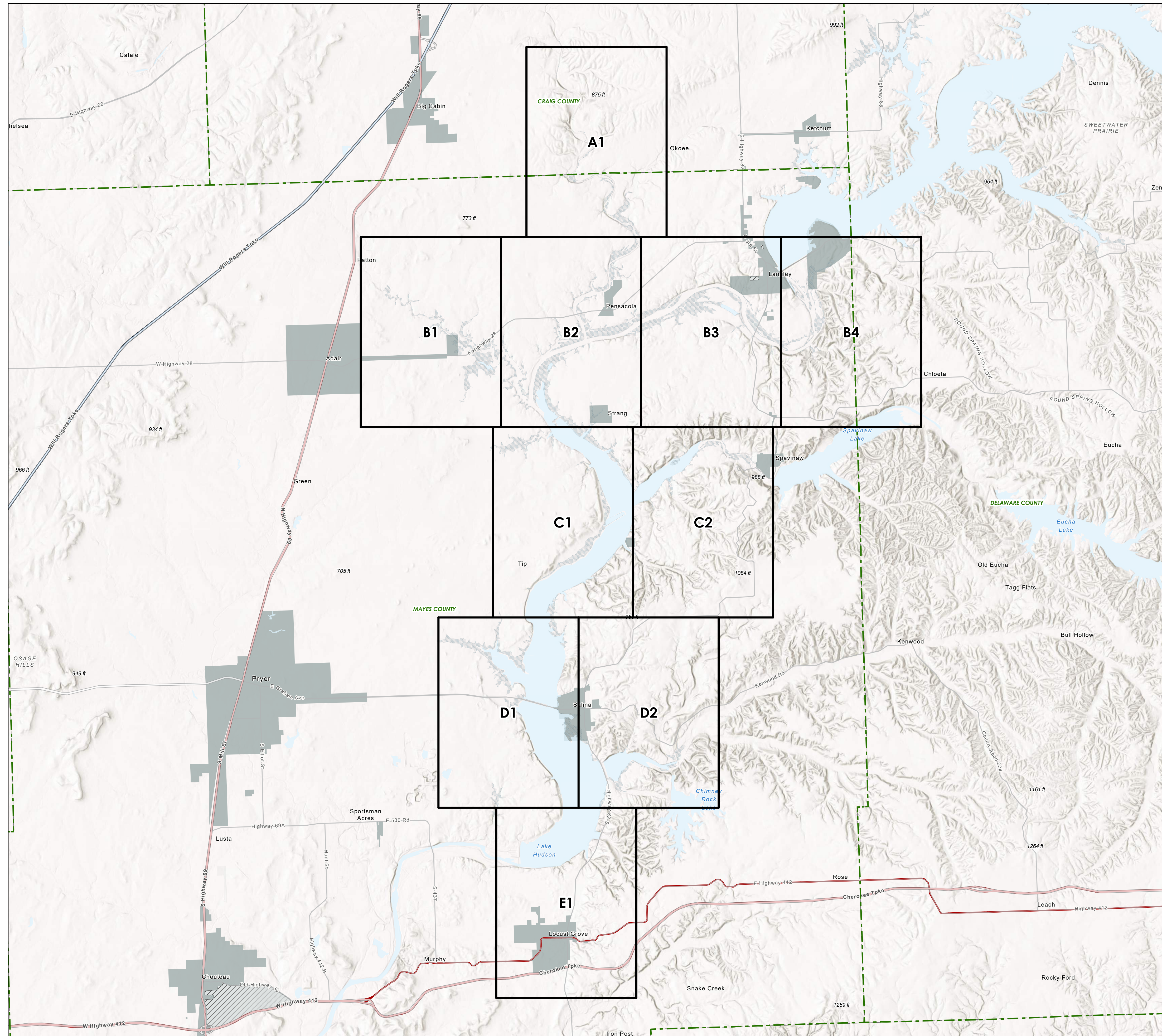

APPENDIX E.4:
OCTOBER 2009 (3 YEAR) EVENT INUNDATION MAPS

Downstream Model Results Overview Map

Pensacola Dam
GRAND RIVER DAM AUTHORITY
Date: September 2022

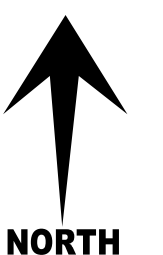
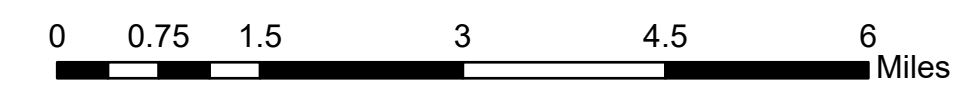
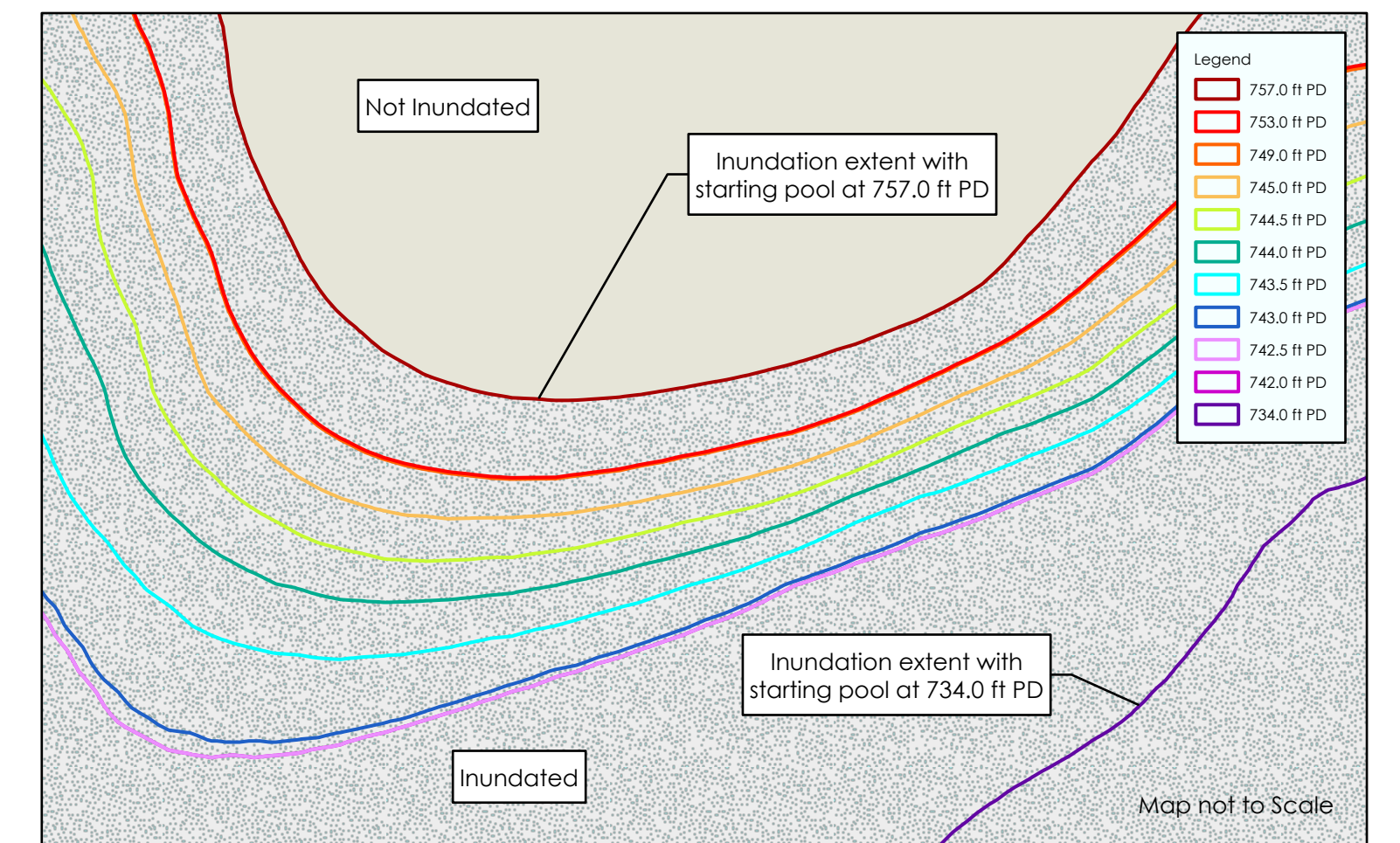


Overview Map Legend

1:24,000-scale Map Sheet	Road Class
County Boundary	Interstate
Municipality	US Highway
Unincorporated	

Inundation Scenario Mapping

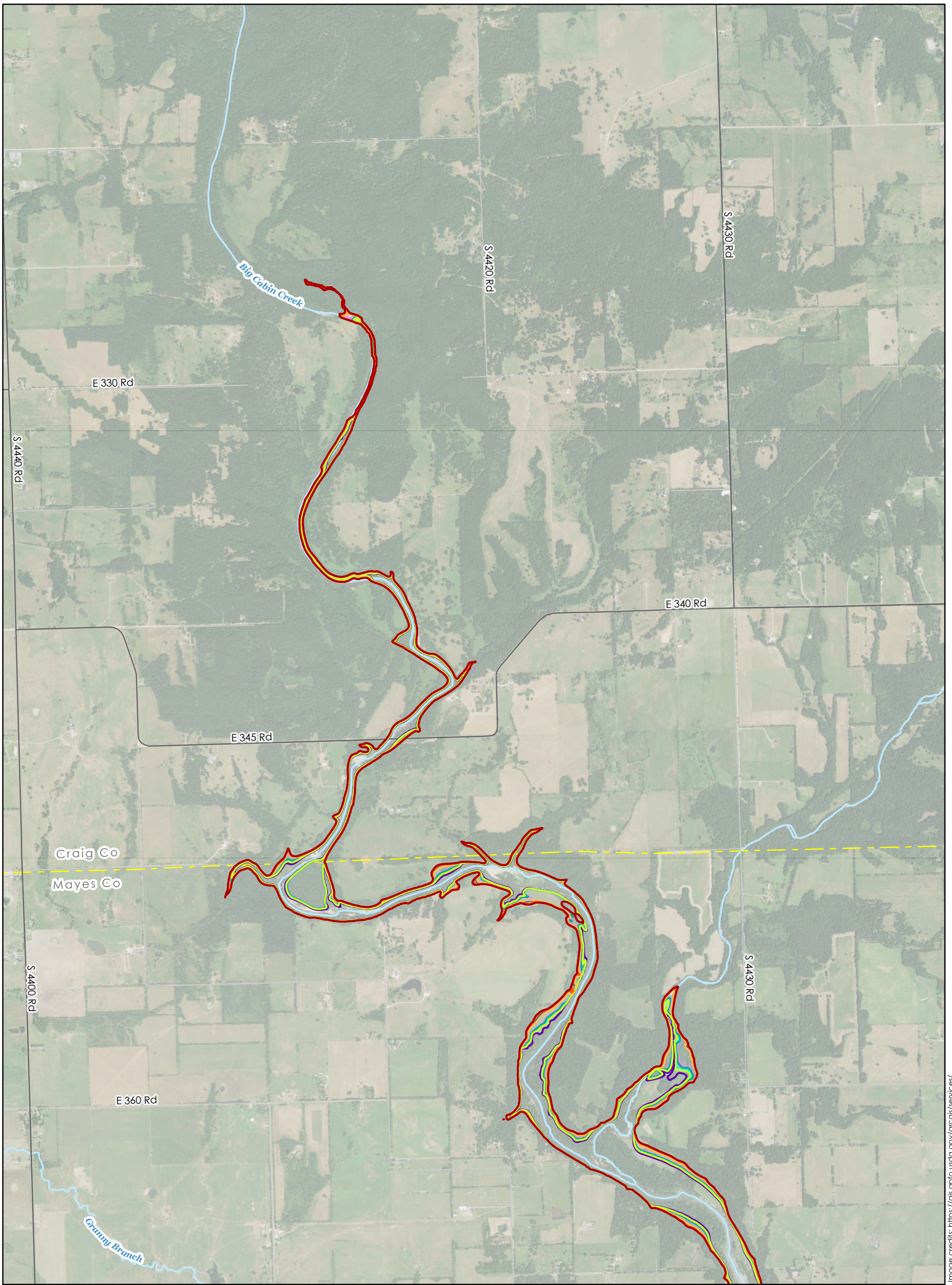
Mapping shows the extent of inundation for the selected hydraulic event under different starting pool elevations at Pensacola Dam: 734.0 ft PD, 742.0 ft PD, 742.5 ft PD, 743.0 ft PD, 743.5 ft PD, 744.0 ft PD, 744.5 ft PD, 745.0 ft PD, 749.0 ft PD, 753.0 ft PD, and 757.0 ft PD.



Map Notes

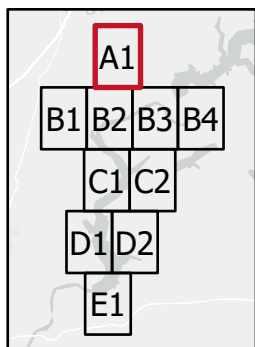
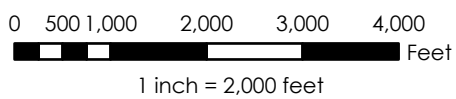
Data Sources for Maps:

1. Base map images from https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019.
2. Transportation network (major roads, local roads, and railroads) and county boundaries obtained from the Oklahoma Office of Geographic Information (<http://okmaps.org/cgi/search.aspx>).



B2 B2 B3

OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



OCT 2009 MAX INUNDATION

- 757.0 ft PD
- 753.0 ft PD
- 749.0 ft PD
- 745.0 ft PD
- 744.5 ft PD
- 744.0 ft PD
- 743.5 ft PD
- 743.0 ft PD
- 742.5 ft PD
- 742.0 ft PD
- 734.0 ft PD

Legend

ROAD CLASS

- Interstate
- State Highway
- US Highway
- Major Collector
- Local Road

BOUNDARY TYPE

- Project
- County
- Municipal

Stream

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

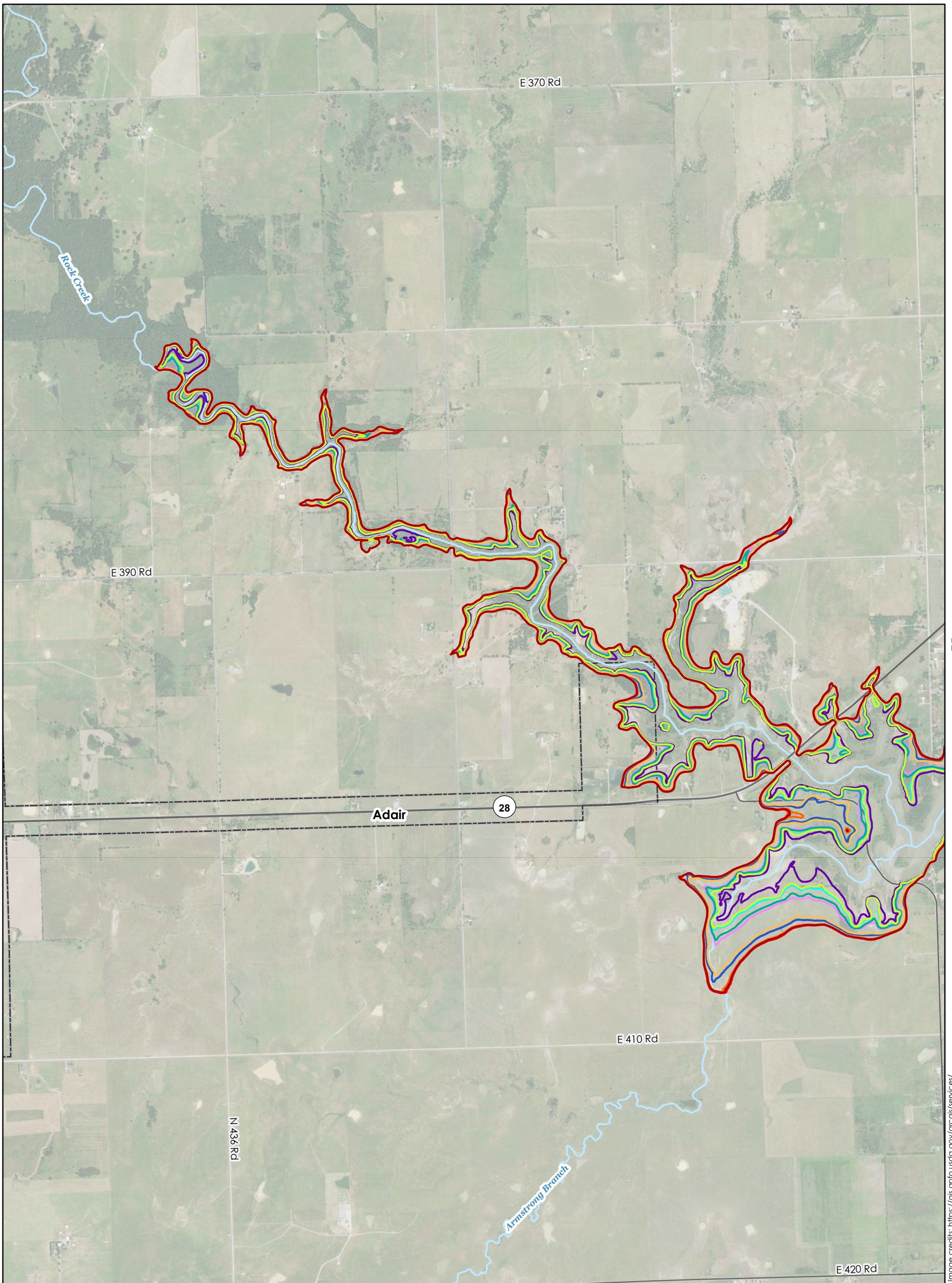
GRAND RIVER DAM AUTHORITY

MAP: A1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

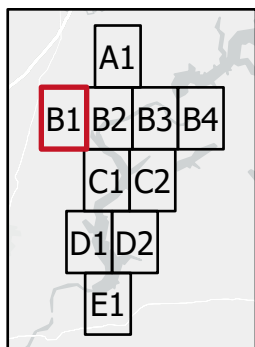
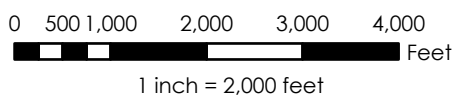


B2

Image credits: https://gis.opfo.usda.gov/orcgl/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

C1

OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



OCT 2009 MAX INUNDATION

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

Legend

ROAD CLASS

Interstate
State Highway
US Highway
Major Collector
Local Road

BOUNDARY TYPE

Stream
Project
County
Municipal

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**
GRAND RIVER DAM AUTHORITY

MAP: B1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA
FERC No. 1494
September 2022

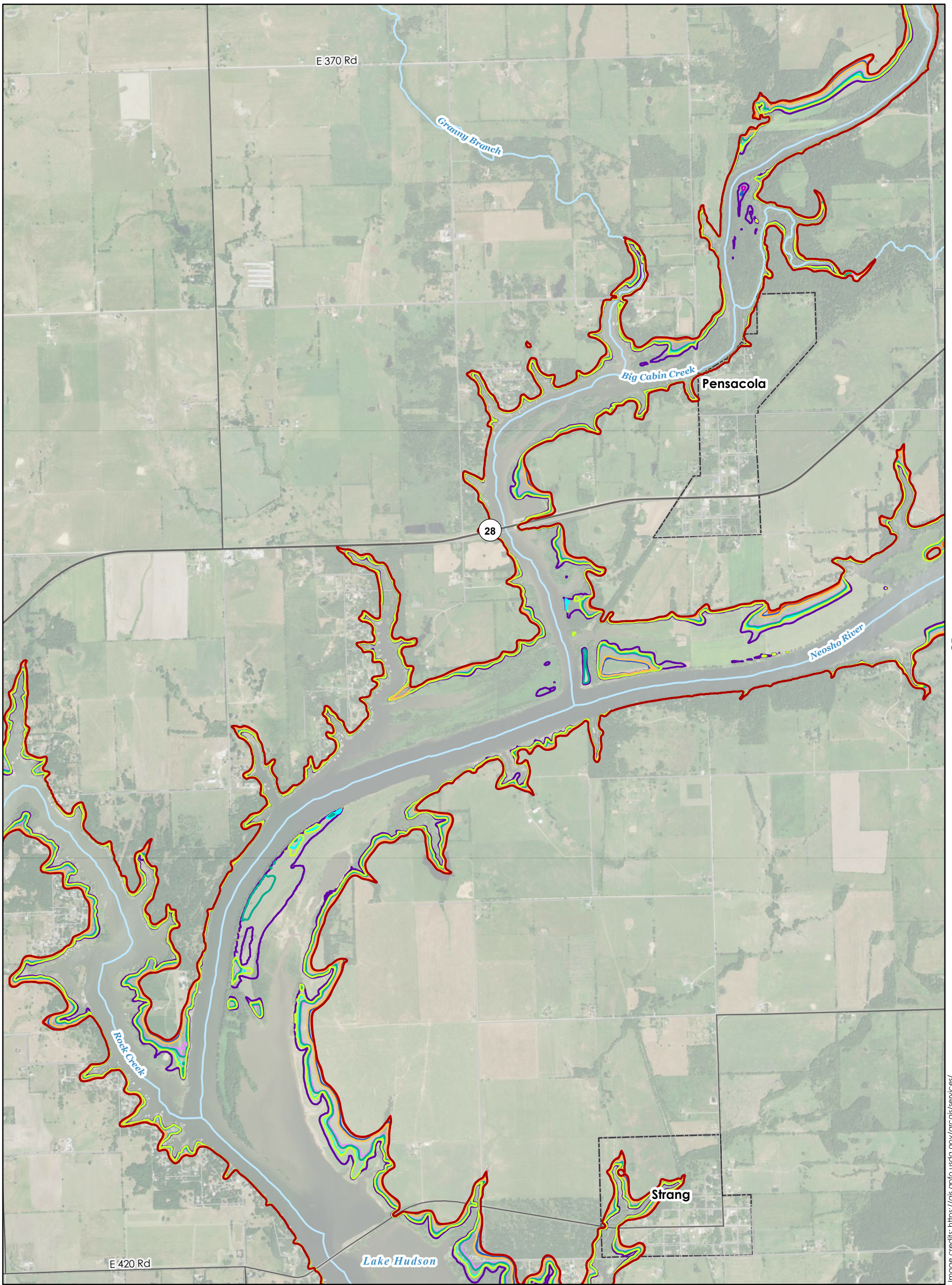
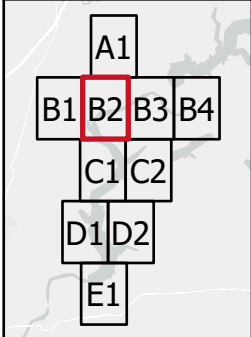
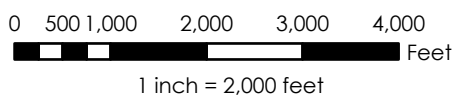


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



OCT 2009 MAX INUNDATION

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

Legend

ROAD CLASS

Interstate
State Highway
US Highway
Major Collector
Local Road

BOUNDARY TYPE

Stream
Project
County
Municipal

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL
GRAND RIVER DAM AUTHORITY

MAP: B2

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA
FERC No. 1494
September 2022

A1

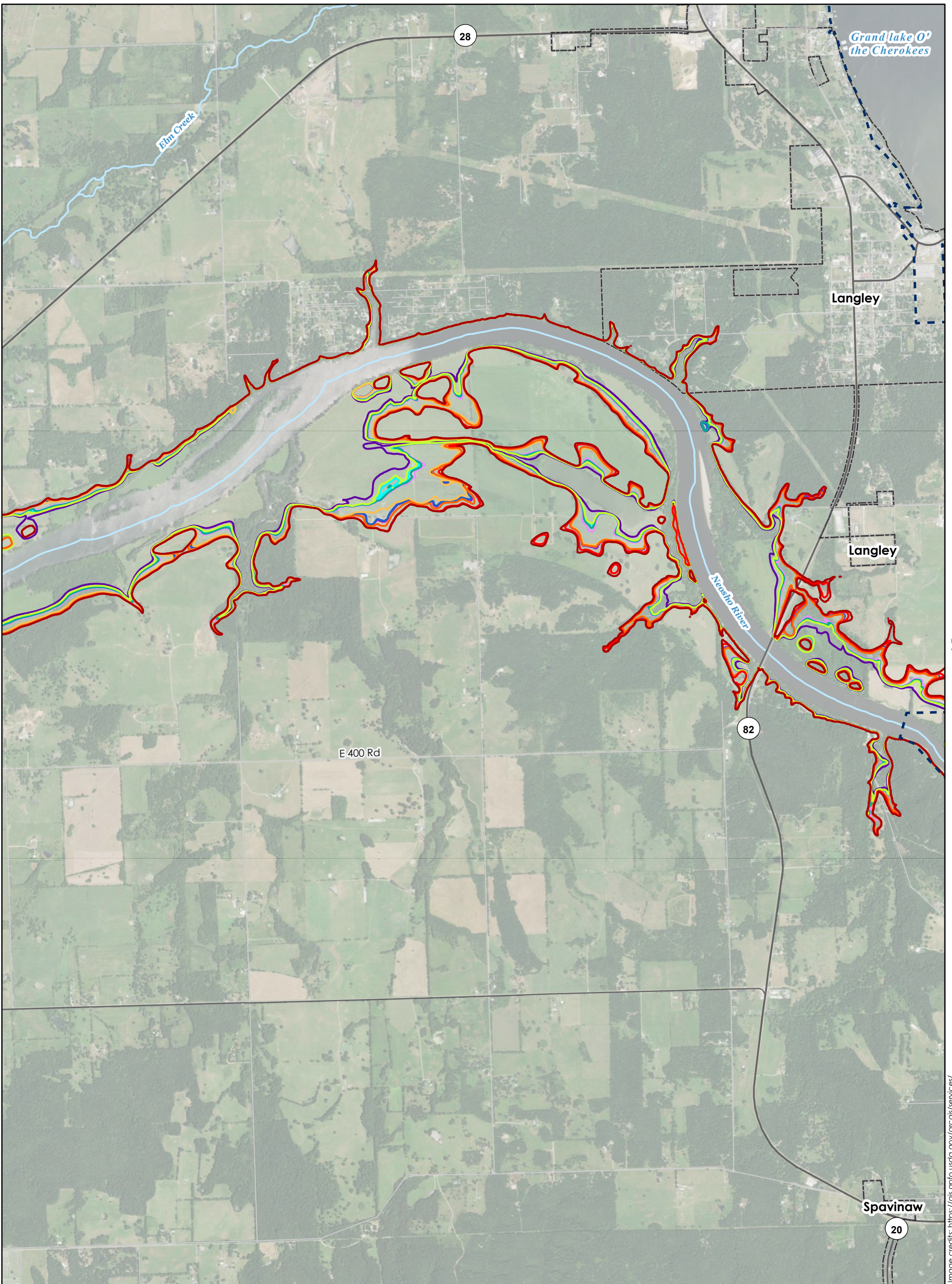


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

C2

C2

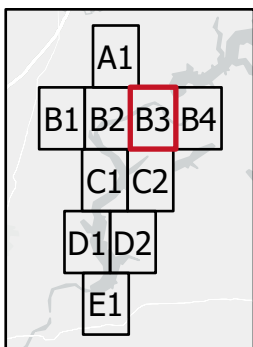
OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



OCT 2009 MAX INUNDATION

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

Legend

ROAD CLASS

Interstate
State Highway
US Highway
Major Collector
Local Road

BOUNDARY TYPE

Stream
Project
County
Municipal

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: B3

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

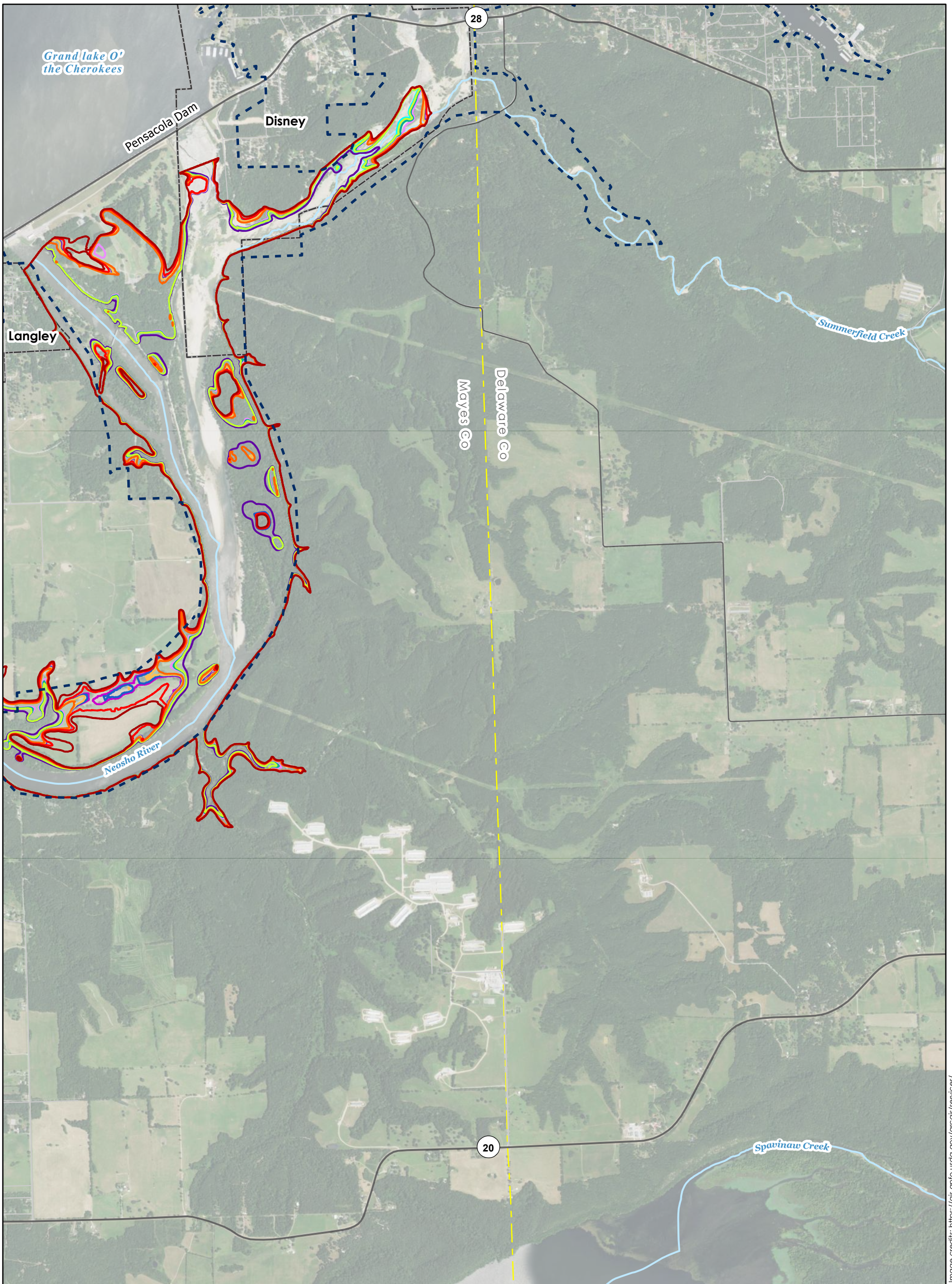


Image credits: https://glt.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO

NORTH

0 500 1,000 2,000 3,000 4,000 Feet

1 inch = 2,000 feet

A1
B1 B2 B3 B4
C1 C2
D1 D2
E1

OCT 2009 MAX INUNDATION		ROAD CLASS	
— 757.0 ft PD	— 743.5 ft PD	— Interstate	— Stream
— 753.0 ft PD	— 743.0 ft PD	— State Highway	— Project
— 749.0 ft PD	— 742.5 ft PD	— US Highway	— County
— 745.0 ft PD	— 742.0 ft PD	— Major Collector	— Municipal
— 744.5 ft PD	— 734.0 ft PD	— Local Road	
— 744.0 ft PD			

MAP AND LEGEND NOTES

- For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
- See Overview Map for notes on data sources.

PENSACOLA DAM

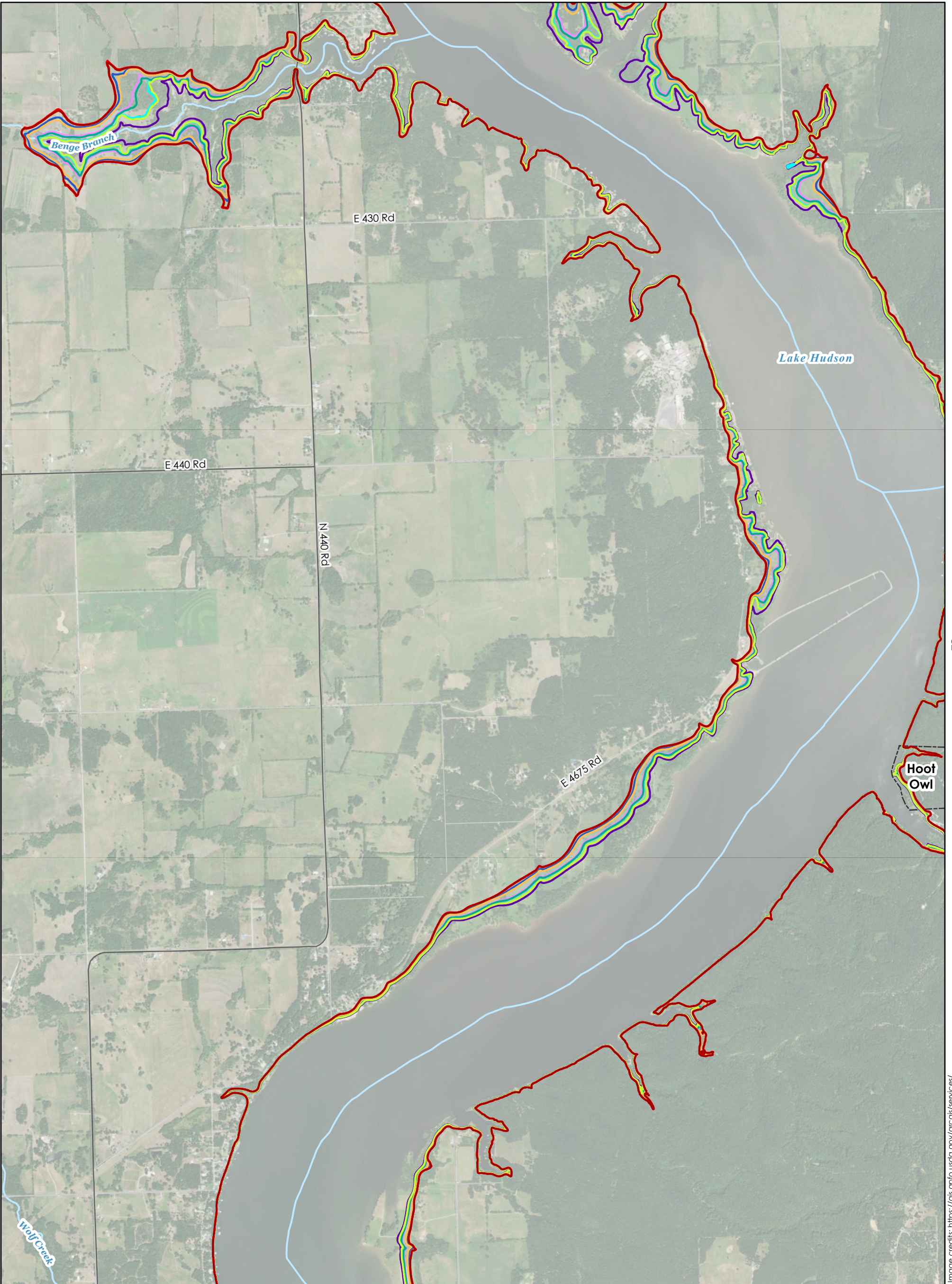
DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: B4

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

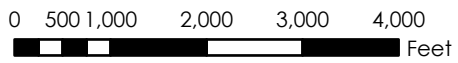
FERC No. 1494
September 2022



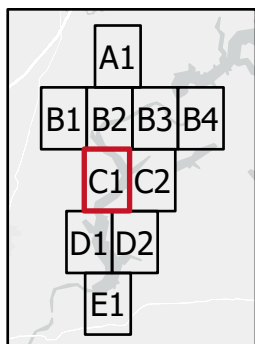
**OCTOBER 2009 (3 YEAR)
INUNDATION SCENARIO**



NORTH



1 inch = 2,000 feet



Legend

OCT 2009 MAX INUNDATION		ROAD CLASS		BOUNDARY TYPE	
	757.0 ft PD		743.5 ft PD		Stream
	753.0 ft PD		743.0 ft PD		Project
	749.0 ft PD		742.5 ft PD		County
	745.0 ft PD		742.0 ft PD		Municipal
	744.5 ft PD		734.0 ft PD		Interstate
	744.0 ft PD		State Highway		US Highway
			Major Collector		Local Road

MAP AND LEGEND NOTES

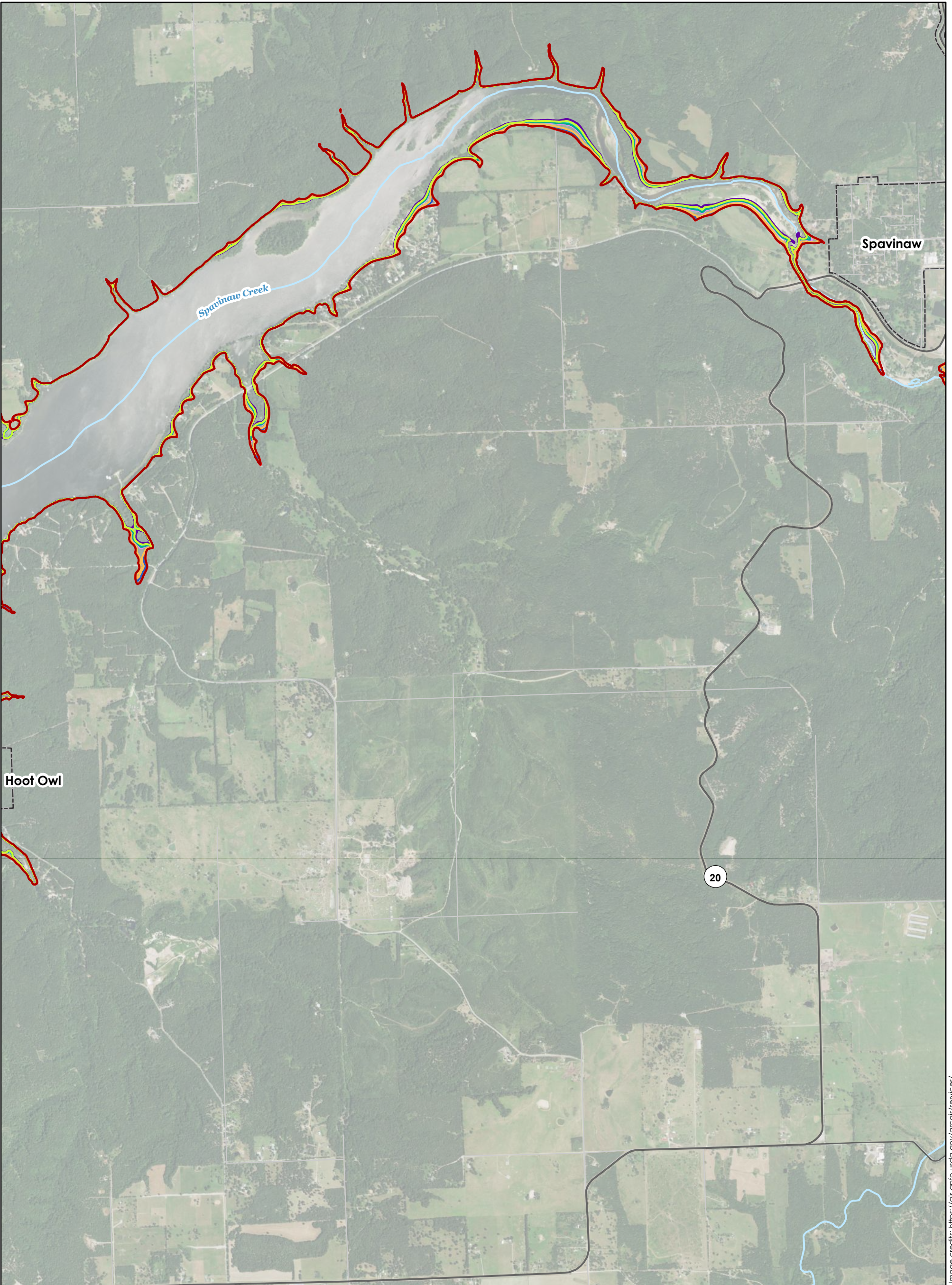
1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**
GRAND RIVER DAM AUTHORITY

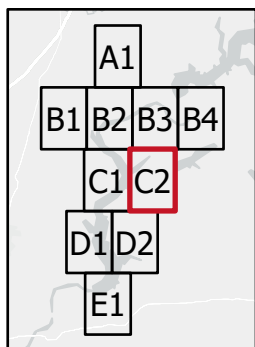
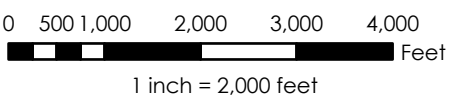
MAP: C1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



OCT 2009 MAX INUNDATION

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

Legend

ROAD CLASS

Interstate
State Highway
US Highway
Major Collector
Local Road

BOUNDARY TYPE

Stream
Project
County
Municipal

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**
GRAND RIVER DAM AUTHORITY

MAP: C2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA
FERC No. 1494
September 2022

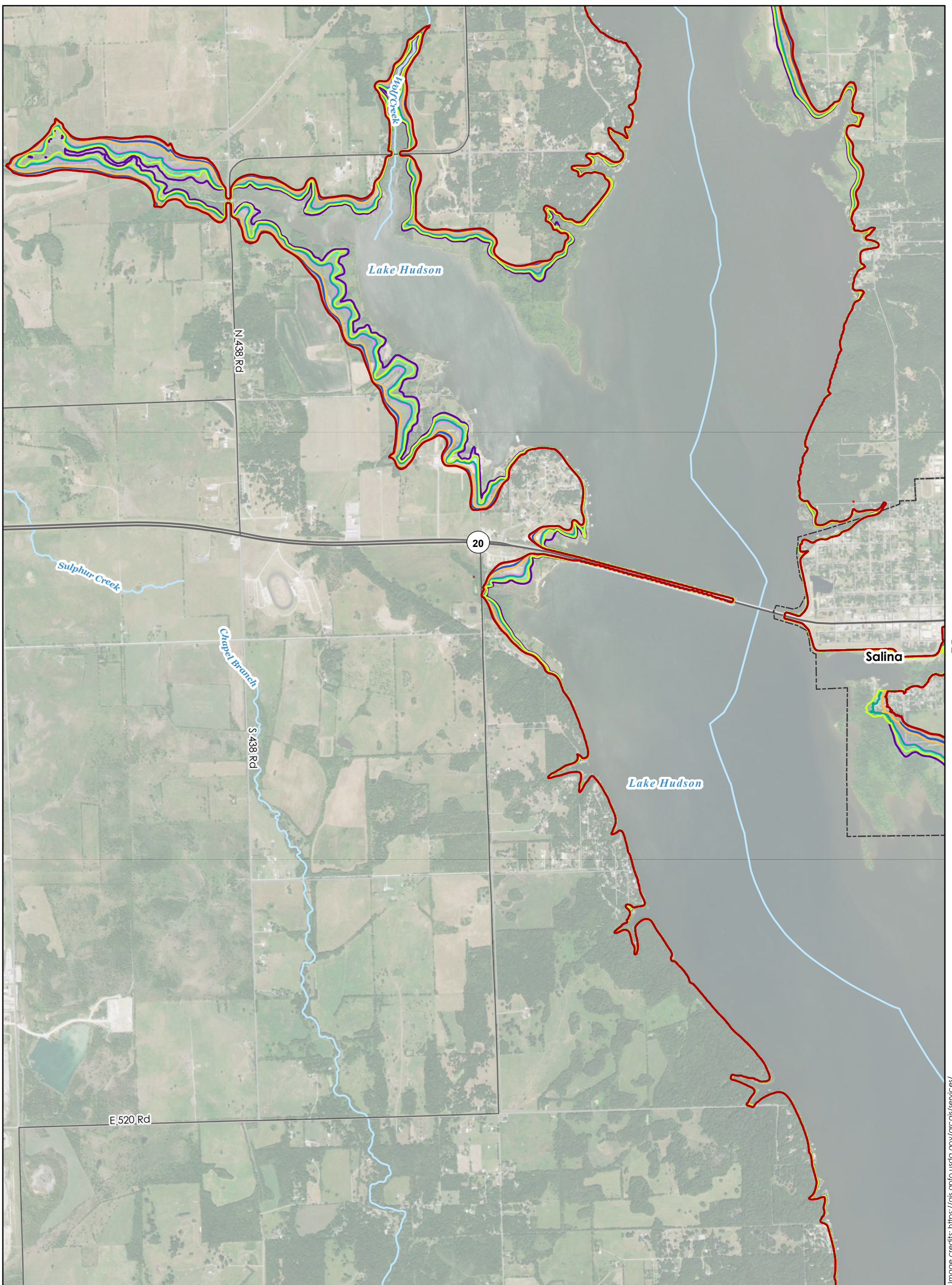


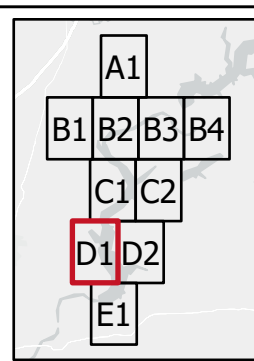
Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO

NORTH

0 500 1,000 2,000 3,000 4,000 Feet

1 inch = 2,000 feet



Legend

OCT 2009 MAX INUNDATION		ROAD CLASS	
757.0 ft PD	743.5 ft PD	Interstate	Stream
753.0 ft PD	743.0 ft PD	State Highway	BOUNDARY TYPE
749.0 ft PD	742.5 ft PD	US Highway	Project
745.0 ft PD	742.0 ft PD	Major Collector	County
744.5 ft PD	734.0 ft PD	Local Road	Municipal
744.0 ft PD			

MAP AND LEGEND NOTES

- For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
- See Overview Map for notes on data sources.

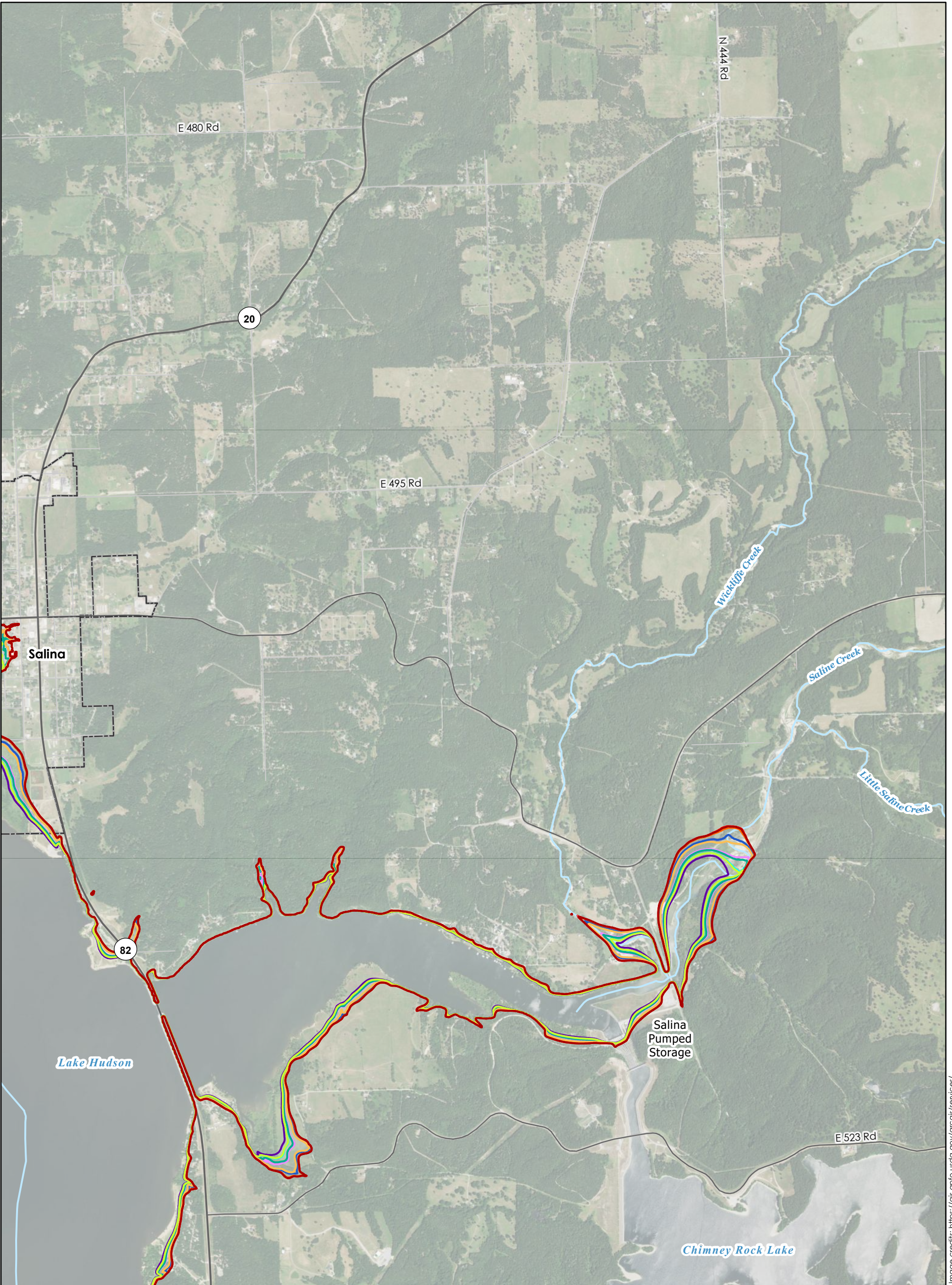
PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: D1

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494
September 2022



D1

Salina

Lake Hudson

Salina Pumped Storage

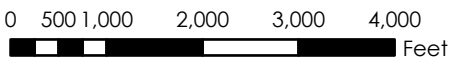
Chimney Rock Lake

E1

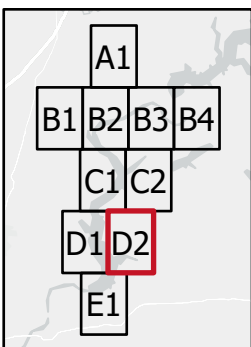
OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



OCT 2009 MAX INUNDATION

757.0 ft PD	743.5 ft PD
753.0 ft PD	743.0 ft PD
749.0 ft PD	742.5 ft PD
745.0 ft PD	742.0 ft PD
744.5 ft PD	734.0 ft PD
744.0 ft PD	

Legend

ROAD CLASS

Interstate
State Highway
US Highway
Major Collector
Local Road

BOUNDARY TYPE

Stream
Project
County
Municipal

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: D2

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494
September 2022

Image credits: https://gis.cplio.usda.gov/orcrgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

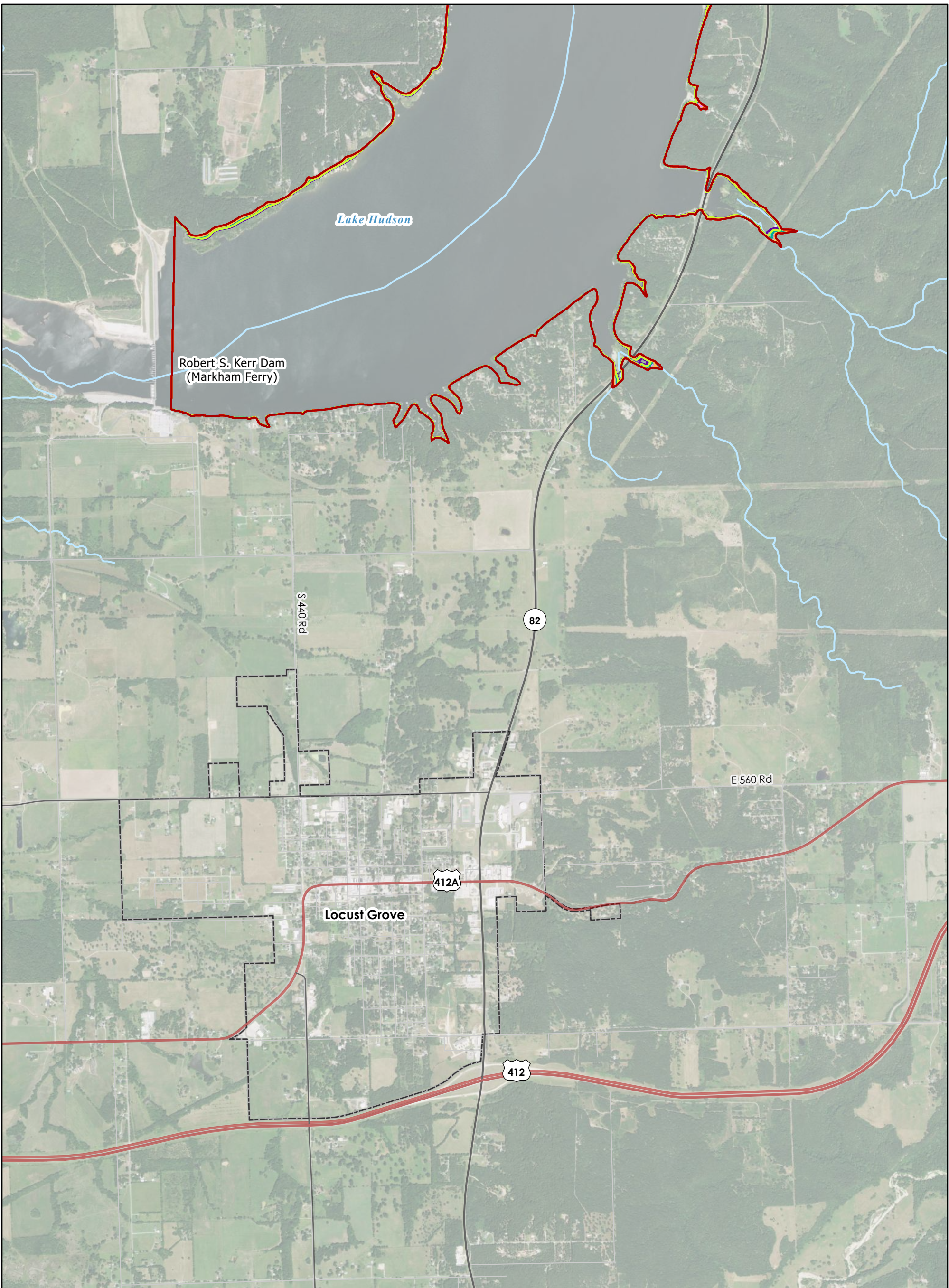
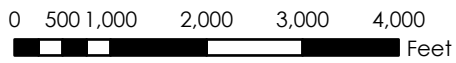


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

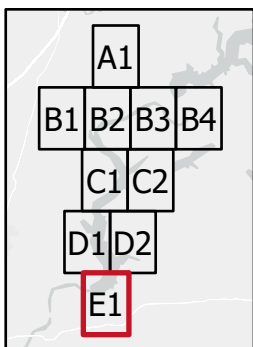
OCTOBER 2009 (3 YEAR) INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



OCT 2009 MAX INUNDATION

- 757.0 ft PD
- 753.0 ft PD
- 749.0 ft PD
- 745.0 ft PD
- 744.5 ft PD
- 744.0 ft PD
- 743.5 ft PD
- 743.0 ft PD
- 742.5 ft PD
- 742.0 ft PD
- 734.0 ft PD

Legend

ROAD CLASS

- Interstate
- State Highway
- US Highway
- Major Collector
- Local Road

BOUNDARY TYPE

- Project
- County
- Municipal

MAP AND LEGEND NOTES

1. For areas where only the highest starting elevation inundation boundary is visible, the inundation from other starting elevations is nearly identical.
2. See Overview Map for notes on data sources.

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: E1

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494

September 2022