

**APPENDIX I PHASES 1 AND 2 CULTURAL RESOURCES SURVEY**

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**CULTURAL RESOURCE INVESTIGATIONS  
CULTURAL RESOURCE OVERVIEW  
NORBORNE – THOMAS HILL – MT. HULDA  
TRANSMISSION AND RAIL CORRIDORS  
MISSOURI**

***RUS Project***

***Prepared for:***  
**Associated Electric Cooperative, Inc.**  
**Springfield, Missouri**

***Prepared by:***  
**Environmental Research Center of Missouri, Inc.**  
**Jefferson City, Missouri**

***AUGUST 2006***



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## **NORBORNE – MT. HULDA – THOMAS HILL OVERVIEW**

### Introduction

Associated Electric Cooperative, Inc. (AECI) entered into a contractual agreement with Environmental Research Center of Missouri, Inc. (ERC) to carry out a cultural resource overview of proposed alternate corridors. The corridors will be considered for transmission and rail lines between the proposed Norborne electric plant site in Carroll County to the Thomas Hill Substation in Randolph County and Mt. Hulda Substation in Benton County, Missouri. There are over 300 miles of one quarter mile wide corridor included in the investigation.

The investigation included transfer of corridors from large scale (1 inch = 2.7 miles) to USGS topographic 7.5 minute series quadrangles followed by review of National Register of Historic Places (NRHP) properties, known/recorded archaeology sites, previous cultural resource management studies, and recorded Missouri Department of Natural Resources historic architecture sites in relation to the corridors. Where known, NRHP eligibility of cultural resources located within the proposed corridors was included in the review. The alternate corridors are illustrated on the USGS quadrangles with blue lines; NRHP properties are shown in red; previous cultural resource surveys that enter alternate corridors in yellow; and recorded prehistoric and historic sites in black.

The corridors run through seven Missouri counties that include Benton, Carroll, Chariton, Lafayette, Pettis, Randolph, and Saline. The review has been organized on the basis of three separate points included in the project: Norborne to Thomas Hill Substation; Norborne to Sedalia Substation; and Sedalia Substation to Mt. Hulda Substation. As much as possible, the USGS quadrangles have been placed in order from one point to the other. Given the large area covered and several alternate corridors, there is no direct order that the topographic quadrangles could be placed in specific corridor-specific order. For instance, the Norborne to Thomas Hill component contains north, south, and general central alternate corridors. Two sets of quadrangles were organized with one following the north route and one following the south route. The central route falls partially within the north and the south sets of quadrangles.

### Norborne to Thomas Hill Substation Corridors

This set of alternate corridors begins on the west at the proposed Norborne electric plant site in Carroll County and runs east approximately 60 miles to the Thomas Hill Substation at the south end of Thomas Hill Reservoir in Randolph County. There are approximately 200 miles of alternate corridor within this component of the project. Corridor summary maps and USGS quadrangles are included as an appendix to this report.

The north route begins at the proposed Norborne electric plant site and runs north northwest for around 15 miles then turns due east and runs around 45 miles to the Thomas Hill Substation. Beginning on the west and going east, the quadrangles include Norborne, Roads, Coloma, Tina, Hale, Mendon, Indian Grove, Mike, Bynumville, and Prairie Hill.

The south route also begins at the electric plant site but runs in a northeasterly direction turning due east after a few miles and then turns north at the west for a few miles to enter the Thomas Hill Substation. Quadrangles in a west to east direction include Norborne, Carrollton West, Bogard, Standish, Bosworth, Brunswick West, Brunswick East, Keytesville, Salisbury, Clifton Hill, and Prairie Hill. The central alternate corridor turns northeast off of the south corridor about ten miles east of the Norborne plant site and runs in a northeasterly direction to Thomas Hill Substation. The central corridor is on the south route quadrangles for the first half and on the north route quadrangles for the last half of the distance to Thomas Hill Substation.

The information gathered regarding known cultural resources and previous cultural resource investigations for the north, south, and central routes is summarized in Table 1.

#### Norborne to Sedalia Substation Corridors

The Norborne to Sedalia component of the project contains east, central, and west alternate corridors along with a segment that runs between the east and west corridors. The distance between the two points is around 48 miles. There are approximately 160 miles of corridor between the Norborne and Sedalia points.

The west route begins at Norborne and runs due south for around 36 miles then turns west for around 24 miles to the Sedalia Substation. Quadrangles include Norborne, Dover, Higginsville, Knob Noster NW, Warrensburg East, Knob Noster, Green Ridge, and Sedalia West.

The central route begins at Norborne and runs about 52 miles in a relatively straight south southeasterly direction the Sedalia Substation. Quadrangles crossed include Dover, Waverly, Alma, Sweet Springs La Monte, Hughesville, and Sedalia West.

The east route runs southeast for around 35 miles then turns south for 27 miles to Sedalia Substation. It crosses Norborne, Carrollton West, Waverly, Grand Pass, Shackelford, Marshall South, Longwood, Beaman, and Sedalia West.

The information gathered regarding known cultural resources and previous cultural resource investigations for the north, south, and central routes is summarized in Table 2.

## Sedalia to Mt. Hulda Corridors

This is the shortest of the components involved in the project with a direct distance of around 24 miles between Sedalia on the north and Mt. Hulda on the south. This component has west and east routes with a separate segment running at a diagonal from the west route to Mt. Hulda a few miles north of Mt. Hulda.

The west route runs 23 miles south and turns due east for 8 miles to reach Mt. Hulda Substation. Quadrangles crossed include Sedalia West, Ionia, Lincoln, Lincoln SE, and Lakeview Heights. The segment towards the south end of this component begins about 16 miles south of Sedalia Substation and runs in a southeast direction for 11 miles to reach Mt. Hulda Substation and crosses Lincoln SE and Lakeview Heights quadrangles.

The east Sedalia to Mt. Hulda route runs 16 miles in a south southeasterly direction then turns due south for about 11 miles where it reaches Mt. Hulda Substation. It crosses Sedalia West, Ionia, Bahner, Cole Camp, and Lakeview Heights quadrangles.

The information gathered regarding known cultural resources and previous cultural resource investigations for the north, south, and central routes is summarized in Table 3.

## General Findings

LOCUST HILL NRHP property is located within the north Norborne to Thomas Hill corridor. The GENERAL DAVID THOMAS HOUSE NRHP property is located to the immediate east of the central Norborne to Sedalia corridor. Both properties will have to be considered during final routing planning.

There are surprisingly few recorded archaeological sites present given the corridor length and passage through areas that exhibit high site potential characteristics (i.e. stream crossings, terraces, hill/ridge tops above streams, presettlement woodland). Some of the sites within the project corridors were recommended not eligible for NRHP status by Phase I survey investigators. A small number were the subject of Phase II testing which was negative and resulted in recommendations that the sites not be considered eligible for NRHP status. The majority of the archaeology sites within the proposed project alternate corridors have not been evaluated by the MoSHPO regarding significance.

The records review produced no evidence of recorded possibly significant historic structures within the corridors although there will be an unknown number of such structures within the corridors that will have to be inventoried and evaluated in terms of possible significance through Phase I cultural resource investigation.

**TABLE 1.**  
**Recorded Cultural Resources – Norborne to Thomas Hill Corridors**

Archaeology Sites	Quadrangle	National Register Status	National Register Properties
<b>North Route</b>			
23CA130	COLOMA	Not determined	
23RN39	PRAIRIE HILL	Not determined	
23RN43	“	Not determined	
23RN80	“	Not determined	
23RN85	“	Not determined	
23RN23	“	Eligible	
<b>Central Route</b>			
23CA27	BOSWORTH	Not determined	
23CA102	“	Not eligible	
23CA105	“	Not determined	
23CA106	“	Not eligible	
23CA152	“	Not eligible	
23CH277	BRUNSWICK W	Not determined	
23CH289	MIKE	Not determined	
23CH290	“	Not determined	
<b>South Route</b>			
23CA126	BOSWORTH	Not determined	
23CA127	“	Not determined	
23CA109	BRUNSWICK W.	Not eligible	
23CH70	“	Not eligible	
23CH76	“	Not eligible	
	BRUNSWICK E.		LOCUST HILL
23CH263	KEYTESVILLE	Not determined	
23CH265	“	Not determined	
23RN52	CLIFTON HILL	Not determined	
23RN81	PRAIRIE HILL	Not eligible	
23RN65	“	Not determined	
23RN64	“	Not determined	

**TABLE 2.**  
**Recorded Cultural Resources – Norborne to Sedalia Corridors**

Archaeology Sites	Quadrangle	National Register Status	National Register Properties
<b>West Route</b>			
23JO435	WARRENSBURG E	Not eligible	
23JO373	KNOB NOSTER	Not determined	
23JO374	“	Not determined	
23JO356	“	Not determined	
23JO357	“	Not determined	
<b>Central Route</b>			
23LF107	ALMA	Not determined	
23LF109	“	Not determined	
<b>East Route</b>			
23CA145	WAVERLY	Not eligible	
23CA146	“	Not eligible	
23SA125	GRAND PASS	Not determined	
23SA491	“	Not eligible	
Santa Fe Trail	“	Not determined	
23SA318	SHACKLEFORD	Not determined	
23SA319	“	Not determined	
23SA320	“	Not determined	
23SA321	“	Not determined	
23SA324	“	Not determined	
23SA168	LONGWOOD	Not determined	
23SA169	“	Not determined	
23SA219	“	Not determined	
	HUGHESVILLE		GENERAL DAVID THOMSON HOUSE
23PE364	“	Not determined	
23PE343	“	Not determined	
23PE344	“	Not determined	
23PE268	SEDALIA WEST	Not determined	
23PE287	“	Not determined	
23PE280	“	Not determined	
23PE290	“	Not determined	

**TABLE 3.**  
**Recorded Cultural Resources –Sedalia to Mt. Hulda Corridors**

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Archaeology Sites	Quadrangle	National Register Status	National Register Properties
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**West Route**

No recorded sites

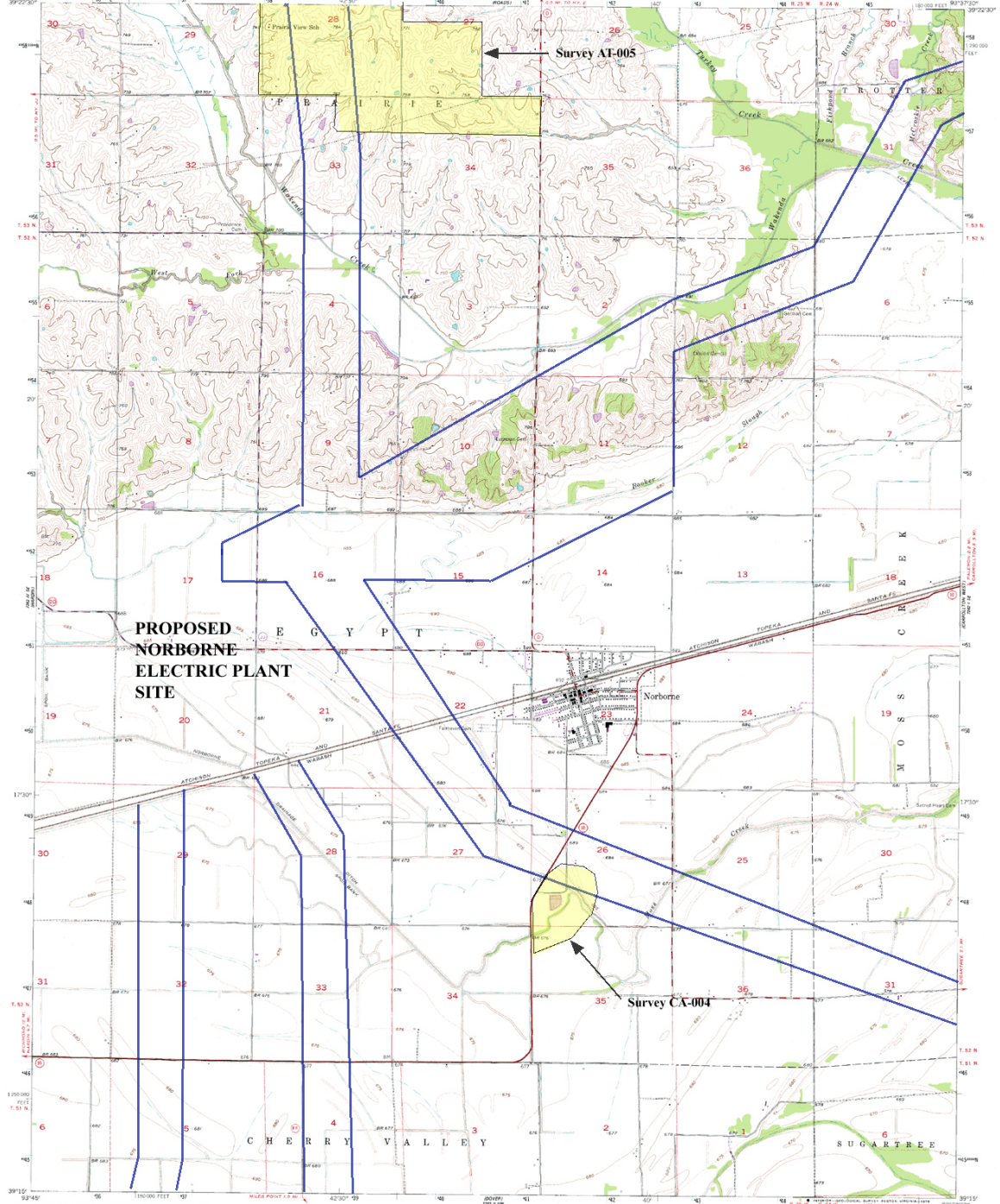
**East Route**

No recorded sites

## APPENDIX







Mapson, edited, and published by the Geological Survey  
 Control by USGS, USCGAS, and USCC

Topography from aerial photographs by stereographic methods  
 and by photostereo surveys 1927 - Aerial photographs from 1947

Photocentric projection, 1927 North American datum  
 100,000 feet and based on Missouri coordinate system, central zone  
 1000 yards interval, Tropic of Missouri and 1000  
 zone 15, shown in blue

Dashed bold lines indicate approximate locations  
 Revisions shown in purple compiled from aerial photographs taken  
 1977. Map edited 1978. This information not field checked

UTM GRID AND 1983 MAGNETIC NORTH  
 DECLINATION AT CENTER OF SHEET

SCALE 1:24,000

CONTOUR INTERVAL 10 FEET  
 DOTTED LINES REPRESENT 5 FOOT CONTOURS  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

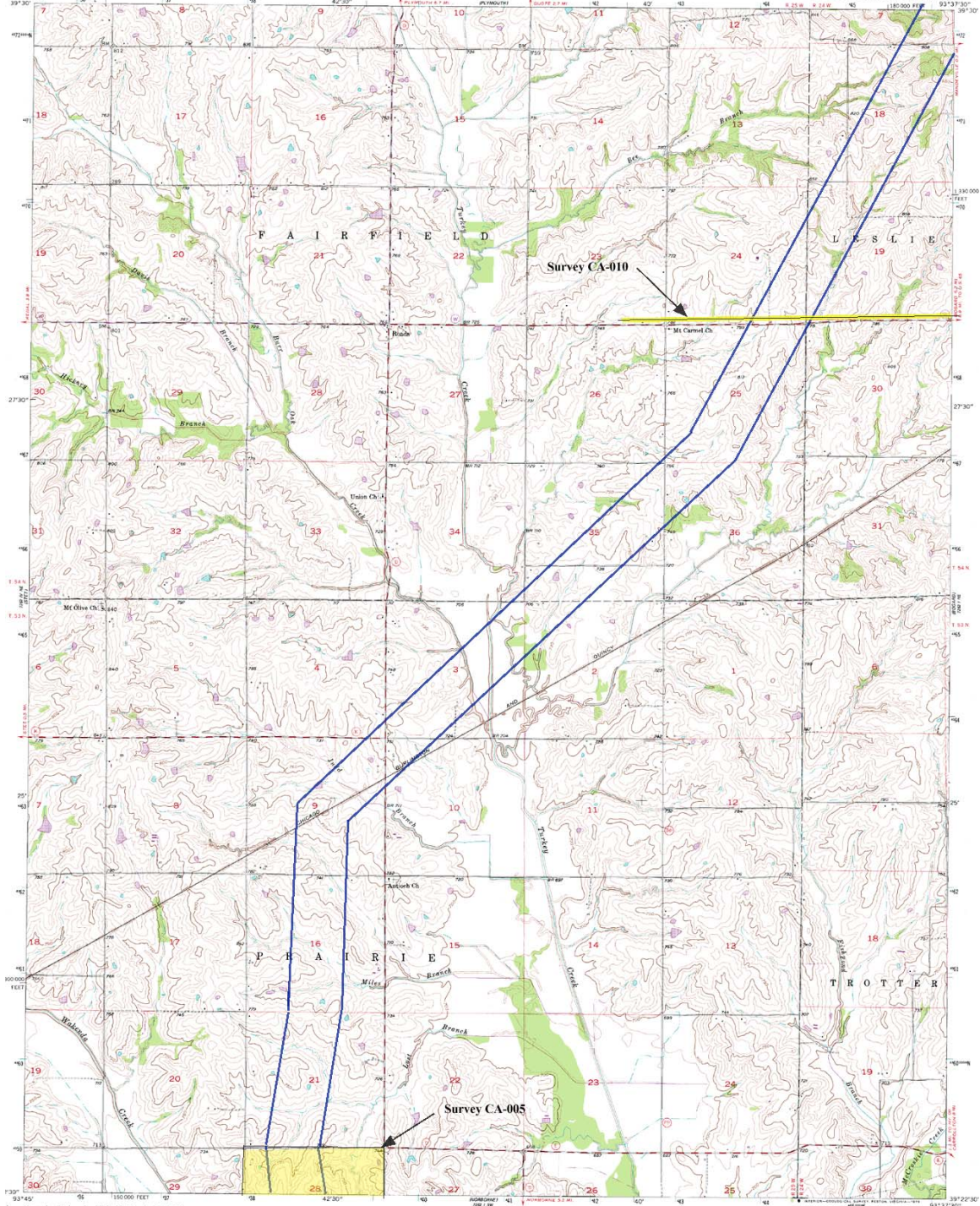
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202 OR RESTON, VIRGINIA 22092  
 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
 MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

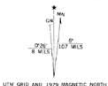
Primary highway, hard surface	Light duty road, hard or patterned surface
Secondary highway, hard surface	Unimproved road
Interstate Route	U. S. Route
	State Route

NORBORNE, MO.  
 1:315 - 99337/517.5  
 1957  
 PHOTOGRAPHED 1938  
 AMS 7502 / SW-SERIES 1970





Maped, edited, and published by the Geological Survey  
Control by USGS and USCAGS  
Topography from aerial photographs by photogrammetric methods  
Aerial photographs taken 1946. Field check 1957.  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on Missouri coordinate system, central zone  
1000-meter Universal Transverse Mercator grid scale.  
Zone 15, shown in blue  
Boundaries shown in purple compiled from aerial photographs taken  
1977. Map added 1979. This information of field checked



SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



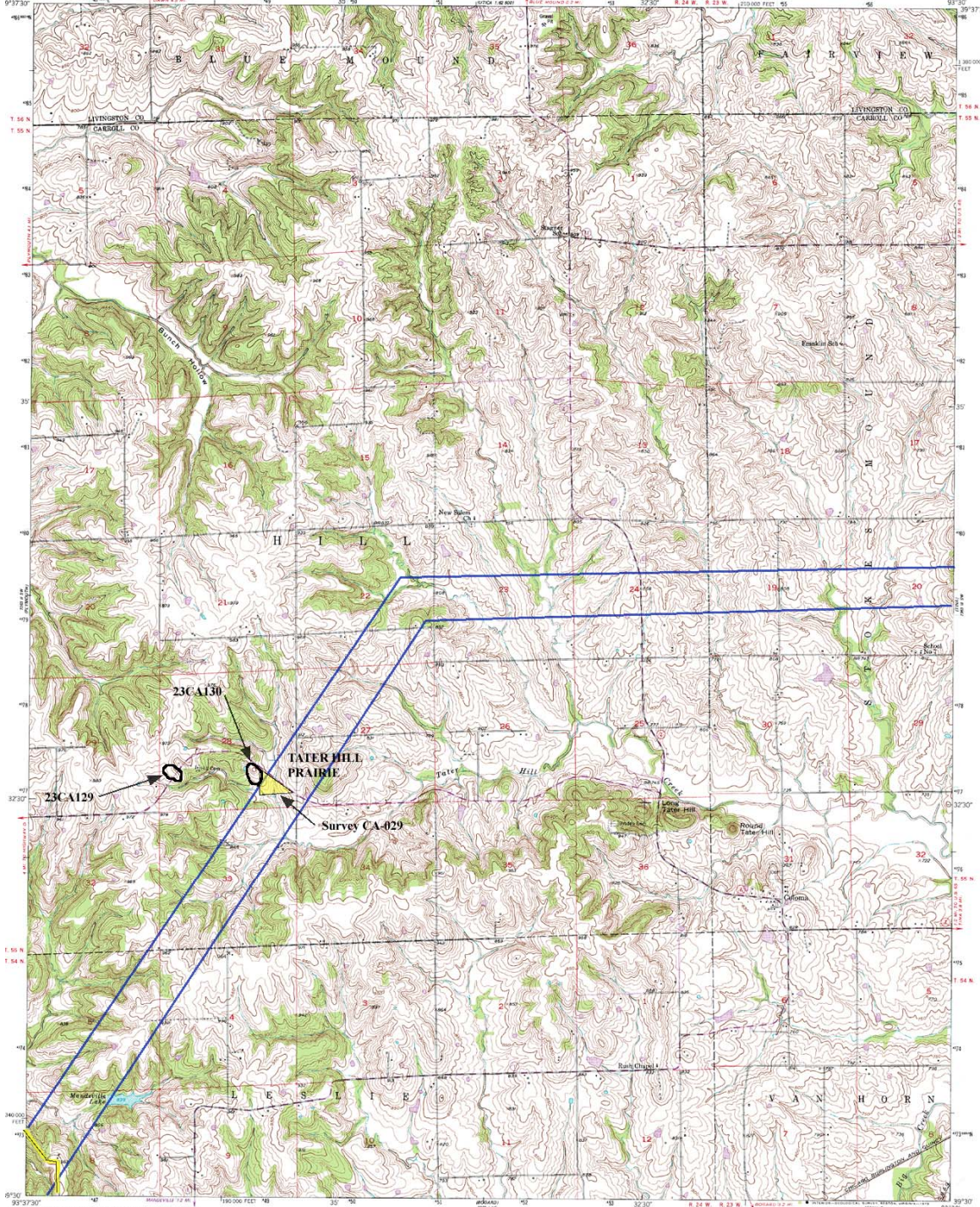
ROAD CLASSIFICATION

Primary highway, hard surface	Light-duty road, hard or improved surface
Secondary highway, hard surface	Unimproved road
Interstate Route	U.S. Route
	State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY CENTER COLLEGE BOULEVARD RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES (MOLA, MISSOURI 65401)  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROADS, MO.  
N3922.5-89337.5-7.5  
1957  
PHOTOGRAPHED 1978  
AMS 1262 I NW-SERIES 1978





Map No. 1, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin. Contour interval 10 feet. Culture and drainage as per aerial photographs taken 1939. Topography by plane-table methods, 1950. Polyconic projection, 1927 North American datum, 10,000-foot grid based on Missouri coordinate system, aerial zone. 100-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue. Revisions shown in purple compiled from aerial photographs taken 1977. Map revised 1978. This information not field checked.

SCALE 1:24,000

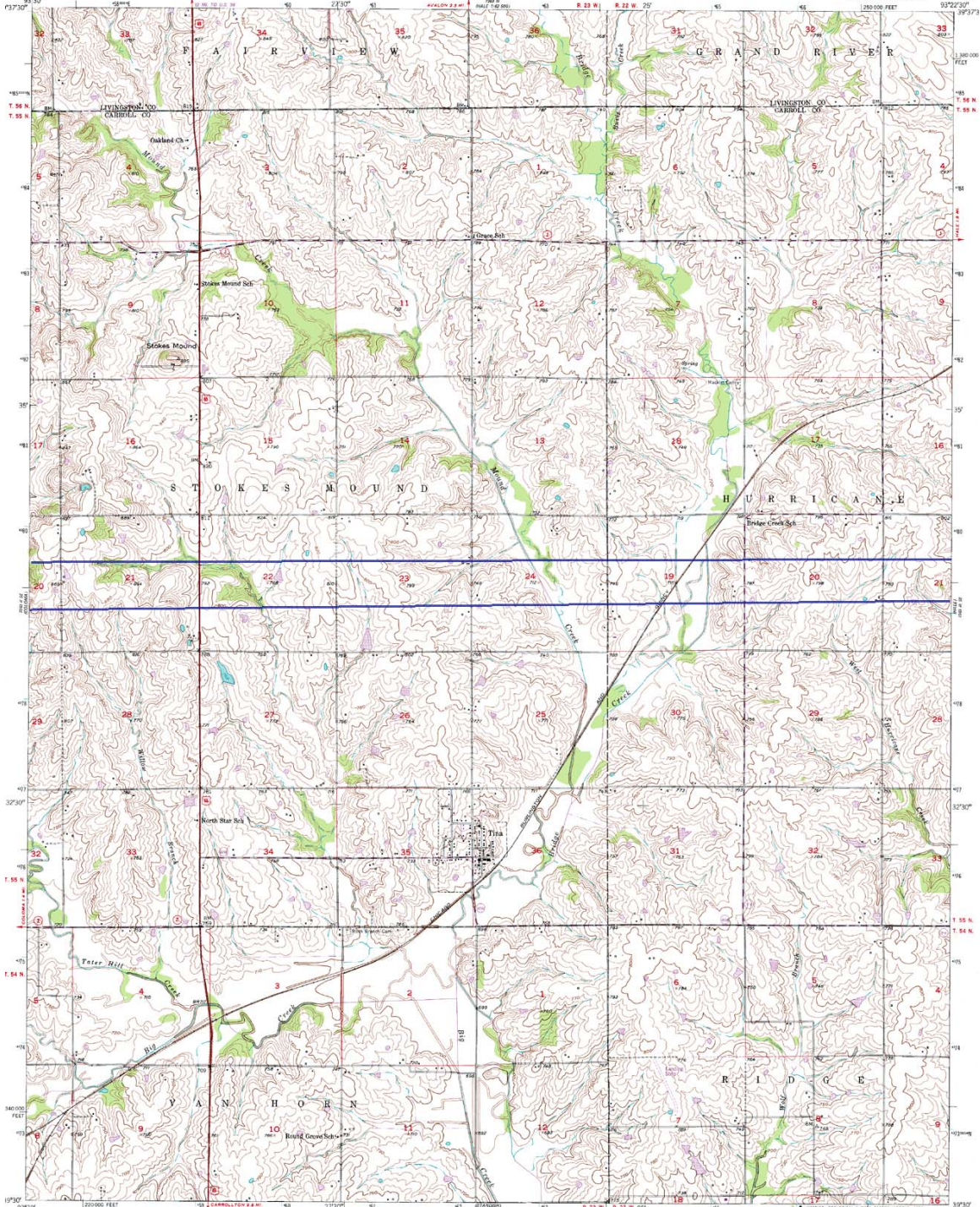
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION  
Heavy-duty **4-4-4-4-4-4** light-duty **4-4-4-4-4-4**  
Medium-duty **4-4-4-4-4-4** Unimproved dirt **4-4-4-4-4-4**  
U.S. Route **4-4-4-4-4-4** State Route **4-4-4-4-4-4**

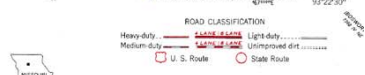
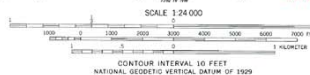
THIS MAP COMPLES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY BANNER COLUMBIA ROAD, OF RESTON, VIRGINIA 22092, AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLLA, MISSOURI 65403. A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.

COLOMA, MO.  
SECTION 15 QUADRANGLE  
N3130-W9130/7.5  
1950  
PHOTO DREVISED 1978  
AMS 1284-3, 8C-REVIS 8/79





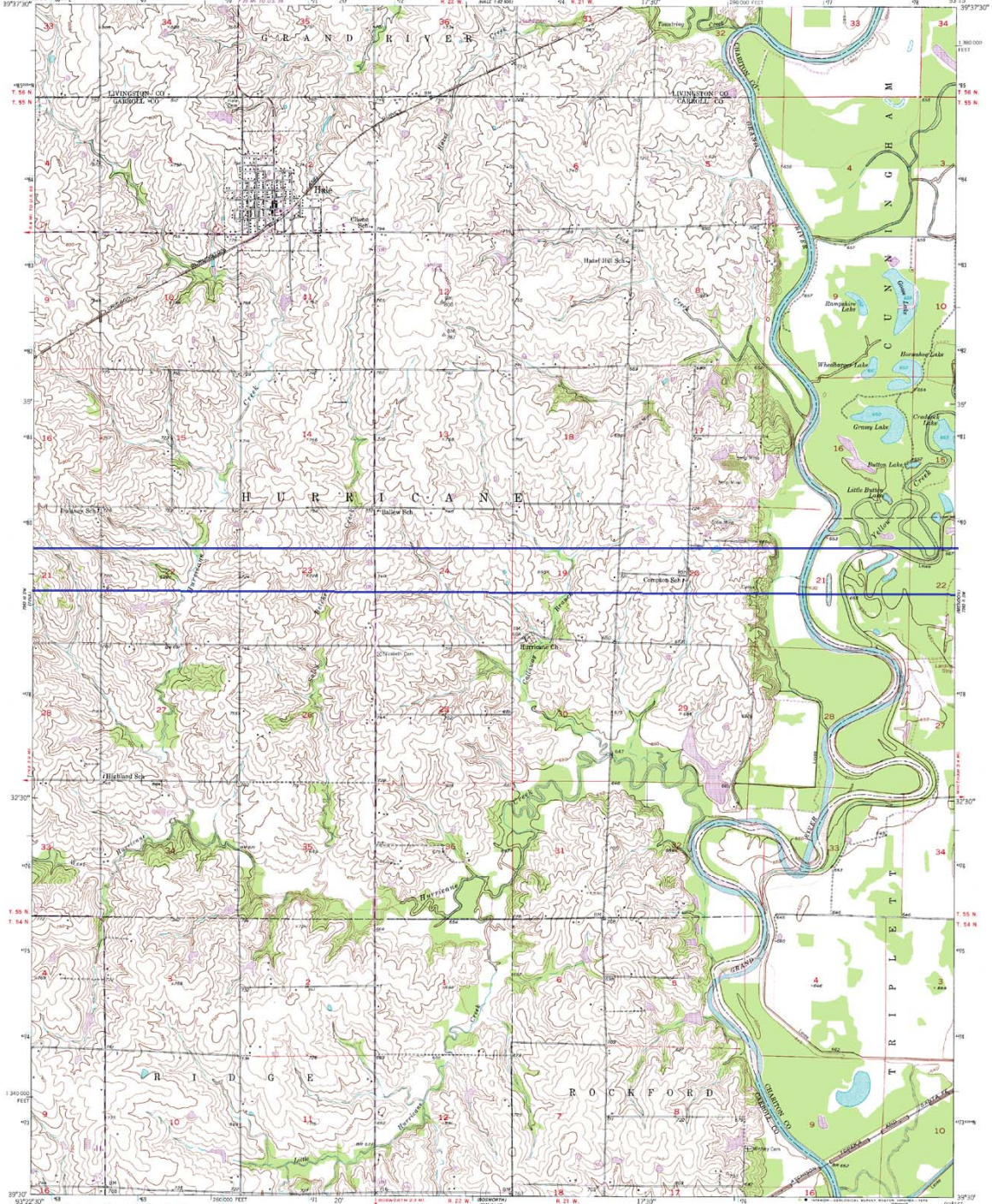
Map of the Tina Quadrangle, Missouri, showing topographic features, roads, and place names. The map is a 7.5-minute series topographic map, one inch to a quadrangle. It includes a scale bar, a north arrow, and a legend for road classification. The map is titled 'TINA QUADRANGLE, MISSOURI, 7.5 MINUTE SERIES (TOPOGRAPHIC), ONE INCH TO QUADRANGLE'.



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY SENIOR GEOLOGIC BUDZIS OF RESTON, VIRGINIA 22092 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

TINA, MO.  
SHEET 4 OF QUADRANGLE  
N3930-W9322.517.5  
EDITION OF 1992  
PHOTOREVISED 1918  
AND 1968 IN 89-88808-1019





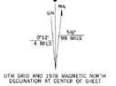
Maped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin Control by USGS and USFWS.

Culture and drainage in part compiled from aerial photographs taken 1939.  
Topography by contour table methods 1950.

Polyconic projection. 1927 North American datum.  
100,000-foot grid based on Missouri coordinate system, central zone.

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.

Boundaries shown in purple compiled from aerial photographs taken 1977. Map edited 1978. This information not fault checked.



SCALE 1:24 000

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

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ROAD CLASSIFICATION

Heavy-duty Light-duty

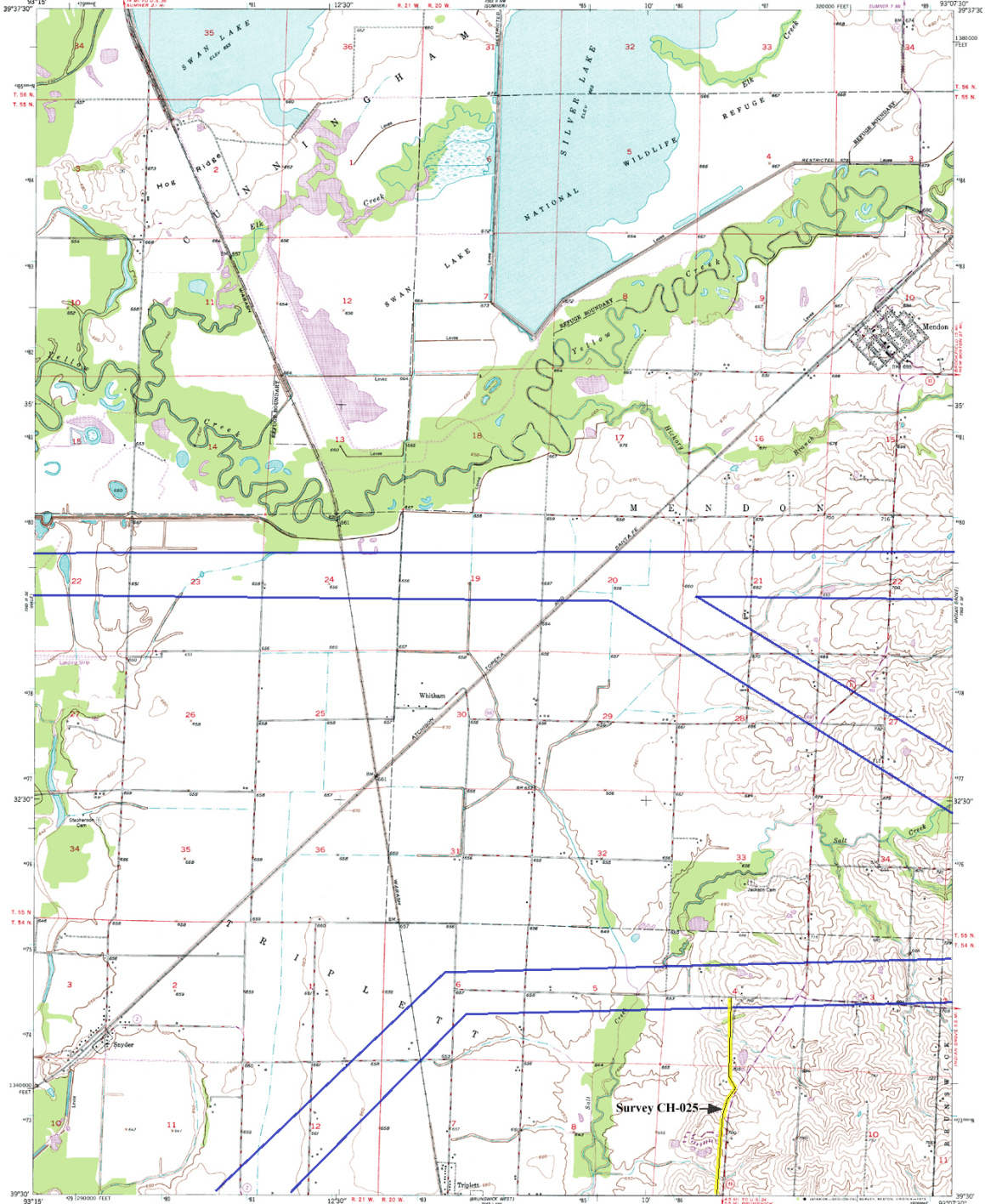
Medium-duty Unimproved dirt

U.S. Route State Route

HALE, MO.  
SECTION 14 OF QUADRANGLE  
N3930-W3215/7.5

1980  
PHOTOCOPIED 2018  
AMS 1363 BE 88-SERIES 7879





Maped, edited and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin.  
Control by USGS and USC&GS  
Culture and drainage in part compiled from aerial photographs taken 1940.  
Topography by plane-table methods, 1940.  
Projection: 1927 North American datum  
10000-foot grid based on Missouri coordinate system, central zone.  
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.  
There may be plate shadings within the boundaries of the National or State reservations shown on this map.



SCALE 1:24 000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

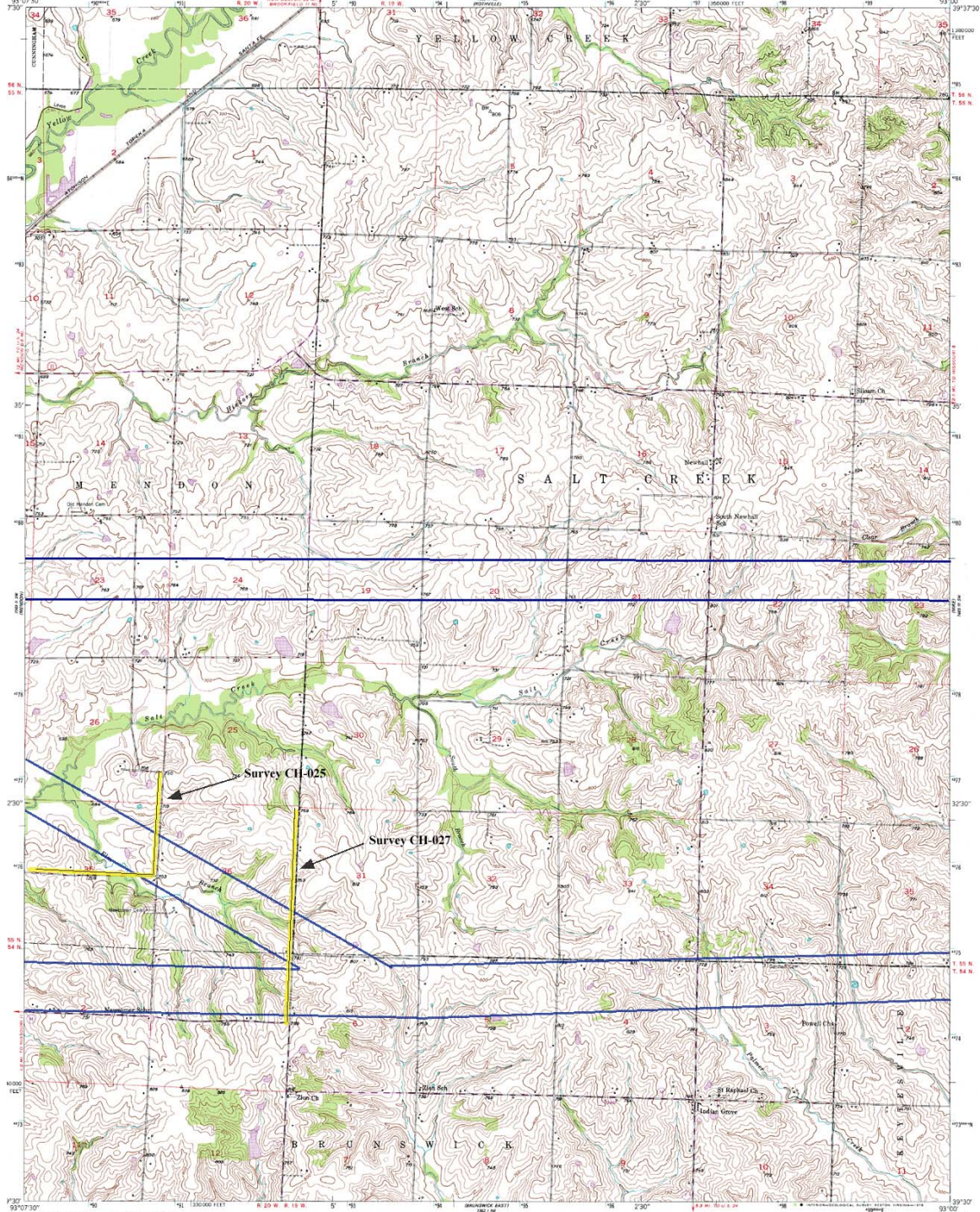


ROAD CLASSIFICATION:  
HARD-SURFACE ALL WEATHER ROADS    DIRT WEATHER ROADS  
Heavy-duty ———— 4-12" BASE Improved dirt ————  
Medium-duty ———— 4-6" 4-6" BASE Unimproved dirt ————  
Loose-surface, graded, or narrow hard-surface ————  
□ U. S. Route    ○ State Route

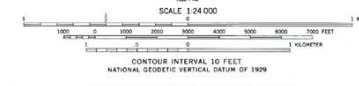
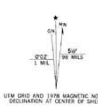
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FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225 OR RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER INCLUDING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
Revisions shown in color compiled from aerial photographs taken 1977. Map edited 1979.  
This information not field checked.

MENDON, MO.  
N35S-W03E37.5  
1949  
PHOTOREVISED 1979  
AND 1983 IN 8P SERIES 1979





Maped, edited and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin. Control by USGS and USGS/USGS. Culture and drainage in part compiled from aerial photographs taken 1949. Topography by plane-table methods 1948-1949. Polyconic projection, 1927 North American datum. USGS/USGS grid based on Missouri coordinate system, central zone. 1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue. Elevations shown in purple compiled from aerial photographs taken 1977. Map edited 1978. This information not for circulation.

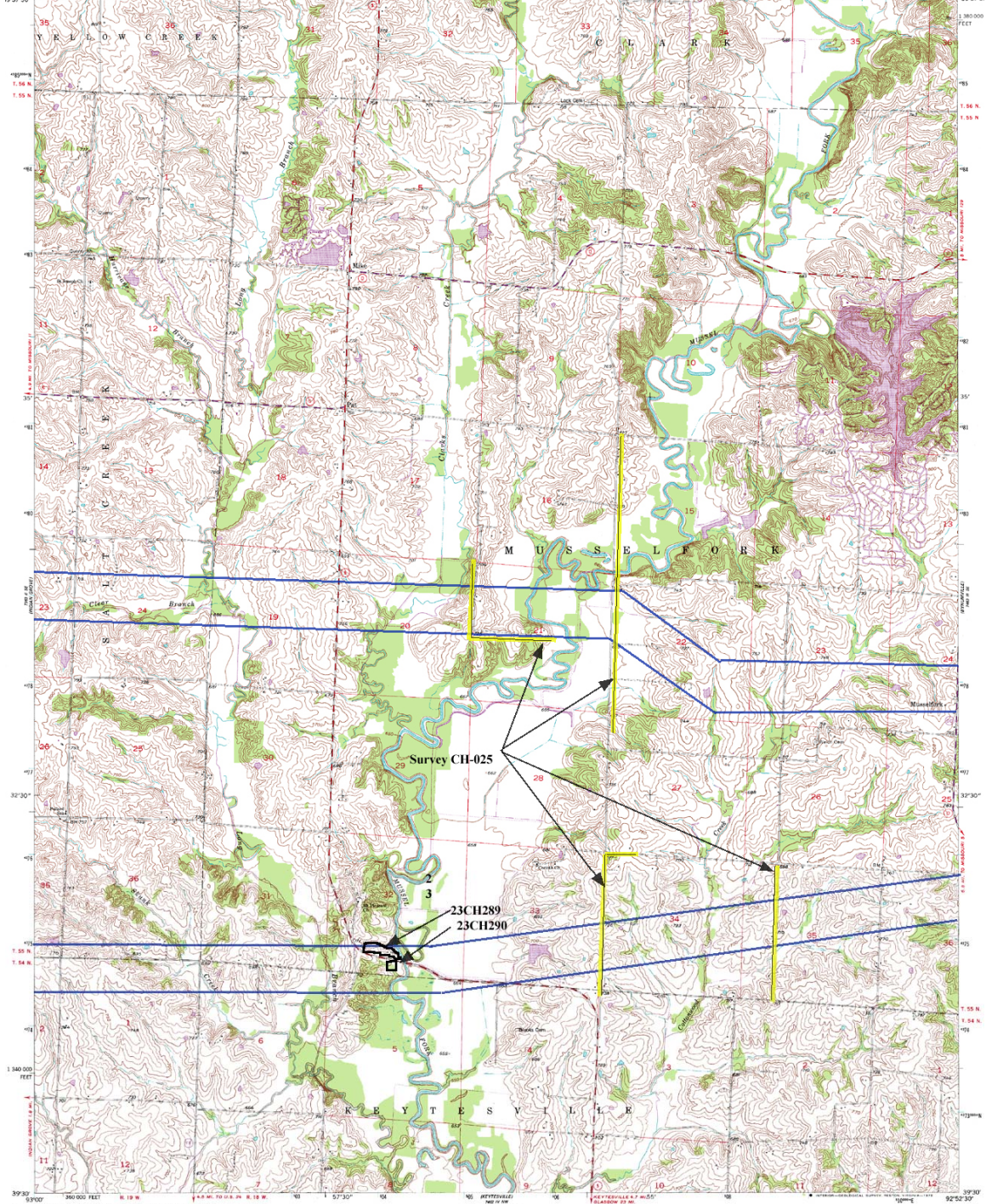


CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION  
 Heavy-duty ALL WEATHER ROADS    ORN WEATHER ROADS  
 Medium-duty    Improved dirt    Unimproved dirt  
 Loose-surface, graded or narrow hard-surface  
 U. S. Route    State Route  
 INDIAN GROVE, MO.  
 N 3930 - W 9500/7.5  
 1949  
 PHOTOREPRODUCED 1978





Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin

Control by USGS and USCGS

Topography from aerial photographs by multiple methods

Aerial photographs taken 1949-1950. Field checked 1953

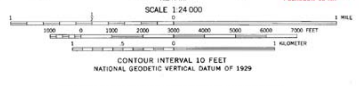
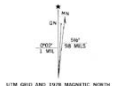
Photonic projection. 1927 North American datum

100,000-foot grid based on Missouri coordinate system

Control zone

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue

Revisions shown in purple completed from aerial photographs taken 1977. Map revised 1978. This information not field checked



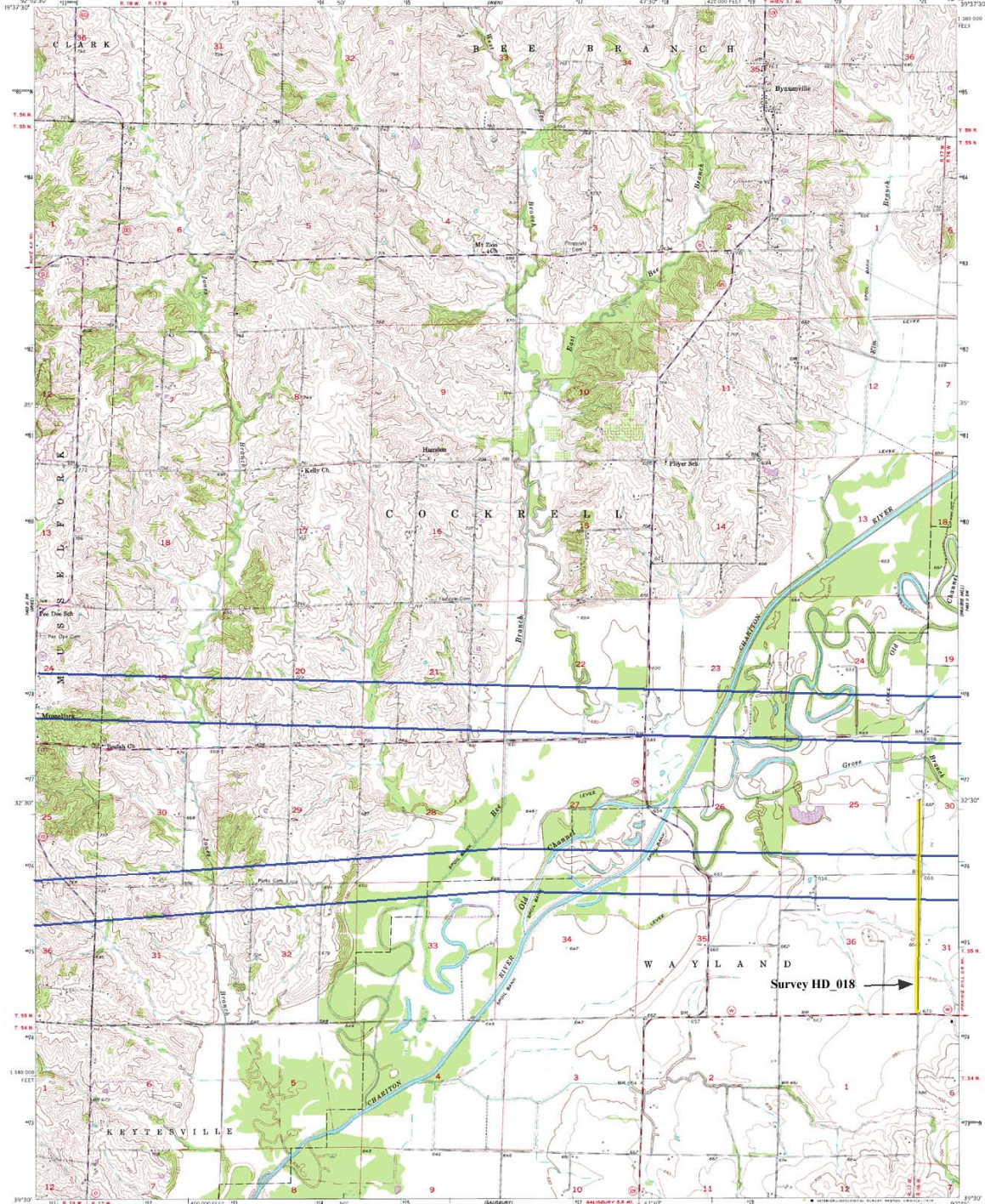
ROAD CLASSIFICATION

Heavy-duty	1-2 LANE	Light-duty	1-2 LANE
Medium-duty	2-4 LANE	Unimproved dirt	UNIMPROVED DIRT
U.S. Route	U.S. ROUTE	State Route	STATE ROUTE

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22062 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLI, MISSOURI 65401 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

MIKE, MO. N3930-W9255.67.5 1963 PHOTOREVISED 1978 AMS 7463 IS 9W-62085 1619





Maped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin. Control by USGS and USGS/USDA.

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1949-1950. Field check 1953. Reference projection, 1983 North American datum, 10,000-foot grid based on Missouri coordinate system, control zone.

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.

Revisions shown in purple compiled from aerial photographs taken 1977. Map edited 1978. This information not field checked.



SCALE 1:24,000

CONTOUR INTERVAL 10 FEET  
NATIONAL GEODESIC VERTICAL DATUM OF 1929

THIS MAP CONFORMS WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80273, OR RESTON, VIRGINIA 22092 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401. A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.



ROAD CLASSIFICATION

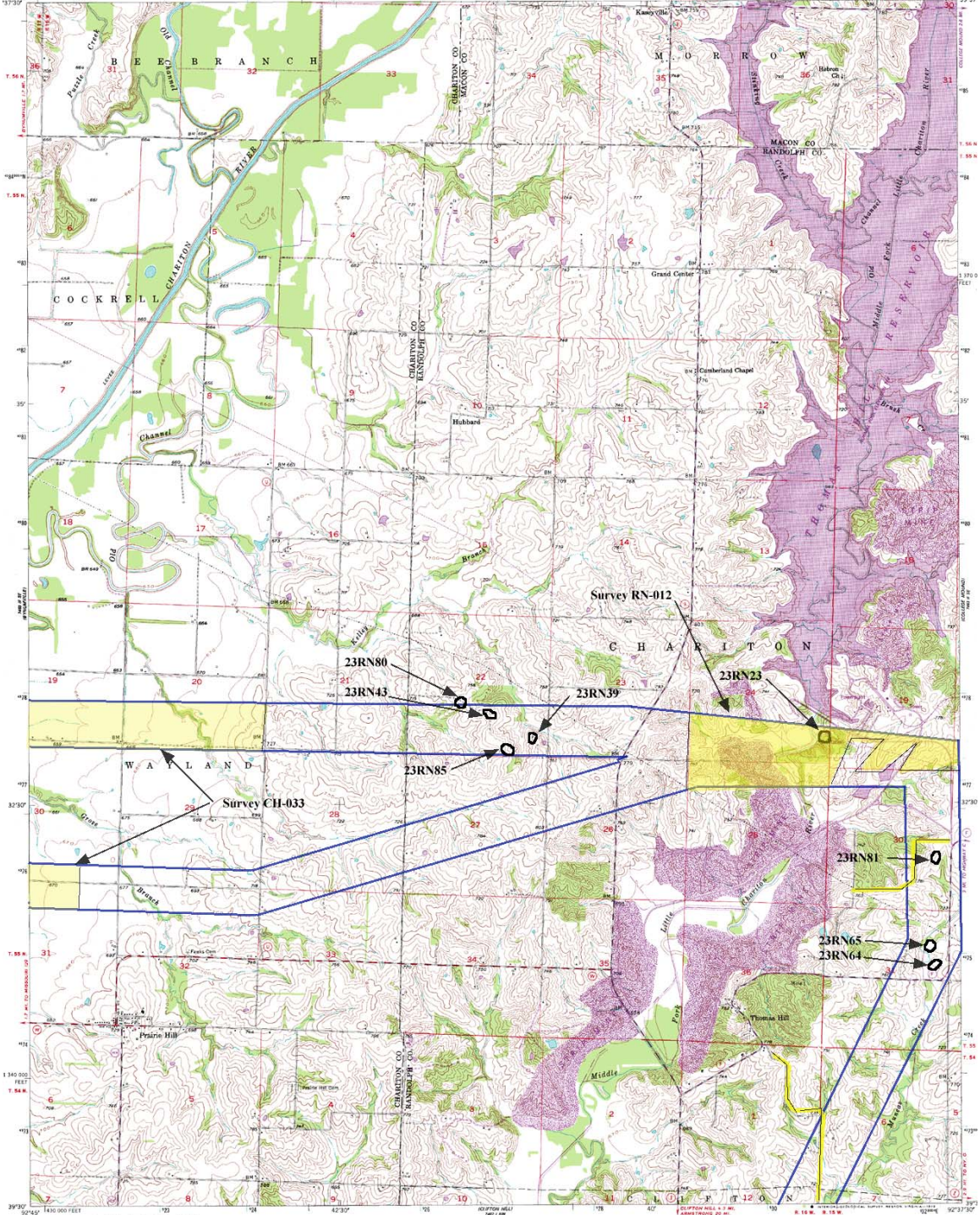
Heavy-duty ——— STATE ROUTE Light-duty ———

Medium-duty ——— UNIMPAVED DIRT ———

U. S. Route      State Route

BYNUMVILLE, MO.  
N1930-9420J7.5  
1953  
PHOTOREVISED 1978  
AMB 1463 18 SE-SERIES 9719





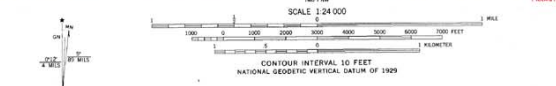
Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin Control by 1955 and 1956-55.

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1949-1950. Field check 1953.

Photographic projection. 1927 North American datum. 10,000-foot grid based on Missouri coordinate system, central zone.

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.

Revisions shown in purple compiled from aerial photographs taken 1977. Map edited 1979. This information not field checked.



THIS MAP COMPILED WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 20192 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401. A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.

ROAD CLASSIFICATION

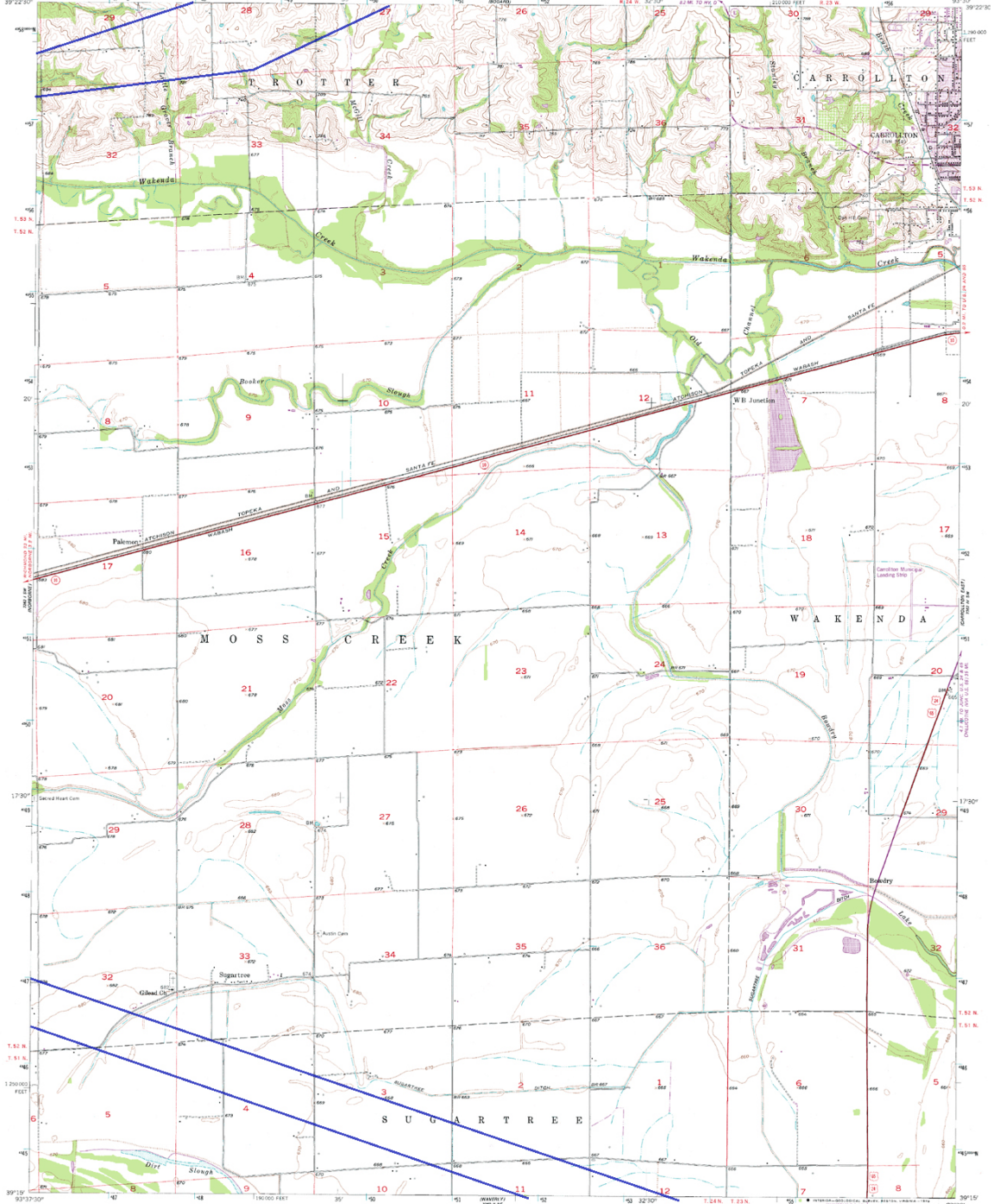
Heavy-duty All-weather light-duty

Medium-duty Unimproved dirt

U.S. Route State Route

PRAIRIE HILL, MO.  
N2930-W2333/7.5  
1953  
PHOTOREVISED 1979  
AND 1980 © 94" SERIES 1978





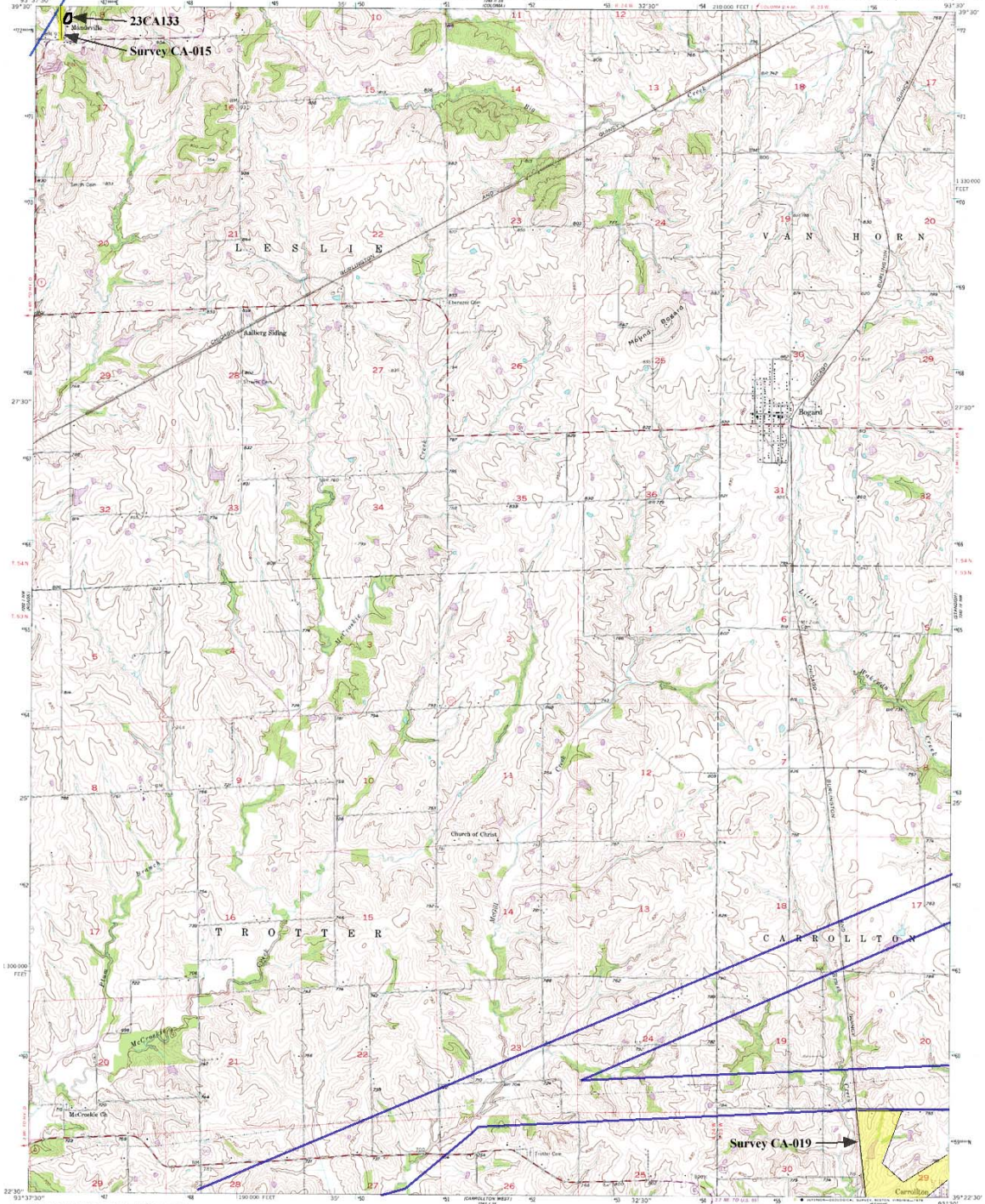
Mapped, edited, and published by the Geological Survey  
 Control by USGS and USG&S  
 Topography from aerial photographs by photogrammetric methods  
 and by aneroid surveys, 1956. Aerial photographs taken 1947  
 Polyconic projection, 1907 North American datum.  
 10,000-foot grid based on Missouri coordinate system, central zone  
 3000-meter Universal Transverse Mercator grid ticks,  
 zone 16, shown in blue.  
 Revisions shown in purple compiled from aerial photographs taken  
 1977. Map edited 1978. This information not field checked.  
 Purple tint indicates extension of urban areas.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80295 OR RESTON, VIRGINIA 22092  
 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
 MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLA, MISSOURI 65401  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION  
 Heavy-duty Light-duty  
 Medium-duty Unimproved dirt  
 U. S. Route State Route

CARROLLTON WEST, MO.  
 N 3015-W 9330/7.5  
 PHOTOENLARGED 1978  
 AND 7503 T RE-SERIES 1979





Mapped, edited, and published by the Geological Survey  
Control by USGS and USC&GS  
Topography from aerial photographs by multiple methods  
Aerial photographs taken 1948. Field check 1957  
Polygonic projection. 1927 North American datum  
10,000-foot grid based on Missouri coordinate system, central zone  
1000-meter Universal Transverse Mercator grid ticks  
zone 15, UTM in blue  
Revisions shown in purple (compiled from aerial photographs taken  
1977). Map edited 1978. This information not field checked



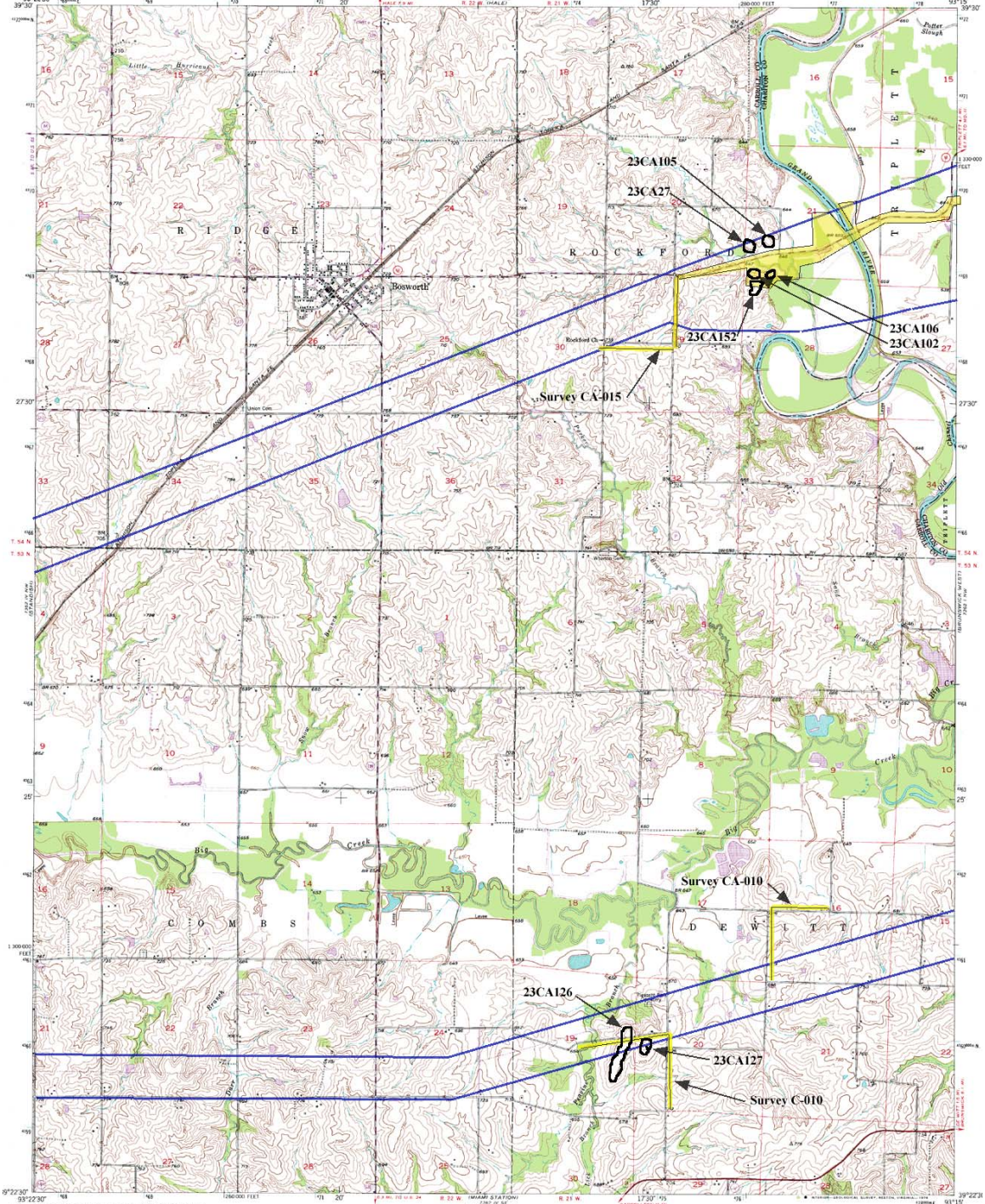
SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



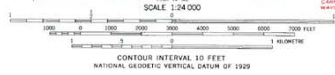
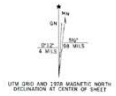
BOGARD, MO.  
N.3922.5-W.93307.5  
1967  
PHOTODUPLICATED 1978  
ANN. 1262 I (8)-SERIES 7878

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
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AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, BOLIA, MISSOURI 64601  
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Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin Control by USGS and USC&GS  
Topography from aerial photographs by multiple methods  
Aerial photographs taken 1945. Field check 1953  
Polyconic projection. 1927 North American datum  
20,000-foot grid based on Missouri coordinate system, central zone  
Dashed land lines indicate approximate location  
1000-meter Universal Transverse Mercator grid ticks, every 15, shown in blue  
Boundaries shown in purple compiled from aerial photographs taken 1977. Map edited 1978. This information not field checked



ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
U. S. Route	State Route

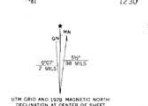
THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202, OR RESTON, VIRGINIA 22092 AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLIET, MISSOURI 65451. A PAPER REPRODUCING FORDINGHAM MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.

BOSWORTH, MO.  
N29225-W93154715  
1991  
PHOTOREVISED 1978  
AND 1988 BY THE SERIES 9789





Maplet, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin  
Control by USGS, USCGS, and USCE  
Topography from aerial photographs by multiple methods and by plane-table surveys 1951. Aerial photographs taken 1948  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on Missouri coordinate system, 1970  
1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue  
Townships shown in purple compiled from aerial photographs taken 1977. Map scale 1:24,000. This information not final checked



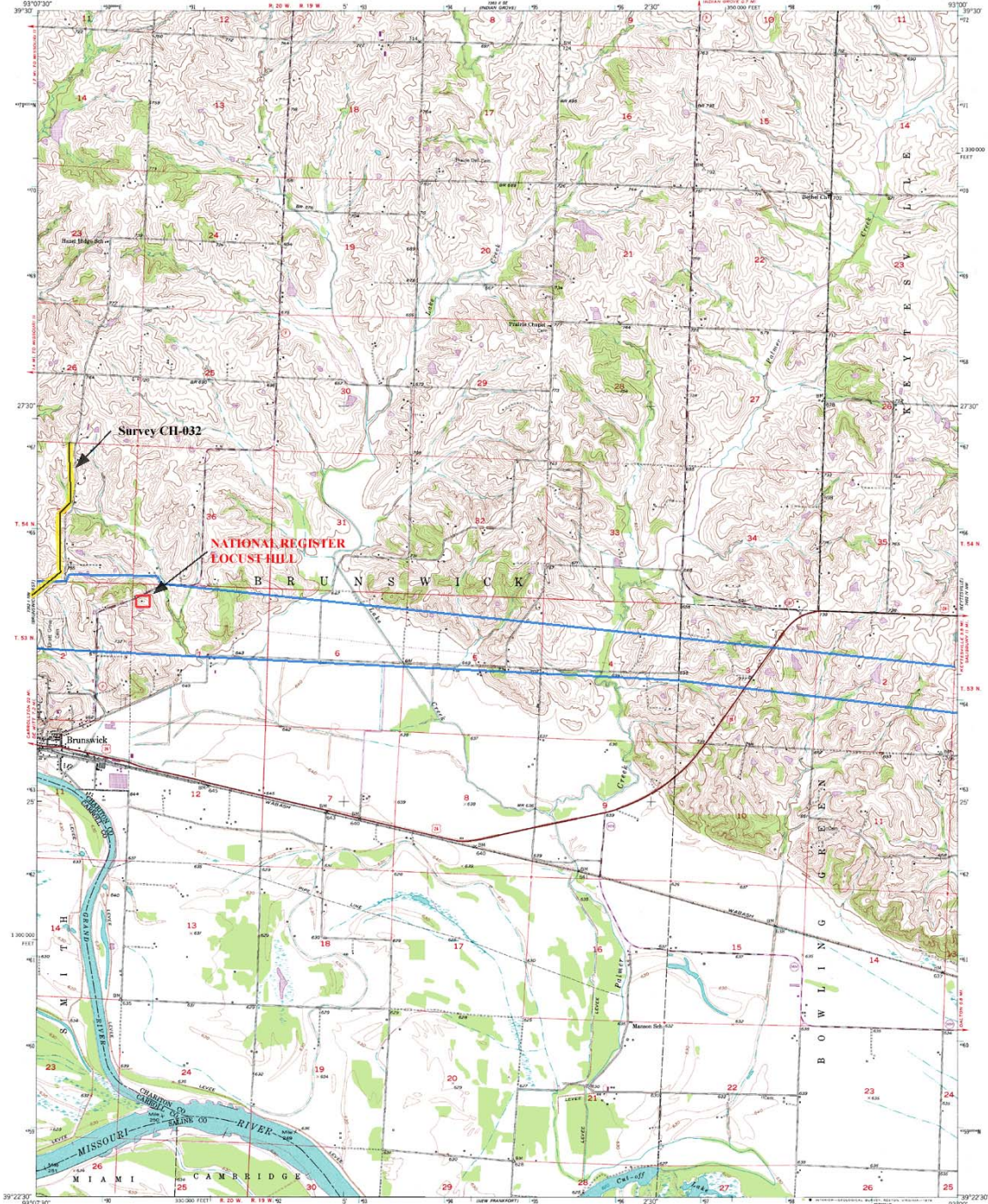
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY (DIVERS COLORADO PRINTS OR RESTON, VIRGINIA 20092) AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401 AND STATE GEOLOGICAL SURVEY, LAWRENCE, KANSAS 66044  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION  
 Heavy-duty 2+LANE or 4+LANE Light-duty  
 Medium-duty 2+LANE or 4+LANE Unimproved dirt  
 U.S. Route State Route

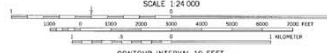
BRUNSWICK WEST, MO.  
 N 3922.5-W 9307.5/7.5  
 1951  
 PHOTOREVISED 1978  
 AMS 1262 1:XX-SERIES 978





Maped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin. Control by USGS, USC&GS, and USCE. Topography from aerial photographs by multiple methods and by plane-table surveys 1951. Aerial photographs taken 1948. Polyconic projection, 1927 North American datum. 12.5-foot grid based on Missouri coordinate system, central zone. 1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue. Elevations shown in purple compiled from aerial photographs taken 1977. Map edited 1978. This information not field checked.

1978 GRID AND 1978 MAGNETIC NORTH COORDINATE AT CENTER OF SHEET



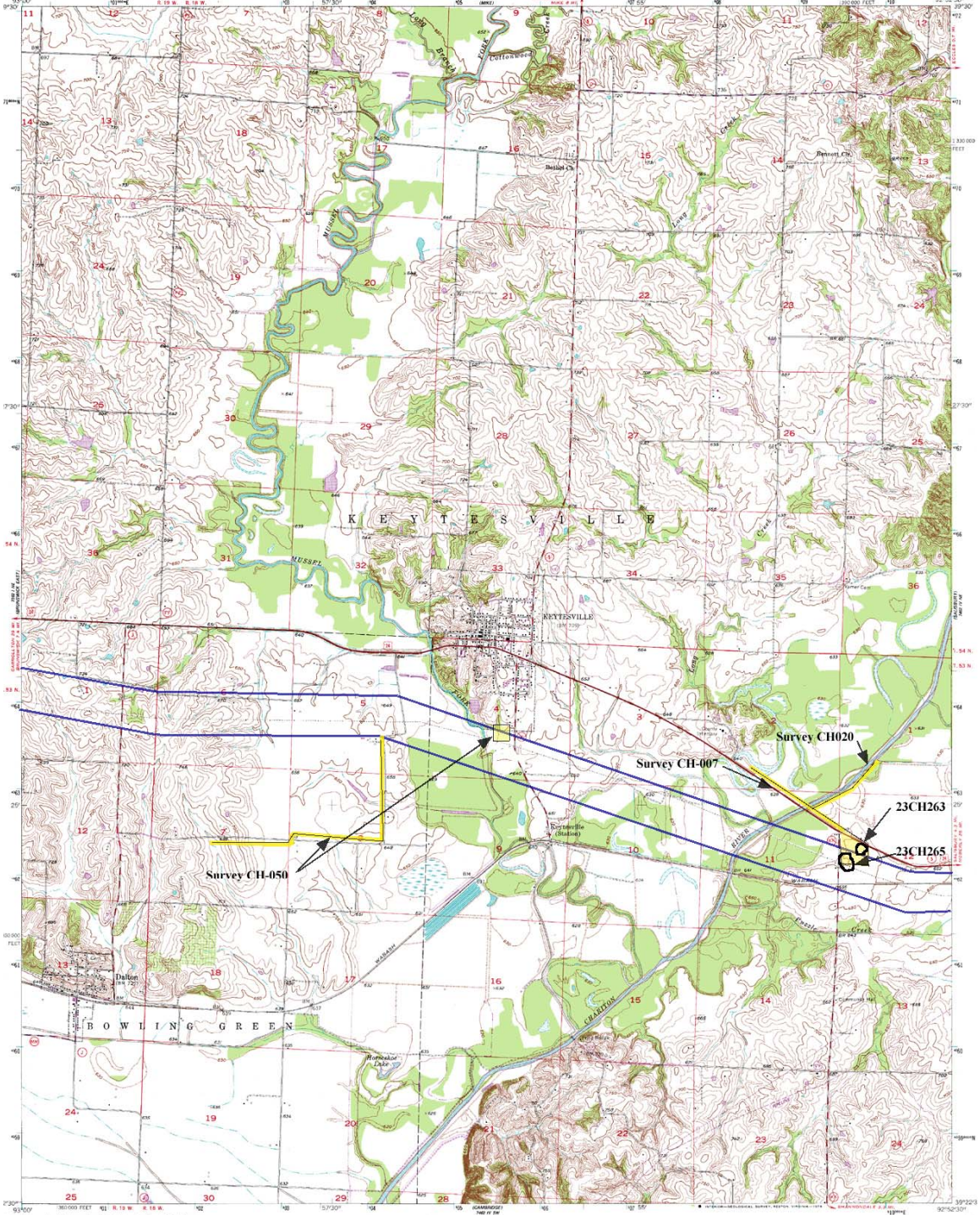
SCALE 1:24 000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY. EITHER COLORADO 80025 OR WEST VIRGINIA 20992 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION MISSOURI DEPARTMENT OF NATURAL RESOURCES, 1001A MISSOURI BUIDING A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.



ROAD CLASSIFICATION  
Heavy-duty **4** Lane or more Light-duty  
Medium-duty **2** Lane or more Unimproved dirt  
U.S. Route State Route

BRUNSWICK EAST, MO.  
N 3922 5 - W 8307 5  
PHOTOCOLLEDED 1978  
AMS 7502 1 NC-SERIES 1979





Mapped, edited, and published by the Geological Survey  
Derivat by USGS and USACKS  
Topography from aerial photographs by photogrammetric methods  
and by aneroid surveys 1956. Aerial photographs taken 1948  
Polyconic projection. 1927 North American datum  
100,000-foot grid based on Missouri coordinate system,  
central zone  
1000-meter Universal Transverse Mercator grid boxes,  
zone 15, shown in blue  
Revisions shown in purple compiled from aerial photographs taken  
1977. Map revised 1978. This information not filed checked

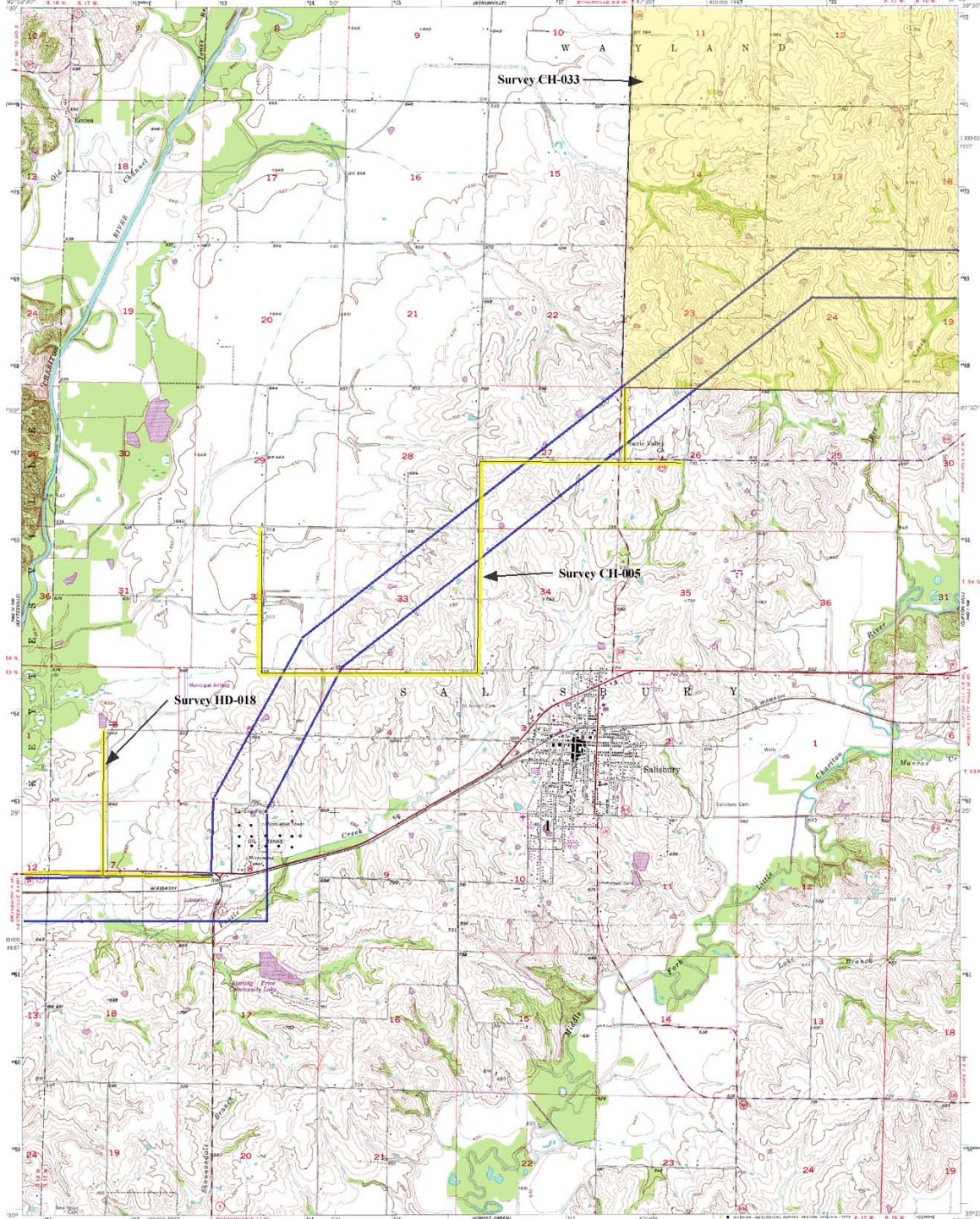
SCALE 1:24000  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
THIS MAP COMBINES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80226, OR RESTON, VIRGINIA 22092  
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MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION  
Heavy-duty Light-duty  
Medium-duty Unimproved dirt  
U.S. Route State Route

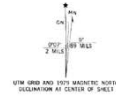
KEYTESVILLE, MO.  
N 39° 22' 30" - 40° 52' 30" W 77° 5'

1956  
PHOTO REVISSED 1978  
AND TADG BY NW-REVISION 1978





Mapped, edited, and published by the Geological Survey  
Control by USGS and USGS/GS  
Topography from aerial photographs by photogrammetric methods  
Aerial photographs taken 1946. Field check 1959  
Publication projection, 1927 North American datum  
1000-foot grid based on Missouri coordinate system, central zone  
100-meter Universal Transverse Mercator grid ticks,  
ZONE 15, shown in blue  
Boundaries shown in purple compiled from aerial photographs taken  
1976. Map edited 1979. This information not field checked



SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
NATIONAL MAGNETIC VERTICAL DATUM OF 1929

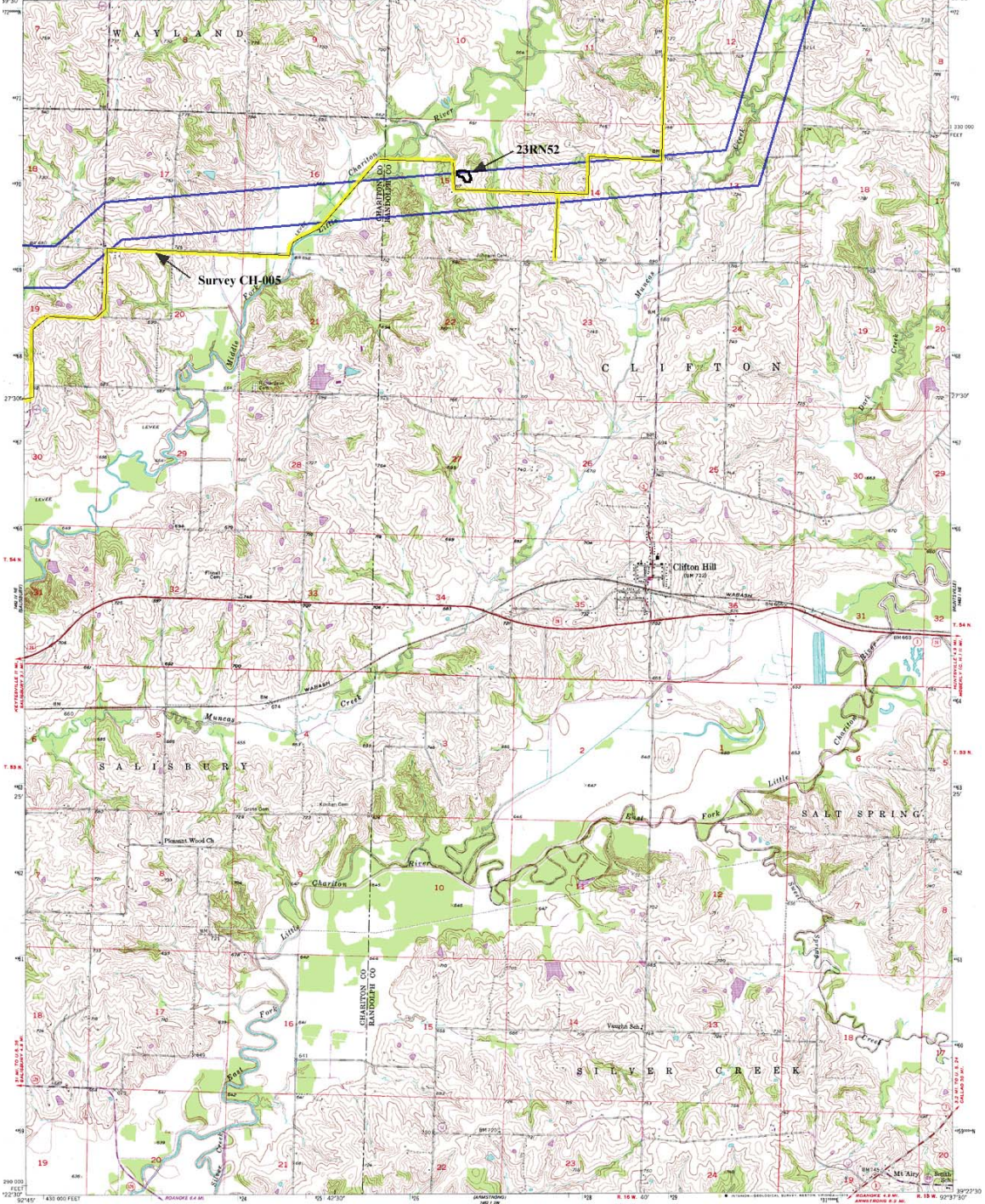


ROAD CLASSIFICATION  
Heavy-duty ——— Light duty ———  
Medium-duty ——— Unimproved dirt ———  
U.S. Route ——— State Route ———

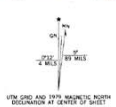
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, BOX 350, RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, BOLA MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

SALISBURY, MO.  
N 39°25.5' - W 92°45'7.5"  
1986  
PHOTOPRESSED 1979  
ANS 4482 IV NE-SERIES 1979





Maped, edited, and published by the Geological Survey for the development of the Missouri River Basin Control by USGS and USGSAS. Topography from aerial photographs by multiple methods. Aerial photographs taken 1949-1950. Field check 1952-1953. Photonic projection. 1927 Mean American datum. 10,000-foot grid based on Missouri coordinate system, central zone. 1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue. Reasons shown in purple compiled from aerial photographs taken 1977. Map edited 1979. This information not field checked.

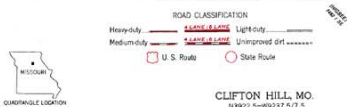


SCALE 1:24,000

CONTOUR INTERVAL 10 FEET

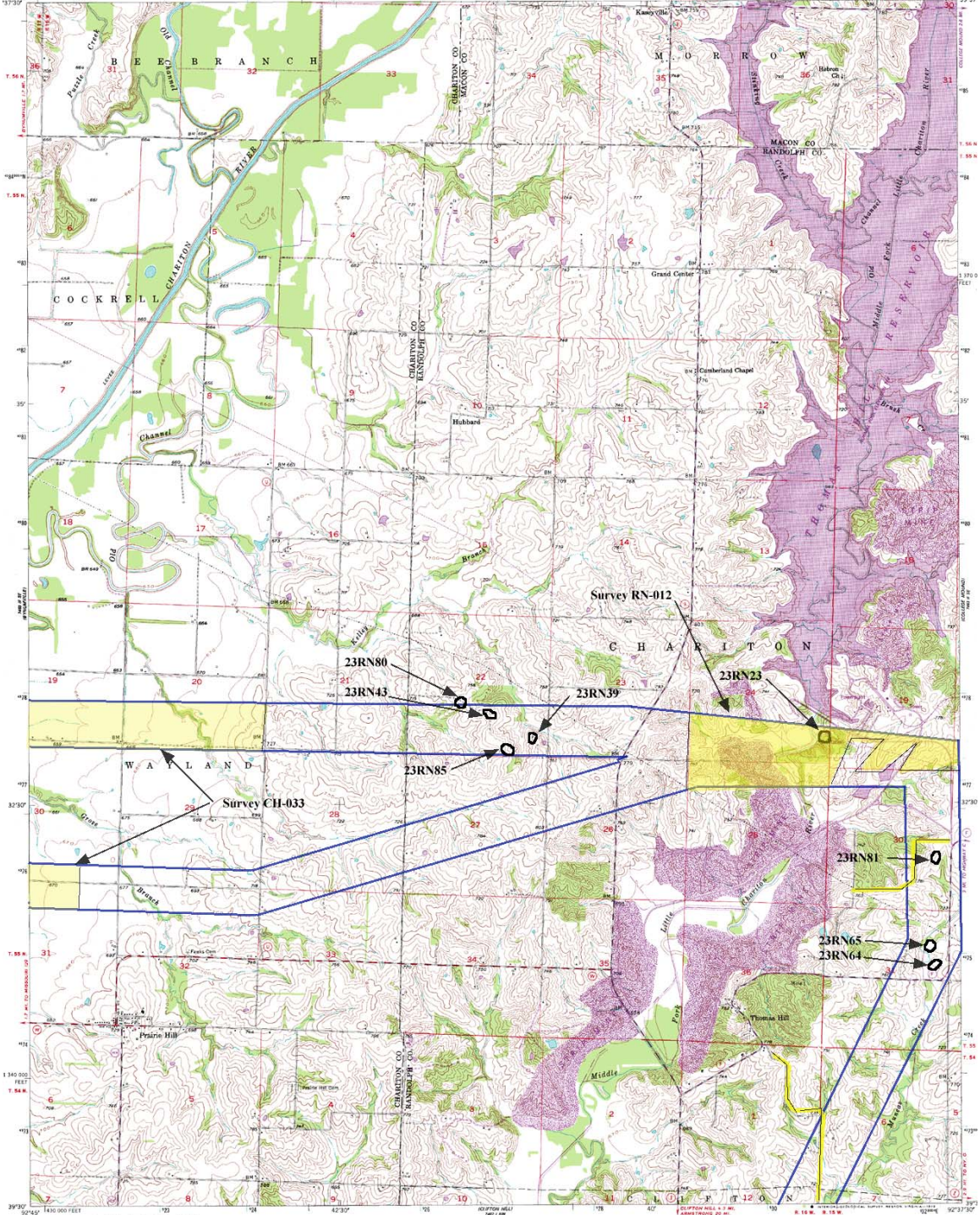
NATIONAL GEODESIC VERTICAL DATUM OF 1929

THIS MAP COMPLES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY (DENVER COLORADO 80295, OR RESTON, VIRGINIA 22092) AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLA, MISSOURI 65401. A HOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.



CLIFTON HILL, MO. N3922.5-W9137.5, 7.5 1953 PHOTOREVISED 1979 AND 7462 1 INCH-SERIES 1979





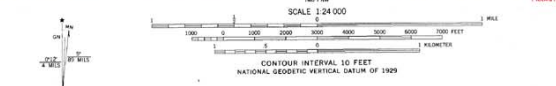
Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin Control by 1955 and 1956-55.

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1949-1950. Field check 1953.

Photographic projection. 1927 North American datum. 10,000-foot grid based on Missouri coordinate system, central zone.

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.

Revisions shown in purple compiled from aerial photographs taken 1977. Map edited 1979. This information not field checked.



THIS MAP COMPILED WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 20192 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401. A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.

ROAD CLASSIFICATION

Heavy-duty All-weather light-duty

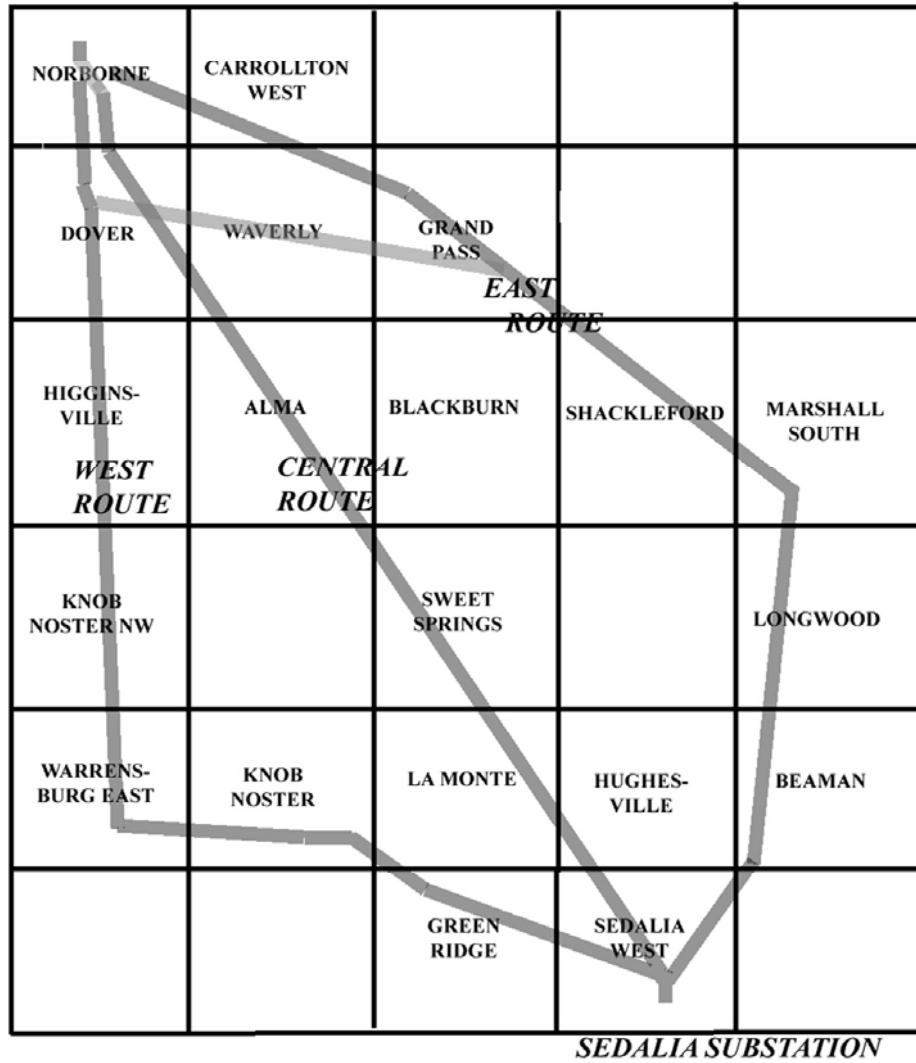
Medium-duty Unimproved dirt

U.S. Route State Route

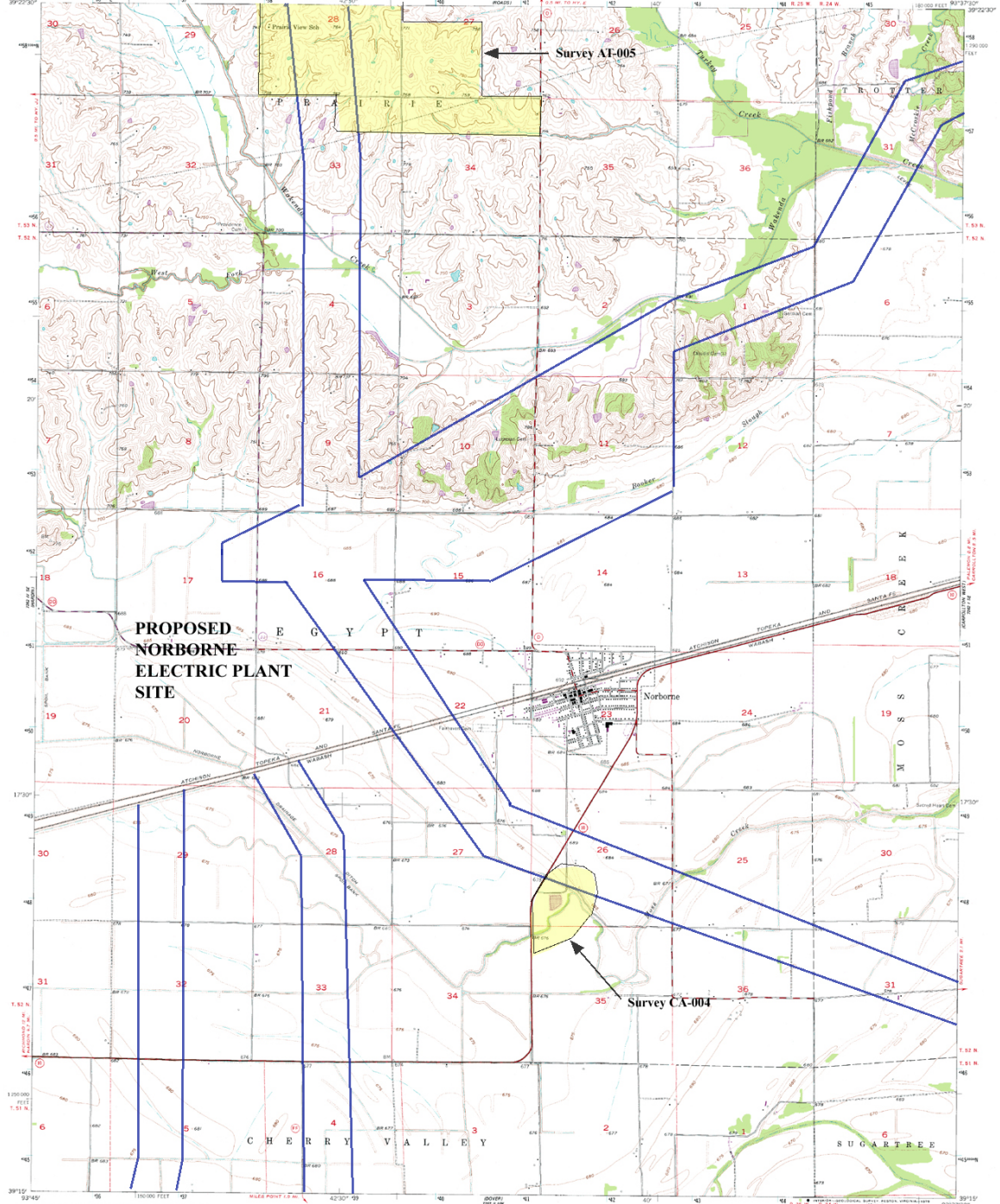
PRAIRIE HILL, MO.  
K2390-60333/7.5  
1953  
PHOTOREPROD 1979  
AND 1985 © 94-SERIES 1979

**USGS TOPOGRAPHIC QUADRANGLE ORDER FOR  
NORBORNE TO SEDALIA CORRIDORS COMPONENT**

*NORBORNE PLANT*





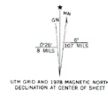


**PROPOSED  
NORBORNE  
ELECTRIC PLANT  
SITE**

Survey AT-005

Survey CA-004

Map prepared, edited, and published by the Geological Survey  
Control by USGS, USCGAS, and USCC  
Topography from aerial photographs by stereographic methods  
and by photostereo surveys 1927 - Aerial photographs from 1947  
Polyconic projection, 1927 North American datum  
100,000 feet and based on Missouri coordinate system, central zone  
1000 yards interval, Tropic of Missouri and 1000  
zone 15, 44, 45, 46  
Caption bold lines indicate approximate locations  
Revisions shown in purple compiled from aerial photographs taken  
1977. Map edited 1978. This information not field checked



SCALE 1:24,000

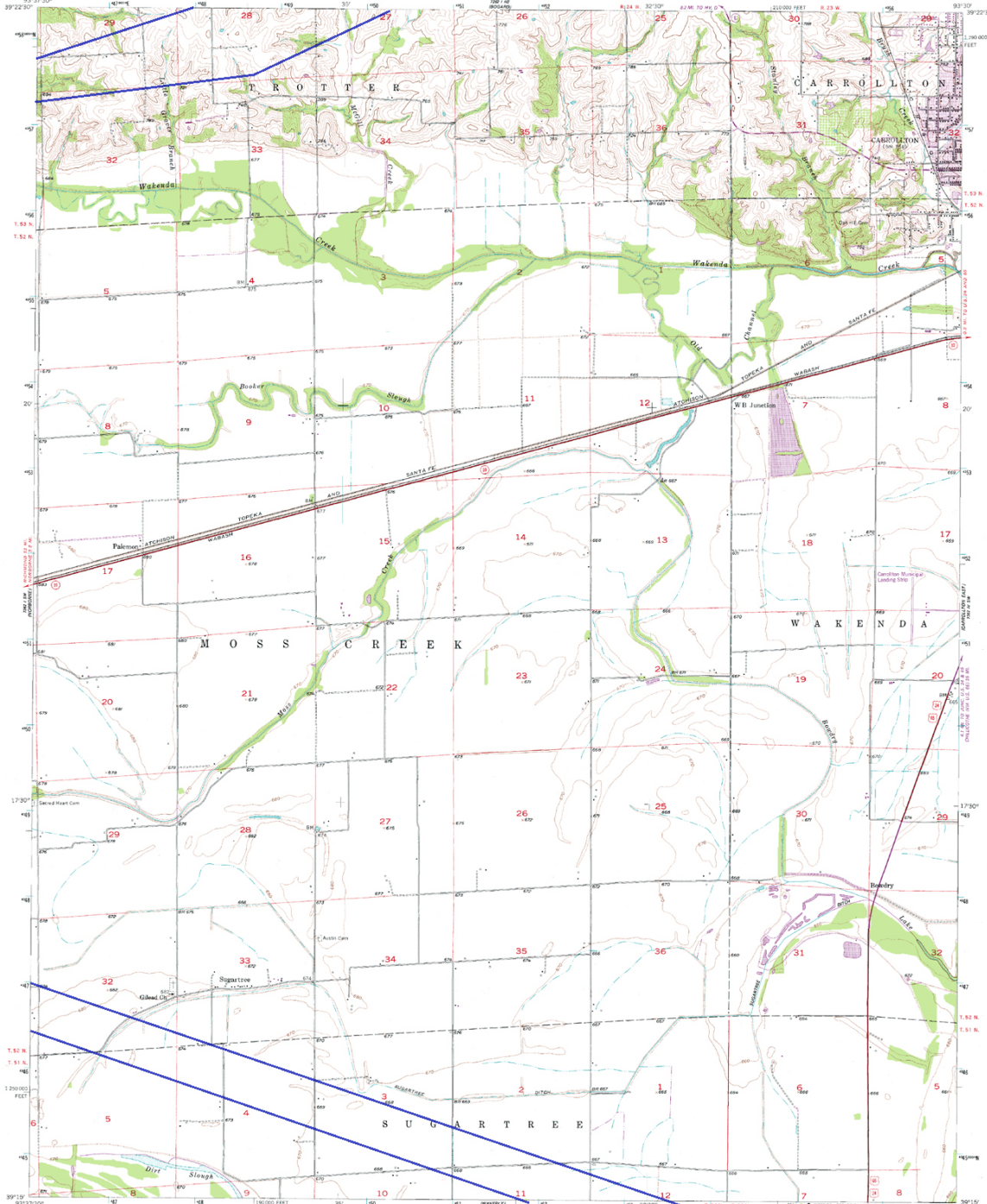
CONTOUR INTERVAL 10 FEET  
BOTTLE LINES REPRESENT 5 FOOT CONTOURS  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202 OR RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

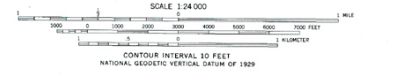
**ROAD CLASSIFICATION**

Primary highway ————— Light duty road, hard or  
hard surface ————— patterned surface  
Secondary highway, —————  
hard surface ————— Unimproved road  
○ Interstate Route □ U. S. Route ○ State Route

**NORBORNE, MO.**  
N 3115 - W 9337 / S 17.5  
1957  
PRINTED UNDER AUTHORITY  
AMS 7262 / SW-SERIES 1975



Mapped, edited, and published by the Geological Survey  
 Copies in USGS and old copies  
 Topography from aerial photographs by photogrammetric methods and by plane-table surveys 1956. Aerial photographs taken 1947  
 Reference projection: 1927 North American datum  
 10,000-foot grid based on Missouri coordinate system, central zone  
 1000-foot Universal Transverse Mercator grid ticks, zone 15, shown in blue  
 Revisions shown in purple compiled from aerial photographs taken 1957. Map dated 1976. This information not field checked  
 Purple line indicates extension of urban area

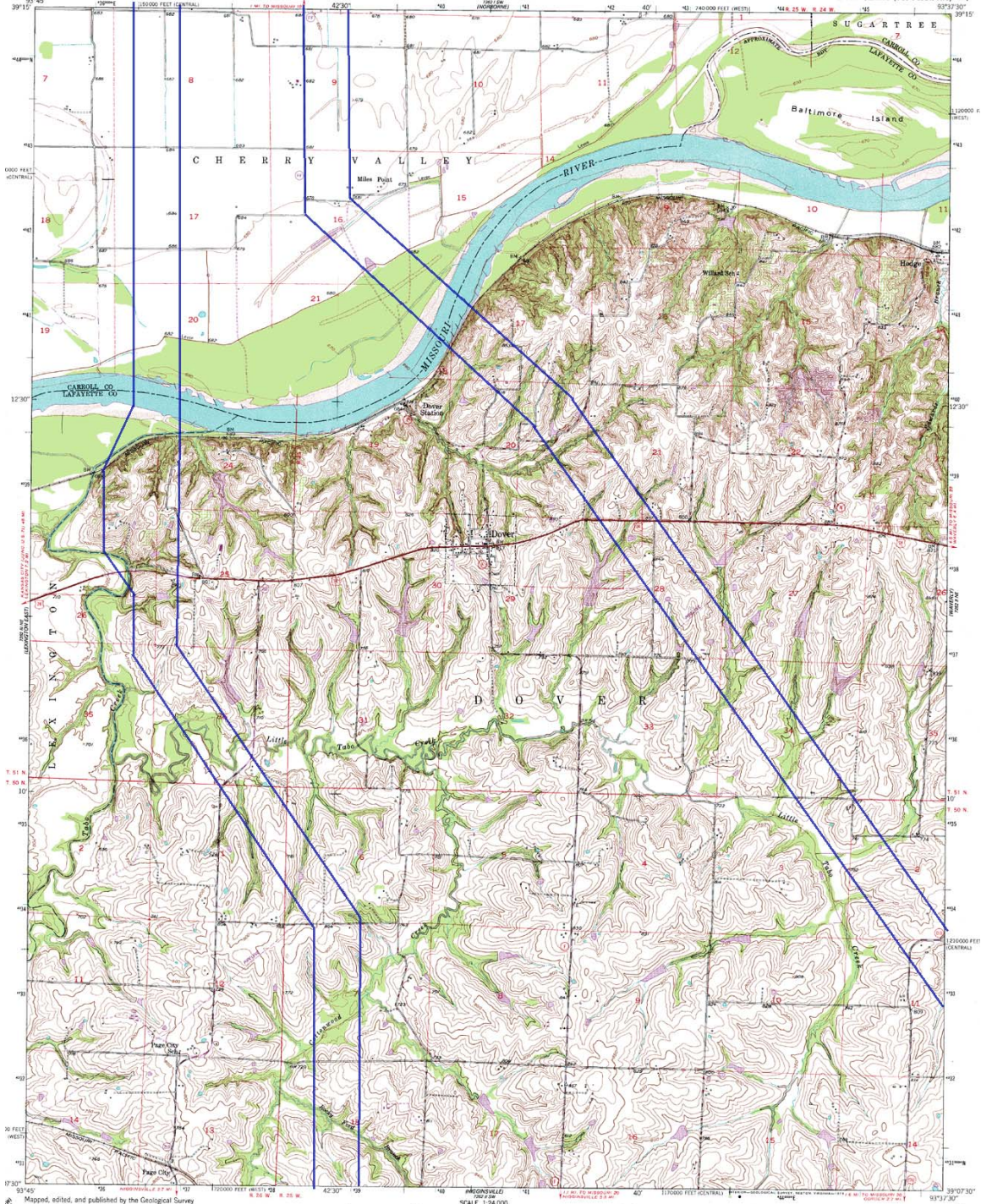


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 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
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 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



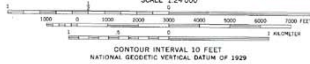
CARROLLTON WEST, MO.  
 N 2015-W-220017.5  
 1956  
 PHOTOGRAPHED 1976  
 APR 1981 1:24,000





Mapped, edited, and published by the Geological Survey  
Control by USGS and USCAGS  
Topography by multiple methods from aerial photographs  
taken 1946, and by plane table surveys 1950  
Field check 1950  
Position projection: 1927 North American datum  
30 000-foot grids based on Missouri coordinate system,  
and central meridian  
Dashed hand lines indicate approximate location  
1000-meter Universal Transverse Mercator grid ticks,  
zone 15, shown in blue  
Features shown in blue compiled from aerial photographs taken  
1977. Map revised 1978. This information not fact checked

THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DIVERSITY COLLEGE BOOKS, OR RESTON, VIRGINIA 22092.  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION,  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, BOLLA MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION

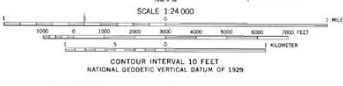
HARD SURFACE ALL WEATHER ROADS	POWDER ROAD
Heavy duty	Unimproved dirt
Medium duty	Unimproved dirt
Loose surface, graded, or narrow hard surface	Unimproved dirt
U. S. Route	State Route

DOVER, MO.  
N3907.5 - W9337.5/7.5  
1950  
PHOTOENLARGED 1978  
AMS 7262 II NW-SERIES 1979





Mapped, edited, and published by the Geological Survey  
 Compiled by USGS, USGS/USGS, and USGS  
 Topography by multiple methods from aerial photographs taken 1948, and by plane table surveys 1950-1951  
 Field check 1950-1951  
 Polyconic projection, 1927 North American datum  
 10,000-foot grids based on Missouri coordinate system, west and central zones  
 Dashed land lines indicate approximate location  
 1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue  
 Boundaries shown in purple compiled from aerial photographs taken 1977. Map edited 1979. This information not field checked



**ROAD CLASSIFICATION**

Heavy-duty	State Highway	Light-duty	Unimproved dirt
Medium-duty	U.S. Route	State Route	

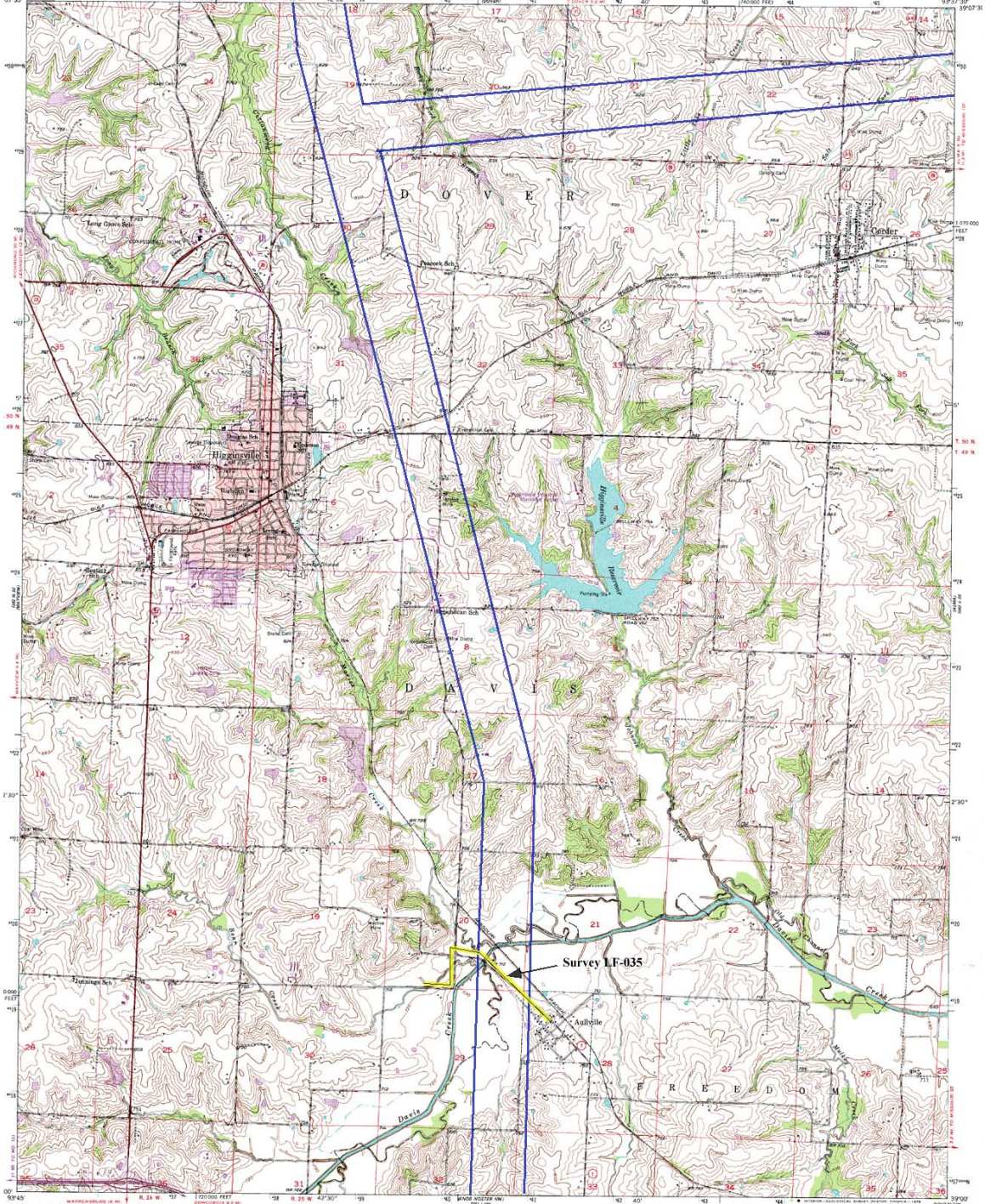
WAVERLY, MO.  
 R39073-10928(7.5)  
 1951  
 PHOTO REPRODUCED 1979  
 AND THIS IS THE BEST COPY AVAILABLE

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202, OR RESTON, VIRGINIA 22092, AND THE DEPOSITION OF RESEARCH AND TECHNICAL INFORMATION MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401 A FOLDER CONTAINING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

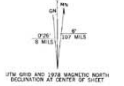








Maped, edited, and published by the Geological Survey  
Control by USGS and USCGS  
Topography from aerial photographs by multiple methods  
Aerial photographs taken 1948. Field check 1950  
Planimetric projection. 1927 North American datum.  
10,000-foot grid based on Missouri coordinate system,  
west zone.  
Red tint indicates area in which only  
landmark buildings are shown.  
1000-meter Universal Transverse Mercator grid ticks;  
zone 15, shown in blue.  
Boundaries shown in purple compiled from aerial photographs taken  
1977. Map edited 1978. This information not field checked.  
Purple tint indicates extension of urban areas.



SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1959

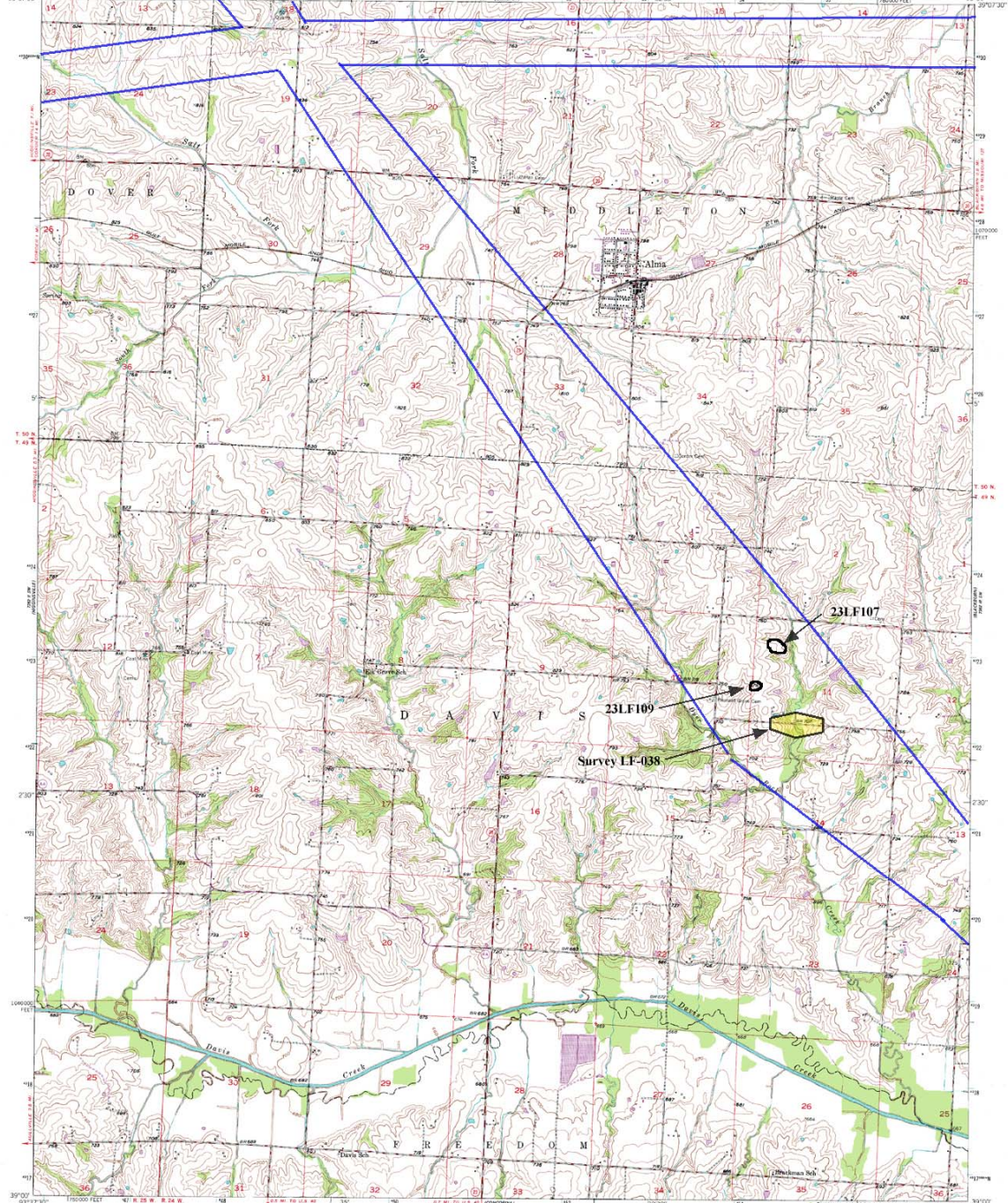


ROAD CLASSIFICATION  
 HARD SURFACE ALL WEATHER ROADS OR WEATHER ROADS  
 Heavy-duty **LAKE** **RAILS** Improved dirt  
 Medium-duty **LAKE** **RAILS** Unimproved dirt  
 Loose-surface, graded, or narrow bed-surface  
 U. S. Route Interstate Route  
 State Route

HIGGINSVILLE, MO.  
N3900-N9337 5/7.5  
1950  
PHOTOENGRAVED 1978  
AND 1982 E 94-SERIES 1978

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLIET, MISSOURI 65461  
A FOLDER REGARDING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST





Mapped, edited, and published by the Geological Survey  
 Control by USGS and USCGS  
 Topography from aerial photography by multiple methods  
 Aerial photographs taken 1947. Field check 1950  
 Photocopy projection. 1927 North American datum  
 10,000 foot grid based on Missouri coordinate system,  
 west zone  
 1000-meter Universal Transverse Mercator grid ticks,  
 zone 15, shown in blue  
 Names shown as people compiled from aerial photographs taken  
 1977. Map edited 1978. This information not fact checked

17° 00' 00" AND 18° 00' 00" MAGNETIC NORTH  
 DECLINATION AT CENTER OF SHEET

SCALE 1:24,000

CONTOUR INTERVAL 10 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 20192,  
 AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION,  
 MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401.  
 A FOLDER GEOGRAPHIC TOPONYMIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION

ROAD SURFACE ALL WEATHER ROADS

Heavy-duty **ROADS** Improved dirt

Medium-duty **ROADS** Unimproved dirt

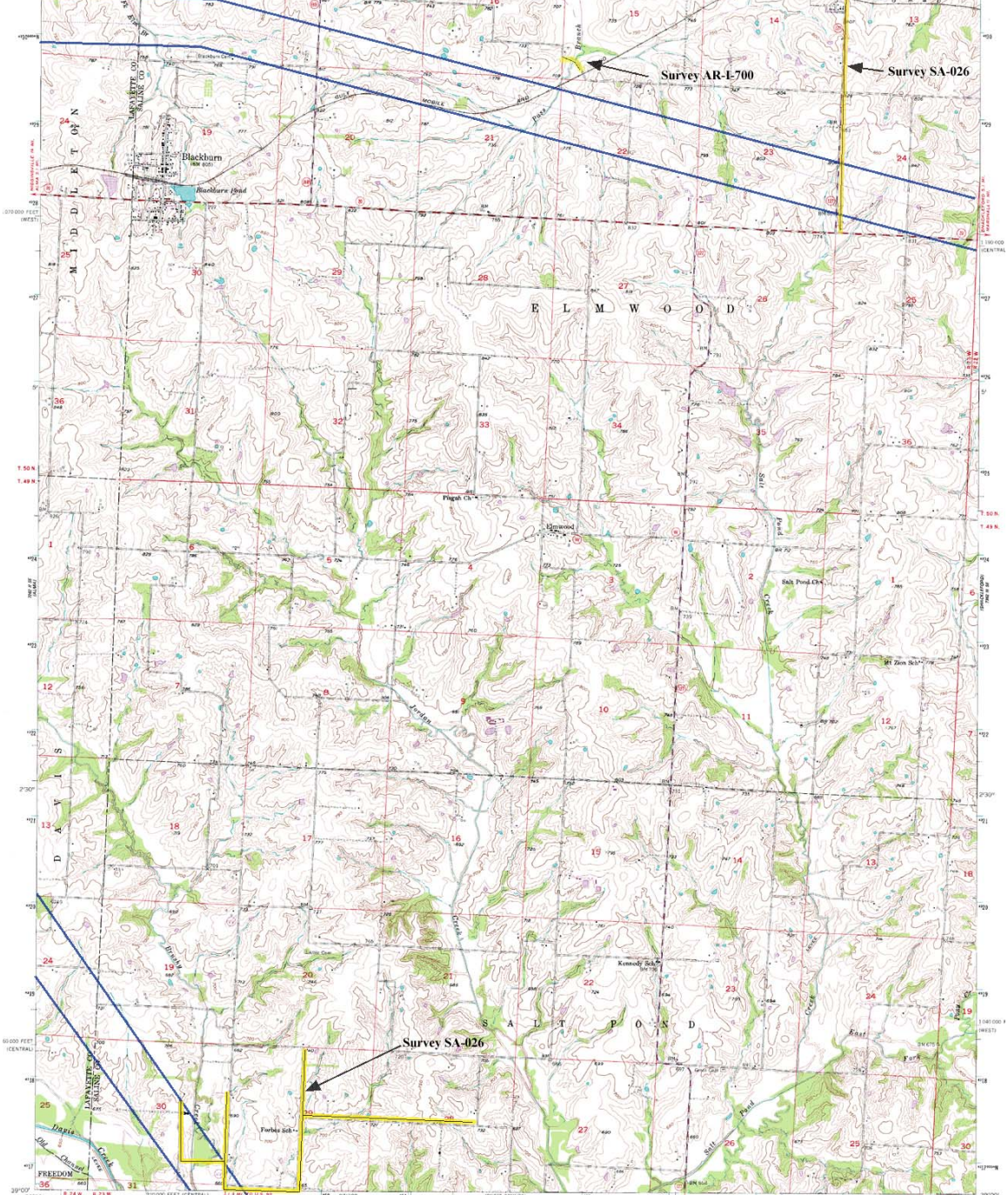
Lower surface, gravel, or narrow bed surface

U. S. Route

State Route

ALMA, MO.  
 N. 3605 - T. 3500 - R. 7.5  
 (EDITION OF 1981)  
 PHOTO REPRODUCED 1978  
 AMR 7202 3 SE-88PDS 1429





Mapped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin Control by USGS and USGS&S

Topography from aerial photographs by multiple methods from photographs taken 1955. Field check 1955-1956

Photocentric projection, 1927 North American datum

30,000 foot grid based on Missouri coordinate system, central and west zones

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue

Revisions shown in purple compiled from aerial photographs taken 1977. Map edited 1978. This information not field checked.



SCALE 1:24,000

CONTOUR INTERVAL 10 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 20192, AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLIET, MISSOURI 65401. A FOUR-DEGREE TOPOGRAHIC MAP AND SYMBOLS IS AVAILABLE ON REQUEST.

ROAD CLASSIFICATION

Main-city: Light-city:

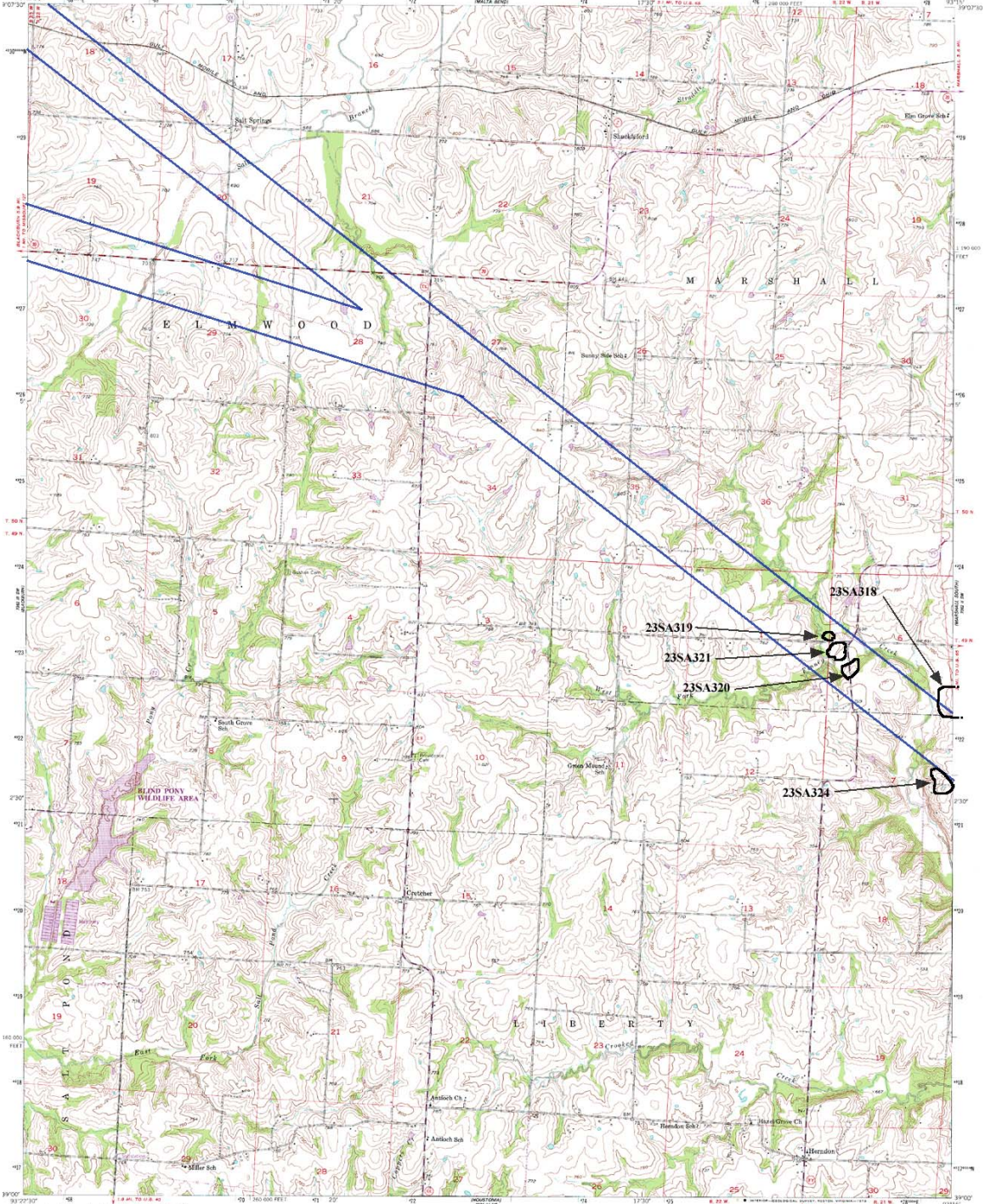
Medium-city: Unimproved dirt:

U.S. Route: State Route:



BLACKBURN, MO.  
 18300-19322-5/7.5  
 1953  
 PHOTOREVISED 1978  
 AMS 7502 31 5K-SERIES 1978





Maped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River basin. Control by USGS and USCGS. Topography from aerial photographs by multistep methods. Aerial photographs taken 1950. Field check 1953. Planimetric projection, 1927 North American datum. 10,000-foot grid based on Missouri coordinate system. Zone 10N.

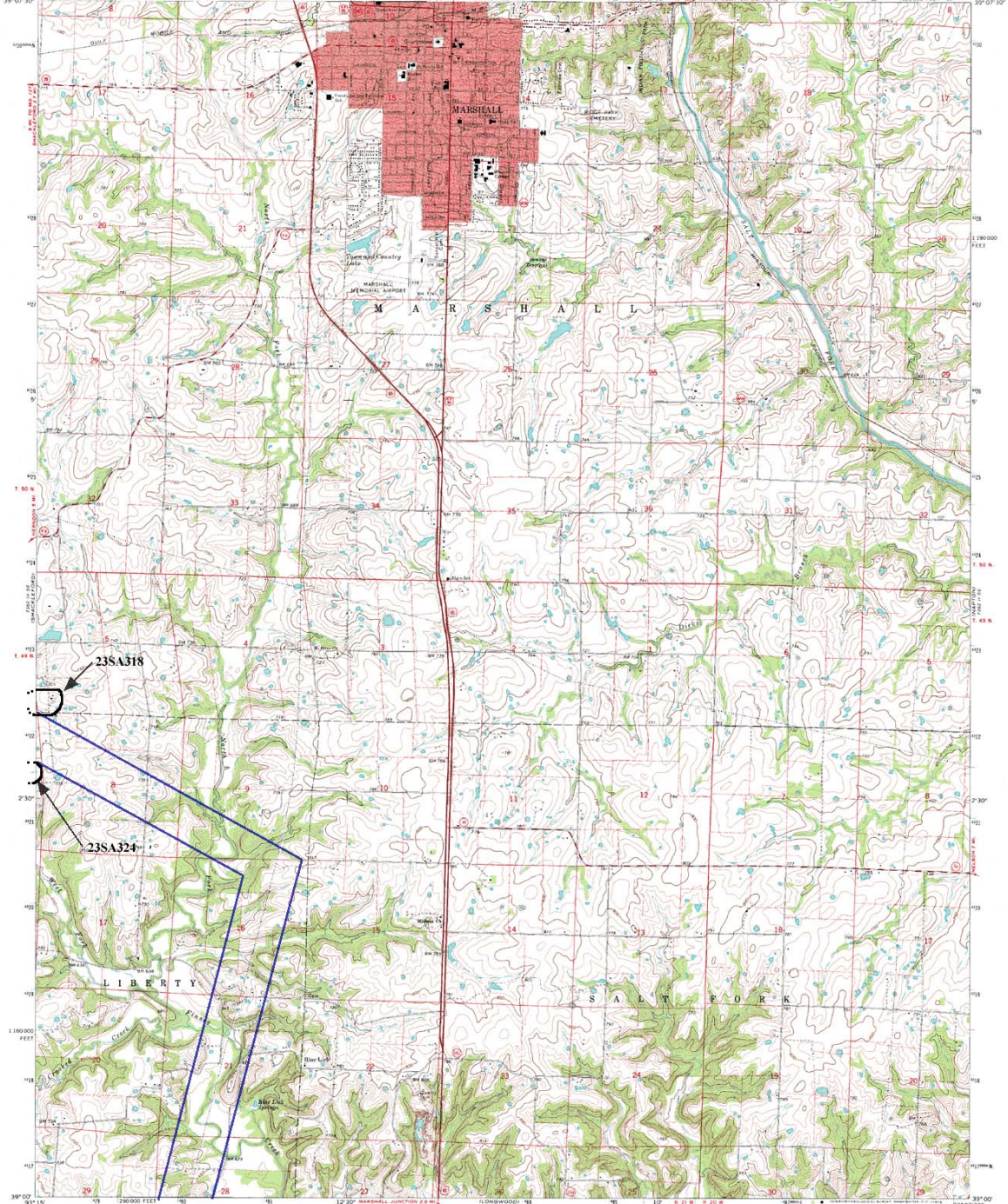
1000-meter Universal Transverse Mercator grid ticks. None 15 shown in blue.

Revisions shown in purple compiled from aerial photographs taken 1977. Map edited 1979. This information not field checked.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, BENNETT COLLEGE, 80025, OF RESTON, VIRGINIA 22099, AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLIET, MISSOURI 64601. A FLEET ECONOMIC PERFORMANCE MAP AND SYMBOLS IS AVAILABLE ON REQUEST.

SHACKLEFORD, MO. 1953 PHOTOREVISED 1979 AND 1980 BY SC-SERIES VETS





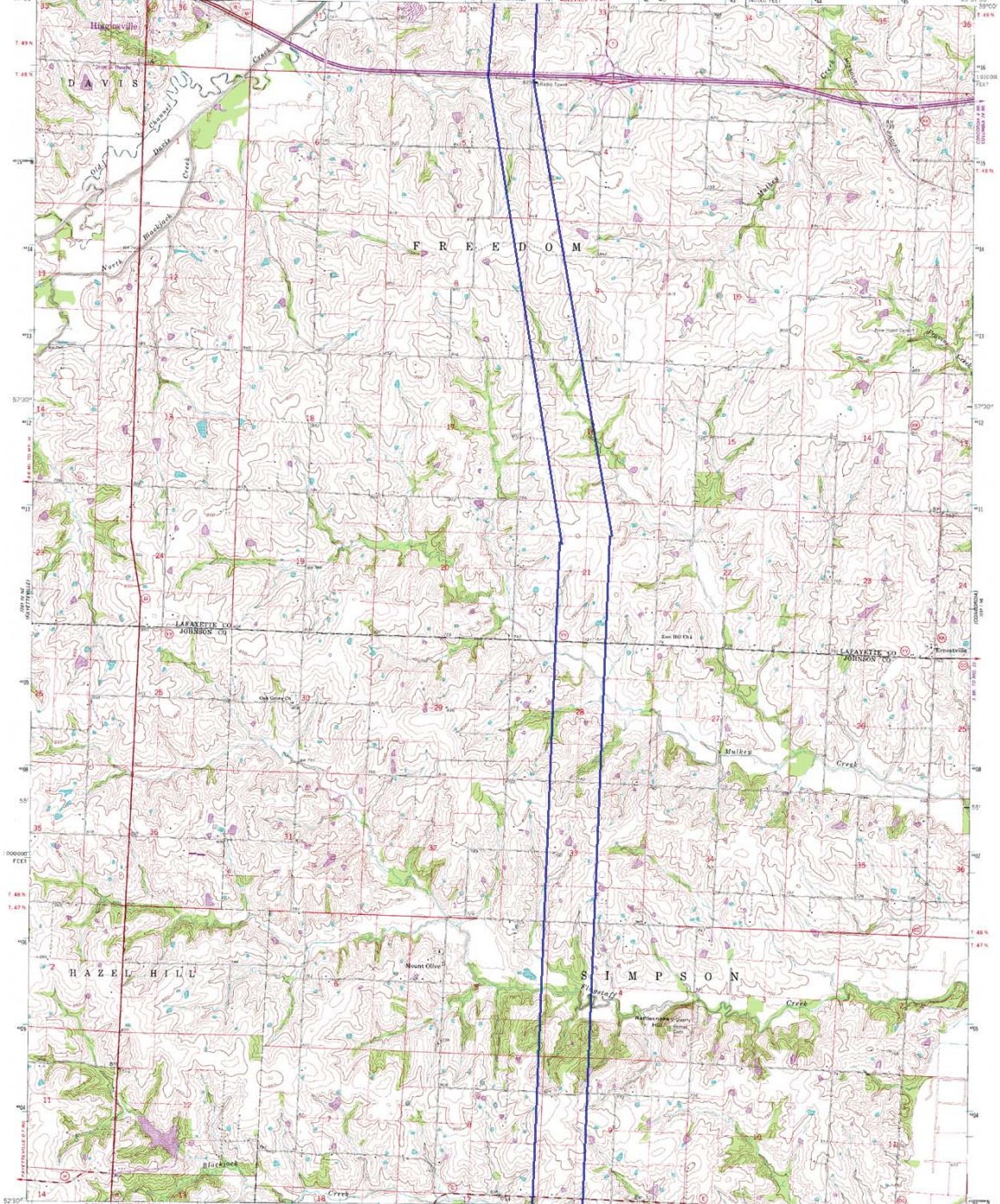
Mapped, edited, and published by the Geological Survey  
 Control by USGS and USC&GS  
 Topography by photogrammetric methods from aerial photographs taken 1965-70. Field checked 1971  
 Polygonic projection. 1927 North American datum  
 10,000-foot grid based on Missouri coordinate system, central zone  
 1000-meter Universal Transverse Mercator grid ticks, zone 19, shown in blue  
 Red tint indicates areas in which only landmark buildings are shown  
 Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked  
 ONE DEGREE AND 15 MINUTES NORTH DECLINATION AT CENTER OF SHEET  
 THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202, OR WASHINGTON, D. C. 20242  
 AND BY THE MISSOURI GEOLOGICAL SURVEY, ROLLA, MISSOURI 65401  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
 ROAD CLASSIFICATION  
 Primary highway, hard surface  
 Secondary highway, hard surface  
 Light-duty road, hard or improved surface  
 Unimproved road  
 Interstate Route  
 U.S. Route  
 State Route  
 MARSHALL SOUTH, MO.  
 SW 4 MARSHALL 10 QUADRANGLE  
 N7900-109307.5/7.5  
 1971  
 AND T862 II SW—SERIES 7819



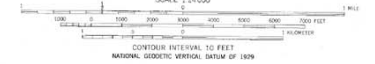
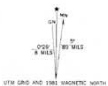
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
WALLACE B. HOWE, STATE GEOLOGIST

KNOB NOSTER NW QUADRANGLE  
MISSOURI  
7.5 MINUTE SERIES (TOPOGRAPHIC)



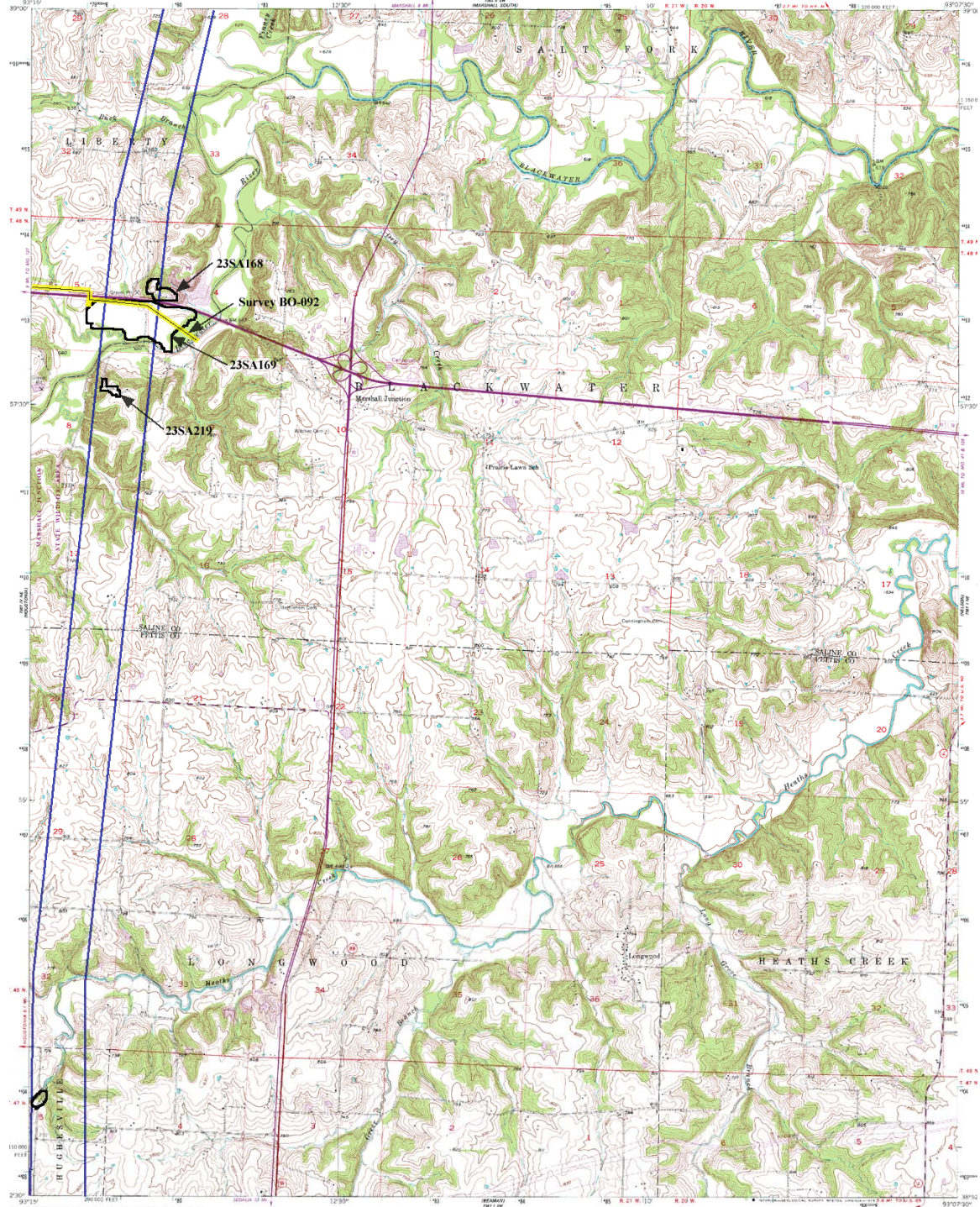
Maped, edited, and published by the Geological Survey  
Control by USGS and USGAS  
Topography by photogrammetric methods from aerial photographs taken 1958. Field checked 1961.  
Polygonal projection. 1927 North American datum  
250,000-foot grid frame on Missouri coordinate system, west zone  
3000-meter Universal Transverse Mercator grid (UTM), zone 15, shown in blue  
Fine red dashed lines indicate selected fences and field lines where generally visible on aerial photographs. This information is unchecked to place on the projected North American Datum (1983)  
Towns the projection lines 2 meters north and 18 meters west as shown by dashed corner lines  
Boundaries shown in purple compiled from aerial photographs taken 1960. Map edited 1961. This information not field checked



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202, OR RESTON, VIRGINIA 22092,  
AND THE DIVISION OF GEOLOGY AND LAND SURVEY,  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

KNOB NOSTER NW, MO.  
N3852.5-W9327.5/7.5  
1961  
PHOTOGRAPHED 1961  
DMA T24 I NW-SERIES 1679





Map compiled, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin. Center by UTM and UTM zones. Topography from aerial photographs by multiple methods. Aerial photographs taken 1950. Field check 1963. Photographic projection. 1957 North American datum. Spheroid based on Missouri coordinate system, spheroid zone. 1000 meter Universal Transverse Mercator grid ticks, zone 15, shown in blue. There may be private buildings within the boundaries of the National or State reservations shown on this map. Revisions shown in purple compiled from aerial photographs taken 1977. Map revised 1979. This information not field checked.

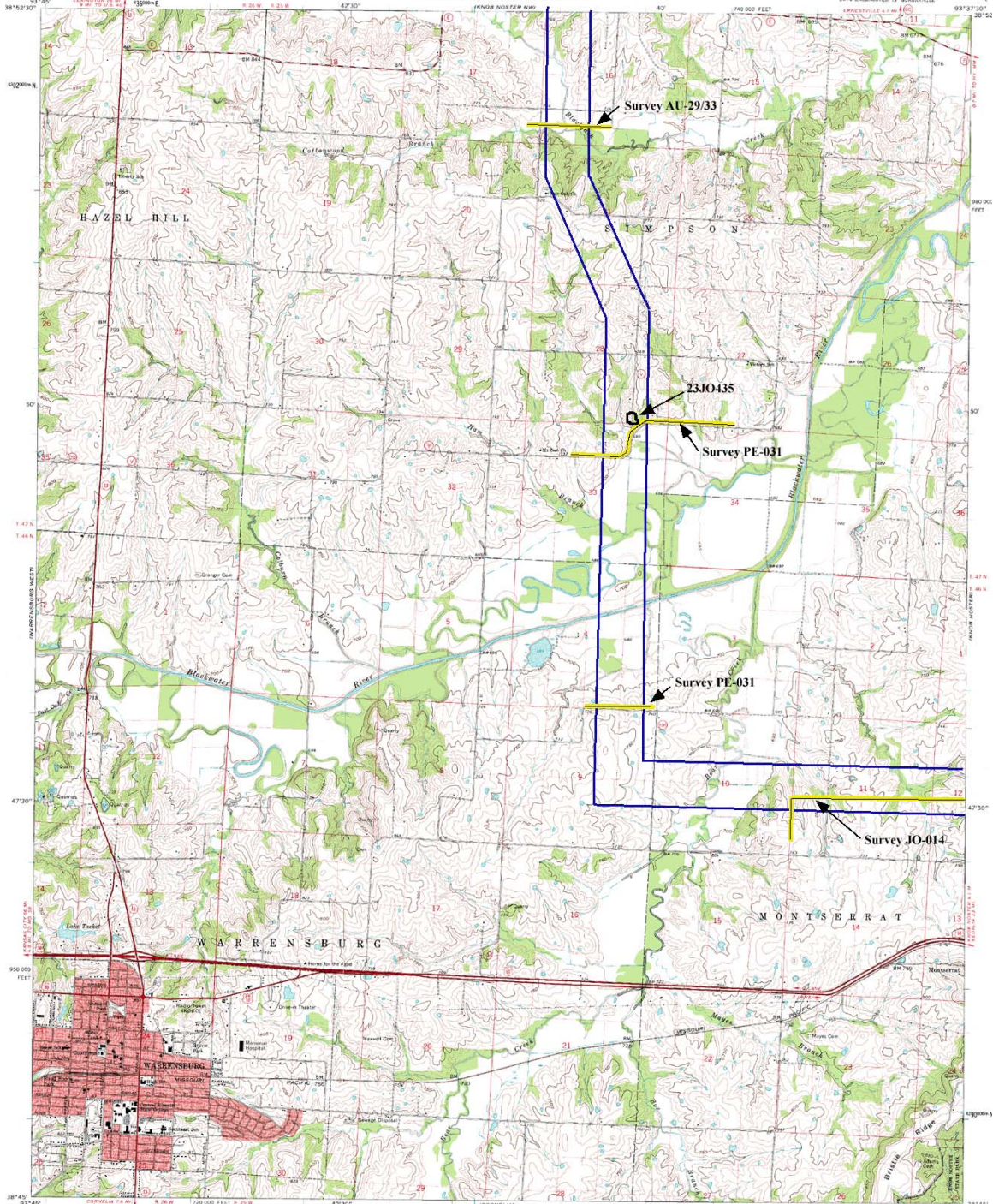
SCALE 1:24 000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPILES WITH NATIONAL MAP SECURITY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80205 OR RESTON, VIRGINIA 22092  
AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION  
Heavy-duty **LANE 4 LANE** Light-duty  
Medium-duty **LANE 4 LANE** Unimproved dirt  
U. S. Route Interstate Route  
State Route

LONGWOOD, MO.  
N.30E2.3 - W.93E7.5/7.5  
1953  
PRODUCTION NO. 1029  
AMB 13M 1 NW-88988 1979





Mapped, edited, and published by the Geological Survey  
 Control by USGS and USCGAS  
 Topography by photogrammetric methods from aerial photographs taken 1948. Field checked 1962  
 Polyconic projection. 1927 North American datum.  
 10,000-foot grid based on Missouri coordinate system, west zone  
 1000-meter Universal Transverse Mercator grid ticks.  
 zone 19, offset on blue  
 Red box indicates area in which only landmark buildings are shown  
 Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unclassified

APPROXIMATE YEAR OF PHOTOGRAPHY

SCALE 1:24,000

CONTOUR INTERVAL, 10 FEET  
 DOTTED LINES REPRESENT 5-FOOT CONTOURS  
 (SHOWN AT REGULAR INTERVALS)

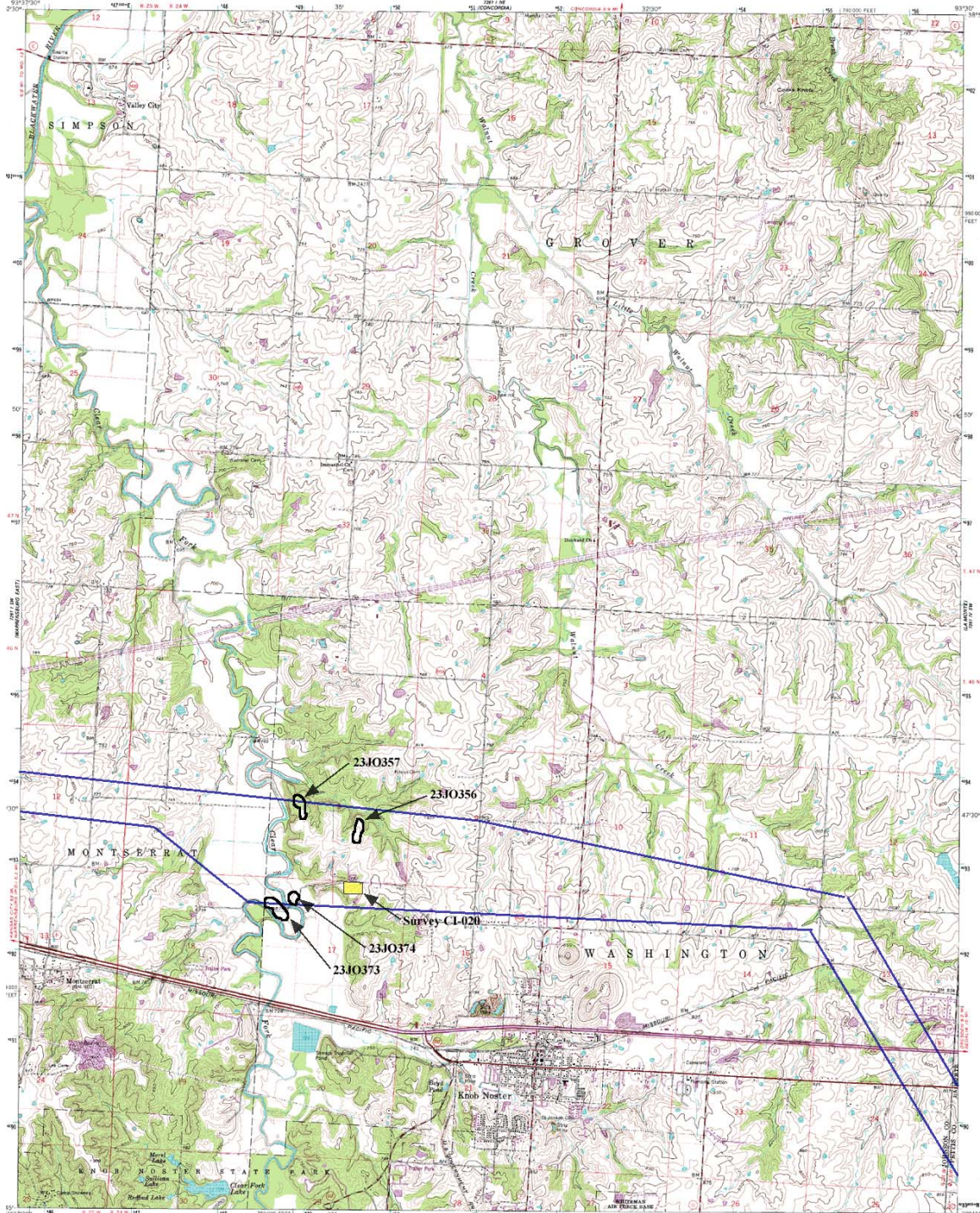
ROAD CLASSIFICATION  
 Heavy-duty Road  
 Medium-duty Road  
 Light-duty Road  
 Unimproved dirt Road  
 U.S. Route  
 State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U.S. GEOLOGICAL SURVEY, BENTON ST., COLORADO SPRING, WASHINGTON 25, D. C.  
 AND BY THE MISSOURI GEOLOGICAL SURVEY, ROLLA, MISSOURI  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

WARRENSBURG EAST, MO.  
 7 1/2 MINUTE SERIES  
 N3845-W9337.5, 17.5

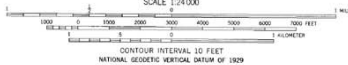
1962





Mapped, edited, and published by the Geological Survey  
Control by USGS and USCGS  
Topography by photogrammetric methods from aerial  
photographs taken 1958. Field checked 1962  
Polyconic projection, 1927 North American datum  
15000-foot grid based on Missouri coordinate system, west zone  
1000-meter Universal Transverse Mercator grid ticks,  
zone 16, shown in blue  
Fine red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is unchecked  
to place on the projected North American Datum 1983  
from the projection lines 1 meter north and  
17 meters east as shown by dashed corner ticks.  
There may be private inholdings within the boundaries of  
the National or State reservations shown on this map

UTM GRID AND 1983 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET



THIS MAP COMPLETES WITH NATIONAL MAP OCCUPANCY STANDARDS  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092,  
AND THE DIVISION OF GEOLOGY AND LAND SURVEY,  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

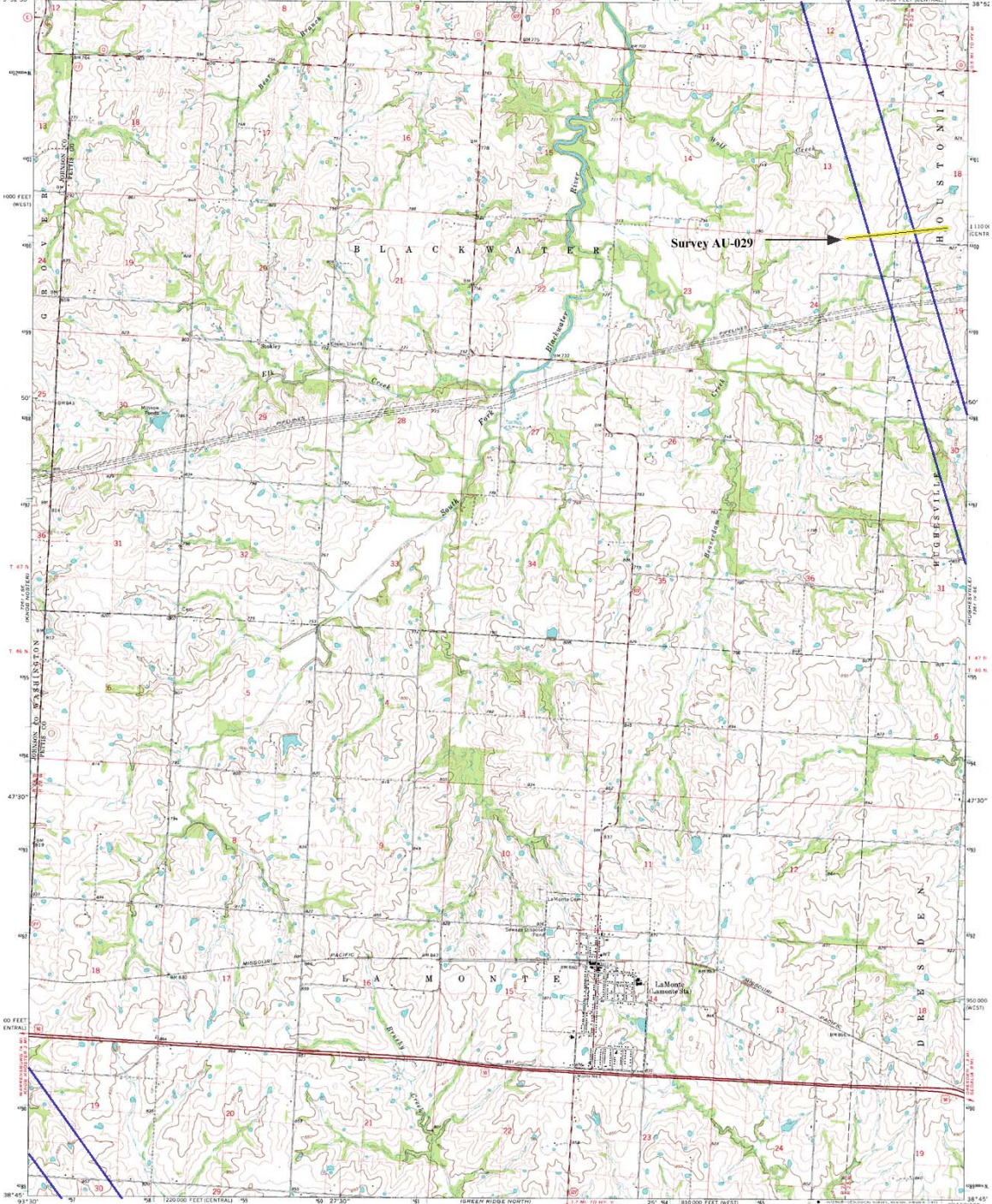


QUADRANGLE LOCATION  
Revisions shown in purple compiled from aerial  
photographs taken 1960. Map edited 1983.  
This information not field checked

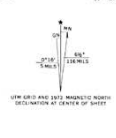


KNOB NOSTER, MO.  
N 3845-W 9330/7.5  
1962  
PHOTOGRAPHED 1961  
DMA 7501 1 66-82085 1019





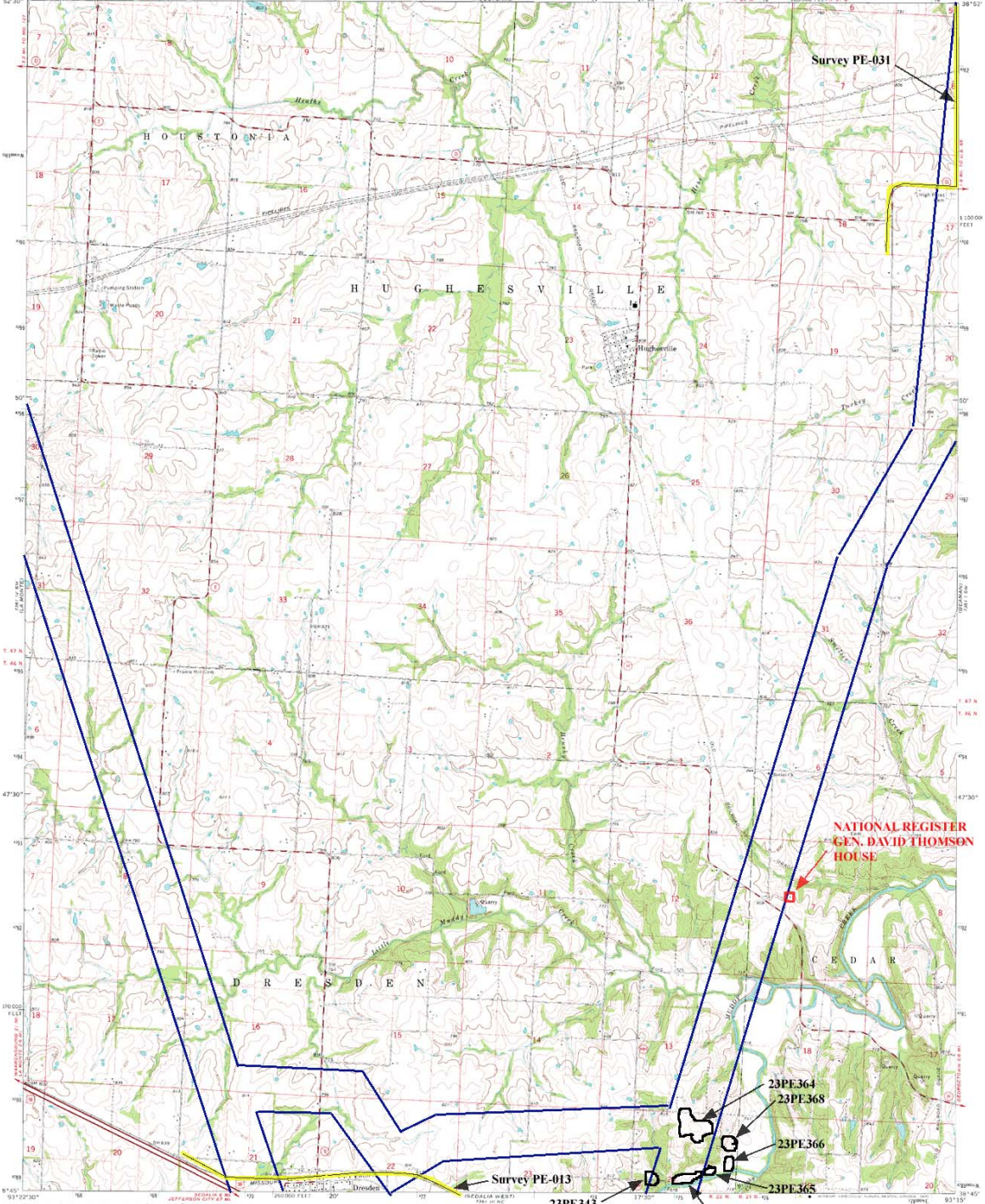
Mapped, edited, and published by the Geological Survey  
 Control by USGS and NGS/NOAA  
 Topography by photogrammetric methods from aerial photographs taken 1972. Field checked 1973  
 Projection: Missouri coordinate system, central zone (Universal Mercator)  
 10,000-foot grid ticks based on Missouri coordinate system, central zone  
 1000-meter Universal Transverse Mercator grid ticks, zone 19N, unless in black - 1927 North American datum  
 Fine red dashed lines indicate selected fences and field lines where generally visible on aerial photographs. This information is unchecked



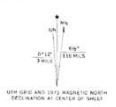
1:24,000 SCALE  
 1:24,000 SCALE  
 1:24,000 SCALE  
 CONTOUR INTERVAL 10 FEET  
 NATIONAL GEODETIC DATUM OF 1929  
 THIS MAP COMPLETES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22082  
 AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
 MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401  
 A FOLDER DESIGNING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION  
 Primary highway, hard surface ————  
 Secondary highway, hard surface ————  
 Light-duty road, hard or improved surface ————  
 Unimproved road ————  
 Interstate Route ————  
 U. S. Route ————  
 State Route ————  
 LA MONTE, MO.  
 BY A 7.5-MINUTE QUADRANGLE  
 N3845—R9322.5/7.5  
 1973  
 ANS 1361 IN 59—SERIES 1879





Maped, edited, and published by the Geological Survey.  
Control by USGS and NGS/NOAA  
Topography by photogrammetric methods from aerial photographs taken 1972. Field checked 1973.  
Projection and 10,000-foot grid ticks: Missouri coordinate system, central zone (reference Meridian).  
1:000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.  
1927 North American datum.  
Faded double lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked.



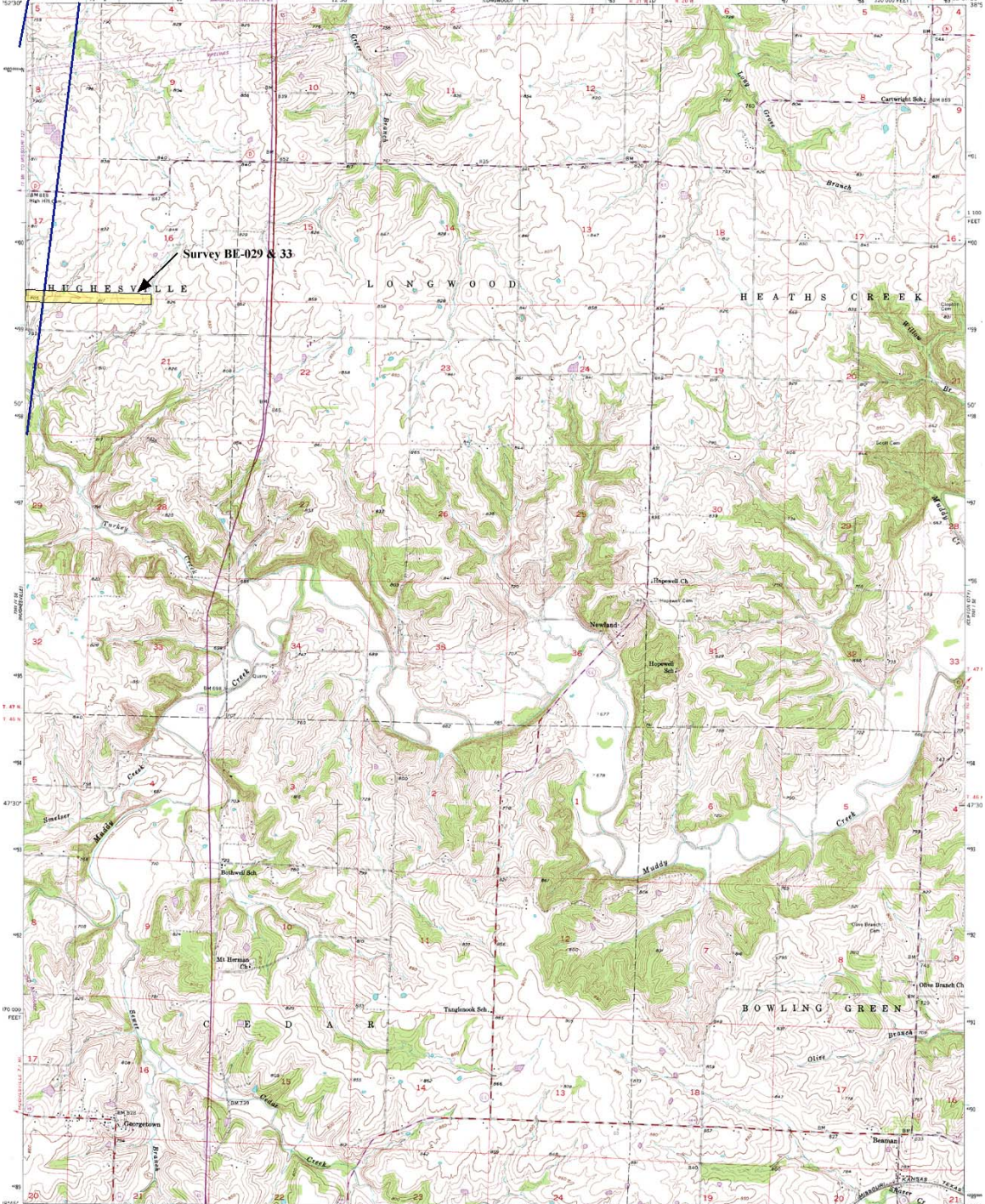
SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY (DENSE COLORED BODIES OR PRINTED VIRGINIA, 22092)  
AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, 1011A MISSOURI ROAD  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



HUGHESVILLE, MO.  
NEAR SHEET SYMBOLS (QUADRANGLE)  
N2845-W315/7.5  
1973  
AMS 7061 IV 86-SERIES VEIN





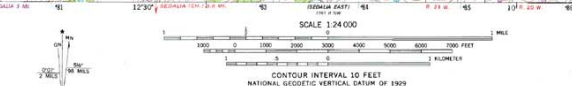
Maped, edited, and published by the Geological Survey as part of the Department of the Interior program for the development of the Missouri River Basin (under the USGS and USGAS).

Topography from aerial photographs by photogrammetric methods. Aerial photographs taken 1951. Field check 1953.

Projection: projection, 1927 North American datum, 10,000-foot grid based on Missouri coordinate system, central zone.

1000-meter Universal Transverse Mercator grid ticks, zone 15, shown in blue.

Boundaries shown as people compiled from aerial photographs taken 1977. Map revised 1978. This information not field checked.



ROAD CLASSIFICATION

- Primary highway, hard surface
- Secondary highway, hard surface
- Light-duty road, hard or improved surface
- Unimproved road
- Interstate Route
- U. S. Route
- State Route



BEAMAN, MO.  
N3845-W9327.5(7.5)

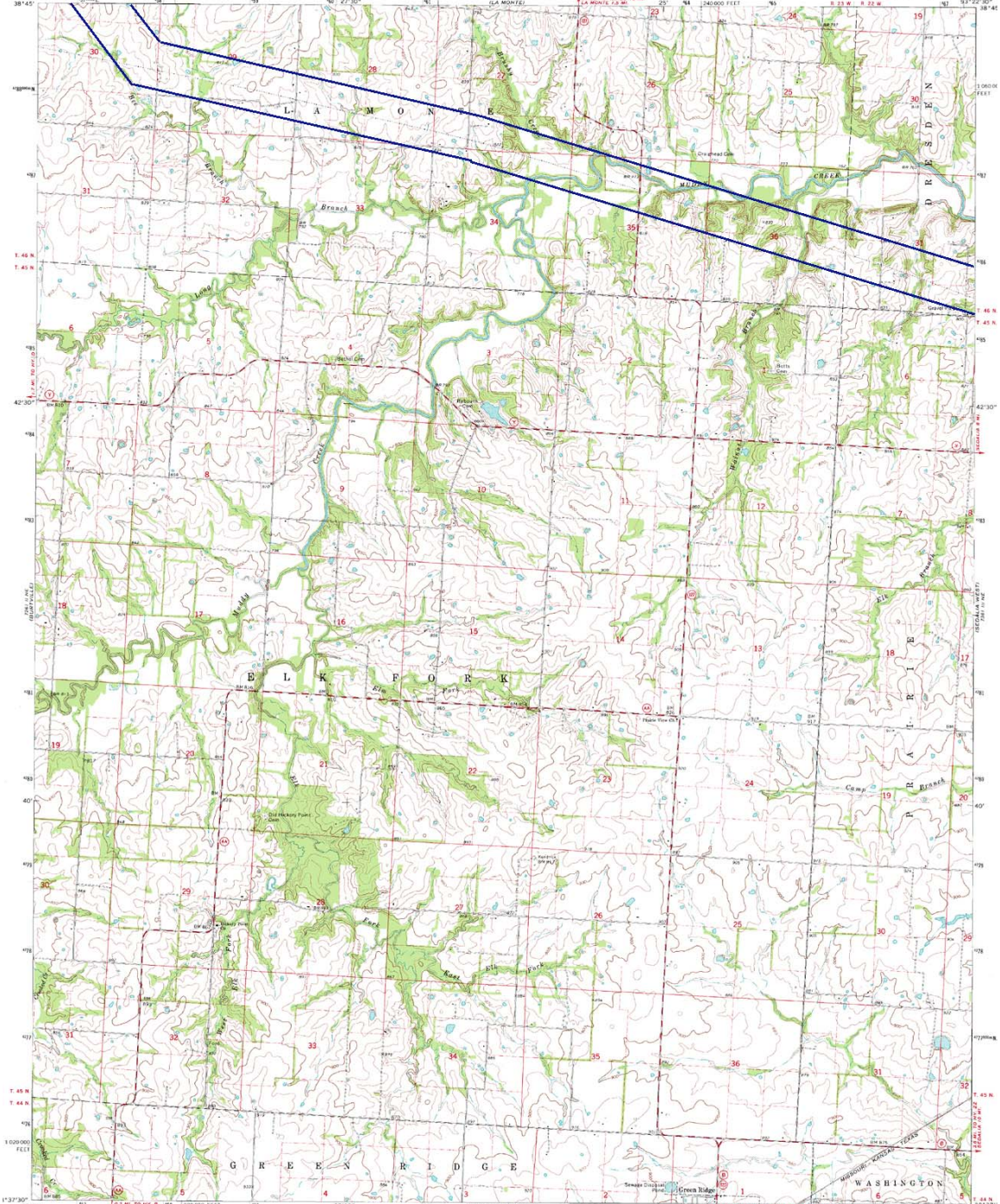
1953  
PHOTOIMAGED 1978  
AMS 1261 1 SW-BRERS 1878

THIS MAP COMPILED WITH NATIONAL MAP ACCURACY STANDARDS AND THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, BOLLA, MISSOURI 65001. A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST.

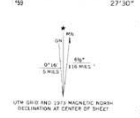


UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

GREEN RIDGE NORTH QUADRANGLE  
MISSOURI - PETTIS CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
1:250,000 SCALE



Mapped, edited, and published by the Geological Survey  
Control by USGS and USCGS  
Topography by photogrammetric methods from aerial  
photographs taken 1972. Field checked 1973  
Projections and 80,000-foot grid lines: Missouri coordinate  
system, central zone (Beverly Mercator)  
1:500,000 Universal Transverse Mercator grid scale,  
zone 15, shown in blue. 1927 North American datum  
Fine red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is uncharted



CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80202, OR RESTON, VIRGINIA 22092  
AND BY THE CENTER OF RESEARCH AND TECHNICAL INFORMATION,  
MISSOURI DEPARTMENT OF NATURAL RESOURCES, JOLIET, MISSOURI 65041  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

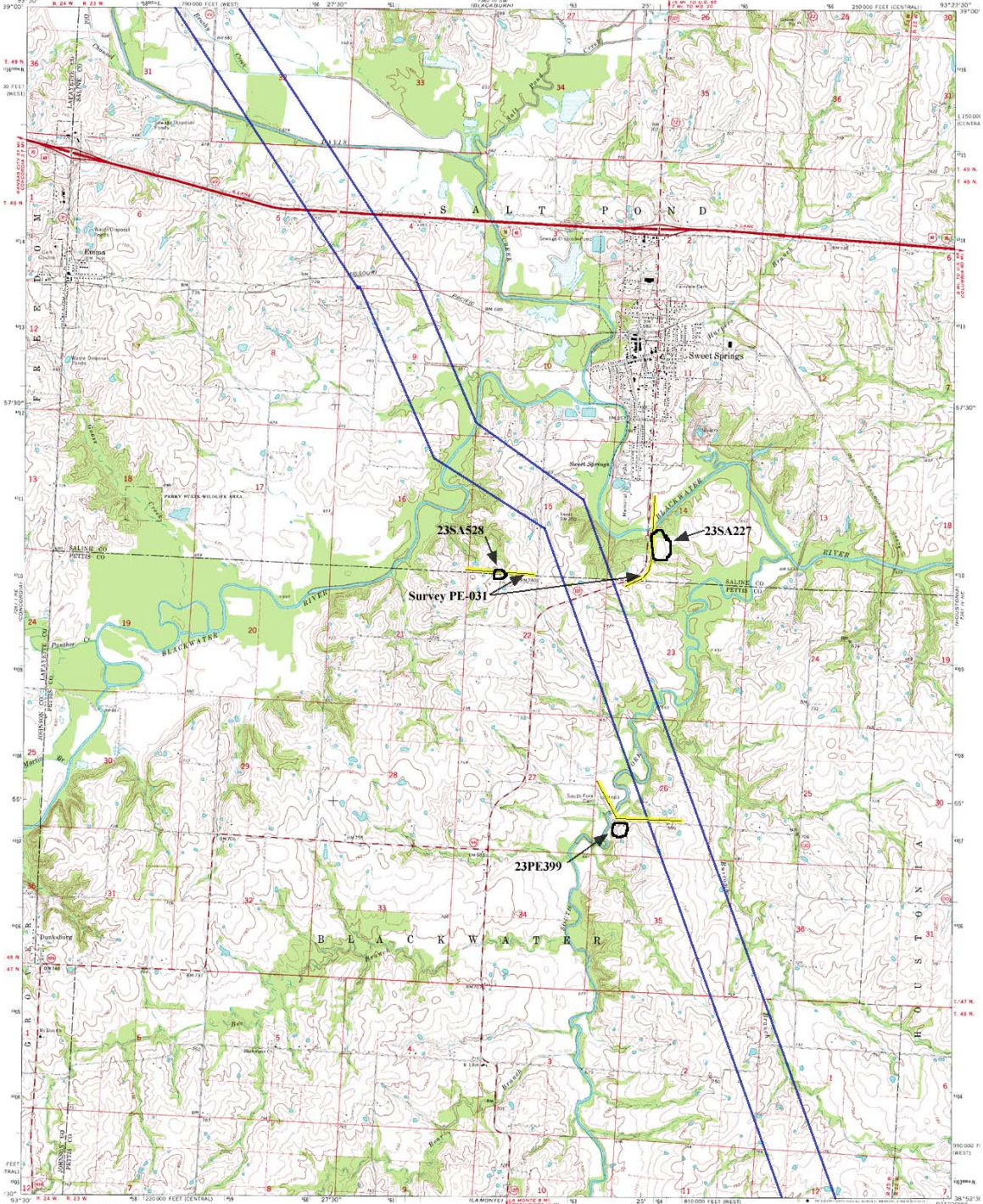


ROAD CLASSIFICATION  
 Primary highway ——— Light duty road, hard or  
 hard surface ——— unpaved surface  
 Secondary highway ———  
 hard surface ———  
 Interstate Route U.S. Route State Route

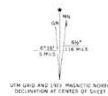
GREEN RIDGE NORTH, MO.  
1:250,000 SCALE  
1973

AMS 7561 D NW-SERIES 9419





Mapped, edited, and published by the Geological Survey  
 Control by USGS and NGS/NCMA  
 Topography by photogrammetric methods from aerial  
 photographs taken 1972. Final checked 1973  
 Projection: Missouri coordinate system, central zone  
 (transverse Mercator)  
 10,000-foot grid ticks based on Missouri coordinate  
 system, central and west zones  
 1:500-meter Universal Transverse Mercator grid ticks,  
 zone 15, shown in blue, 1927 North American datum  
 Fine red dashed lines indicate selected fence and field lines where  
 generally visible on aerial photographs. This information is unclassified



SCALE 1:24,000  
 CONTOUR INTERVAL 10 FEET  
 NATIONAL GEODESIC VERTICAL DATUM OF 1929

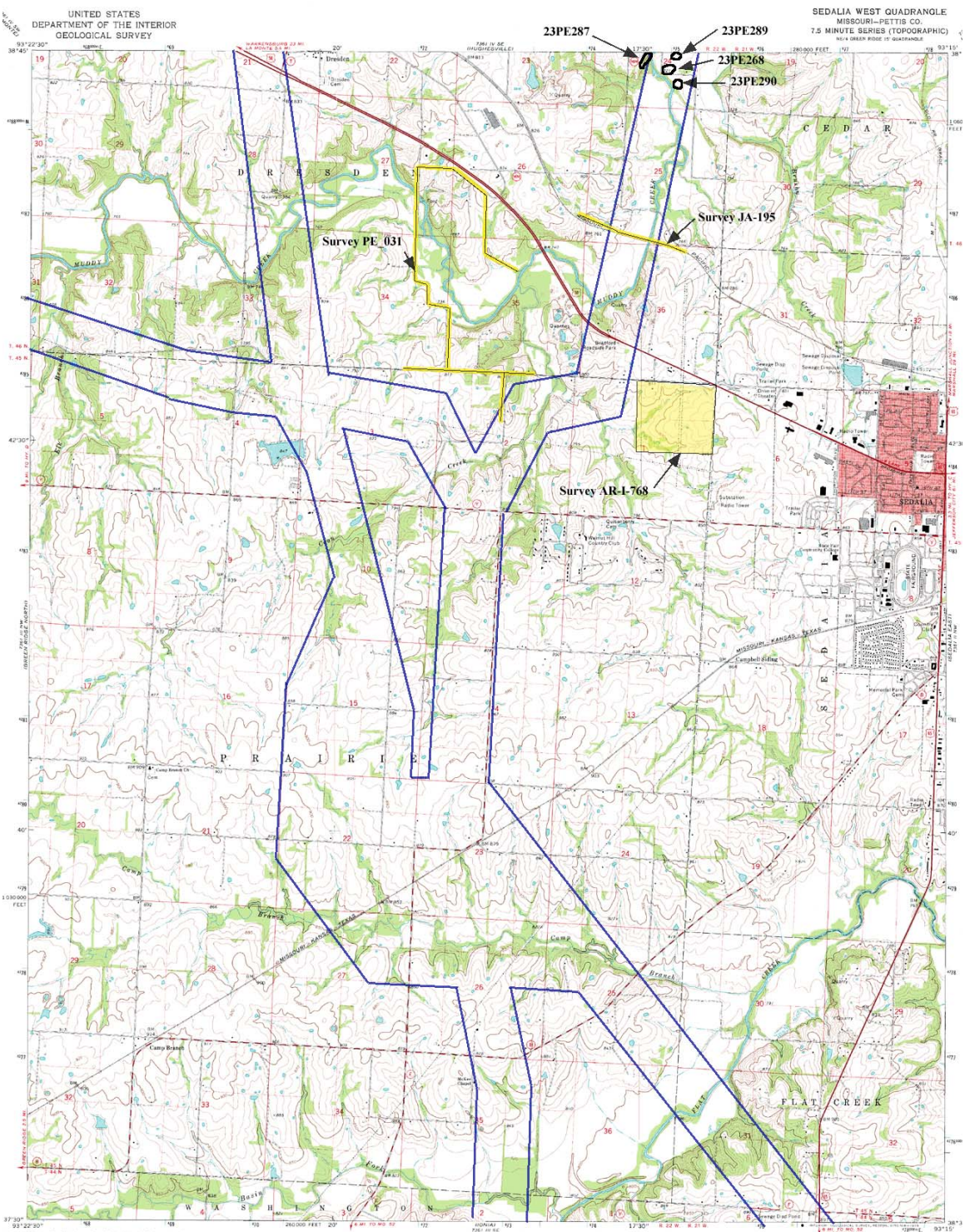


ROAD CLASSIFICATION  
 Primary highway, hard surface  
 Secondary highway, hard surface  
 Secondary highway, unpaved surface  
 Light duty road, hard or unpaved surface  
 Interstate Route  
 U. S. Route  
 State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
 FOR SALE BY U. S. GEOLOGICAL SURVEY NUMBER 500005 80225 OR BOSTON, VIRGINIA, 22092  
 AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
 MISSOURI DEPARTMENT OF NATURAL RESOURCES, 1014 S. MISSOURI, COLUMBIA,  
 MISSOURI 65201  
 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

SWEET SPRINGS, MO.  
 1973  
 AND THAT OF NW-SERIES 1973

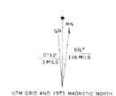




UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SEDALIA WEST QUADRANGLE  
MISSOURI-PETTIS CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)  
NEXT QUADRANGLE EAST

Maped, edited, and published by the Geological Survey  
Control by USGS and NGS/NOAA  
Topography by photogrammetric methods from aerial  
photographs taken 1972. Field checked 1973  
Supersedes map dated 1964  
Projection and 10,000-foot grid ticks, Missouri coordinate  
system, central line (transverse Mercator)  
1000-meter Universal Transverse Mercator grid ticks,  
zone 15, known as Blue. 1927 North American datum  
Red dot indicates area in which only landmark soundings are shown  
Fine red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is unchecked



SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



ROAD CLASSIFICATION  
Primary highway, hard surface  
Secondary highway, hard surface  
Unimproved road  
Light-duty road, hard or improved surface  
U. S. Route  
State Route

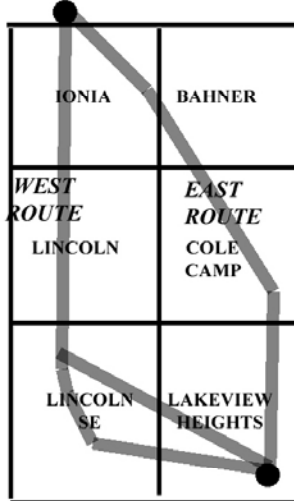
THIS MAP COMPLEYS WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY (DOWNS COLORADO BOZON OR RESTON VIRGINIA 22062)  
AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES (COLLA MISSOURI 64665)  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

SEDALIA WEST, MO.  
NEXT QUADRANGLE WEST IS 7.5  
N3837.5-W9315.7.5  
1973  
AND 7541 IS 7.5-SERIES 7419



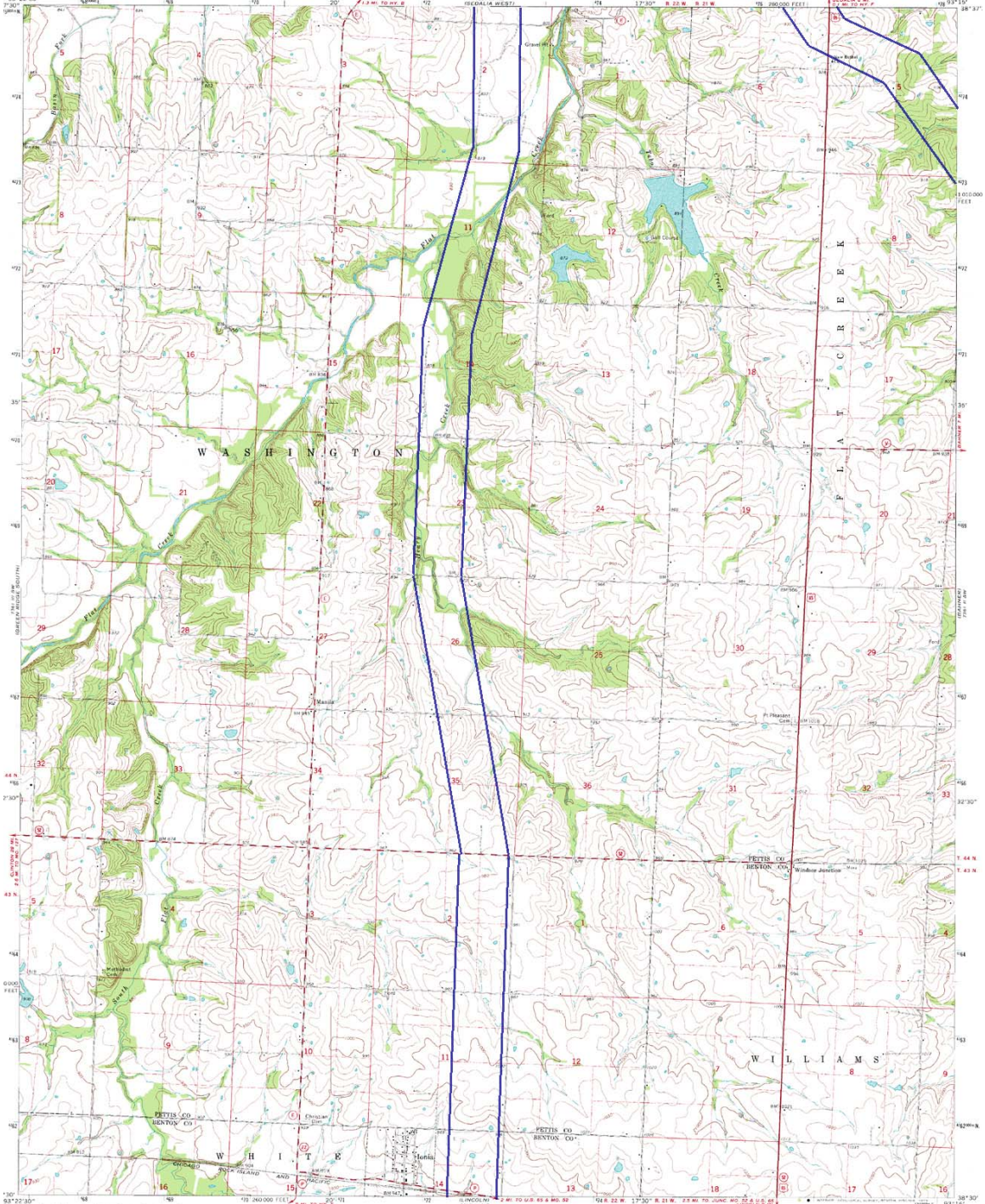
**USGS TOPOGRAPHIC QUADRANGLE ORDER FOR  
SEDALIA SUBSTATION TO MT. HULDA SUBSTATION**

*SEDALIA SUBSTATION*



*MT. HULDA SUBSTATION*





Mapped, edited, and published by the Geological Survey  
Control by USGS and USCGS  
Topography by photogrammetric methods from aerial photographs taken 1972. Field checked 1973  
Projection and 80,000 foot grid ticks: Missouri coordinate system, centered on Brainerd Meridian  
1000-metre Universal Transverse Mercator grid ticks, zone 15, shown in blue. 1927 North American datum  
Fine red dashed lines indicate selected fence and field lines whose general visibility is aerial photographs. This information is unchecked



CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
SCALE 1:24,000

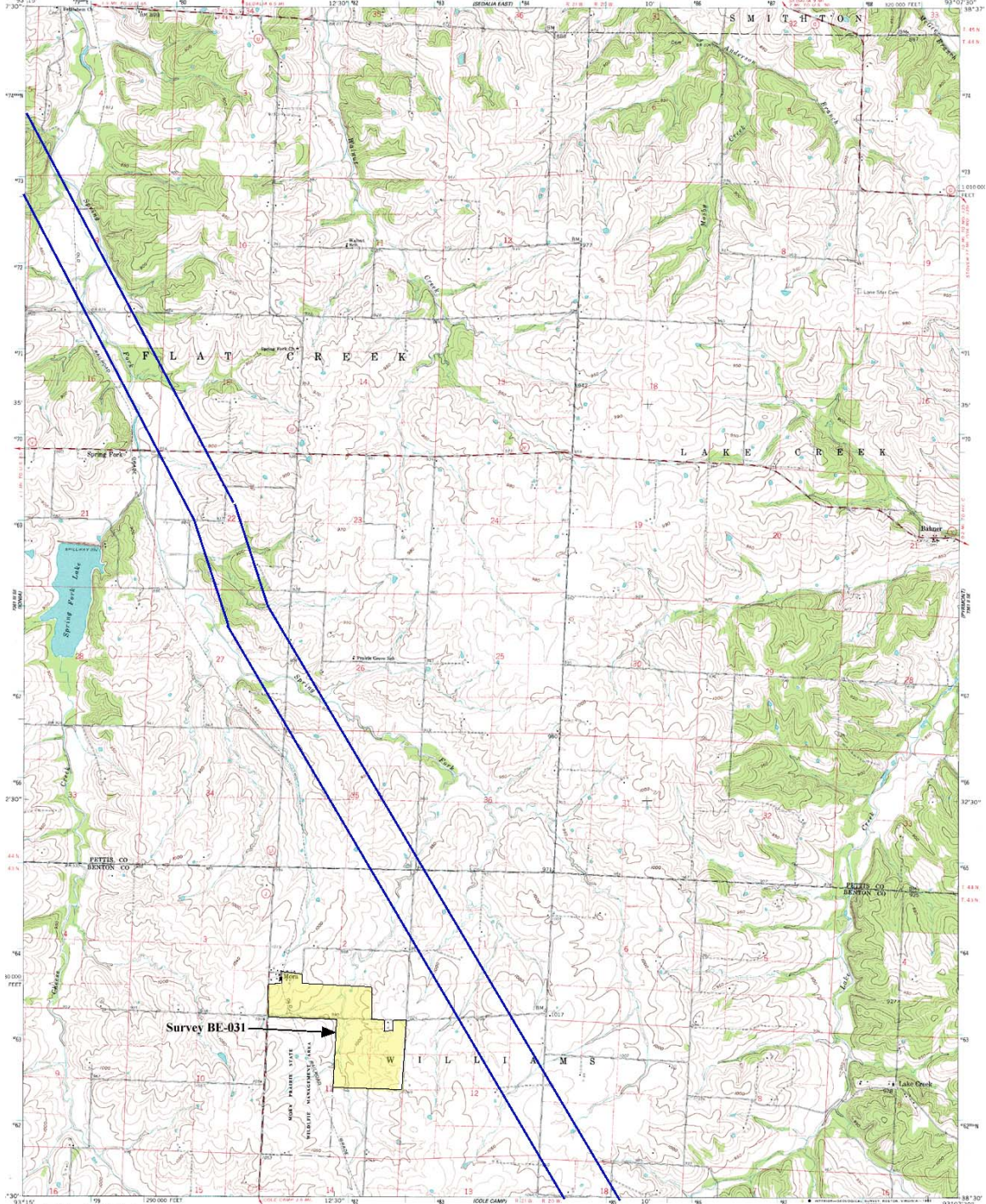


ROAD CLASSIFICATION  
Primary highway, hard surface  
Secondary highway, hard surface  
Light-duty road, hard or improved surface  
Unimproved road  
Interstate Route  
U.S. Route  
State Route

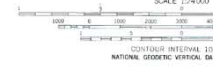
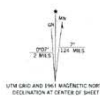
THIS MAP CONFORMS WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U.S. GEOLOGICAL SURVEY, BUNKER HILL COLONIAL 80723, OR RESTON, VIRGINIA 22092 AND BY THE DIVISION OF RESEARCH AND TECHNICAL INFORMATION, MISSOURI DEPARTMENT OF NATURAL RESOURCES, ROLLA, MISSOURI 65401. A FLEXIBLE ECONOMY TOPOGRAPHIC MAPS AND STRIPS IS AVAILABLE ON REQUEST.

IONIA, MO.  
844 GREEN HOLE IS QUADRANGLE  
H2830-W3325-7.5  
1973  
AMS 1041 IN 88-REG-9879





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Control by USGS and USCGS  
Topography by photogrammetric methods from aerial  
photographs taken 1958. Field checked 1961  
Polyconic projection. 1927 North American datum  
12,000-foot grid based on Missouri coordinate system, central zone  
1000-meter Universal Transverse Mercator grid ticks,  
zone 15, shown in blue  
To place on the predicted North American Datum 1983  
move the projection lines 17 meters east as shown by  
dashed corner ticks  
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Map photoreproduced 1972  
No major topographic or drainage changes observed



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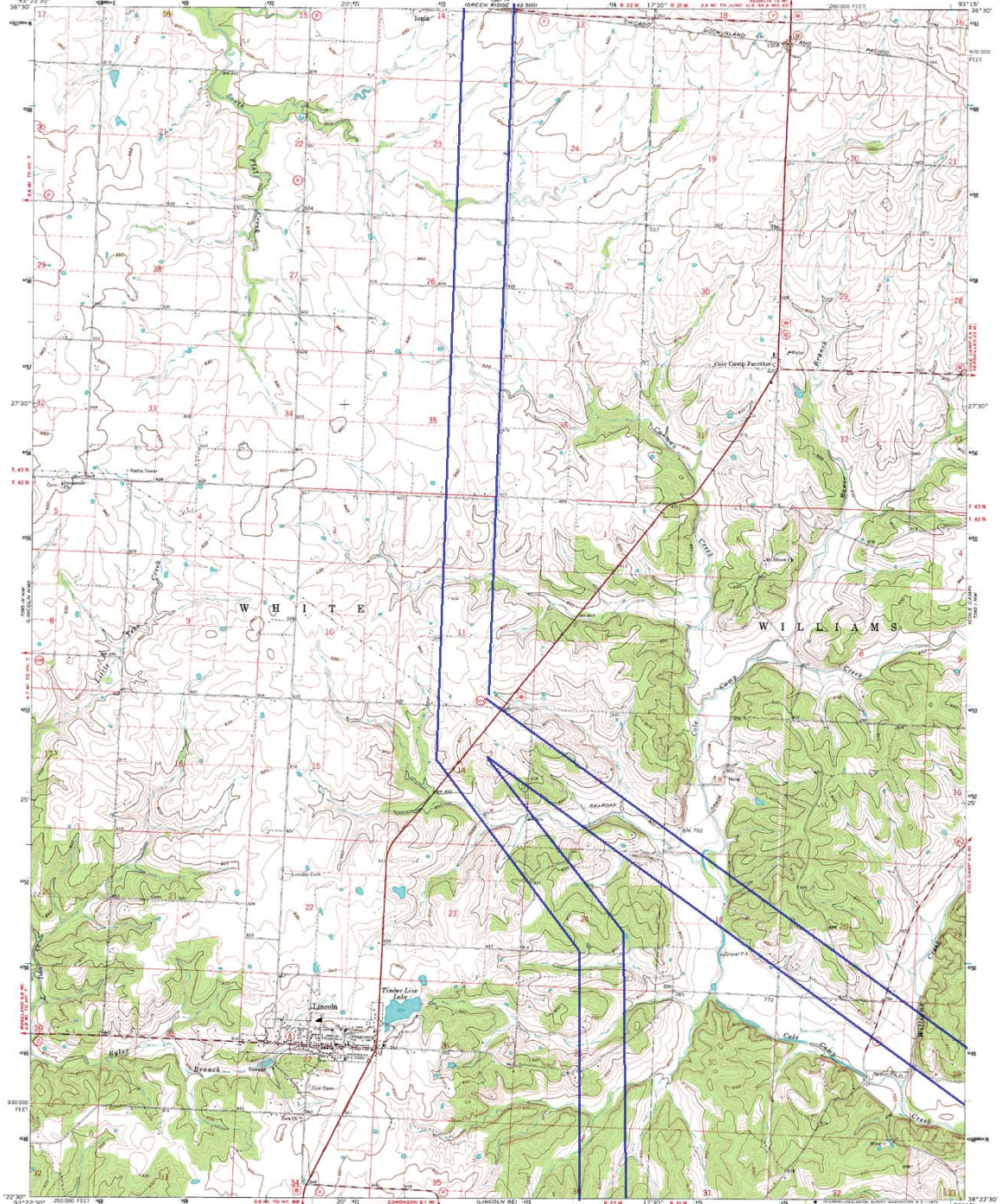
BAHNER, MO  
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1961  
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DMA 1961 © 99-50858 1478



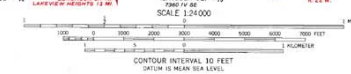
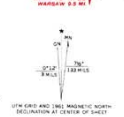
UNITED STATES  
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STATE OF MISSOURI  
GEOLOGICAL SURVEY AND WATER RESOURCES  
THOMAS R. BEVERIDGE, STATE GEOLOGIST

LINCOLN QUADRANGLE  
MISSOURI-BENTON CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)



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1000-meter Universal Transverse Mercator grid ticks,  
zone 15, shown in blue  
Fire red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is unclassified



ROAD CLASSIFICATION  
Heavy-duty ——— Light-duty - - - - -  
Medium-duty - - - - - Unimproved dirt - - - - -  
U.S. Route □ State Route ○

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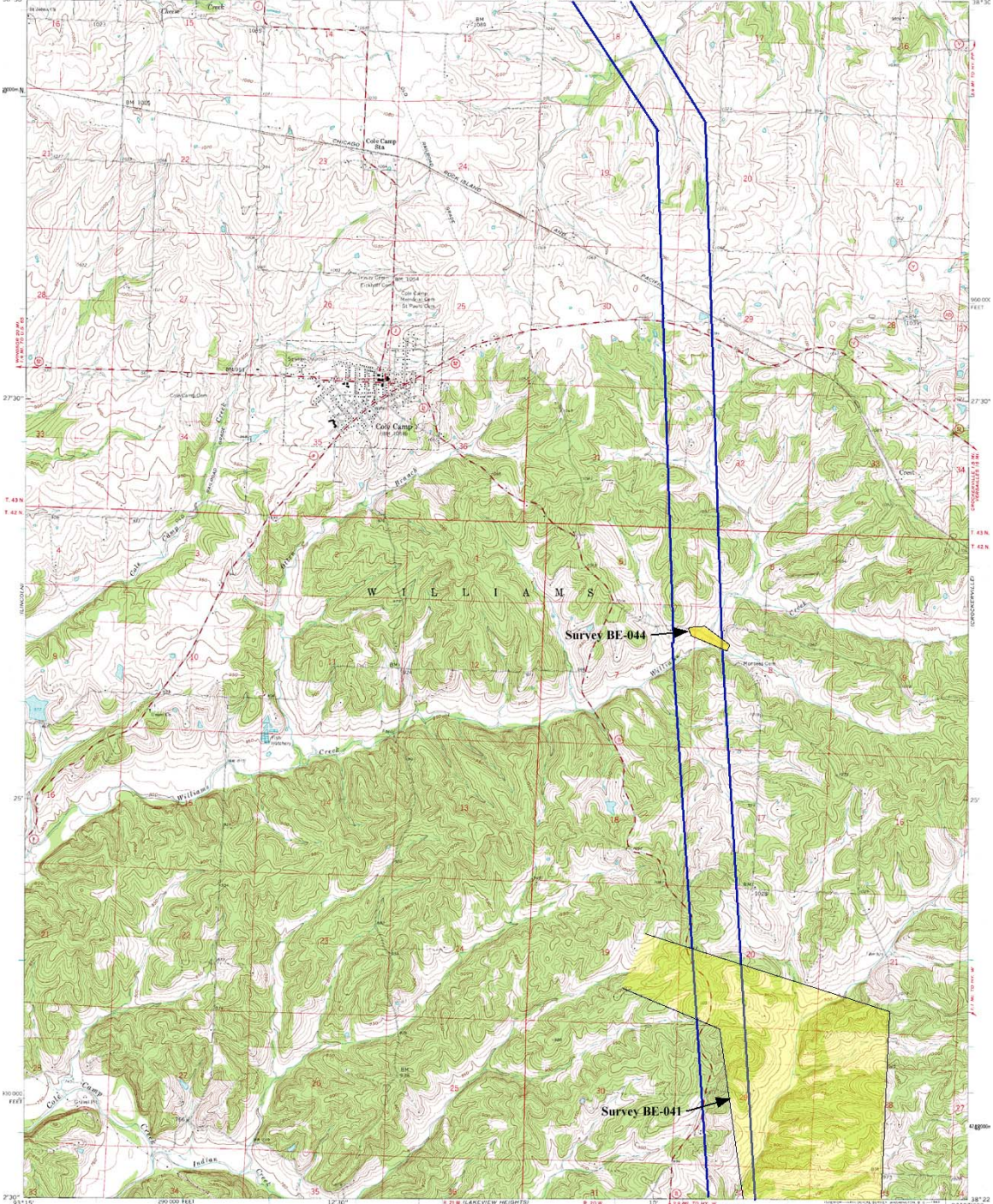
LINCOLN, MO.  
N28225-W9215/7.5  
1961  
AMS 750 IV NE-SERIES 1879



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

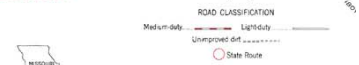
STATE OF MISSOURI  
GEOLOGICAL SURVEY AND WATER RESOURCES  
THOMAS R. BEVERIDGE, STATE GEOLOGIST

COLE CAMP QUADRANGLE  
MISSOURI-BENTON CO.  
7.5 MINUTE SERIES (TOPOGRAPHIC)



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Control by USGS and USGAS  
Topography by photogrammetric methods from aerial  
photographs taken 1958. Field checked 1961.  
Polyconic projection. 1927 North American datum.  
10,000-foot grid based on Missouri coordinate system, central zone.  
1000-meter Universal Transverse Mercator grid ticks.  
Faint red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is uncheckered.

APPROXIMATE MEAN  
DECLINATION, 1961

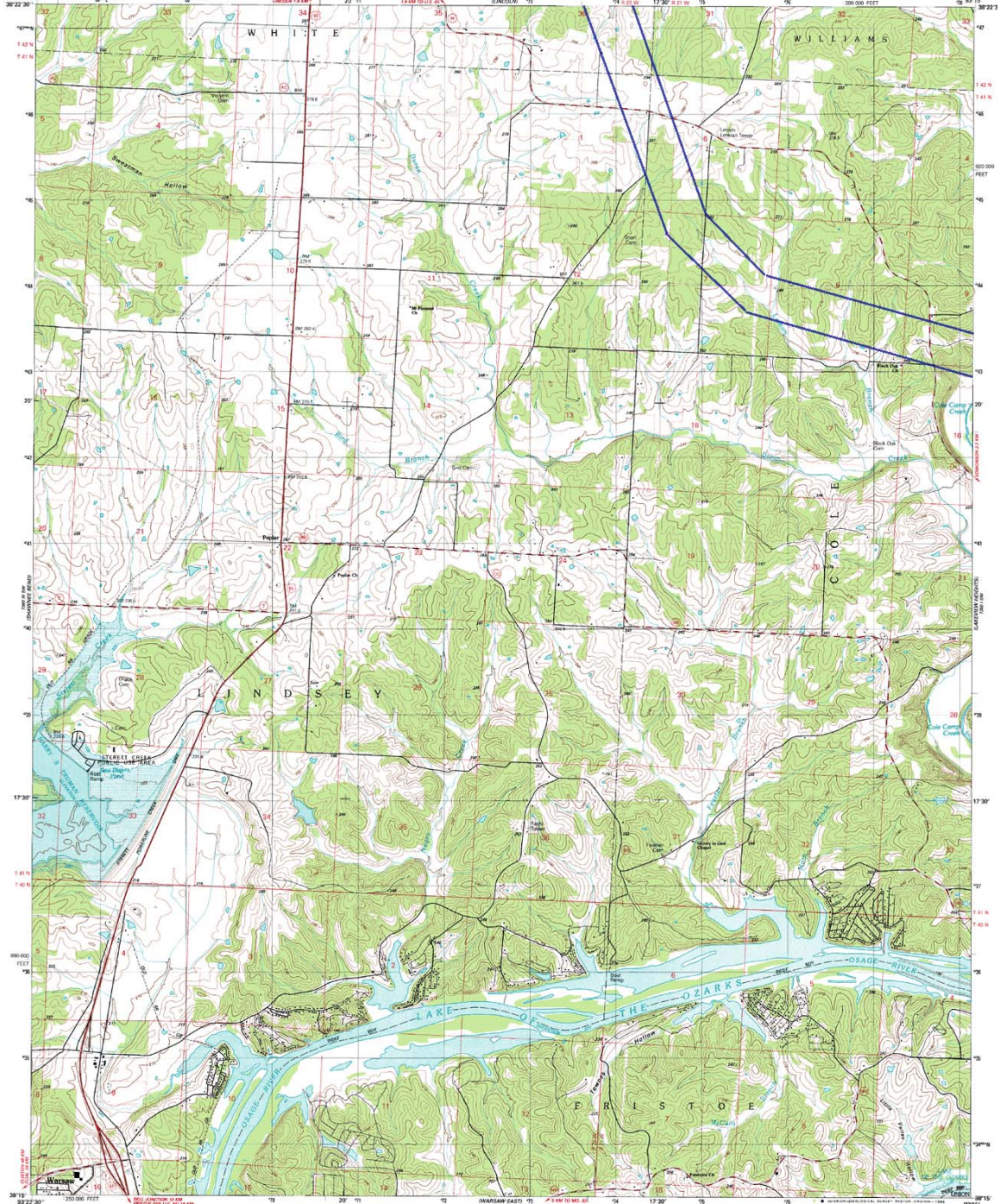


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COLE CAMP, MO.  
N1822 5--W9307 5/7.5  
1961





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Control by USGS and NS-NSA  
Topography by photogrammetric methods from aerial photographs  
taken 1970-80. Field checked 1981. Map edited 1983  
Supersedes map dated 1979  
Underwater contours in Lake of the Ozarks taken from  
United States Hydrographic Office charts dated 1921 and 1931  
Projection and datum: Universal Transverse Mercator  
18,000-foot grid ticks: Meters coordinate system,  
central zone  
1927 North American Datum  
To place on the projected North American Datum 1983,  
move the projection lines 17 meters east  
as shown by dashed corner ticks  
Areas covered by dashed light-blue pattern  
are subject to controlled inundation  
The red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is unchecked

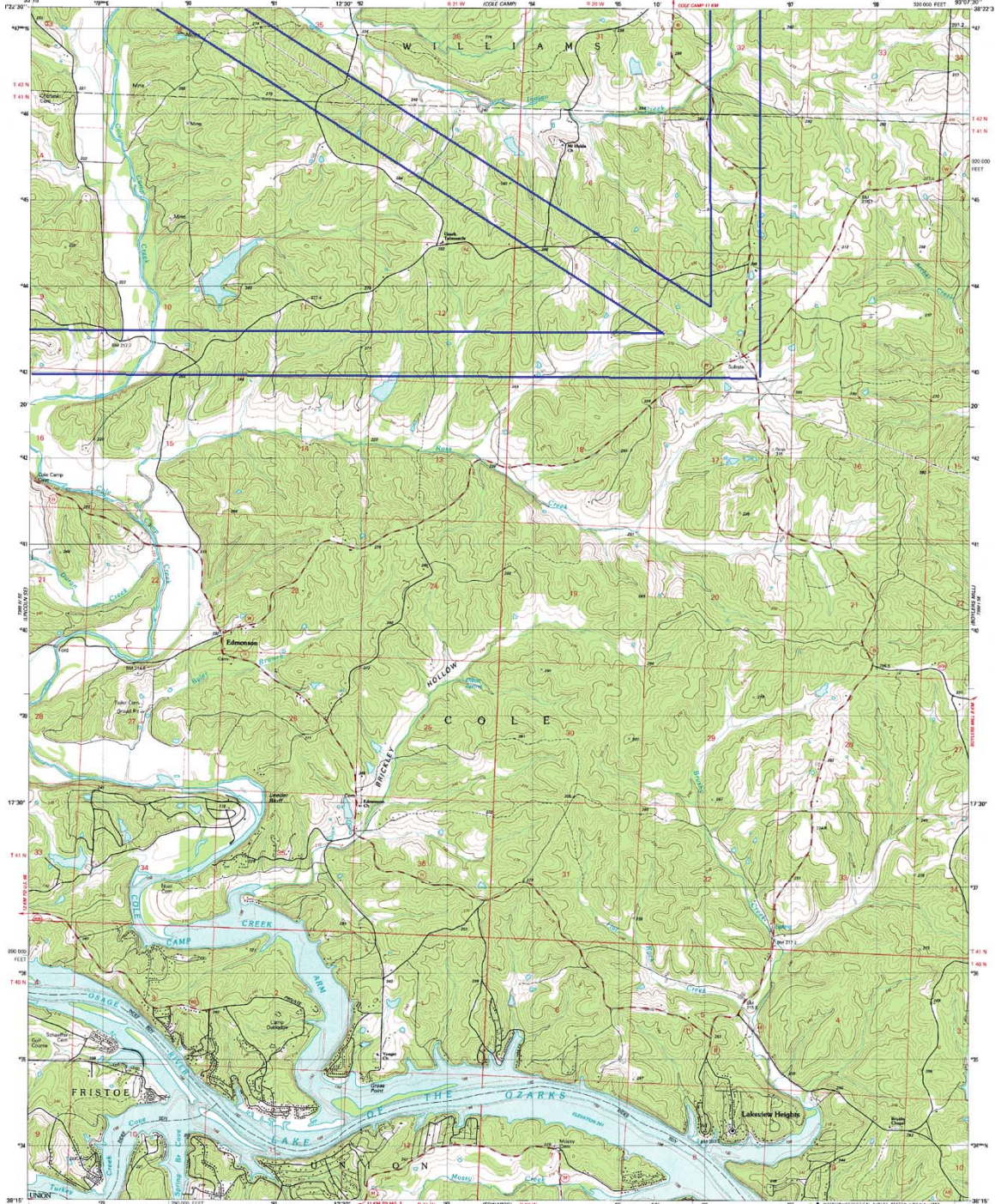
SCALE 1:24 000  
CONTOUR INTERVAL, 6 METERS  
EQUATING  
METERS  
OTHER ELEVATIONS SHOWN TO THE NEAREST 4 METERS  
NOTING QUADRANT METERS, IN OR OUT  
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ROAD CLASSIFICATION  
Primary highway: Light-duty road, hard or  
hard surface: Improved surface  
Secondary highway: Unimproved road  
hard surface: U. S. Route State Route  
Interstate Route U. S. Route State Route

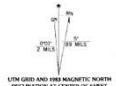
QUADRANGLE COORDINATES  
CONTOURS AND ELEVATIONS  
IN METERS

LINCOLN SE, MO.  
N3815-W9115-75  
1983  
DMA 7501 BY SE-SERIES 1479





Produced by the United States Geological Survey  
Control by USGS and NOS/NOAA  
Topography by photogrammetric methods from aerial photographs  
taken 1970. Field check 1981. Map revised 1983.  
Supersedes map dated 1959.  
Underlies contours in Lake of the Ozarks taken from  
United Electric Company charts dated 1925 and 1931.  
Projection and 1983 datum used, zone 15.  
Universal Transverse Mercator  
18,000-foot grid in the Missouri coordinate system,  
central zone  
1977 North American Datum  
To place on the predicted North American Datum 1983,  
move the projection lines 16 meters east.  
as shown by dashed corner ticks  
Five red dashed lines indicate selected fence and field lines where  
generally visible on aerial photographs. This information is un-checked



SCALE 1:24,000  
MILES 0 1 2  
METERS 0 500 1000 1500 2000  
CONTOUR INTERVAL 6 METERS  
NATIONAL GEODESIC VERTICAL DATUM OF 1985  
CONTOUR ELEVATIONS SHOWN BY THE NUMBER 6.6 METERS  
OTHER ELEVATIONS SHOWN TO THE NEAREST METERS



ROAD CLASSIFICATION  
Primary highway, Light-duty road, hard or  
hard surface, Improved surface  
Secondary highway, Unimproved road  
Interstate Route, U. S. Route, State Route

LAKEVIEW HEIGHTS, MO.  
7.5-MINUTE SERIES  
1983  
DMA 1360 I 500-SERIES 1979

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**CULTURAL RESOURCE INVESTIGATIONS  
PHASE I SURVEY & PHASE II TESTING  
NORBORNE ELECTRIC PLANT PROJECT  
CARROLL COUNTY, MISSOURI**

***RUS Project***

***Prepared for:***

**Associated Electric Cooperative, Inc.  
Springfield, Missouri**

***Prepared by:***

**Environmental Research Center of Missouri, Inc.  
Jefferson City, Missouri**

***AUGUST 2006***

***County: CARROLL  
DNR Study Unit: WEST MISSOURI  
USGS Quadrangle: NORBORNE & HARDIN 7.5***



## ABSTRACT

During July and August 2006 a Phase I cultural resource survey and Phase II archaeology testing project was carried out for the proposed Norborne electric power plant facility construction project in Carroll County, Missouri. Approximately 1,500 acres of land was included in the Phase I survey and four archaeology sites were the subject of Phase II investigations.

The records and literature review produced no evidence of the presence of previously reported possibly significant cultural resources within the project area. There are no National Register of Historic Places (NRHP) properties currently listed within or near the project boundaries. No NRHP property is threatened directly or indirectly by the proposed project actions. There are no Archaeological Survey of Missouri (ASM) sites within or near the project. There are no Missouri Historic - Architecture sites within the project boundaries.

The field investigation was carried out under good visibility conditions in a soy bean, corn, and sparse pasture setting averaging greater than 50% surface visibility. Some shovel tests were necessary to meet methods requirements utilized by the investigators. Deep testing included mechanical auguring and bank profiling. The Phase I survey identified nine previously unrecorded archaeology sites (23CA1161 through 23CA1169). Five sites identified in the valley portion of the project exhibited historic materials and one contained probable prehistoric fire-cracked rock. Three sites in the upland area of the project exhibited prehistoric lithic debitage.

The project area occupies a presettlement prairie setting. Fewer than 2% of the known prehistoric sites in Missouri counties that contained a large proportion of presettlement prairie area are located in presettlement prairie areas. The few archaeology sites that have been identified within presettlement prairie settings pre-date the prairie intrusion around 7,000 years ago possibly including Paleo-Indian or Dalton occupation. While material density was low at each of the identified prehistoric archaeology sites, it was determined through discussion with MoSHPO personnel that these sites could contain important information concerning the early occupation of this portion of Missouri and should be tested. The Phase II testing investigations at 23CA1164, 23CA1167, 23CA1168, and 23CA1169 produced no evidence of presence of buried or undisturbed cultural matrix and the sites are not considered eligible for NRHP status.

Historic resources include archaeology sites 23CA1161, 23CA1162, 23CA1163, 23CA1165, and 23CA1166 and five farmsteads and farmstead remnants. None meets and NRHP eligibility criteria and all are recommended not eligible for NRHP status.

On the basis of the negative findings regarding presence of possibly significant cultural resources within the proposed Norborne electric plant site project area, it is recommended that the project proceed as planned in terms of cultural resource compliance concerns. No possibly significant cultural resources will be threatened by the project as it is currently planned.



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## INTRODUCTION

### Purpose of Study

In compliance with current environmental regulations and policies, Associated Electric Cooperative, Inc. (AECI) entered into a contractual agreement with Environmental Research Center of Missouri, Inc. (ERC) to conduct a Phase I cultural resources survey and Phase II testing investigation of cultural resources within the proposed Norborne electric plant site in Carroll County, Missouri. The study followed the Missouri Department of Natural Resources (DNR) "Guidelines for Cultural Resource Contract Reports and Professional Qualifications" and is submitted in accordance with current environmental regulations and policies and in agreement with the study contract.

The project actions included discussion of the project with Missouri Department of Natural Resources/Historic Preservation Program staff, a records and literature review, and an intensive pedestrian field investigation of the project area. The study methods used are described and the results of the findings of these actions are presented in terms of cultural resource descriptions, when present, and recommendations for cultural resource compliance in reference to the proposed project actions. The project area cultural and environmental settings are briefly described.

Under state and federal legislation and policies outlined by the Antiquities Act of 1906, the Historic Sites Act of 1935, the National Historic Preservation Act (NHPA) of 1966 as amended, the National Environmental Policy Act of 1970, the 1986 Protection of Historic Properties and other regulations regarding specific activities such as strip mining, it is necessary to inventory archaeological and historical resources located within proposed project areas which may be threatened by federally regulated or funded actions and evaluate any disruptive effects these actions might have on resources that are present. Briefly, the National Historic Preservation Act requires that an area threatened by a federally funded and/or regulated project consider cultural resources which might be impacted by project related actions; the State Historic Preservation Officer (SHPO) and/or federal agency involved may request that a cultural resource survey be conducted prior to granting permission to proceed with the proposed project actions. If any cultural resources are identified, they are evaluated in terms of National Register of Historic Places (NRHP) eligibility criteria. Where NRHP eligible sites are found to occupy compliance project areas, consultation is initiated which may include the Advisory Council on Historic Preservation (Council), the SHPO, and the governmental agency involved in the project. If an eligible site cannot be avoided, a Memorandum of Agreement may be prepared which would stipulate specific compliance actions to be initiated prior to project actions. The project initiator, if not a federal agency, may be requested to concur. The present project is partially funded or regulated by a federal agency. As a result, cultural resource compliance has been implemented by a federal agency and Missouri SHPO and the present survey has been carried out in order to meet NHPA requirements.



## Project Personnel and Schedule

The present project was carried out during July and August 2006. Principal Investigator and report author is Craig Sturdevant. Sturdevant has a Master of Arts degree in Anthropology from the University of Iowa, Iowa City and meets state and federal requirements for Principal Investigator for cultural resource compliance projects. John Carrel, Chris Hansman (ERC Research Associates), and Sturdevant were field technicians for the project.

## The Project

The proposed project area includes approximately 1,500 acres of land located along the north edge of the Missouri River valley two miles west of the village of Norborne in rural Carroll County. Around three-quarters of the project area is in the valley with the remainder on the adjacent bluff/upland. The proposed project will include construction of a coal fired electric generating facility and necessary infrastructure. A detailed project plan was not supplied with the scope of work and it was assumed that any cultural resources within the 1,500 acre project area would be threatened by proposed project actions. The project is located in Sections 8, 16, 17, 19, 20, and 21 , Township 52 North, Range 25 West, Carroll County, Missouri (Figure 1).

The present investigation has been carried out utilizing Phase I survey procedures as outlined in the methods section of this report and all available standard procedures for determining presence/absence of buried and surficial resources have been attempted. Findings and recommendations are made with the understanding that it may sometimes not be possible to identify all possibly significant resources within a project area, particularly where heavy vegetation is present.



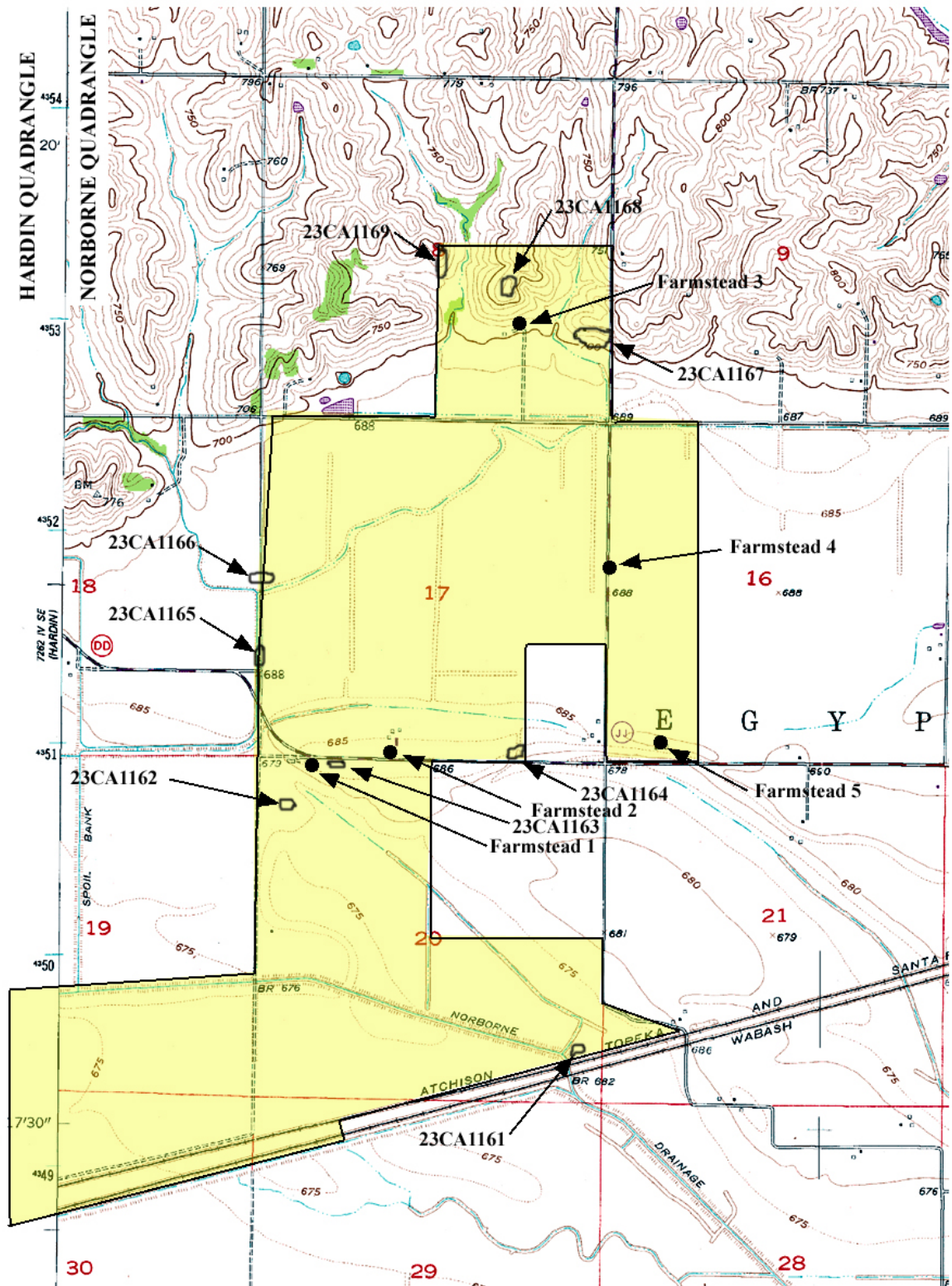


Figure 1.  
USGS Quadrangle Location of Project, Area Surveyed (YELLOW) & Cultural Resources



## INVESTIGATION METHODS

### Introduction

The major goal of the present studies consist of inventory and evaluation of cultural resources within the designated project areas through the use of currently accepted Phase I survey techniques and Phase II testing and evaluation procedures. It is important that sufficient data are collected to allow development of appropriate recommendations concerning the significance of the identified cultural resources in the project zone in terms of NRHP eligibility criteria. The methods and techniques to be used during the investigations allow an intensity of coverage that should identify all significant cultural resources present in the Phase I survey project areas and recover sufficient data to evaluate NRHP significance of sites included in the Phase II testing project. Deeply buried sites and very low material density sites are possible to miss no matter how intensive the survey techniques.

A thorough review of relevant publications and records prior to the field component of the study is important as it aids in establishing a comprehensive understanding of the project area cultural sequence and knowledge of types of cultural resources which might be expected to occur. The process begins with review of cultural resource management reports that have been produced for the areas near the project zone. These reports are housed in the MoDNR Historic Preservation Program library, Jefferson City, Missouri and are catalogued by county as well as author. The repository also includes historic - architecture site forms for the state, NRHP forms for Missouri, and correspondence regarding the proposed project. Secondly, the Archaeological Survey of Missouri (ASM) records are reviewed. These records are an important source of data concerning previously reported cultural resources within and near the project boundaries. Located on the University of Missouri, Columbia campus, the ASM contains information on reported archaeological sites in Missouri that have been gathered for over 50 years. These site forms are catalogued by county and section, township, and range and recently UTM coordinates. The records are available at the MoDNR/CRM library facility in the form of microfiche and CRM reports. The result, the known archaeological resources possibly in or near the project can be readily checked and then evaluated in the field. There are many areas of the state that have not been inventoried for archaeological sites and the lack of archaeological records for a specific area does not mean there is a low potential for presence of important cultural resources. Other resources consulted that contain important data include the state library in Jefferson City, local historic societies when appropriate, and the State Historic Society in Columbia. Other archaeologists and architectural historians, particularly those employed by the state that are involved with Section 106 procedures, are consulted regarding their knowledge of possibly significant cultural resources in a project area.



## Field Procedures – Phase I Survey

The Phase I survey field component of the present study involved pedestrian coverage of the entire project area by ERC personnel. Transect width varied from less than 5m to over 20m as defined by terrain and vegetation cover (higher site potential areas such as high terraces were surveyed in narrower transects while open low elevation flood plain areas used expanded transects). Vegetation-free zones were observed for presence of prehistoric cultural materials. Throughout most of Missouri, this can include lithic debitage (chert flakes and shatter), fire-cracked rock, pottery sherds and occasionally bone and shell fragments. Features such as fire hearths and burial tumuli might also be encountered. Where vegetation covered the surface for over 15m, shovel tests were implemented. Where vegetation covered the surface for over 10m, shovel tests were carried out with the exception of ornamental lawns. This involved removal of around a 50cm by 50cm area of sod and then controlled removal of subsurface soil matrix to depths of up to 50cm below surface. Soils are carefully observed to determine presence/absence of cultural evidence. Where soil conditions allow, soils are screened through a portable 1/4 inch screen. Shovel testing that does not include screening of matrix are implemented where larger numbers of shovel tests are necessary and surface visibility conditions are poor. In this instance, soil matrix is removed by shovel and carefully scraped with a trowel to look for prehistoric/early historic evidence. During the present study, screened and unscreened shovel tests were necessary since the project areas exhibited varied surface visibility conditions.

Subsurface investigations at the Phase I level of investigation included bank profiling, shovel tests, and mechanical post hole augering. Bank profiling, particularly when stream water levels are low, allows for an excellent sample of subsurface soil matrix. The profiles can be compared to auger and shovel test findings as well as suggest potential for buried soil horizons that might contain prehistoric evidence. Where an area exhibited higher potential for possible buried cultural resources (determined by examination of aerial photographs suggesting old terrace remnants), post hole auguring was implemented. Post hole auguring is effective to a 2 meter depth and interpreted by observation of soil matrix for presence of charcoal and lithic debitage (flake). Where these materials are identified, more extensive shovel testing is carried out. Post hole auguring is carried out with a 6" diameter auger, 30 inches in length with a 17 inch extension. Plow zone matrix is removed over an approximate 50 by 50cm area by shovel followed by removal of soils by power augur at approximate 20cm levels. Soils are observed for presence of indications of subsurface cultural resources through lithics, ceramics, charcoal, and soil changes. Total depth does not exceed 2m. Bank profiling where streams are present and water levels are low allow for an excellent sample of subsurface soil matrix, often to depths over 4 meters. The profiles can be compared to post hole and shovel test findings as well as suggest potential for buried soil horizons that may have the potential to contain prehistoric evidence.

Where evidence of presence of a cultural resource was defined, the location was noted on a U.S.G.S. quadrangle and a sketch and description of the site area was field



prepared. Where features or structures are encountered, photographs are taken. The field procedures incorporated in the pedestrian survey were directed toward two major goals: The first is the inventory of all potentially significant cultural resources within the project zone and the second an attempt to recover sufficient information to allow interpretation of NRHP potential of the sites that have been identified within the proposed project zone.

While subjective, ERC has developed a set of criteria for determining presence of a cultural resource, which are currently accepted by the SHPO as appropriate. These criteria are not presented as appropriated for all situations but as the general practice followed by ERC in making decisions regarding presence/absence of cultural resources for cultural resource compliance purposes. One extreme would record a site where any evidence of cultural activity occurs. The other extreme would require a significant cultural resource to be present to result in recording a site. The present approach attempts to find a middle ground, which hopefully allows for further consideration for both the cultural resource and the proposed project action prior to threat to either.

A cultural resource site is designated where the following specific criteria are met:

- a. The site must exhibit evidence of historic and/or prehistoric use
- b. Where prehistoric features are observed, the area is designated as a site
- c. Where no features are observed, 2 or more artifacts must be identified within a 10 by 10m area to designate a site
- d. Where a shovel test recovers 2 or more artifacts, a site is designated.

Where criterion a. and one or more additional criteria are met, the area was designated as a site and an ASM form prepared.

Where a site is identified and when the landowner grants permission, materials recovered by the field investigation are placed in appropriately marked collection bags. If permission is not attained, materials are observed and potential diagnostics and tools measured, photographed and left in the field or given to the landowner when requested. When a permanent site number is assigned, retained materials are curated with the site designation. Where material density at a site is obviously high, only a "grab sample" is retained. When landowner permission is granted, all shovel test recovered materials are retained.

### Field Investigations – Phase II Testing

Controlled Test Units: Following re-establishing site boundaries through surface observation and shovel tests, the next field component involves excavation of controlled



test units measuring from 50 by 100cm to 100 by 200cm. Generally, when an open habitation site is identified and recorded with insufficient data for interpretation of NRHP eligibility, controlled test excavations allow determination of presence/absence of undisturbed sub-plow zone cultural matrix and justification of probability for presence of possibly important cultural features. Where features and other evidence of cultural matrix which retain some integrity are identified, a site is often found to be significant in terms of NRHP eligibility criteria. This is particularly true where the local and regional sequence have not been well established or are based on limited data. In these instances, the site would have the potential to contribute to the cultural history database. Prehistoric and very early historic features are almost always indicative of presence of a valuable cultural resource.

The number of controlled test units is limited by cost and time exigencies. Thus locations for these units have to rely primarily upon selective factors rather than random sampling. Terrain, distance from streams, degree of past disturbance, vegetation, surface distribution of cultural materials, and location and type of disturbance resulting from project actions are utilized in the selection of locations of controlled excavation units. The present study would have available the Phase I report available with site descriptions, U.S.G.S. and map locations of the sites, and sketch maps which allowed for identification of the site boundaries as well as an indication as to what might be expected from the sites themselves.

As described above, controlled excavation units are located selectively in areas that appear to have potential to exhibit positive information regarding the archaeological site contents and where specific project threat will occur. Corners are staked at north/south and east/west points. One corner of each unit is arbitrarily designated as a sub datum point from which horizontal and vertical locational data are reckoned. Where vegetation covers the unit, floral materials and around 5 cm of sod are scraped away with a shovel. Excavation is carried out from this point with a number 5 molder trowel. All materials aside from vegetation, soil, and obviously non-cultural lithic materials are retained and bagged in reference to the arbitrary 10 cm level from which they have been removed. Where a feature is identified, excavation adjusts to feature characteristics as opposed to the arbitrary 10 cm levels. Features are mapped at 5 cm horizontal and vertical points. Units are excavated to at least 30 cm below identification of the last cultural evidence which has been recovered. In some instances, particularly where cut banks are available for profiles, depth of excavation is extended to one or more meters below last evidence of cultural material in the search for buried cultural matrix. Units are labeled by site number followed by the order in which the units are excavated. Upon completion of excavations, mapping and photography of features, test units are backfilled. Where appropriate, soil samples are retained for further analyses in the form of flotation and water screening. Generally, this occurs when an apparent feature (undefined soil stain, etc.) is encountered.



## Analysis

During controlled excavation procedures, all possibly important materials are retained and marked according to excavation unit and excavation level from which they were recovered (separated by means of marked paper bags in the field). Materials are washed, locational provenience notation maintained, and observed by the Principal Investigator. Counts of materials by type and form are made. Where appropriate and possible, function of the artifact is ascertained. Particular note is made regarding depth of material, potential feature associations, integrity of the feature or materials, and context in which the data are recovered (soils, types of materials associated, and other characteristics identified in the field and while materials are reviewed). Generally, cultural material density, site integrity, and depth of deposit along with cultural affiliation and site type are important characteristics considered in determination of significance of the site.

Significance of cultural resources is interpreted from National Register of Historic Place eligibility criteria which are listed below:

"The quality of significance in American History, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:

- a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- b) that are associated with the lives of persons significant in our past; or
- c) that embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant distinguishing entity whose components may lack individual distinction; or
- d) that have yielded, or may be likely to yield, information important in prehistory or history: (36 CFR Part 60.6).

Archaeological sites are generally interpreted as significant if they meet criteria D above although in the present investigation historic sites may also fulfill criteria A or D. In order to establish whether or not the data the site contains will be valuable for interpretation of cultural history, each state in the United States is to have prepared a master plan which delineates which cultural traditions, site types, and other potential cultural manifestations are known in an area, are in need or further data, etc. The Missouri Department of Natural Resources/Historic Preservation Program has prepared such a document (Weichman and Weston 1986). The information included in the Master Plan is reviewed in reference to the data recovered or identified from the site involved in the Phase II study. Where it is determined that a particular tradition, type, or



manifestation is unknown or poorly understood, this factor is considered as important in determination of significance of the site. If a site exhibits prehistoric features it is generally considered eligible given the lack of these data in Missouri. Given the large available data base in the form of no longer extant farmsteads and other buildings throughout Missouri, historic sites are determined significant on the basis of more individual historic characteristics and not dependent upon the presence of features such as foundations, wells, cisterns, etc. alone.

Recommendations: The interpretation of significance of the site is the most important factor resulting from the Phase II study. Where the site exhibits one or more of the characteristics noted above, the investigators recommend that the site be considered eligible for inclusion to the NRHP. If it does not exhibit any of these characteristics or it is apparent that it lacks integrity or contains little if any potentially valuable cultural data, it is recommended that the site not be considered eligible for inclusion to the NRHP. If the recommendation of not eligible is accepted as appropriate by the federal agency involved in the project and the SHPO, the proposed project can proceed as planned in the site area. If the federal agency and the SHPO accept a recommendation that a site is eligible, additional compliance requirements are usually necessary and the Council is asked for input. If the site is found to be eligible by these agencies, it is recommended that it be avoided by the proposed project actions. If this is not feasible, the federal agency can recommend that the project proceed as planned with an adverse effect finding. This will generally include conditions that must be met prior to the initiation of the proposed project actions. Conditions may include data recovery as well as methods of land use that will minimize damage to the eligible site. In these instances, a Memorandum of Agreement (MOA) that spells out what can and cannot be done in the site area in regard to the proposed project actions and what form the mitigation might take would be developed and agreed to by the involved parties. The Phase II testing results include a recommendation regarding the significance of the archaeological site in question and sufficient data for the SHPO and the federal agency to allow interpretation and development of an appropriate management plan for the site should data warrant further compliance actions.

## GENERAL PROJECT SETTING

### Environmental Setting

Physiographically the project zone occupies the southern margin of the Dissected Till Plains subprovince (Raisz 1957). Movement of Nebraskan and Kansan glaciers to the immediate north area during the early Pleistocene resulted in the deposition of glacial drift material (till) over the underlying Pennsylvanian age bedrock formations. The surface is comprised of unconsolidated clays, sands, gravels, pebbles and boulders; this drift material is irregular in both depth and distribution throughout the region. Loess deposition during the late Pleistocene and Holocene subsequently covered this drift material. Erosional actions has since extensively modified the post-glacial landforms of the region, producing the present general setting which is characterized by undulating to rolling uplands which become hilly and dissected near stream valleys.

Outcroppings of Pennsylvanian and Mississippian age slate and limestone strata are occasionally exposed along the edges of the stream valley in the general vicinity. Aboriginal inhabitants undoubtedly utilized the limestone from these formations for a variety of purposes as well as cherts and granites from glacial drift. Cherts found in regional sites appear to have come from Mississippian formations to the immediate north and south. Little information is currently available regarding prehistoric chert selection in the project area at present.

The valley floor soils of the project zone are in the Haynie – Leta – Waldron Soil Associations and the adjacent uplands are in the Buckney – Norborne – Leta – Booker Soil Associations of the Missouri Alluvium region (Allgood and Persinger 1979). These soils were formed under a mixed woodland and prairie setting which included Bluestem, Indian Grass, Switch Grass, Side-oats Grama, Plains Muhly, Buffalo Grass, and Blue and Hairy Grama on the ridge top prairies and forest slopes containing oak-hickory (Allgood and Persinger 1979).

Prior to Euro-American settlement and subsequent extensive modification of native vegetation, the general study area would have been characterized by a mosaic pattern of tall grass prairie uplands, interspersed with relatively small areas of deciduous forests along the stream valleys and adjacent slopes. The slope forest zone would have supported a near climax community consisting of various species of oaks, hickories, elms, and ashes, as well as basswood, hackberry, black walnut, and redbud. The understory of this community would have included a variety of shade tolerant herbaceous and woody plants. GLO maps indicate that the project is located within a presettlement prairie setting (Schroeder 1981:31).

Records describing faunal assemblage possibilities for the general area are available from early history accounts indicate presence of bison, elk, deer, bears, wolves, beaver, turkey, geese, ducks, and many other species (cf. Thwaites 1904).



The climatic conditions in the area are modified midcontinental with frequent and rapid changes in weather. Annual precipitation is around 38 inches with most in the spring. Temperatures range from below 0 degrees F to over 100 degrees F with a growing season of around 180 days and an annual average temperature of around 54 degrees F.

Environmental conditions in the project area exhibit few characteristics that would suggest potential for prehistoric occupation. The area is located within a large presettlement prairie zone. These areas have been determined to exhibit very low potential for prehistoric occupation (Sturdevant 1983). However, when prehistoric sites are encountered in presettlement prairie zones, they are usually very early and predate the 7,000 BC prairie incursion into the area.

### Cultural Setting

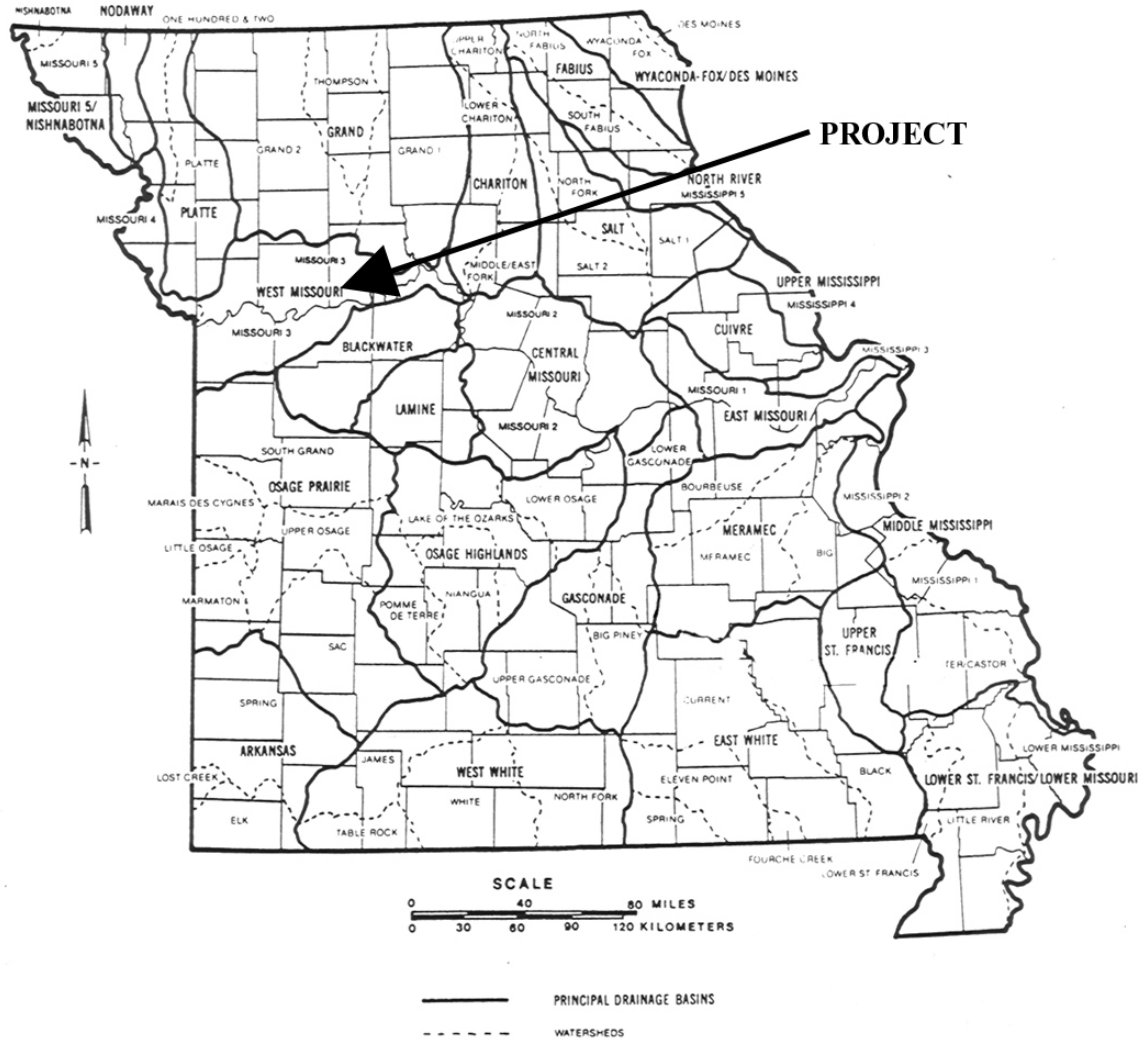
Located in the West Missouri drainage basin (Figure 2), the prehistoric/early historic cultural sequence for the area has been delineated by several archaeologists over the past several years (cf. Chapman 1975; 1980) and varies in terms of number of hypothesized traditions from six to twelve separate prehistoric through proto-historic/early historic American Indian traditions. Chapman has delineated the traditions as follows:

Early Man	pre-12000 B.C.
Paleo-Indian	12000 to 8000 B.C.
Dalton	8000 to 7000 B.C.
Early Archaic	7000 to 5000 B.C.
Middle Archaic	5000 to 3000 B.C.
Late Archaic	3000 to 1000 B.C.
Early Woodland	1000 to 500 B.C.
Middle Woodland	500 B.C. to A.D. 400
Late Woodland	A.D. 400 to 900
Early Mississippian	A.D. 900 to 1250
Middle Mississippian	A.D. 1250 to 1450

Each of these cultural - chronological periods or traditions represents a prehistoric and historic period of time that can be defined by cultural materials and/or events. The prehistoric periods can only be hypothesized to have occurred in the project area in that too little data are presently available to allow designation of each specific tradition. The historic periods have been relatively well documented by available historic records. Each of the prehistoric and historic periods is briefly described below along with listings of material cultural items, features, and/or architectural forms which would be associated with the specific tradition.

Early Man: An Early Man (or "Pre-Clovis") tradition is hypothesized for the northwest region of Missouri although there is little evidence to support the presence of the tradition in Missouri or Kansas. It is probable that small nomadic populations utilized

the Midwest. Some evidence of the period has been reported from northwest Missouri counties in the form of deeply buried modified lithics (cf. Reagan and Evans 1978). No specific tool complex has been defined for this elusive period and it is probable that identification of an Early Man occupation would be very serendipitous. There are no data regarding potential terrain setting within which this early period may occur. No Early Man sites have been identified in the area.



**Figure 2.** DNR Study Unit/Drainage Basin Location of Project

Paleo-Indian (12000 to 8000 B.C.): This early tradition has not been established as present in the general area aside from a small number of fluted Paleo-Indian points reported by Shippee (1964) and Chapman (1975:67). The tradition utilized a nomadic settlement pattern and subsistence was primarily based on large game hunting and flora collecting. The tradition has not been well defined due to lack of identified Paleo-Indian sites. The antiquity of the period along with the nomadic settlement pattern and probable small population base results in a sparse potential database. The most diagnostic artifacts



associated with the Paleo-Indian tradition are fluted lanceolate spear or knifepoints known as Clovis and Folsom.

Dalton (8000 to 7000 B.C.): This tradition is characterized as a transitional period to "...encompass the time of change from major emphasis on hunting to foraging, a transitional period between the Paleo-Indian and the Archaic" (Chapman 1975:29). Few data are available concerning this tradition in the general area although private collections contain examples of Dalton Serrated points, which are diagnostic of the period (Shippee 1964). Specific terrain locations of Dalton occupation have not been well established for the area although it is probable that Dalton populations utilized the area on a short-term basis.

Early Archaic (7000 to 5000 B.C.): The Early Archaic is also poorly known in the area. The socio-cultural patterns of the tradition were probably very similar to Dalton and included a forager subsistence pattern which exhibited small temporary extraction sites along with somewhat less temporary base camp sites (cf. Chapman 1975). The few possible Early Archaic occupations which have been identified in the drainage have been located in upland locations near major streams. The major diagnostic of the period is the Graham Cave Notched lithic point.

Middle Archaic (5000 to 3000 B.C.): Middle Archaic is somewhat better represented in the area than the previous traditions. This foraging tradition was less nomadic than earlier populations and quite probably included a settlement pattern that exhibited semi-permanent base camps with smaller extraction and Process in sites radiating from base camps. Diagnostics include small side-notched projectiles while the latter includes large expanding stemmed and corner-notched lithic forms. The period is poorly understood in this region and presence of Middle Archaic occupations with some degree of integrity would quite likely be interpreted by the Missouri SHPO as indicating presence of a significant cultural resource.

Late Archaic (3000 to 1000 B.C.): This foraging tradition has better representation in the archaeological record than previous periods. It is probable that the population base was expanding during the period and that settlement patterns were becoming less temporary and/or including more permanent base camps or village centers. With the Late Archaic comes an expansion of tool types quite probably related to an expansion in types of floral and faunal resources exploited. In the general area, Nebo Hill is one of the important Late Archaic complexes that have been identified. Diagnostics of the Late Archaic include Nebo Hill lanceolates, a wide variety of stemmed lithic tools including Sedalia forms and Stone Square Stemmed, Clear Fork Gouge, Smith Basal Notched, and 3/4 grooved axes along with other ground/pecked implements. Several Late Archaic sites have been identified in the region, particularly along the major stream valleys (Chapman 1975).

Early Woodland (1000 to 500 B.C.): This period has not been well defined throughout most of the western Midwest. The area has been hypothesized to include the tradition although there are few good examples of Early Woodland occupation. On the

basis of presence of contracting stemmed points as diagnostics, there was a relatively extensive series of these occupations along Fishing River to the north, according to Martin (1976).

Middle Woodland (500 B.C. to A.D. 400): The Middle Woodland has been the focus of a great deal of archaeological attention in northwest Missouri (cf. Wedel 1943; Kay 1980). Presence of the tradition is defined from grit and sand tempered ceramics often exhibiting relatively exotic decorative stamps, cross hatching, punctates, and impressions (cf. Chapman 1980). Sites often extend over a four to six acre area and were apparently intensively occupied as suggested by thick coverings of refuse and numerous trash pits identified (cf. Wedel 1943:22). A mortuary complex has also been associated with the Kansas City Hopewell, which includes earthen mounds typically located upon ridge tops (Wedel 1943). Lithic diagnostics include Snyders and Steuben points along with other hypothesized forms. It is apparent that the population increased in the area during the Middle Woodland period. Around A.D. 500 the Kansas City Hopewell apparently abruptly disappeared. Johnson argues that this termination of occupation was related to the southward movement of central Plains Woodland influences and that the disappearance was a result of a syncretism of Plains Woodland and Kansas City Hopewell (1976).

Late Woodland (A.D. 400 to 900): This period is not particularly well represented in the watershed although Late Woodland components are identified on Missouri site forms from the region. A continued reliance upon a hunting and gathering subsistence base, possibly supplemented by cultigens, has been postulation for this tradition (cf. Chapman 1980; Shippee 1968). Diagnostics of the period include small side notched and unnotched arrow points, Steuben points, and plain and cord marked grit and sand tempered pottery.

Mississippian - Protohistoric (A.D. 900 to 1600): These periods are primarily represented by Steed-Kisker tradition to the south of the project area and by Plains traditions to the north. Diagnostics include shell tempered ceramics, burial tumuli, and triangular arrow points. Materials include cordmarked and plain surface shell tempered pottery along with triangular notched and unnotched arrow points. The Oneota culture is represented in some sites in the region. The main Oneota villages in central Missouri are located along the Missouri River. Diagnostics of the period include shell-tempered ceramics with distinctive decorative motif. Historic accounts of the Indians in central Missouri began as early as the LaSalle expedition. Both Missouri and Osage Indians had villages in central Missouri by the early 19th century. The Osage apparently were the more recent occupants of the area. Sac and Fox as well as Ioway appear to have penetrated into northern Missouri with the Sac ambushing the main body of the already declining Missouri Indians in 1798 (Henning 1970). The Miamis located themselves at the foot of the bluffs where the town of Miami is located today. They were removed to the west by 1815. Historic Indian occupation of this general area of Missouri has not been well defined or interpreted and fewer than 12 historic Indian sites are known in the drainage. Presence of Historic Indian occupation should be considered an important cultural resource by the Missouri SHPO.



The War of 1812 resulted in numerous conflicts within Missouri. Throughout 1814, Indians raided homesteads along the Missouri River including an assault on Cox's Fort near Arrow Rock on October 23, 1814 (Houck 1908:118). New Franklin, Bruckhad's Lick, and Fayette were also attacked the same year (Houck 1908:118). The first permanent settlers came into the general area following the War of 1812 although no legal settlement was made until after the 1815 treaty with the Indians that opened the way for white settlement and started in the early 1820s.

Carroll County acquired its name by the way of honoring the last signer of the Declaration of Independence, George Carroll of Maryland, who died at the age of 90 in Baltimore just days before final passage of the bill came to a vote in the Missouri Legislature in late 1833. The original designation was Wakinda and the bill had already gone through its first and second readings before the alteration was deemed a fitting memorial to Carroll. The bill passed with 100% yeas and was signed into law on January 3, 1833 by Governor Daniel Dunklin (Carroll County Historical Society 1968:14). In 1825, the first steamboats began to reach western Missouri on the Missouri River which marked the beginning of a new era of travel in the western states. During the steamboat era, Carroll County had two main landings: Hills Landing in the east and Shanghai which was an active shipping center in the western part of the county. Avenues of transportation within Carroll County have played an important part in its history. Two trails, one from east to west and the other from north to south were extensively utilized by early migrants, traders, and others moving through Missouri. The east - west trail ("Old State Road") ran a little north of U.S. Highway 24 was one of the routes utilized by the Mormons on their several trips from Independence to Nauvoo and returns going west (Carroll County Historical Society 1968). The north - south route was called the "Cannon Ball Route" and became the basis for U.S. Highway 65. The project is located in a rural setting two miles west of the village of Norborne along the north side of the Atchison - Topeka and Norfolk & Western Railroads. The area has been utilized historically for agricultural purposes. No historic information regarding the specific project location was identified from available county histories and plat maps.

## INVESTIGATION FINDINGS

### National Register Properties

Carroll County, Missouri currently contains eight (8) National Register of Historic Place (NRHP) properties. These include the following:

CARROLL COUNTY COURT HOUSE, Courthouse Square, Carrollton

CARROLL COUNTY SHERIFF'S QUARTERS AND JAIL, 101 Washington Street, Carrollton

FARMERS BANK BUILDING, 114 Pine Street, Norborne

U.S. POST OFFICE, 101 North Folger Street, Carrollton

FRIZEL-WELLING HOUSE, 209 West Main Street, Jackson

WILCOXSON AND COMPANY BANK, 1 West Washington Avenue, Carrollton

WEST WASHINGTON AVENUE BUILDING, 1 West Washington Avenue, Carrollton

WRIGHT II ARCHAEOLOGICAL SITE, (23CA56), Miami Station vicinity.

There are no NRHP properties located within or near the proposed project. No NRHP properties are directly or indirectly threatened as a result of the proposed project actions.

### Records & Literature Review

The records and literature review produced no evidence of the presence of previously reported significant cultural resource within or adjacent to the proposed project boundaries. There are no Archaeological Survey of Missouri (ASM) sites within or adjacent to the project boundaries. There are no MDNR Historic/Architecture sites within the project boundaries.

### Field Investigation Findings

The field investigation was carried out under good visibility conditions in soy beans, corn, and sparse pasture settings. The project area averaged more than 50% surface visibility requiring few shovel tests as described in the methods section of this report.



The field investigation identified the presence of nine previously unrecorded archaeology sites within the project boundaries. The sites, 23CA1161 through 23CA1169, are described below in terms of provenience, materials observed, cultural affiliation and site type, site integrity, site significance, and recommendations regarding possible NRHP eligibility.

### 23CA1161

**Provenience:** This historic archaeology site was identified along the Norborne Drainage Ditch and an old bank of the Missouri River at a stream confluence. The area was under cultivation at the time of the survey and surface visibility was adequate. Provenience was based on observation of historic farmstead debris in the form of rusted metal, glass, limestone fragments, and ceramics. No features were identified. Site size is estimated to be 50 by 100m and contour elevation is 684' m.s.l.

<b>Materials Observed:</b>	
Unidentified rusted metal fragments	20+
White glazed ceramics	5
Salt glazed ceramics	2
Limestone (probable foundation fragments) (low density)	

**Cultural Affiliation and Site Type:** The materials indicate a no longer extant farmstead. The 1876, 1896 and 1914 plat maps do not indicate presence of a structure in the site area and it is possible that the materials could be discarded waste associated with the adjacent Atchison – Topeka Railroad. Too few data are available to allow a more specific characterization of the site.

**Site Integrity:** No evidence of features was identified and the area has been under cultivation for a long period of time. The site appears to lack integrity.

**Site Significance:** Historic scatters are common phenomena throughout rural Missouri. The site would not meet any NRHP eligibility criteria and is not considered significant.

**Recommendations:** On the basis of the information recovered, it is the recommendation of investigators that 23CA1161 not be considered eligible for NRHP inclusion.

### 23CA1162

**Provenience:** This historic archaeology site was identified along the Norborne Drainage Ditch. The area was under cultivation at the time of the survey and surface visibility was adequate. Provenience was based on observation of historic debris in the form of rusted metal, glass, limestone fragments, and ceramics. A metal windmill was

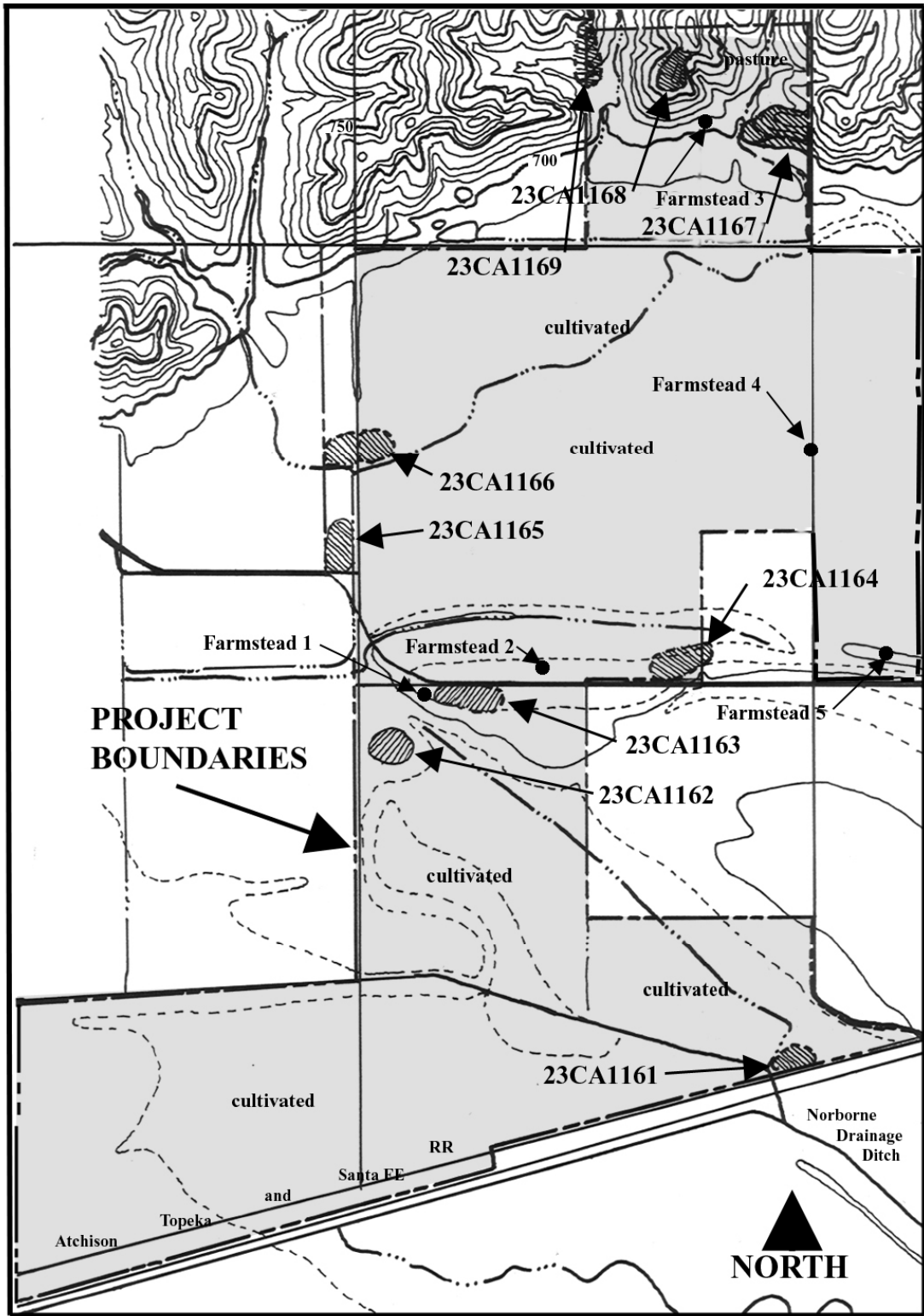


Figure 3.  
 Sketch Map of Project Area Conditions & Cultural Resources (NO SCALE)



the only feature identified at the site . Site size is estimated to be 80 by 80m and contour elevation is 685' m.s.l.

Materials Observed:	
Unidentified rusted metal fragments	10+
White glazed ceramics with blue decoration	2
Limestone (possible foundation fragments) (low density)	

Cultural Affiliation and Site Type: The materials and windmill indicate presence of a no longer extant farmstead. The 1876, 1896 and 1914 plat maps do not indicate presence of a structure in the site area while the 1943/4 does. Too few data are available to allow a more specific characterization of the site.

Site Integrity: The area has been under cultivation for a long period of time. Besides the windmill, the site appears to lack integrity.

Site Significance: No longer extant farmsteads are common phenomena throughout rural Missouri. The site would not meet any NRHP eligibility criteria and is not considered significant.

Recommendations: On the basis of the information recovered, it is the recommendation of investigators that 23CA1162 not be considered eligible for NRHP inclusion.

### 23CA1163

Provenience: This historic archaeology site was identified to the immediate northwest of 23CA162. The cultivated field setting provided good surface visibility. Provenience was based on observation of historic debris over an estimated 50 by 100m area. Contour elevation is 685' m.s.l.

Materials Observed:	
Clear bottle glass	10
Green glass	2
Ceramic shard	25+
Concrete rubble (low density)	
Rusted metal (low density)	
Burned limestone (low density)	

Cultural Affiliation and Site Type: The materials indicate presence of a no longer extant farmstead. The 1876, 1896 and 1914 plat maps do not indicate presence of a structure in the site area. The 1943/4 plat map and 1957 USGS quadrangle do illustrate a farmstead in the location.

Site Integrity: The area has been under cultivation for a long period of time and structures have been removed. The site lacks integrity.

Site Significance: No longer extant farmsteads are common phenomena throughout rural Missouri. The site would not meet any NRHP eligibility criteria and is not considered significant.

Recommendations: On the basis of the information recovered, it is the recommendation of investigators that 23CA1163 not be considered eligible for NRHP inclusion.

### 23CA1164

Provenience: This possible prehistoric site is located on terrace/flood plain of an intermittent stream and old bank of the Missouri. Provenience was based on observation of fire-cracked rock over an estimated 60 by 90m area at a 685' m.s.l. elevation. There are no naturally occurring rocks in the area and the presence of fire-cracked limestone indicated the materials were manuported and burned by historic or prehistoric occupants. Given lack of other possible prehistoric data in the flood plain setting, it was determined that the site should be tested to determine if prehistoric features might be present. Two controlled test units were excavated. A dark soil stain feature containing three pieces of fire-cracked limestone was recovered. No other cultural evidence was found.

#### Materials Observed (surface):

##### Prehistoric – lithic

Chert waste flake	1
Fire-cracked limestone	25+

#### Materials Recovered (Phase II testing)

##### Test Unit 1

Surface to 30cm (plow zone)	
Fire-cracked limestone	2

31 to 34cm (transition)

    No cultural material

35 to 60cm (sub-plow zone)

    No cultural material

##### Test Unit 2

Surface to 31cm (plow zone)

    No cultural material

32 to 34cm (transition)

Fire-cracked limestone	3
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35 to 70cm (sub-plow zone)

Fire-cracked limestone	4
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Features Identified: ovoid dark soil stain from 34 to 43cm containing 7 pieces of fire-cracked limestone.



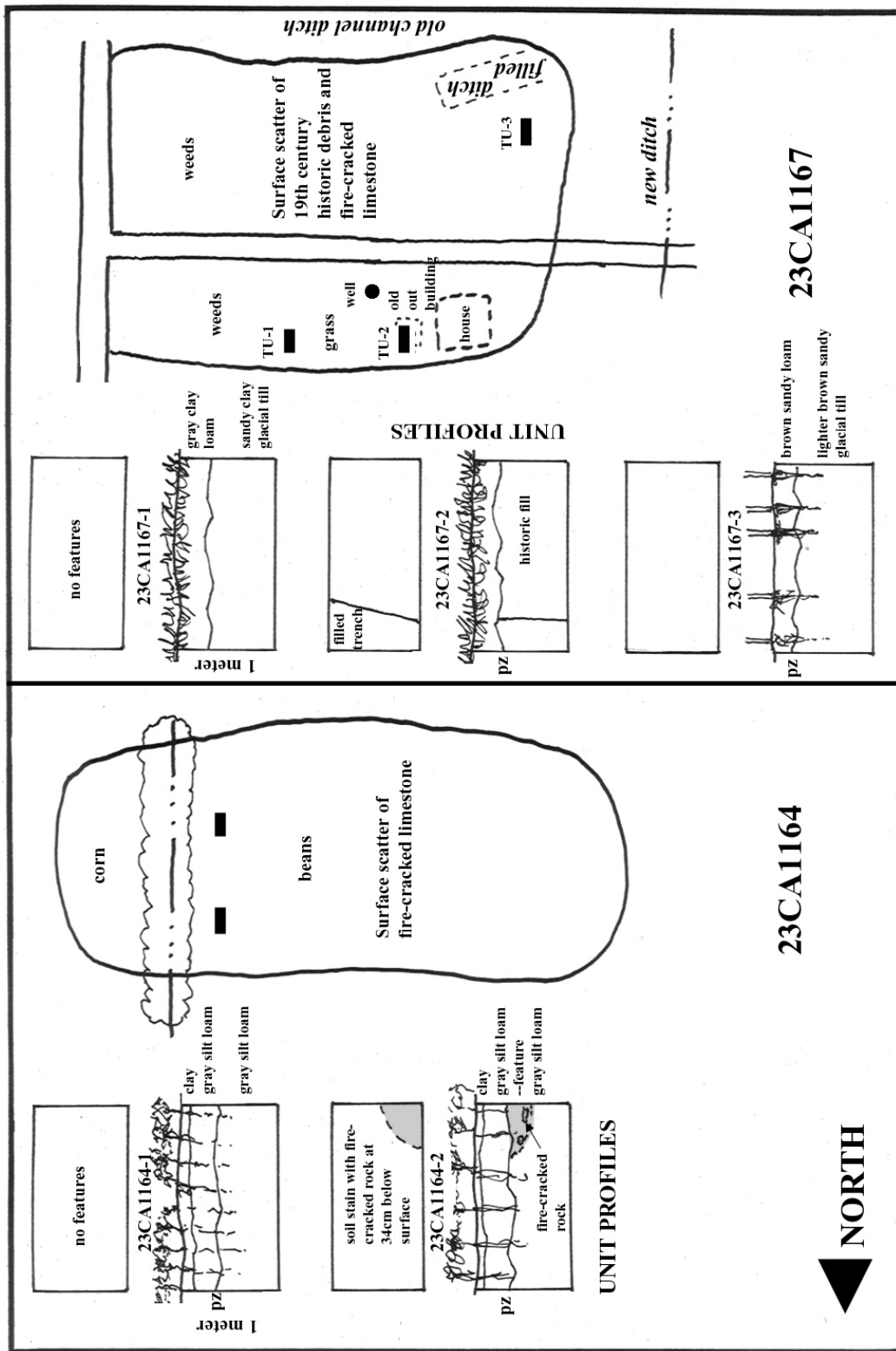


Figure 4. Sketch Map of 23CA1164 & 23CA1167 Conditions, Location of Test Units & Test Unit Profiles

Cultural Affiliation and Site Type: No diagnostics were recovered and cultural affiliation could not be determined. The fire-cracked rock may represent prehistoric food processing activity. The site appears to contain too few data to allow more specific characterization.

Site Integrity: The dark soil stain suggests a minimal degree of integrity at 23CA1164. It could not be determined, however, if the soil stain was a cultural or natural phenomenon.

Site Significance: The site contains too few data to be considered possibly significant. Too little information is present to meet any NRHP eligibility criteria.

Recommendations: Site 23CA1164 does not meet any NRHP eligibility criteria and it is recommended to be not eligible for NRHP status.

### 23CA1165

Provenience: This historic archaeology site was identified along a drainage ditch in the Missouri River flood plain. The cultivated field setting provided good surface visibility. Provenience was based on observation of historic debris over an estimated 50 by 80m area. Contour elevation is 687' m.s.l.

#### Materials Observed:

Clear window glass	4
Ceramic shard	15+
Concrete rubble (low density)	
Rusted metal (low density)	
Burned limestone (low density)	

Cultural Affiliation and Site Type: The materials indicate presence of a no longer extant farmstead. The 1876, 1896, 1914, and 1943/4 plat maps and 1957 USGS quadrangle do not illustrate presence of a structure in the site area.

Site Integrity: The area has been under cultivation for a long period of time and any possible previously associated structures have been removed. The site lacks integrity.

Site Significance: No longer extant farmsteads and historic material scatters are common phenomena throughout rural Missouri. The site would not meet any NRHP eligibility criteria and is not considered significant.

Recommendations: On the basis of the information recovered, it is the recommendation of investigators that 23CA1165 not be considered eligible for NRHP inclusion.



23CA1166

Provenience: Located to the north of 23CA1165 at the confluence of a drainage ditch and an intermittent stream in the Missouri River bottom, site provenience was based on observation of historic debris over an estimated 70 by 100m area. Surface visibility was good in the cultivated field setting. Contour elevation is 687' m.s.l. No features were identified.

Materials Observed:

White glazed porcelain	2
Clear bottle glass	5
Concrete rubble (low density)	
Rusted metal (low density)	
Burned limestone (low density)	

Cultural Affiliation and Site Type: The materials indicate presence of a no longer extant farmstead. The 1876, 1896, 1914, and 1943/4 plat maps and 1957 USGS quadrangle do not illustrate presence of a structure in the site area.

Site Integrity: The area has been under cultivation for a long period of time and any possible previous structures have been removed. The site lacks integrity.

Site Significance: No longer extant farmsteads and historic debris scatters are common phenomena throughout rural Missouri. The site would not meet any NRHP eligibility criteria and is not considered significant.

Recommendations: On the basis of the information recovered, it is the recommendation of investigators that 23CA1166 not be considered eligible for NRHP inclusion.

23CA1167

Provenience: This prehistoric open habitation site and no longer extant farmstead was identified on a slope above the Missouri River valley. The previous land owner reported finding prehistoric bifaces in the area. The present investigators recovered a small amount of prehistoric lithic debitage, historic debris, and historic features under mixed visibility conditions in a previously cultivated weedy setting. Site size is estimated be 60 by 100m. Contour elevation ranges from 700 to 740' m.s.l. The present investigation included excavation of three controlled test units within the defined site area (see Figure 4).

Materials Recovered (Phase I survey):

Prehistoric - lithic	
Chert waste flake (secondary, broken flake)	3

Angular chert shatter	2
Fire-cracked limestone	5
Historic	
Glass, ceramics, and rusted metal (moderate density)	
Shovel Tests	
No cultural materials	
Test Unit 23CA1167-1 (see Figure 4)	
Surface to 25cm (plowzone)	
No cultural material	
26cm to 30cm (transition)	
No cultural materials	
31 to 50cm (sub-plowzone)	
No cultural materials	
Test Unit 23CA1167-2	
Surface to 22cm (plowzone)	
Rusted wire nail	1
Fire-cracked limestone	2
23 to 27cm (transition)	
No cultural materials	
28 to 50cm (sub-plowzone)	
Mottled historic fill feature (Photograph 1)	



**Photograph 1.** 23CA1167-2 – Historic Fill



Test Unit 23CA1167-3

Surface to 22cm (plowzone)	
Chert waste flake (secondary)	1
Fire-cracked limestone	2
23 to 28cm (transition)	
No cultural materials	
29 to 50cm (sub-plowzone)	
No cultural materials	

Cultural Affiliation and Site Type: On the basis of the materials collected, no prehistoric tradition can be defined for the site. The earlier collection noted by the land owner was not available. The extremely low material density associated with the site suggests that the area was most probably utilized for short term limited functions such as those associated with extraction and processing (hunting and foraging) with the end products removed for use elsewhere. There is no indication of any form of long-term intensive occupation of 23CA1167. No prehistoric features were identified.

The historic component at 23CA1167 is composed of a no longer extant farmstead dating from the mid to late 1800's. The materials observed contain 19<sup>th</sup> century items and a farmstead is illustrated on the 1896 plat map of the area. A brick lined well and depressions where the no longer extant farmstead house and outbuildings stood are present in the site area.

Site Integrity: The controlled excavation units at 23CA1167 produced no evidence of the presence of sub-plow zone integrity regarding the prehistoric component of the site. The historic component does retain some degree of integrity in the form of a well and no longer extant structure depressions.

Site Significance: Low density lithic scatters in a disturbed context do not meet any of the four NRHP eligibility criteria. Too few data are present to contribute in any meaningful manner to the understanding of the cultural history of the area. No longer extant farmsteads are very common phenomena throughout the Midwest and Missouri and are not considered significant cultural resources.

Recommendations: On the basis of the findings of the present study, it is the recommendation of the investigators that 23CA1167 not be considered eligible for NRHP status. The low density material along with lack of integrity indicate the presence of a resource that does not meet NRHP eligibility criteria. Additionally, the historic component would not contribute in any meaningful manner to the understanding of the history of the region.

23CA1168

Provenience: This prehistoric open habitation site was identified on a hilltop above the Missouri River valley by presence of low density chert waste flake and fire-

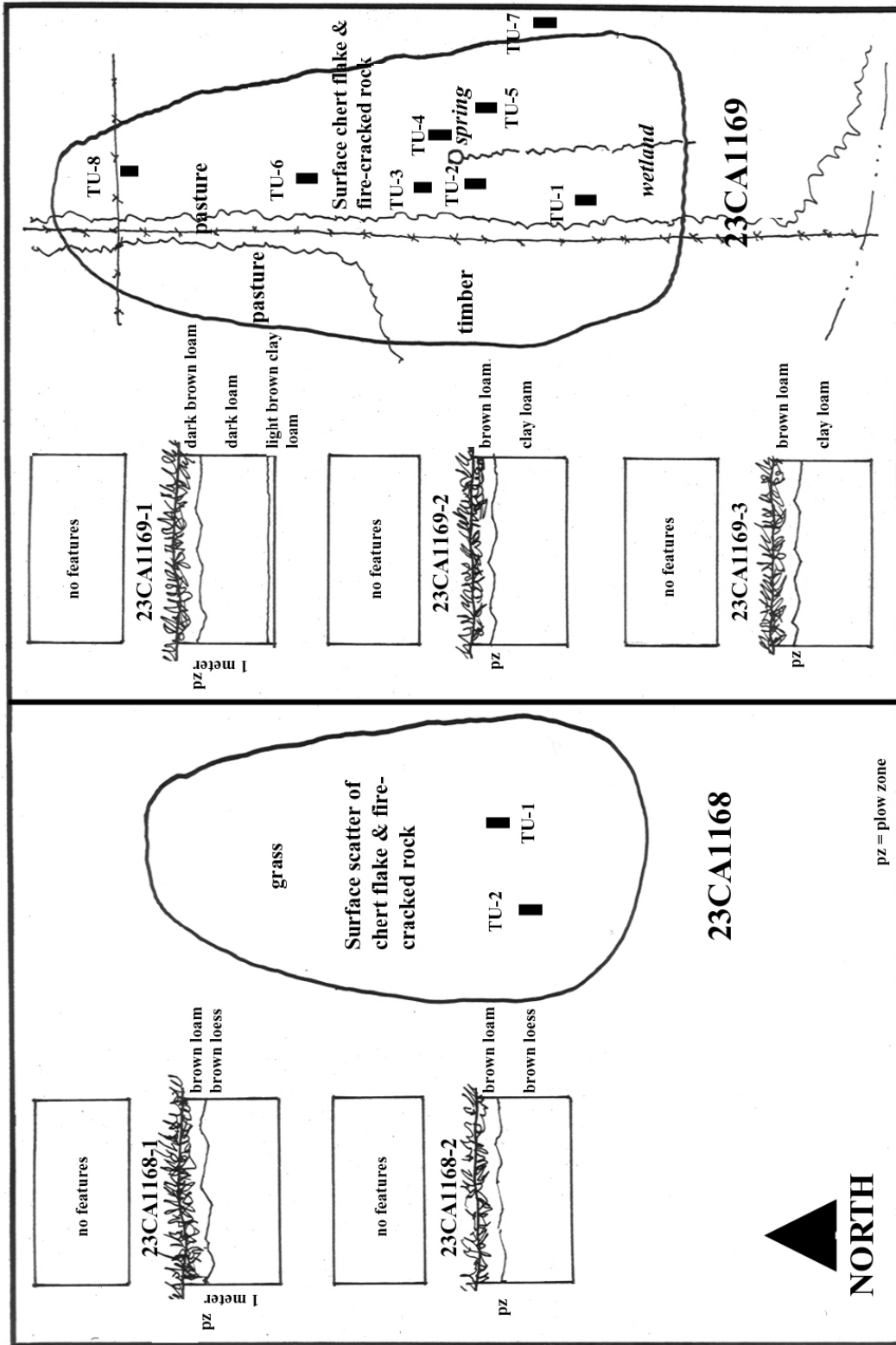
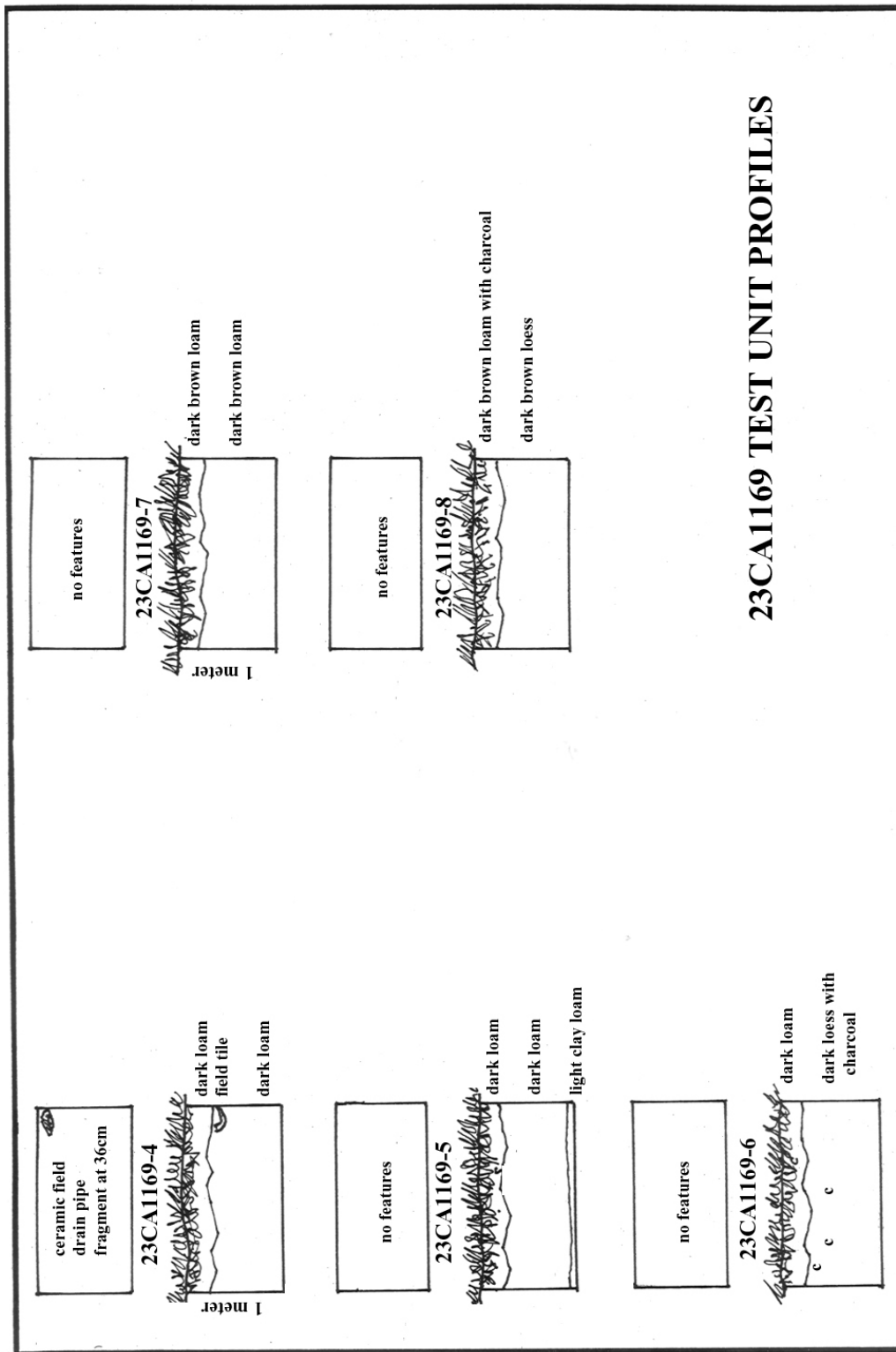


Figure 5. Sketch Map of 23CA1168 & 23CA1169 Conditions, Test Unit Locations, and Test Unit Profiles





**23CA1169 TEST UNIT PROFILES**

*Figure 5 continued*

cracked rock under mixed surface visibility conditions in a sparse pasture setting. Site size is estimated be 30 by 70m. Contour elevation ranges from 750 to 760' m.s.l. The present investigation included excavation of two controlled test units within the defined site area. No features were identified.

Materials Recovered (Phase I survey):	
Prehistoric - lithic	
Chert waste flake (secondary, tertiary)	9
Fire-cracked rock	14
Test Unit 23CA1168-1	
Surface to 27cm (plowzone)	
Fire-cracked limestone	2
29 to 32cm (transition)	
No cultural materials	
33 to 60cm	
No cultural materials	
Test Unit 23CA1168 (Photograph 2)	
Surface to 28cm (plowzone)	
Chert waste flake (secondary, broken)	1
Fire-cracked limestone	2



**Photograph 2.**  
*Test Unit 23CA1168-2*



29 to 32cm (transition)	
No cultural materials	
33 to 80cm (sub-plowzone)	
Fire-cracked limestone (at 38cm)	1

Cultural Affiliation and Site Type: No diagnostics were recovered from 23CA1168. The low density lithic scatter suggests presence of a short term limited function site such as a camp or processing area. The site contains too few data to allow more specific characterization.

Site Integrity: The site area has been extensively disrupted by historic agricultural use. The only possible culturally associated item identified at sub-plow zone levels was a single piece of fire-cracked rock. The site appears to retain little if any integrity.

Site Significance: There is little to be learned from low density scatters of prehistoric materials in disturbed contexts. No features appear to be present at the site and there is very little potential for the presence of buried materials or features. The site is not a significant cultural resource in that it would not meet any NRHP eligibility criteria.

Recommendations: On the basis of the present investigations, it is the recommendation of the investigators that 23CA1168 not be considered eligible for NRHP status since it does not meet any NRHP eligibility criteria.

23CA1169

Provenience: Of the archaeology sites identified within the Norborne project area, 23CA1169 appeared to be the best candidate to contain important information regarding prehistoric presettlement prairie occupation. The site is located on a hilltop above the Missouri River valley around an old spring and wetland formed by high springs in the drainage to the west and by a spring on the slope within the site boundaries. A perennial spring-fed stream is located to the east of the site. The site covers an estimated 50 by 100m area at a 710 to 750' m.s.l. elevation. No prehistoric features were identified but the site area contains remnants of a farmstead including a well. Phase II testing of 23CA1169 included excavation of eight controlled test units (Figure 5).

Materials Recovered (Phase I survey)	
Prehistoric – lithic	
Chert waste flake (primary)	1
Chert waste flake (secondary/tertiary)	12
Angular chert shatter	5
Fire-cracked rock	9

Materials Recovered (Phase II Testing) (Figure 5)  
 Test Unit 23CA1169-1 (Photograph 3)



**Photograph 3.**  
*Test Unit 23CA1169-1*

Surface to 28cm (plow zone)

No cultural material

29 to 33cm (transition)

No cultural material

34 to 100cm (sub-plow zone)

No cultural material

Test Unit 23CA1169-2

Surface to 28cm (plow zone)

Chert waste flake (secondary)

1

Fire-cracked quartzite

1

29 to 33cm (transition)

No cultural material

34 to 100cm (sub-plow zone)

No cultural material



Test Unit 23CA1169-3	
Surface to 29cm (plow zone)	
Fire-cracked limestone	1
30 to 33cm (transition)	
No cultural material	
34 to 90cm (sub-plow zone)	
No cultural material	
Test Unit 23CA1169-4	
Surface to 29cm (plow zone)	
Chert waste flake (tertiary)	1
30 to 33cm (transition)	
Earthenware tile fragment	1
34 to 90cm (sub-plow zone)	
Fire-cracked limestone (at 46cm)	1
Test Unit 23CA1169-5	
Surface to 30cm (plow zone)	
Earthenware tile fragment	1
31 to 33cm (transition)	
No cultural material	
34 to 90cm (sub-plow zone)	
No cultural material	
Test Unit 23CA1169-6	
Surface to 29cm (plow zone)	
Charcoal fragments (low density)	
30 to 32 (transition)	
Charcoal fragments (low density)	
33 to 100cm (sub-plow zone)	
Charcoal fragment (1 at 36cm)	
Test Unit 23CA1169-7	
Surface to 29cm (plow zone)	
Fire-cracked limestone	2
30 to 33cm (transition)	
No cultural material	
34 to 90cm (sub-plow zone)	
No cultural material	
Test Unit 23CA1169-8	
Surface to 30cm (plow zone)	
Angular chert shatter	1
31 to 33cm (transition)	
No cultural material	

34 to 90cm (sub-plow zone)  
No cultural material

**Cultural Affiliation and Site Type:** No diagnostics were recovered from 23CA1169. The low density lithic scatter suggests presence of a short term limited function site such as a camp or processing area. The site contains too few data to allow more specific characterization.

**Site Integrity:** The site area has been disturbed by historic agricultural use. The only materials identified at sub-plow zone levels included fire-cracked rock, an historic tile fragment, and small pieces of charcoal. The site appears to retain little if any integrity.

**Site Significance:** There is little to be learned from low density scatters of prehistoric materials in disturbed contexts. No features appear to be present at the site and there is very little potential for the presence of buried materials or features. The site is not a significant cultural resource in that it would not meet any NRHP eligibility criteria.

**Recommendations:** On the basis of the present investigations, it is the recommendation of the investigators that 23CA1169 not be considered eligible for NRHP status since it does not meet any NRHP eligibility criteria.

### Historic Structures

The field investigation identified presence of six sets of historic structures within the project boundaries. None of the structures meets any NRHP eligibility criteria and all of the structures are recommended not eligible for NRHP status. Photographs of the structures within the project area are listed by number that refers to the structure locations shown in Figure 3.





**Photograph 4.**  
*Farmstead 1 – house*



**Photograph 5.**  
*Farmstead 1 - Outbuildings*



**Photograph 6.**  
*Farmstead 2*



**Photograph 7.**  
*Farmstead 3 – concrete house slab*





**Photograph 8.**  
*Farmstead 3 – outbuilding*



**Photograph 9.**  
*Farmstead 3 – machine shed*



**Photograph 10.**  
*Farmstead 4 house & outbuildings*



**Photograph 11.**  
*Farmstead 4 – outbuildings*





**Photograph 12.**  
*Farmstead 5 – metal shed*



**Photograph 13.**  
*Farmstead 5 – older metal shed*



***Photograph 14.***  
*Farmstead 5 – metal grain bins*

Recommendations: As previously noted, none of the structures located within the Norborne project boundaries meets any NRHP eligibility criteria and none is recommended as eligible for NRHP status.



## RECOMMENDATIONS

During July and August 2006 a Phase I cultural resource survey and Phase II archaeology testing project was carried out for the proposed Norborne electric power plant facility construction project in Carroll County, Missouri. Approximately 1,500 acres of land was included in the Phase I survey and four archaeology sites were the subject of Phase II investigations.

The records and literature review produced no evidence of the presence of previously reported possibly significant cultural resources within the project area. There are no National Register of Historic Places (NRHP) properties currently listed within or near the project boundaries. No NRHP property is threatened directly or indirectly by the proposed project actions. There are no Archaeological Survey of Missouri (ASM) sites within or near the project. There are no Missouri Historic - Architecture sites within the project boundaries

The field investigation was carried out under good visibility conditions in a soy bean, corn, and sparse pasture setting averaging greater than 50% surface visibility. Some shovel tests were necessary to meet methods requirements utilized by the investigators. Deep testing included mechanical auguring and bank profiling. The Phase I survey identified nine previously unrecorded archaeology sites (23CA1161 through 23CA1169). Five sites identified in the valley portion of the project exhibited historic materials and one contained probable prehistoric fire-cracked rock. Three sites in the upland area of the project exhibited prehistoric lithic debitage. The project area occupies a presettlement prairie setting. Fewer than 2% of the known prehistoric sites in Missouri counties that contained a large proportion of presettlement prairie area are located in presettlement prairie areas. The few archaeology sites that have been identified within presettlement prairie settings pre-date the prairie intrusion around 7,000 years ago possibly including Paleo-Indian or Dalton occupation. While material density was low at each of the identified prehistoric archaeology sites, it was determined through discussion with MoSHPO personnel that these sites could contain important information concerning the early occupation of this portion of Missouri and should be tested. The Phase II testing investigations at 23CA1164, 23CA1167, 23CA1168, and 23CA1169 produced no evidence of presence of buried or undisturbed cultural matrix and the sites are not considered eligible for NRHP status.

Historic resources include archaeology sites 23CA1161, 23CA1162, 23CA1163, 23CA1165, and 23CA1166 and five farmsteads and farmstead remnants. None meets and NRHP eligibility criteria and all are recommended not eligible for NRHP status.

On the basis of the negative findings regarding presence of possibly significant cultural resources within the proposed Norborne electric plant site project area, it is recommended that the project proceed as planned in terms of cultural resource compliance concerns. No possibly significant cultural resources will be threatened by the project as it is currently planned.

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**ADDENDUM TO: Cultural Resource Investigations, Phase I Survey & Phase II Testing, Norborne Electric Plant Project, Carroll County, Missouri. August 2006  
Environmental Research Center of Missouri, Inc.  
September 26, 2006**

On September 25, 2006 Craig Sturdevant, President/ERC, visited the farmstead located in the SE SE SE of Section 17, Township 52 North, Range 25 West, Carroll County, Missouri. The farmstead occupies a privately owned 80 acre +/- tract of land surrounded by the proposed Norborne Electric Plant project area.

The farmstead includes a two story frame house dating from the early 20<sup>th</sup> century and mid-20<sup>th</sup> century barns and sheds. Photographs of the structures are attached. The house has a concrete block foundation, a basement garage, hip roof, central brick chimney, and front gable. The concrete block foundation and drive into the basement appear to be relatively new (late 20<sup>th</sup> century). Siding has been replaced and an open porch has been enclosed.

The gable roof barns and sheds associated with the farmstead are frame with concrete foundations and appear to date from the mid 20<sup>th</sup> century.

None of the structures would meet any National Register of Historic Places (NRHP) eligibility criteria in terms of physical characteristics. The Four Square farmstead house style is common throughout the rural Midwest and in addition has been modified extensively. The outbuildings do not appear to have an early date of construction. It is the recommendation of the investigators that the farmstead not be considered a significant cultural resource and not be considered eligible for NRHP listing.



Craig Sturdevant  
President/ERC





**Photograph 1.** Farmstead House – view to northwest



**Photograph 2.** Farmstead House – close-up showing concrete block foundation & newer siding



**Photograph 3.** Outbuildings on North Side of House



**Photograph 4.** Outbuilding Northwest of House





**Photograph 5.** Barn West of House