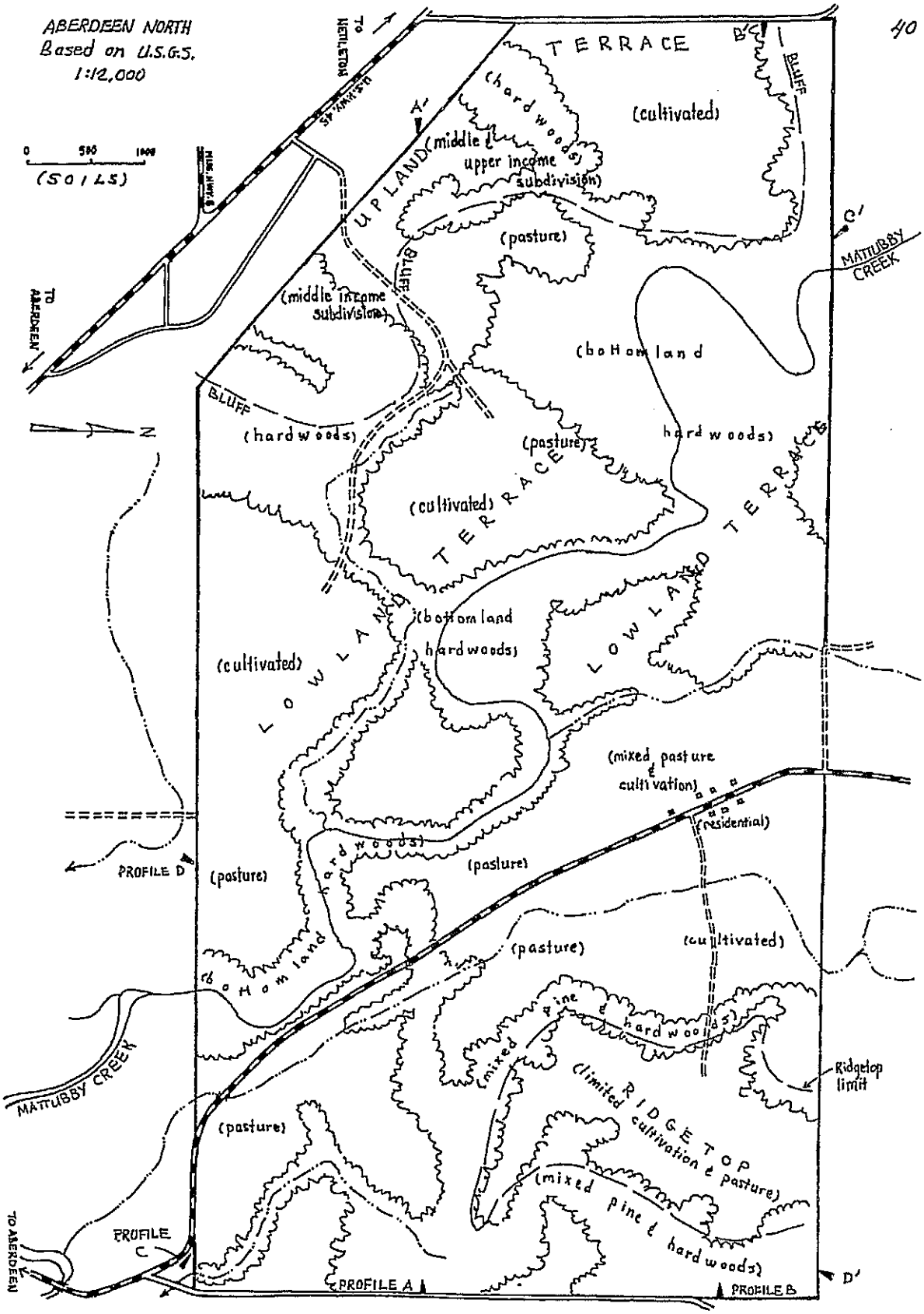
The sand to clay alluvial soils of the Mattubby Creek flood plain are stratified and moderately to poorly drained. As this area is flooded several times a year, the erosion hazard is severe--especially for the steep stream banks. The silt loams on the terrace to the south and west of the creek are gently sloping and are moderate to poorly drained. The areas containing few rills are susceptible to erosion while the small upland areas are slightly eroded. The stream terraces

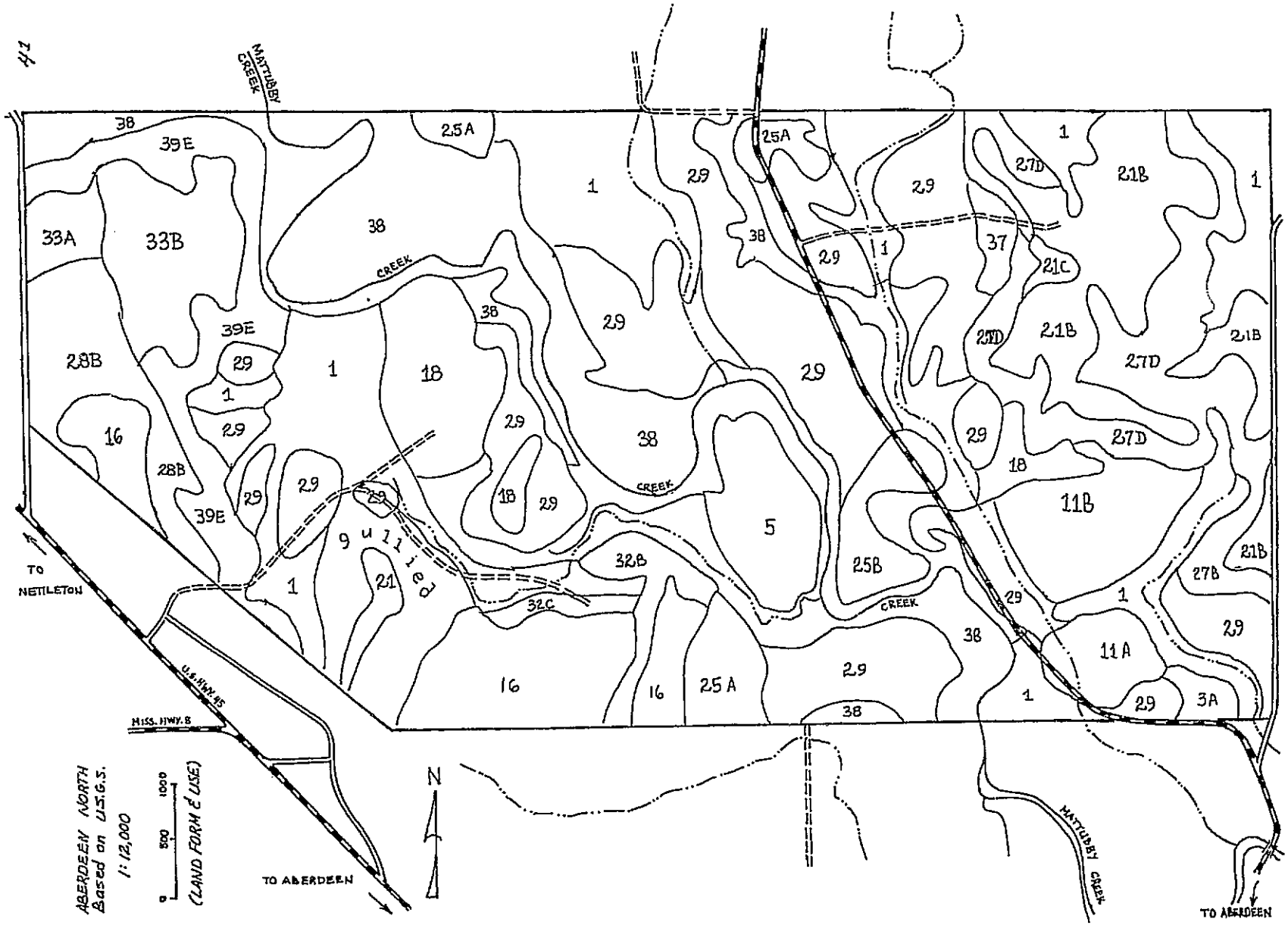
are also only slightly eroded, being characteristically wet during the winter and droughty in the summer. The two intermittent streams flow in alluvial soils and fine sandy loams which are responsible for shallow ravines developing due to the poor drainage in these lowest elevations. Together, these soils pose a moderate erosion hazard. The entire area around these streams is a fine sandy loam which is poorly drained and occupies nearly level to gently rolling landscapes. These soils experience a slight amount of erosion. Uplands rise in the northeast to meet with ridges of silt and sandy loam and sandy clay. These narrow ridges with steep sides are moderate to well-drained and contain numerous rills and gullies. The hazard of further erosion is severe due to the rapid surface run-off and steepness of the ridge slope. The flat southeast sector is composed of fine sandy loams, silt loam and alluvial soils. With such a combination of soil types, the drainage will vary from poor to moderate depending upon the degree of relief and proximity to drainage channels. The sandy loams show only slight erosion, the silt loams experience moderate erosion rates (as evidenced by a few rills) while the alluvial soils are flooded several times a year and pose higher erosion hazards.[3]

Anticipated Resource Losses

Mattubby Creek, which cuts the site in two, has pasture land to the north, and cultivated land to the south (soybeans). The creek itself is wooded-helping reduce run-off rate and erosion.

The northeast corner presents erosion potential directly into Mattubby Creek, and hence into the Tombigbee River. Accelerated sheet erosion is also anticipated from bottomland areas adjacent to Mattubby Creek if development occurs.




MATTUBBY CREEK
38
39E
25A
1
29
33A
33B
CREEK
28B
18
16
9 u l l e d
21
32B
32C
5
25B
11B
27D
21B
37
21C
27B
11A
3A
TO NETTLETON
U.S. HWY. 45
MISS. HWY. 8
TO ABERDEEN
N
ABERDEEN NORTH
Based on U.S.G.S.
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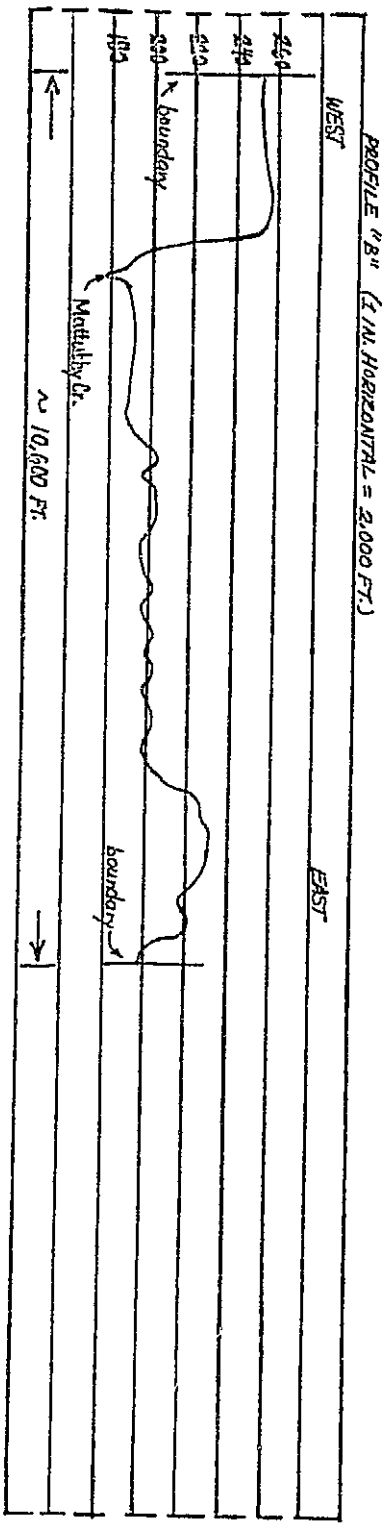
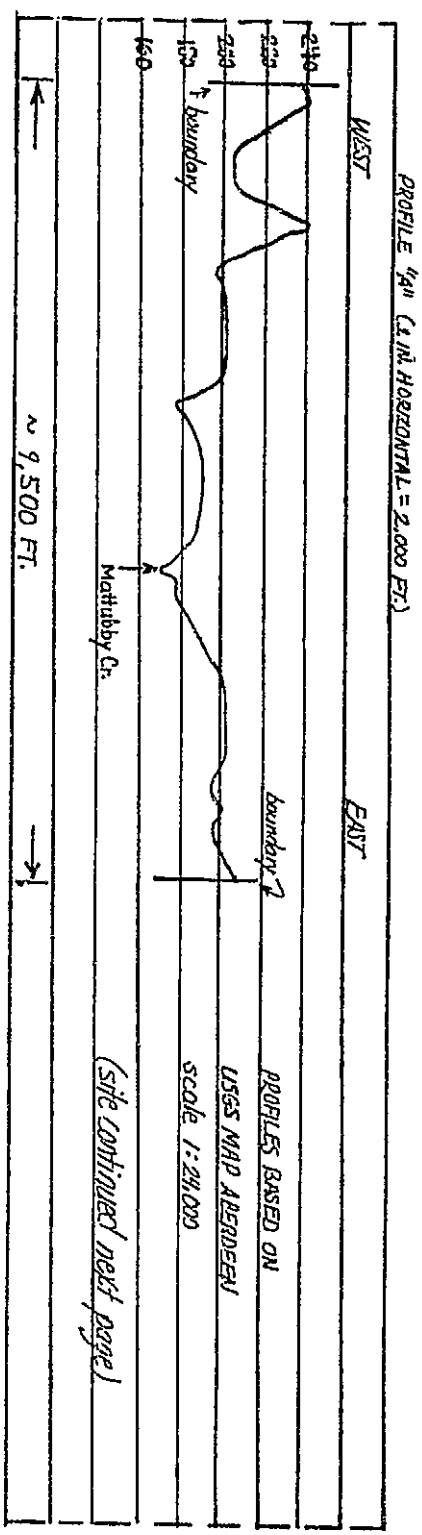
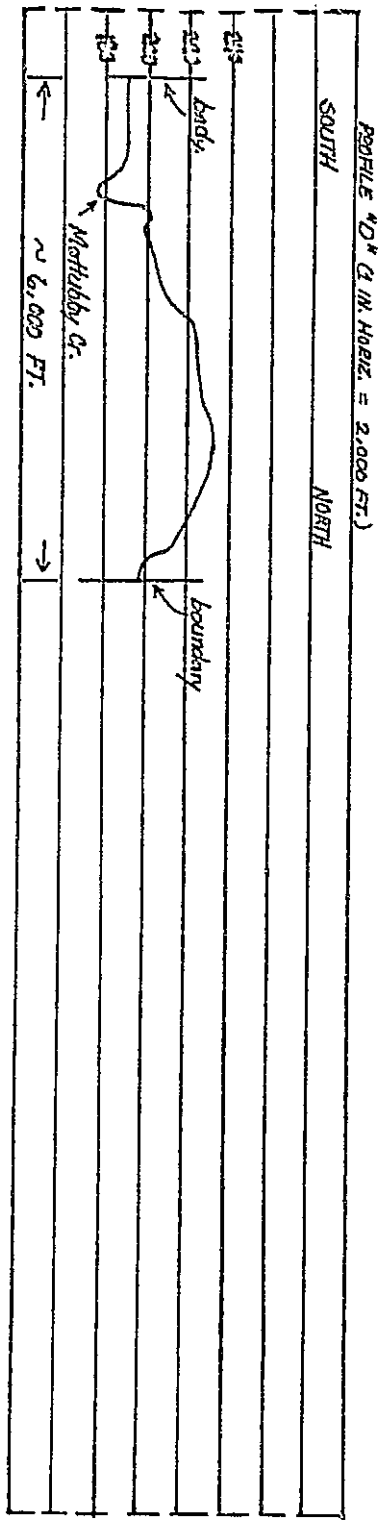
(LAND FORM & USE)

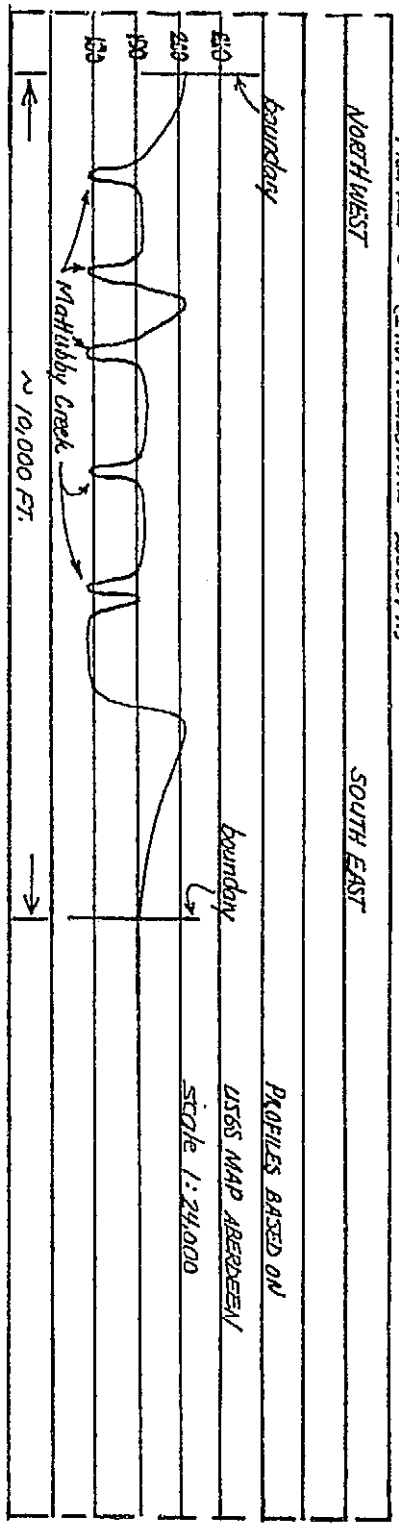




RELATIVE RELIEF:

There is considerable variation present on this site. Mattubby Cr. meanders from NW to SE through the site, bisecting it into two nearly equal halves. Lowest elevations occur along this creek (less than 180 FT.). Stream banks are generally steep, especially upstream. South and west of Mattubby Cr. lies an area of level terrace, which gradually rises from 190-200 FT. along the creek bank to 210 FT. contour line. A prominent bluff develops from the 210 FT. line with slopes of 6-20%. Max. bluff elev. is 260+ FT.





RELATIVE RELIEF:

(from preceeding page) North of Mattubby Cr. two intermittent streams flow across the site and enter Mattubby Cr. This north-central section has a number of shallow ravines. Higher ground lies to the NE with elevations of about 233 FT. This area is marked by numerous ravines and separate hillocks. The SE sector is generally flat and is drained by Mattubby Creek and a smaller tributary.

Aberdeen Southwest

Current Land Use

The southern lobe of this site lies within a bend of the Tombigbee River. Much bottomland hardwood occurs throughout the eastern and southern parts lying closest to the river. The western third is entirely in agriculture. Ground truth indicates this site is posted as a hunting preserve. CCT analysis also indicated that north of the river there are numerous woodlots, principally along U.S. Highway 45 and adjacent to the Tombigbee. Much of the remaining land is in cultivation.

Erosion

The fine sandy loams north of the Tombigbee River are largely poorly drained on the gently rolling stream terrace. (As they lie above the river they are only slightly eroded). The sand-to-clay alluvial soils along the river bank are stratified and rather poorly drained as they flood several times a year, representing a higher erosion hazard area. South of the river, the fine sandy loams slope from higher elevations in the west and merge with the alluvial soils in the east. The loams are moderately well drained on the gently sloping land and are only slightly eroded whereas the

alluvial soils being poorly drained are a higher erosion hazard due to their frequent flooding. MDAS analysis indicated swamp and wetland in the eastern and central sections of the southern lobe. These areas are comprised of alluvial and sandy soils and sandy loams, all of which are very poorly drained. Along the southern boundary of the site the sandy loams occupy higher stream terrace elevations and are moderately well drained. As such, these drier soils on the gently sloping stream terrace are only slightly eroded.[3]

Anticipated Resource Losses

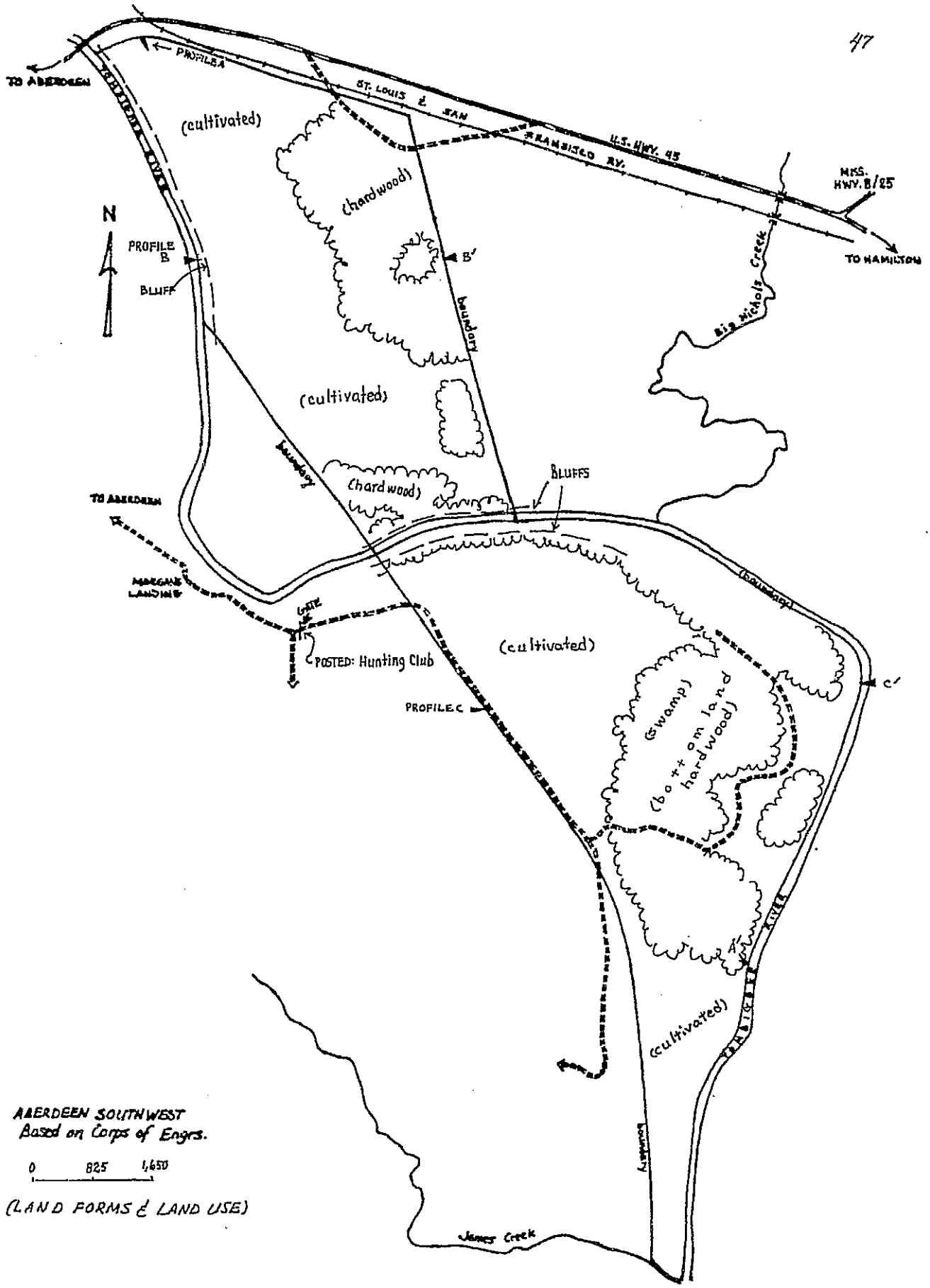
This site consists mainly of cultivated farm land, the chief type being soybeans. The area contains several patches of hardwood forest.

Two areas have been designated spoil disposal areas. One of these areas is at the north end of the site, which is composed mostly of soybean fields. The other spoil disposal location is approximately in the center of the site, immediately south of the river.

Considerable sheet erosion could occur if there is development on the southwest corner of the site. Erosion would increase sedimentation load on James Creek, which flows directly into Tombigbee River.

A hunting club, located just to the southwest of the river, is the only other important factor on this

site. The major loss comes from destruction of bottom-land hardwood and loss of wildlife habitat.



ABERDEEN SOUTHWEST
Based on Corps of Engrs.

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(LAND FORMS & LAND USE)

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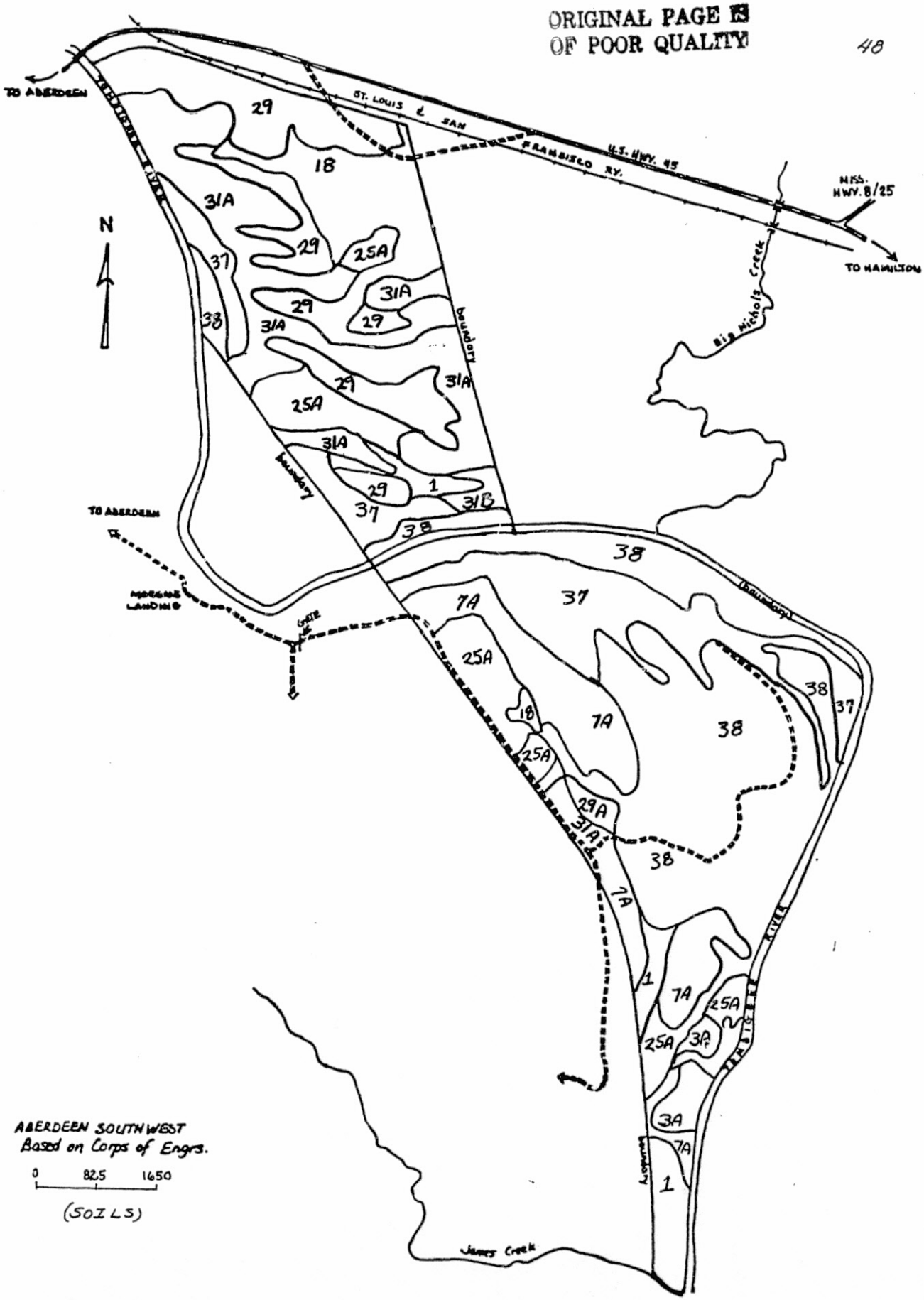

ABERDEEN SOUTHWEST
Based on Corps of Engrs.

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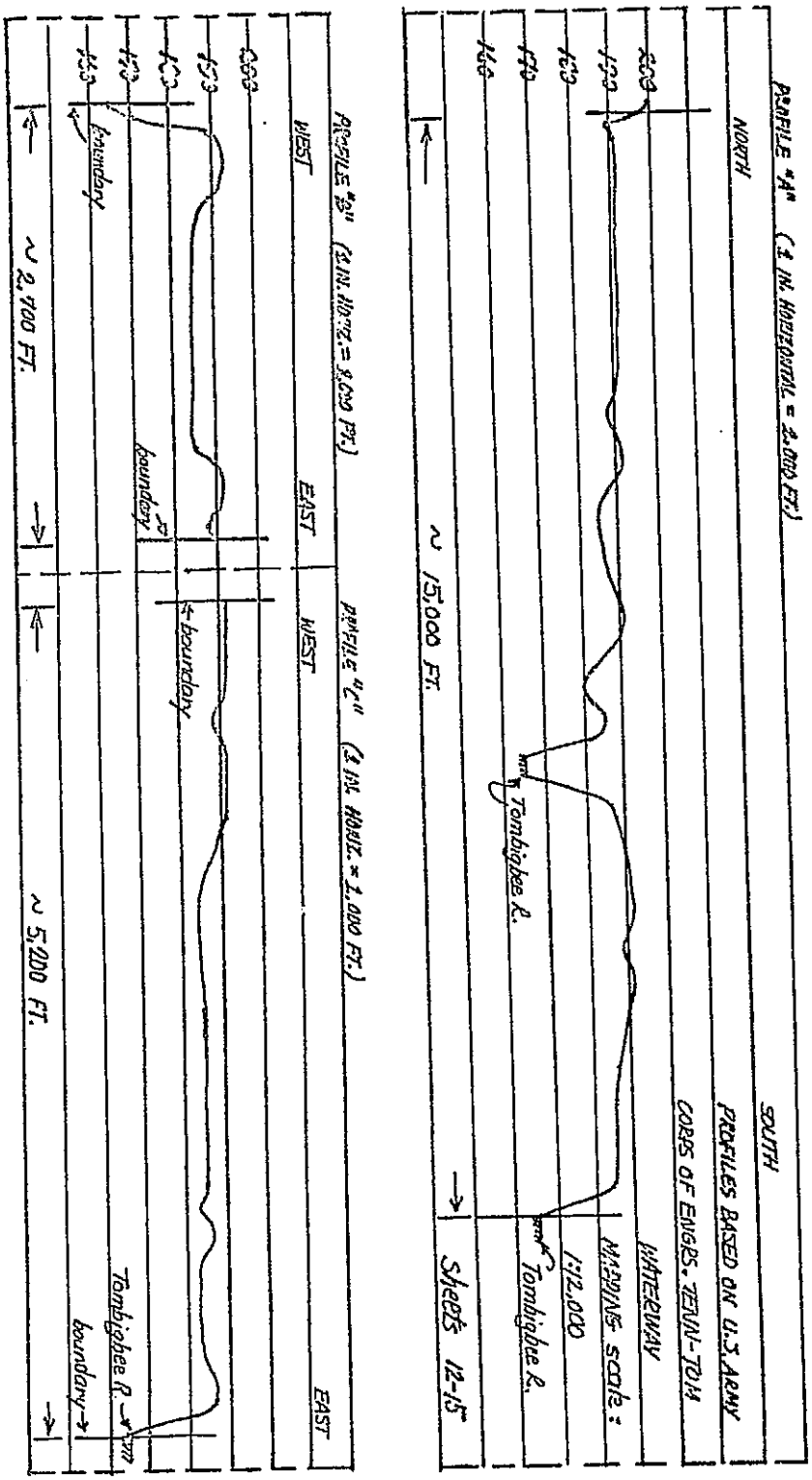
(SOILS)

SITE: ABERDEEN (META)



RELATIVE RELIEF:

The portion north of the Tombigbee is flat land some 20-25 FT. above the river. Only sharp relief is found along the river bank. Elevation rarely deviates more than 5 FT. on the terrace. The portion south of the river is predominately level with a distinct downward taper from west to east. Most of the eastern and central section is classified as swamp or wetland. Elevations range 19½ FT in the NW (south half) to less than 170 FT. along the river.

Aberdeen Southeast

Current Land Use

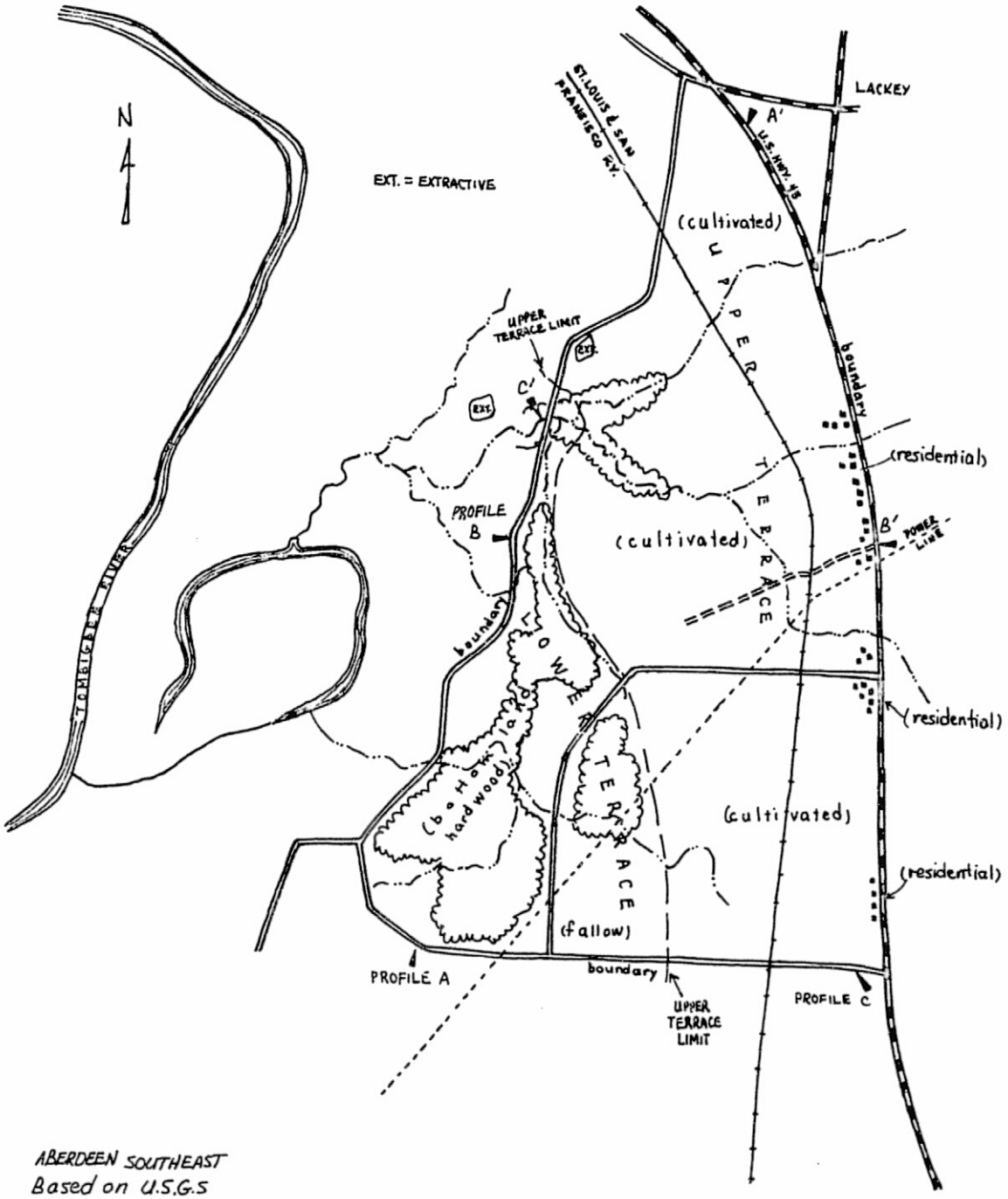
This area consists of two stream terraces, one about twenty feet higher than the other, lying east of the Tombigbee River. The higher terrace occupies two-thirds of the site and except for bottomland forest growth along several small watercourses it has been entirely cleared of trees or brush. A number of homes and farm buildings line the extreme eastern edge of the site along U.S. Highway 45. CCT analysis (EOD1L) indicates that the upper terrace is presently devoted almost entirely to crops (especially cotton). The St. Louis and San Francisco Railway runs west of and roughly parallel to Highway 45. The lower terrace is somewhat more poorly drained (as indicated by MDAS analysis) than the upper and probably 60% (about 220-230 acres) is still in woods. The remainder of the lower terrace is in uncultivated clearings or cropland. Several distinct "wet" or swampy areas exist along the base of the escarpment separating the two terraces. A TVA power line runs from the eastern-central edge of the site to the southwest corner.

Erosion

The southwest corner of this site consists of low-lying terrace comprised of sandy soils and fine sandy loams. These soils being found in the lowest regions are susceptible to severe flooding and are poorly drained, but are only slightly eroded. A low bluff line of fine sandy loams separate this tract from an upland area. The fine sandy loam bluff region is moderately well drained and only slightly eroded, with moderate amounts of erosion occurring in only a few areas. The uplands are of fine sandy loams, being slightly eroded in moderately well-drained areas of level land and also eroded in the gently-sloping areas which contain a few shallow gullies. As surface run-off is the principal hazard here, erosion is a moderate problem. The three minor streams flow through mainly sandy soils which are poorly drained. As they occupy the floodplain, these soils are susceptible to severe flooding. These areas have high erosion rates associated with then.[3]

Anticipated Resource Losses

Except for the southwestern corner, this site has been almost entirely cleared of forest. Principal loss arising from development of industry would be removal of extensive cropland areas--now planted in cotton throughout most of the site.



ABERDEEN SOUTHEAST
Based on U.S.G.S
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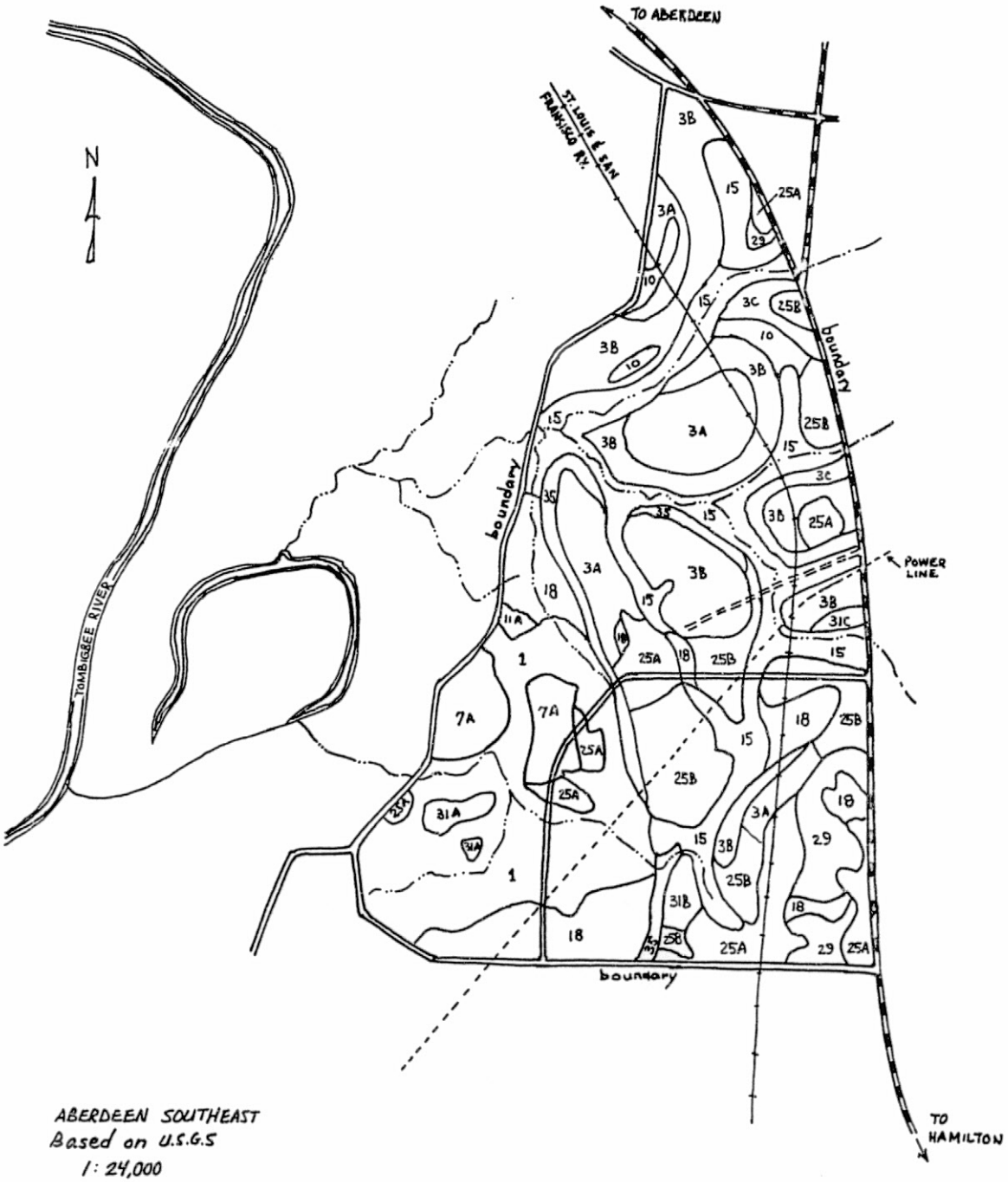
(LAND FORM & USE)



ABERDEEN SOUTHEAST
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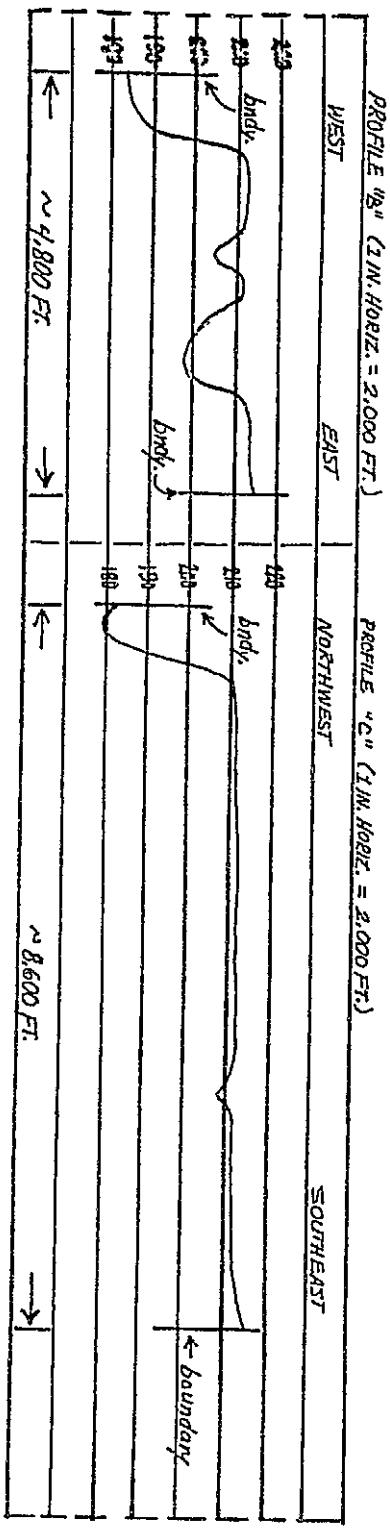
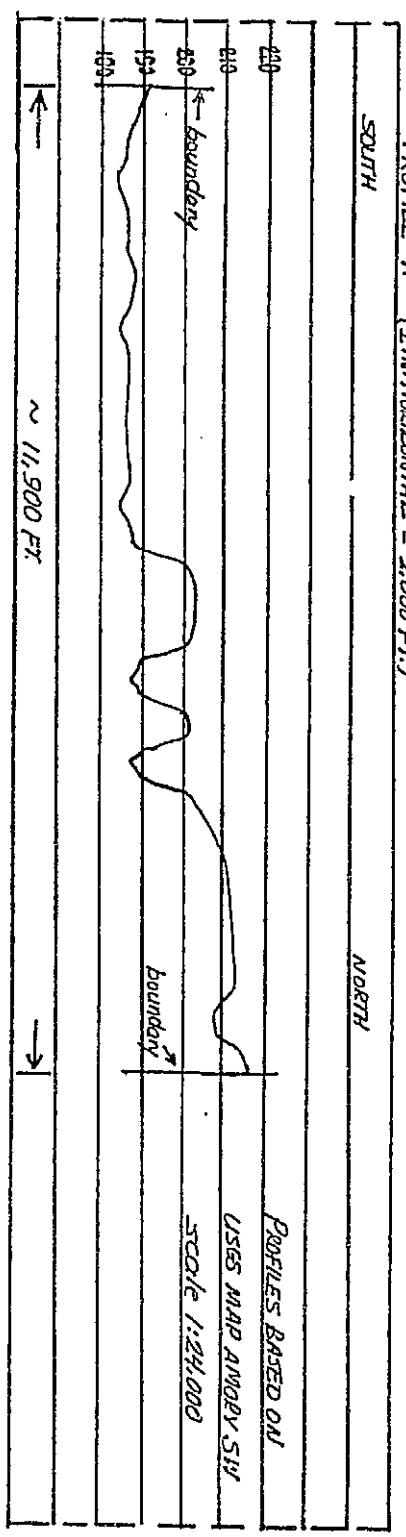
(SOILS)





RELATIVE RELIEF:

Occupying all the SW corner (about 1/3 of total site area) is low-lying terrace land. Elevations range from 182-187 FT. This area is separated from the somewhat higher northern and eastern portions by a low bluff line which rises from just below 190 to just over 200 FT. The higher section is level with no locations above 220 FT. The principal deviations are three minor streams fanning out from the western boundary and extending east and northeast. Levels dip to 190-200 FT. here.

Monroe County Airport

Current Land Use

MDAS digital analysis indicates that the airport site is characterized by agricultural fields over most of the area except for the forested northwest corner. Monroe County Electric has several minor power lines running to the east, west, and south. Mississippi Valley Gas has a gas line running north-south along the western side of the runway. A state highway department road work center is also to the east where the airport road and Highway 25 intersect. Bottomland hardwood occurs to the north, west, and south-usually just outside the site boundaries(some wood lots are scattered throughout the site). Of course, the most important use of this site is the 4,000 foot runway and facilities of the Monroe County Airport itself.

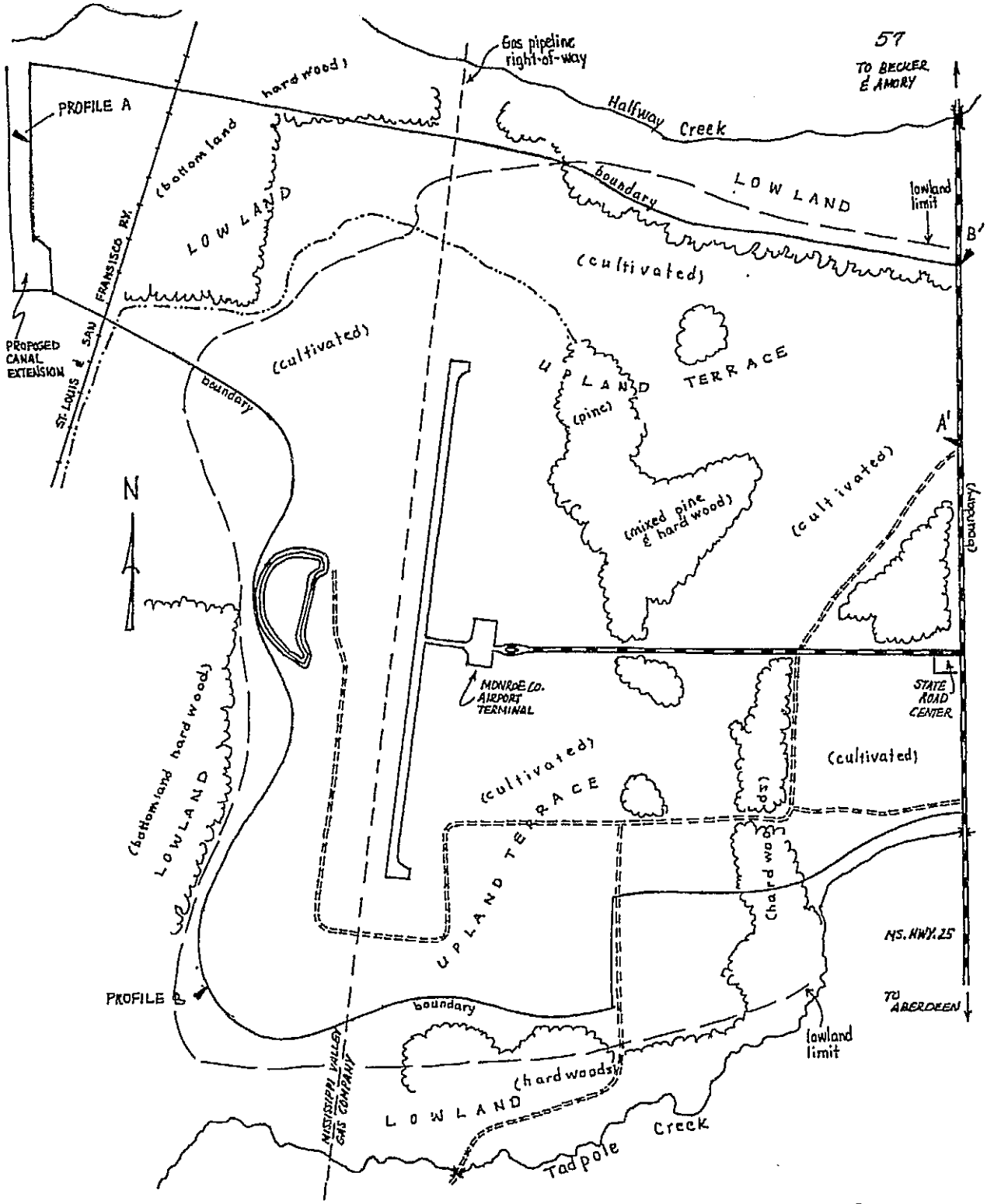
Erosion

The vast majority of soils on this site are fine sandy loams which are located on flat or gently sloping stream terraces. The fine sandy loams in the west are moderately well-drained and are only slightly eroded. The fine sandy loams in the northwest corner are also moderately well-drained and are slightly eroded. They

occupy higher elevations than the sandy soils found in the lowest elevations on the flood plain. These bottomland sandy soils are poorly drained and may flood several times a year. Along the southern boundary fine sandy loams occur and are moderately well-drained on the higher terrace elevations, and so are only slightly eroded. Also optical LANDSAT analysis indicated extremely wet areas occupy the nearly level or depressional areas adjoining Tadpole Creek. Soils in these areas are poorly drained fine sandy loams which occupy the lowest relief areas. They exhibit only slight erosion. Due to the lack of significant relief on this site area, low degrees of erosion are anticipated for the site.[3]

Anticipated Resource Losses

This site appears to have few losses associated with its conversion to industrial use. This is principally because the site is highly accessible to State Highway 25 and has already been extensively cleared for agriculture. The presence of an airport within the site has very likely had negative influence on the desirability of this site as wildlife habitat. Primary loss from development on this site would be removal of farmland as well as the impact on wildlife in the northwest corner of the site which is presently wooded bottomland.



MONROE COUNTY AIRPORT
Based on Corps of Engrs.
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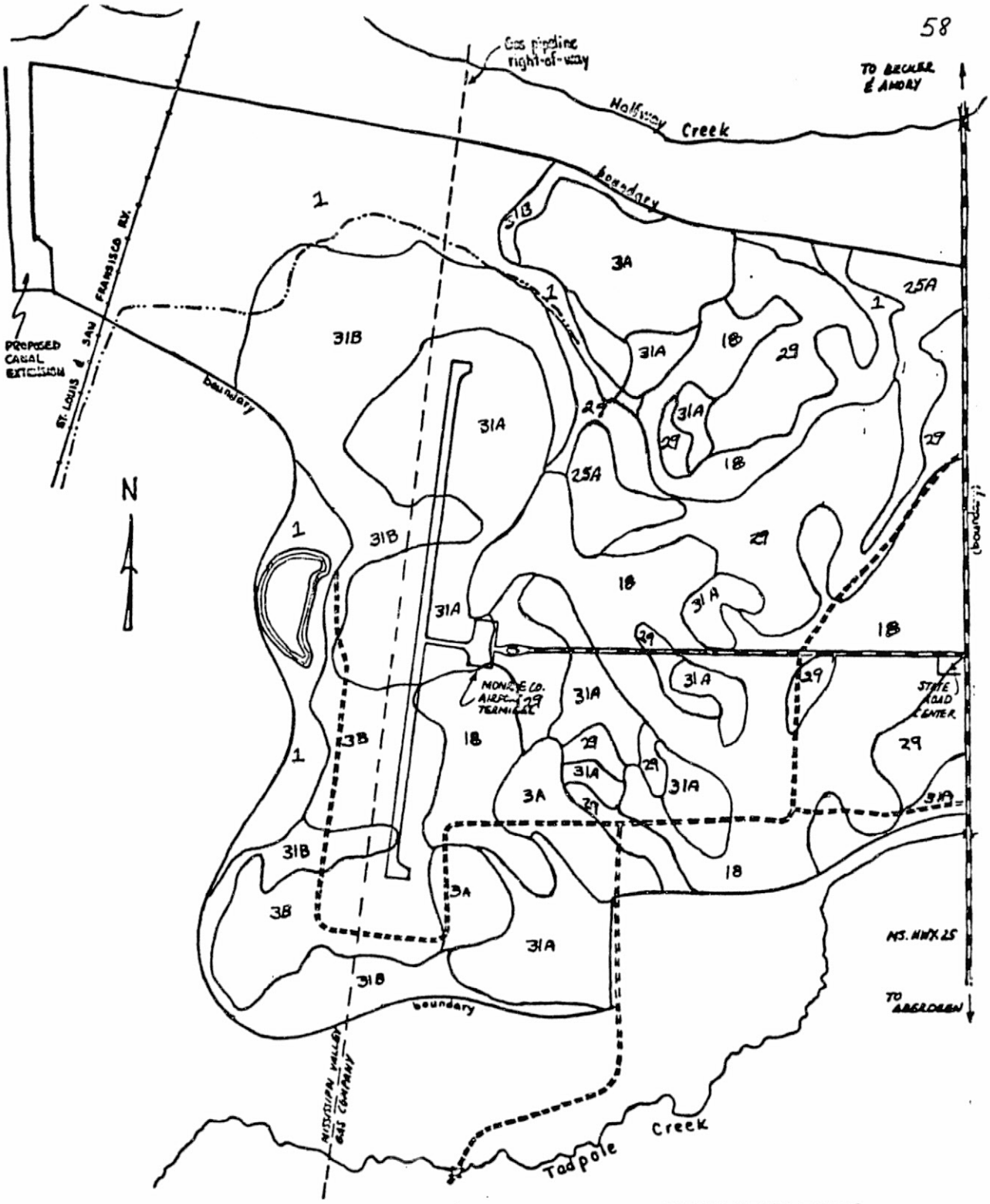

MONROE COUNTY AIRPORT
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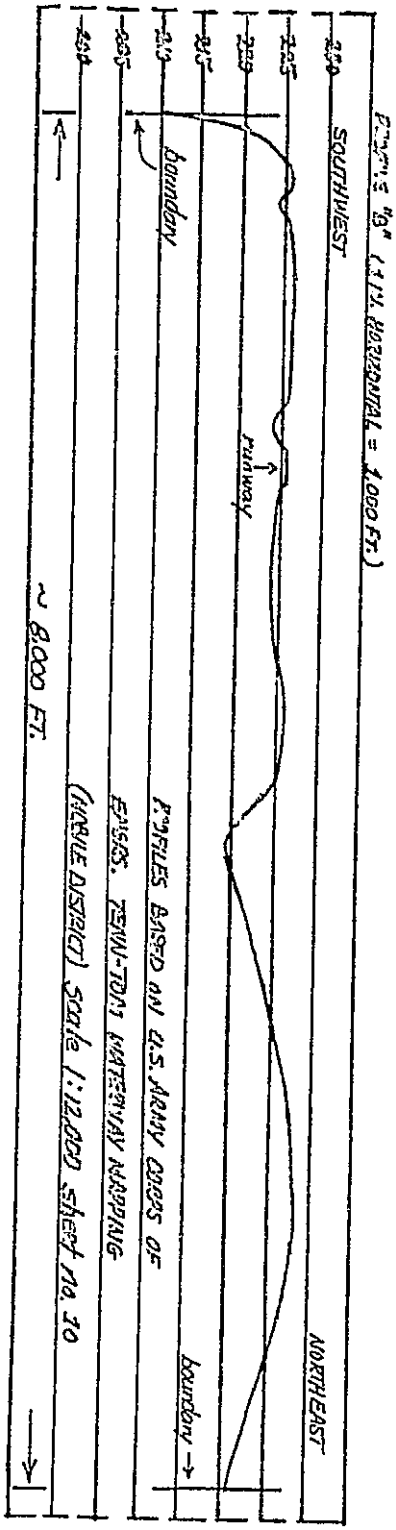
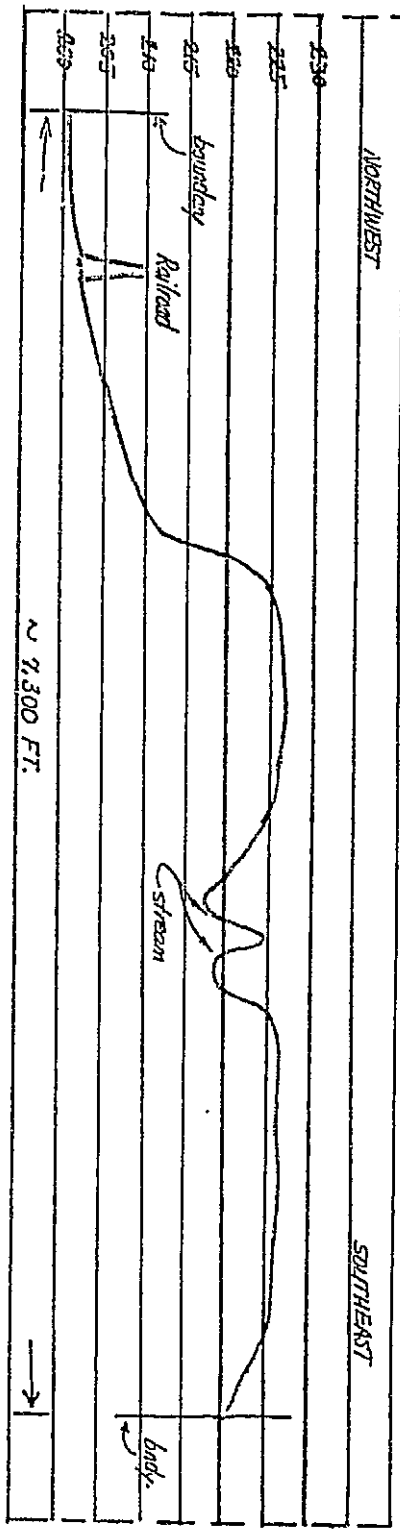




RELATIVE RELIEF:

Most of the airport site is level land between 220-228 FT. This level area is broken by only several shallow drains. To the west, the flat area drops into bottom-land below 210 FT. The only extensive low-land within the site is the extreme NW corner where the access canal would reach the site. This area lies between 200-210 FT. There is also lowland less than 210 FT. along the southern boundary at Tadpole Creek.

Amory

Current Land Use

This site covers 985 acres with the majority in pasture and agricultural land and about 10% in forest. There is some middle income residential housing and several small businesses on the boundary along Mississippi Highway 25 and U.S. 278. Extensive areas along the 210-230 ft. bluff line have gravel pits (see map). The area immediately to the west of Highway 25 should be deleted due to the presence of numerous residential properties. This site also contains an archeological site--an Indian mound just south of boundary between sections 2 and 35. Bottomland forest occurs on the floodplain west of bluff.

Erosion

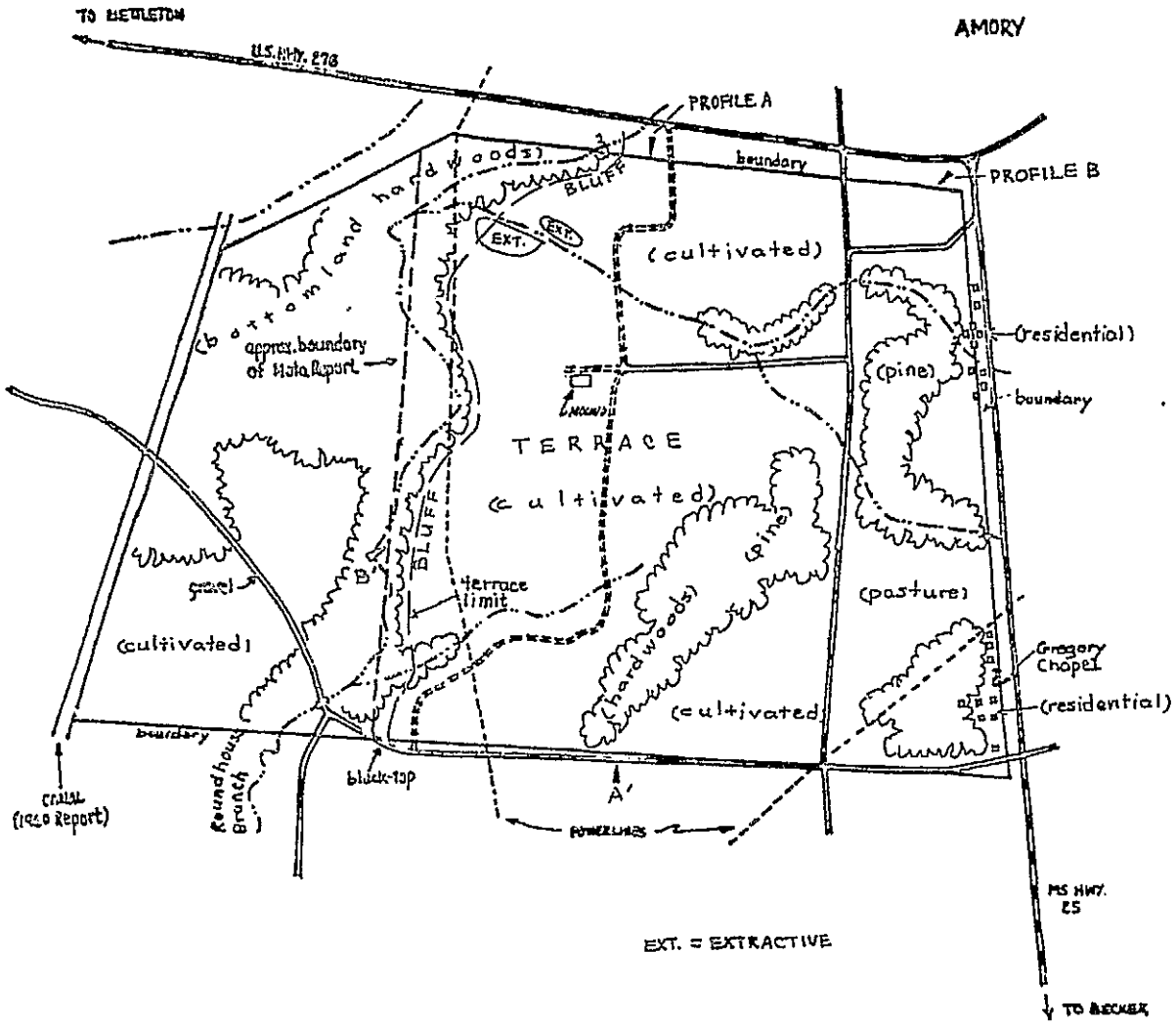
The fine sandy loams which occupy the upland terrace in the east are only slightly eroded on the nearly level areas whereas on the gently sloping portions they are more moderately eroded. The erosion on these slopes is characterized by rills and shallow gullies, and as such represents a moderate erosion hazard. The sandy soils found along the watercourse are on the floodplain and are poorly drained. These

soils are flooded several times a year and are susceptible to severe flooding, indicating a more severe erosion problem. MDAS analysis, however, did not indicate a perennial flooding condition. The bluff soils are fine sandy loams which tend to be moderately well drained and only slightly eroded on the top, while the bluff face is moderate to severely eroded with shallow gullies common and deep gullies also existing. Thus a moderate to severe hazard for further erosion exists and it must be managed carefully. The bottomland in the west is swampy (classified as flood area in some LANDSAT images) even though sandy soils and fine sandy loams predominate here. The poor drainage within this area of lowest elevations causes a slight to moderate erosion hazard. Therefore, only the eastern uplands are suitable for industry location without major earth-fill.[3]

Anticipated Resource Losses

Because this site is predominately cropland and pasture with only minor wooded areas, this area is not highly regarded as wildlife habitat. Therefore, the most important resources affected by industrial development would be farm acreage and grazing land (a total of about 800 acres). The terrace escarpment where the site drops down to the Tombigbee River bottomlands is pitted with numerous gravel extractive operations. Also an

Indian mound of possible archaeological/historical value occurs in the west-center of the site. The gravel extractive areas would probably not be much affected by any growth. However, it is probably desirable to safeguard the Indian mound and its immediate surroundings.



AMORY
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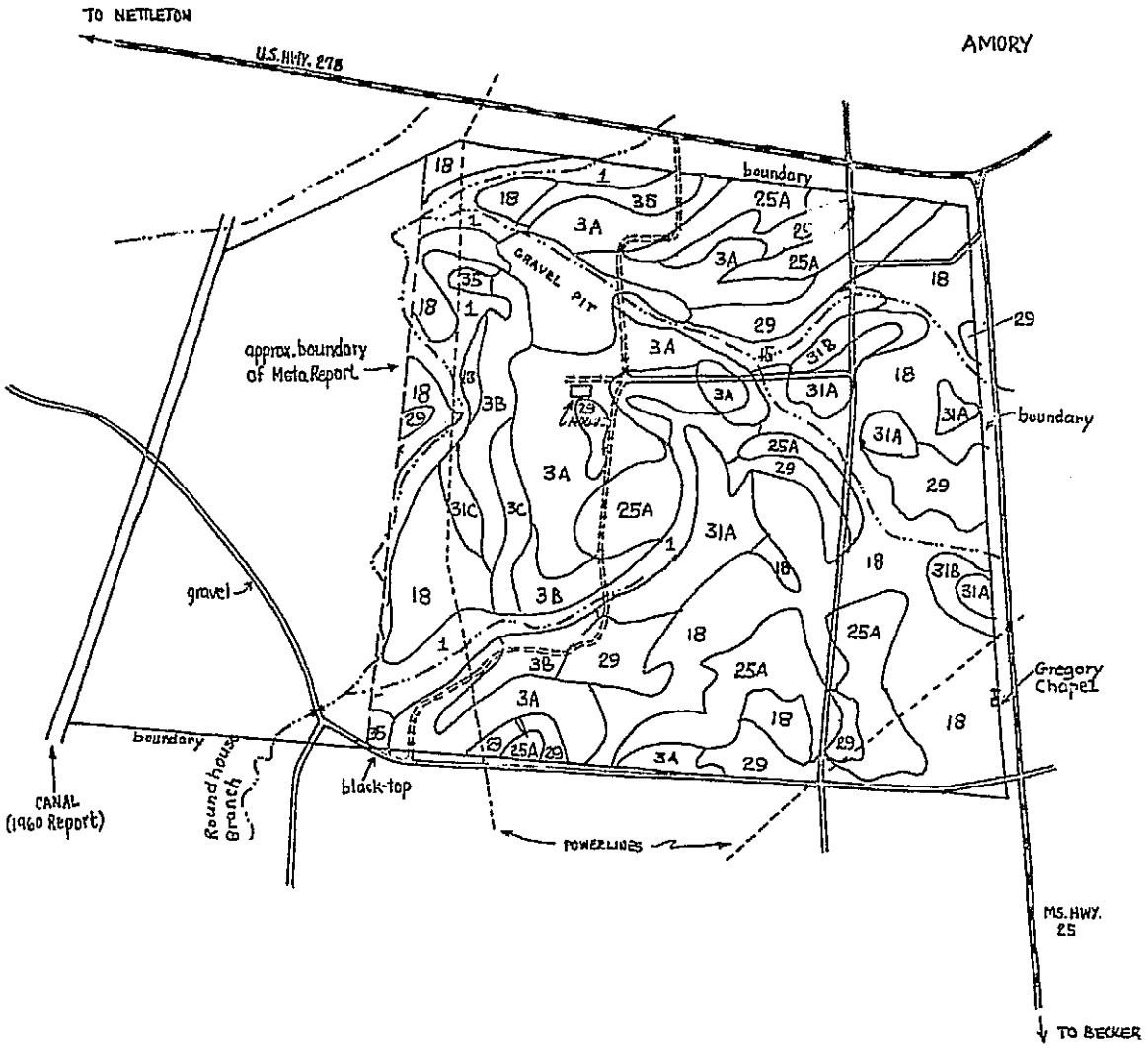
(LAND FORM & USE)



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AMORY
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(SOILS)

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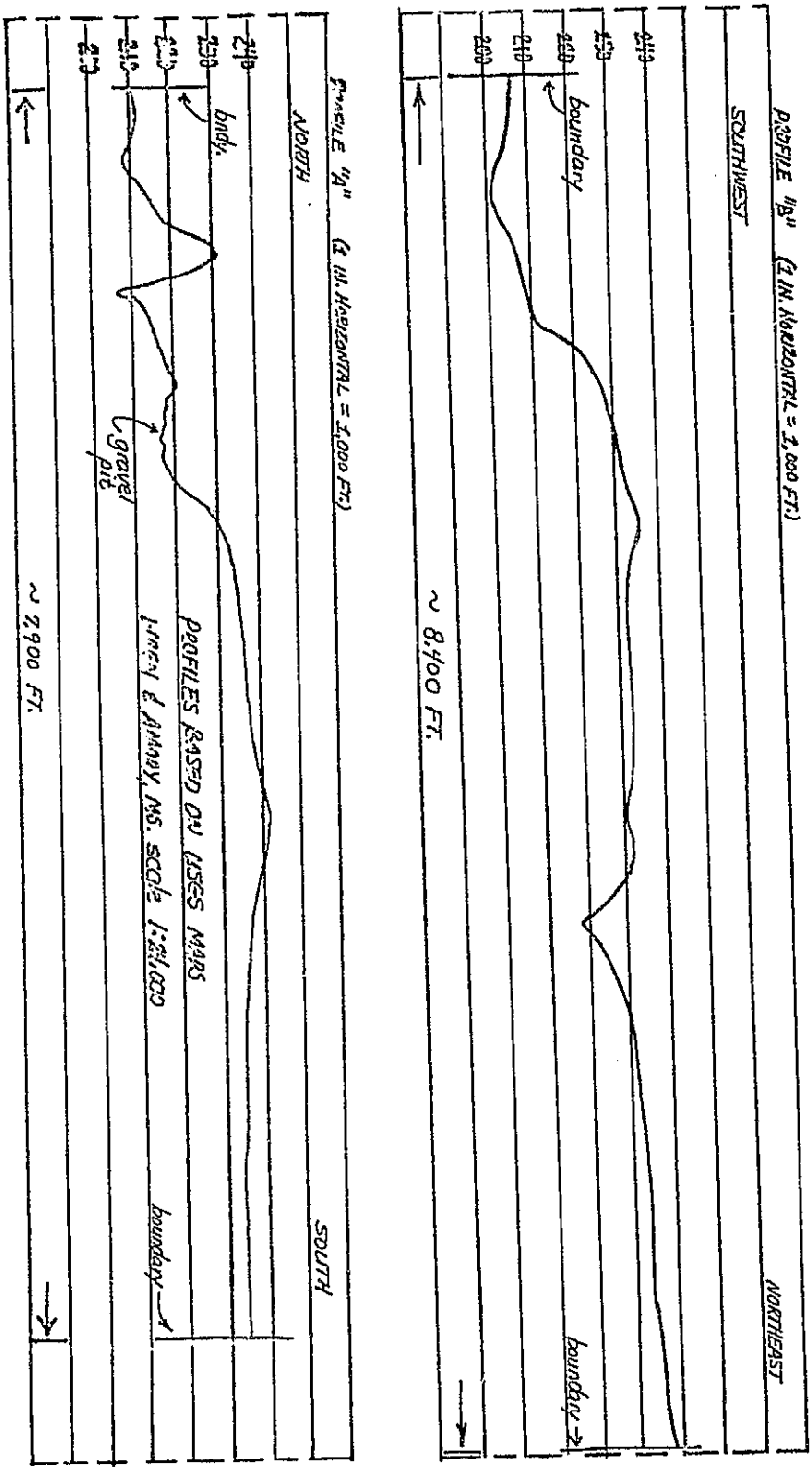
SITE: AMORY (META)



RELATIVE RELIEF:

This site is principally upland terrace some 230-240 FT. high. Terrace is generally level to gently sloping except along the small watercourse draining northern third of site. A distinct bluff marks the divide between terrace and bottomland. This bottomland varies in elevation between 205-210 FT. Much of this area is swampy. As given by META report, bottomland occupies only a small portion of total area.

Amory Southeast

Current Land Use

This site is a prime candidate for development as it lies immediately south of an existing industrial park. Power, railroad and highway access are already available. The northwestern third of the site is level and has been cleared to agriculture and pasture use. Few residences are present here. The east-west road which bisects the site has several homes on its western end closest to Mississippi 25. The remaining two-thirds of the site is generally composed of fallow farmland, apparently reverting to woods; large cultivated sections; and woodlots or bottomland woods.

Erosion

The fine sandy loams found on this site are located on nearly level or gently rolling stream terraces, which are situated roughly on the center of the site area. The soils are moderate to well drained, and together with the basically flat relief have undergone relatively little erosion. However, where the land is drained by creeks, the elevation lowers as the ravines have cut down into the fine sandy loams. In these cases, the soils are poorly drained as they occupy the progressively lower elevations in the immediate vicinity of the

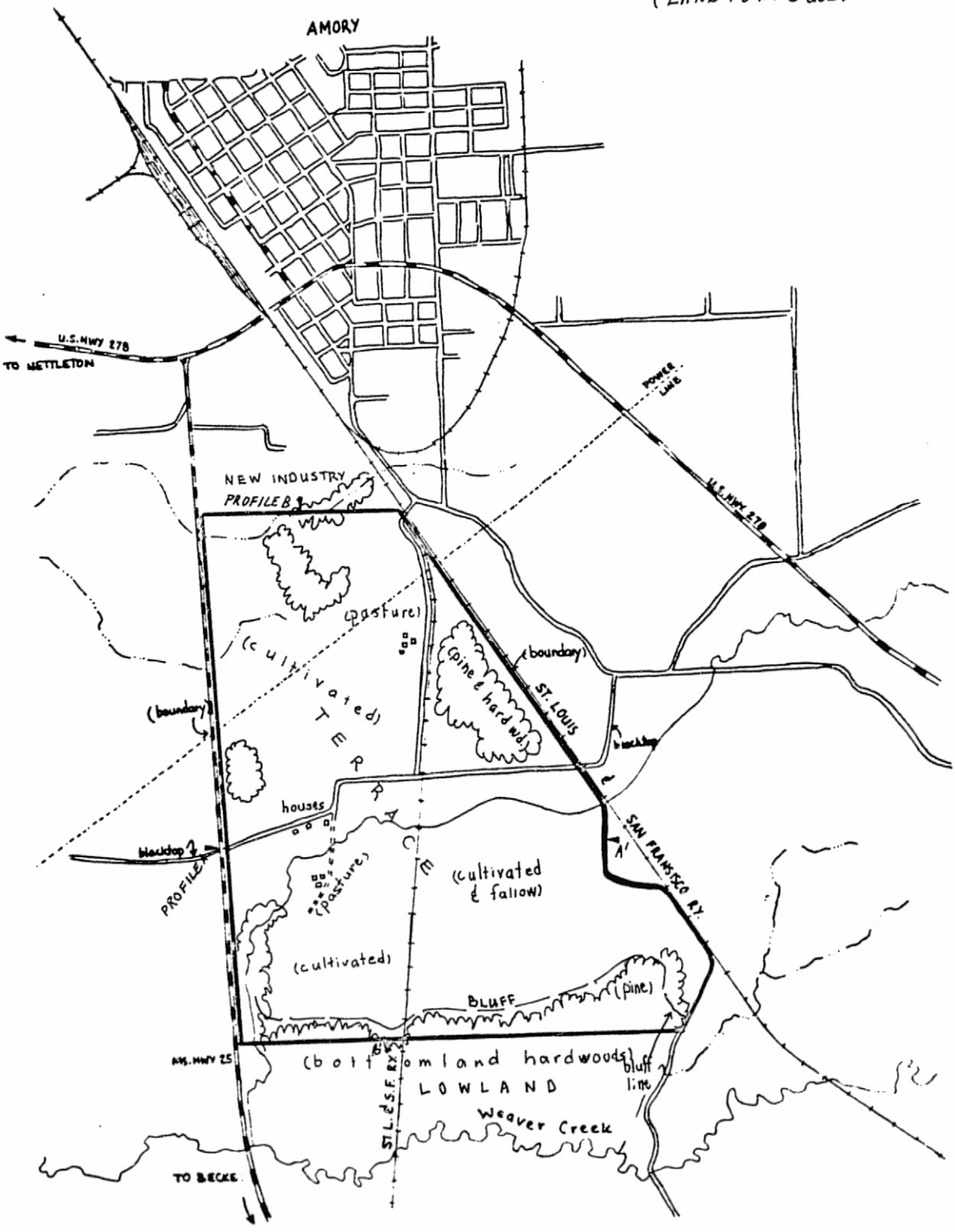
drainage channels themselves. In spite of this, though, these soils are only slightly eroded. Along the southern border are found mainly fine sandy loams which comprise the rim and the land immediately below it. These soils are well drained in the uplands as well as in the rim floor. Consequently, rills and shallow gullies are common, along with some deep gullies. The soil is therefore severely eroded along the southern boundary, and careful management is needed to control this hazardous erosion. Except for this strip, the site on the whole is rather moderately well drained on nearly level land which has experienced only slight degrees of erosion.[3]

Anticipated Resource Losses

This site is devoted largely to agriculture and pasture with some fallow land that is apparently growing back into forest. Approximately two-thirds of the site is cleared land, with small cultivated sections and woodlots scattered over the southern half of the site. The northern half is mainly agriculture and pasture land. Cotton is the main crop on sections in cultivation. Losses of this cotton and pasture area (about 500 acres) would be the most important loss resulting from industrial expansion.

AMORY SOUTHEAST (T.V.A.)
Based on U.S.G.S.
1:24,000

(LAND FORM & USE)



AMORY SOUTHEAST (T.V.A.)
Based on U.S.G.S.
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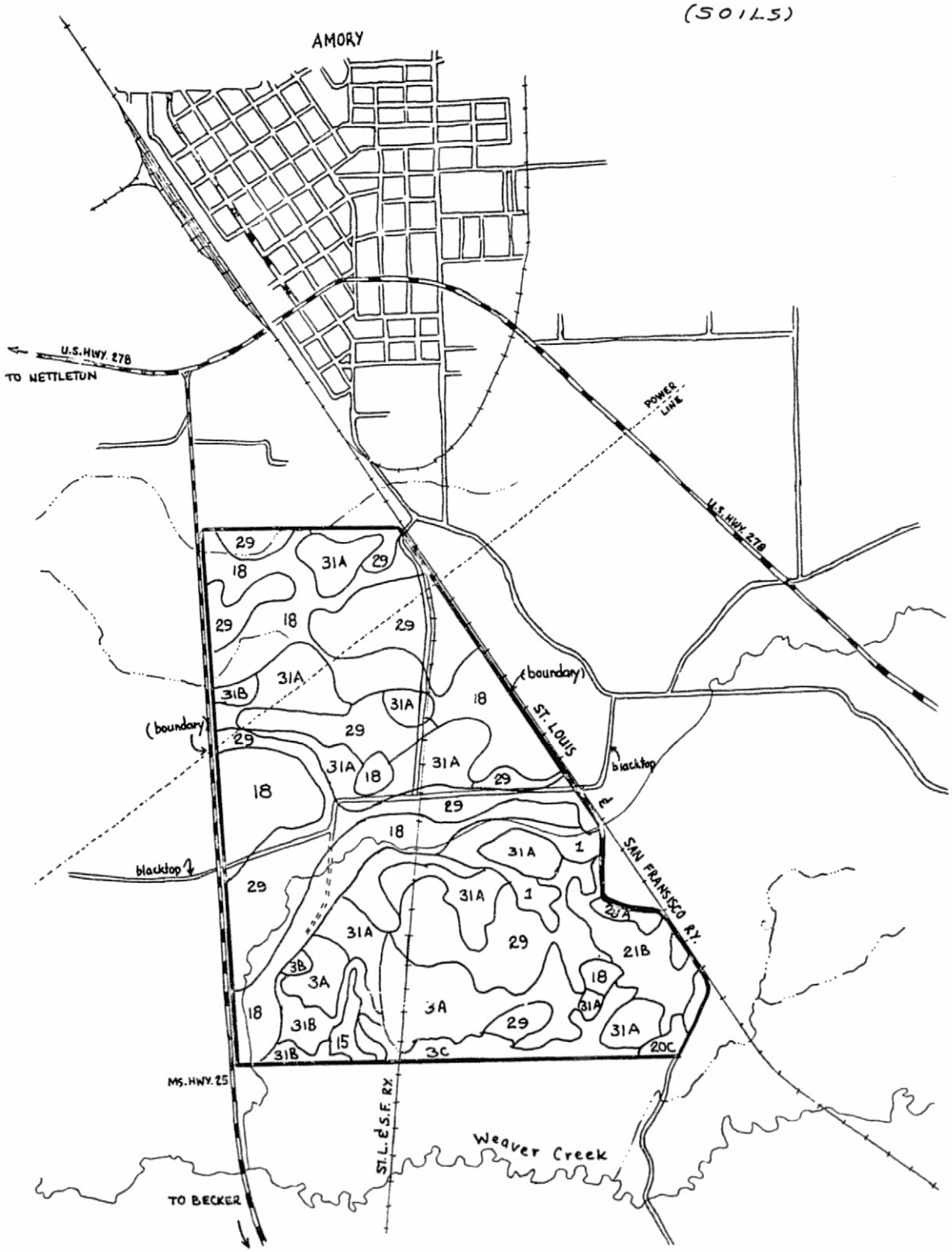
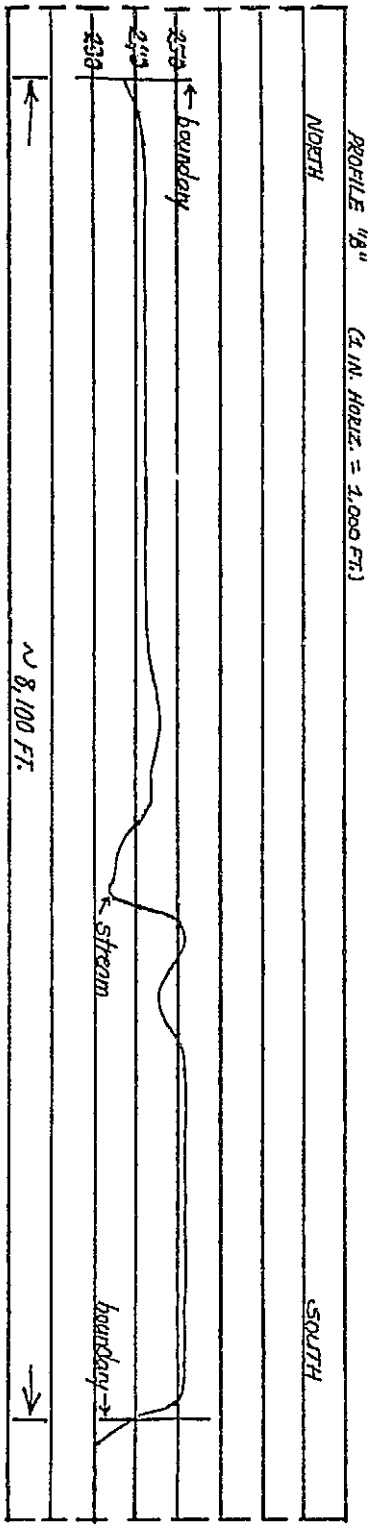
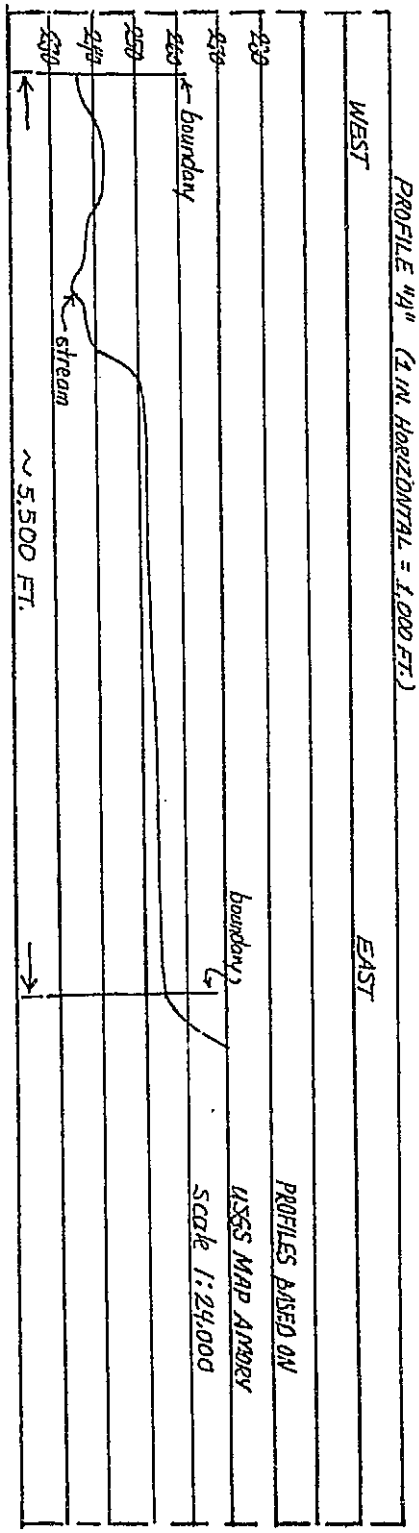
(SOILS)







RELATIVE RELIEF:

Site is basically level except along the southern rim adjacent to Weaver Cr. where there is a line of bluffs. Another stream flows through the center of the site before exiting through the SW corner. This lies within a gentle ravine dipping below 230 FT. in the SW. A third stream drains the NW corner. Almost all land on this site lies between 240-260 FT. contours. Max. elevation is about 271 FT. There's an overall gentle slope from the higher east side down to the west.

Amory Northeast

Current Land Use

This site is quite flat with an imperceptible slope toward the south and west. Drainage is poor through the southwestern portion and this poorly drained area extends well into the central part of the site. This area has largely been left in a mixed forest of pine and hardwood (some of which have been partially cut-over). Forest cover extends over the bulk of the site with large cleared areas found only along Highway 25 and the eastern creek boundary. Open areas are used mostly for agriculture with some residential dwellings. This site also contains three gas wells of Cleary Petroleum Company. These wells are found as follows: one along the northern boundary (Hwy. 25) approximately at the center point of the boundary, and two within the southwestern corner of the site.

Erosion

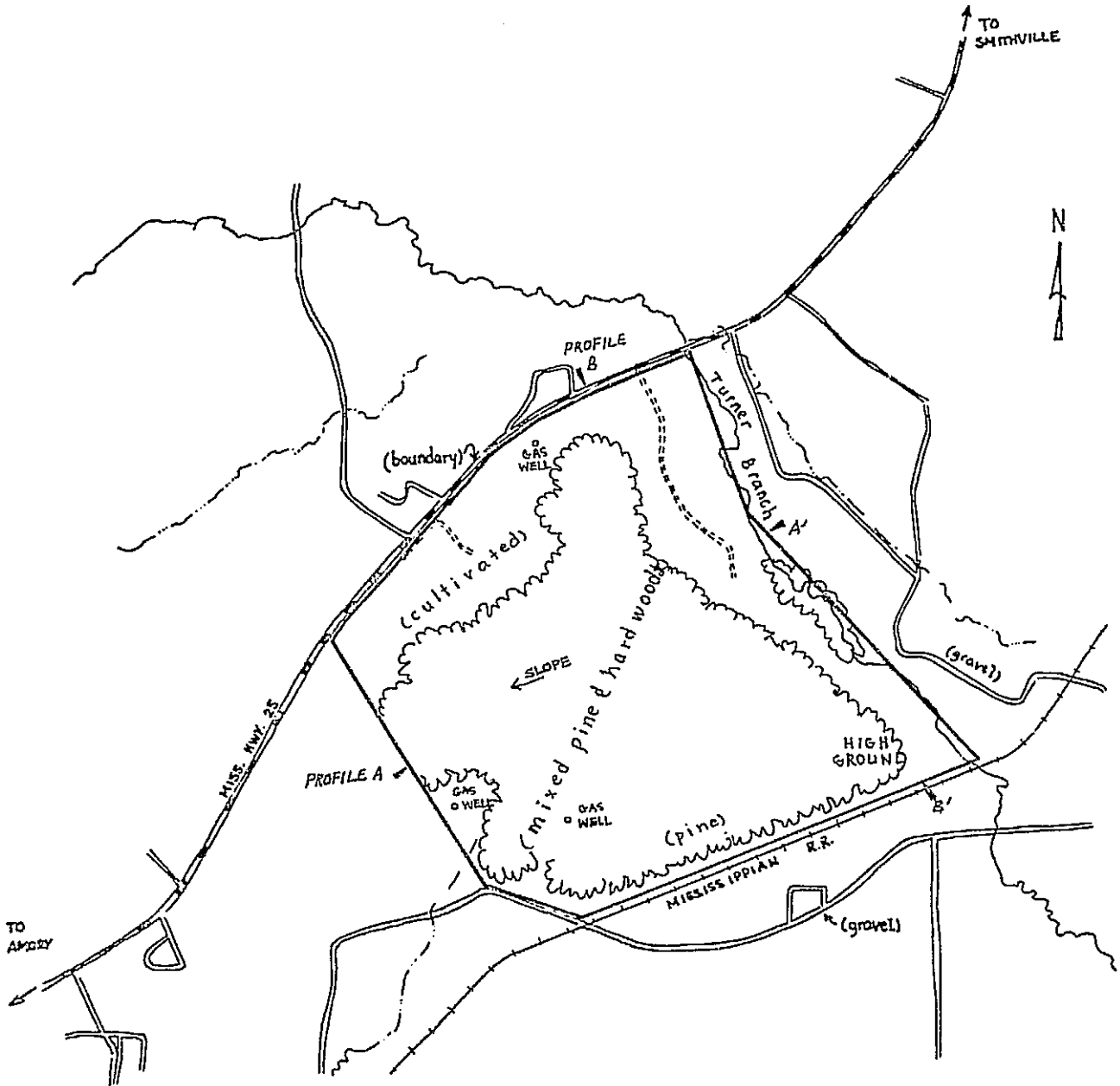
This site is almost exclusively fine sandy loam located on gently sloping terrain with higher elevations in the east. The soils are moderately well drained in the higher elevations and become more poorly drained as the land slopes to the west, except where drainage by

creeks is good in the northwest area. Most of this site then is only eroded slightly. Along the stream terraces in north and west, the fine sandy loam is moderately well drained in the vicinity of the creeks; elsewhere along the lower elevations in the absence of creek drainage it is less well drained. These soils are only slightly eroded in this area. Along the eastern boundary the land is sloping to the west and is well drained in these higher areas. For this reason, the land here is moderately eroded as evidenced by the presence of a few rills and shallow gullies. As the greatest portion of this site is gently sloping and moderately well-drained, erosion appears to be of minimal consequence.[3]

Anticipated Resource Losses

This site is composed almost entirely of second growth woods. Wildlife potential is not good here due to lack of available food sources.

Three natural gas wells are located on this site. They are not being pumped at the time, but pose a potential gas resource. Losses due to industrialization of this site appear to be minimal.



AMORY NORTHEAST
Based on U.S.G.S.
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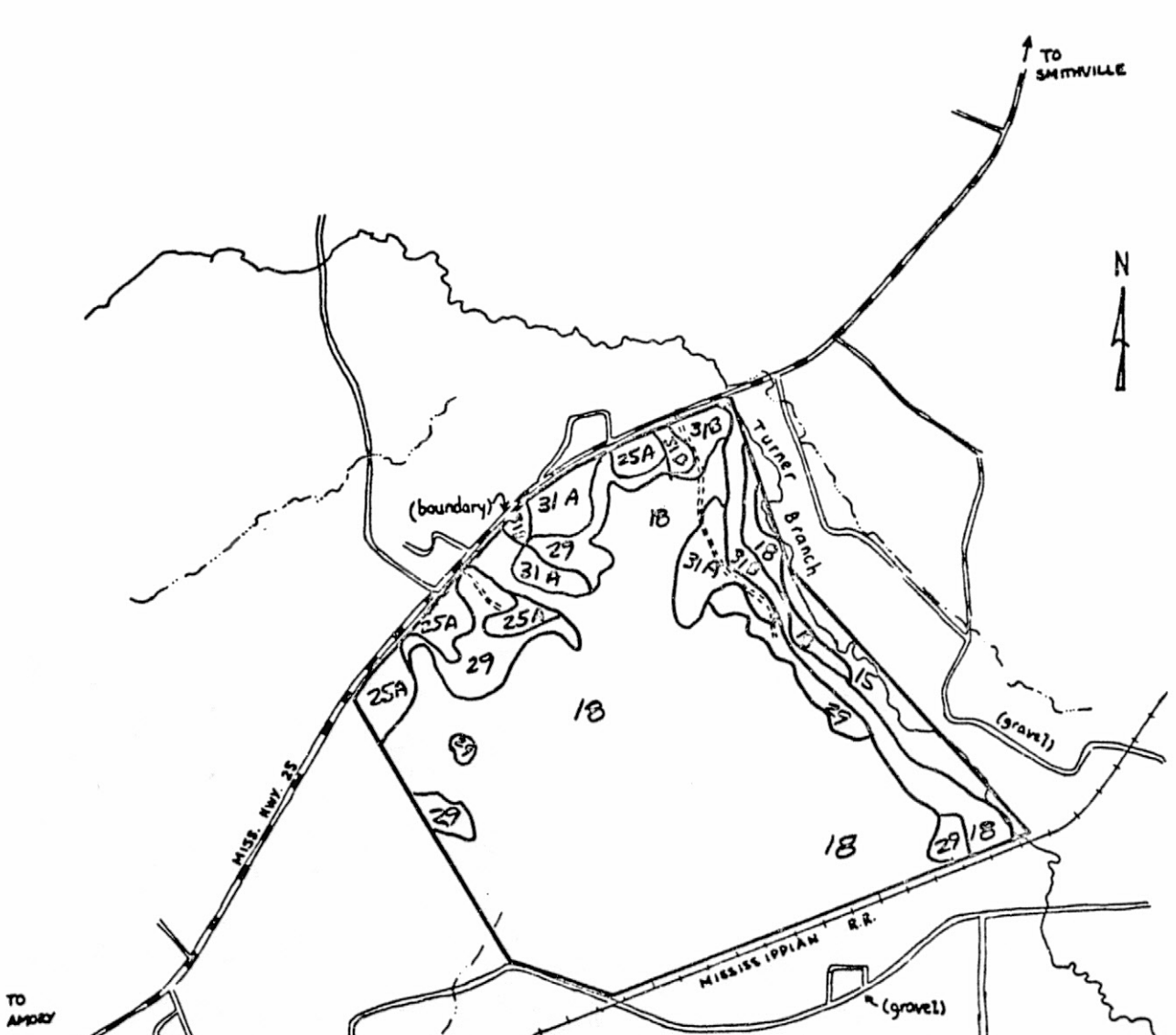
(LAND FORME USE)



AMORY NORTHEAST
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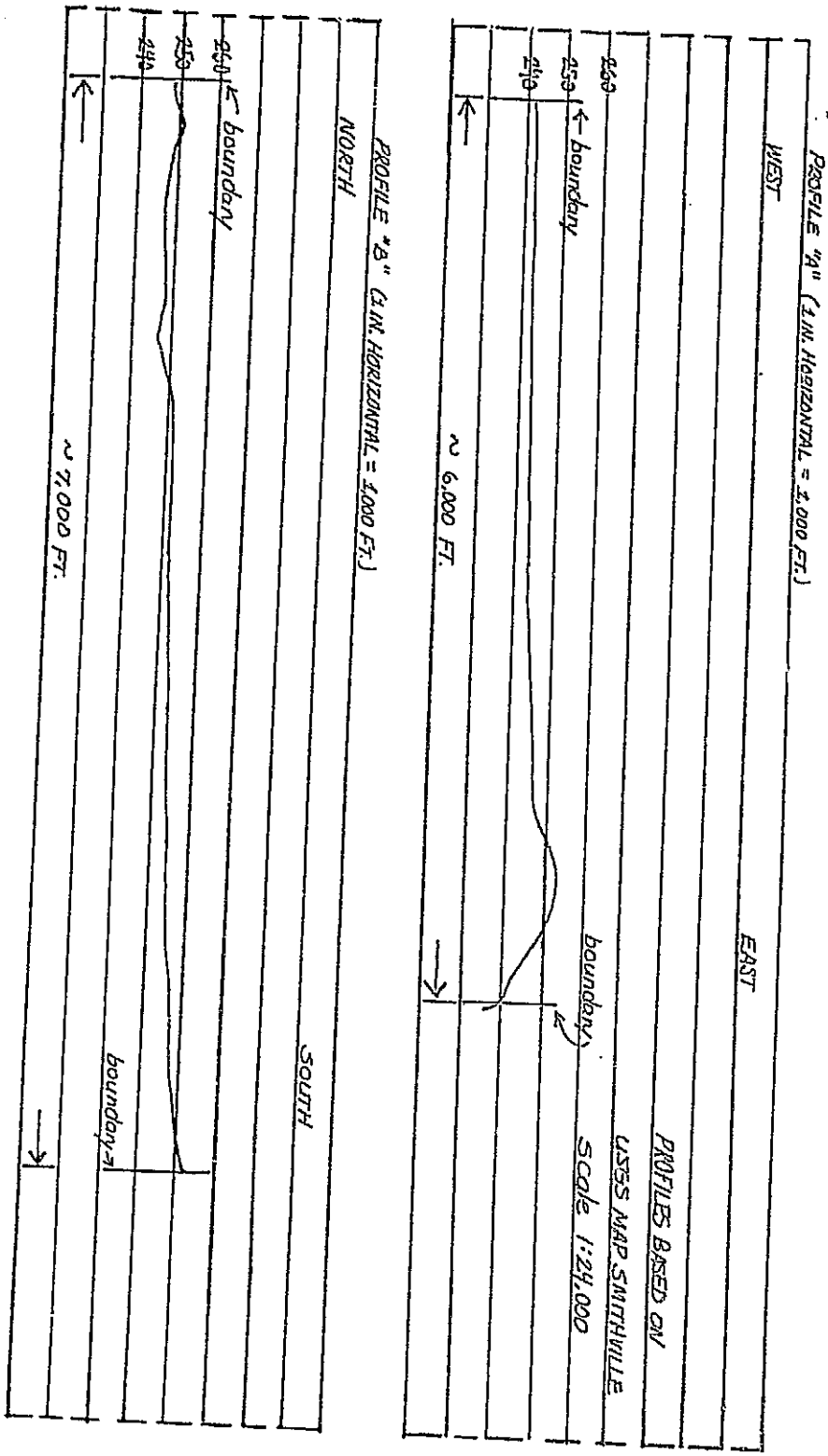
SITE: AMORY - NORTHEAST (TVA)



RELATIVE RELIEF:

This site is generally very level with elevations that range from 244 FT. along Hwy. 25 (northern boundary) to 261 FT. in SE corner. Even Turner Branch on the eastern side of site has very gentle banks. Overall slope is downward from 260 FT in the SE to the lower levels of the west and north.

Smithville

Current Land Use

The Tenn-Tom canal forms the western boundary for this site. Considerable areas here lie below flood stage (Meta Sys.) of 238 feet. These lowland sites are principally in bottomland hardwood. The flood plain boundary is a sharp bluff with a rise of 15-20 ft. vertically usually within only a 200 ft. horizontal distance. Gravel occurs in several spots along the bluff and is excavated from open pits (see map). Many of these pits have not been used for some time. Much of the upland area is agricultural with small areas devoted to pasture. Several farmsteads are present. Streams throughout this site are gravel bottomed. Some residential occurs in the northeastern corner adjacent to Hwy. 25.

Erosion

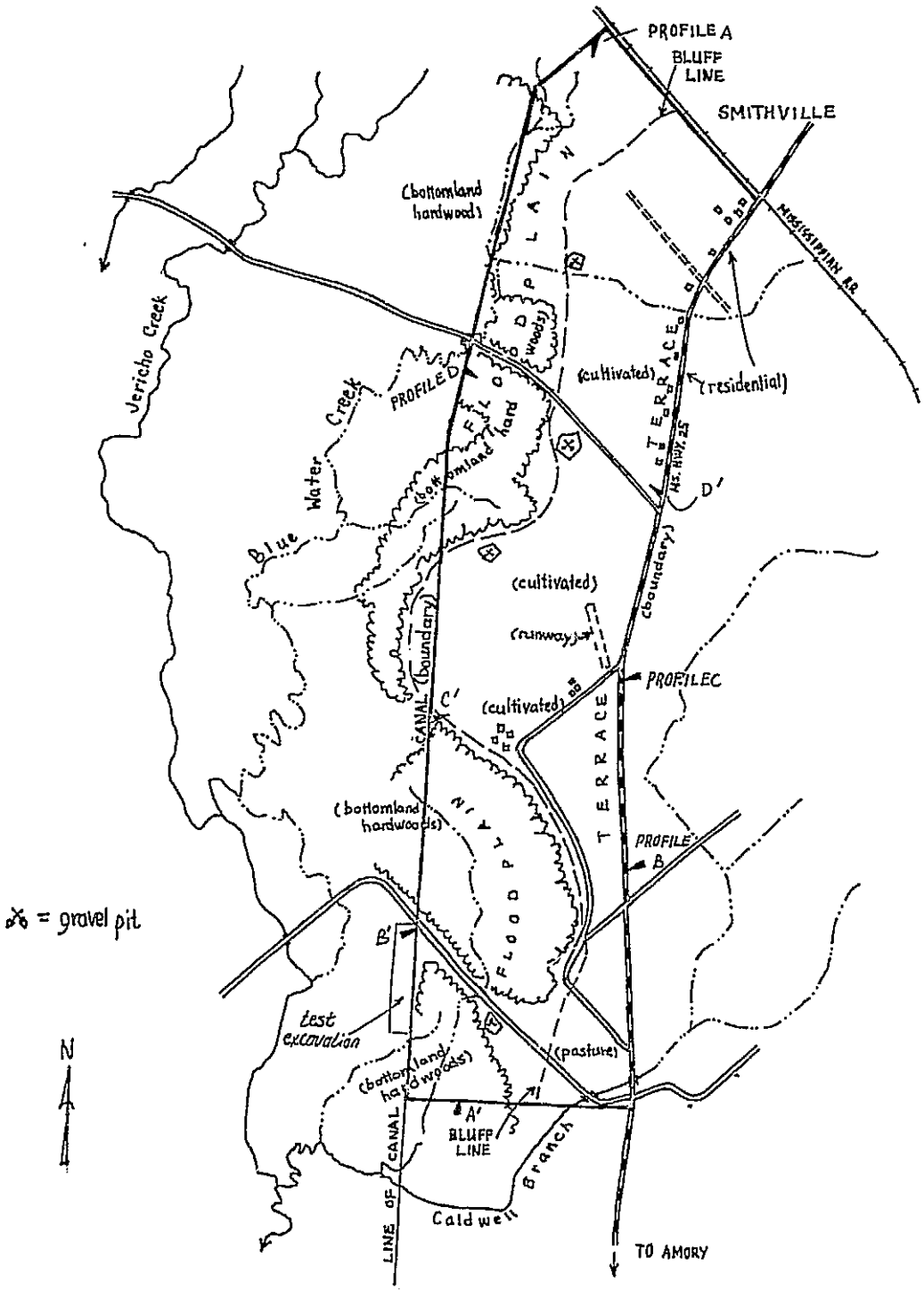
The vast majority of soils on this site are fine sandy loams which are located on a flat or gently sloping terrace which occupies most of the eastern two-thirds of the site. The fine sandy loams of the eastern margin of upland are moderately well-drained and slightly eroded. The loams of the bottomlands to the west are poorly drained as they occupy flood plain, yet are only slightly

eroded. The north site loams occupy rather flat areas and hence the moderately good drainage results in only slight erosion on the upland terraces. Like conditions prevail on the flat lowlands in the southern part of the site area also, but this area is of slightly lower elevations. The western boundary is perhaps the poorest drained regions as it occupies the floodplain, and these soils are susceptible to severe flooding and are only moderately eroded. The bluff itself contains moderate slopes, but the run-off causes moderate to severe erosion hazards. This soil is eroded with rills and shallow gullies being common features found here. Therefore, the slightly eroded east and west flatlands are separated by an eroded bluff section. Owing to the rather central position of the bluff and the swampy conditions of the western lowland, erosion hazards are a major drawback to the soils located on this portion, in addition to flood hazard along the western boundary.[3]

Anticipated Resource Losses

Much of the western side of the Smithville site is below flood level. This lowland will require fill or levee of some sort. Because of this, bottomland hardwood would have to be removed. Such removal would reduce valuable tree species and an extensive wildlife habitat, as well as accelerating soil erosion. Along the terrace

escarpment a considerable number of gravel pits have been excavated, making it a useful source of gravel. Higher terrace land to the east is used for agronomic crops--principally soybeans. Approximately 400 acres of this agricultural land would be lost if full-scale development were to occur.



SMITHVILLE
Based on U.S.G.S.
1:24,000

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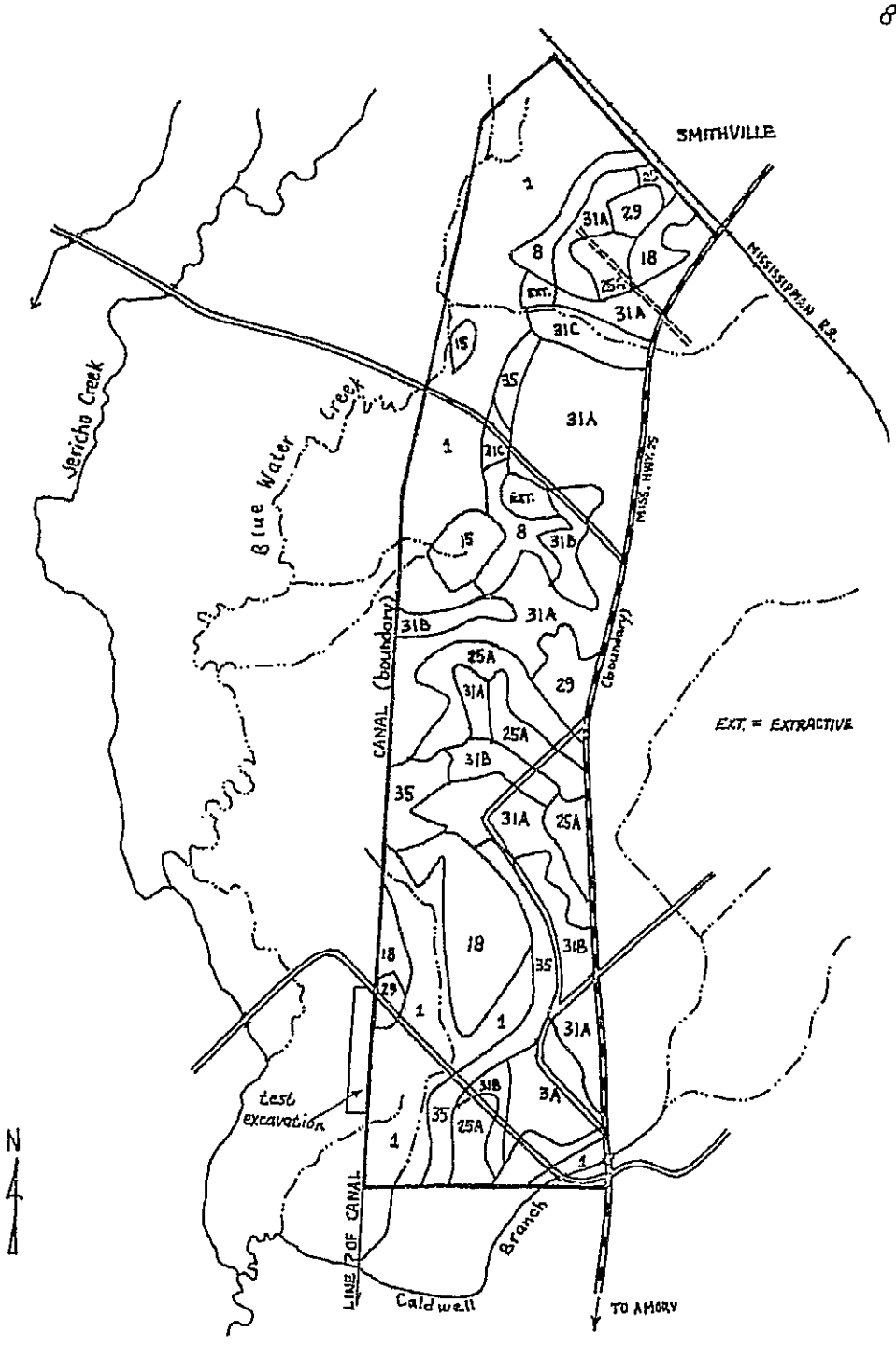
(LAND FORMS & USE)



SMITHVILLE
Based on U.S.G.S
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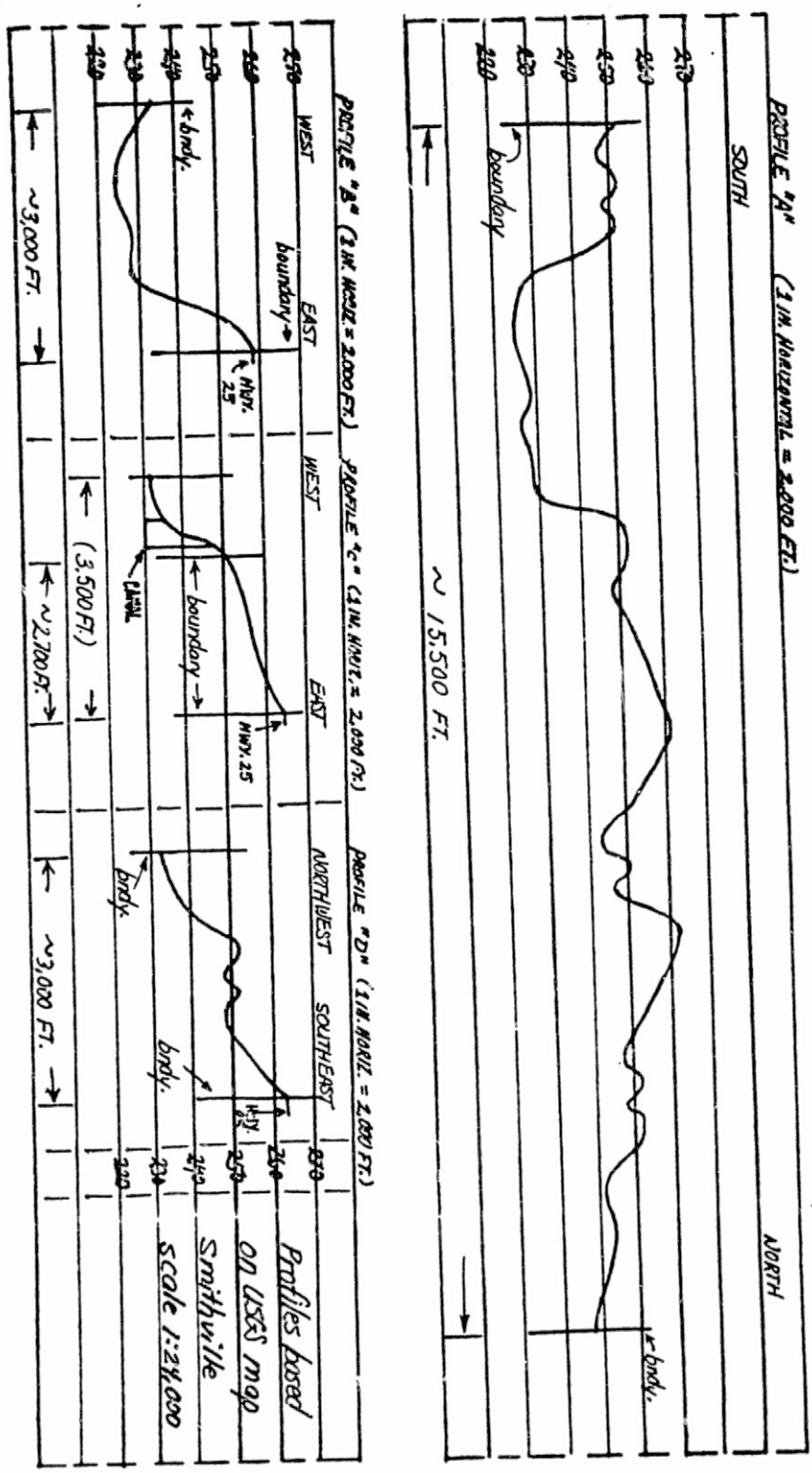
(SOILS)

SITE: SMITHVILLE (META)



RELATIVE RELIEF:

There are two principal sections here divided by a bluff section of 200-300 FT. width. The western margin of upland is indented by several low-land areas where the 238 FT. flood level reaches almost to Hwy. 25. Lowlands are generally quite flat with varying elevations of 235-240 FT. in northern parts to 225-230 FT. in southern. East of the bluff line is a broad, flat terrace which varies in elevation from 250-262 FT. Only departure from flatness occurs where several small streams cross the site (east to west).

→ Bluff slopes of 5-12 %.

Profiles based on USGS map Smithville scale 1:24,000

Fulton

Current Land Use

A certain amount of diversity is present on the Fulton site. Along the northern boundary is a stream bottom which occupies almost one-fourth of the land area of the site. This section is devoted to pasture and appears to be very damp in wet season. Much of this northern area would require fill as it lies below the 267 foot flood level. A bluff marks the south edge of the stream bottom area and the land south of the bluff is either in small-scale cultivation or is open uncultivated. Most of this section is higher and well drained; a large farm pond lies almost directly in the center of the site. A local road passes through the eastern side of the site and this road as well as Highway 25 have a number of homes. The Mississippian RR roughly parallels the western edge of Fulton site although in the south a large amount of land lies west of the railroad. A large portion of this western segment is bottomland woods. A sawmill is located in the southwest corner.

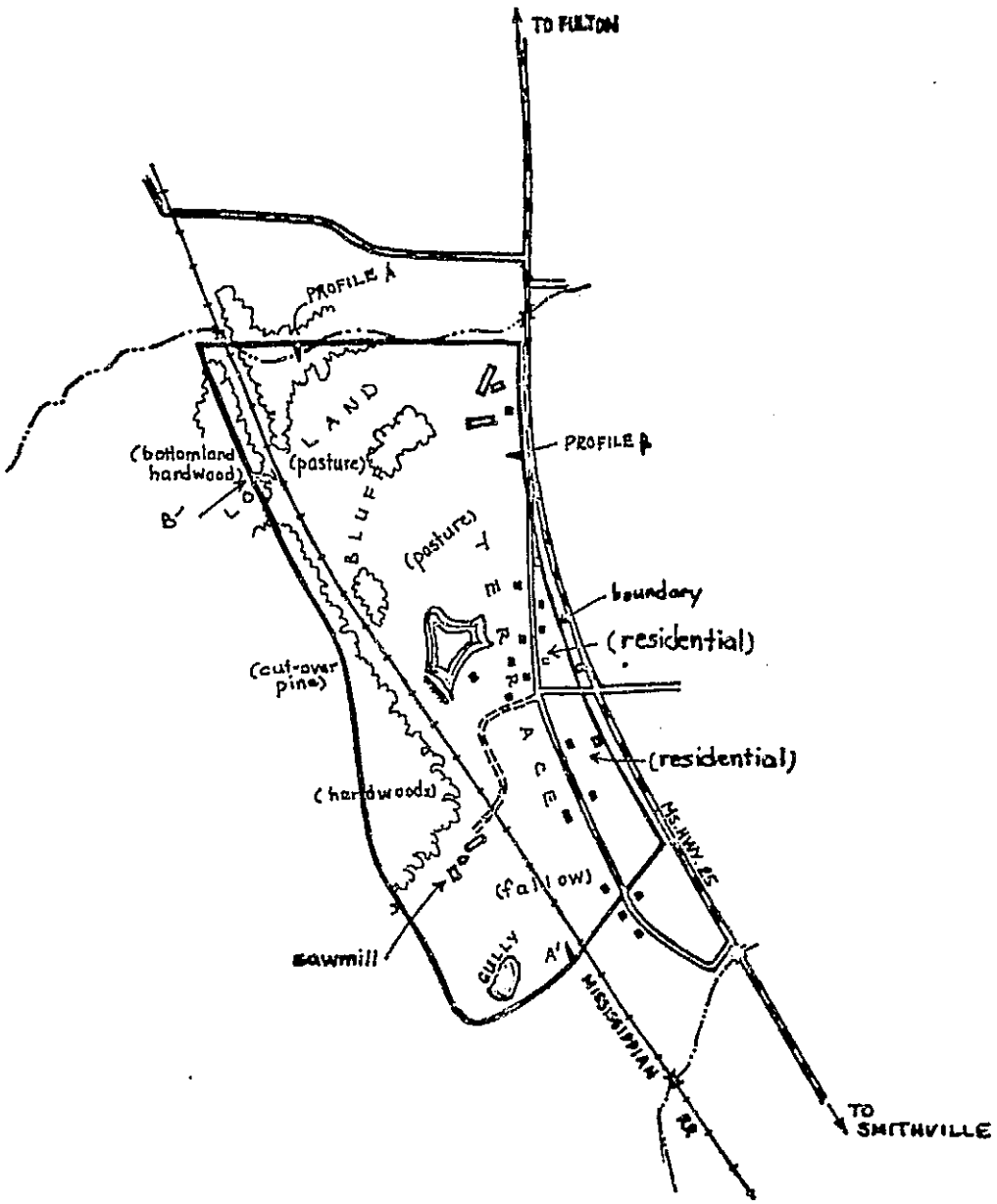
Erosion

The lowlands along the upper west boundary are composed of loams which are somewhat poorly drained soils

on the floodplain. The surface run-off is slow and this area is subject to occasional flooding. Seasonal wetness is also a hazard as this area experiences a slight to moderate erosion hazard. A relatively steep bluff separates this area from the rest of the site which is upland. The upland areas are loams which are somewhat poorly drained. As the surface run-off is slow, only slight erosion has occurred here. The mid-section of the eastern boundary is occupied by fine sandy loam or silt loam. These moderately well-drained soils of the uplands are found on level or gently sloping land, and as such are only slightly eroded.[4]

Anticipated Resource Losses

The eastern third of this site is in residential use and would conflict with industrial development. Forested lands west of the Mississippian RR have been partially cut-over and so have only limited potential as a resource and wildlife habitat. Encroachment of residential area as well as railroad and sawmill have also served to reduce any wildlife potential on this site. The pasture lands on the northern end of the site would have to be built-up or protected by a levee if industrial development were to take place as they are below anticipated flood levels.



FULTON
Based on U.S.G.S.
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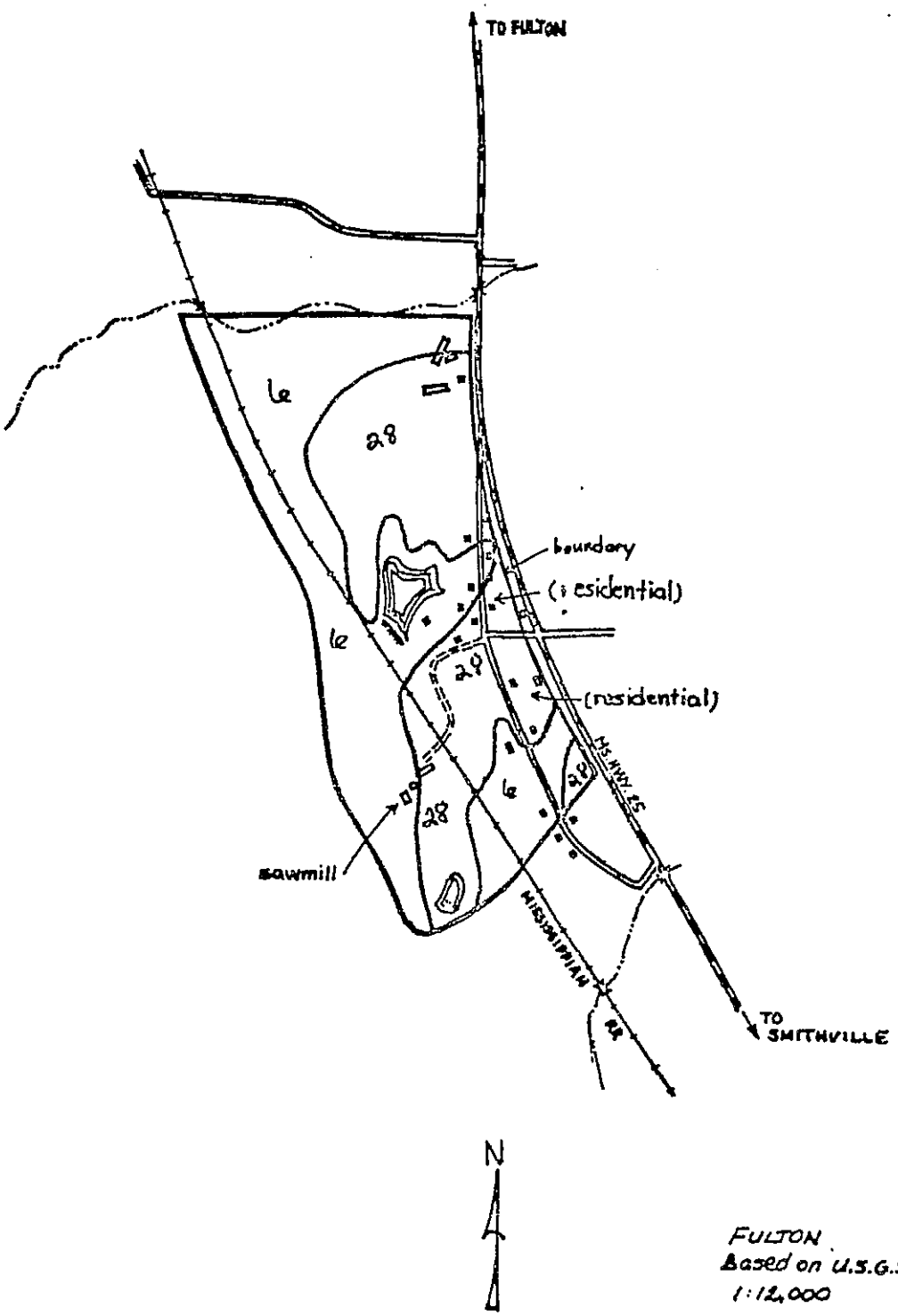
(LAND FORMS & USE)



FULTON
Based on U.S.G.S.
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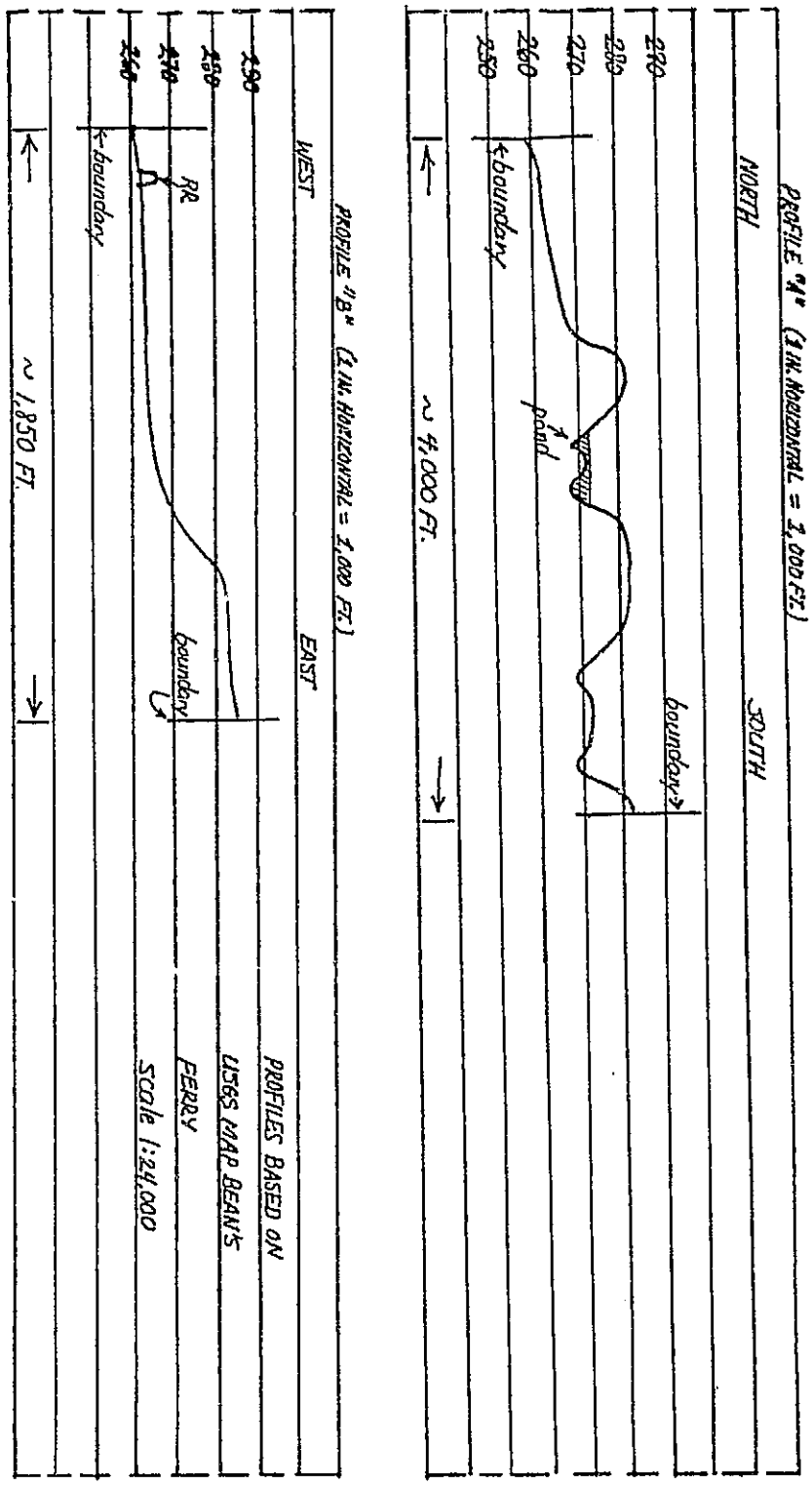
SITE: FULTON (META)



RELATIVE RELIEF:

The northwestern corner of site is lowland which extends in a narrow belt down part of the west side of the site. It is divided from the rest of the site by a relatively steep bluff running from NE to SW. A large gully drains the center of the site (is now dammed). ~~The~~ another smaller gully drains the SW portion of the site. Upland terrace makes up the eastern half of the site. Maximum elev. is 283 FT. along Hwy. 25 and minimum is 258 FT. in bottomland of the NW corner.

Paden Panther Creek (South)

Current Land Use

The Panther Creek site consists of 100 acres with about 60% of it forested. The western half of this area is lowland which apparently was once devoted to agriculture and pasture. LANDSAT MSS signatures and ground truth indicate that little activity was appartent in this area and appearances seem to indicate this land has reverted to fallow. The eastern half is basically upland. The upland is primarily wooded with several clearings along the roadway where a number of homes are located. Dominant species in the forested area is pine, although hardwoods are also present on lower sites.

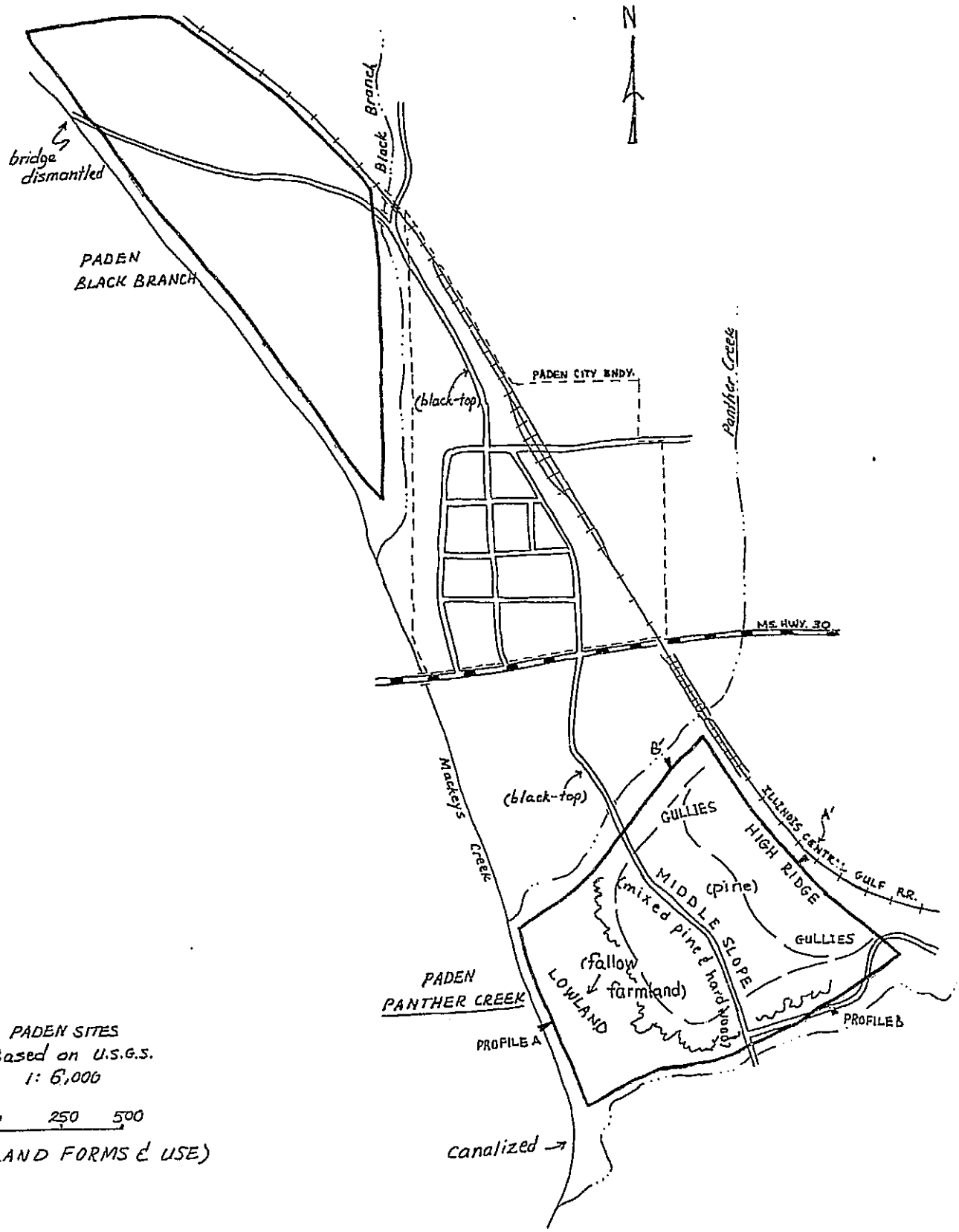
Erosion

The north, west and south boundaries of the site are occupied by sandy soils in low-lying areas of the flood-plain. These soils are somewhat poorly drained and are susceptible to severe flooding (LANDSAT imagery indicates no long term standing water). To the east of the bottomland loamy soils are found in rough, hilly terrain which rises rather abruptly. The soils are well drained in the ridge sections and side slopes

are cut by ravines. Due to the inclination of slope, the soils in this area are eroded and represent a high hazard for further erosion. To the east of this region is an area of fine sandy loam situated on a steep ridge. These well drained soils are secured by rapid surface runoff which results in numerous shallow gullies and several deep gully systems. This area is severely eroded and the hazard of further erosion is a major problem. Generally, this site is handicapped in land use potential by severe relief erosion and flooding.[5]

Anticipated Resource Losses

The eastern half is primarily wooded with considerable stands of mature pine. Lower lying elevations are designated as spoil areas. Industrial development would result in heavy sedimentation at this site due to necessary tree clearing. The exposure of the upper slope to severe erosion, would result in siltation of streams and chemical leaching of soils.



PADEN SITES
Based on U.S.G.S.
1: 6,000

0 250 500

(LAND FORMS & USE)

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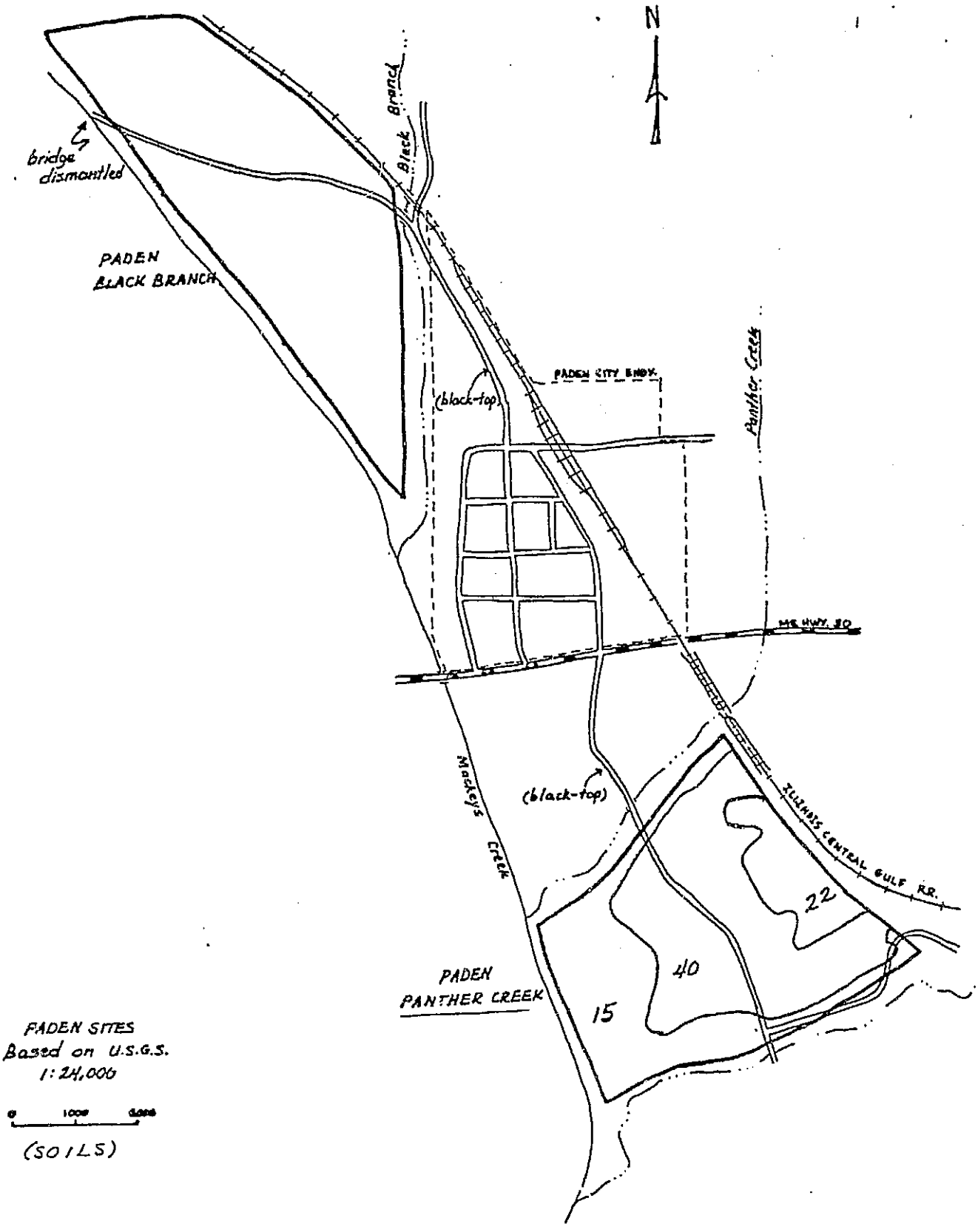

PADEN SITES
Based on U.S.G.S.
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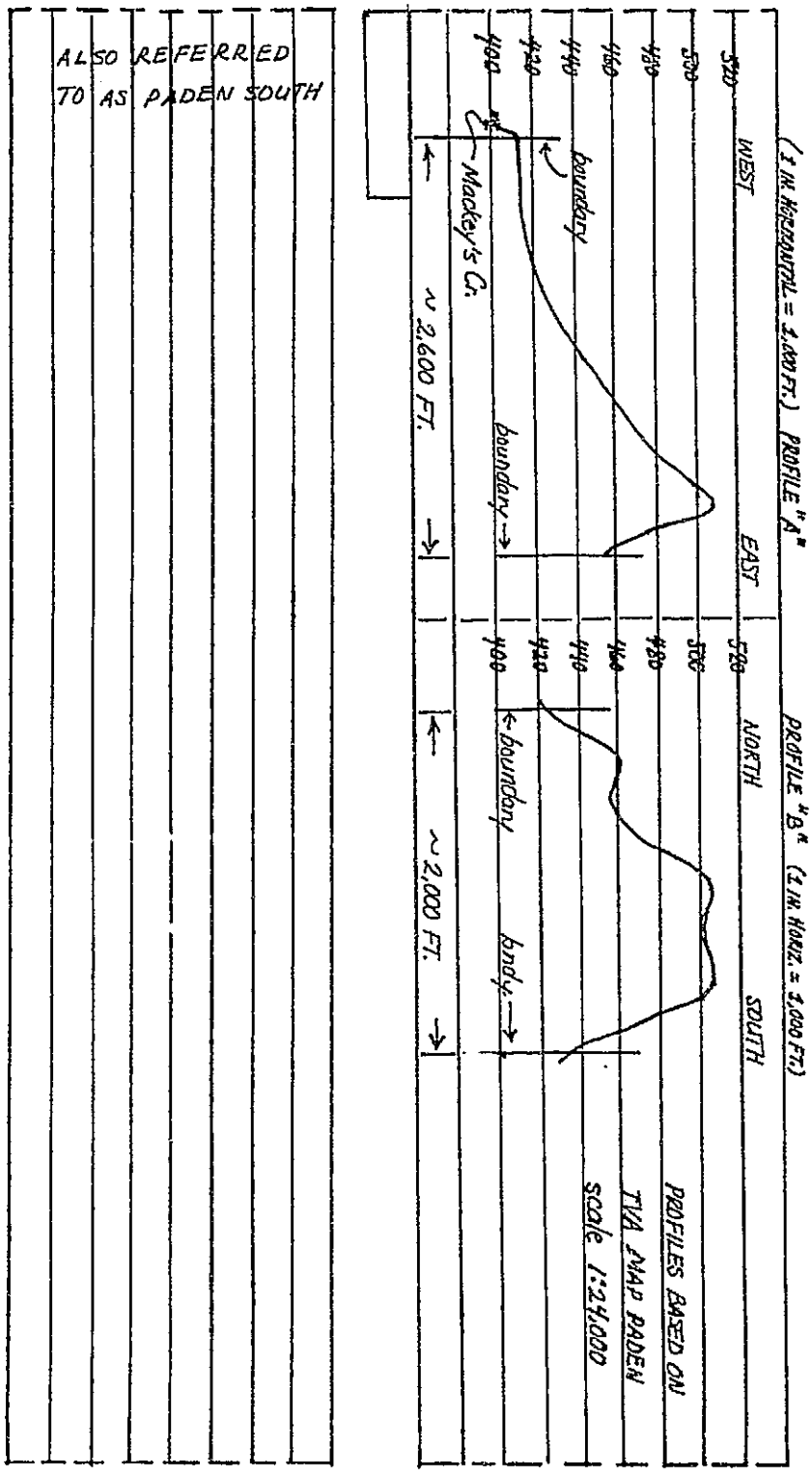
(SOILS)



RELATIVE RELIEF:

Although the smallest site, this area has greater vertical relief than any other assigned. Elevation ranges from 410 FT. along Mackey's Cr. on the west to 510 FT. near the east boundary. Lowlands predominate in the western ⅓ (410 - 430 FT.) At the 430 FT. contour the land rises until it peaks above 500 FT. A number of ravines drain either north or south. From the max. elevation at 510 FT. the land slopes sharply in all directions — especially the east. Site is intended to be a spoil area for excess excavated soil.

2-2

Paden-Black Branch (North)

Current Land Use

This site of some 110 acres is situated between Mackeys Creek on the western side and Black Branch on the eastern side. The northern edge of the site lies parallel to the Illinois Central Gulf RR, and the site tapers to the south at the confluence of Black Branch and Mackeys Creek. One gravel-surface county road runs through the area from east to west. Formerly this road crossed Mackeys Creek but the bridge has now been dismantled. Except for a few houses along the road this area is almost entirely open and is devoted to pasturage.

Erosion

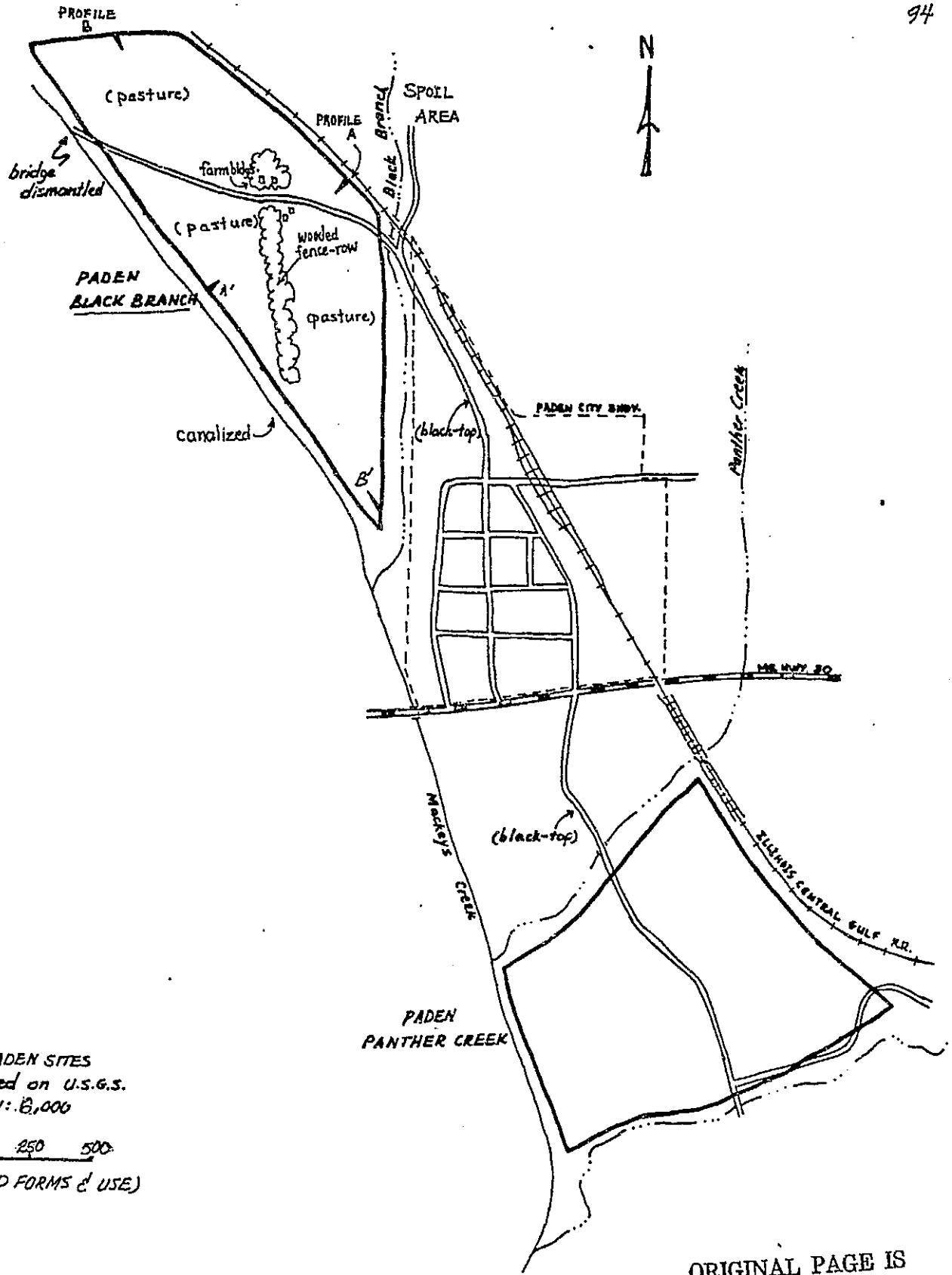
This site consists of sandy soils which occupy low-lying areas on the flood plain. These soils are poorly drained with little evidence of erosion (extremely flat). Along the northern edge of the site a fine sandy loam occupies most of the area above the 440 foot level. These soils are well-drained and only slightly eroded.[5]

Anticipated Resource Losses

The majority of this site is devoted to pasture. Erosion potential here is considerable, and the area will

have to be built up to avoid run-off into Black Branch.

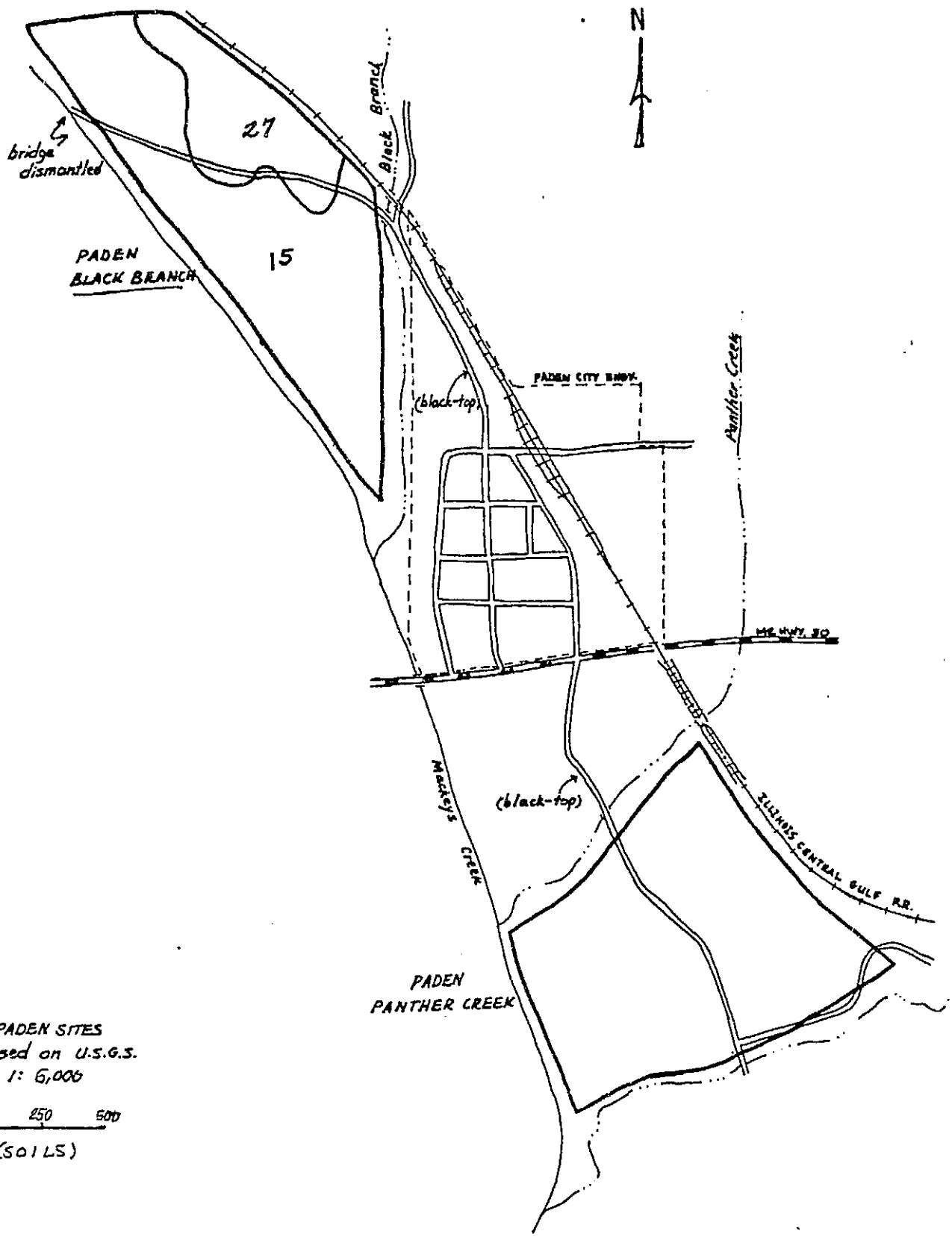
No critical resource losses are apparent.



PADEN SITES
Based on U.S.G.S.
1:8,000

250 500

(LAND FORMS & USE)



PADEN SITES
Based on U.S.G.S.
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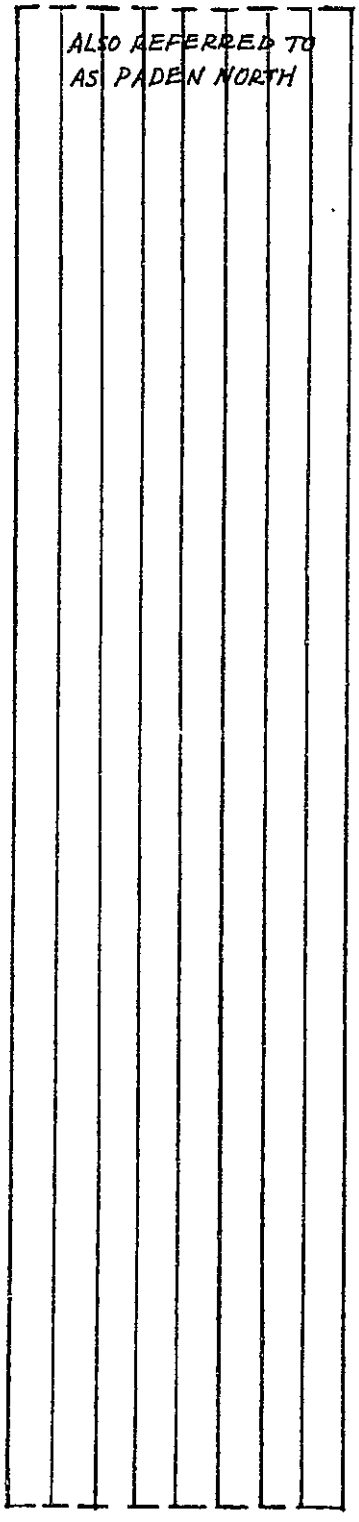
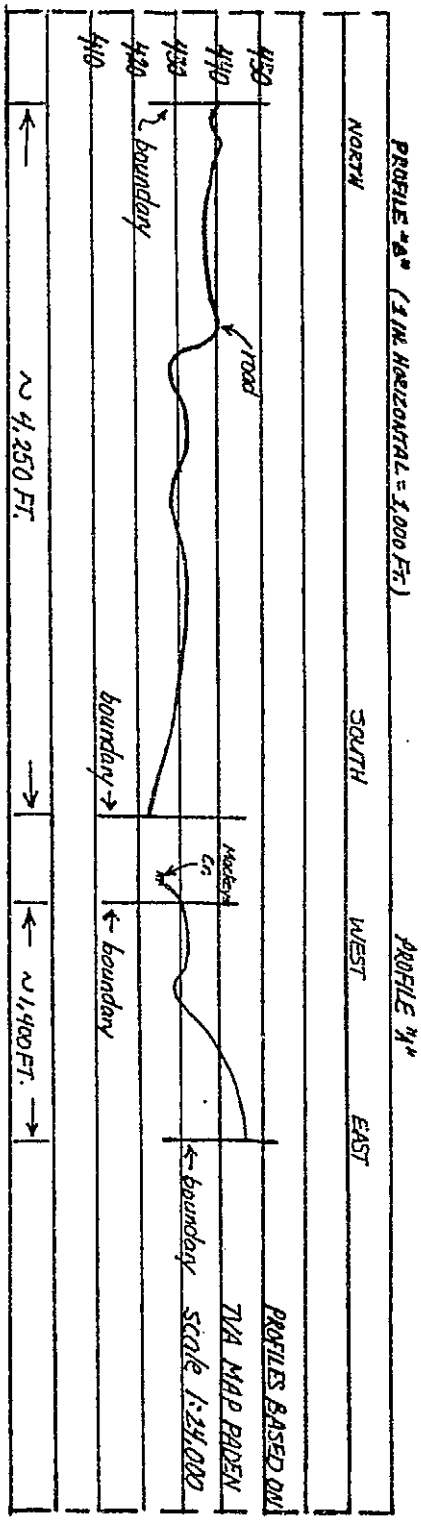
250 500

(SOILS)





RELATIVE RELIEF:

Vertical relief on this site is quite small with elevations varying between some 424 FT. along Mackey's Cr. to about 444 FT. along the I.C.G. RR. along the north and east. Except for a mild upward slope from south and west to north and east, the site is generally very flat. However, A 500 FT. + ridge to the north and east of site would hamper major expansion.

Burnsville

Current Land Use

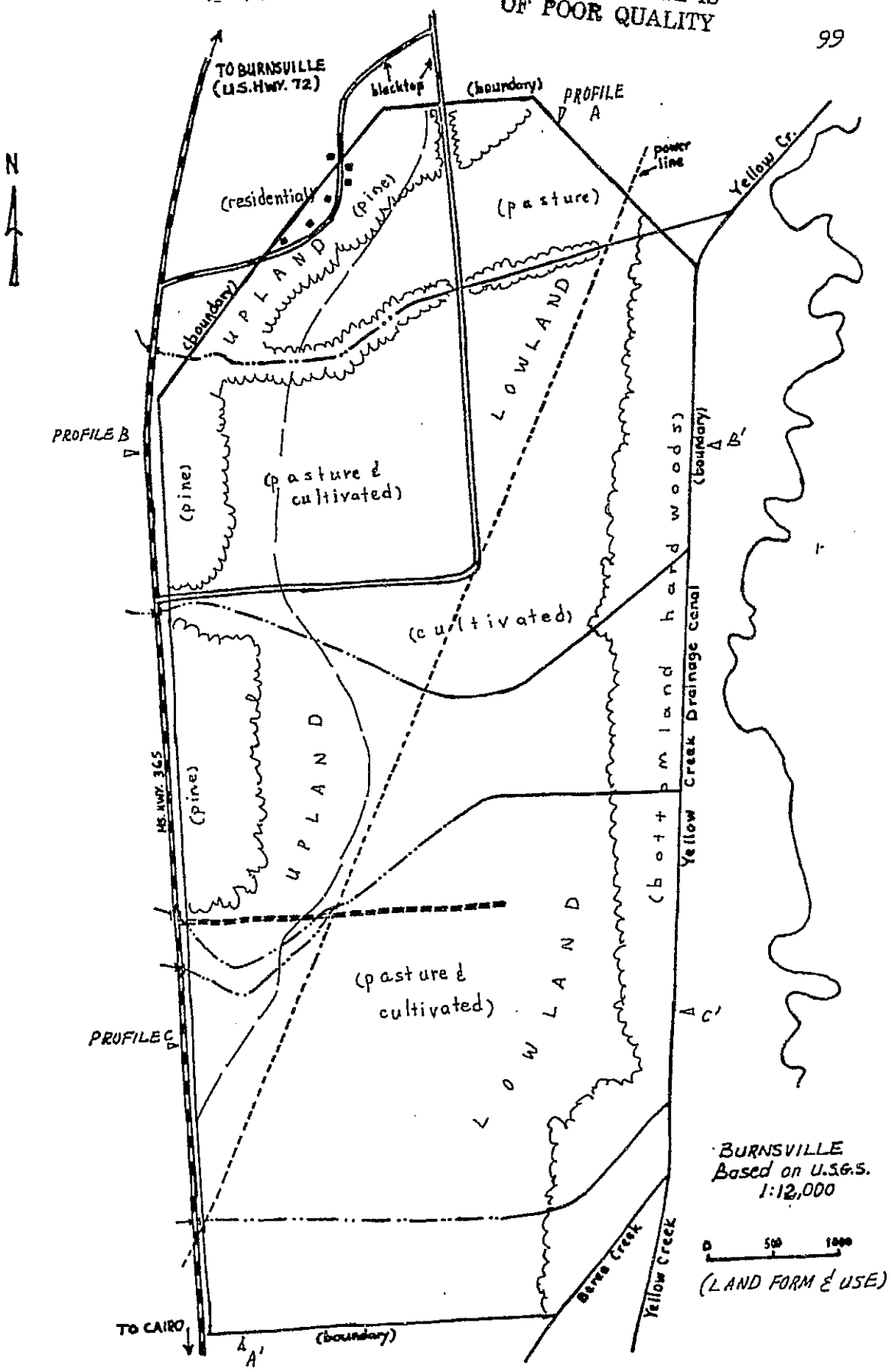
LANDSAT data indicates that most of the land is being used for crops and pasture. There is a small residential area in the north central part of the site. Much of the land on the eastern side near Yellow Creek is bottomland hardwood.

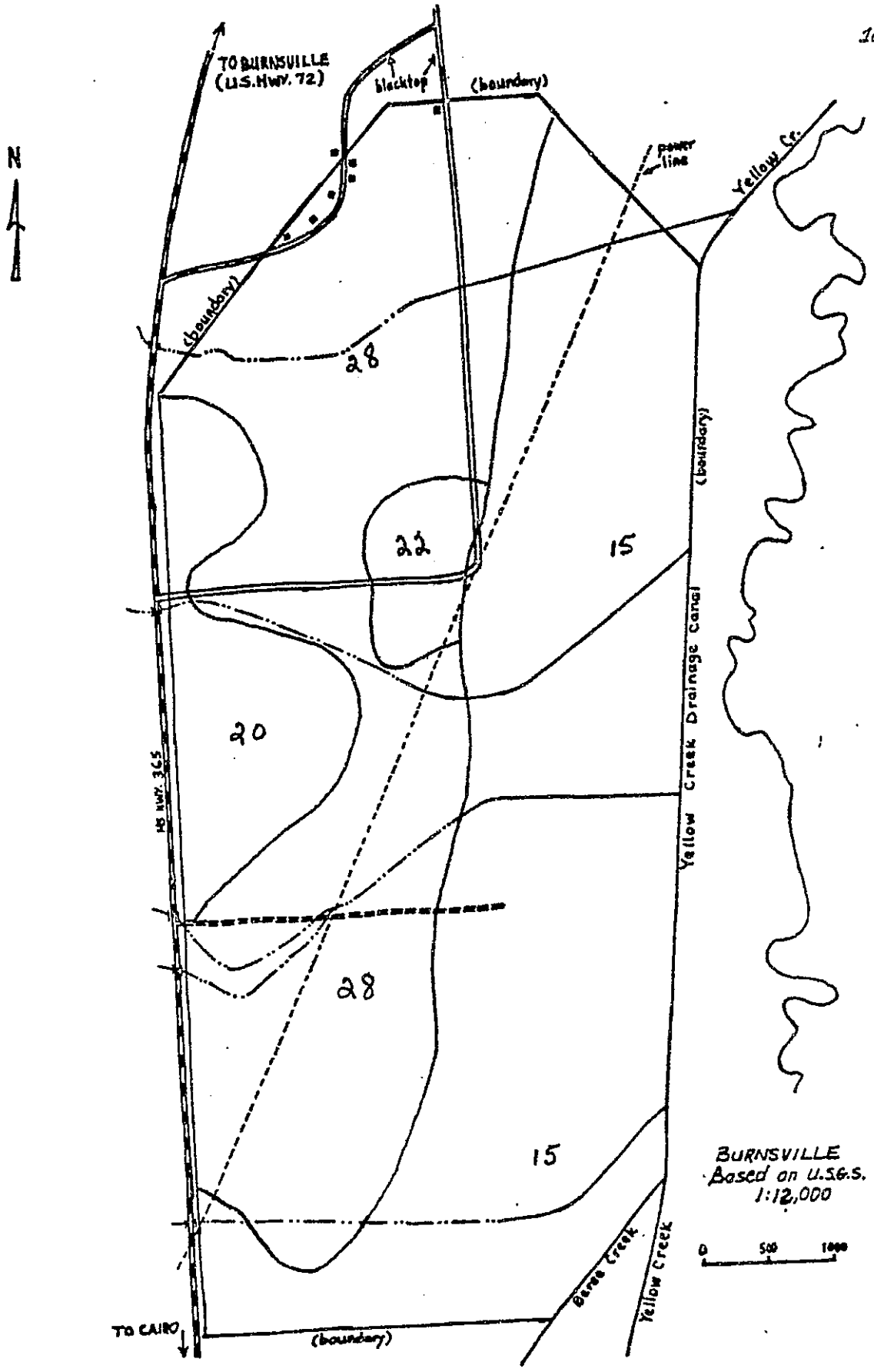
Erosion

The low, flat area to the east of the site is composed of sandy soils. These soils on the floodplain are somewhat poorly drained, and as run-off is slow, this tract is susceptible to severe flooding giving it a moderate to high erosion hazard. The rolling hilly area to the west is moderately well-drained (silt loams). The effects of drainage and slope result in slight erosion. The northwest corner and western boundary are comprised of fine sandy loams which are moderately well-drained in this upland region. In areas where the slope is steep, severe erosion has occurred, resulting in rills and shallow gullies. In the gentler slope areas, the soil has been eroded more severely, but not to the same extent as in steeper areas. This area overall would be classified as having a moderate-erosion hazard.[5]

Anticipated Resource Losses

Much of the eastern segment has considerable recreational use as a hunting area within a good bottomland hardwood habitat. However, it is debatable as to whether this bottomland habitat will be viable after Yellow Creek is channelized. There is the possibility that the bottomland wildlife function will have been destroyed prior to any industrial development. The Burnsville site has considerable land (550-600 acres) in cultivation or pasture. Thus, the principal loss associated with industrial growth would be in crop and forage production.




TO BURNSVILLE
(U.S.HWY. 72)
blacktop
(boundary)
power line
Yellow Cr.
N
(boundary)
28
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Yellow Creek Drainage Canal
(boundary)
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BURNSVILLE
Based on U.S.G.S.
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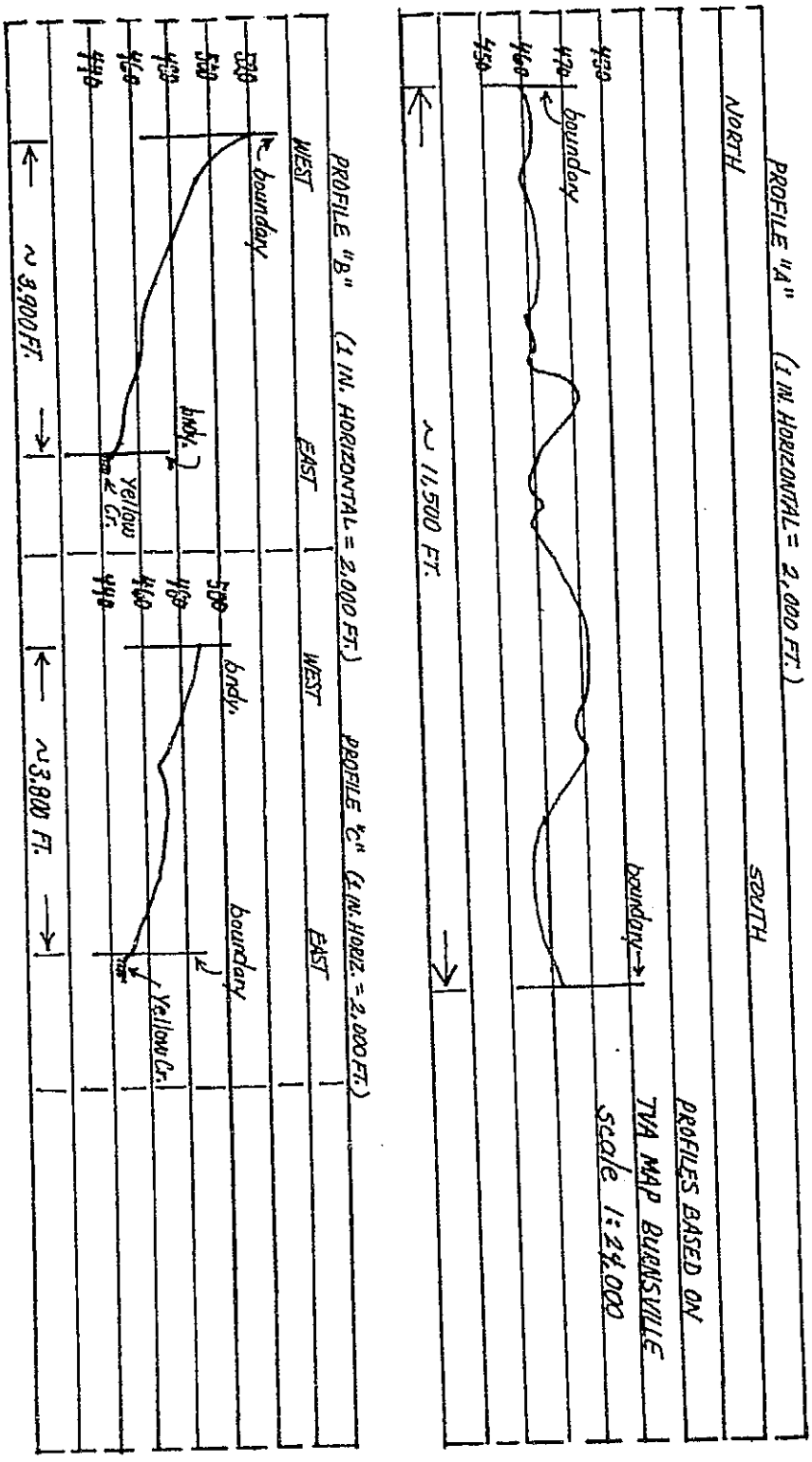
Bear Creek
Yellow Creek
TO CAIRO
(boundary)

SITE: BURNSVILLE (META)



RELATIVE RELIEF:

Site is divided into two principal areas - the low, flat area on the east adjacent to Yellow Cr.; and the rolling, hilly area to the west. About 2/3 of site is lowland between 450-475 FT. Lowest elevation (450 FT.) occurs along Yellow Cr. The whole NW corner and a narrow belt running down the western boundary of site is above the Yellow Cr. flood plain. Elevations range from 475-520 FT. Despite the somewhat steeper slopes, relief in this segment is still gentle.

ATMOSPHERIC AND WATER POLLUTION

DANGER OF ATMOSPHERIC AND WATER POLLUTION BY NEW INDUSTRY

Industrial development in northeastern Mississippi along the Tennessee-Tombigbee Waterway Corridor carries with it the potential of serious environmental impact. However, with the stricter atmospheric and water regulations now in effect much of the earlier dangers associated with industrial development have been substantially reduced. New industries moving into Mississippi are required to meet the more restrictive regulations set down by the Mississippi Air and Water Pollution Control Commission.

A wide variety of industries will be interested in locating along the specific sites of the Tennessee-Tombigbee Waterway. From the physical aspect most sites as they now exist are suitable for development (exceptions would be Lowndes County No. 2 at Columbus and Paden-Panther Creek). Light industry--such as garment manufacture, electronics, and household appliances--which is the dominate industrial type in Northeastern Mississippi will continue to grow with little effect on environment except for increased load on local sanitation services (which must be improved to cope with growth). From the standpoint of siting and particular industrial type,

heavier industry is most likely to effect atmospheric and water standards. Principal heavy industry which would find the Tennessee-Tombigbee Corridor attractive (and at the same time might poise environmental debate) would include: (1) chemical plants (especially commercial fertilizer) with a good power source furnished by TVA and direct bulk shipment of raw materials including northern coal and Gulf salt and sulfur and the convenience of a half-way point located in an agricultural hinterland, (2) pulp and paper industry--demand for paper and wood products is expected to increase greatly within the next 20-30 years. This coupled with the fact that the South is once again becoming the dominant wood products source region within the U.S. points to Northeast Mississippi as a potentially important source area. Also considerable acreage of marginal Mississippi farmland will be reverting to forests providing an additional raw material source which can be managed on a sustained yield basis. Bulk transportation and adequate power resources are again available, (3) cement and asphalt plants--two industries which would find desirable locations in the Corridor and which require bulk transport and reasonable power sources. Also, raw materials--where not available from local extractive sources--could be brought in cheaply by barge. The planned construction of highways, waterway, and industrial

parks throughout Northeast Mississippi would provide an extensive local market, (4) primary agricultural products processing--principally soybeans and cotton. There are substantial local sources available which would benefit from bulk shipment. All of these industrial types could find suitable locations in Northeast Mississippi (some do already exist) but all could cause serious pollution problems.

Chemical plants for fertilizers could probably be located in any of the Monroe, Clay, or Lowndes County sites with their broad agricultural hinterlands. However, even with regulation chemical plants can be very noxious if the wind blows from the wrong direction or air cleaning devices are not performing properly. In addition, raw material stockpiles which sometimes accompany such operations pose a threat of leakage into the ground or surrounding streams. Sites adjacent to populated areas should probably not be used for this particular industry type. (Lowndes County No. 2 of Columbus, any of the Amory or Aberdeen sites and possibly Fulton in Itawamba County).[6]

The pulp and paper industry would find suitable locations in Tishomingo, Clay, Itawamba or Lowndes Counties. Despite regulation, pulp and paper mills still pollute and their effect can be noted for miles downwind

or downstream. Proximity to populated areas should once again be avoided--this suggests Lowndes County No. 1, Lowndes Co. West, Clay Co. and the Paden sites (Tishomingo). However, the peculiar nature of the terrain at Paden--sitting in a valley surrounded by high hills--would possibly make it prone to inversions.[6]

Cement and asphalt plants have many favorable locations along the Tenn-Tombigbee Waterway. Any county usually has gravel extractive operations and other materials can be obtained by barge or surrounding chalk (plentiful in Northeast Mississippi). But such plants speed up erosion and leaching of surrounding raw material sources and can contribute a tremendous amount of pollutants to the air as well as form slag heaps and waste piles which often are washed into streams. Again, those sites near population concentrations are to be avoided. Smithville, Lowndes No. 1, and Monroe County Airport (if visibility is not affected), and Lowndes West-Clay County would possibly be the more desirable locations, environmentally.

The processing of agricultural products is not likely to be as severe a pollution source as the preceeding three industries but it can often have its bad side, too, usually in late summer and especially autumn. Waste burned by these plants is not always regulated as the problem only occurs for a fairly brief period. These industries would likely be concentrated through the four

southernmost counties. Prevailing winds in autumn tend to be from the northwest, possibly elimenating Columbus Air Force Base, Aberdeen North as well as Lowndes County at Columbus and Amory (proximity to urban areas).

SITES

SECONDARY LOCATIONS

EVALUATION OF SECONDARY SITES

Mississippi State University's Department of Geology and Geography has located twenty-five additional sites within the Tennessee-Tombigbee Waterway Corridor besides those noted by Meta Systems and Tennessee Valley Authority. These sites have not been given the more detailed analysis of the primary sites and most information was gathered by LANDSAT MSS analysis, map, and aerial photograph interpretation. Sites were selected on the basis of some nine factors relating to potential for industrial location. These factors - Task Number 9 for this project - are given below.[7]

1. Proximity to nature gas pipeline
2. Proximity to electric power line
3. Proximity to water supply
   a. Municipal water storage tank
   b. Ground water supplies (adequate supply throughout corridor although quality may vary)
   c. Canal
4. Proximity to paved highway
5. Proximity to railroad
6. Proximity to airport
7. Proximity to city over 2,000 population (labor)
8. General physical slope
9. Local relative relief

Rating scales used in evaluating site potential:

A. Applicable to criteria 1, 2, 3 a, 4, 5, and 6

Distance in Miles	Rating Number Assigned
1	10
2	9
3	8
4	7
5	6
6	5
7	4
8-10	3
11-15	2
>15	1

B. Applicable to criterion 7

Distance in Miles	Rating Number Assigned
1	10
2	9
3	8
4	7
5	6
6-10	5
11-15	4
16-20	3
21-25	2
>25	1

C. Applicable to criterion 8

General Physical Slope	Rating Number
0-1%	10
>1-2	9
>2-3	8
>3-4	7
>4-5	5
>5-6	3
>6	1

D. Applicable to criteria 3 b and 9

Est. Local Relative Relief	Rating Number
Excellent	10
Good	7
Fair	4
Poor	1

E. Applicable to criterion 3 c

Distance in Feet	Rating Number
0-1000	10
1000-2000	9
2000-3000	8
3000-4000	7
4000-5000	6
5000-6000	5
6000-7000	4
7000-8000	3
8000-9000	2
9000-10,000	1

SITES IN ORDER OF PREFERENCE

Site Name	Site Number
1. Columbus, S	24
2. Smithville	13
3. Aberdeen, NW	19
4. Aberdeen, W	20
5. Lackey	17
6. Hamilton	22
7. Nettleton	14
8. Clayburn, W	23
9. Burnsville, N	2
10. Becker, NE	15
11. Becker, SW	16
12. White Springs	12
13. Hamilton, S	21
14. Yellow Creek, SE	1
15. Mantachie, E	10
16. Aberdeen, S	18
17. Holts Spur	4
18. Doskie	3
19. Fulton, W	11
20. Burnsville, W	5
21. Paden, S	6
22. Natchez Trace	7
23. Walker's Birdge	9
24. Moore's Mill	8
25. Forreston	25

T.T.I.S. TASK 9

PROPOSED INDUSTRIAL SITES	PIPELINES	ELECTRIC POWER	WATER SUPPLY: municipal tank	WATER SUPPLY: ground water	WATER SUPPLY: canal	HIGHWAY ACCESS	RAILROAD ACCESS	AIRPORT ACCESS	LABOR FORCE	GENERAL PHYSICAL SLOPE	LOCAL RELIEF		TOTAL
1. Yellow Creek, SE T2S/R10E Sec.19 (Tishomingo Co.)	9	10	7		10	10	7	1	5	9	10		78
2. Burnsville, N T2S/R9E Sec. 26 25, 35, 36 (Tishomingo Co.)	10	10	10		9	10	10	1	5	10	4		79
3. Doskie T2S/R10E Sec. 18 (Tishomingo Co.)	8	10	6		10	10	7	1	4	9	10		75
4. Holts Spur T3S/R9E Sec. 3, 4, 35 T4S/R9E Sec. 3 (Tishomingo Co.)	6	10	6		10	10	10	1	3	10	10		76
5. Burnsville W T3S/R9E Sec. 3, 4 T2S/R9E Sec. 34 (Tishomingo Co.)	10	10	9		1	10	10	1	5	7	10		73
6. Paden S T5S/R10E Sec. 16, 17 (Tishomingo Co.)	2	10	10		10	10	10	1	9	4	7		73
7. Natchez Trace T6S/R9E Sec. 35 (Tishomingo Co.)	1	9	5		10	10	3	4	4	10	10		66
8. Moores Mill T7S/R9E Sec. 11, 14, 15 (Tishomingo Co.)	1	10	5		10	8	3	4	4	10	10		65

T.T.E.S. TASK 9

PROPOSED INDUSTRIAL SITES	PIPELINES	ELECTRIC POWER	WATER SUPPLY: municipal tank	WATER SUPPLY: ground water	WATER SUPPLY: canal	HIGHWAY ACCESS	RAILROAD ACCESS	AIRPORT ACCESS	LABOR FORCE	GENERAL PHYSICAL SLOPE	LOCAL RELIEF		TOTAL
9. Walkers Bridge T7S/R8E Sec. 35 T8S/R8E Sec. 2 (Itawamba Co.)	1	10	6		5	10	3	5	5	10	10		65
10. Mantachie E T8S/R8E S. 21, 22, 27, 28, 34, 35 T9S/R8E S. 2, 3, 10, 11, 15, 22, 27, 34	1	10	8		3	10	9	8	8	10	10		77
11. Fulton W T 10S/R8E Sec. 2. 3, 10, 11, 13, 14 (Itawamba Co.)	7	10	9		4	10	9	3	9	9	4		74
12. White Springs T11S/R9E Sec. 5, 6, 8 (Itawamba Co.)	10	5	6		10	10	10	2	6	10	10		79
13. Smithville, E T12S/R18W S. 4-9, 11-14, 17, 18, 23, 24 (Monroe Co.)	6	10	10		3	10	10	6	10	10	7		82
14. Nettleton T12S/R7E Sec. 4-10, 14-16, 22-24 and T11S/R7E S: 31, 32	10	8	10		4	10	10	10	10	10	7		79
15. Becker NE T13S/R19W Sec. 13 T13S/R18W Sec. 18 (Monroe Co.)	5	10	10		1	10	10	6	7	10	10		79
16. Becker SW T13S/R19W Sec. 13, 24 (Monroe Co.)	5	10	10		1	10	10	6	7	10	10		79

T.T.I.S. TASK 9

PROPOSED INDUSTRIAL SITES	PIPELINES	ELECTRIC POWER	WATER SUPPLY: municipal tank	WATER SUPPLY: ground water	WATER SUPPLY: canal	HIGHWAY ACCESS	RAILROAD ACCESS	AIRPORT ACCESS	LABOR FORCE	GENERAL PHYSICAL SLOPE	LOCAL RELIEF		TOTAL
17. Lackey T 14S/R 18W S. 30,31 T 15S/R 18W S. 6,7 T 14S/R 19W S. 25,36 T 15S/R 19W S. 1,12	1	10	10		5	10	10	10	7	10	7		80
18. Aberdeen S T 14S/R 7E S. 33-4 T. 15S/R 7E Sec. 2,3, 4,10, 11 (Monroe Co.)	1	10	10		1	10	10	8	10	10	7		77
19. Aberdeen NW T 14S/R 7E S. 19,20, 13, 24 (Monroe Co.)	1	10	10		1	10	9	10	10	10	10		81
20. Aberdeen W T 14S/R 7E S. 29,30 (Monroe Co.)	1	10	10		1	10	9	10	10	10	10		81
21. Hamilton S T 16S/R 19W Sec. 13 T 16/R 18W S. 3-10, 17, 18 (Monroe Co.)	1	10	9		7	10	10	6	5	10	10		78
22. Hamilton T 15S/R 18W Sec. 19, 20, 29, 30 (Monroe Co.)	1	10	10		5	10	10	8	6	10	10		80
23. Clayburn T 18S/R 18W S. 34, 35 T 19S/R 18 W S. 2, 3 (Lowndes Co.)	1	7	7		8	10	10	9	7	10	10		79
24. Columbus W. T 19N/R 17E S. 25, 36 T 18N/R 17E S. 1, 2 T 19N/R 18E S. 30, 31 T 18N/R 18E S. 6	1	8	8		10	10	10	7	10	10	10		84

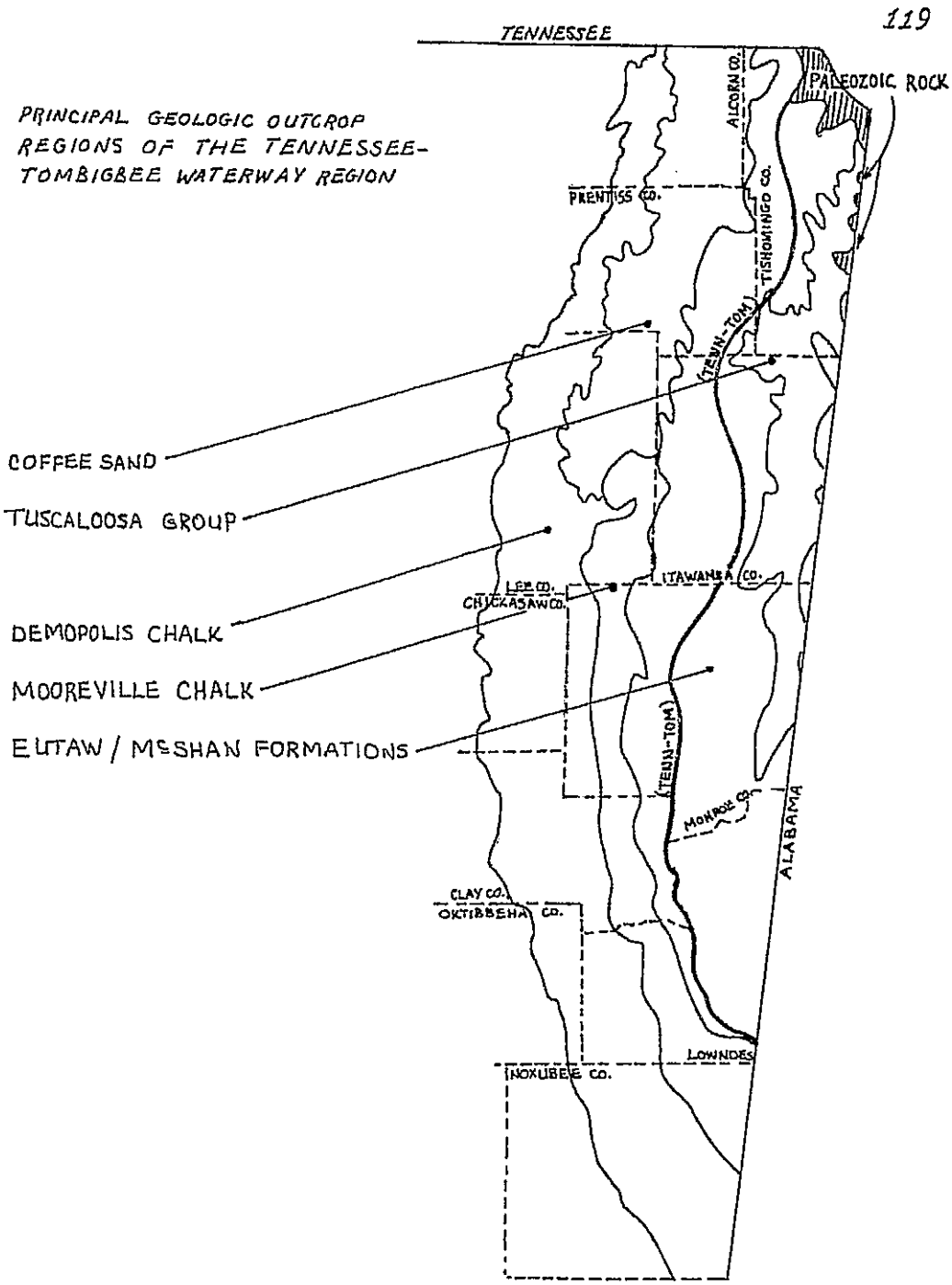
T.T.I.E.S. TASK 9

PROPOSED INDUSTRIAL SITES	PIPELINES	ELECTRIC POWER	WATER SUPPLY: municipal tank	WATER SUPPLY: ground water	WATER SUPPLY: canal	HIGHWAY ACCESS	RAILROAD ACCESS	AIRPORT ACCESS	LABOR FORCE	GENERAL PHYSICAL SLOPE	LOCAL RELIEF		TOTAL
25. Forreston T17N/R19E Sec. 3, 9, 10, 16, 17 (Lowndes Co.)	1	2	2		10	10	10	4	4	10	10		63

APPENDIX A

GEOLOGIC FORMATIONS AND ASSOCIATED GROUND WATER RESOURCES

(also surface supplies)



Based: Generalized Geologic Map of Northeastern Mississippi (from Boswell, p. 24).[8]

APPENDIX A

WATER RESOURCES: TENN-TOM CORRIDOR

The Tennessee-Tombigbee Waterway and adjacent areas being studied for industrial sites have large supplies of water. Usually the water--both from ground and surface sources--is of satisfactory chemical quality, although unfavorable characteristics do occur in some localities. A number of adequate aquifers exist through the Waterway's length including the Eutaw-McShan, Gordo, and Coker Formations, as well as Paleozoic Rocks. In some formations there has been considerable decline in water levels around sources of heavy ground-water withdrawals; however, the over-all picture is good.

Surface water supplies are variable over the Tombigbee basin due primarily to geologic effects. Streams draining the impervious chalks and clays west of the Tombigbee often suffer negligible flow in summer and are prone to flash floods at wetter times. The eastern tributaries drain an area where sands and gravels predominate. Run-off here is slower due to more rapid infiltration. Stored water is gradually released to the streams providing a more constant flow.

The following are extracts from three papers concerning the water resources of Northeast Mississippi. Individual formations and values as sources of water are given.

ABSTRACT (p. 1)

"Ground water presently supplies all public and industrial water demands in . . . Itawamba and Tishomingo Counties, Mississippi. The principal water-bearing units supplying the large capacity wells are the upper 100 feet (30 metres) of the Paleozoic rocks, and the overlying Gordo Formation, Eutaw Formation . . . of the Late Cretaceous age. At most places two or more of these aquifers underlie the surface. Well depths are generally less than 600 feet (183 m.) and the water levels commonly are less than 200 feet (61 m.) below land surface."

"The quality of the water in the area is generally good, the dissolved solids concentration in most of the water being less than 200 milligrams per litre and rarely more than 500 milligrams per litre. The pH of surface water is usually near neutral; the pH of ground water ranges from 5 to more than 8, the deeper waters having the higher pH. Some of the streams have highly colored water at times, but ground water has little color. Most of the streams occasionally have high iron concentrations (more than 0.3 milligrams per litre). Water from the Gordo formation is characterized by high concentrations of iron; also, excessive iron is a problem in the shallow parts of the other aquifers. Aquifers in the Eutaw . . . Formation[s] contain bad water locally."[9]

GROUND WATER: (TISHOMINGO AND ITAWAMBA COUNTIES)

PALEOZOIC ROCKS:

"The Paleozoic rocks are characterized by a wide range of transmissivity and hydraulic conductivity values. Transmissivity was calculated as ranging from 600 to 70,000 (gal./d)/ft., or 8-875 $(m^3/d)/m.$, for 18 aquifer tests in Alcorn and Tishomingo Counties, and the hydraulic conductivity ranged from 12 to 1,000 (gal./d)$ft.^2$ (0.5-41 $m^3/d/m$) for the same group of tests. The average value of transmissivity for the 18 tests was about 30,000 (gal/d)/ft., or 375 $(m^3/d)/m$, and the average hydraulic conductivity was 500 (gal/d)/$ft.^2$ (20 m/d).

"In Prentiss and Itawamba Counties several water-well test holes have penetrated to varying depths in the Paleozoic rocks without finding good aquifers. Most of the test holes in this area penetrate only a few feet of the hard Paleozoic rocks.

GORDO FORMATION:

"Aquifer tests of wells in the Gordo Formation resulted in calculations of transmissivity ranging from less than 100 to more than 100,000 (gal/d)/ft. or 1,250 $(m^3/d)/m$, and hydraulic conductivity ranging from less than 100 to more than 1,000 (gal/d)/$ft.^2$ (41 m/d).

EUTAW FORMATION:

"The Eutaw Formation has a much more consistent aquifer hydraulic character than either the Gordo Formation or the Paleozoic rocks. Average transmissivity of aquifers in the Eutaw, as determined from analysis of 27 aquifers tests, was about 6,000 (gal/d)/ft., or 75 $(m^3/d)/m$. This value is too small for the entire thickness of the Eutaw because few of the wells used in the aquifer tests were screened in all the sand beds in the formation. Aggregate transmissivity of the Eutaw in the area probably averages 10,000 (gal/d)/ft., or 125 $(m^3/d)/m$. . . . . Hydraulic conductivities of the sandier zones in the Eutaw average about 130 $(gal/d)/ft.^2$ (2-10m/d). This hydraulic conductivity value is consistent with values determined by other studies to the south and west of the project area. The average hydraulic conductivity obtained from aquifer tests at nine sites in Alcorn, Prentiss, and Itawamba Counties was 100 $(gal/d)ft.^2$ (4m/d). In Tishomingo County the average hydraulic conductivity determined during 18 tests was slightly higher--160 $(gal/d)ft.^2$ (7m/d)."

ALLUVIUM:

"Three aquifer tests of the alluvium in the Tombigbee River flood plain south of Fulton indicated transmissivities of 2,000 to 3,000 (gal/d)/ft., or 25-37 $(m^3/d)/m$, and hydraulic conductivities of 150 to

300 (gal/d)/ft.^{2} (6-12m/d). The probable range of transmissivity in the alluvial aquifer is 0 to 10,000 (gal/d/ft., or 0-125 (m^3/d)/m. Some of the terrace deposits may be as permeable as the alluvial deposits, but the transmissivity probably is not as great because the terrace deposits are generally well drained and thus have less saturated thickness."[10]

ABSTRACT (p. 1)

"Clay, Lowndes, Monroe, and Oktibbeha Counties are underlain by sedimentary beds of Cretaceous age which dip about 25 feet per mile to the southwest and vary widely in permeability. The Cretaceous beds overlie Paleozoic rocks, the top of which coincides approximately with the base of fresh water in the western part of the area."

"Several million gallons per day of ground water can be developed at any locality in the area, but in some localities the aquifers are much more productive than in others. Multiple-aquifer well fields can be developed in many places.

"The Gordo and Coker Formations are the most permeable and highest yielding aquifers, and yields of individual wells are as much as 2,000 gpm. Water in the Gordo and Coker Formations is low in dissolved solids and of good quality, except for high iron content.

Withdrawl in 1964 from the Gordo was about 25 mgd and from the Coker was about 5 mgd.

"Artesian water levels in the Eutaw, McShan, Gordo, and Coker Formations are lowest along the Tombigbee River valley where withdrawl is heaviest. Water levels in the Eutaw, McShan and Gordo Formations are declining at the rate of about 2 feet per year."

Ground water characteristics of the three southern-most counties (Clay, Lowndes, and Monroe) are tabulated on an individual county basis.

Clay County

Ground-Water Conditions

"Abundant groung-water supplies are available from the massive sand and Gordo Formation of the Tuscaloosa Group, and from the McShan and Eutaw Formations. In parts of the county sandy beds of Early Cretaceous age underlie the Tuscaloosa Group and are lithologically similar to it. Analysis of electrical logs indicates that these sands contain fresh water that would be suitable for general use. The Ripley Formation, which crops out in the Pontotoc Ridge, is of no importance as an aquifer because the sand beds become fine grained and clayey a short distance down the dip.

The massive sand is not used as a source of water in Clay County, but it is potentially an important aquifer.

From a land-surface altitude of 300 feet about sea level, the depths of the water-bearing beds of the massive sand range from about 900 feet in the eastern part of the county to about 2,000 feet in the western part.

The Coker Formation, composed mostly of coarse sand and fine gravel in the eastern half of Clay County, includes important aquifers and is a potential source of water for large wells. The sand and gravel beds extend into the western part of the county but become thinner due to the increasing percentage of clay in the formation. The static water level in the Coker Formation is probably about 210 feet above sea level. The water may be expected to be of somewhat better chemical quality than that from the Gordo Formation.

The Gordo Formation is the source of water for one industrial supply at West Point, and for several flowing wells which supply water for livestock. In the past, part of the municipal supply at West Point was from a well in the Gordo Formation. Although the water from the Gordo is not widely used because of the high iron content, the basal sand and gravel unit of the Gordo is capable of yielding several hundred gpm to properly constructed wells. The static water level in the Gordo Formation is about 200 feet above sea level.

The McShan Formation is the source of water for

only a few wells because the sands are very irregular in Clay County. It is the source of several flowing wells in the eastern part of the county. Water levels in wells tapping the McShan Formation are generally lower than those in the Gordo, but higher than the water levels in the Eutaw Formation.

Most municipal, industrial, and domestic wells in Clay County obtain water from sands in the Eutaw Formation. The sands are extremely irregular and lenticular in the eastern part of the county, and in places they are not of sufficient thickness to permit the development of even small capacity wells. Where the sands are of sufficient thickness, wells yielding more than 500 gpm have been developed. Static water levels in wells in the Eutaw Formation average about 190 feet above sea level in areas away from heavy pumping. At West Point where large quantities of water are pumped for municipal and industrial use, a depression has developed in the water level in the Eutaw Formation. Depending upon the rate of pumping, the water level in the vicinity of the West Point water plant ranges from 100 to 150 feet below land surface (120 to 70 feet above sea level). The effect of this pumping on the water level extends considerable distances from West Point.

Terrace deposits present in the valley of the Tibbee Creek supply water to some bored or dug wells. However, the terrace deposits are too fine and thin to be of major importance.

Lowndes County

Ground-Water Conditions

"Lowndes County is underlain by artesian aquifers in the Tuscaloosa Group, the McShan Formation, and the Eutaw Formation, from which large supplies of ground water are available. Small supplies are available from terrace and alluvial deposits along the Tombigbee River.

The Tuscaloosa Group, comprising the massive sand and the Coker and Gordo Formations, is the most important source of ground water in the county.

The massive sand is composed chiefly of medium and coarse sand and gravel and is an excellent aquifer. The formation thickens southwestward across the county. From a land-surface altitude of 250 feet, depths to the massive sand range from about 700 feet in the Caledonia area, where it is thin, to about 1,900 feet in the Crawford area. The massive sand probably will yield up to 2,000 gpm to properly constructed wells in the southern and southwestern parts of the county. The static water level is about 215 to 220 feet above sea

level. Wells in the massive sand in the lowlands along the Tombigbee River and its major tributaries flow.

The Coker Formation comprises the Eoline Member and the upper unnamed member (Drennen, 1953). The upper unnamed member is composed of clay containing subordinate beds of sand. The sands are not generally used as sources of ground water, but they might supply limited quantities of water to small wells. The Eoline Member is predominately marine clay and does not include an aquifer.

The Gordo Formation is presently the most used source of water in the area for large capacity wells. The formation averages about 250 feet thick in the subsurface of the county, and it is necessary to drill into the basal sand and gravel to obtain sufficient water for large wells. Smaller wells are often completed in medium to coarse sands higher in the formation. Flowing wells from the Gordo are common in the Tombigbee River valley. The general static water level of the basal sand and gravel of the formation is about 200 feet above sea level in the northern part of the county and in the Mayhew area, and about 170 feet at Columbus. In areas affected by heavy pumping wells generally no longer flow and water levels are dependent on the amount of pumpage, distance from the center of pumping, and the hydrological characteristics of the aquifer.

The Eutaw Formation, including the Tombigbee Sand Member, probably supplies water to a larger number of wells in the county than all other aquifers combined.

The Eutaw yields water to shallow dug or bored wells in the northeastern part of the county and depths of wells gradually increase to about 200 feet at Columbus. The depth to the basal sand, which is lenticular and not present everywhere, gradually increases southwestward to about 900 feet in the Crawford area. Deeper wells in sands of the Eutaw Formation generally are about 200 feet below the base of the Mooreville Chalk ("blue rock"); some in the Tombigbee Sand Member are drilled less than 100 feet into the Eutaw Formation.

Quaternary terrace deposits blanket most of the terrain east of the Tombigbee River. The sand and gravel beds in the terrace deposits furnish water to many shallow dug and bored wells, generally at depths of less than 30 feet.

The alluvial deposits along the Tombigbee River generally do not exceed 40 feet thick and are composed of sand, gravel, and clay. The lower part of the alluvium is a good aquifer for small wells in some places. Water from the alluvial deposits generally is obtained from small-diameter driven wells equipped with pitcher pumps.

Monroe County

Ground-Water Conditions

"Monroe County has an abundant supply of ground water in several major aquifers in the Tuscaloosa Group and in the McShan and Eutaw Formations. In addition, Paleozoic rocks of Pennsylvanian age are potential sources of ground water in the eastern part of the county where the Cretaceous deposits are thin.

The Tuscaloosa Group comprises the massive sand and the Coker and Gordo Formations. The massive sand is not exposed at the surface, but the overlying Coker Formation crops out to the east in Alabama. Both units are present in the subsurface of the southern part of Monroe County where the massive sand has an average thickness of about 70 feet. It thins northward and is overlapped by the Coker Formation. In the southern part of the county the massive sand includes clay, shale, sand, and gravel. From a land-surface altitude of 250 feet above sea level, the average depth for wells penetrating the massive sand ranges from about 400 feet in the Gattman area to 700 feet near Hamilton and about 1,350 feet at the county line west of Muldon. The static water level is about 240 feet above sea level in Hamilton area.

The Coker Formation and the massive sand together are about 250 feet thick in the Gattman area and thin rapidly northward. In the southern part of the county the Coker Formation is composed of clay and shale with interbedded sand. Northward, it contains considerable sand and gravel.

The Gordo Formation is used extensively as a source of water in the eastern part of the county. Most of the outcrop area in Alabama, but the upper part of the formation is exposed in valleys of Sipsey River and its tributaries in the extreme eastern part of the county. The upper part of the Gordo Formation is composed mostly of multicolored clay and the lower part is predominately sand and gravel. The Gordo Formation averages about 250 feet in thickness in Monroe County. The basal sand and gravel unit of the formation yields large quantities of water for industrial, municipal and irrigation purposes in various parts of the county. It is also the source of water for most of the flowing wells in the lowlands along the Tombigbee River and its principal tributaries. The static water level of the Gordo Formation ranges from about 250 feet above sea level north of Amory to about 210 feet in the southern part of the county. From a land-surface altitude of 250 feet above sea level, depths of wells in the basal

sand and gravel range from 100 feet in the exteme eastern part of the county to 550 feet in the vicinity of Aberdeen and 880 feet in the Muldon area.

The McShan Formation crops out in the eastern part of the county with the best exposures along the valley walls of Splunge Creek and its tributaries. The McShan is composed of interbedded clay and sand and of beds of fine to medium cross bedded sand which are persistent near the base of the formation. Where present in sufficient thickness, the sands are a good aquifer and supply water to many domestic and farm wells in the central and western parts of the county. From a land-surface altitude of 250 feet, the depth of wells in the McShan Formation ranges from about 200 feet in the Amory area to about 550 feet in the southwestern corner of the county. The static water level of the McShan Formation is about 210 feet above sea level in the northwestern part of the county, about 195 feet in the central part, and about 190 feet in the Hamilton area.

The Eutaw Formation crops out in a north-south belt several miles wide in central Monroe County and underlies all the western part of the county. Most of the domestic and farm wells in the western part of the county obtain water from the Eutaw Formation, and a few

are drilled into the Tombigbee Sand Member, which is commonly referred to as the "first sand." The lower part of the Eutaw west of the Tombigbee River is generally capable of yielding as much as 500 gpm to wells, and it is the source of water for some municipal and industrial supplies. Water levels in the lower part of the Eutaw Formation vary in the outcrop area of the northwestern part of the county where water-table conditions exist. In other parts of the county, water levels in the Eutaw are slightly lower than those in the McShan.

The Quartenary terrace deposits of sand and gravel along the Tombigbee River, together with similar deposits in the flood plain of the river, are capable of yielding sufficient water for domestic and farm use in many places. These deposits, usually less than 30 feet thick in Monroe County, are the source of water for many small-diameter driven wells.

APPENDIX B

SOILS DATA

APPENDIX B

EXPLANATION OF SOILS DATA

The examination of soils found on the primary sites includes pertinent soils information, principally engineering specifications. Data are listed on Soil Survey Interpretations--Estimated Physical Properties sheets. Each soil found on TTIS sites is included within interpretation sheets along with following categories of information: depth of soil profile, Unified and A.A.S.H.O. soil engineering classifications, U.S.D.A. texture analysis, percent of material passing sieves, permeability, available water capacity, soil reaction (pH), shrink/swell potential, corrosivity of concrete and steel, and suitability as a source material. Noted are an estimated bearing range and average as well as a table of results for field moisture equivalence tests performed on soil samples collected in the field.

U. S. Department of Agriculture texture analysis is used in fixing the proportion of sand, silt, and clay within a given soil. The Unified system of soil engineering classification uses plasticity, liquid limit, particle-size distribtuion, and content of organic matter to develop a system suitable for use on roads, airfields, and to some degree on embankments and foundations. The following is a description of the Unified classification

system.

"The Unified system places soils in three divisions: coarse-grained, fine-grained, and organic. Coarse-grained soils contain less than 50% fines that pass through a No. 200 sieve; fine-grained soils contain greater than 50% fines that pass through a No. 200 sieve. The organic soils are identified by visual examination. The 15 soil groups in the three divisions are designated by easily remembered letter symbols derived from descriptive soil unit terms relating to the liquid limit (high or low), major soil textural fraction, and relative gradation (well-graded or poorly graded) of the soil in question.

Coarse-Grained Soils. Coarse-grained soils are divided into gravels and gravelly soils (G) and sands or sandy soils (S). Gravelly soils have particles that are mostly too large to pass through a No. 4 sieve; most sandy soils can pass through a No. 4 sieve. The eight major groups and several subgroups of the Unified classification of coarse soils are listed below, with the letter symbol used in making graphic sections and in mapping.

GW (Well-graded gravels). These soils consist of clean, well-graded gravels containing few or no fines. Any fines that may be present do not interfere with internal drainage characteristics or strength properties.

GP (Poorly graded gravels). These soils contain clean, poorly graded gravels or sand-gravel mixtures

referred to as gap-graded soils. The soils do not have any appreciable content of fines that would affect drainage or strength characteristics.

GM (Silty gravels). These predominantly gravel mixtures contain fines of which more than 12% pass through a No. 200 sieve. The fines have little or no plasticity. Well-graded mixtures of gravel-sand-silt, along with poorly graded mixtures of silty gravel, can be found in this group. There are two subdivisions (d and u) of GM soils; these allow one to make finer distinctions between the liquid limit and the plasticity index and are primarily for use in road and airfield capability ratings. The suffix d is used when the liquid limit is 28 or less and the plasticity index is 6 or less; the suffix u is used when the liquid limit is greater than 28.

GC (Clayey gravels). These predominantly gravel mixtures contain fines of which more than 12% pass through a No. 200 sieve. The fines are claylike and have low to high levels of plasticity. Well-graded mixtures of gravel-sand-clay and poorly graded materials of clayey gravels are classified in this group.

SW (Well-graded sands). This group contains soils consisting primarily of clean, well-graded sands or gravelly sands with few or no fines. Any fines that are present do not affect the internal drainage or strength properties.

SP (Poorly graded sands). This group contains soils that are predominantly sandy, consisting of clean sands or gravelly sands with few or no fines. The fines do not affect the internal drainage or strength properties.

SM (Silty sands). This group contains fines of which more than 12% pass through a No. 200 sieve and which have little or no plasticity. Well-graded and poorly graded mixtures of sand may be present. As with the GM group, the SM soils can be subdivided into two minor categories related to their liquid limit and plasticity index. The suffix d is used when the liquid limit is 28 or less and the plasticity index is 6 or less; the suffix u is used when the liquid limit is greater than 28.

SC (Clayey sands). These sands contain a minimum of 12% fines tha- can pass trhough a No. 200 sieve and are claylike, having low to high levels of plasticity. This group includes both well-graded sands and poorly graded mixtures that fulfill the other characteristics.

Fine-Grained Soils. The Unified system distinguishes seven categories of fine-grained soils by their textural composition, organic content, and liquid limit. Silts are defined as fine-grained soils that plot below the A line on the plasticity chart; clays are those soils that plot above the A line. An exception to this rule are organic clays, which plot below the A line.

The liquid limit of 50 divided these soils into groups of high (H) or low (L) liquid limit and related plasticity.

ML (Inorganic silts and very fine sands). Low plasticity. Soils in this group have liquid limits below 50 and lie below the A line on the plasticity chart. Included in this group are inorganic silts, very fine sands, rock flour, silty or clayey fine sands, or clayey silts, all having slight plasticity. Some kaolin clays and loess soils are included in this group.

CL (Inorganic clays). Low to medium plasticity. The soils of this group have liquid limits below 50 and lie above the A line on the plasticity chart, having low to medium plasticity. Inorganic clays, gravelly clays, sandy clays, silty clays, and lean clays are included. Many of the glacial soils of the north central United States are classified in this group.

OL (Organic silts). Low plasticity. These fine-grained soils have liquid limits below 50 and are plotted below the A line on the plasticity chart. Organic silts and organic silty clays of low plasticity are found in this group.

MH (Inorganic silts). Low plasticity. Soils in this category have liquid limits above 50 and are plotted below the A line on the plasticity chart. Included are inorganic silts; micaceous or diatomaceous, fine sandy or silty soils; and elastic silts.

CH (Inorganic clays). High plasticity. These soils have liquid limits above 50 and are plotted above the A line on the plasticity chart. Fat clays, gumbo clays, bentonite, and certain volcanic clays are found in this group.

OH (Organic clays). Medium to high plasticity. Organic clays and organic silts of high plasticity are found in this category. They have liquid limits above 50 and are plotted below the A line on the plasticity chart.

Organic Soils. Organic soils, or peat, are characterized by having greater than 50% organic debris. They include peat, humus, grass, leaves, branches, and other decomposed or partially decomposed organic matter.

Pt (Peat and highly organic soils). Highly organic soils are very compressible and have undesirable construction characteristics."[12]

Hierarchy of Unified Soil Classification System

I. G - (gravel)
   A. CG - (clean gravels)
      1. GW - (well-graded gravel)
      2. GP - (poorly graded gravel)
   B. FG - (gravels and fines)
      1. GM - (gravel/silt mixtures)
      2. GC - (gravel/clay mixtures)

II. S - (sand)

A. CS - (clean sands)

1. SW - (well-graded sand)

2. SP - (poorly-graded sand)

B. FS - (sand and fines)

1. SM - (sand/silt mixtures)

2. SC - (sand/clay mixtures)

III. F - (fines: silts and clays)

A. FL - (fines: silt and clay); liquid limit < 50.

1. ML - (silts: low plasticity)

2. CL - (clays: low-medium plasticity)

B. FO - (fines: organic silts and clay); high and low plasticity

1. OL - (organic silts: low plasticity)

2. OH - (organic clays: high plasticity)

C. FH - (fines: silt and clay); liquid limit > 50.

1. MH - (silts - inorganic: low plasticity)

2. CH - (clays: high plasticity)

IV. Pt - (peat)

A. Pt - (peat - highly organic)

1. Pt - (peat highly organic)

In addition, the state highway department bases its own estimates of soil bearing capacity on the Unified system. Using the soil classification provided by the system, it is possible to estimate the average and range of a soil bearing capacity according to the California Bearing Ratio Test.

ESTIMATE OF SOIL BEARING CAPACITY

(California Bearing Ratio Test)

		Soil Class.**	CBR range	CBR average
Gravels	G	CH & OH	3-5	4
Sands/gravelly sands	S	MH & OL	4-8	6
Silts/fine sands	M	ML & CL	5-15	10
Clays/silty or sandy clays	C	SC	10-20	15
LL above 50	H	SMu	10-20	15
L low PI & LL	L	SMd	20-40	30
Well graded	W	SP	10-25	15
P Poorly graded	P	GC	20-40	30
O organic material	O	SW	20-40	30
Pt*		GMu	20-40	30
(LL=liquid limit)		GMd	40-80	60
		GP	25-60	45
		GW	60-80	70

FROM: Mississippi State Highway Department[13]

*Pt (peat-highly organic) omitted as it is entirely unsuited to highway construction

**Based on third level of Unified soil classification system.

Besides the Unified system, the American Association of State Highway Engineers (A.A.S.H.O.) soil

classification system is also included within the data sheets. The following is the hierarchy of this system.

"The classifications are based upon observed field performances of soils under highway pavements, and the soils are grouped according to their load-carrying capacities. There are seven major soil groups, ranging from A-1, having the best subgrade bearing capacity, to A-7 which offers the least stable foundation. Following is a summary of the various groupings and subgroupings of the AASHO classification system.

Granular Materials (35% or Less Passing through a No. 200 Sieve)

A-1 Well-graded mixtures of gravel, ranging from coarse to fine, with or without a nonplastic or slightly plastic soil binder

A-1-a Predominantly stone fragments or gravel

A-1-b Predominantly coarse sands

A-2 Mainly granular materials between A-1 and A-3

A-2-4 Predominantly A-2 but having binder

A-2-5 characteristics similar to soil types A-4 and A-5

A-2-6 Predominantly A-2 but having binders

A-2-7 similar to the A-6 and A-7 groups

A-3 Predominantly sandy but deficient in coarse material and soil binder

Silt-Clay Materials (More Than 35% Passing through a No. 200 Sieve)

A-4 Predominantly silt content with moderate to small amounts of coarse material and small amounts of sticky colloidal clay

A-5 Similar to A-4 soils except that also included are very poorly graded soils containing materials such as mica and diatoms

A-6 Predominantly clay content containing moderate to negligible amounts of coarse materials

A-7 Predominantly clay soils but more elastic than A-6 because of the presence of one-sized silt particles, organic matter, mica flakes, or lime carbonate

A-7-5 Similar to A-7 soils but having moderate plasticity indexes in relation to the liquid limit and may be highly elastic as well as subject to considerable volume change

A-7-6 Similar to A-7 soils but having high plasticity indexes in relation to the liquid limit and subject to extremely high volume change"[14]

The percentage of material passing a sieve (using standard sieve sizes) is an estimate of particle-size distribution for a given soil at a given depth. "Liquid limit and plasticity index indicate the effect of water on the strength and consistence of the soil." Liquid limit is the moisture content indicating the point when a soil changes from a plastic to a liquid state if water is applied. "Plasticity index is the numerical difference between liquid limit and plastic limit" [plastic limit is moisture content when soil changes from a solid to plastic state]." "Permeability is that quality of the soil that enables it to transmit water and air."[15] Available water capacity is included, but it has more agricultural than engineering use. This category is supplemented by lab tests of soil samples for field moisture equivalent--the amount of water a dry soil can absorb. Soil reaction (pH) and corrosivity are frequently related. Corrosivity refers to the effect certain soils have on unprotected concrete and steel. Shrink/swell potential refers to volume changes a soil undergoes when subjected to extreme wet or dry conditions.

SOILS FOUND ON TTIS SITES

Soil Name	Location
1. Bibb (part of Bibb/Mantachie Association)	All Monroe County except Amory and Amory NE
2. Brooksville	Lowndes West
3. Cahaba	Lowndes So., Aberdeen SW & SE, Monroe Airpt., Amory & Amory SE
4. Caledonia	CAFB
5. Catalpa	Lowndes West, Aberdeen NW
6. Chenneby (part of Chenneby/ Jena/Mantachie Association	Fulton
7. Eustis	Aberdeen SW & SE
8. Guin	Smithville
9. Guyton (Ex-Trebloc)	Lowndes So., Columbus, CAFB
10. Iuka	Aberdeen SE
11. Kibling	Aberdeen N
12. Latonia	Columbus
13. Leaf	Aberdeen NW
14. Leeper	Clay, Lowndes West
15. Mantachie (separate & in association with Bibb/Man. & Chenneby/Jena/Man.)	Smithville, Columbus, all Tishomingo Co.
16. Mashulaville	Aberdeen N
17. Mayhew	Clay

Soil Name	Location
18. Myatt	All Monroe Co.
19. Okolona	Lowndes West
20. Ora (loam)	Clay, Aberdeen N, Amory SE, Burnsville
21. Ora (fine sandy loam)	Amory SE
22. Paden	CAFB, Burnsville
23. Pheba	CAFB
24. Pikeville	Columbus (also in Pikeville/Smithdale Association) [CAFB]
25. Prentiss	Lowndes So., CAFB, all Monroe Co. except Amory SE
26. Rosella	CAFB
27. Ruston	Lowndes So., Aberdeen N, Paden No. & So.
28. Savannah	Aberdeen N, Amory SE, Fulton, Burnsville
29. Stough	Lowndes So., CAFB, all Monroe Co. except Amory SE
30. Sumter	Lowndes West
31. Tilden	All Monroe Co., except Aberdeen N
32. Vaiden (clay)	Lowndes West, Aberdeen N
33. Vaiden	Aberdeen N.
34. Demopolis/ Sumter complex (chalk, outcrop)	Lowndes West
(UNNAMED TYPES)	
35. Terrace escarpments	
36. Gullied land	

Soil Name	Location
37. Sandy alluvial land	
38. Alluvial land	
(ASSOCIATIONS)	
39. Ruston/Cuthbert	Aberdeen N
40. Ruston/ Smithdale	Paden So.
41. Pikeville/ Smithdale	CAFB
42. Sweatman/ Smithdale	Lowndes West

TABLE 1

FIELD MOISTURE EQUIVALENT

SOIL SAMPLE TESTS - FIELD MOISTURE EQUIVALENT[16]

Location of Sites	Depth of Sample	Soil Type	Field Moisture Equivalent
Lowndes County			
Lowndes County Bluff No. 1 (South)			
Site No. 2	3	Prentiss	22
	4	Prentiss	25
	7	Prentis	33
Site No. 4	5	Prentiss	40
	7	Prentiss	25
Site No. 5	4	Guyton	29
	7	Guyton	24
	10	Guyton	20
Lowndes County No. 2 (Columbus)			
Site No. 2	3	Latonia	22
	4	Latonia	32
	7	Latonia	20
Lowndes County West (TVA)			
Site No. 1	5	Vaiden (silty clay)	69
	10	Vaiden (silty clay)	48
Site No. 2	5	Vaiden (silty clay)	75
Columbus Air Force Base (TVA)			
Site No. 1	5	Savannah	29
	9	Savannah	26
Site No. 2	3	Prentiss	(Gravel)
Clay County			
Clay County			
Site No. 1	5	Mayhew	44
	8	Mayhew	20
	9	Mayhew	25

Location of Sites	Depth of Sample	Soil Type	Field Moisture Equivalent
Site No. 2	4	Ora	26
	8	Ora	22
	8½	Ora	24
Site No. 4	4	Mayhew	42
	7	Mayhew	40
	10	Mayhew	32
Monroe County			
Aberdeen North (TVA)			
Site No 1	4	Prentiss	26
	7	Prentiss	29
	10	Prentiss	27
Site No. 2	4	Ora	26
	7	Ora	28
	10	Ora	26
Site No. 3	4	Kipling	29
	7	Kipling	40
	10	Kipling	27
Site No. 4	4	Bibb/Mantachie	33
	7	Bibb/Mantachie	30
	10	Bibb/Mantachie	27
Site No. 5	4	Bibb/Mantachie	34
	7	Bibb/Mantachie	25
	10	Bibb/Mantachie	32
Site No. 6	4	Strough	36
	7	Strough	39
	10	Strough	31
Aberdeen Southwest			
Site No. 1	4	Prentiss	23
	7	Prentiss	27
	10	Prentiss	36
Site No. 2	4	Prentiss	40
	7	Prentiss	26
	10	Prentiss	30
Site No. 3	4	Prentiss	24
	7	Prentiss	23
	10	Prentiss	22
Site No. 4	4	Prentiss	42
	7	Prentiss	33
	10	Prentiss	25
Site No. 5	4	Eustis	21
	7	Eustis	24
	10	Eustis	25

Location of Sites	Depth of Sample	Soil Type	Field Moisture Equivalent
Aberdeen Southeast			
Monroe County Airport			
Site No. 1	4	Cahaba	18
	7	Cahaba	18
	10	Cahaba	22
Site No. 2	4	Tilden	32
	7	Tilden	26
	10	Tilden	22
Site No. 3	4	Tilden	18
	7	Tilden	18
	10	Tilden	26
Amory			
Site No. 1	Non-Existant		
Site No. 2 & 3	Non-Existant		
Site No. 4	4	Tilden	47
	7	Tilden	42
	10	Tilden	29
Site No. 5	4	Cahaba	18
	7	Cahaba	28
	10	Cahaba	27
Amory Southeast (TVA)			
Site No. 1	4	Tilden	28
	7	Tilden	39
	10	Tilden	34
Site No. 2	4	Savannah	20
	7	Savannah	23
	10	Savannah	15
Site No. 3	4	Ora	24
	7	Ora	28
	10	Ora	32
Site No. 4	4		
	7		
	10		
Site No. 5	4	Stough	21
	7	Stough	18
	10	Stough	27

Location of Sites	Depth of Sample	Soil Type	Field Moisture Equivalent
Amory Northeast (TVA)			
Site No. 1	5	Myatt	34
	9	Myatt	30
Smithville			
Site No. 1	4	Tilden	31
	8	Tilden	20
Site No. 2	3	Tilden	31
	4	Tilden	24
Itawamba County			
Fulton			
Site No. 1	3	Mantachie	20
	5	Mantachie	35
	6	Mantachie	51
Site No. 2	Non-Existant		
Site No. 3	Non-Existant		
Site No. 4	4	Savannah	27
	7	Savannah	28
	10	Savannah	43
Site No. 5	4	Savannah	22
	7	Savannah	27
	10	Savannah	32
Site No. 6	4	Mantachie	26
	7	Mantachie	26
	10	Mantachie	38
Tishomingo County			
Paden Panther Creek (South)			
Site No. 1	5	Ruston/Smithdale	19
	10	Ruston/Smithdale	31
Site No. 2	5	Mantachie	48
	10	Mantachie	32
Paden Black Branch (North)			
Site No. 1	5	Mantachie	25
	10	Mantachie	32
Site No. 2	5	Mantachie	47
	10	Mantachie	33

Location of Sites	Depth of Sample	Soil Type	Field Moisture Equivalent
Burnsville			
Site No. 1	2½	Mantachie	46
	4	Mantachie	31
	5	Mantachie	37
Site No. 2	3	Ora	22
	4	Ora	33

TABLE 2

SOIL SURVEY INTERPRETATIONS--

ESTIMATED PHYSICAL PROPERTIES[17]

SOIL SURVEY INTERPRETATIONS - ESTIMATED PHYSICAL PROPERTIES 17

SOIL: BIBB

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-4	SL	ML		100	100		60-70			A-4
4-22	L	ML		100	100		55-70			A-4
22-48	SCL	ML-CL		100	100		80-95			A-4

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-4	0.80-2.50	0.18	5.1-5.5	LOW		
4-22	0.80-2.50	0.16	5.1-5.5	LOW		
22-48	0.05-0.20	0.23	5.1-5.5	MODERATE		

SOURCE MATERIAL
ROADFILL: FAIR
SAND: POOR
GRAVEL: POOR
TOPSOIL: FAIR TO GOOD

FIELD MOISTURE EQUIVALENT
DEPTH (FT.)

All Monroe Co. except Amory & Amory NE

CLASS.	CBR RANGE	CBR AVG
ML	5-15	10
ML-CL	5-15	10

SOIL: BROOKSVILLE

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-10	SC	CH		100	100		80-90	46-60	25-36	A-7
10-17	C	CH		100	100		80-90			A-7
17-28	C	CH		100	100		80-90	50-70	36-65	A-7
28-39	C	CH		100	100		80-90			A-7
39-60+	C	CH		100	100		80-90			A-7

DEPTH (IN.)	PERMEABILITY (IN./HR)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-10	0.50-0.20	0.21	5.5-5.6	MODERATE	HIGH	MODERATE
10-17	0.00-0.05	0.24	5.5-5.6	HIGH	HIGH	MODERATE
17-28	0.00-0.05	0.24	5.5-5.6	HIGH	HIGH	MODERATE
28-39	0.00-0.05	0.24	5.5-5.6	HIGH	HIGH	MODERATE
39-60+	0.00-0.05	0.25	5.5-5.6	HIGH	HIGH	MODERATE

SOURCE MATERIAL
ROADFILL: POOR
SAND: UNSUITABLE
GRAVEL: UNSUITABLE
TOPSOIL: POOR

FIELD MOISTURE EQUIVALENT
DEPTH (FT.)

Lowndes West

CLASS.	CBR RANGE	CBR AVE
CH	3-5	4

SOIL: CAHABA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-9	LS, SL, FSL	SM	0	95-100	95-100	65-90	30-45	-	NP	A-4, A-2-4
9-53	SCL, L, CL	SC, CL	0	90-100	80-100	75-90	40-75	25-35	8-15	A-4, A-6
53-80	S, LS, FSL	SM, SP-SM	0	95-100	40-100	60-85	10-35	-	NP	A-2-4

DEPTH (IN)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-9	2.0-6.0	0.05-0.14	4.5-6.0	VERY LOW	LOW	MODERATE
9-53	0.6-2.0	0.12-0.15	4.5-6.0	LOW	MODERATE	MODERATE
53-80	6.0-20	0.05-0.10	4.5-6.0	VERY LOW	LOW	MODERATE

SOURCE MATERIAL
ROADFILL: GOOD
SAND: POOR - EXCESS FINES
GRAVEL: UNSUITED - EXCESS FINES
TOPSOIL: FSL, SL: GOOD
LS, LFS: FAIR - TOO SANDY

FIELD MOISTURE EQUIVALENT
DEPTH (FT.)

Lowndes So., Aberdeen SW & SE, Monroe Airpt., Amory & Amory SE

CLASS.	CBR RANGE	CBR AVE
SM	10-20/20-40	15/30
SC	10-20	15
CL	5-15	10
SP-SM	10-40	15/30

SOIL SURVEY INTERPRETATIONS – ESTIMATED PHYSICAL PROPERTIES

SOIL: CHEWACLA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-7	SIL, L	ML, CL-ML, CL	0	100	100	90-100	85-90	<30	NP-10	A-4
7-26	SIL, CL, L	CL	0	100	100	85-100	60-80	30-44	11-20	A-6, A-7
26-86	CL, SCL, L	CL, SC	0	100	100	80-100	45-80	25-40	11-20	A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-7	0.6-2.0	0.20-0.22	5.6-7.3	LOW	LOW	LOW
7-26	0.6-2.0	0.15-0.20	4.5-6.0	MODERATE	MODERATE	MODERATE
26-86	0.6-2.0	0.15-0.20	4.5-6.0	MODERATE	MODERATE	MODERATE

SOURCE MATERIAL
ROADFILL: FAIR- SHRINK-SWELL
SAND: UNSUITED-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: FAIR-TOO CLAYEY

FIELD MOISTURE EQUIVALENT
DEPTH (FT.)

COLUMBUS A.F.B.

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL-ML	5-15	10
CL	5-15	10
SC	10-20	15

SOIL: CARALPH

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-14	SC	CH		100	100	85-95				A-7
14-20	SC	CH		100	100	85-95				A-7
20-36	SC	CH		100	100	85-95				A-7
36-43	C	CH		100	100	85-95				A-7
43-63	C	CH		100	100	85-95				A-7

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-14	0.50-0.02	.26	7.5-8.4	MODERATE		
14-20	0.50-0.26	.26	7.5-8.4	HIGH		
20-36	0.00-0.05	.25	7.5-8.4	HIGH		
36-43	0.00-0.05	.25	7.5-8.4	HIGH		
43-63	0.00-0.05	.25	7.5-8.4	HIGH		

SOURCE MATERIAL
ROADFILL: POOR
SAND: UNSUITABLE
GRAVEL: UNSUITABLE
TOPSOIL: POOR

FIELD MOISTURE EQUIVALENT
DEPTH (FT.)

CATALPA @ LOWNDES WEST, ABERDEEN N

CLASS.	CBR RANGE	CBR AVE
CH	3-5	4

SOIL: CHENNEBY-CLEVA-MANTACHIE ASSOC.

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-44	SICL	CL		100	100	95-100	85-95			A-7
44-60	SL	SM		100	100	60-70	20-40			A-4, A-2

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-44	0.63-0.20	0.19-0.22	4.5-5.5	MODERATE		
44-60	0.63-0.20	0.10-0.13	4.5-5.5	LOW		

SOURCE MATERIAL
ROADFILL:
SAND:
GRAVEL:
TOPSOIL:

FIELD MOISTURE EQUIVALENT
DEPTH (FT)

FULTON

CLASS	CBR RANGE	CBR AVE
CL	5-15	10
SM	10-20/20-40	15/30

SOIL SURVEY INTERPETATIONS - ESTIMATED PHYSICAL PROPERTIES

SOIL: Bibb

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-10	LS	SM		100	100		15-25			A-2
10-14	LS	SM		100	100		15-25			A-2
14-36	LS	SM		100	100		15-25			A-2
36-57	LS	SM		100	100		15-25			A-2

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-10	5.0-10.0	0.06	5.1-5.5	LOW			ROADFILL: FAIR
10-14	5.0-10.0	0.06	5.1-5.5	LOW			SAND: FAIR
14-36	5.0-10.0	0.06	5.1-5.5	LOW			GRAVEL: FAIR
36-57	5.0-10.0	0.06	5.1-5.5	LOW			TOPSOIL: POOR

FIELD MOISTURE EQUIVALENT — DEPTH (FT.)

ABERDEEN SW & SE

CLASS	CBR RANGE	CBR AVE
SM	10-20/20-40	15/30

SOIL: Guin

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-5	G SL,	GM		>80	>50		>25			A-2
5-22	G SL,	GM		>80	>50		>25			A-2
22-50	G SL.	GM		~80	50		25			A-2

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-5	0.50-5.00	0.10	5.1-5.5	LOW			ROADFILL: VERY GOOD
5-22	0.80-2.50	0.13	5.1-5.5	LOW			SAND: GOOD
22-50	2.50-5.00	0.07	5.1-5.5	LOW			GRAVEL: GOOD
							TOPSOIL: POOR

FIELD MOISTURE EQUIVALENT — DEPTH (FT.)

SMITHVILLE

CLASS	CBR RANGE	CBR AVE
GM	20-40/40-80	30/60

SOIL: Gritney

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-23	SIL, VFSL	ML, CL-ML	0	100	100	95-100	65-80	427	NP-7	A-4
23-46	SIL, SICL, CL	CL, CL-ML	0	100	100	95-100	75-95	26-40	6-18	A-6, A-4
46-80	SIL, SICL, CL	CL, CL-ML, ML	0	100	100	95-100	65-95	440	NP-18	A-6, A-6

DEPTH (IN)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-23	0.6-2.0	0.20-0.23	4.5-6.0	LOW	HIGH	MODERATE	ROADFILL: POOR-WETNESS
23-46	0.06-0.2	0.15-0.22	4.5-5.5	LOW	HIGH	MODERATE	SAND: UNSUITED-EXCESS FINES
46-80	0.06-2.0	0.15-0.22	5.1-8.4	LOW	HIGH	LOW	GRAVEL: UNSUITED-EXCESS FINES
							TOPSOIL: POOR-WETNESS

FIELD MOISTURE EQUIVALENT — DEPTH (FT.)

LOWNDES So., COLUMBUS AFB

CLASS	CBR RANGE	CBR AVE
CL-ML	5-15	10

SOIL SURVEY INTERPRETATIONS – ESTIMATED PHYSICAL PROPERTIES

SOIL: LUKA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-10	F SL	ML		100	100		50-60			A-4
10-20	SL	SM		100	100		40-50			A-4
20-50	L	ML-CL, CL		100	100		60-70			A-4

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-10	0.80-2.50	0.13	5.1-5.5	LOW		
10-20	0.80-2.50	0.14	5.1-5.5	LOW		
20-50	0.80-2.50	0.16	5.1-5.5	LOW		

SOURCE MATERIAL

ROADFILL: FAIR
SAND: UNSUITABLE
GRAVEL: UNSUITABLE
TOPSOIL: GOOD

FIELD MOISTURE EQUIVALENT

ABERDEEN SE

DEPTH (FT.)

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
SM	10-20/20-40	15/30
CL	5-15	10

SOIL: KIPLING

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-5	L	ML-CL, CL		100	100		60-70	20-45	8-25	A-4, A-6
5-11	SCL	CL		100	100		85-95			A-6, A-7
11-18	SCL	CL		100	100		85-95	38-70	22-45	A-6, A-7
18-27	L	ML-CL, CL		100	100		55-70			A-6, A-7
27-31	SCL	CL		100	100		85-95			A-6, A-7
31-60	CL	CL		100	100		65-75	60-80	35-50	A-6, A-7

DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-5	0.80-2.50	0.16	5.1-5.5	LOW	HIGH	HIGH
5-11	0.20-0.80	0.21	4.8-5.4	MODERATE	HIGH	HIGH
11-18	0.20-0.80	0.20	5.1-5.5	MODERATE	HIGH	HIGH
18-27	0.80-2.50	0.17	5.1-5.5	LOW	HIGH	HIGH
27-31	0.20-0.80	0.23	5.1-5.5	MODERATE	HIGH	HIGH
31-60	0.20-0.80	0.21	5.1-5.5	LOW	HIGH	HIGH

SOURCE MATERIAL

ROADFILL: FAIR
SAND: UNSUITABLE
GRAVEL: UNSUITABLE
TOPSOIL: FAIR TO POOR

FIELD MOISTURE EQUIVALENT

ABERDEEN N

DEPTH (FT.)

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10

SOIL: LATONIA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-4	SL, FSL	SM	0	90-100	85-100	60-75	30-50	–	NP	A-2-4, A-4
0-4	LFS, LS	SM	0	90-100	85-100	50-80	15-35	–	NP	A-2-4,
4-32	SL, L, FSL	SM	0	90-100	85-100	60-85	30-50	–	NP	A-2-4, A-4
32-74	S, LS	SM, SP-SM	0	90-100	85-100	50-75	10-30	–	NP	A-2-4

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-4	2.0-6.0	0.10-0.15	4.5-5.5	LOW	LOW	MODERATE
0-4	6.0-20	0.05-0.10	4.5-5.5	VERY LOW	LOW	MODERATE
4-32	2.0-6.0	0.10-0.15	4.5-5.5	LOW	LOW	MODERATE
32-74	6.0-20	0.05-0.10	4.5-5.5	VERY LOW	LOW	MODERATE

SOURCE MATERIAL

ROADFILL: GOOD
SAND: FAIR-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: SL, FSL, L: GOOD
LS: FAIR-TOO SANDY

FIELD MOISTURE EQUIVALENT

COLUMBUS

DEPTH (FT.)

CLASS	CBR RANGE	CBR AVE
SM	10-20/20-40	15/30
SP	10-25	15

SOIL SURVEY INTERPETATIONS – ESTIMATED PHYSICAL PROPERTIES

SOIL: LEAF

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT > 3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-3	SL	ML		100	100		60-70			A-4
3-20	CL	CL		100	100		70-80			A-6
20-48	SCL	CL		100	100		85-95			A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-3	0.80-2.50	0.19	5.0-5.5	LOW		
3-20	0.20-0.80	0.20	4.8-5.2	MODERATE		
20-48	0.05-0.20	0.22	5.0-5.5	MODERATE		

SOURCE MATERIAL

ROADFILL: FAIR
SAND: SUITABLE
GRAVEL: UNSUITABLE
TOPSOIL: FAIR TO POOR

FIELD MOISTURE EQUIVALENT

ABERDEEN N

DEPTH (FT.)

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10

SOIL: LEEPER

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT > 3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-12	SC	CH		100	100		80-90	45-70	25-45	A-7
12-15	C	CH		100	100		80-95	52-75	30-50	A-7
15-29	C	CH		100	100		80-95			A-7
29-62	C	CH		100	100		80-95			A-7

DEPTH (IN.)	PERMEABILITY (IN./HR)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-12	0.05-0.20	0.28	7.0-8.0	MODERATE	HIGH	LOW
12-15	0.05-0.20	0.28	7.0-8.0	HIGH	HIGH	LOW
15-29	0.00-0.05	0.27	7.5-8.4	HIGH	HIGH	LOW
29-62	0.00-0.05	0.27	7.5-8.4	HIGH	HIGH	LOW

SOURCE MATERIAL

ROADFILL: POOR
SAND: UNSUITABLE
GRAVEL: UNSUITABLE
TOPSOIL: POOR

FIELD MOISTURE EQUIVALENT

CLAY, LOWNDES WEST

DEPTH (FT.)

CLASS	CBR RANGE	CBR AVE
CH	3-5	4

SOIL: MANTACHIE

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT > 3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-11	SIL	ML, CL-ML, CL	0	100	100	90-100	70-85	430	NP-15	A-4
0-11	CL	CL-ML CL	0	100	100	90-100	70-80	20-40	5-15	A-4, A-6
0-11	FSL, SL, L	CL-ML, SM-SC, SM, ML	0-5	95-100	90-100	60-85	40-60	420	NP-5	A-4
11-61	L, CL, SCL	CL, SC, SM-SC, CL-ML	0-5	95-100	90-100	80-95	45-80	20-40	5-15	A-4, A-6

DEPTH (IN)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-11	0.6-2.0	0.16-0.20	4.5-5.5	LOW	HIGH	HIGH
0-11	0.6-2.0	0.10-0.15	4.5-5.5	LOW	HIGH	HIGH
0-11	0.6-2.0	0.16-0.20	4.5-5.5	LOW	HIGH	HIGH
11-61	0.6-2.0	0.14-0.20	4.5-5.5	LOW	HIGH	HIGH

SOURCE MATERIAL

ROADFILL: FAIR-WETNESS, LOW STRENGTH
SAND: UNSUITED-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: SIL, FSL, SL, L: GOOD
CL: FAIR-TOO CLAYEY

FIELD MOISTURE EQUIVALENT

SMITHVILLE, COLUMBUS, all TISHOMINGO CO.

DEPTH (FT.)

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10
SM-SC	20-40/10-20	30/15
SM	10-20/20-40	15/30
SC	10-20	15

SOIL SURVEY INTERPRETATIONS—ESTIMATED PHYSICAL PROPERTIES

SOIL: MASHULAVILLE

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-13	SL	ML-CL		100	100		70-80			A-4
13-20	SL	ML-CL		100	100		70-80			A-4
20-32	SCL	CL		100	100		85-95			A-6, A-7
32-62	L	CL		100	100		60-70			A-4, A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-13	0.80-2.50	0.20	4.8-5.5	LOW			ROADFILL:
13-20	0.65-0.20	0.05	4.8-5.5	LOW			SAND:
20-32	0.05-0.20	0.16	5.0-5.5	MODERATE			GRAVEL:
32-62	0.80-2.50	0.17	5.0-5.5	LOW			TOPSOIL:

FIELD MOISTURE EQUIVALENT — DEPTH (FT.)

ABERDEEN N

CLASS	CBR RANGE	CBR AVE
ML-CL	5-15	10
CL	5-15	10

SOIL: MAYHEW

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-5	SL	CL	0	100	100	90-100	70-95	36-50	15-28	A-6, A-7
5-48	SCL, SC, C	CH, CL	0	100	100	95-100	85-95	46-75	25-50	A-7

DEPTH (IN.)	PERMEABILITY (IN./HR)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-5	0.06-0.2	0.20-0.22	4.5-6.0	MODERATE	HIGH	HIGH	ROADFILL: FAIR
5-48	0.00-0.06	0.18-0.20	4.5-6.0	HIGH	HIGH	HIGH	SAND: POOR
							GRAVEL: POOR
							TOPSOIL: FAIR TO GOOD

FIELD MOISTURE EQUIVALENT — DEPTH (FT.)

CLAY

CLASS	CBR RANGE	CBR AVE
CL	5-15	10
CH	3-5	4

SOIL: MYATT

DEPTH (IN)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-5	FSL	ML		100	100		50-60			A-4
5-10	SCL	CL to CH		100	100		55-65			A-6, A-7
10-17	FSL	ML		100	100		50-60			A-4
17-22	L	ML-CL, CL		100	100		60-70			A-4
22-63	SCL	CL		100	100		85-95			A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-5	0.80-2.50	0.13	5.1-5.5	LOW			ROADFILL: FAIR
5-10	0.80-2.50	0.15	5.1-5.5	MODERATE			SAND: POOR
10-17	0.80-2.50	0.13	5.1-5.5	LOW			GRAVEL: UNSUITABLE
17-22	0.05-0.20	0.05	5.1-5.5	LOW			TOPSOIL: FAIR TO GOOD
22-63	0.20-2.50	0.20	5.1-5.5	MODERATE			

FIELD MOISTURE EQUIVALENT — DEPTH (FT.)

all MONROE CO.

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL-CH	5-15/3-5	10/4
CL	5-15	10

SOIL SURVEY INTERPETATIONS – ESTIMATED PHYSICAL PROPERTIES

SOIL: OKALONA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-8	SC	CL, CH	0	100	100	95-100	85-95	46-55	25-32	A-7
8-65	SC, C	CH	0	95-100	95-100	95-100	90-95	60-90	36-65	A-7

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	(CONCRETE)
0-8	0.00-0.06	0.20-0.22	6.6-8.4	HIGH	HIGH	MODERATE
8-65	0.00-0.06	0.18-0.20	6.6-8.4	VERY HIGH	HIGH	MODERATE

SOURCE MATERIAL
ROADFILL:
SAND:
GRAVEL:
TOPSOIL:

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

LOWNDES WEST

CLASS	CBR RANGE	CBR AVE
CL	5-15	10
CH	3-5	4

SOIL: ORA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-7	SL, FSL, L	SM-SC, ML, CL-ML		100	25-100	65-85	30-65	430	NP-5	A-4, A-2
7-26	CL, SCL, L	CL, ML		100	25-100	80-100	50-90	25-48	8-23	A-6, A-4, A-7
26-56	SCL, L, SL	CL, ML		100	25-100	80-100	50-75	25-43	8-25	A-6, A-7, A-4
56-76	SCL, L, SL	CL, ML		100	25-100	60-98	50-60	30-49	11-30	A-4, A-6, A-7

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	(CONCRETE)
0-7	2.0-6.0			LOW	MODERATE	HIGH
7-26	0.6-2.0			LOW	MODERATE	HIGH
26-56	0.2-0.6			LOW	MODERATE	HIGH
56-76	0.6-2.0			LOW	MODERATE	HIGH

SOURCE MATERIAL
ROADFILL: FAIR-LOW STRENGTH
SAND: UNSUITED-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: FAIR-TOO CLAYEY

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

CLAY, ABERDEEN N, AMORY SE, BURNSVILLE
NOTE: includes loam & fine sandy loam

CLASS	CBR RANGE	CBR AVG
SM-SC	10-40/10-20	26/15
ML	5-15	10
CL	5-15	10

SOIL: PADEN

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-8	SIL	ML, CL, CL-ML	0	95-100	90-100	85-95	75-90	15-30	5-10	A-4B
8-28	SIL, SICL	CL, CL-ML, ML	0	95-100	90-100	85-95	75-95	25-40	6-15	A-4, A-6
28-46	SIL, CL, SICL	CL, CL-ML, ML	0	95-100	90-100	85-95	70-90	25-40	6-15	A-4, A-6
46-90	CL, C, SCL	CL, SC, GC	0-10	60-100	50-100	45-90	36-90	34-50	13-25	A-6, A-7

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	(CONCRETE)
0-8	0.6-2.0	0.18-0.22	4.5-5.5	LOW	MODERATE	MODERATE
8-28	0.6-2.0	0.17-0.20	4.5-5.5	LOW	MODERATE	MODERATE
28-46	0.06-0.2	0.07-0.12	4.5-5.5	LOW	MODERATE	MODERATE
46-90	0.6-2.0	0.07-0.12	4.5-5.5	LOW	HIGH	MODERATE

SOURCE MATERIAL
ROADFILL: FAIR-LOW STRENGTH
SAND: UNSUITED-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: 0-8%: GOOD
0-10%: FAIR-SLOPE

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

COLUMBUS AFB, BURNSVILLE

CLASS	CBR RANGE	CBR AVG
ML	5-15	10
CL	5-15	10
SC	10-20	15
GC	10-40	30

SOIL SURVEY INTERPRETATIONS - ESTIMATED PHYSICAL PROPERTIES

SOIL: BERTH

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-14	SL	ML		100	100		70-80			A-4
14-23	L	ML		100	100		60-70			A-4, A-6
23-33	L	CL		100	100		60-70			A-4, A-6
33-47	L	CL		100	100		60-70			A-4, A-6
47-60	SCL	SC-CL		100	100		45-55			A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-14	0.80-2.50	0.18	4.5-5.5	LOW		
14-23	0.05-0.20	0.05	4.5-5.5	LOW		
23-33	0.00-0.50	0.05	4.5-5.5	LOW		
33-47	0.05-0.20	0.50	4.5-5.5	LOW		
47-60	0.20-0.80	0.16	4.5-5.5	MODERATE		

SOURCE MATERIAL

ROADFILL: FAIR
SAND: POOR
GRAVEL: POOR
TOPSOIL: FAIR TO GOOD

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10
SC-CL	10-20/5-15	15/10

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

COLUMBUS AFB

SOIL: PIKEVILLE

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-12	FSL, SL, L	SM, ML	0	90-100	90-100	50-85	36-60	<30	NP-4	A-4
12-30	SCL, L, GR-L	SC, CL, SM-SC	0	80-100	65-100	60-90	36-60	20-40	4-17	A-4, A-6
30-90	GR-SL, GR-LS, GR-SCL	GW-GM, GM, SW-SM, SM	0	35-90	20-85	15-75	4-45	25-48	2-18	A-1-B, A-2, A-4, A-6

DEPTH (IN.)	PERMEABILITY (IN./HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-12	0.6-2.0	0.10-0.15	4.5-5.5	LOW	LOW	MODERATE
12-30	0.6-2.0	0.10-0.15	4.5-5.5	LOW	LOW	MODERATE
30-90	2.0-6.0	0.05-0.10	4.5-5.5	LOW	LOW	MODERATE

SOURCE MATERIAL

ROADFILL: 2-15%: FAIR-LOW STRENGHT; 15-25%: FAIR-SLOPE, LOW STRENGHT; 25%+: POOR SLOPE
SAND: UNSUITED-EXCESS FINES, SMALL STONE
GRAVEL: FAIR-EXCESS FINES
TOPSOIL: 2-8%: FAIR, SMALL STONES; 8-15%: FAIR SLOPE, SMALL STONE; 16%+: POOR SLOPE

CLASS	CBR RANGE	CBR AVE
SM	10-30/20-40	15/30
ML	5-15	10
SC	10-20	15
CL	5-15	10
GW	60-80	70
GM	20-40/40-80	30/60

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

COLUMBUS; COLUMBUS AFB [as Pikeville/ Smithdale Assoc.]

SOIL: PRATTVILLE

DEPTH (IN)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-26	L, SIL	ML, CL, CL-ML	0	100	100	75-100	50-90	<30	NP-10	A-4
0-26	FSL, SL	SC, SM-SC	0	100	100	65-95	36-50	<30	NP-10	A-4
26-73	L, SL, FSL	CL-ML, CL, SC, SM-SC	0	100	100	70-100	40-75	20-35	4-12	A-6, A-4

DEPTH (IN)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-26	0.6-2.0	0.12-0.16	4.5-5.5	LOW	MODERATE	HIGH
0-26	0.6-2.0	0.12-0.16	4.5-5.5	LOW	MODERATE	HIGH
26-73	0.2-0.6	0.06-0.09	4.5-5.5	LOW	MODERATE	HIGH

SOURCE MATERIAL

ROADFILL: FAIR-LOW STRENGHT
SAND: POOR-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: GOOD

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10
SC	10-20	15
SM	10-20/10-40	15/30

FIELD MOISTURE EQUIVALENT

DEPTH (FT)

LOWNDES CO., COLUMBUS AFB, all MONROE CO. except AMORY SE.

SOIL SURVEY INTERPRETATIONS - ESTIMATED PHYSICAL PROPERTIES

SOIL: ROSELLA

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-12	SIL, VFSL	ML, CL-ML	0	100	100	90-100	60-90	<30	NP-7	A-4
12-65	SIL, L, SICL	CL, ML, CL-ML	0	100	100	85-100	60-85	18-40	5-20	A-4, A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-12	0.06-0.20	0.15-0.18	4.5-6.0	LOW	HIGH	HIGH
12-65	0.06-0.20	0.15-0.18	4.5-6.0	LOW	HIGH	HIGH

SOURCE MATERIAL
ROADFILL: POOR - WET
SAND: UNSUITED - EXCESS FINES
GRAVEL: UNSUITED - EXCESS FINES
TOPSOIL: POOR - WET

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

COLUMBUS AFB

SOIL: RUSTON

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-16	GR-FSL, GR-SL, GR-L	SM	0	70-95	66-80	35-65	15-35	<20	NP-3	A-2-4, A-1-B
0-16	FSL, SL, LFS	SM, ML	0	85-100	78-100	65-100	30-75	<20	NP-3	A-4, A-2-4
16-41	SCL, L, CL	SC, CL	0	85-100	78-100	70-100	36-75	30-40	11-19	A-6
41-47	FSL, SL	SM, ML, CL-ML, SM-SC	0	85-100	78-100	65-100	30-75	<27	NP-7	A-4, A-2-4
47-80	SCL, L, CL	SC, CL	0	85-100	78-100	70-100	36-75	30-40	11-18	A-6

DEPTH (IN.)	PERMEABILITY (IN./HR)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-16	0.6-2.0	0.09-0.14	5.1-6.5	LOW	LOW	MODERATE
0-16	0.6-2.0	0.09-0.16	5.1-6.5	LOW	LOW	MODERATE
16-41	0.6-2.0	0.12-0.17	4.5-6.0	LOW	MODERATE	MODERATE
41-47	0.6-2.0	0.12-0.15	4.5-6.0	LOW	LOW	MODERATE
47-80	0.6-2.0	0.12-0.17	4.5-6.0	LOW	MODERATE	MODERATE

SOURCE MATERIAL
ROADFILL: FAIR - LOW STRENGTH
SAND: UNSUITED - EXCESS FINES
GRAVEL: UNSUITED - EXCESS FINES
TOPSOIL: FSL, SL: FAIR THIN LAYER
LFS: POOR - TOO SANDY
GR-FSL, GR-SL, GR-L: POOR - SMALL STONES

CLASS	CBR RANGE	CBR AVE
SM	10-20/20-40	15/30
ML	5-15	10
CL	5-15	10
SC	10-20	15

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

LOWNDES SO., ABERDEEN N, PADEN NES

SOIL: SAVANNAH

DEPTH (IN)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-11	L, SIL	ML, CL-ML	0	100	100	80-100	60-90	<25	NP-7	A-4
0-11	FSL, SL	SM, ML	0	100	100	60-85	30-55	<25	NP-4	A-2-4, A-4
11-28	SCL, CL, L	CL, SC, CL-ML	0	100	100	80-100	40-80	23-40	7-19	A-4, A-6
28-68	L, CL, SCL	CL, SC, CL-ML	0	100	100	80-100	40-80	23-43	7-19	A-4, A-6, A-7

DEPTH (IN)	PERMEABILITY (IN./HR)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-11	0.6-2.0	0.16-0.20	4.0-5.5	LOW	MODERATE	HIGH
0-11	0.6-2.0	0.10-0.15	4.0-5.5	LOW	MODERATE	HIGH
11-28	0.6-2.0	0.13-0.20	4.0-5.5	LOW	MODERATE	HIGH
28-68	0.2-0.6	0.05-0.10	4.0-5.5	LOW	MODERATE	HIGH

SOURCE MATERIAL
ROADFILL: FAIR - LOW STRENGTH
SAND: UNSUITED - EXCESS FINES
GRAVEL: UNSUITED - EXCESS FINES
TOPSOIL: GOOD

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10
SC	10-20	15

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

ABERDEEN N, AMORY SE, FULTON, BURNSVILLE

SOIL SURVEY INTERPETATIONS - ESTIMATED PHYSICAL PROPERTIES

SOIL: STROH

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-20	L	ML, CL-ML	0	100	100	75-95	50-65	<25	NP-7	A-4
0-20	FSL, L	SM-SC, SM, ML, CL-ML	0	100	100	65-85	35-45	<25	NP-7	A-4
20-26	L, FSL	ML, CL, CL-ML	0	100	100	75-95	50-75	<25	NP-8	A-4
26-68	SL, SCL, L	SC, CL	0	100	100	65-90	40-65	25-40	8-15	A-4, A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-20	0.6-2.0	0.12-0.18	4.5-5.5	LOW	MODERATE	HIGH
0-20	0.6-2.0	0.12-0.18	4.5-5.5	LOW	MODERATE	HIGH
20-26	0.2-0.6	0.07-0.11	4.5-5.5	LOW	MODERATE	HIGH
26-68	0.2-0.6	0.07-0.11	4.5-5.5	LOW	MODERATE	HIGH

SOURCE MATERIAL

ROADFILL: FAIR-WETNESS, LOW STRENGTH
SAND: UNSUITED-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: GOOD

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

LOWNDES So, COLUMBUS AFB, all MONROE CO. except AMORY SE

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10
SM	10-20/20-40	15/30
SC	10-20	15

SOIL: SUMTER

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-11	SICL, SIC, C	CL, ML	0	99-100	99-100	98-100	85-90	41-50	16-25	A-7
11-30	SIC, C, SICL	CH, CL	0	100	99-100	99-100	90-95	41-55	16-32	A-7
30-57	WB	CH, CL	0	100	100	99-100	75-90	41-60	16-34	A-7

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-11	0.06-2.0	.12-.17	7.4-8.4	HIGH	MODERATE	LOW
11-30	0.06-2.0	.12-.17	7.4-8.4	HIGH	MODERATE	LOW
30-57	—	—	—			

SOURCE MATERIAL

ROADFILL: POOR-SHRINK-SWELL, LOW STRENGTH
SAND: UNSUITED-EXCESS FINES
GRAVEL: UNSUITED-EXCESS FINES
TOPSOIL: POOR - TOO CLAYEY

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

LOWNDES WEST

CLASS	CBR RANGE	CBR AVE
CL	5-15	10
ML	5-15	10
CH	3-5	4

SOIL: TIFTON

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-5	SL	ML		100	100	60-70				A-4
5-11	SL	ML-CL		100	100	70-80				A-4
11-21	SL	ML-CL, CL		100	100	70-80				A-4
21-39	FSL	ML		100	100	50-60				A-4
39-61	CL	CL		100	100	70-80				A-6

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)
0-5	0.80-2.50	.18	5.1-5.5	LOW		
5-11	0.80-2.50	.18	5.1-5.5	LOW		
11-21	0.80-2.50	.18	5.1-5.5	LOW		
21-39	0.00-0.20	.06	5.1-5.5	LOW		
39-61	0.20-0.80	.18	5.1-5.5	MODERATE		

SOURCE MATERIAL

ROADFILL: GOOD
SAND: FAIR
GRAVEL: FAIR
TOPSOIL: FAIR TO GOOD

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

all MONROE CO. except ABERDEEN N

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10

SOIL SURVEY INTERPRETATIONS – ESTIMATED PHYSICAL PROPERTIES

SOIL: VALDEN

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO
0-6	SL	ML-CL		100	100		90-100	36-53	12-26	A-6
6-12	SC, C	CH		100	100		90-100	64-81	35-41	A-7
12-35	C	CH		100	100		95-100	60-81	34-50	A-7
35-67	C	CH		100	100		95-100			A-7

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
0-6	0.05-0.02	0.25		MODERATE			ROADFILL: POOR
6-12	0.00-0.05	0.28		HIGH			SAND: UNSUITABLE
12-35	0.00-0.05	0.28		HIGH			GRAVEL: UNSUITABLE
35-67	0.00-0.05	0.28		HIGH			TOPSOIL: POOR

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

LOWNDES WEST, ABERDEEN N

CLASS	CBR RANGE	CBR AVE
ML	5-15	10
CL	5-15	10
CH	3-5	4

SOIL:

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
							ROADFILL:
							SAND:
							GRAVEL:
							TOPSOIL:

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

SOIL:

DEPTH (IN.)	USDA TEXTURE	UNIFIED	FRACT. >3 IN. (%)	% OF MATERIAL LESS THAN 3" PASSING SIEVE NO. 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX	AASHO

DEPTH (IN.)	PERMEABILITY (IN./HR.)	AVAILABLE WATER CAPACITY (IN./IN.)	SOIL REACTION (PH)	SHRINK-SWELL POTENTIAL	CORROSIVITY (STEEL)	CORROSIVITY (CONCRETE)	SOURCE MATERIAL
							ROADFILL:
							SAND:
							GRAVEL:
							TOPSOIL:

FIELD MOISTURE EQUIVALENT

DEPTH (FT.)

SOURCES

1. Soil Survey Interpretation Sheets (Blue Sheets) and aerial photographs with soil overlays for Lowndes County - courtesy Dr. Floyd V. Brent, Mississippi State University Agronomy Department.
2. Clay County Soil Survey, U. S. Department of Agriculture (Issued Nov., 1976) by L. C. Murphree and K. H. Miller; pp. 12-15.
3. Monroe County Soil Survey, U. S. Department of Agriculture (Issued Nov., 1966) by L. C. Murphree, and others; pp. 4, 6-10, 12-21.
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5. Soil Survey Interpretation Sheets (Blue Sheets) and aerial photographs with soil overlays for Tishomingo County - U.S.D.A. Soil Conservation Service Office at Iuka.
6. "Air Quality Regulations," Mississippi Air and Water Pollution Control Commission, Regulation APC-S-1 (1970, amended Jan., 1972), pp. 4-5.
7. "What Industry Wants to Know About Your Community", Area Industrial Development Department - Northern Illinois Gas Company (1962) by J. D. Fellmann and H. G. Roepke.
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12. Terrain Analysis; D. S. Way; Dowden, Hutchinson and Ross, Inc.; Stroudsburg, Pa. (1973), pp. 43-5.

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15. Clay County Soil Survey, p. 35.

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17. Engineering Data - Soil Survey Interpretations, from Clay County Soil Survey, pp. 36-43 and 45-6; Monroe County Soil Survey, pp. 60-74. Also Engineering Interpretations for Soils (Tishomingo, Lowndes, and Itawamba Counties).