

	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI				
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	<p style="text-align: center;"> BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 </p> <p style="text-align: center;"> CHARACTERISTICS OF THE STUDY REACH </p> <div style="text-align: center;">  </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">DESIGN FILE: REACH13.DGN</td> <td style="font-size: small;">PLATE NO.</td> </tr> <tr> <td style="font-size: small;">PLOT SCALE: 1" = 2500'</td> <td style="font-size: small;">PLOT DATE: 10/01/02</td> </tr> </table>	DESIGN FILE: REACH13.DGN	PLATE NO.	PLOT SCALE: 1" = 2500'	PLOT DATE: 10/01/02
DESIGN FILE: REACH13.DGN	PLATE NO.				
PLOT SCALE: 1" = 2500'	PLOT DATE: 10/01/02				



Unnamed Tributary Located Along the RDB at Mile 91.5



Unnamed Tributary Located Along the RDB at Mile 90.8



Unnamed Tributary Located Along the RDB at Mile 90.55



Clines Branch Located Along the RDB at Mile 90.2



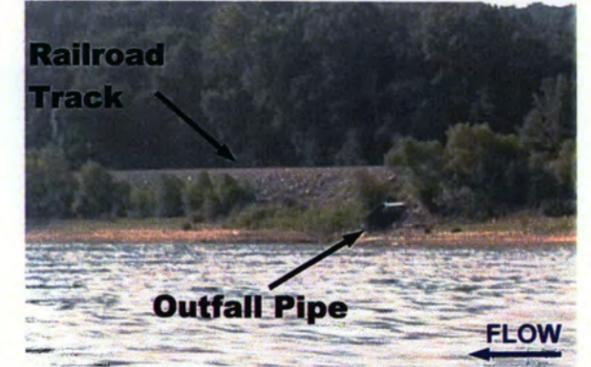
Unnamed Tributary Located Along the RDB at Mile 89.8



Possible High Water Ramp Located Along the RDB at Mile 88.55



Unnamed Tributary Located Along the RDB at Mile 88.5



Unnamed Tributary Piped Under Railroad Track Located Along the RDB at Mile 88.0



Unnamed Tributary Located Along the RDB at Mile 87.0



Unnamed Tributary Located Along the RDB at Mile 86.6

Photographs taken on July 24, 2002 at a Red Rock gage reading of +13.60 feet LWRP

	U.S ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI	
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 <u>RIGHT DESCENDING BANK FEATURES</u>	
<small>PREPARED BY: D. LAMM DRAWN BY: D. LAMM CHECKED BY: R. DAVINROY</small>	<small>FILE NAME: RDB FEATURES</small>	<small>PLOT DATE: 10/02</small>
<small>PLATE NO.</small>		3



Dike 91.6 R

**Dike height is +15 to +10 Ft. LWRP
Approximate length is 330 Ft.
Trail is +10 Ft. LWRP and 400 Ft. Long**



Dike 91.4 R

**Dike height is +19 to +15 Ft. LWRP
Approximate length is 460 Ft.**



Dike 91.1 R

**Dike height is +17 to +12 Ft. LWRP
Approximate length is 300 Ft.**



Dike 90.9R

**Dike height is +17 Ft. LWRP
Approximate length is 280 Ft.**



Dike 90.7 R

**Dike height is +20 to +16 Ft. LWRP
Approximate length is 300 Ft.**



Dike 90.5 R

**Dike height is +19 to +15 Ft. LWRP
Approximate length is 350 Ft.**

**Photographs taken on
July 24, 2002 at a Red Rock
gage reading of +13.60 feet
LWRP**

	<p>U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MO</p>			
<p>PREPARED BY: D. LAMM DRAWN BY: D. LAMM CHECKED BY: R. DAVINROY</p>	<p>BIOLOGICAL OPINION MICRO MODEL STUDY MISSISSIPPI RIVER MILES 93.0 TO 86.0</p> <p><u>REACH 2 DIKE INFORMATION</u></p>			
	<table border="1" style="width: 100%;"> <tr> <td data-bbox="916 1864 1134 1925">DESIGN FILE: REACH 2.PUB</td> <td data-bbox="1134 1864 1351 1925">PLOT DATE: 01 OCT 02</td> <td data-bbox="1351 1864 1507 1925" style="text-align: right;"> <small>PLATE NO.</small> 6 </td> </tr> </table>	DESIGN FILE: REACH 2.PUB	PLOT DATE: 01 OCT 02	<small>PLATE NO.</small> 6
DESIGN FILE: REACH 2.PUB	PLOT DATE: 01 OCT 02	<small>PLATE NO.</small> 6		



N3743.063 W08935.518
14:25:13 240702 A
K056.9 T296.1 M00200

Dike 89.3 L

**Dike height is +15 Ft. LWRP
Approximate length is 500 Ft.**



N3742.925 W08935.119
14:24:52 240702 A
K057.3 T291.1 M00181

Dike 89.0 L

**Dike height is +15 to +13 Ft. LWRP
Approximate length is 560 Ft.**



N3742.713 W08934.423
14:24:13 240702 A
K051.4 T291.3 M00185

Dike 88.2 L

**Dike height is +18 to +15 Ft. LWRP
Approximate length is 980 Ft.**



N3742.601 W08934.110
14:23:53 240702 A
K047.7 T291.1 M00183

Dike 87.8 L

**Dike height is +20 to +13 Ft. LWRP
Approximate length is 660 Ft.**



N3742.541 W08933.898
14:23:40 240702 A
K050.0 T288.0 M00178

Dike 87.5 L

**Dike height is +20 to +10 Ft. LWRP
Approximate length is 460 Ft.**



N3742.476 W08933.631
14:23:24 240702 A
K049.7 T284.0 M00177

Dike 87.3 L

**Dike height is +17 to +10 Ft. LWRP
Approximate length is 380 Ft.**



N3742.420 W08933.345
14:23:07 240702 A
K049.7 T283.5 M00169

Dike 87.0 L

**Dike height is +20 to +13 Ft. LWRP
Approximate length is 470 Ft.**



N3742.371 W08933.074
14:22:52 240702 A
K048.2 T283.6 M00165

Dike 86.7 L

**Dike height is +17 to +11 Ft. LWRP
Approximate length is 440 Ft.**



N3742.324 W08932.830
14:22:36 240702 A
K048.0 T282.7 M00171

Dike 86.5 L

**Dike height is +20 to +10 Ft. LWRP
Approximate length is 330 Ft.**



N3742.269 W08932.545
14:22:19 240702 A
K049.6 T283.2 M00177

Dike 86.2 L

**Dike height is +15 to +11 Ft. LWRP
Approximate length is 380 Ft.**



N3742.221 W08932.273
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K050.3 T282.6 M00182

Dike 86.0 L

**Dike height is +15 to +10 Ft. LWRP
Approximate length is 430 Ft.**

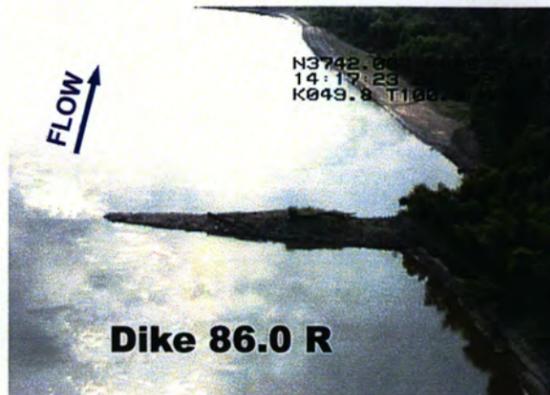
**Photographs Taken On
July 24, 2002 At A Red Rock
Gage Reading Of +13.60 Feet
LWRP**

	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI	
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 REACH 3 DIKE INFORMATION	
PREPARED BY: D. LAMM DRAWN BY: D. LAMM CHECKED BY: R. DAVINROY	DESIGN FILE: REACH 3.PUB	PLOT DATE: 01 OCT 02
		PLATE NO. 7



Dike 86.4 R

**Dike height is +10 Ft. LWRP
Approximate length is 280 Ft.**



Dike 86.0 R

**Dike height is +11 Ft. LWRP
Approximate length is 280 Ft.**



Dike 85.9 R

**Dike height is +15 Ft. LWRP
Approximate length is 430 Ft.**

**Photographs Taken On
July 24, 2002 At A Red Rock
Gage Reading Of +13.60 Feet
LWRP**



**U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MO**

PREPARED BY: J. HUNN
DRAWN BY: D. LAMM
CHECKED BY: R. DAVINROY

**BIOLOGICAL OPINION MICRO MODEL STUDY
MISSISSIPPI RIVER MILES 93.0 TO 86.0**

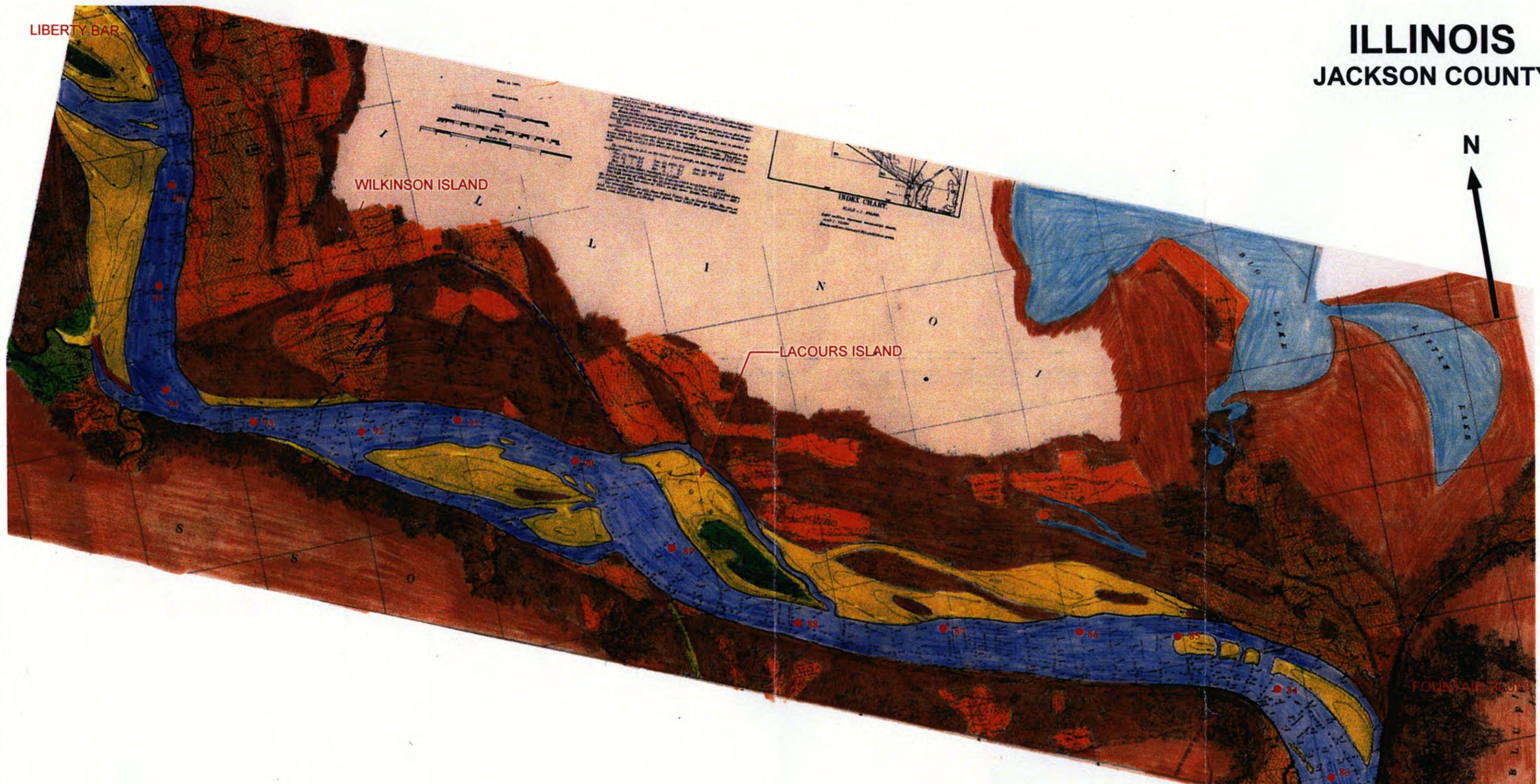
REACH 4 DIKE INFORMATION

PLATE NO.

8

DESIGN FILE: REACH 4.PUB PLOT DATE: 01 OCT 02

ILLINOIS JACKSON COUNTY



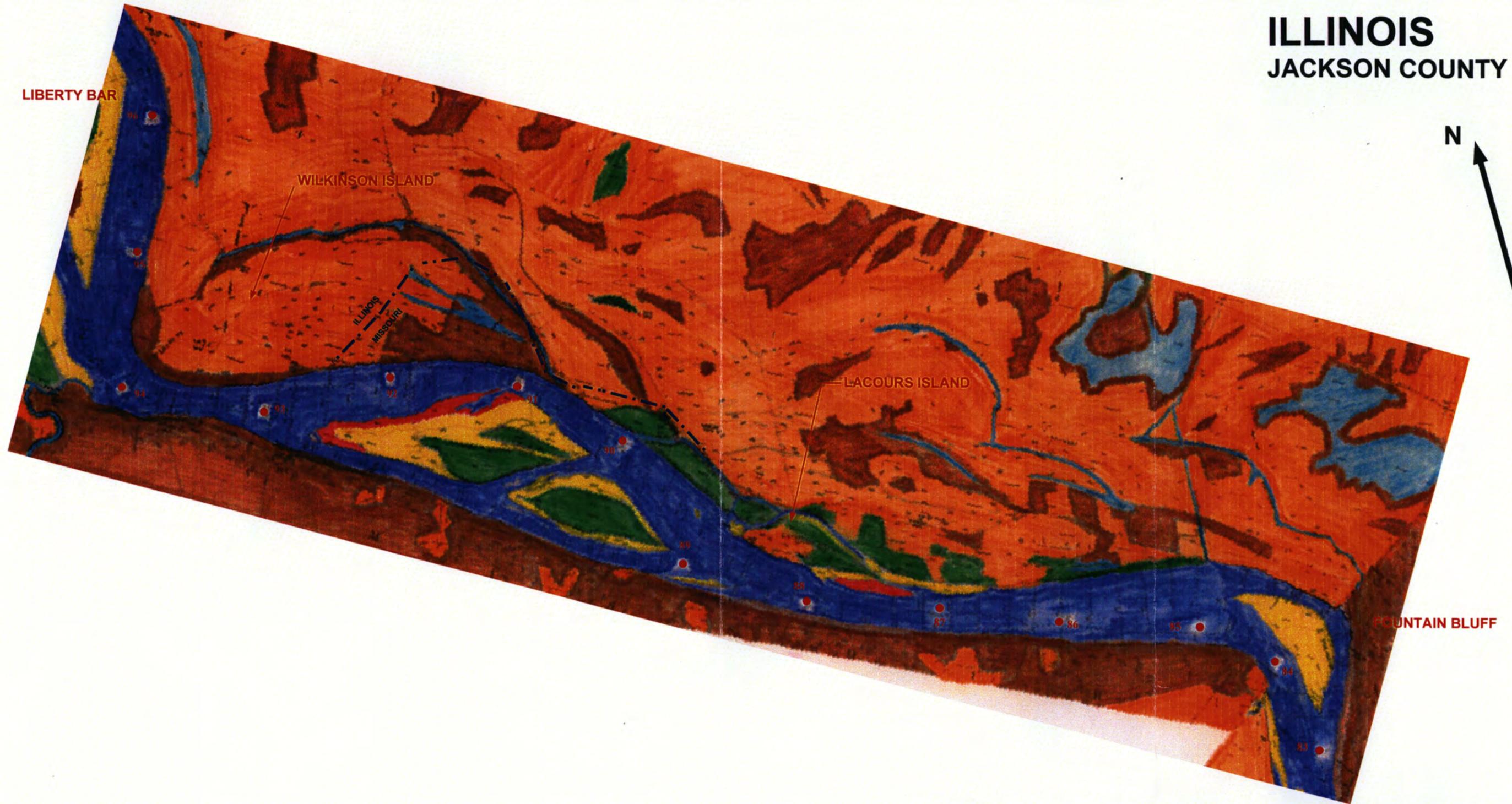
MISSOURI PERRY COUNTY

1881 TOPOGRAPHIC AND HYDROGRAPHIC SURVEY WITH COLOR CODED LAND USAGE

- River Channel
- Water Pockets
- Sand
- Mud / Gravel
- Willows
- Timber
- Cultivated

 PREPARED BY: E. RIFF DRAWN BY: E. RIFF CHECKED BY: D. LAMM	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1881 TOPOGRAPHIC AND HYDROGRAPHIC SURVEY WITH COLOR CODED LAND USAGE
FILE NAME: 1881PROTO.PUB	PLOT DATE: 01 OCT 02
PLATE NO.	9

**ILLINOIS
JACKSON COUNTY**



**MISSOURI
PERRY COUNTY**

**1908 TOPOGRAPHIC AND HYDROGRAPHIC
SURVEY WITH COLOR-CODED LAND USAGE**

- River Channel
- Water Pockets
- Sand
- Mud / Gravel
- Willows
- Timber
- Cultivated



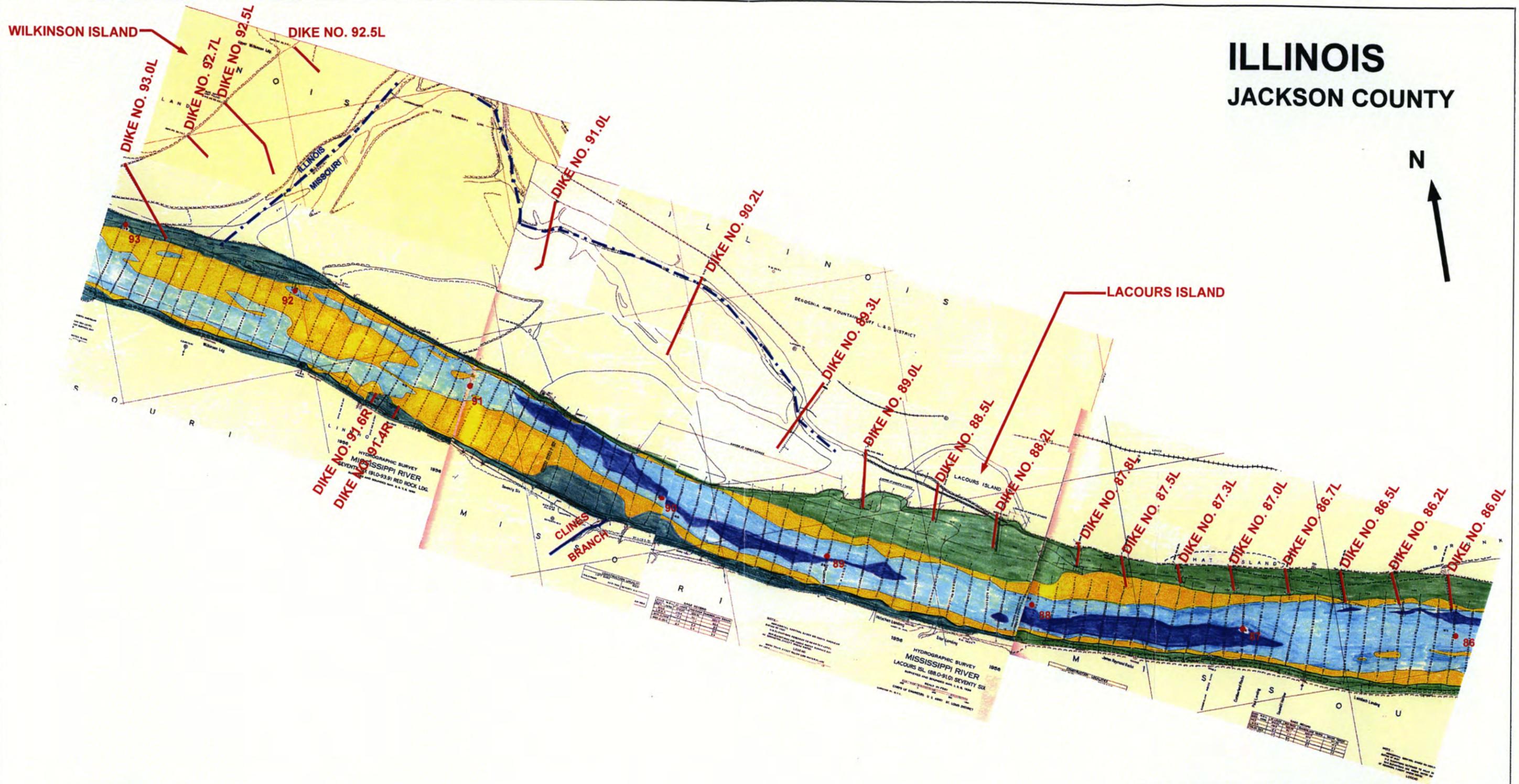
PREPARED BY: E. RIFF
DRAWN BY: E. RIFF
CHECKED BY: D. LAMM

**U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI**

BIOLOGICAL OPINION MICRO MODEL STUDY
RIVER MILES 93.0 TO 86.0
**1908 TOPOGRAPHIC AND HYDROGRAPHIC SURVEY
WITH COLOR-CODED LAND USAGE**

FILE NAME: 1908PROTO.PUB	PLOT DATE: 01 OCT 02	PLATE NO. 10
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ILLINOIS JACKSON COUNTY



MISSOURI PERRY COUNTY

	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI	
	PREPARED BY: E. RIFF DRAWN BY: E. RIFF CHECKED BY: D. LAMM	
BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1956 HYDROGRAPHIC SURVEY		
FILE NAME : 1956HYDRO.PUB	PLOT DATE : 01 OCT 02	PLATE NO. 12

ILLINOIS JACKSON COUNTY

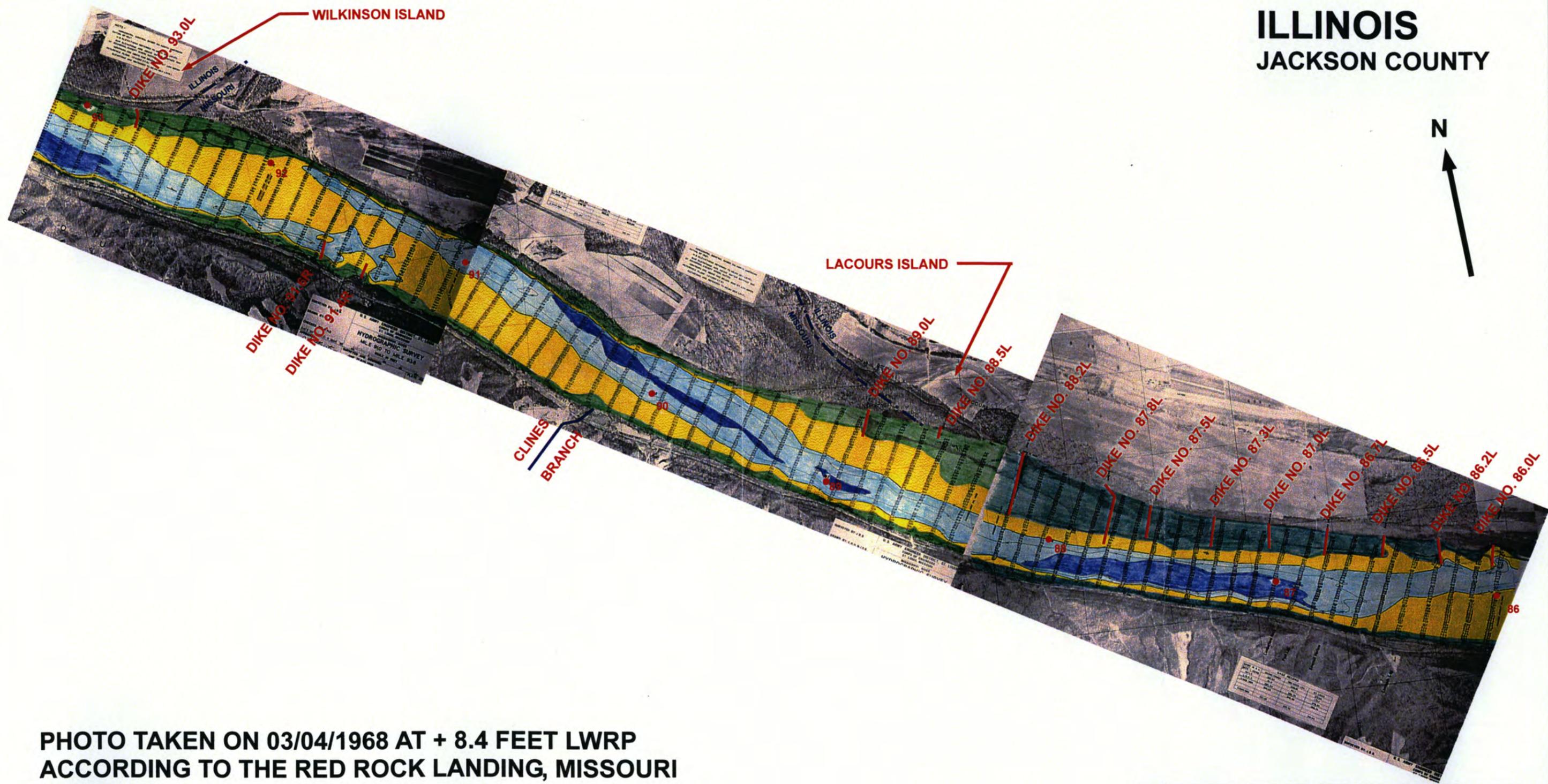


PHOTO TAKEN ON 03/04/1968 AT + 8.4 FEET LWRP
ACCORDING TO THE RED ROCK LANDING, MISSOURI
GAGE

MISSOURI
PERRY COUNTY



U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: E. RIFF
DRAWN BY: E. RIFF
CHECKED BY: D. LAMM

BIOLOGICAL OPINION MICRO MODEL STUDY
RIVER MILES 93.0 TO 86.0

1968 AERIAL PHOTOGRAPH AND
1969 HYDROGRAPHIC SURVEY

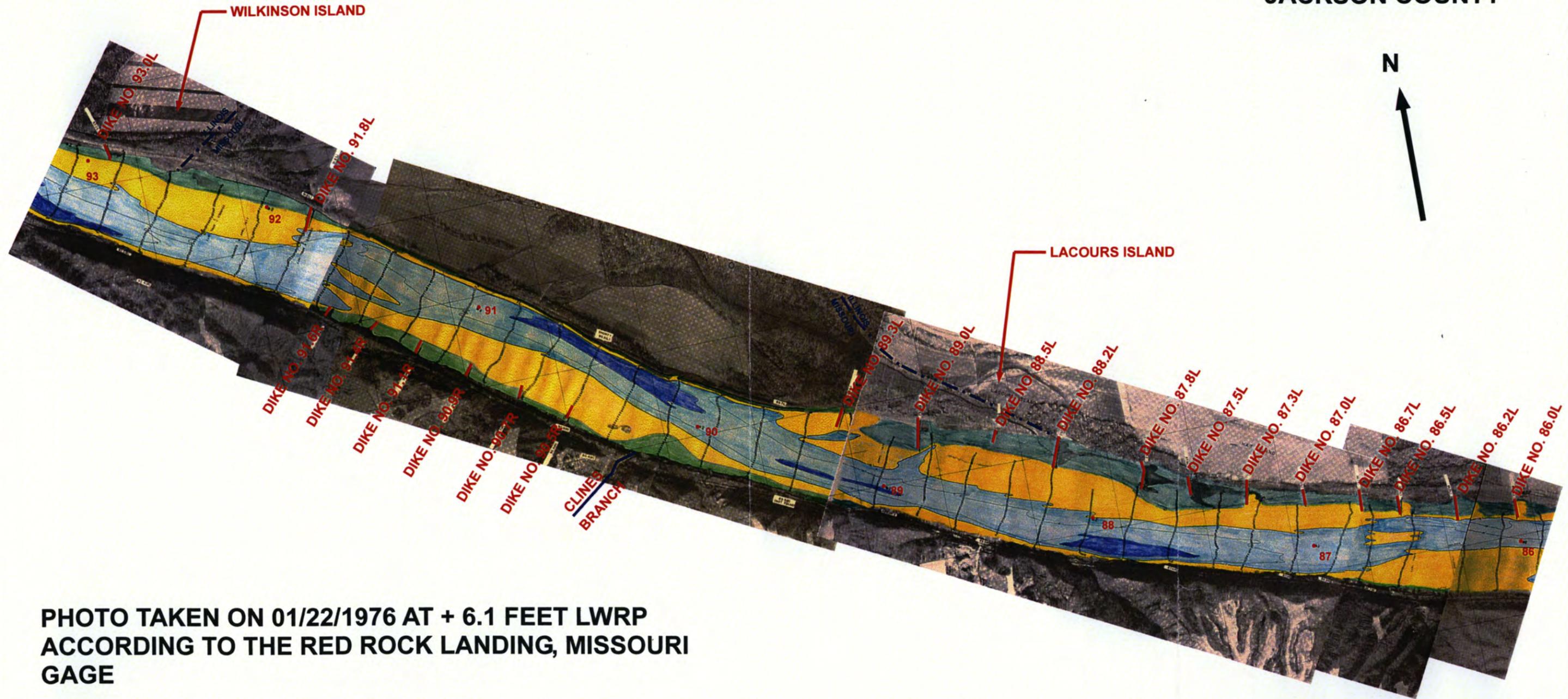
FILE NAME : 1969HYDRO.PUB

PLOT DATE : 01 OCT 2002

PLATE NO.

13

**ILLINOIS
JACKSON COUNTY**



**PHOTO TAKEN ON 01/22/1976 AT + 6.1 FEET LWRP
ACCORDING TO THE RED ROCK LANDING, MISSOURI
GAGE**

**MISSOURI
PERRY COUNTY**

	U.S ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI		
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1976 AERIAL PHOTOGRAPH AND 1977 HYDROGRAPHIC SURVEY		
PREPARED BY: E. RIFF DRAWN BY: E. RIFF CHECKED BY: D. LAMM	FILE NAME : 1977HYDRO.PUB	PLOT DATE : 01 OCT 2002	PLATE NO. 14

ILLINOIS JACKSON COUNTY

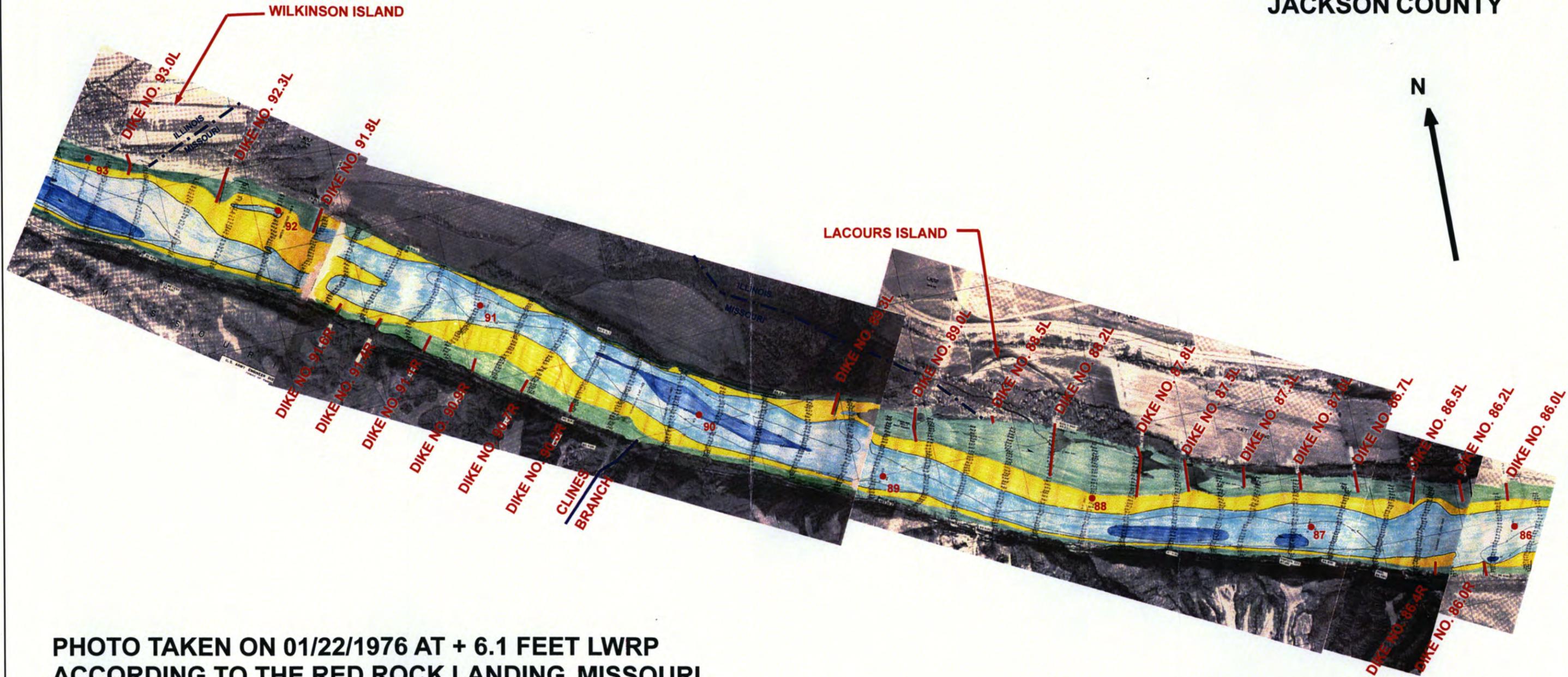


PHOTO TAKEN ON 01/22/1976 AT + 6.1 FEET LWRP
ACCORDING TO THE RED ROCK LANDING, MISSOURI
GAGE

MISSOURI
PERRY COUNTY

	U.S ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI	
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1976 AERIAL PHOTOGRAPH AND 1982 HYDROGRAPHIC SURVEY	
PREPARED BY: E. RIFF DRAWN BY: E. RIFF CHECKED BY: D. LAMM	FILE NAME : 82HYDRO.PUB	PLOT DATE : 01 OCT 2002
		PLATE NO. 15

ILLINOIS JACKSON COUNTY

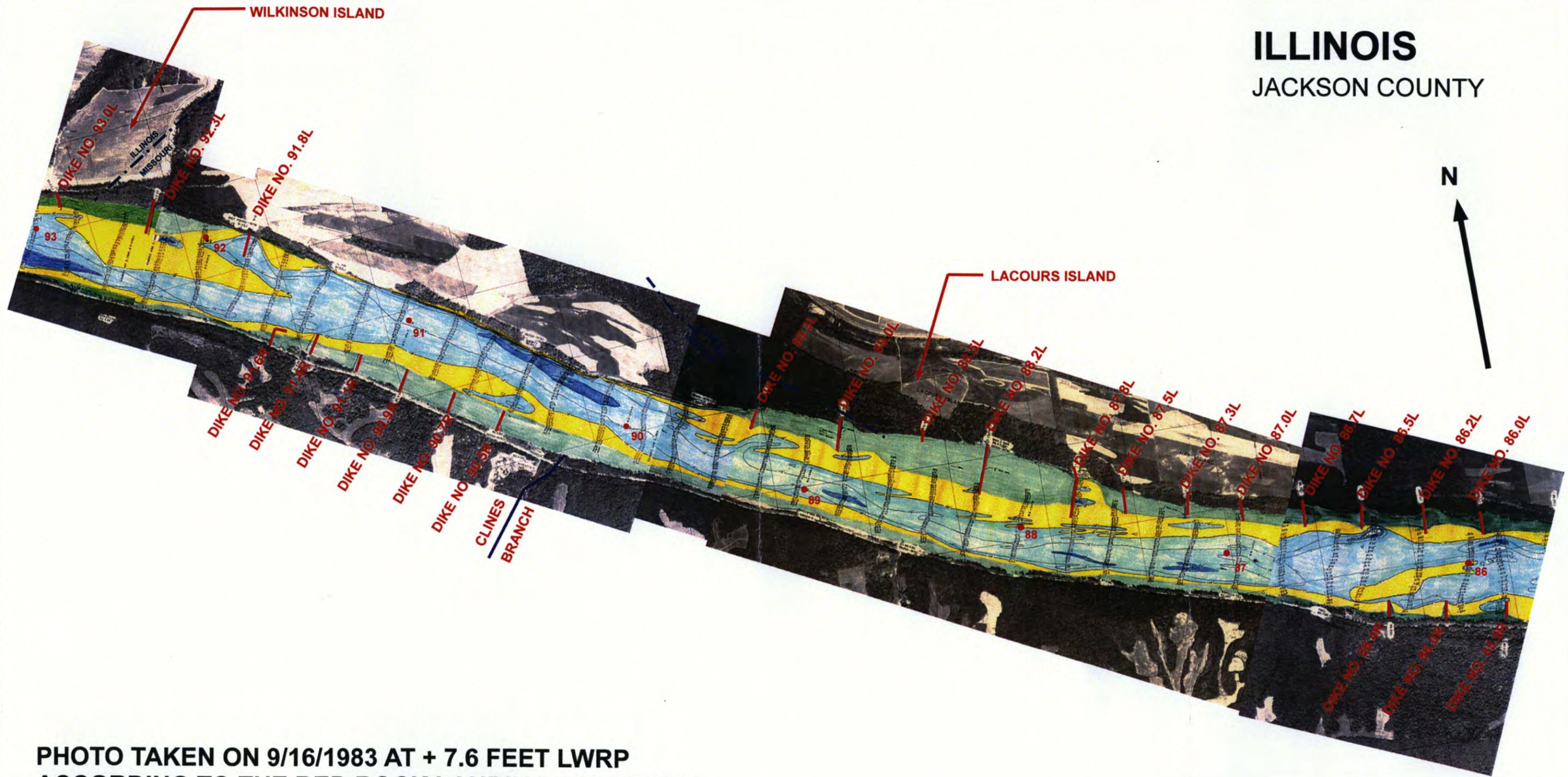
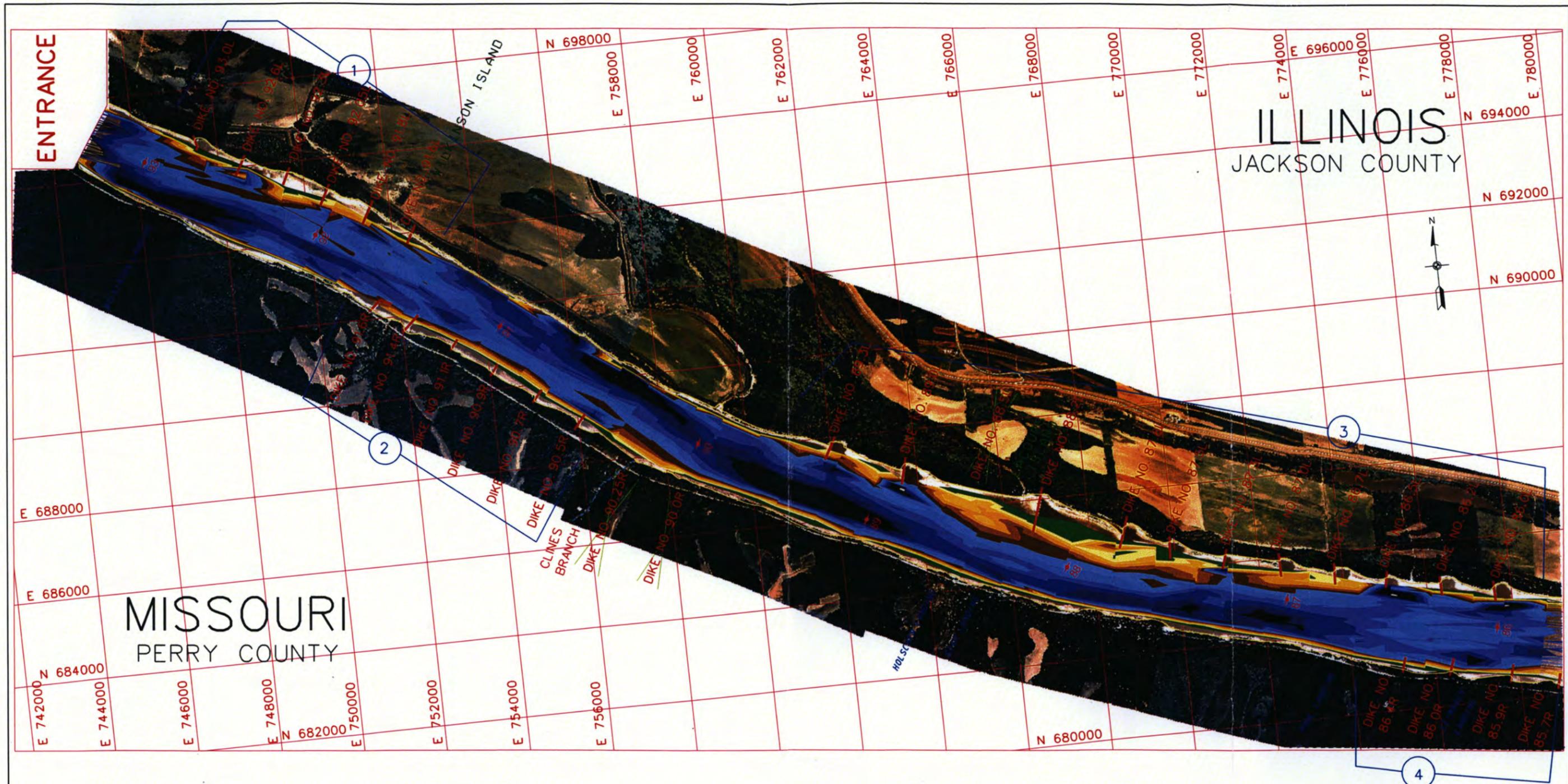


PHOTO TAKEN ON 9/16/1983 AT + 7.6 FEET LWRP
ACCORDING TO THE RED ROCK LANDING, MISSOURI
GAGE

MISSOURI
PERRY COUNTY

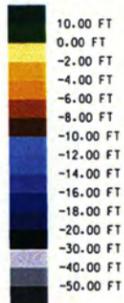
	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI	
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1983 AERIAL PHOTOGRAPH AND 1988 HYDROGRAPHIC SURVEY	
PREPARED BY: E. RUIFF DRAWN BY: E. RUIFF CHECKED BY: D. LAMM	FILE NAME : 88HYDRO.PUB	PLOT DATE : 01 OCT 2002
		PLATE NO. 16

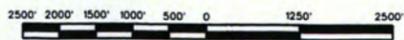


MISSOURI
PERRY COUNTY

ILLINOIS
JACKSON COUNTY

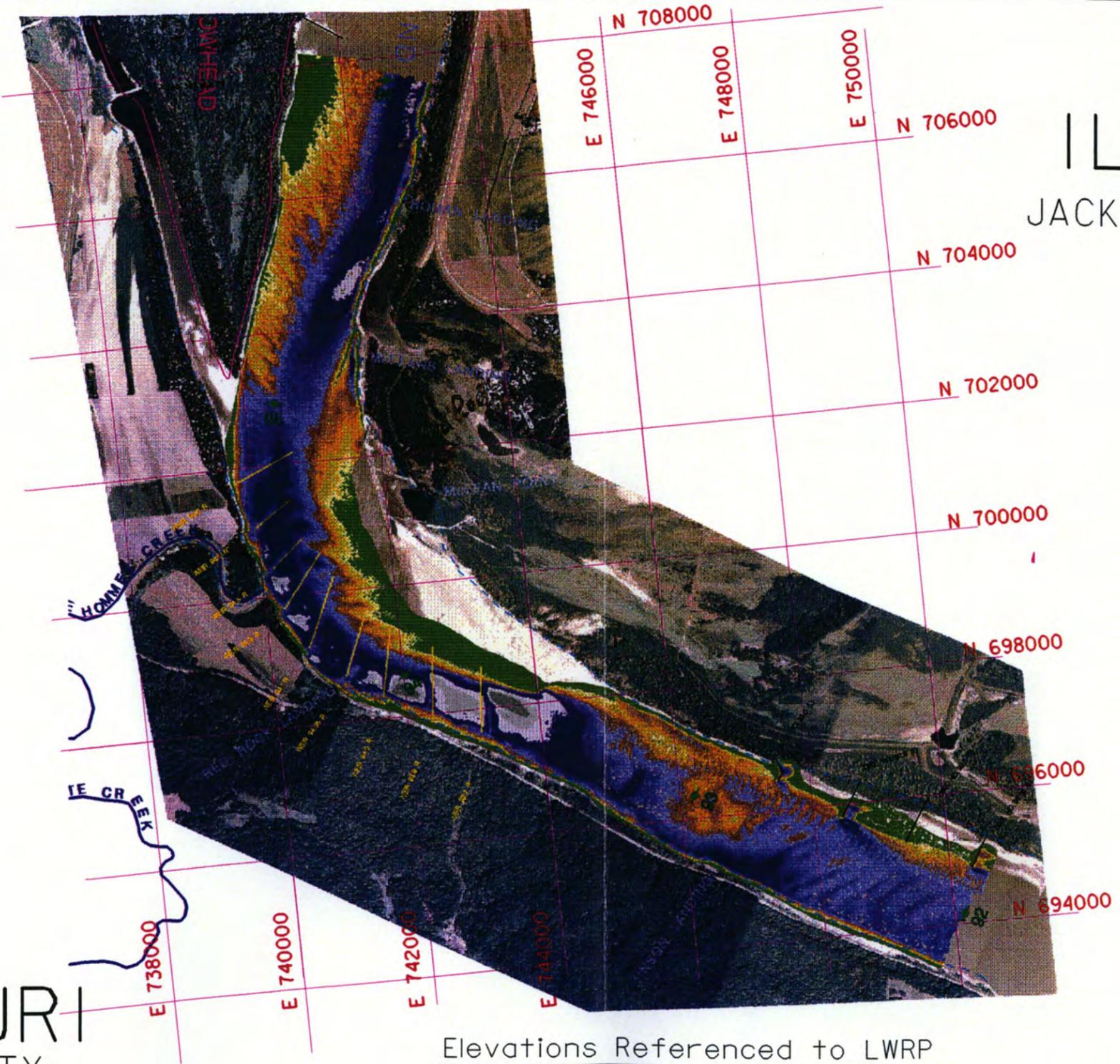
Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1993 PROTOTYPE SURVEY
PREPARED BY: D. SMITH DRAWN BY: E. RUFF CHECKED BY: R. DAVINROY DATE: X	
DESIGN FILE: 93SURVEY.DGN	PLOT DATE: 10/01/02
	PLATE NO. 17

ILLINOIS

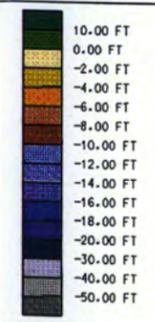
JACKSON COUNTY



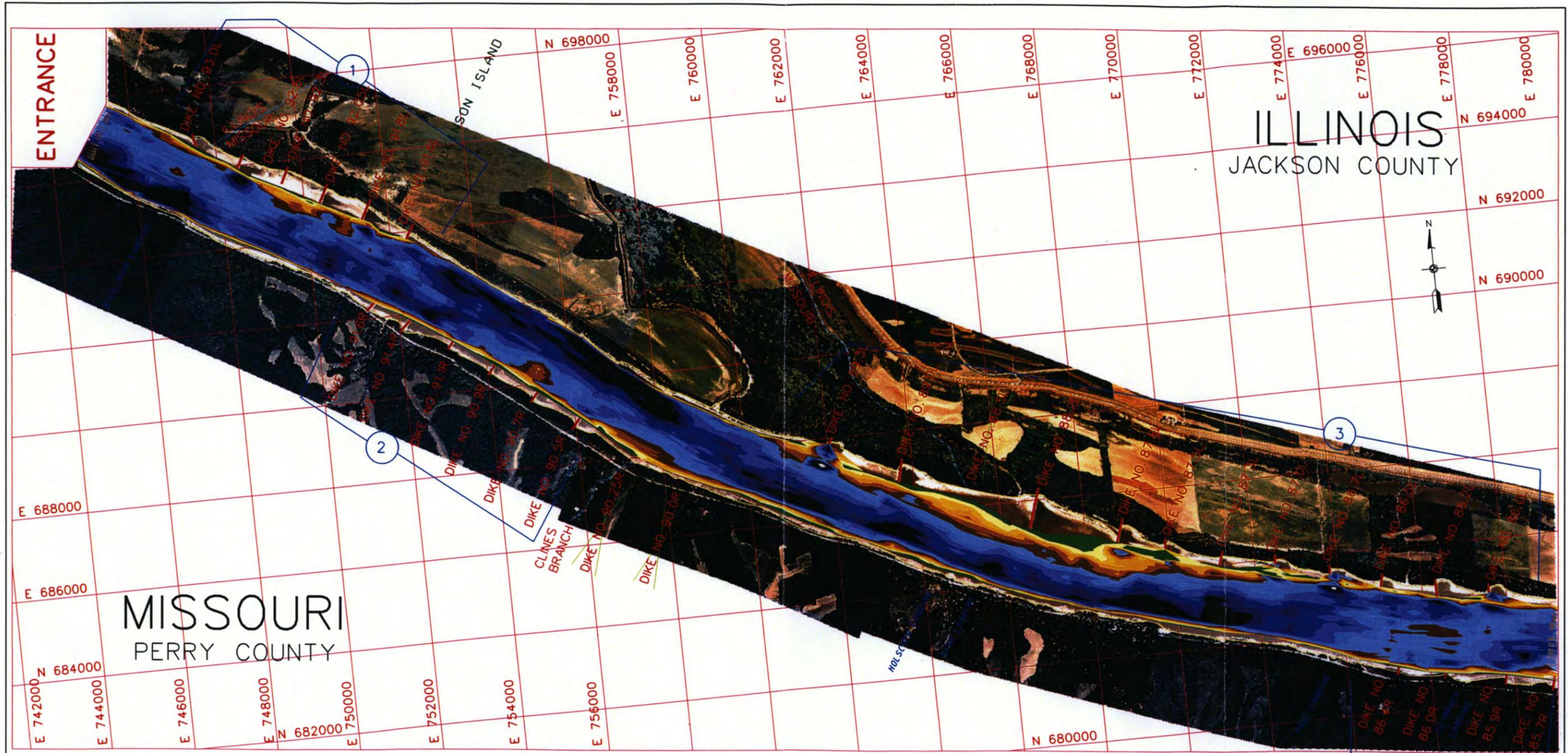
MISSOURI

PERRY COUNTY

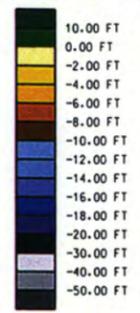
Elevations Referenced to LWRP



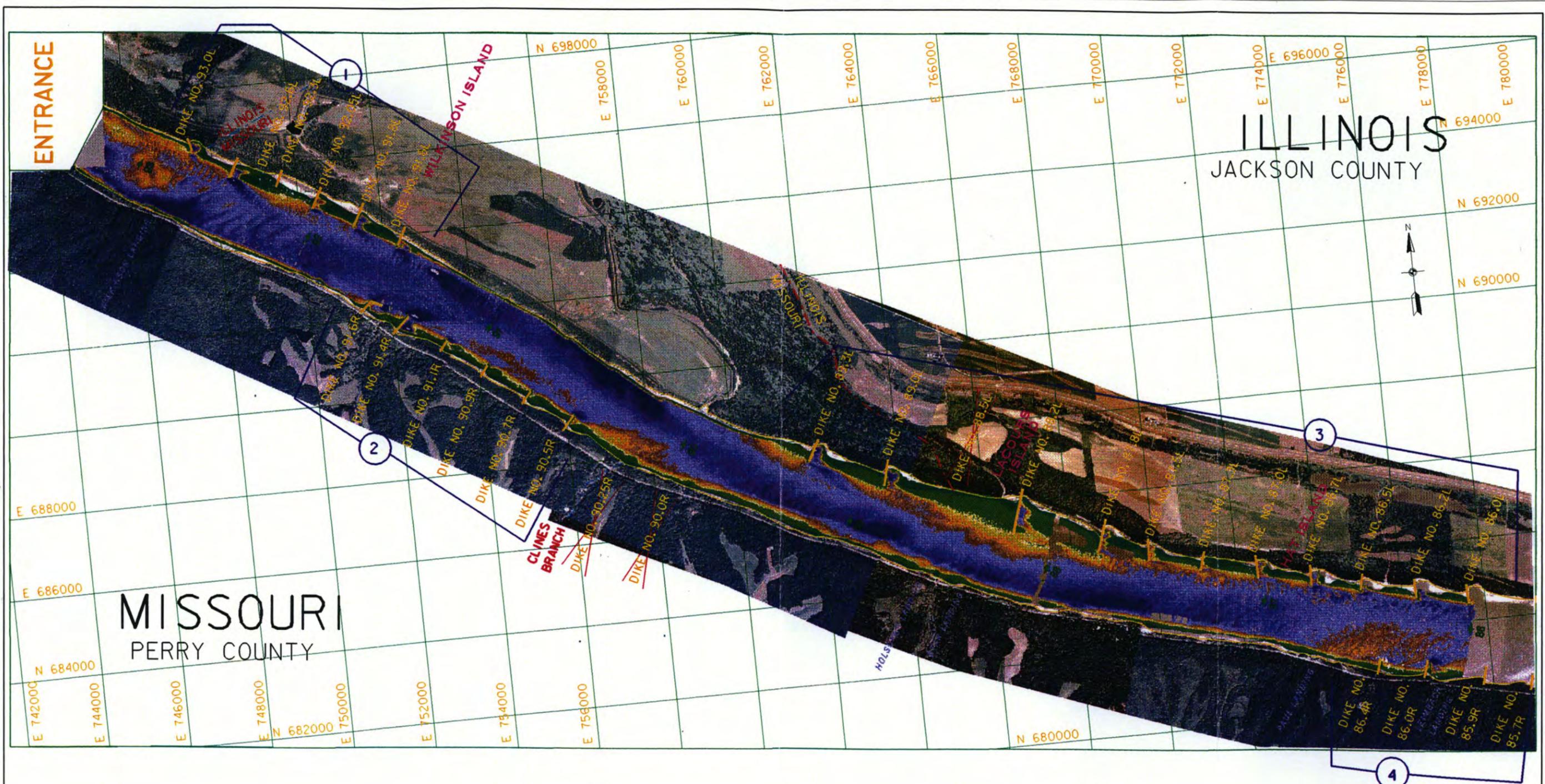
	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 RED ROCK BENDWAY WEIRS
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY DATE: X	
DESIGN FILE: RDWEIRS.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 18



Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY
BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 1998 PROTOTYPE SURVEY	
	
DESIGN FILE: 98SURVEY.DGN PLOT SCALE: 1" = 2500' PLOT DATE: 10/01/02	PLATE NO. 19



Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 2001 SWEEP SURVEY
PREPARED BY: D. SMITH DRAWN BY: E. RIIFF CHECKED BY: R. DAVINROY	2500' 2000' 1500' 1000' 500' 0 1250' 2500' DESIGN FILE: 2001SWEEP.DGN.DGN PLOT SCALE: 1" = 2500' PLOT DATE: 10/01/02
	PLATE NO. 20



U.S. ARMY ENGINEER DISTRICT, ST. LOUIS
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

PREPARED BY: D. LAMM
CHECKED BY: R. DAVINROY

BIOLOGICAL OPINION MICRO MODEL STUDY
MISSISSIPPI RIVER MILES 93.0 TO 86.0

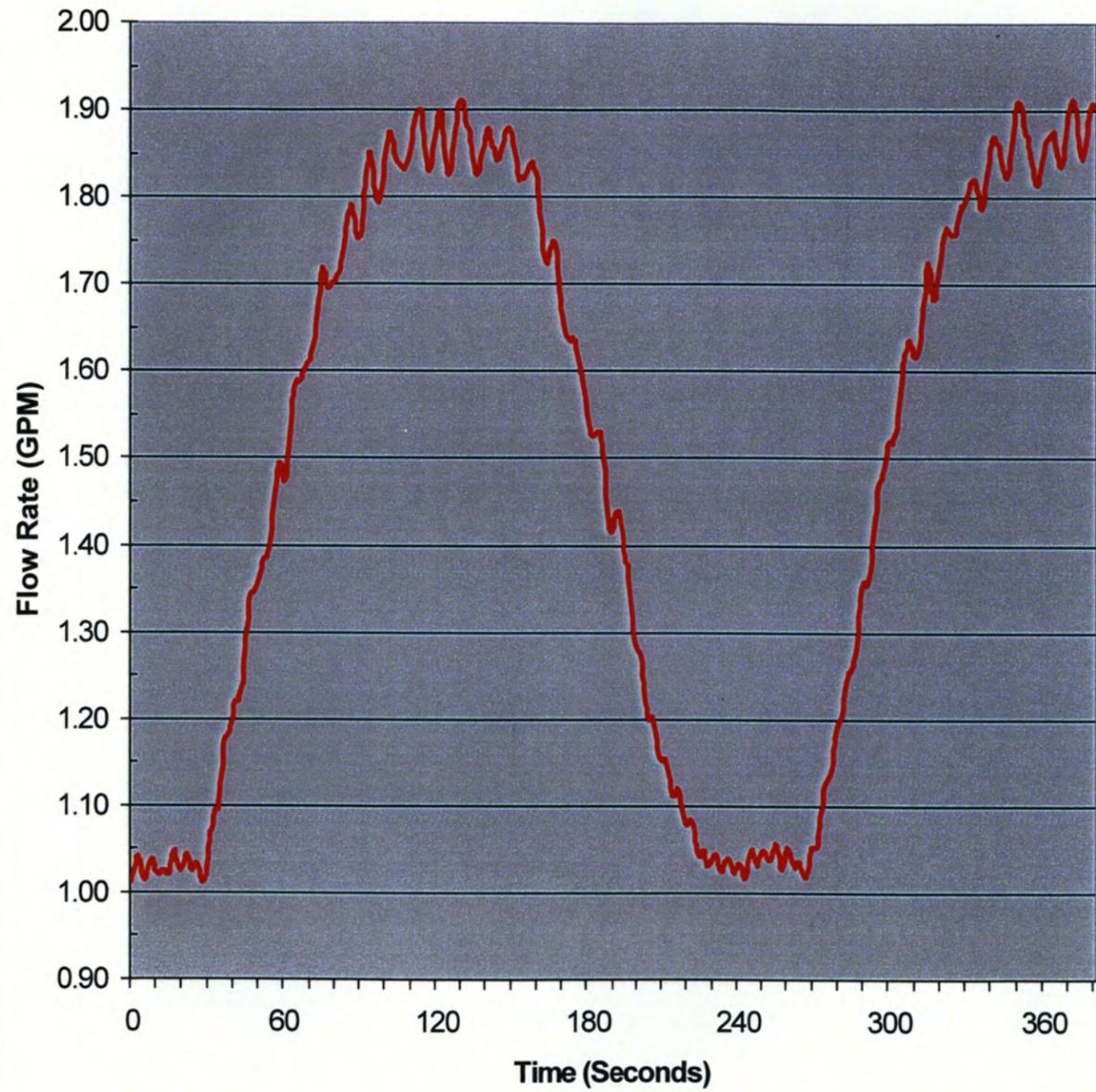
RED ROCK MICRO MODEL

PLATE NO.

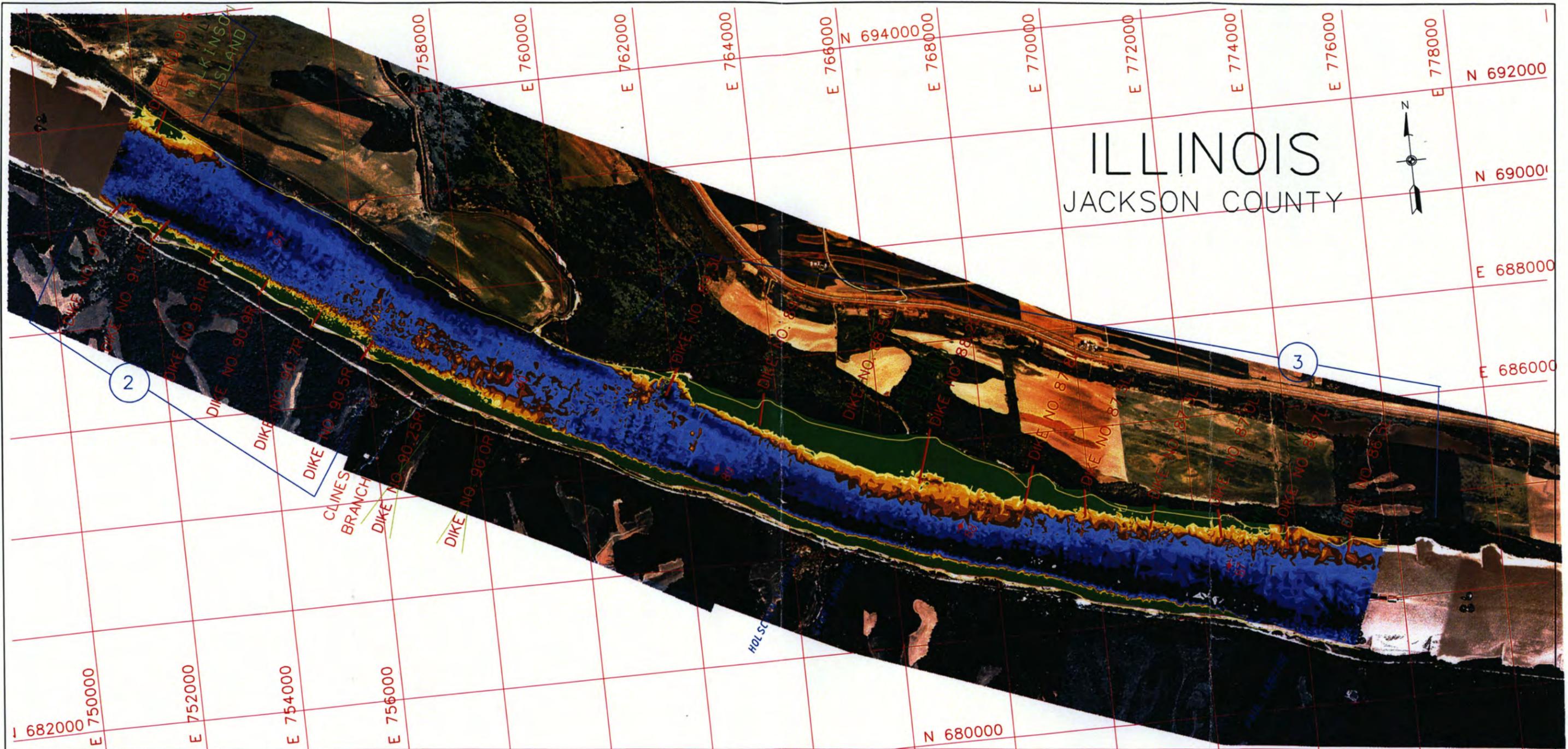
21

DESIGN FILE: RR FLUME.PUB PLOT DATE: 01 OCT 02

Typical Micro Model Hydrograph

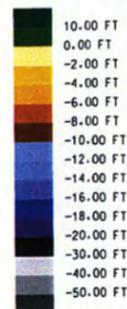


	<p align="center">U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI</p>
<p>PREPARED BY: D. LAMM CHECKED BY: R. DAVINROY</p>	<p align="center">BIOLOGICAL OPINION MICRO MODEL STUDY MISSISSIPPI RIVER MILES 93.0 TO 86.0</p> <p align="center">TYPICAL MICRO MODEL HYDROGRAPH</p>
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<p>PLOT DATE: 10/02</p>	<p align="right">22</p>

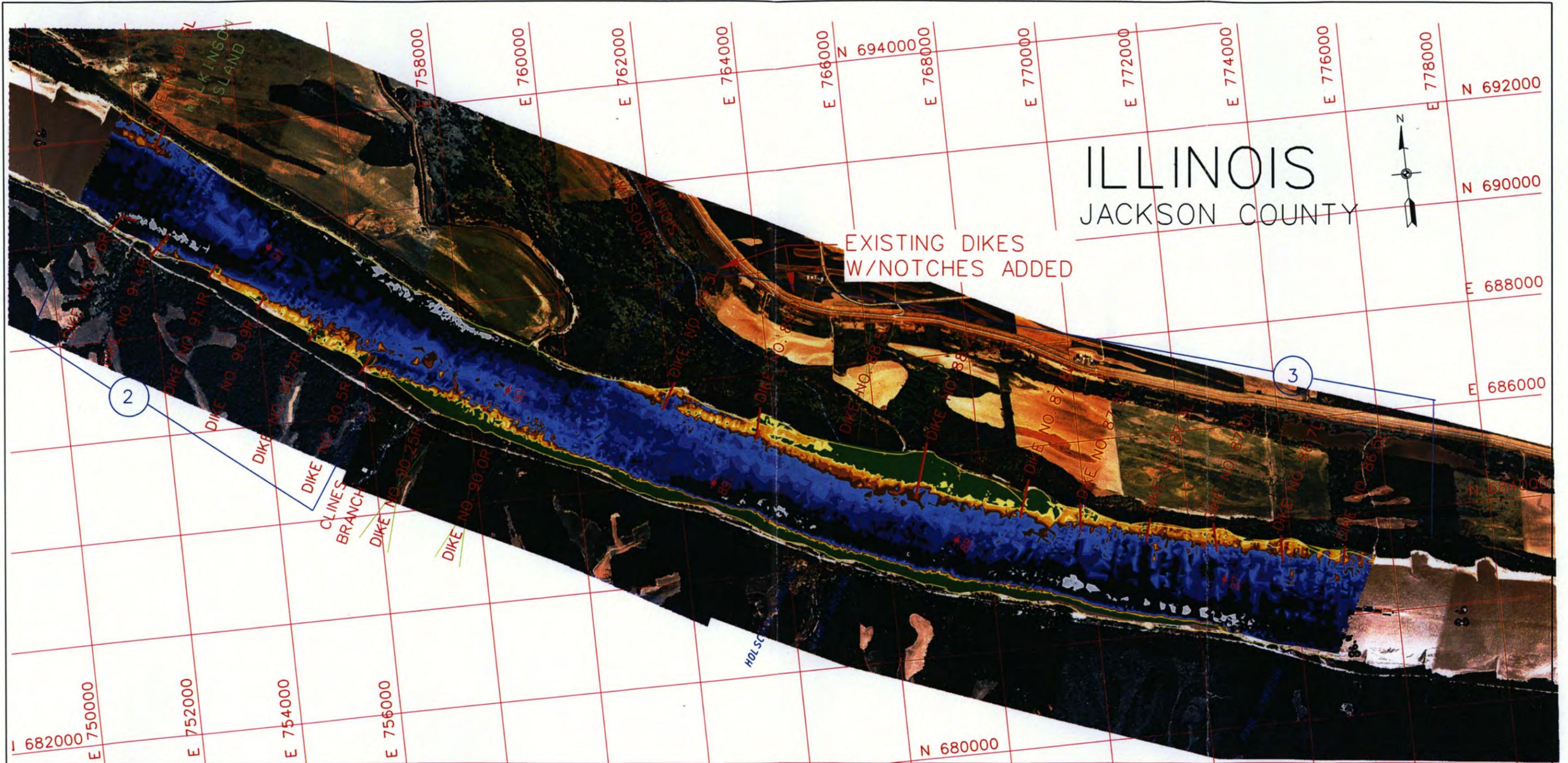


MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 BASE TEST
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: BASETEST.DGN PLOT SCALE: 1" = 2000' PLOT DATE: 10/01/02	PLATE NO. 23

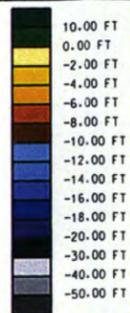


ILLINOIS
JACKSON COUNTY

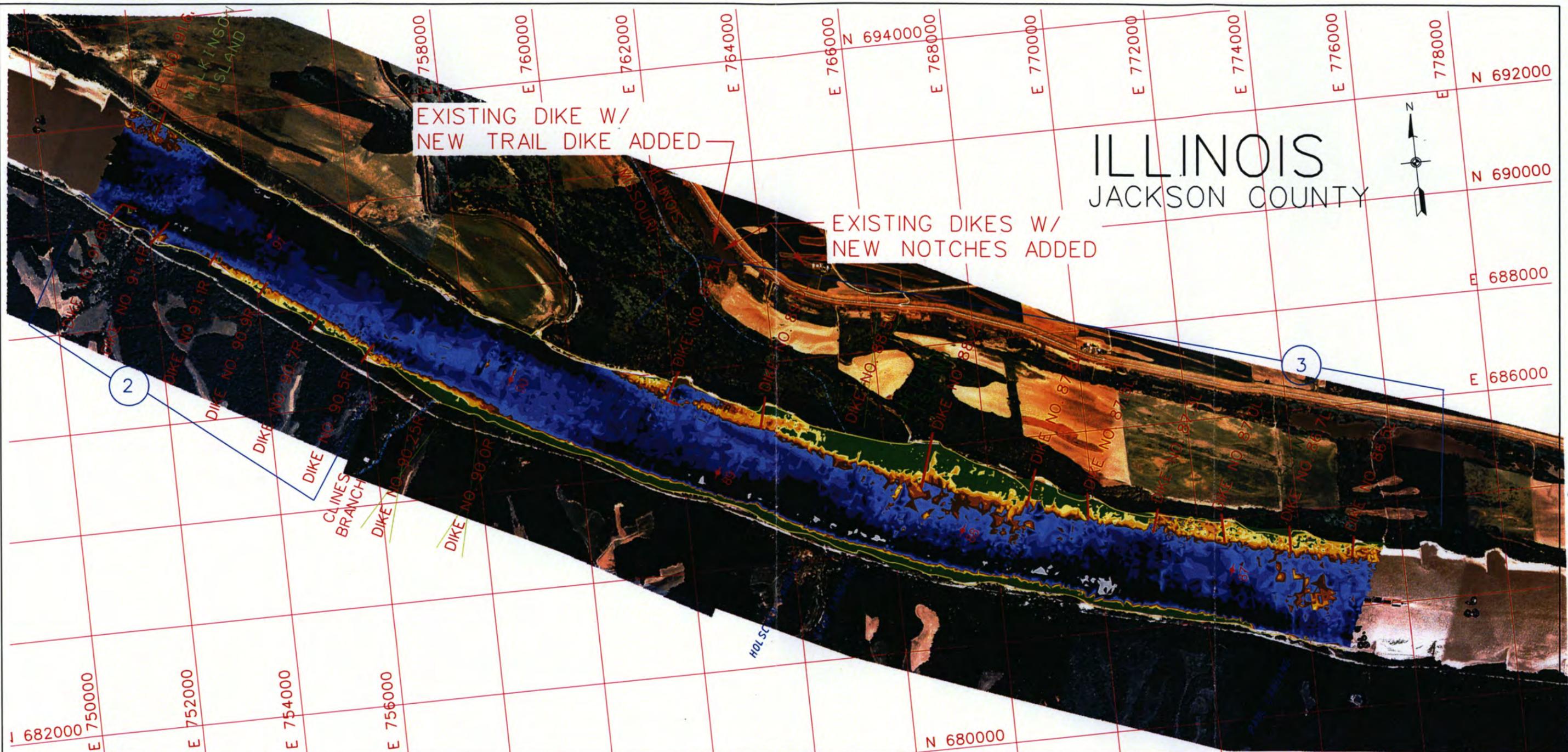
EXISTING DIKES
W/NOTCHES ADDED

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



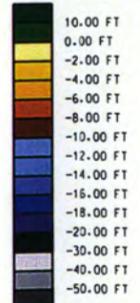
	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 1
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY DATE: X	
DESIGN FILE: RDALT1.DGN	PLOT DATE: 10/01/02
PLATE NO. 24	



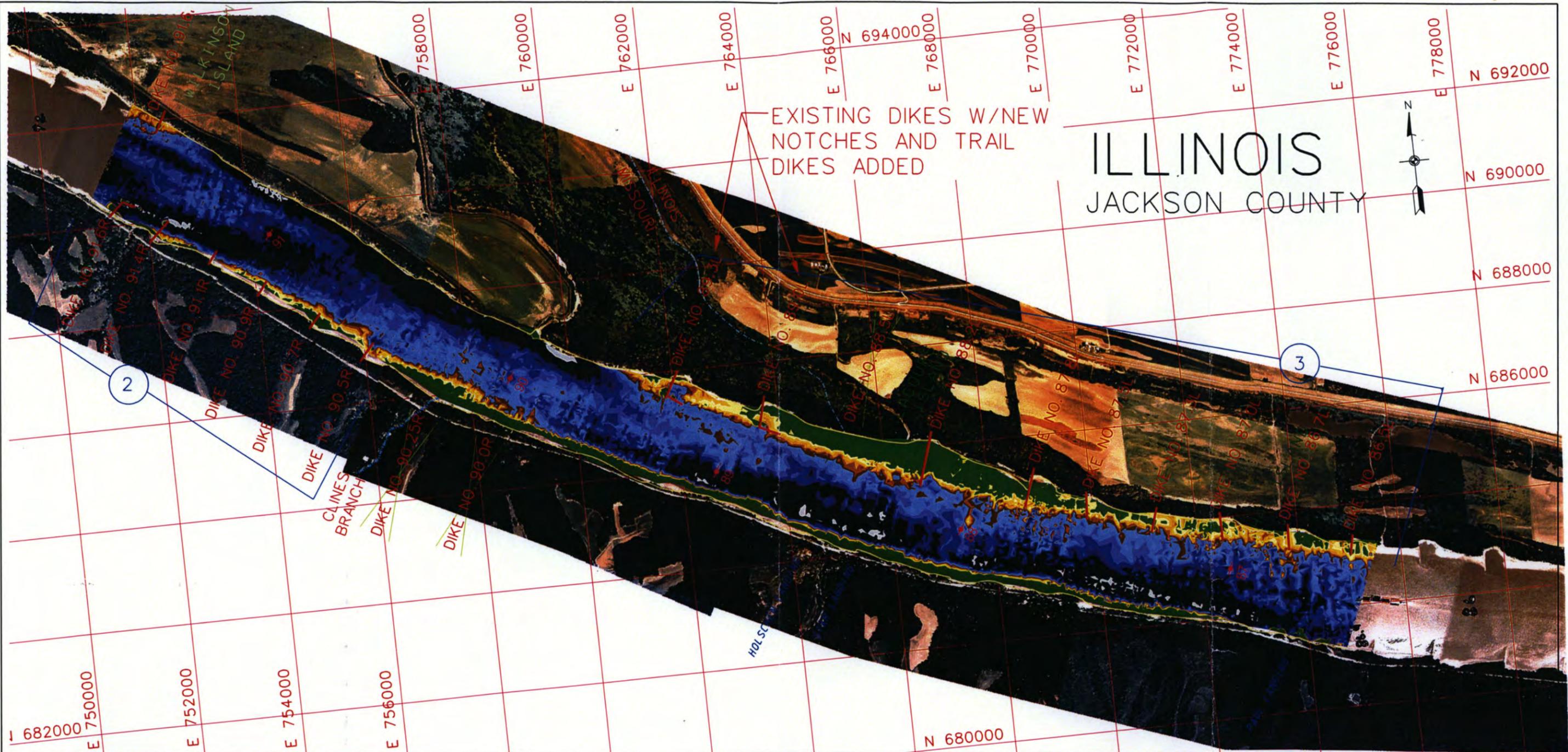
ILLINOIS
JACKSON COUNTY

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



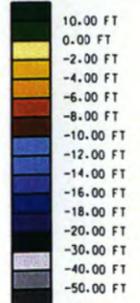
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	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 2
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT2.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 25



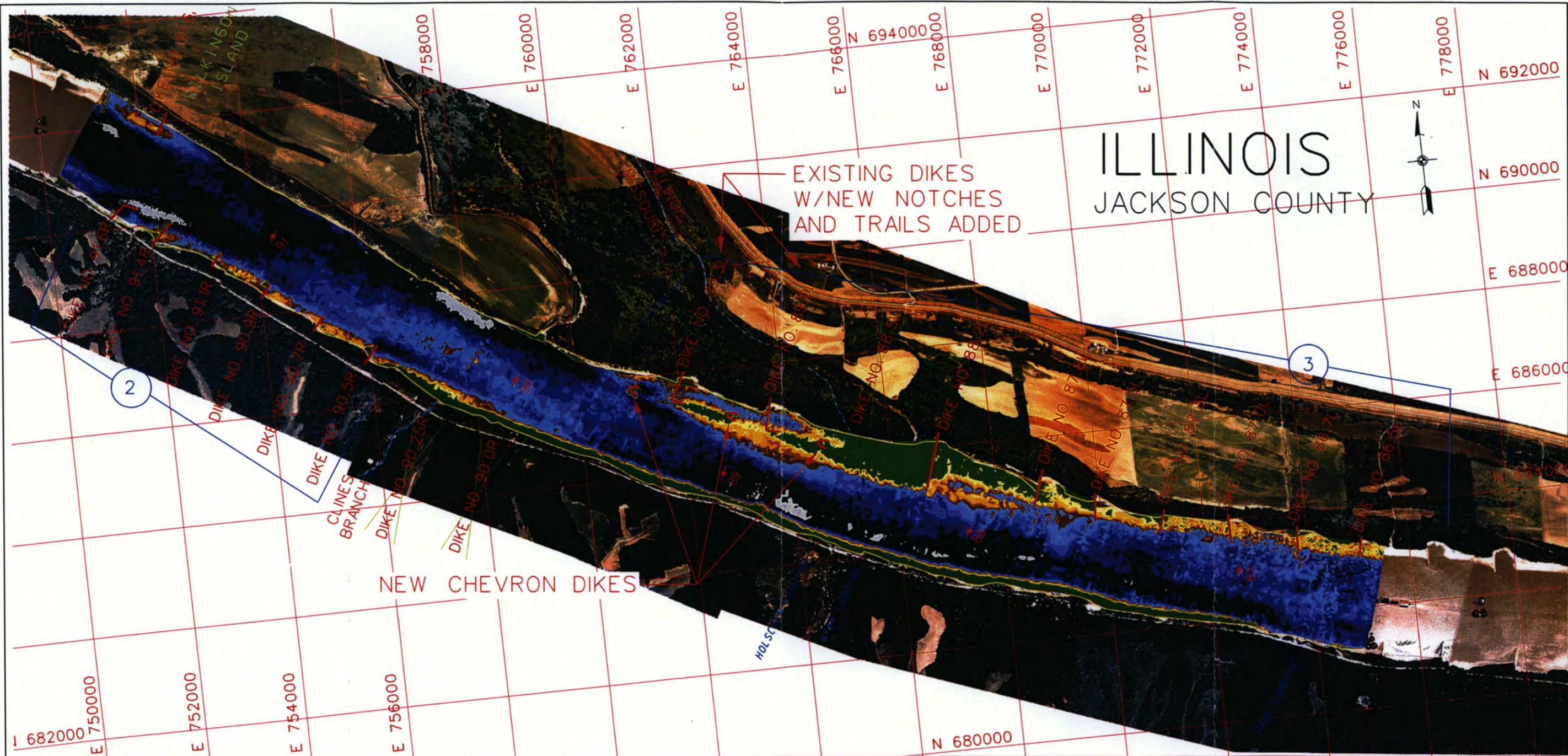
ILLINOIS
JACKSON COUNTY

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP

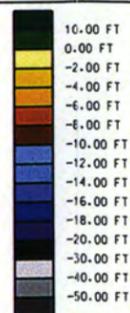


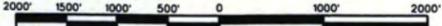
	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 3
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT3.DGN	PLATE NO. 26

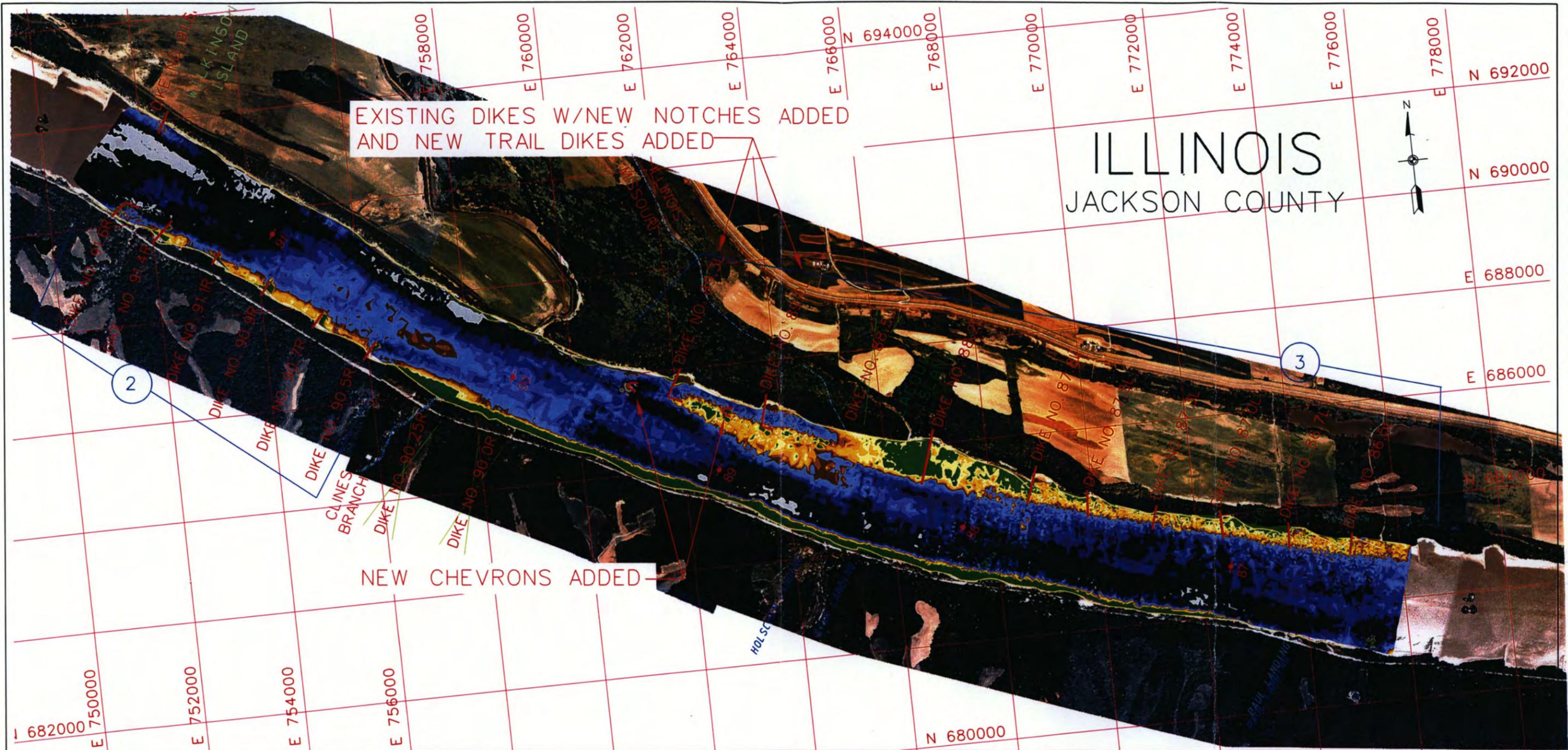


MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 5
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT5.DGN	PLOT DATE: X
	PLATE NO. 28



EXISTING DIKES W/NEW NOTCHES ADDED
AND NEW TRAIL DIKES ADDED

ILLINOIS
JACKSON COUNTY



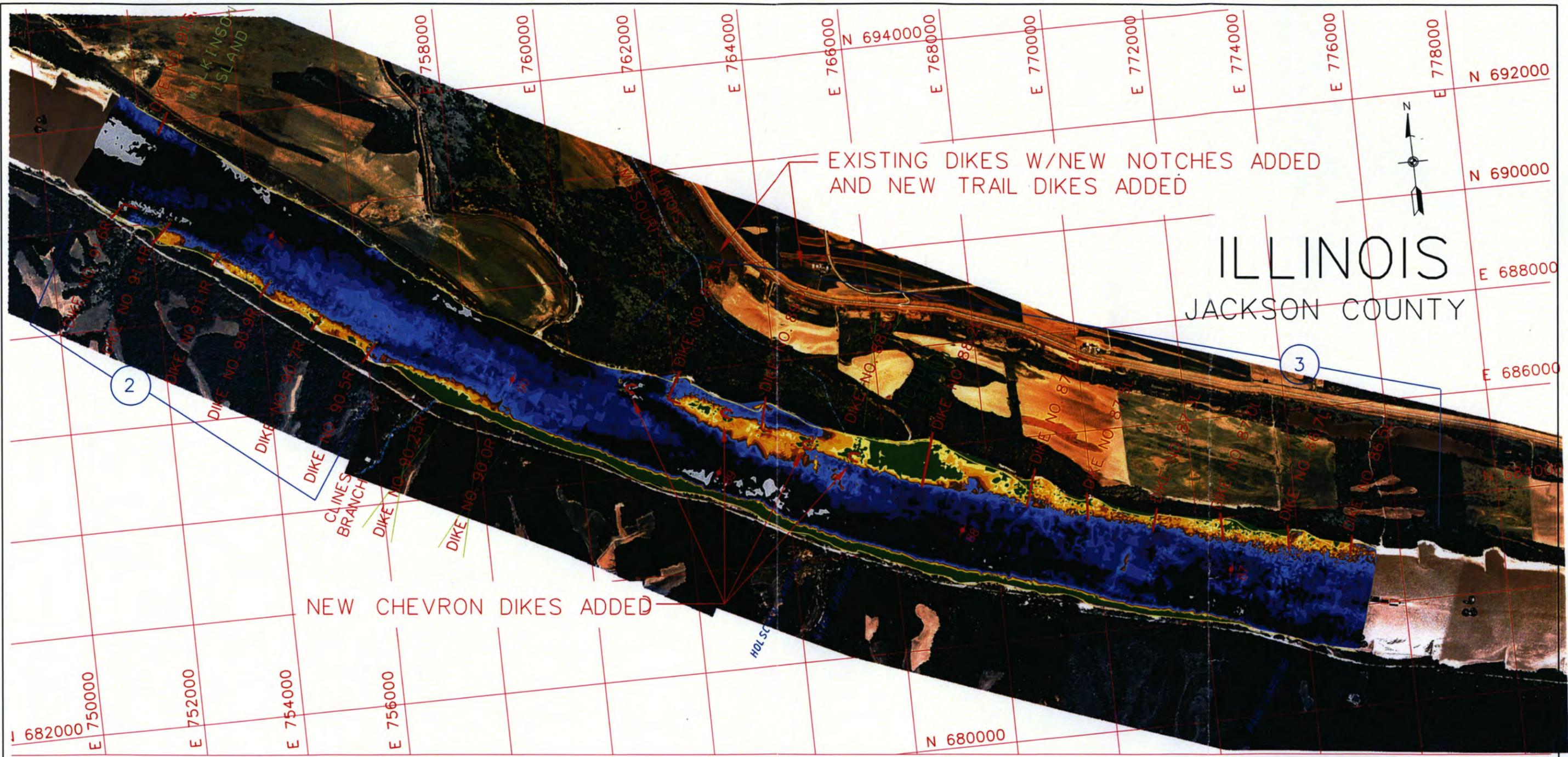
NEW CHEVRONS ADDED

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



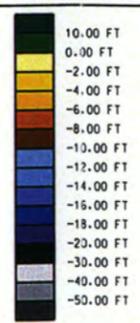
	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 6
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT6.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 29



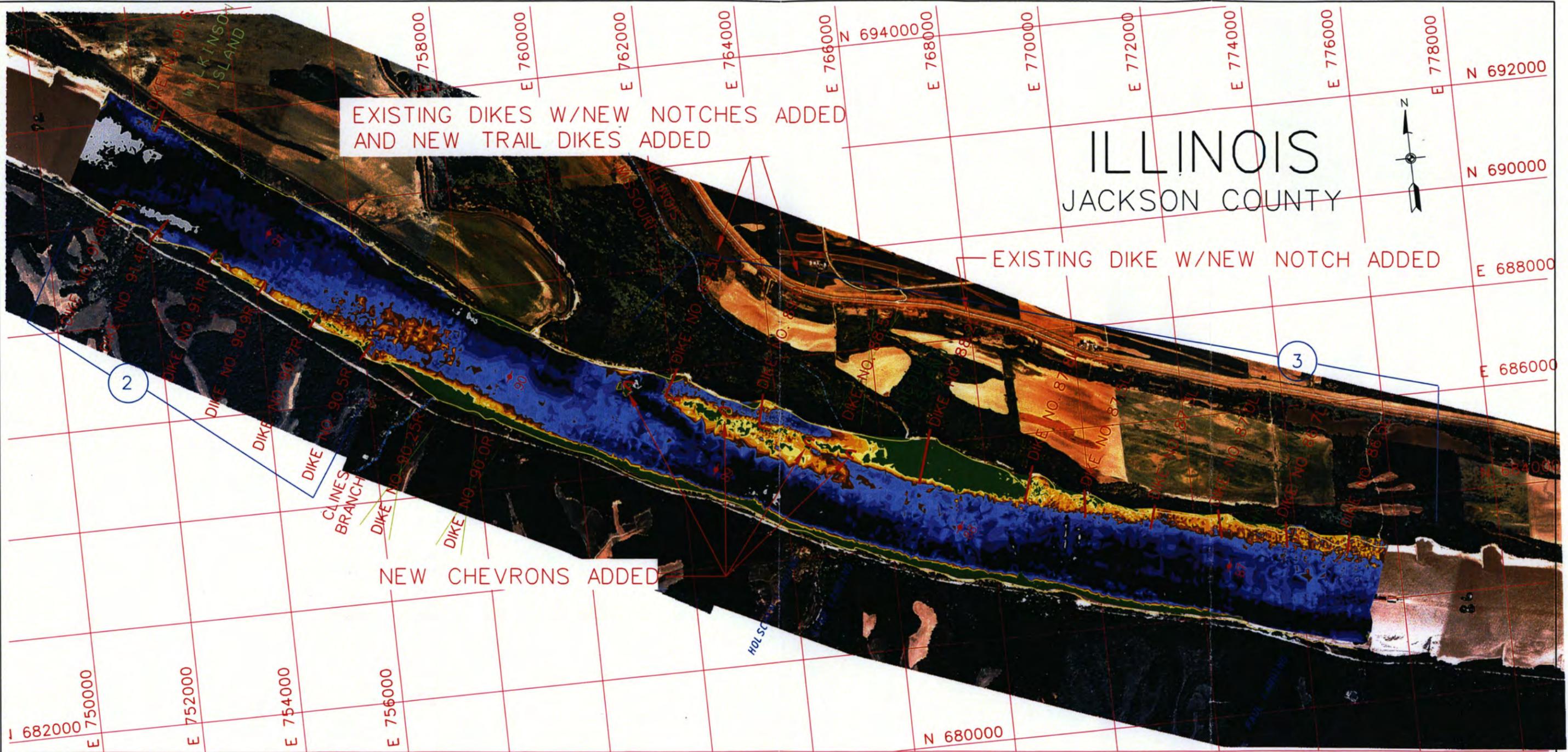
ILLINOIS
JACKSON COUNTY

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP

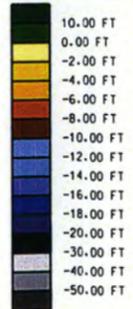


	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 7
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT7.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 30

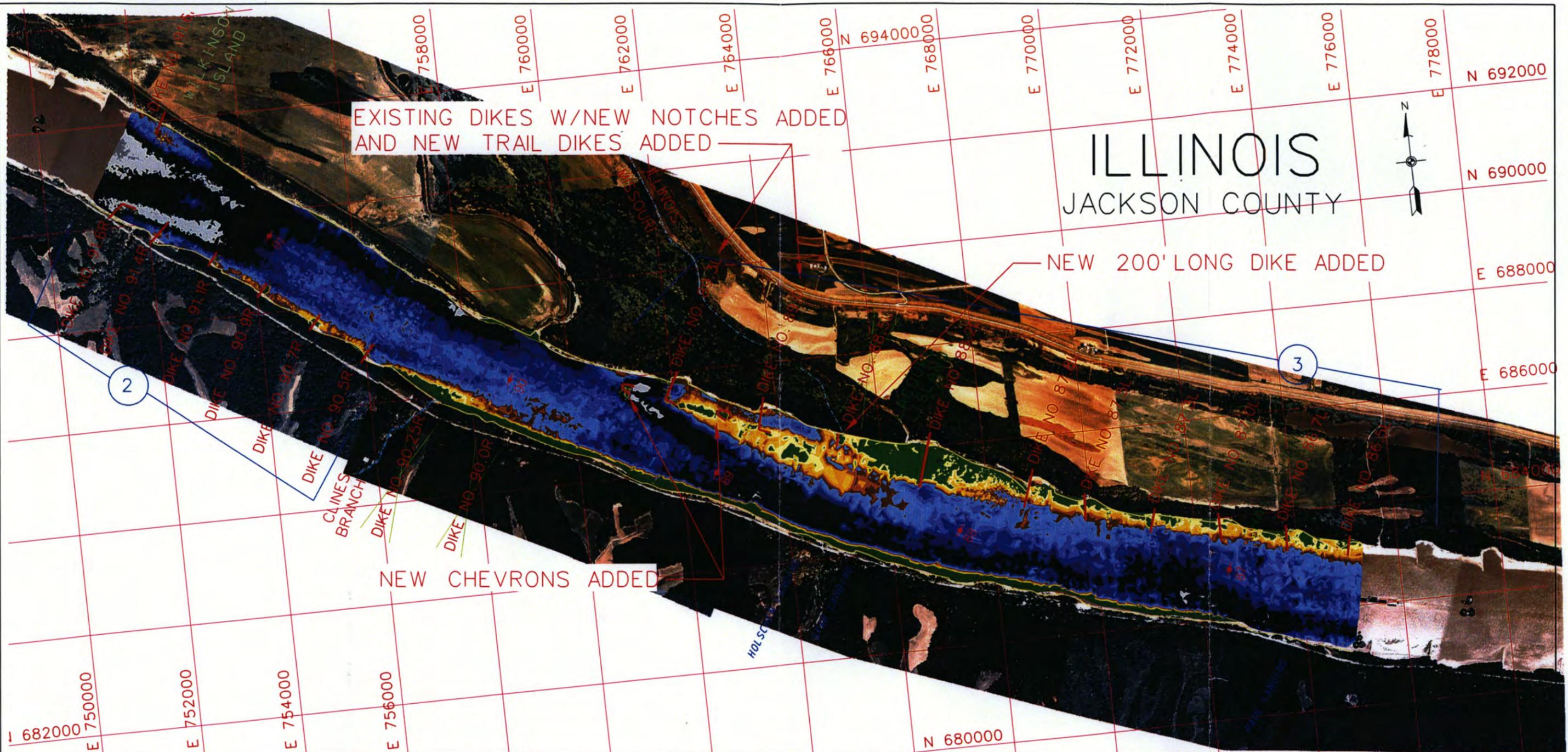


MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP

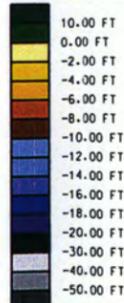


	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATE 8
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALTB.DGN	PLATE NO. 31

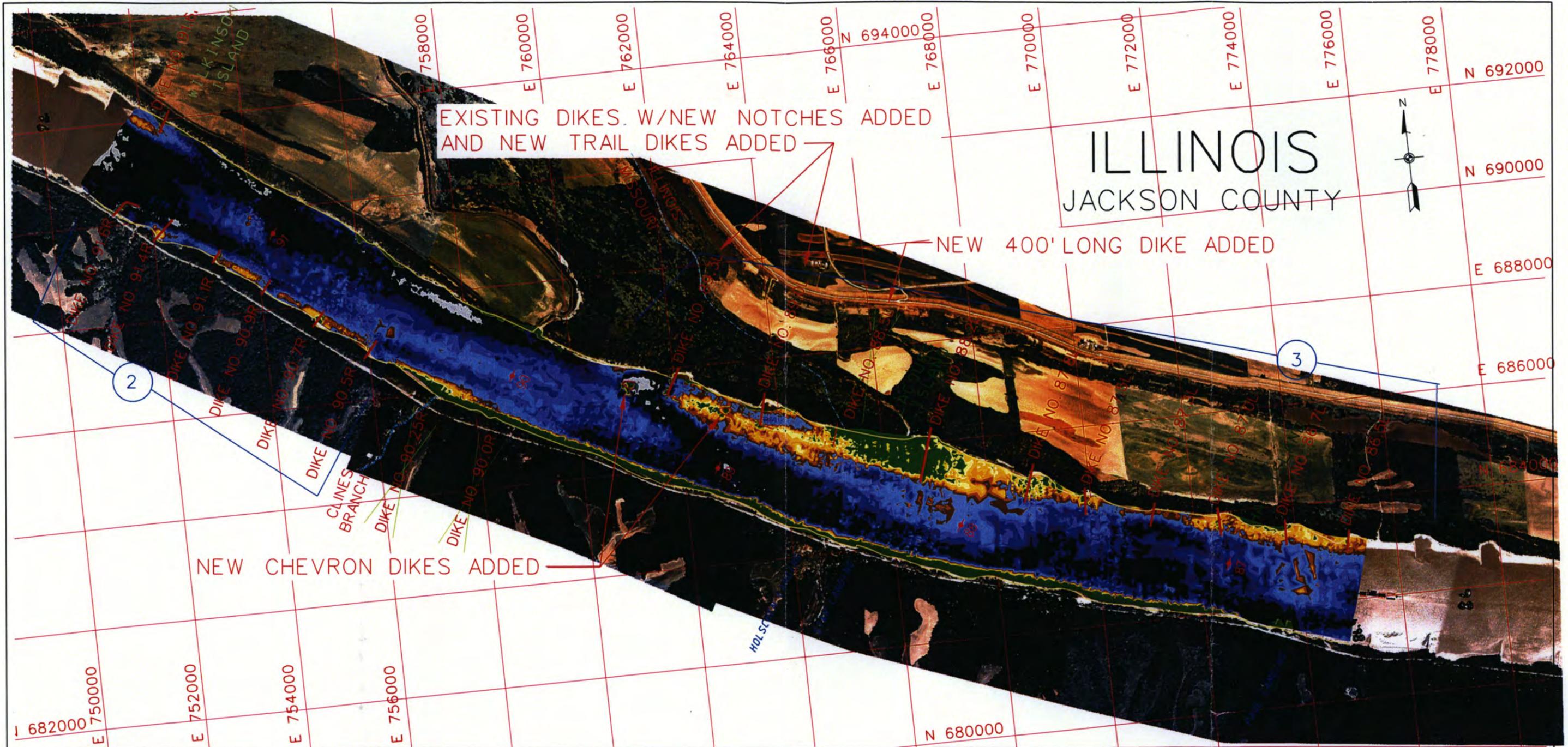


MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



 PREPARED BY: D. SMITH DRAWN BY: E. RUFF CHECKED BY: R. DAVINROY	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 9
	
DESIGN FILE: RDALT9.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 32



EXISTING DIKES. W/NEW NOTCHES ADDED
AND NEW TRAIL DIKES ADDED

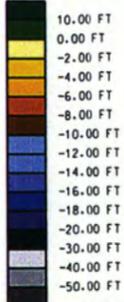
ILLINOIS
JACKSON COUNTY

NEW 400' LONG DIKE ADDED

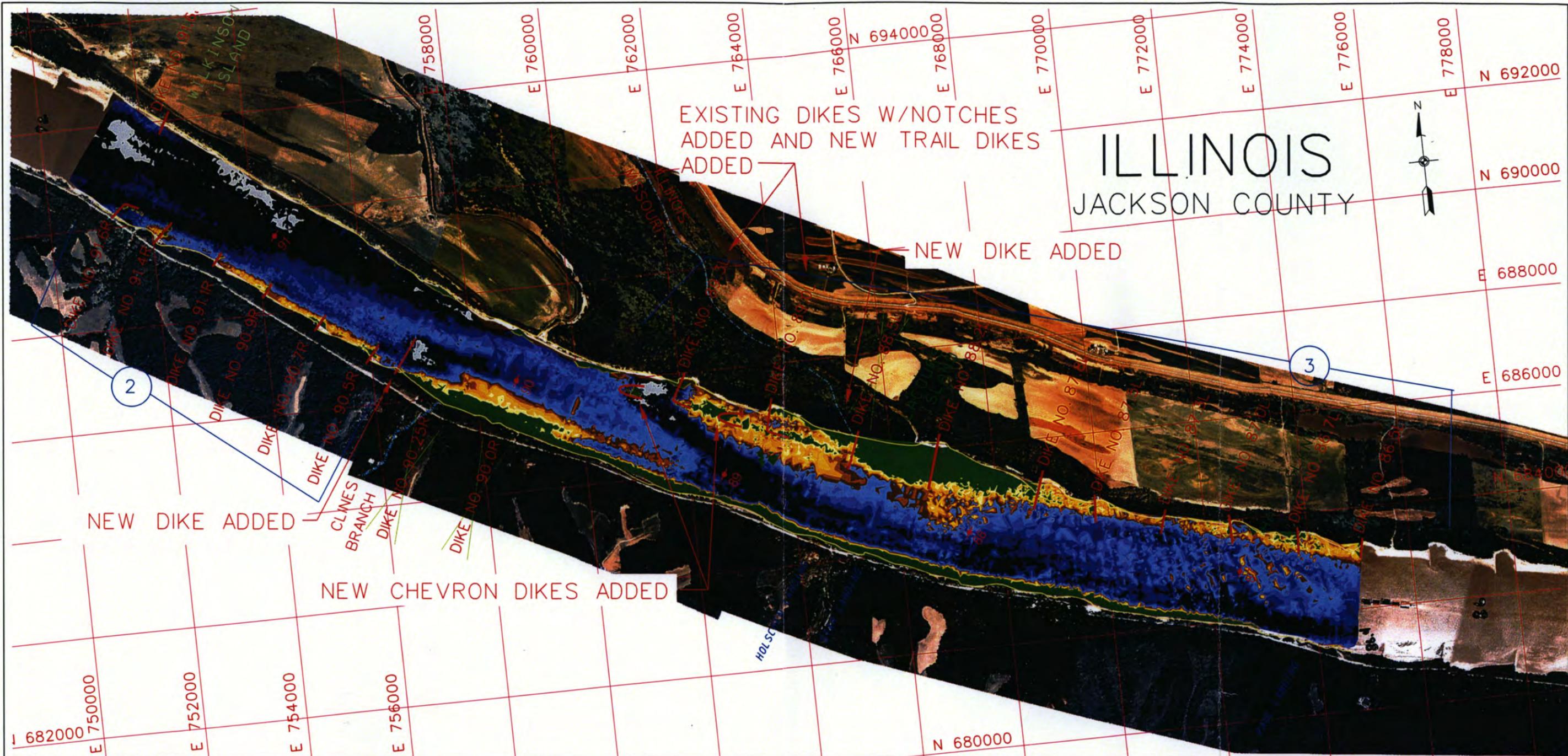
NEW CHEVRON DIKES ADDED

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 10
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT10.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 33



ILLINOIS
JACKSON COUNTY



2

3

EXISTING DIKES W/NOTCHES
ADDED AND NEW TRAIL DIKES
ADDED

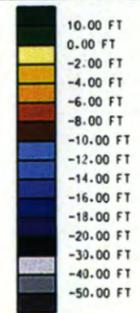
NEW DIKE ADDED

NEW DIKE ADDED

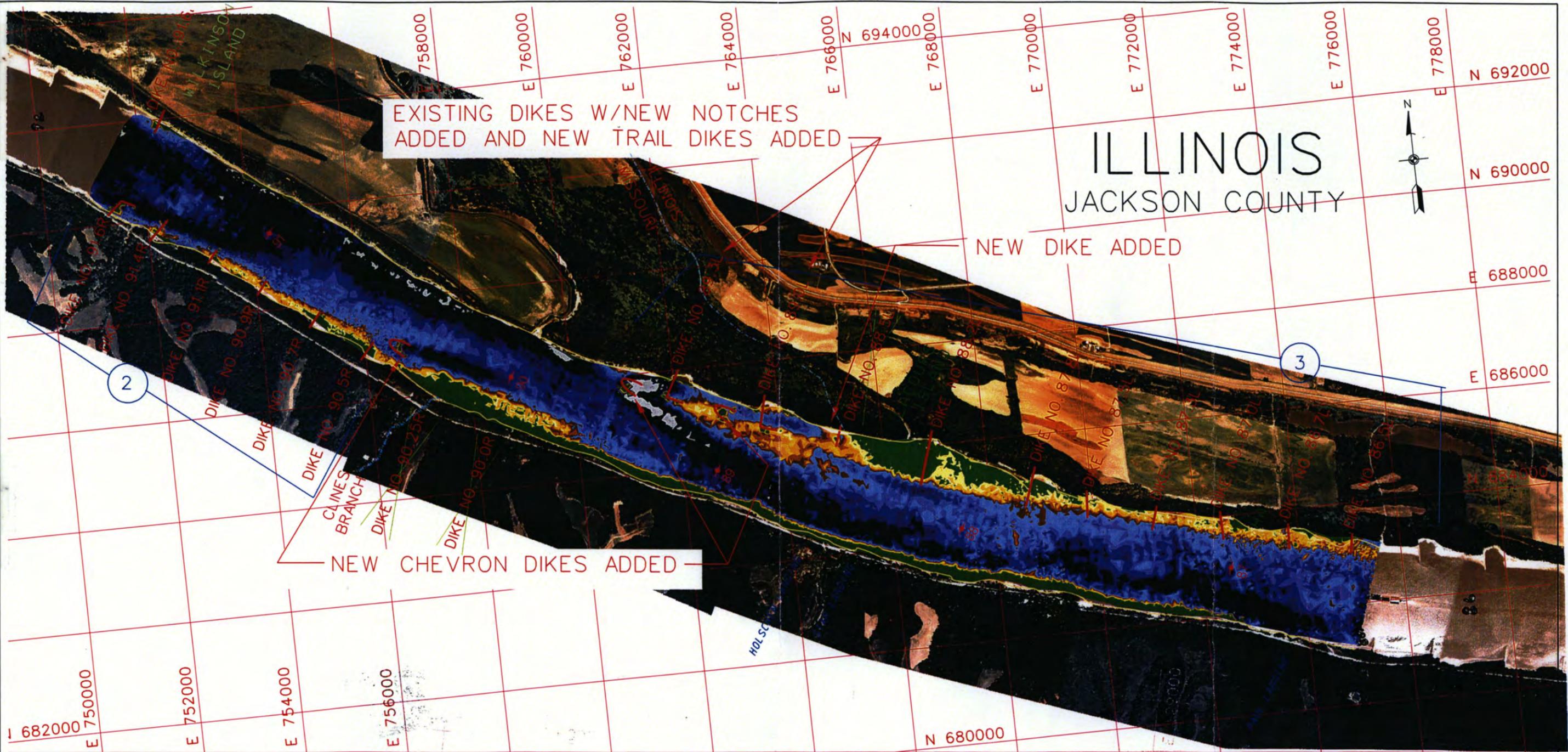
NEW CHEVRON DIKES ADDED

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 11
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT11.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 34



EXISTING DIKES W/NEW NOTCHES
ADDED AND NEW TRAIL DIKES ADDED

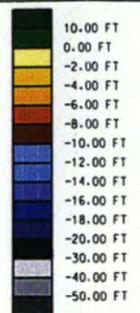
ILLINOIS
JACKSON COUNTY

NEW DIKE ADDED

NEW CHEVRON DIKES ADDED

MISSOURI
PERRY COUNTY

Elevations Referenced to LWRP



	U.S. ARMY ENGINEER DISTRICT, ST. LOUIS CORPS OF ENGINEERS ST. LOUIS, MISSOURI
	BIOLOGICAL OPINION MICRO MODEL STUDY RIVER MILES 93.0 TO 86.0 ALTERNATIVE 13
PREPARED BY: D. SMITH DRAWN BY: E. RIFF CHECKED BY: R. DAVINROY	
DESIGN FILE: RDALT13.DGN PLOT SCALE: 1" = 2000'	PLATE NO. 36