

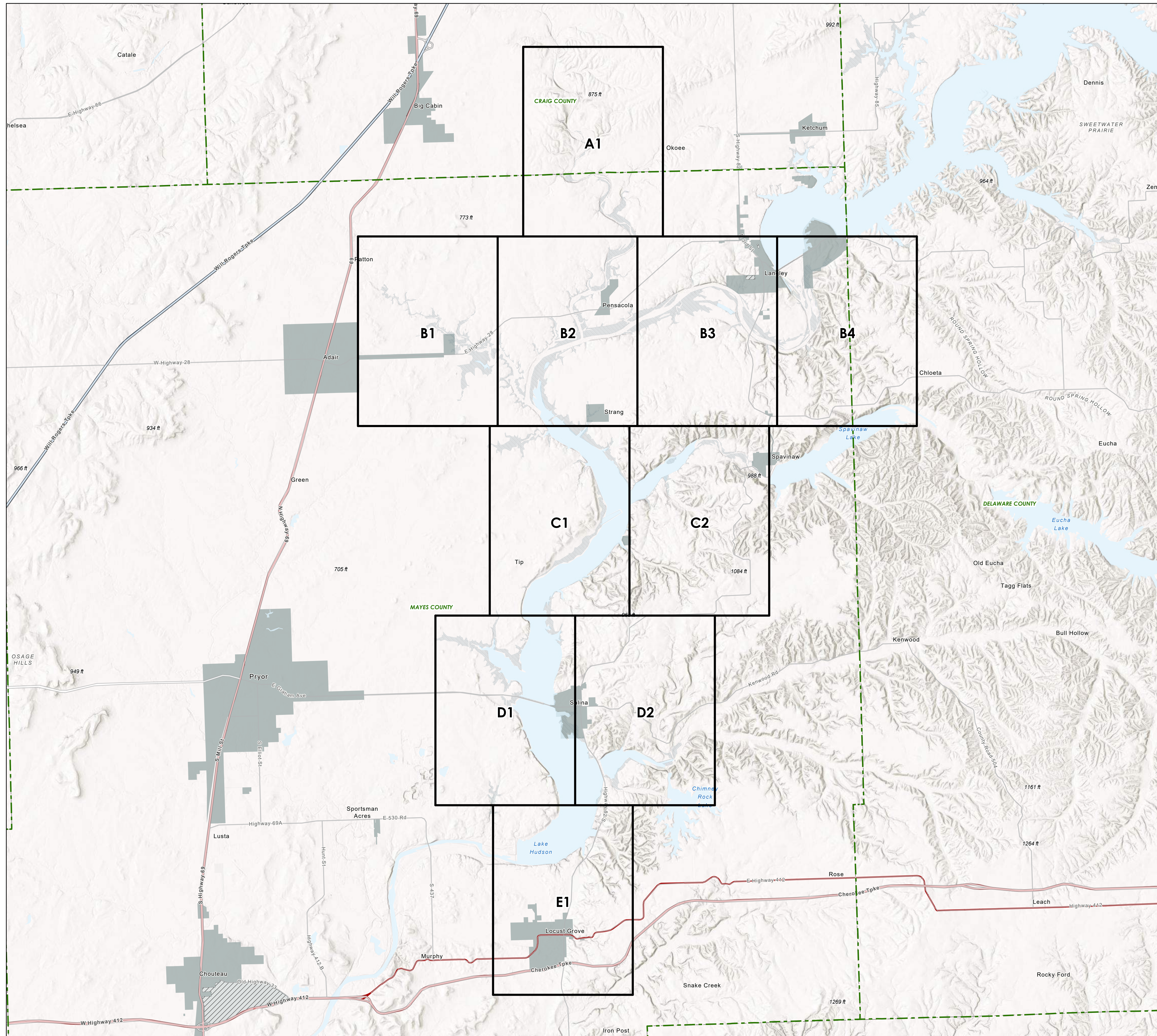


APPENDIX E.5:
DECEMBER 2015 EVENT INUNDATION MAPS



Downstream Model Results Overview Map

Pensacola Dam
GRAND RIVER DAM AUTHORITY
Date: August 2021

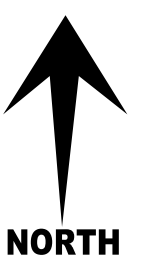
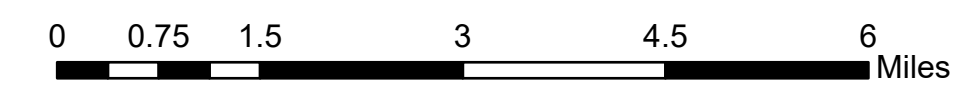
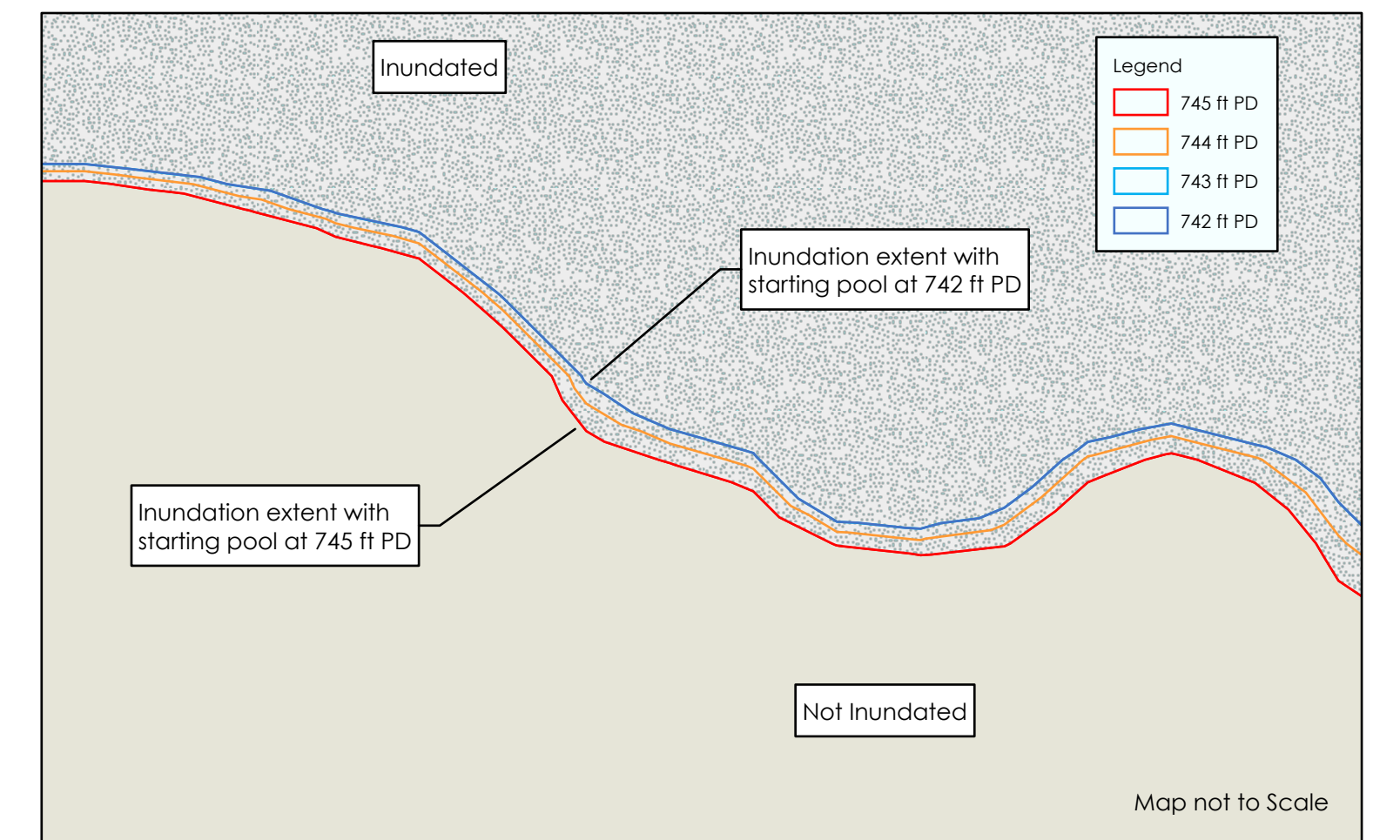


Overview Map Legend

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

Inundation Scenario Mapping

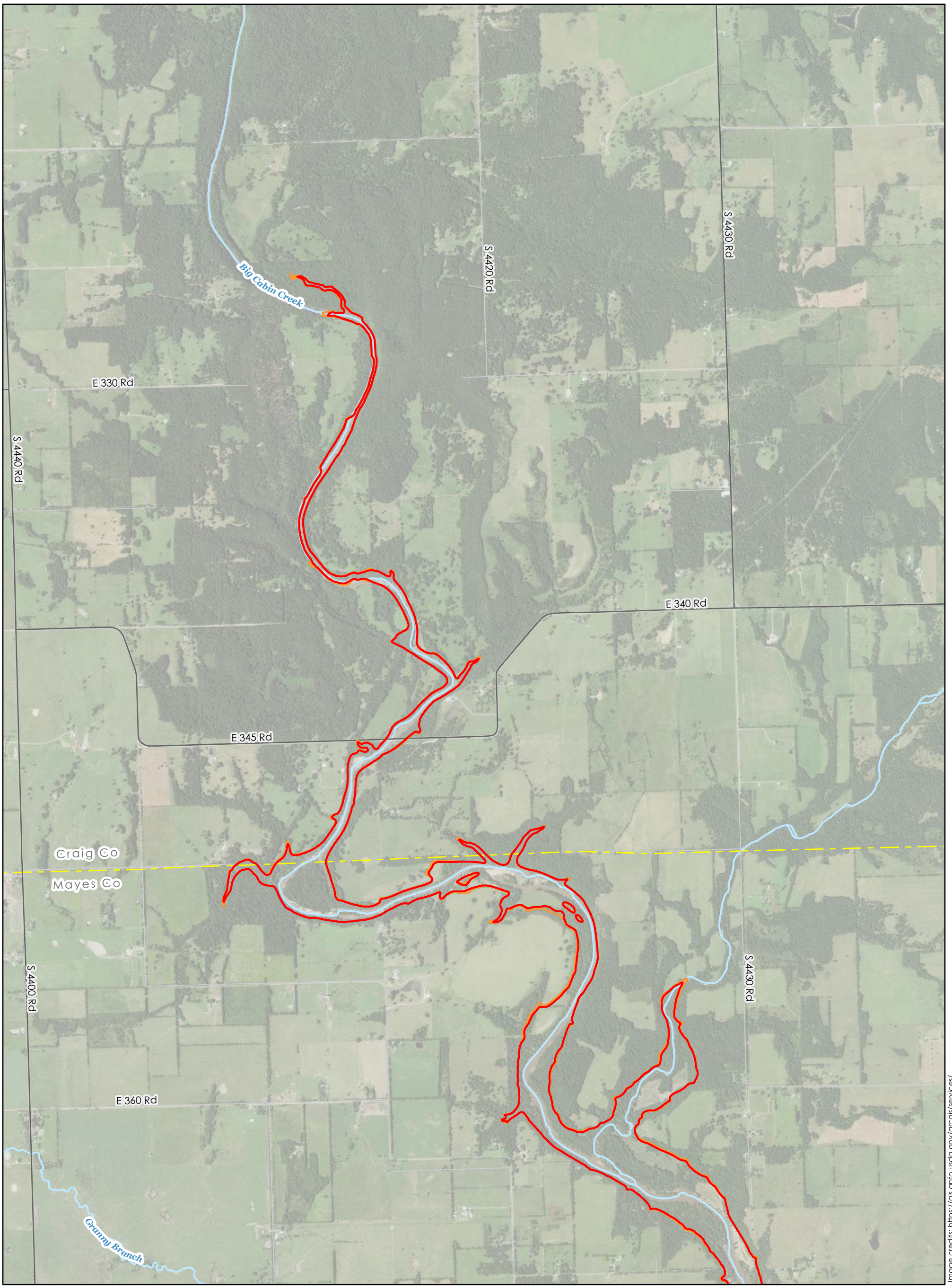
Mapping shows the extent of inundation for the selected hydraulic event under different starting pool elevations at Pensacola Dam: 742 ft PD, 743 ft PD, 744 ft PD, and 745 ft PD.



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>).

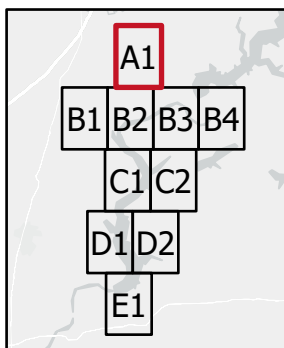


B2 B2 B3

DECEMBER 2015 INUNDATION SCENARIO



0 500 1,000 2,000 3,000 4,000 Feet
1 inch = 2,000 feet



- DEC 2015 MAX INUNDATION**
- 745 ft PD
 - 744 ft PD
 - 743 ft PD
 - 742 ft PD

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

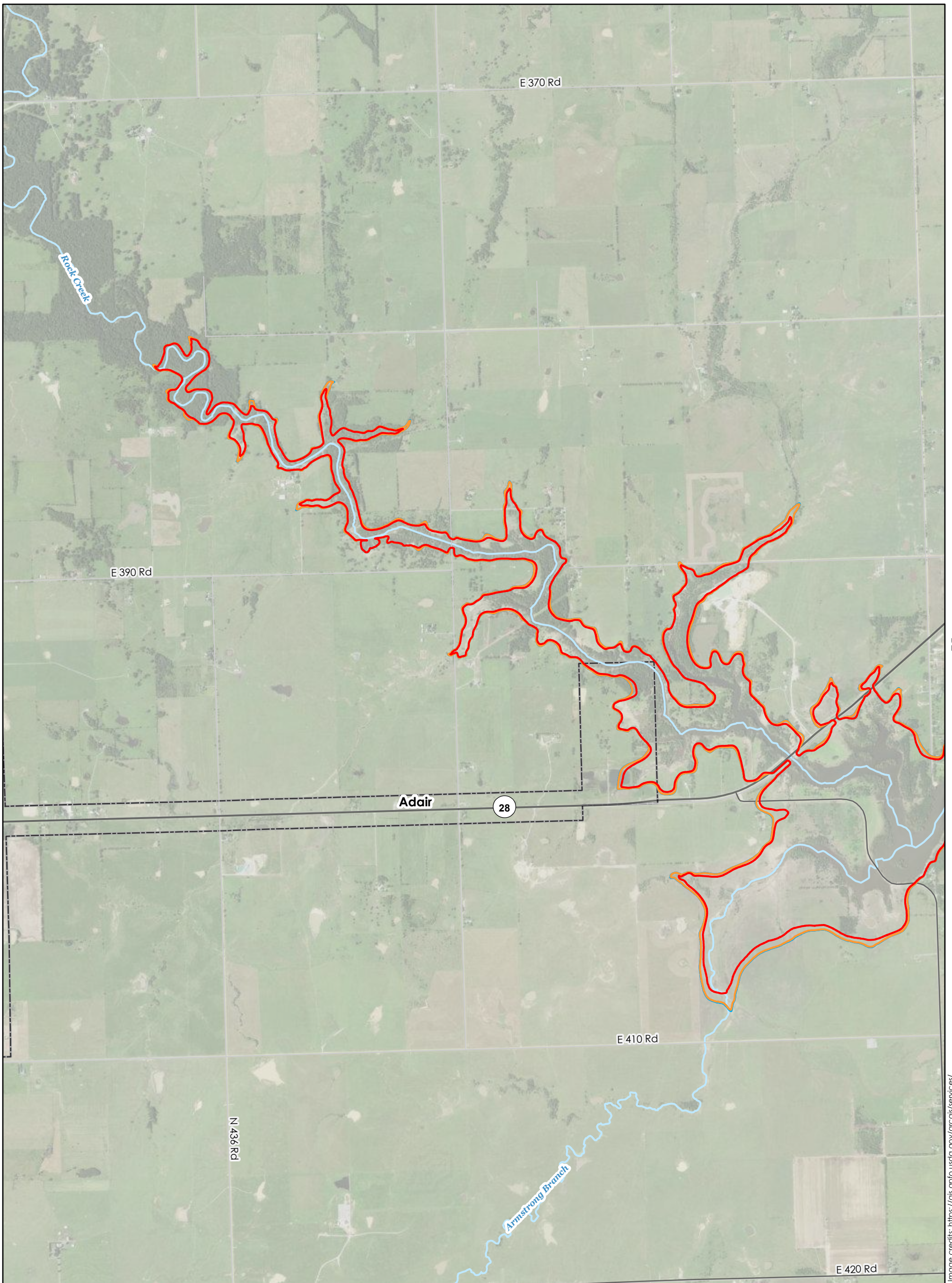
PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: A1

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494
August 2021



B2

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

C1

DECEMBER 2015 INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

Legend

DEC 2015 MAX INUNDATION		ROAD CLASS			
	745 ft PD		Interstate		Stream
	744 ft PD		State Highway		Project Boundary
	743 ft PD		US Highway		County Boundary
	742 ft PD		Major Collector		Municipal Boundary
			Local Road		

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

PENSACOLA DAM

DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: B1

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494

August 2021

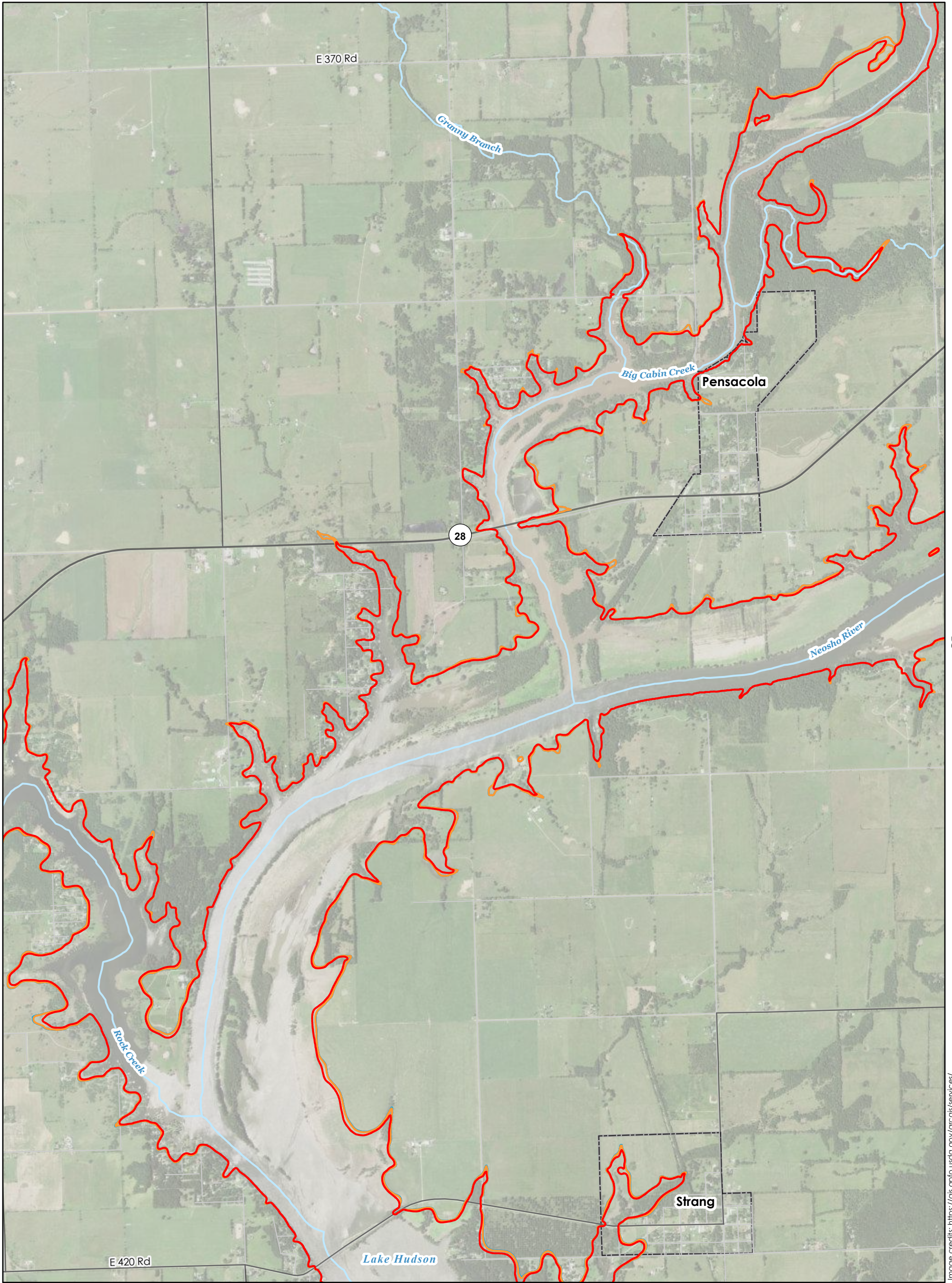
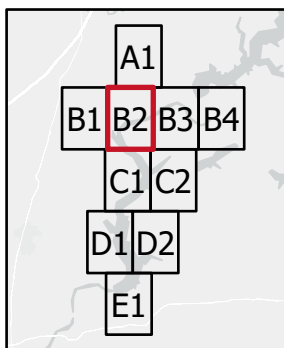
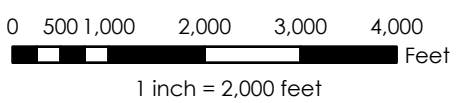


Image credits: https://gis.cplio.usdo.gov/orcgl/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

**DECEMBER 2015
INUNDATION SCENARIO**



DEC 2015 MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

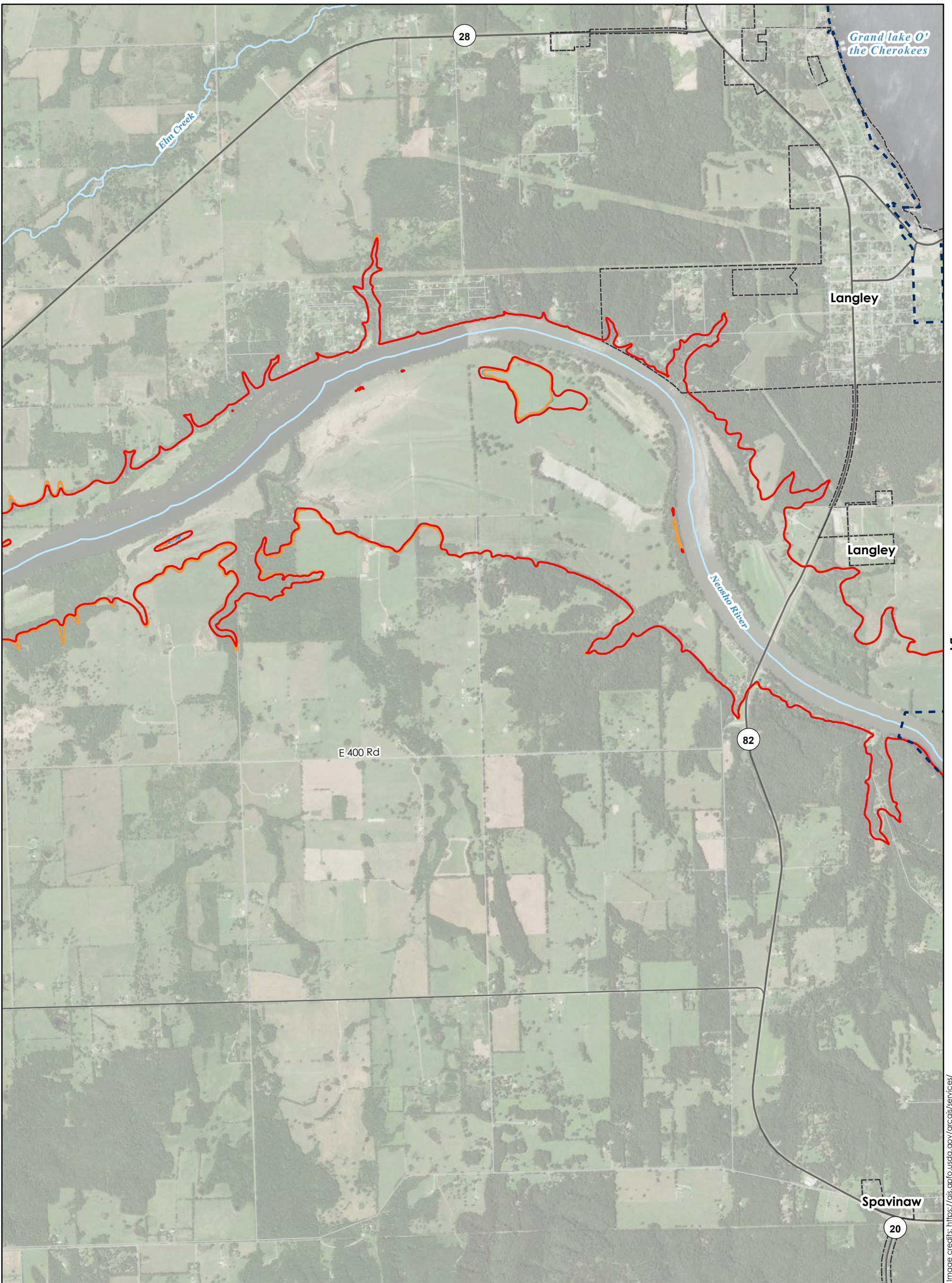
GRAND RIVER DAM AUTHORITY

MAP: B2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

A1



B2

B4

C2

C2

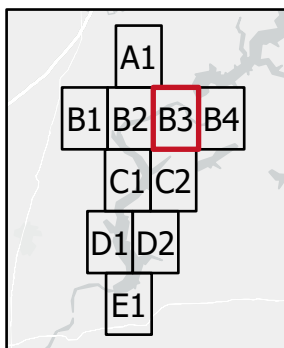
**DECEMBER 2015
INUNDATION SCENARIO**



NORTH

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

1 inch = 2,000 feet



Legend

DEC 2015 MAX INUNDATION

- █ 745 ft PD
- █ 744 ft PD
- █ 743 ft PD
- █ 742 ft PD

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: B3

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494

August 2021

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

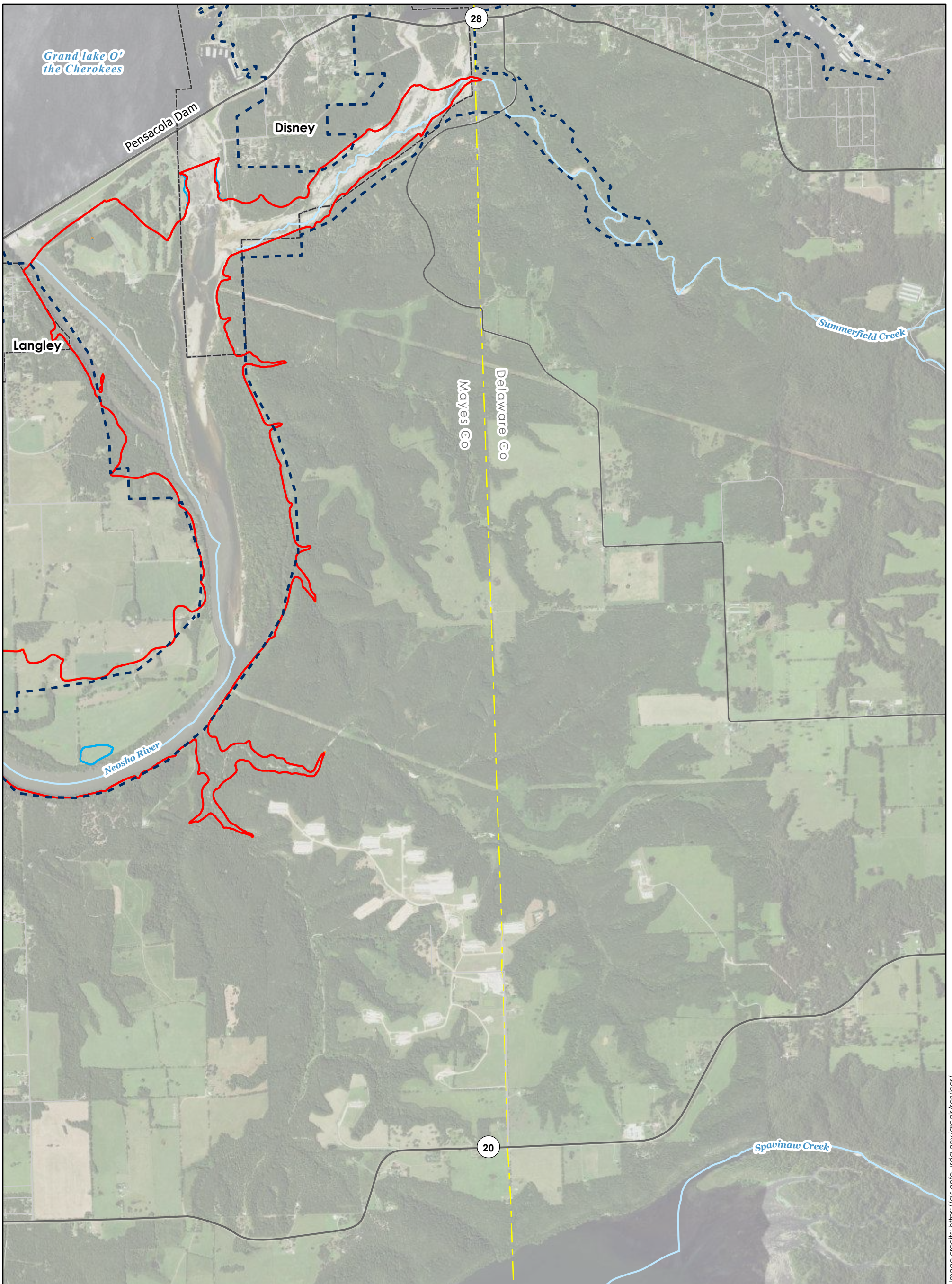


Image credits: https://gis.cpl.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

DECEMBER 2015 INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

DEC 2015 MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

PENSACOLA DAM

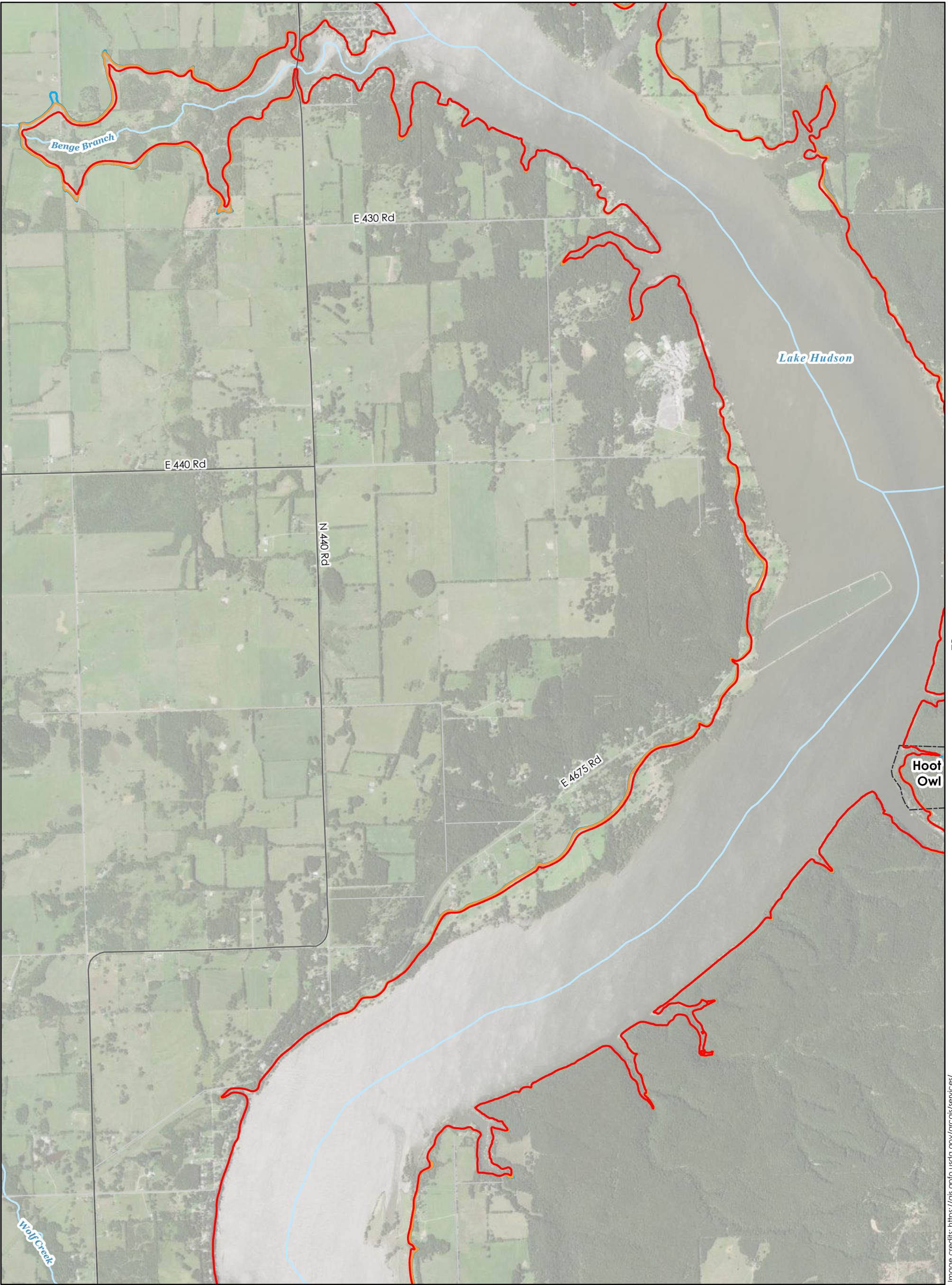
DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: B4

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

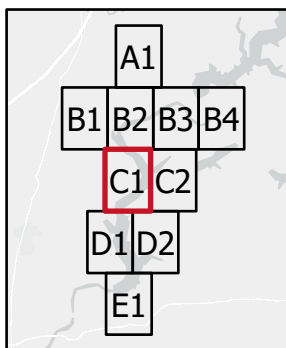


**DECEMBER 2015
INUNDATION SCENARIO**

NORTH

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

1 inch = 2,000 feet



DEC 2015 MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

Legend

ROAD CLASS

- Interstate
- State Highway
- US Highway
- Major Collector
- Local Road
- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

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

MAP: C1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

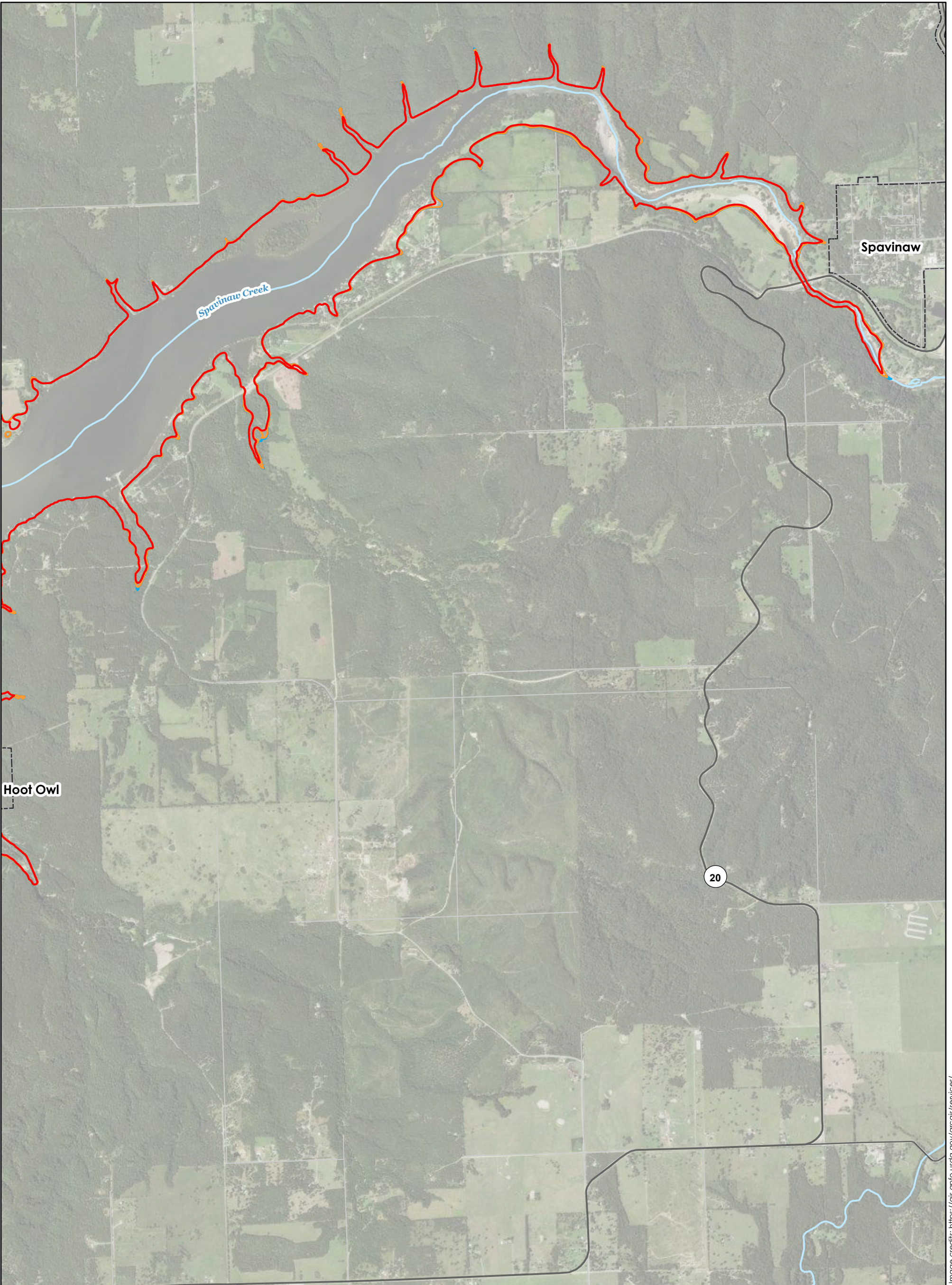


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

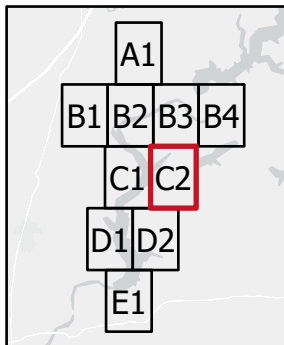
**DECEMBER 2015
INUNDATION SCENARIO**



NORTH

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

1 inch = 2,000 feet



**DEC 2015 MAX
INUNDATION**

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: C2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

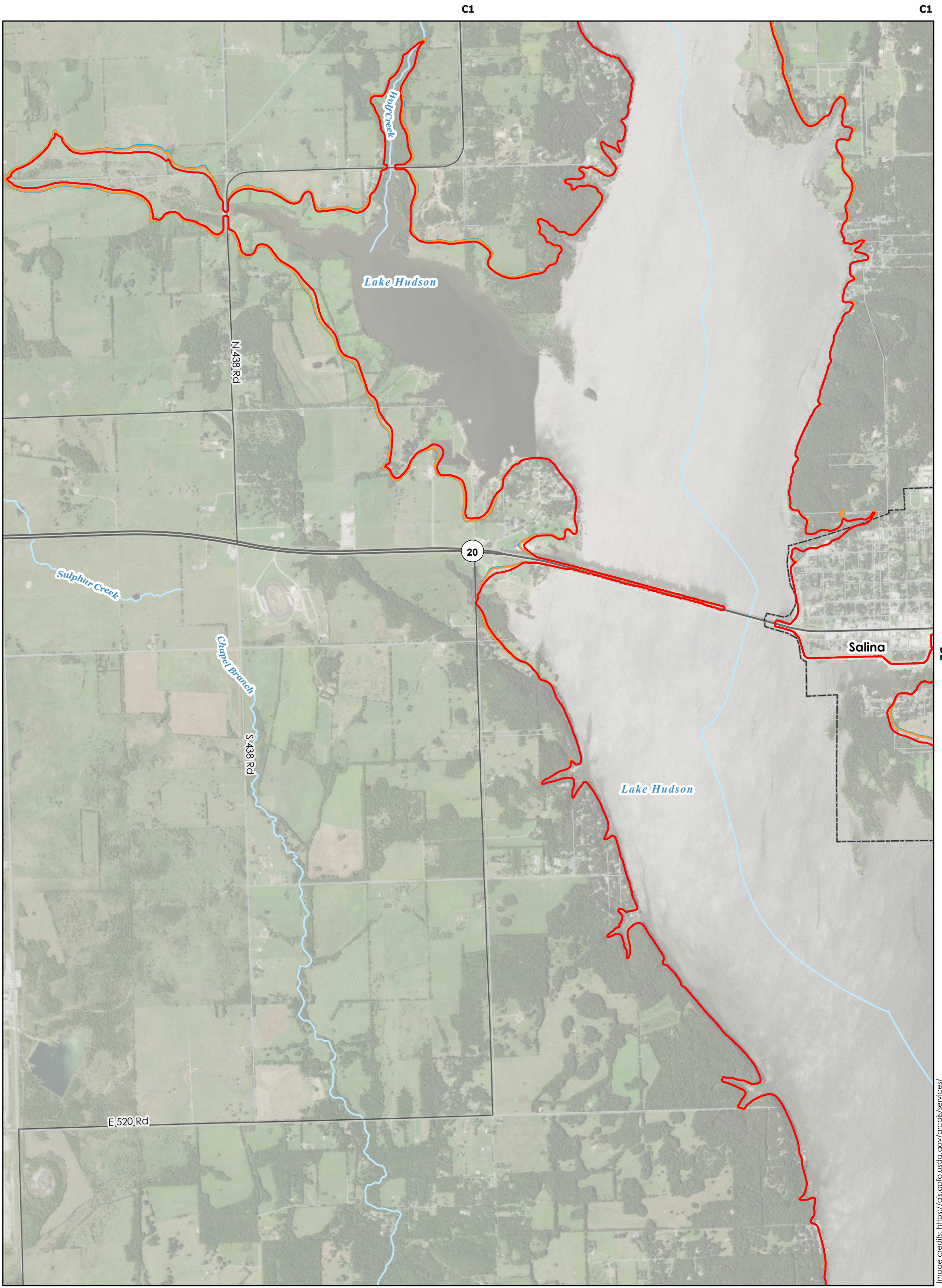


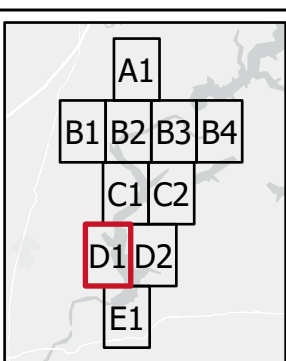
Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

DECEMBER 2015 INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet



Legend

DEC 2015 MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

ROAD CLASS

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

- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL
 GRAND RIVER DAM AUTHORITY

MAP: D1

CRAIG, DELAWARE, AND MAYES
 COUNTIES, OKLAHOMA

FERC No. 1494
 August 2021

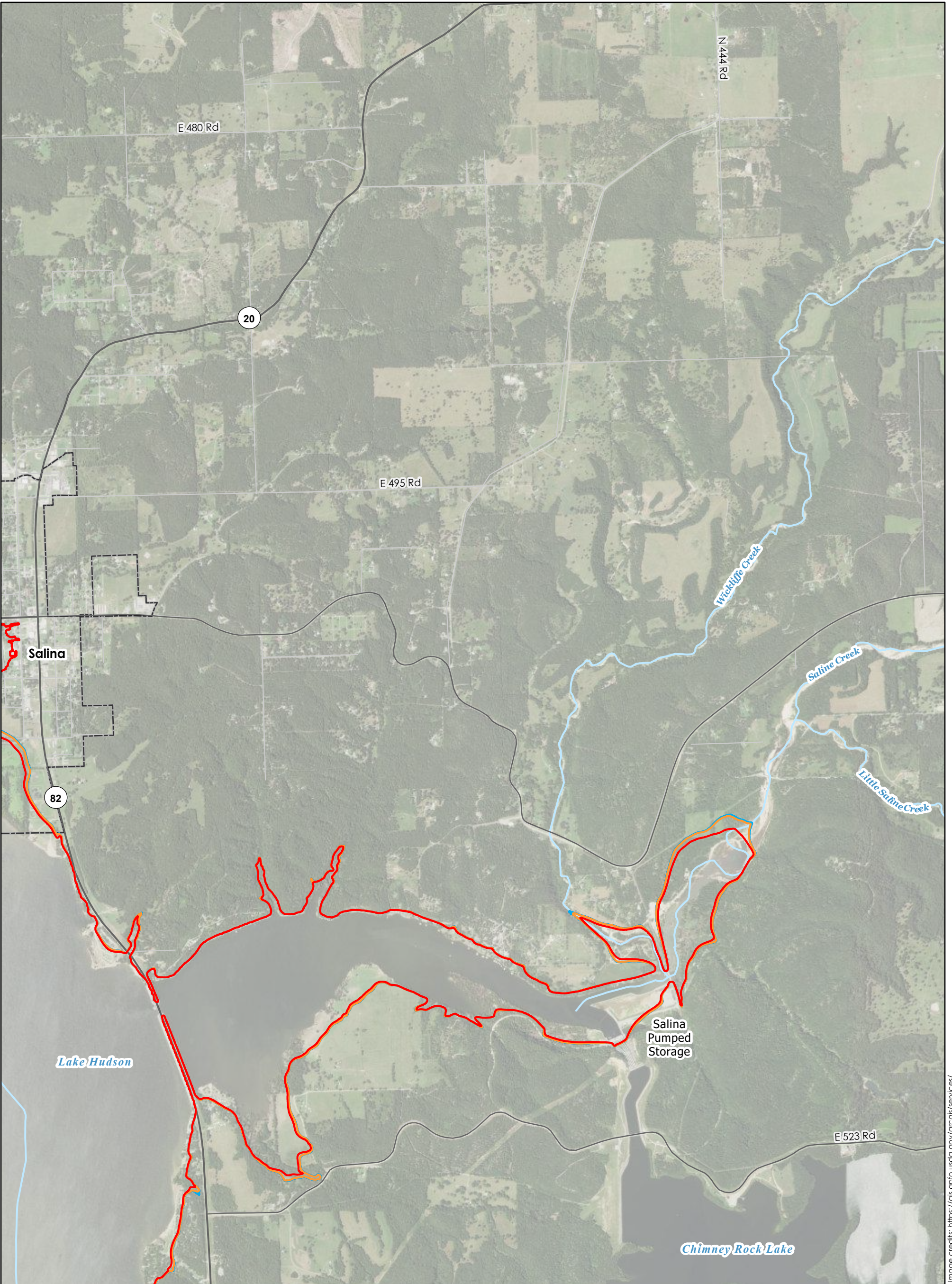


Image credits: https://glt.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

DECEMBER 2015 INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

DEC 2015 MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

Legend

<p>ROAD CLASS</p> <ul style="list-style-type: none"> Interstate State Highway US Highway Major Collector Local Road 	<ul style="list-style-type: none"> Stream Project Boundary County Boundary Municipal Boundary
--	--

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

PENSACOLA DAM

DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: D2

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494

August 2021

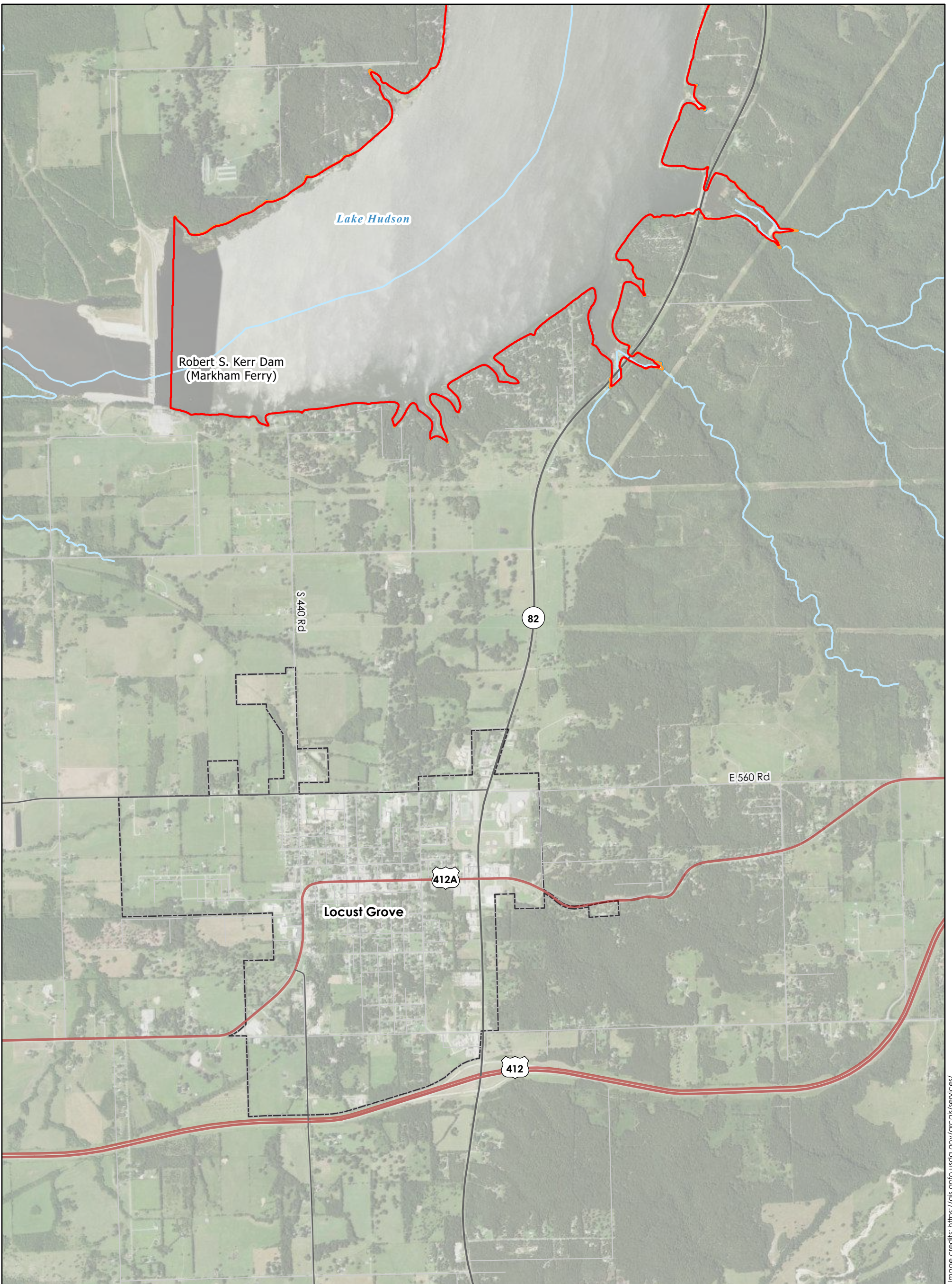


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

DECEMBER 2015 INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

Legend

DEC 2015 MAX INUNDATION		ROAD CLASS			
	745 ft PD		Interstate		Stream
	744 ft PD		State Highway		Project Boundary
	743 ft PD		US Highway		County Boundary
	742 ft PD		Major Collector		Municipal Boundary
			Local Road		

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: E1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

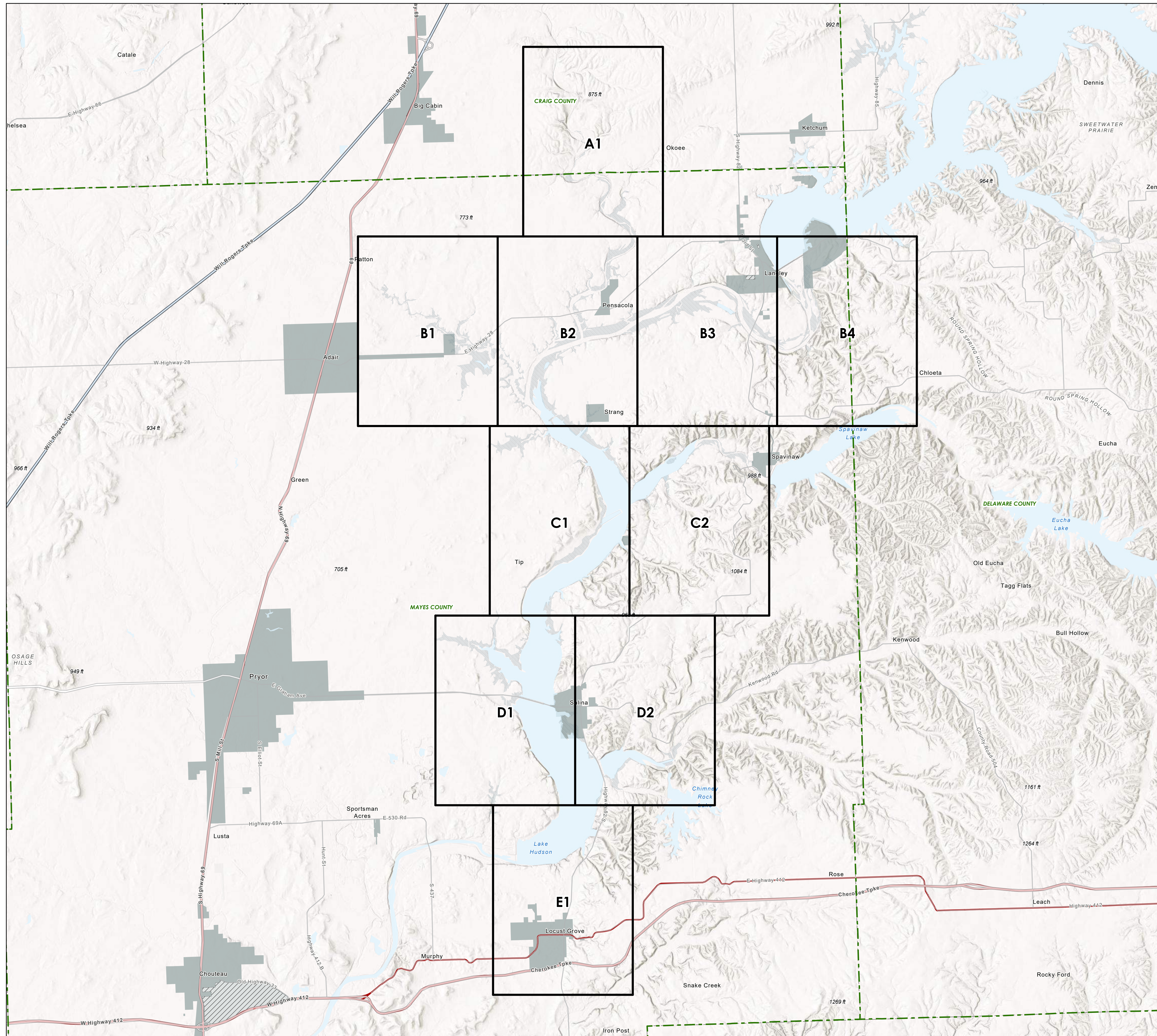


APPENDIX E.6:
100-YEAR EVENT INUNDATION MAPS



Downstream Model Results Overview Map

Pensacola Dam
GRAND RIVER DAM AUTHORITY
Date: August 2021

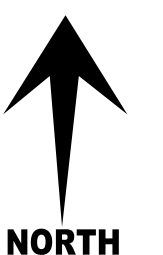
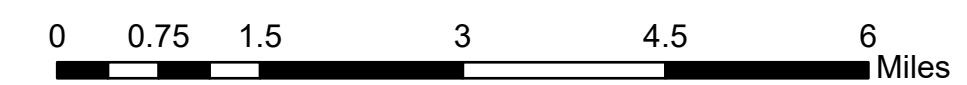
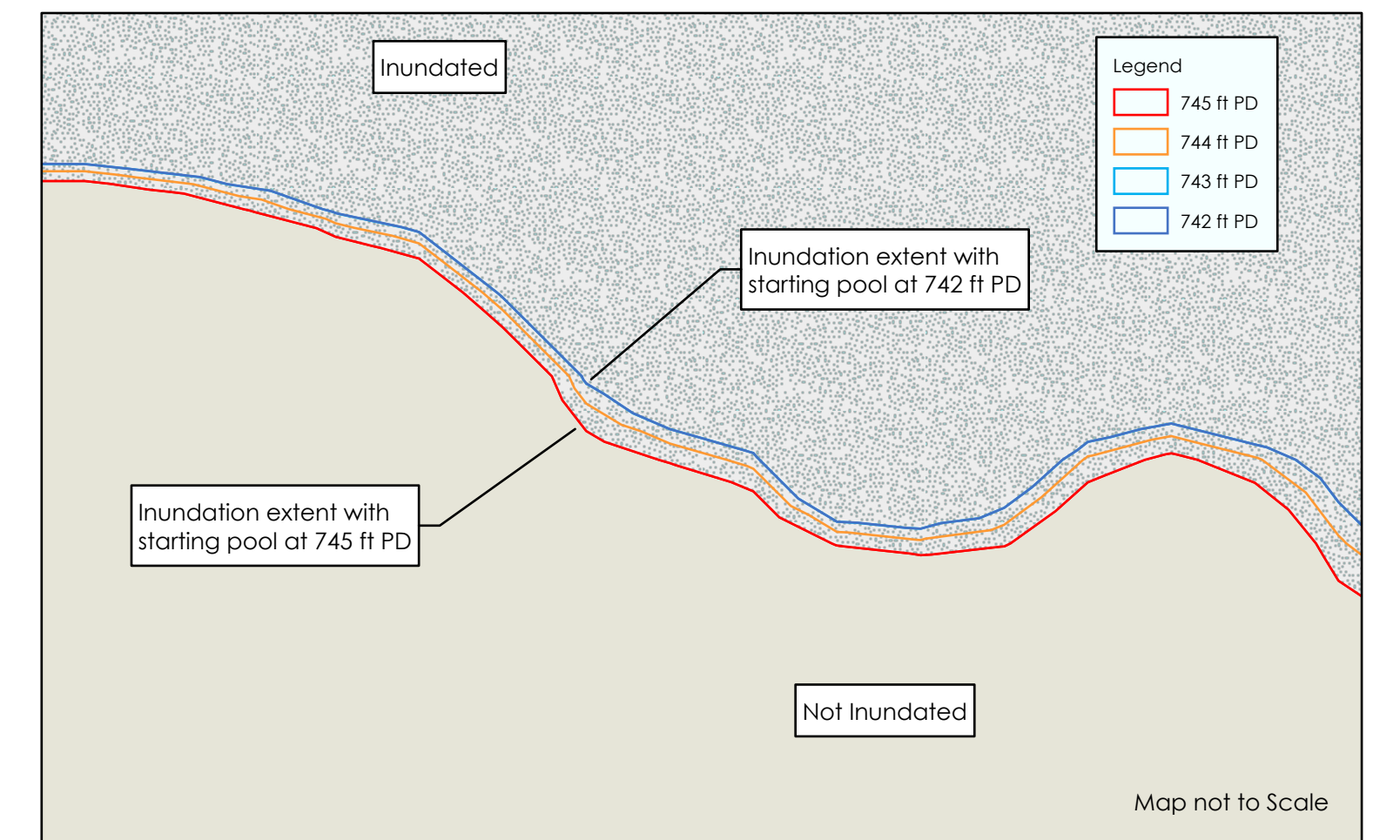


Overview Map Legend

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: 742 ft PD, 743 ft PD, 744 ft PD, and 745 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>).

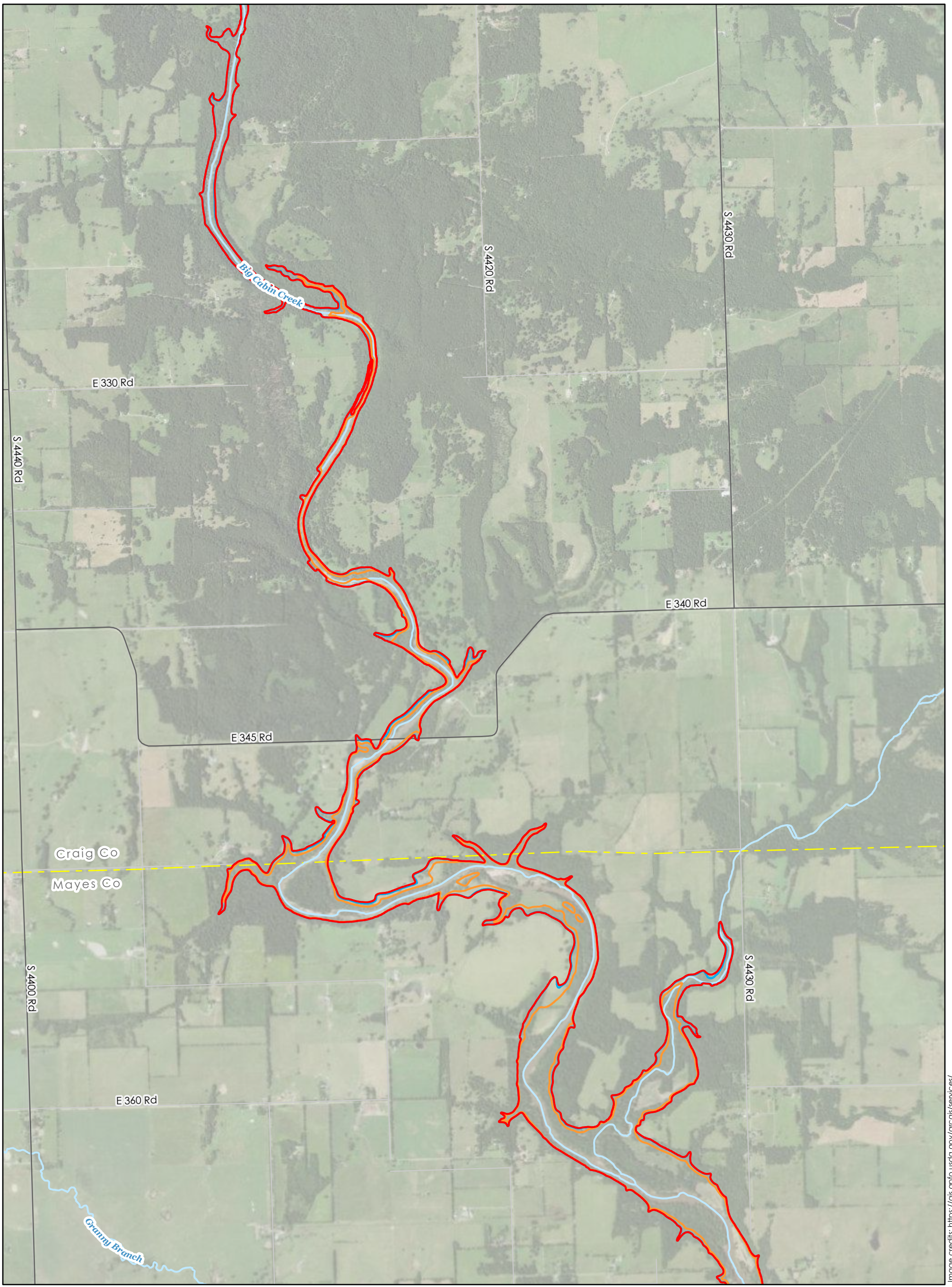


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

100-YEAR INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

Legend

100-YEAR MAX INUNDATION	ROAD CLASS	Stream
 745 ft PD	 Interstate	 Stream
 744 ft PD	 State Highway	 Project Boundary
 743 ft PD	 US Highway	 County Boundary
 742 ft PD	 Major Collector	 Municipal Boundary
	 Local Road	

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

PENSACOLA DAM

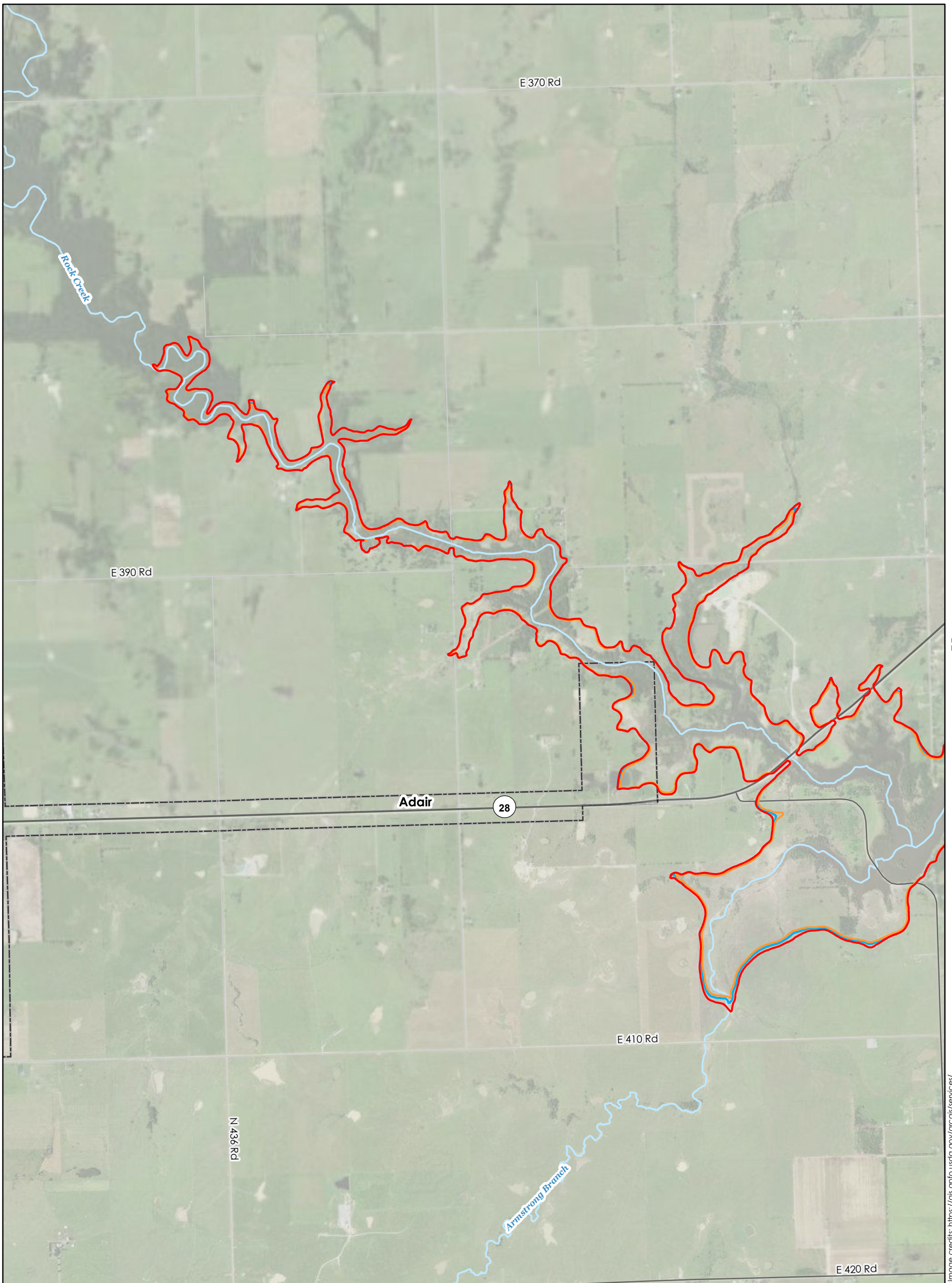
DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: A1

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494
August 2021



B2

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

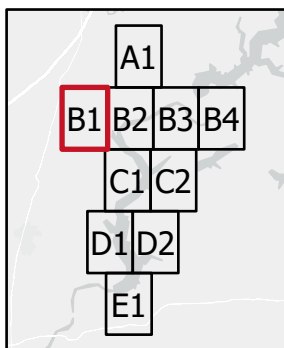
C1

100-YEAR INUNDATION SCENARIO



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

1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- ▬ 745 ft PD
- ▬ 744 ft PD
- ▬ 743 ft PD
- ▬ 742 ft PD

Legend

ROAD CLASS

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

- ▬ Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

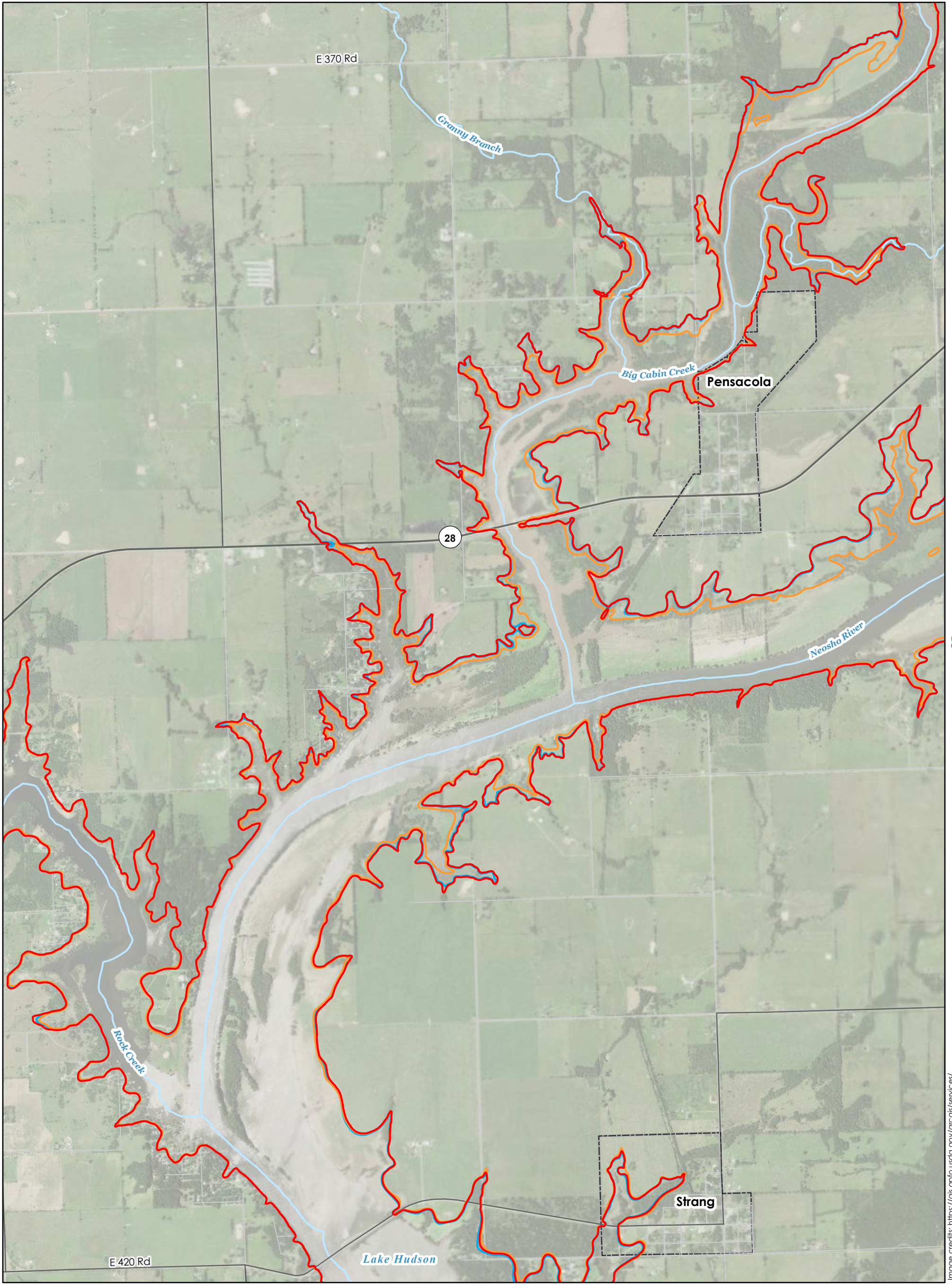
**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: B1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021



B1

B3

C1

C1

C2

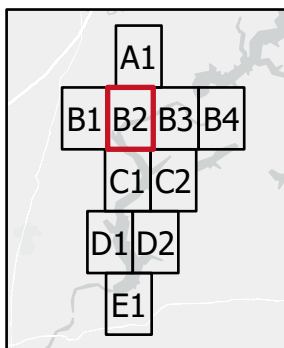
100-YEAR INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- █ 745 ft PD
- █ 744 ft PD
- █ 743 ft PD
- █ 742 ft PD

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: B2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

A1

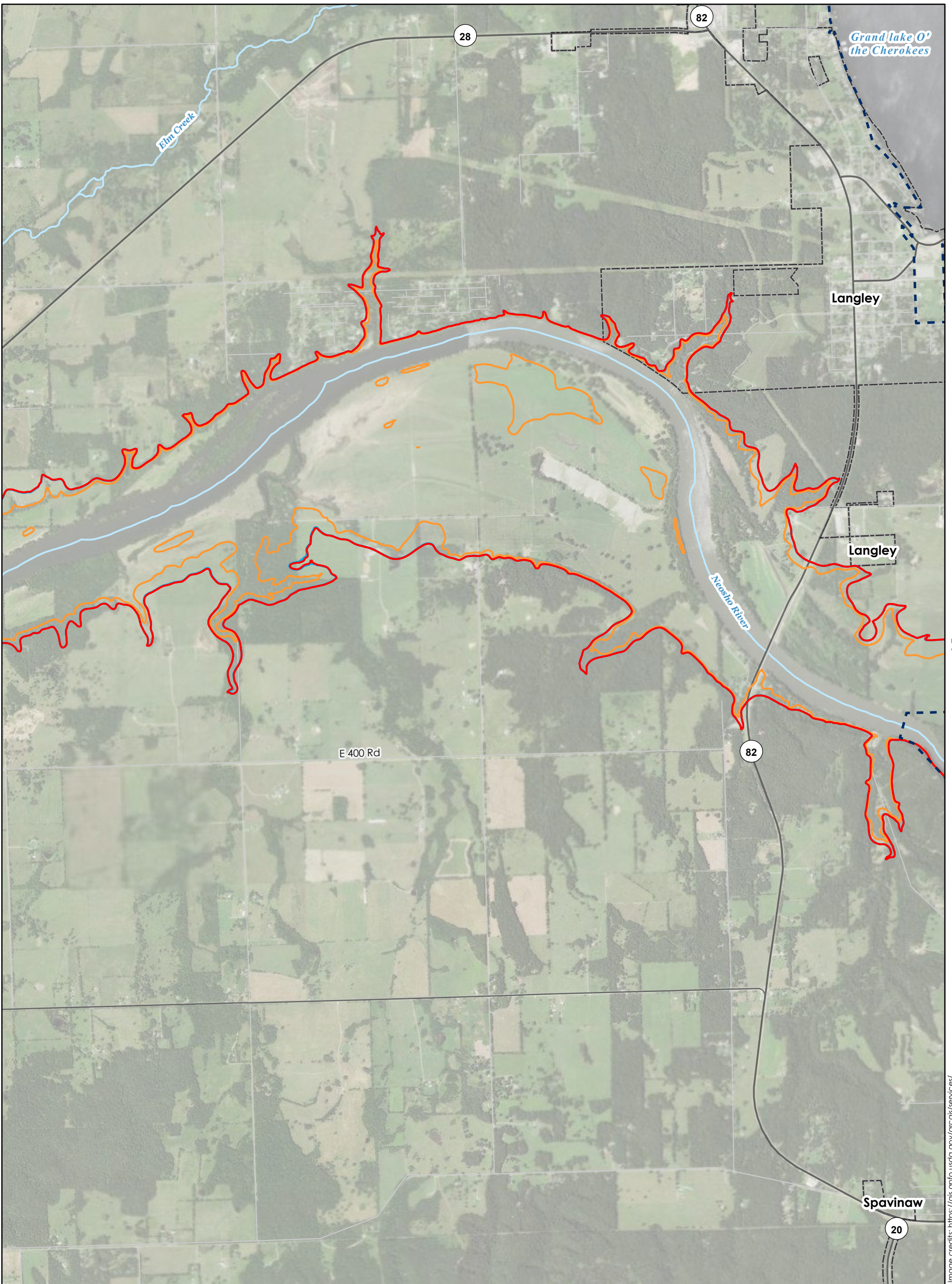


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

C2

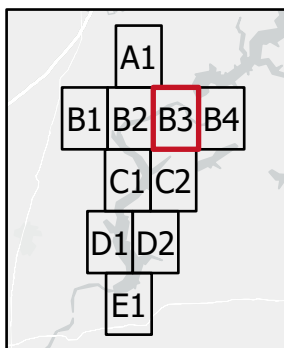
C2

100-YEAR INUNDATION SCENARIO



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

1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: B3

CRAIG, DELAWARE, AND MAYES COUNTIES, OKLAHOMA

FERC No. 1494

August 2021

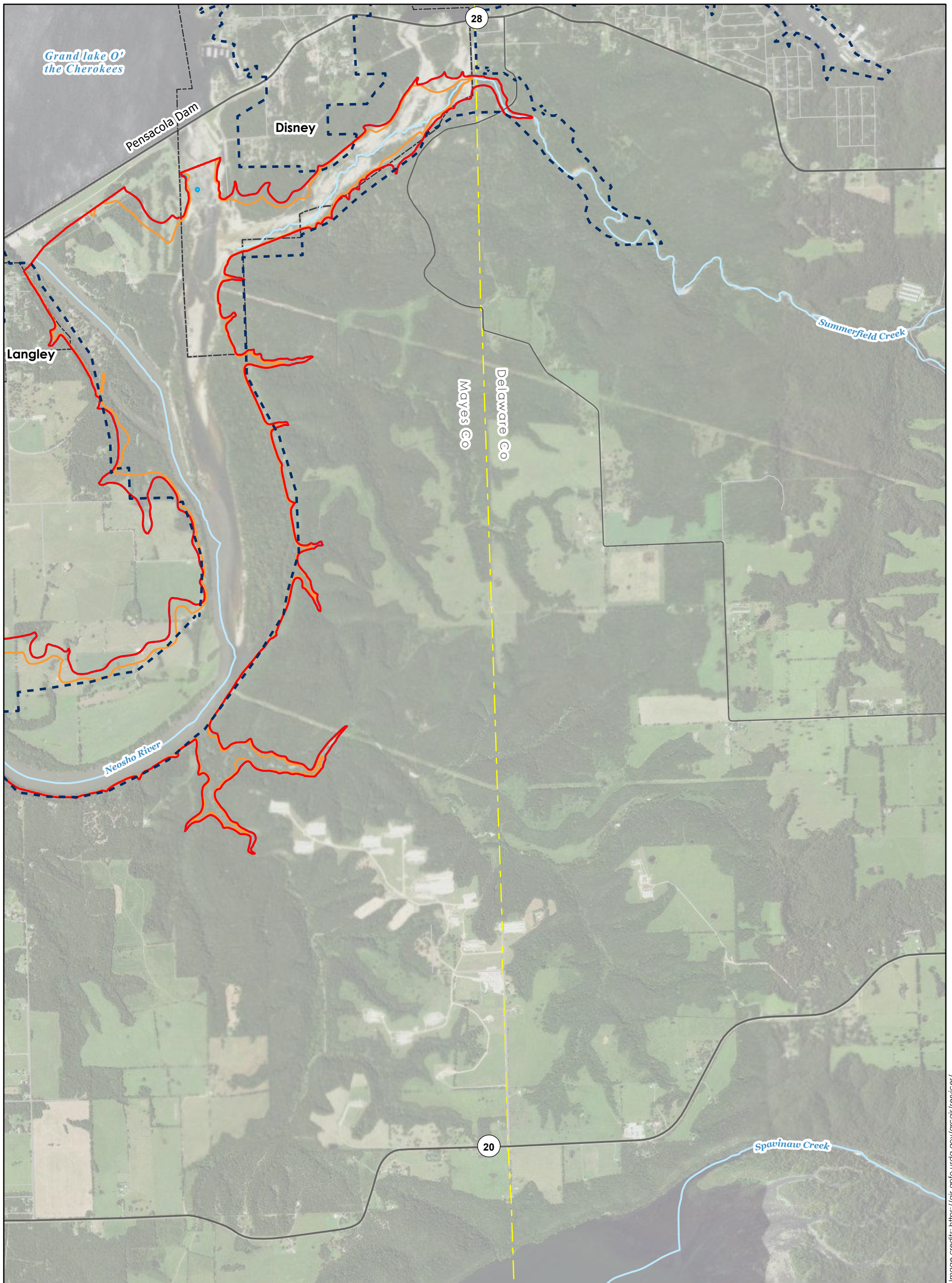


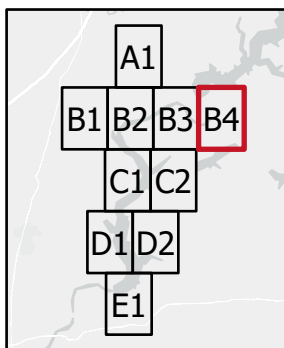
Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

100-YEAR INUNDATION SCENARIO



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

1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

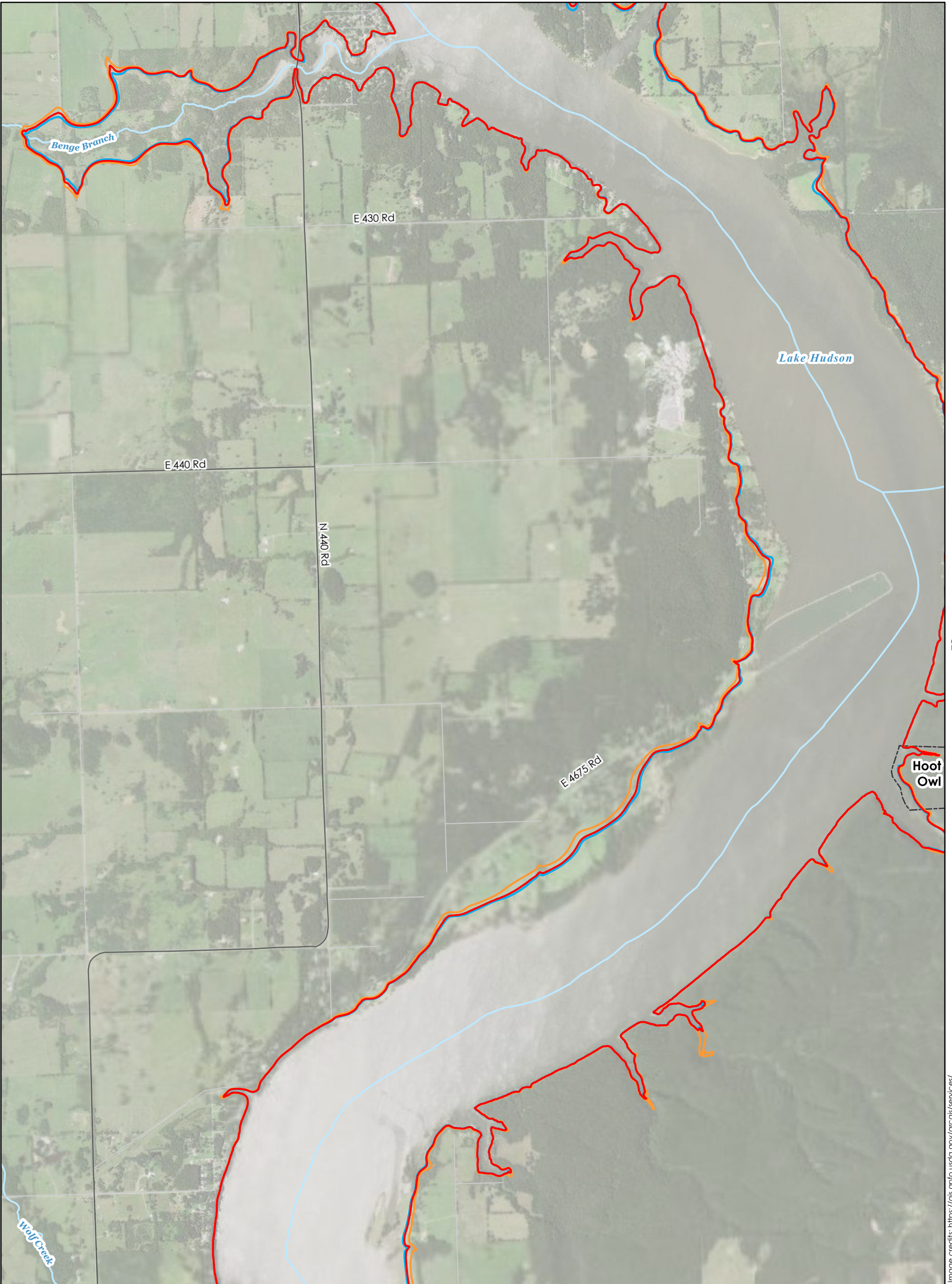
GRAND RIVER DAM AUTHORITY

MAP: B4

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494

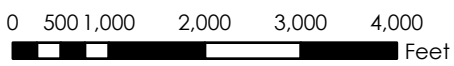
August 2021



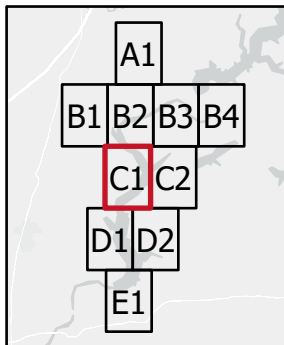
100-YEAR INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: C1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

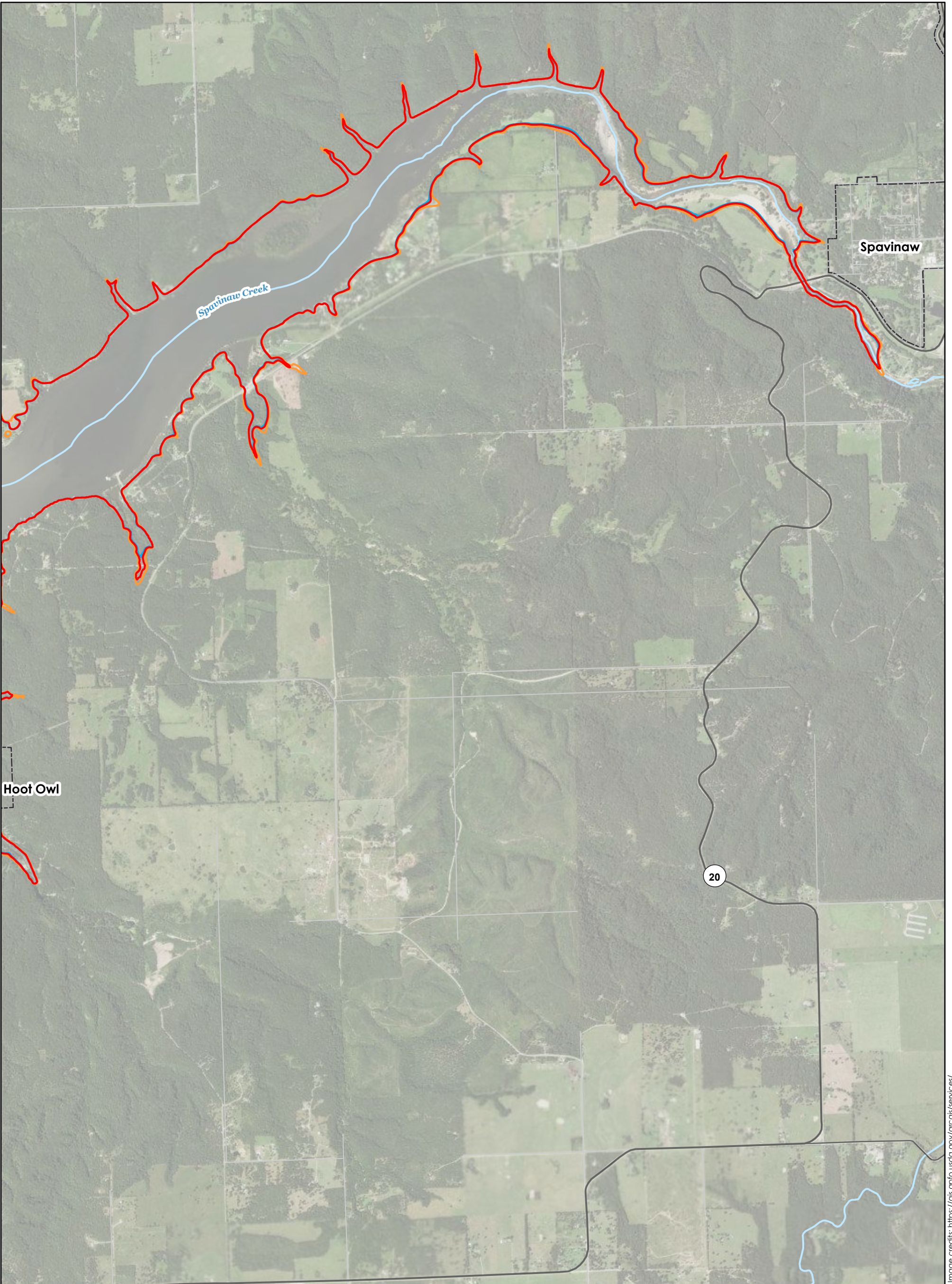


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

100-YEAR INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

Legend

100-YEAR MAX INUNDATION	ROAD CLASS	Stream
 745 ft PD	 Interstate	 Stream
 744 ft PD	 State Highway	 Project Boundary
 743 ft PD	 US Highway	 County Boundary
 742 ft PD	 Major Collector	 Municipal Boundary
	 Local Road	

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: C2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

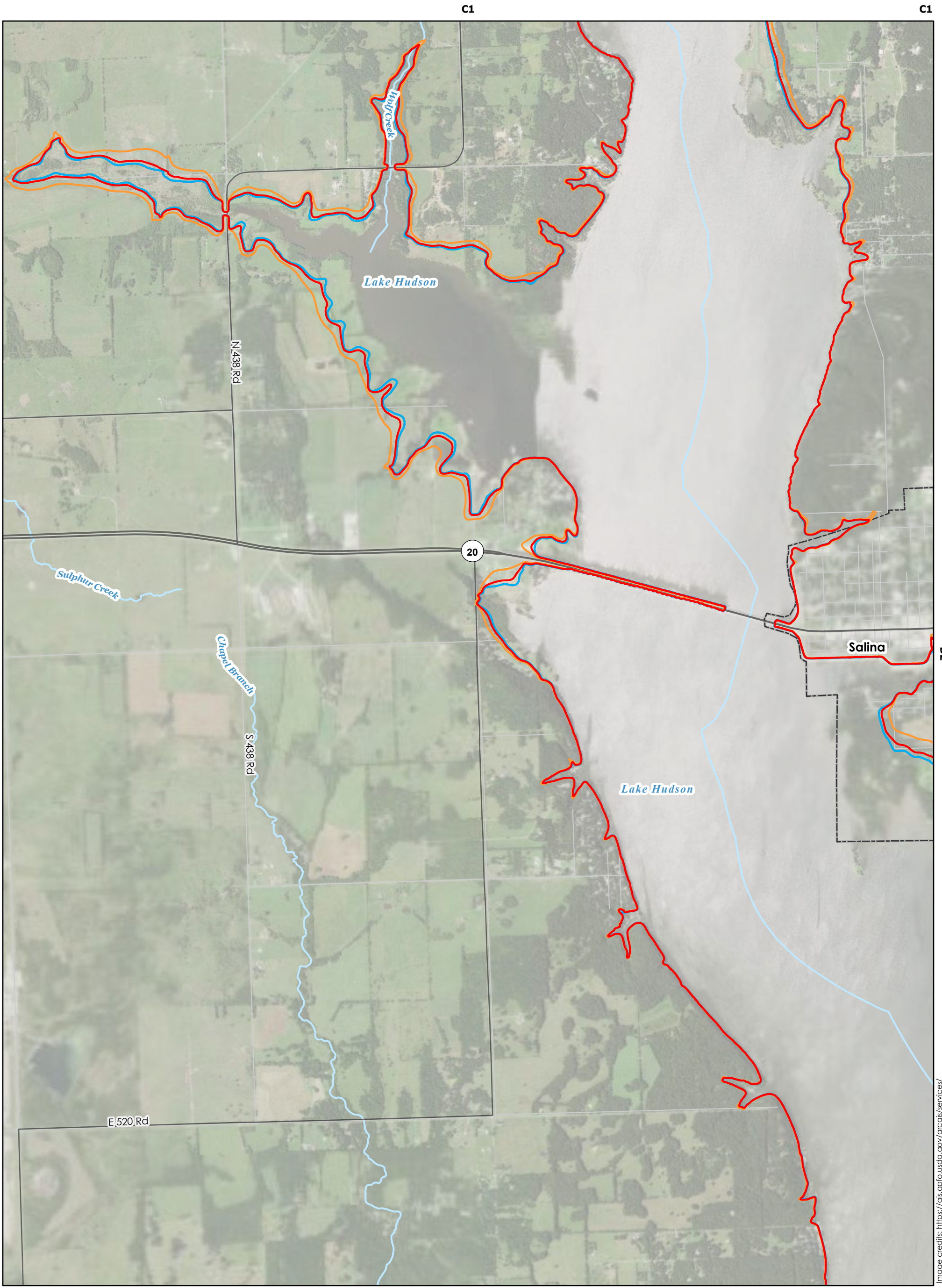


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

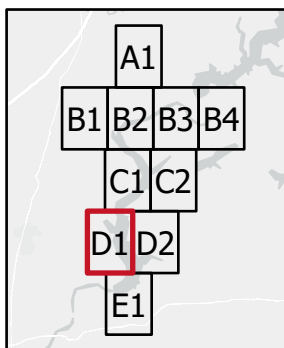
100-YEAR INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

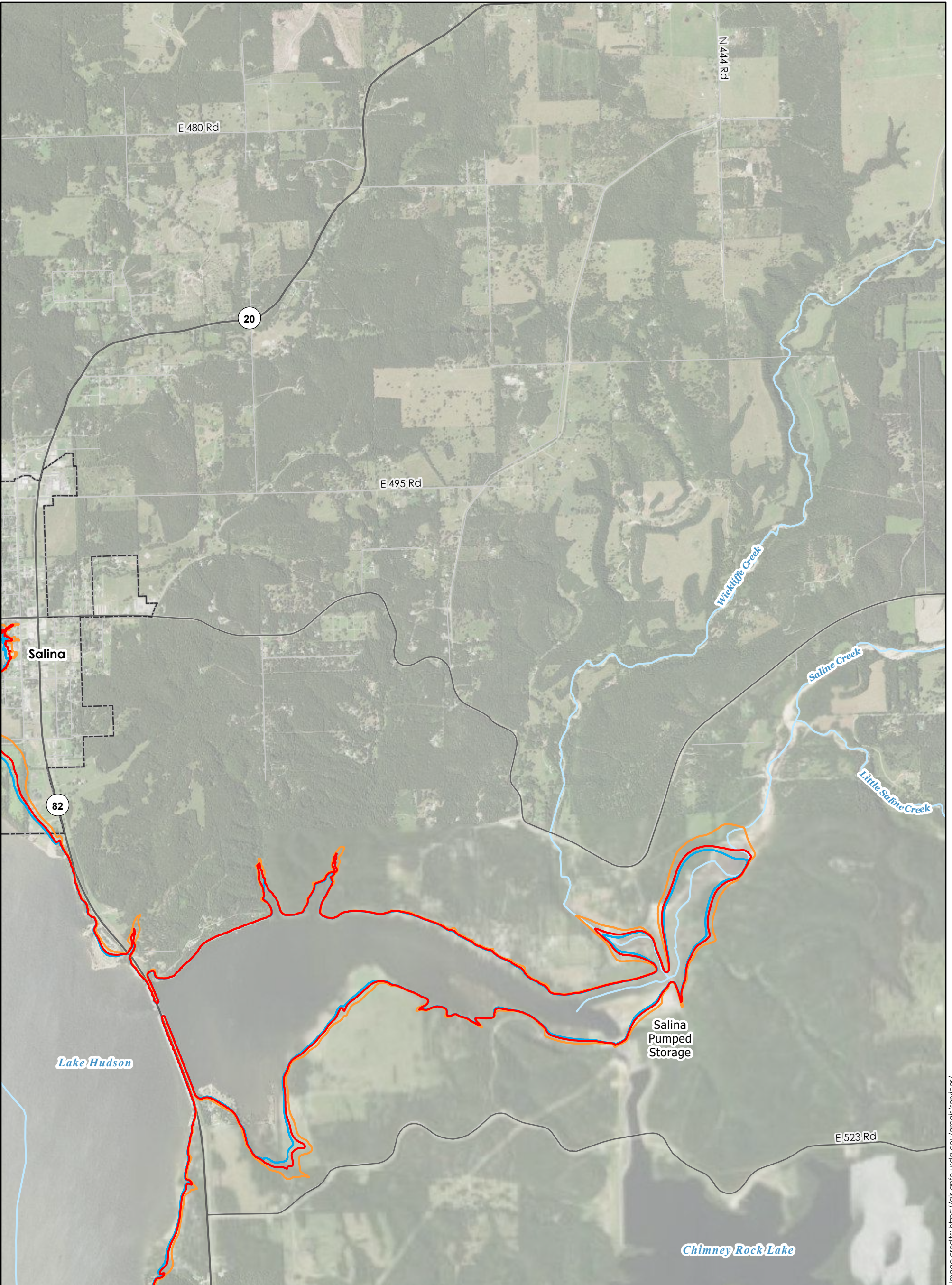
PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: D1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021



D1

Salina

82

20

E 480 Rd

E 495 Rd

N 444 Rd

Wicheita Creek

Saline Creek

Little Saline Creek

Lake Hudson

Salina Pumped Storage

E 523 Rd

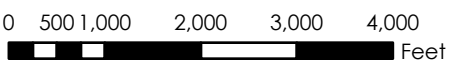
Chimney Rock Lake

E1

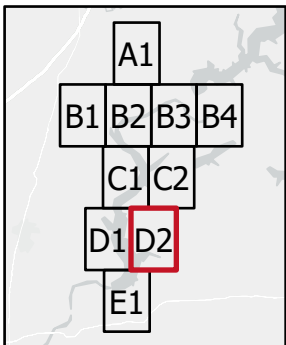
100-YEAR INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



- 100-YEAR MAX INUNDATION**
- █ 745 ft PD
 - █ 744 ft PD
 - █ 743 ft PD
 - █ 742 ft PD

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: D2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

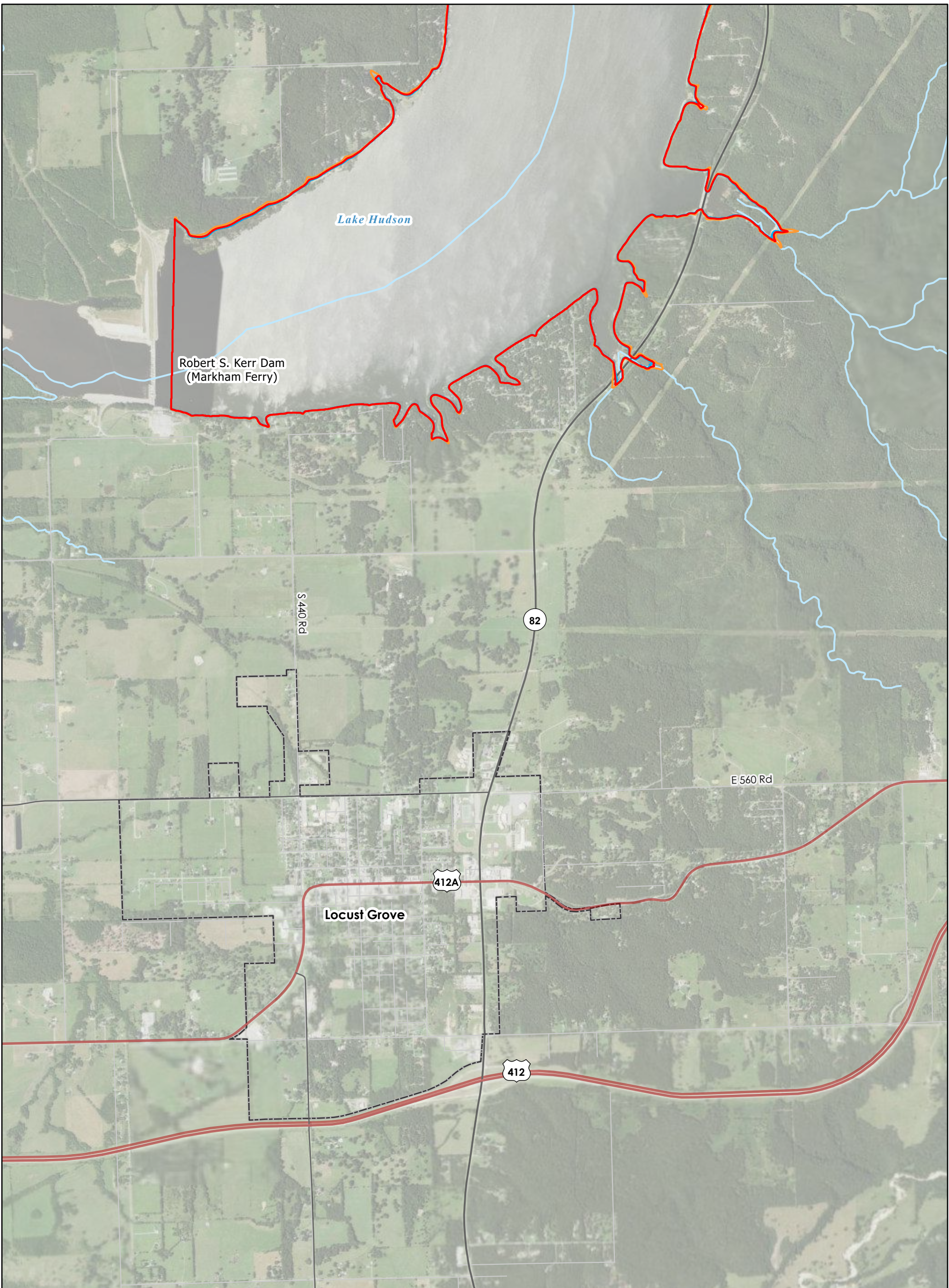


Image credits: https://gis.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

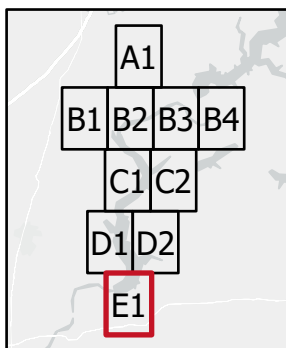
100-YEAR INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



100-YEAR MAX INUNDATION

- 745 ft PD
- 744 ft PD
- 743 ft PD
- 742 ft PD

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

LEGEND NOTES

* For areas where only the highest starting elevation inundation boundary is visible, the inundation from the other starting elevations is nearly identical.

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: E1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

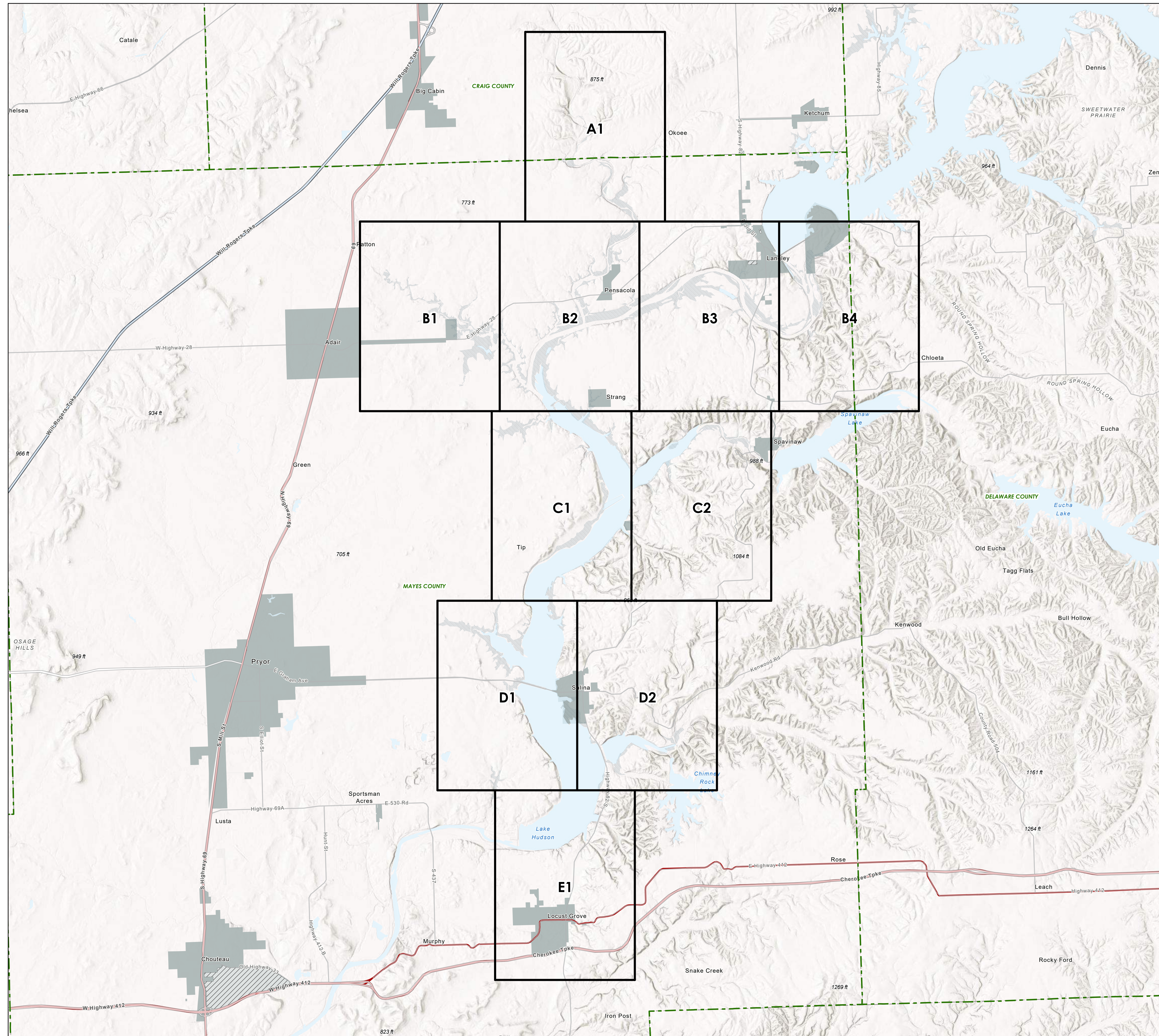
FERC No. 1494

August 2021

APPENDIX E.7:
HISTORICAL STARTING STAGE INUNDATION MAPS

Downstream Model Results Overview Map

Pensacola Dam
GRAND RIVER DAM AUTHORITY
Date: August 2021

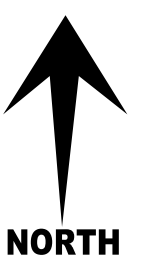
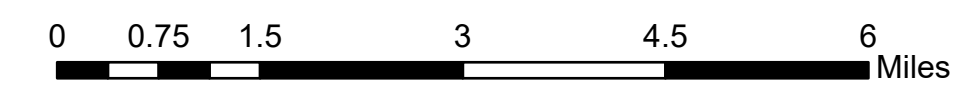
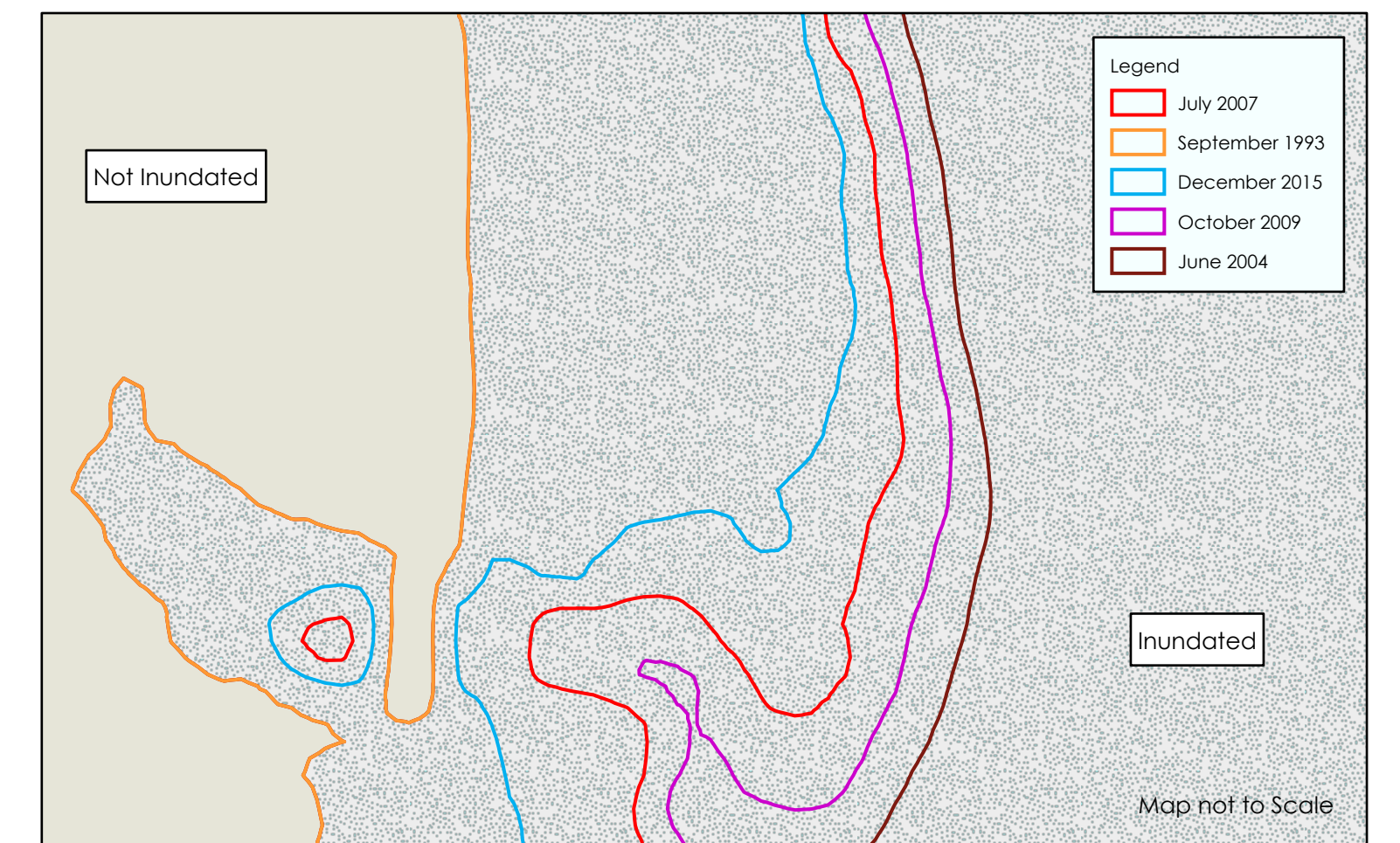


Overview Map Legend

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

Inundation Scenario Mapping

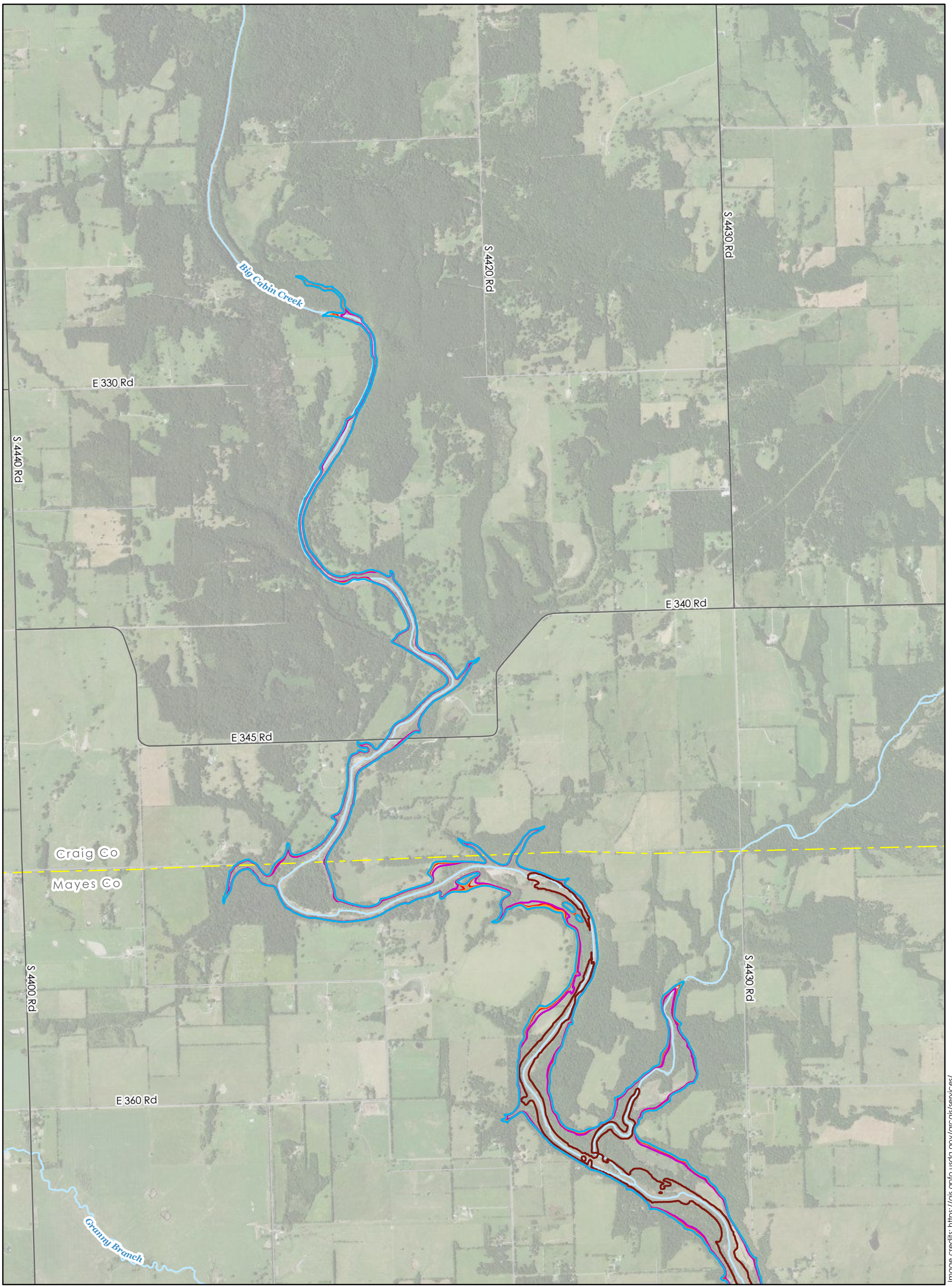
Mapping shows the extent of inundation for historical flow events, using the historical starting stage at Pensacola Dam. Pensacola Dam stage during the inflow event is calculated by the Operations Model.



Map Notes

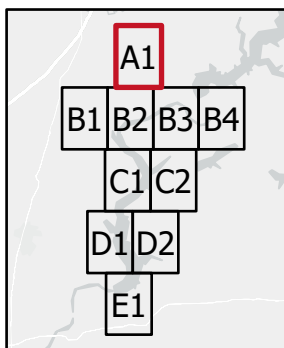
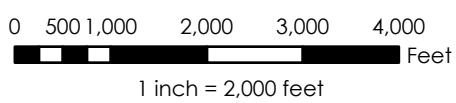
Data Sources for Maps:

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/ogi/search.aspx>).



B2 B2 B3

HISTORICAL INUNDATION SCENARIO



MAX INUNDATION*

- July 2007
- September 1993
- December 2015
- October 2009
- June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

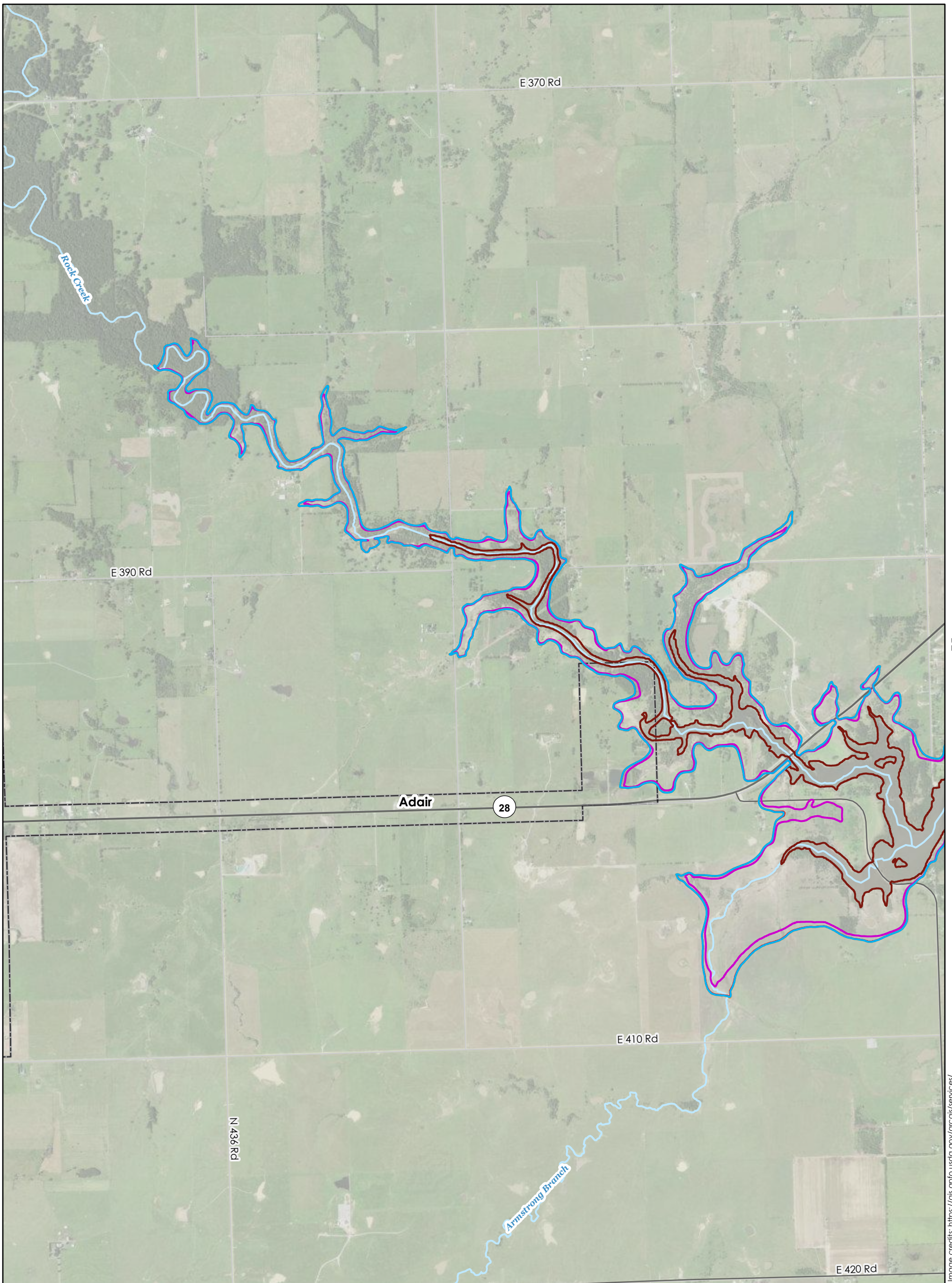
PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: A1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021



B2

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

C1

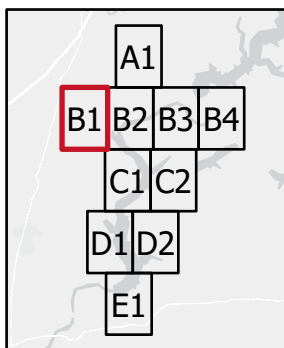
HISTORICAL INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



MAX INUNDATION*

- July 2007
- September 1993
- December 2015
- October 2009
- June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: B1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

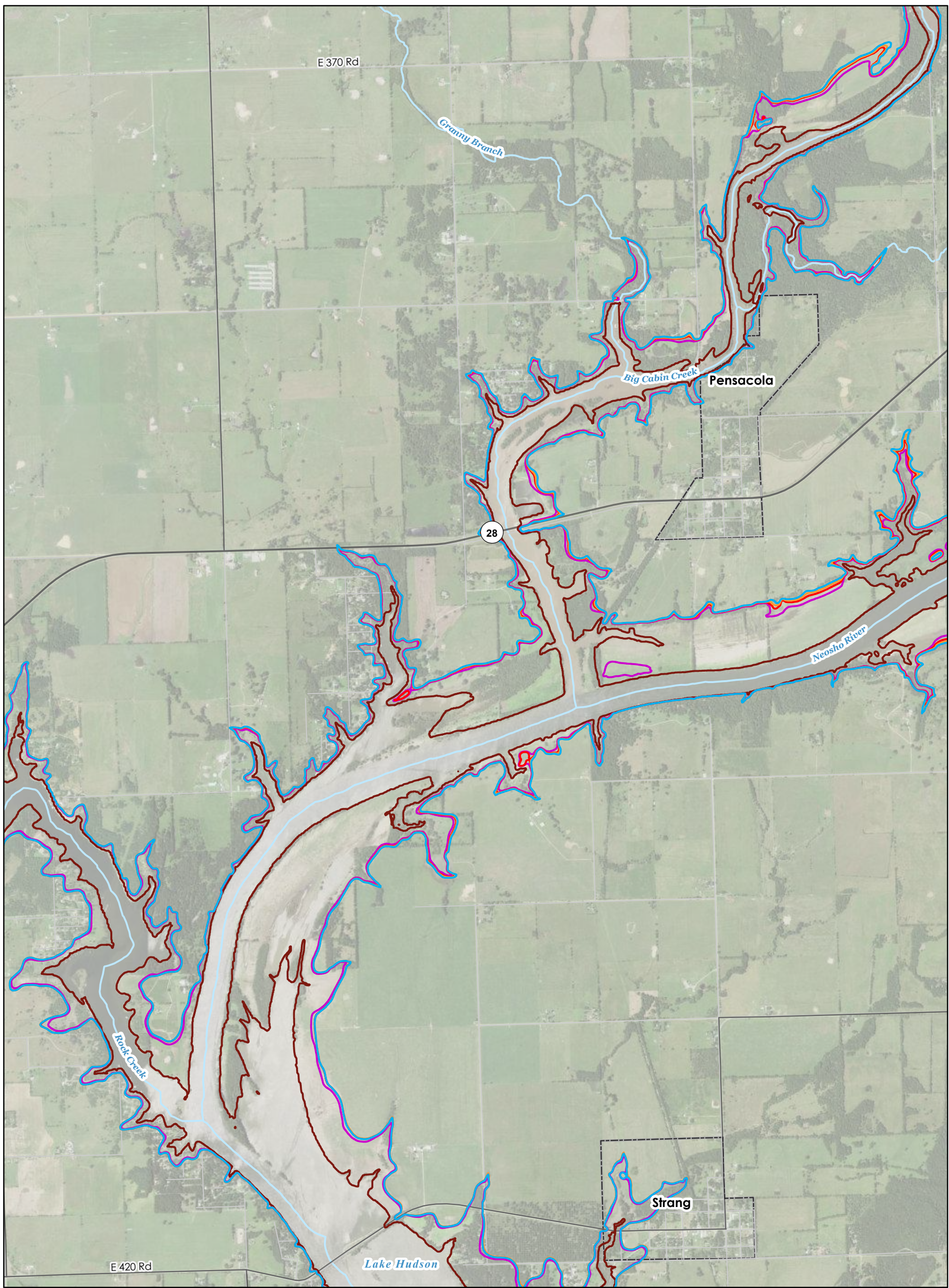


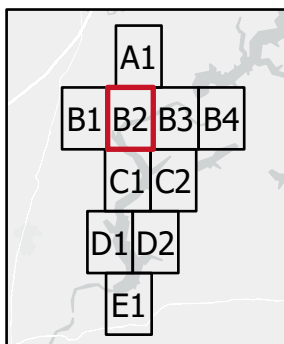
Image credits: https://gis.cplio.usda.gov/orc/gis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

HISTORICAL INUNDATION SCENARIO



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

1 inch = 2,000 feet



MAX INUNDATION*

- █ July 2007
- █ September 1993
- █ December 2015
- █ October 2009
- █ June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: B2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

A1

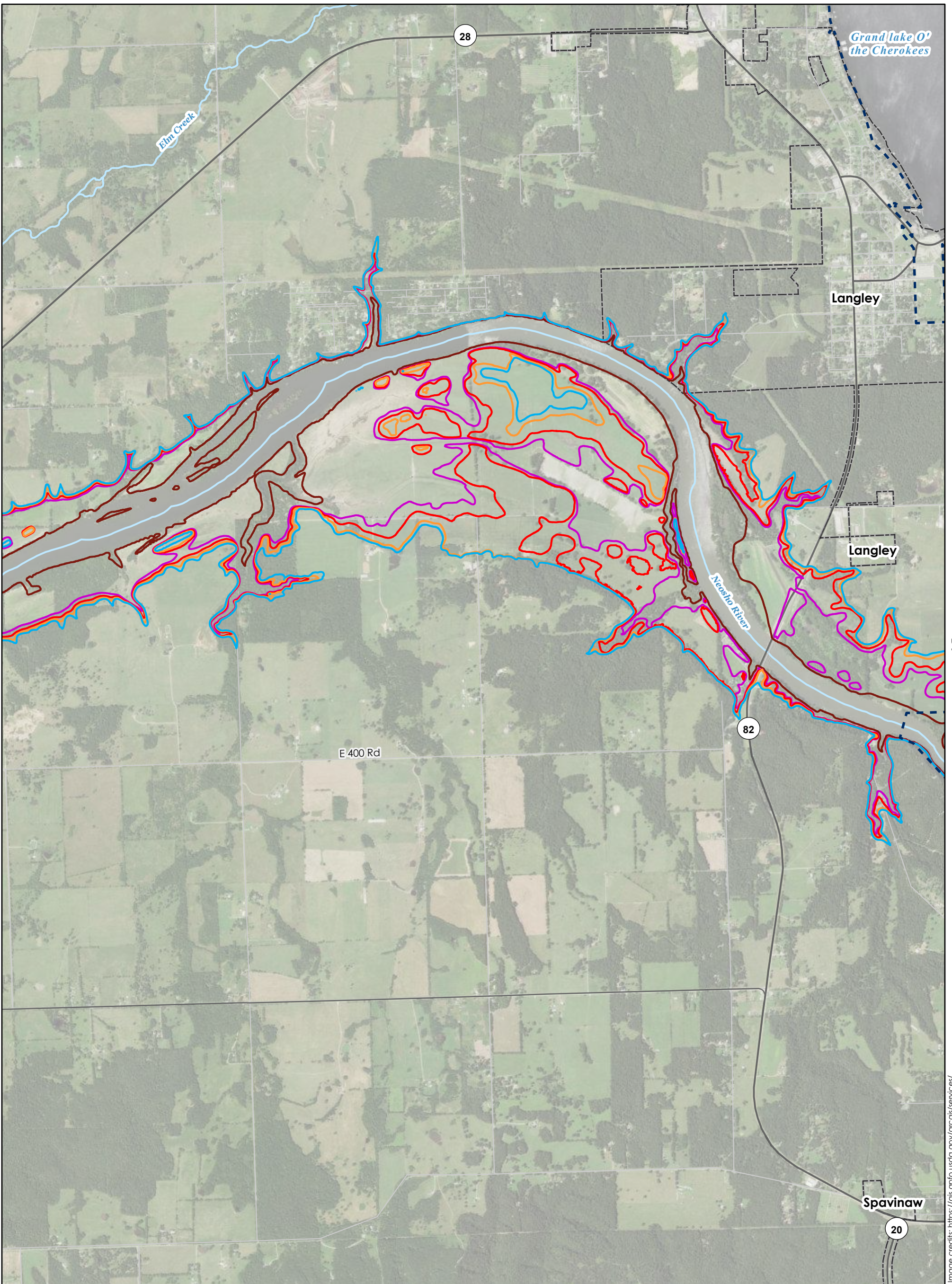


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

C2

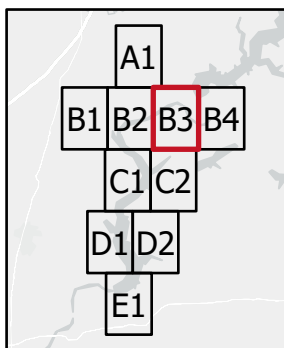
C2

HISTORICAL INUNDATION SCENARIO



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

1 inch = 2,000 feet



MAX INUNDATION*

Red	July 2007
Orange	September 1993
Cyan	December 2015
Magenta	October 2009
Brown	June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

Blue line	Interstate
Grey line	State Highway
Red line	US Highway
Black line	Major Collector
Thin grey line	Local Road

Blue line	Stream
Blue dashed line	Project Boundary
Yellow dashed line	County Boundary
Black dashed line	Municipal Boundary

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: B3

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

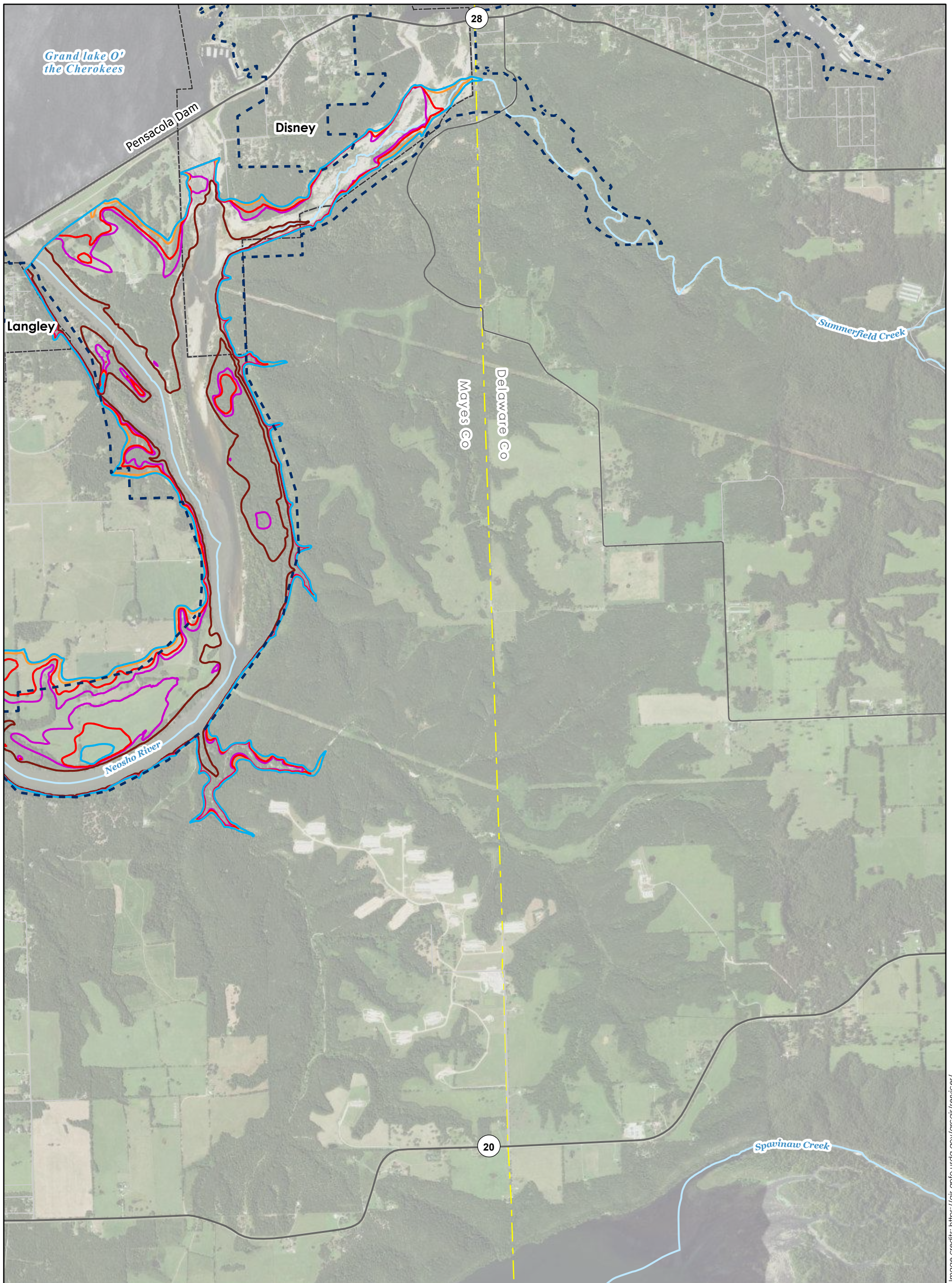


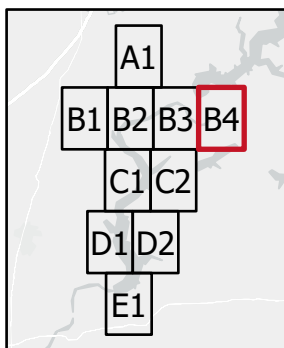
Image credits: https://gis.cpl.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

HISTORICAL INUNDATION SCENARIO



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

1 inch = 2,000 feet



MAX INUNDATION*

- █ July 2007
- █ September 1993
- █ December 2015
- █ October 2009
- █ June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: B4

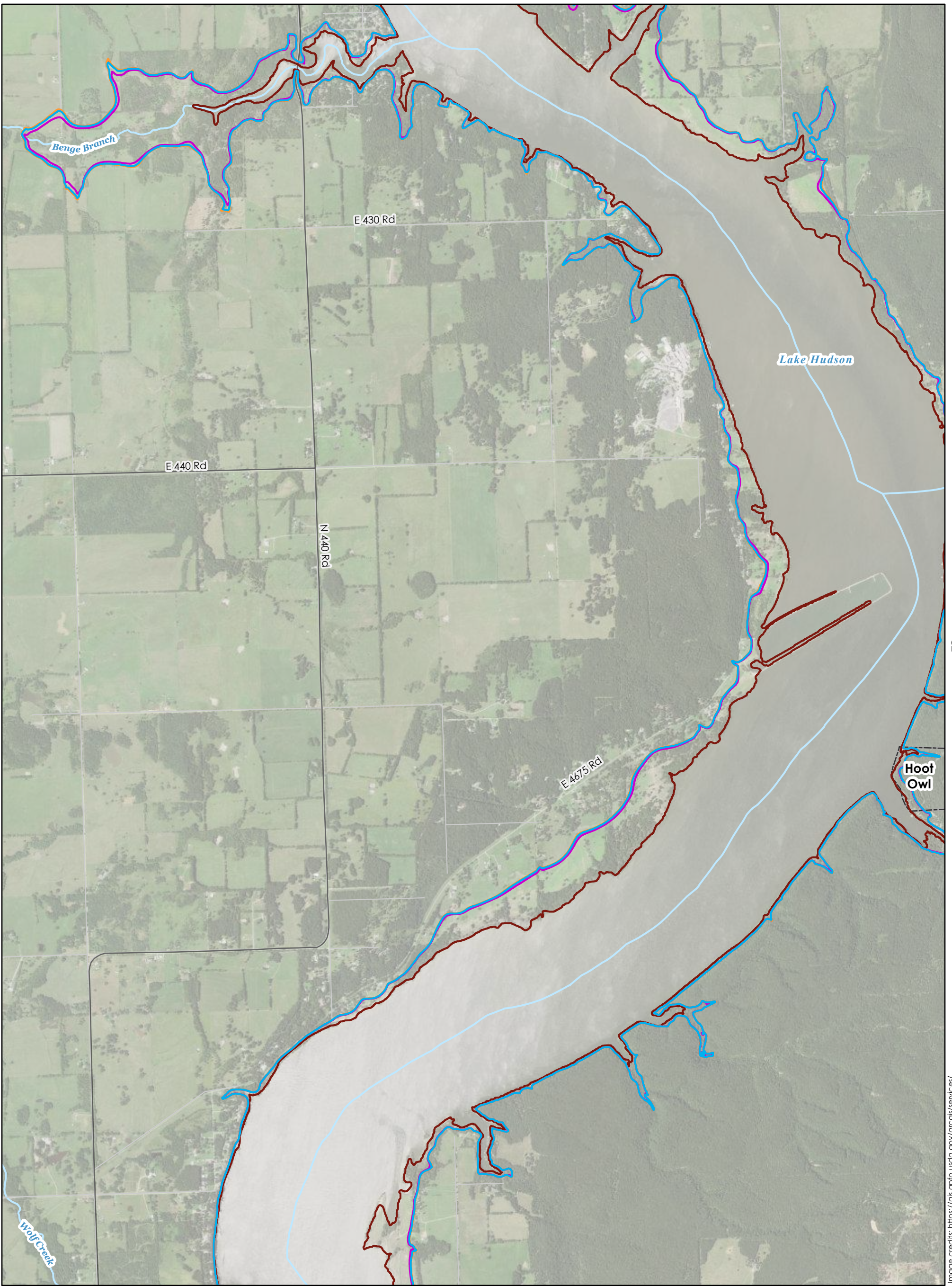
CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

B1

B2

B2



D1

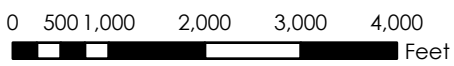
D1

D2

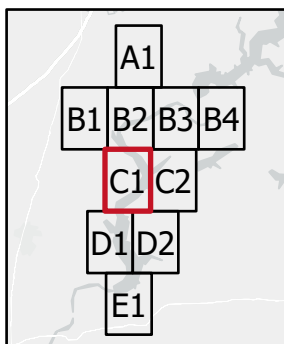
HISTORICAL INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



MAX INUNDATION*

- █ July 2007
- █ September 1993
- █ December 2015
- █ October 2009
- █ June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: C1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

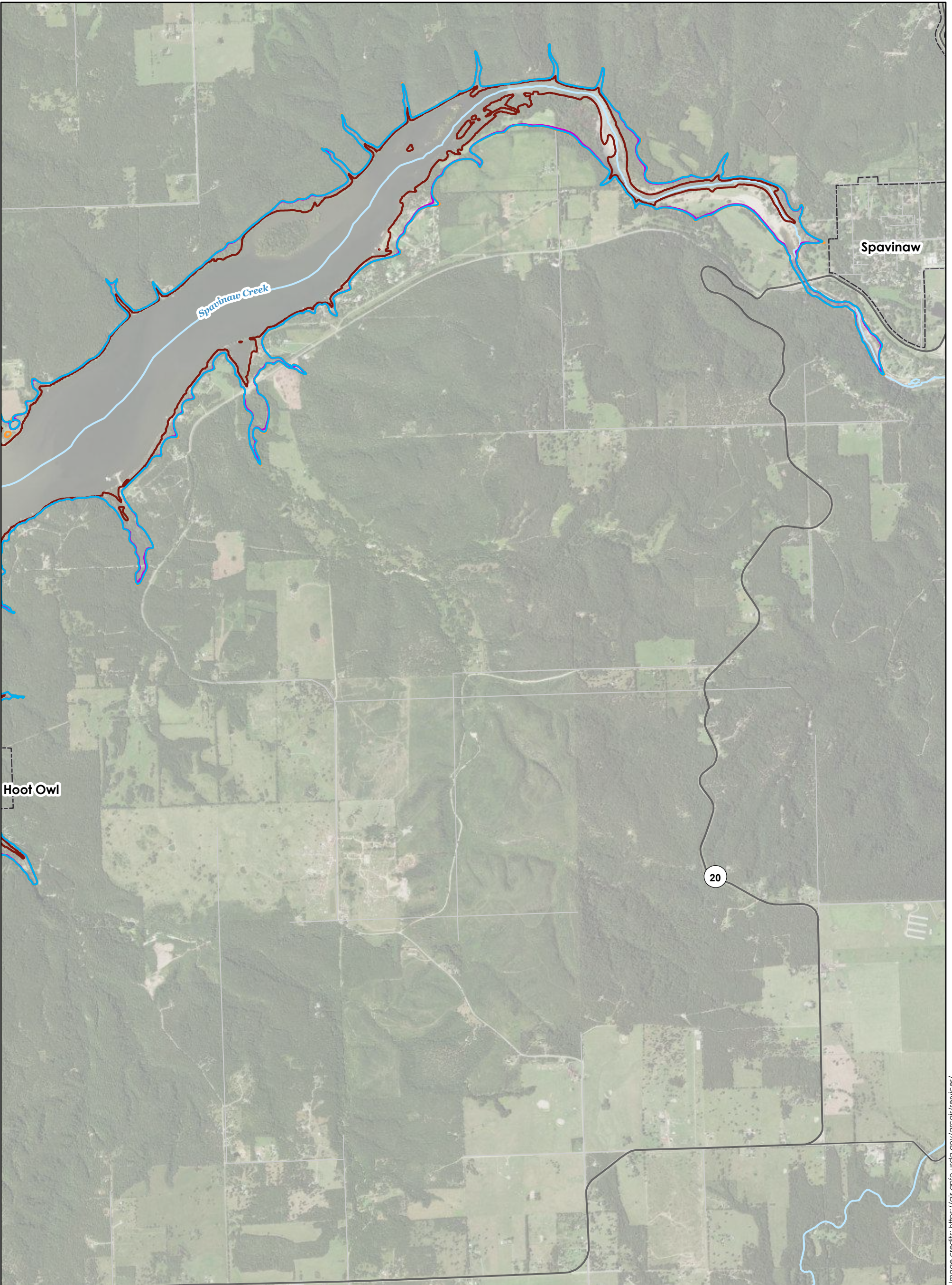


Image credits: https://gis.cplio.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

HISTORICAL INUNDATION SCENARIO

NORTH

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

1 inch = 2,000 feet

MAX INUNDATION*

- █ July 2007
- █ September 1993
- █ December 2015
- █ October 2009
- █ June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

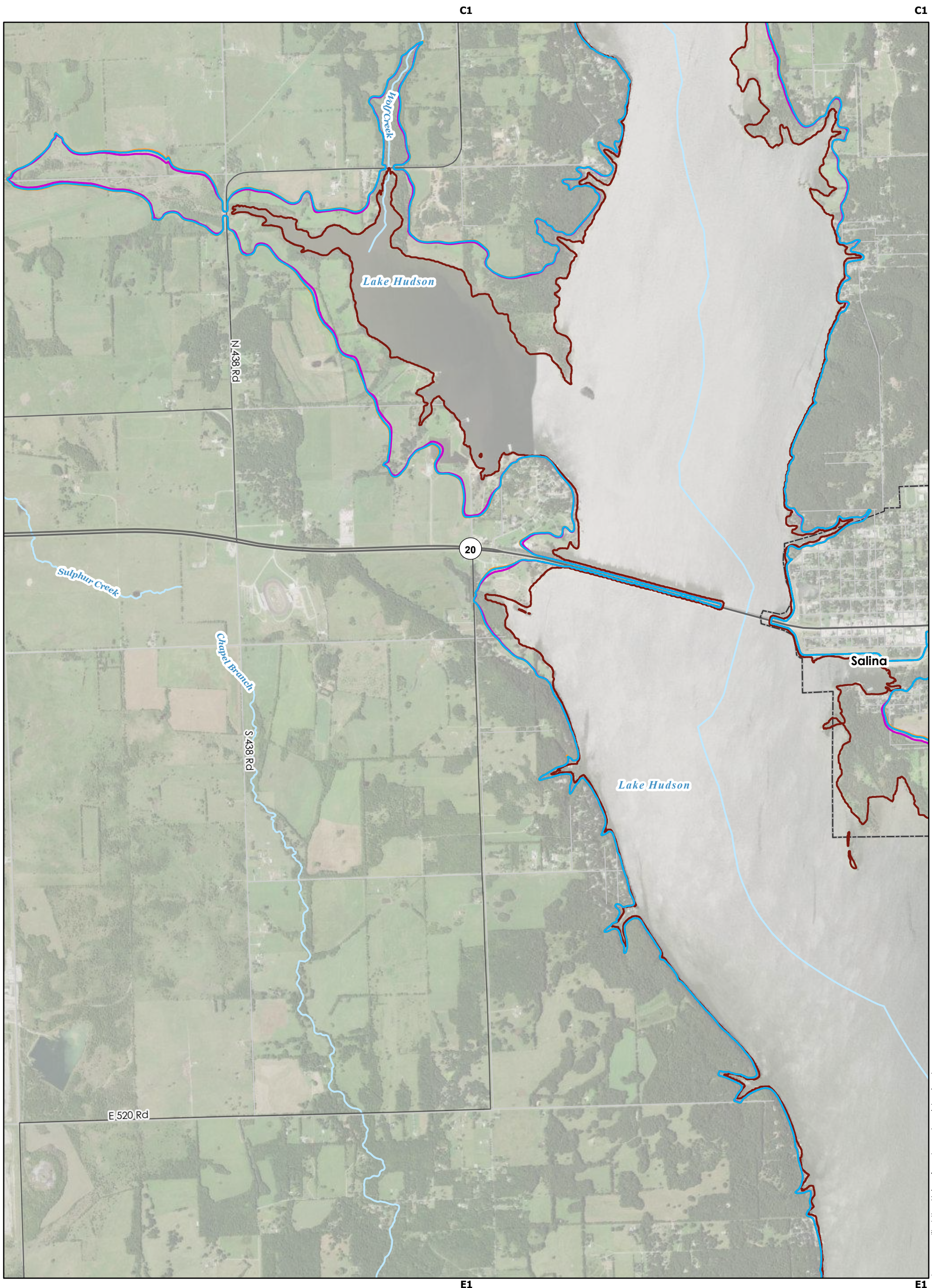
PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

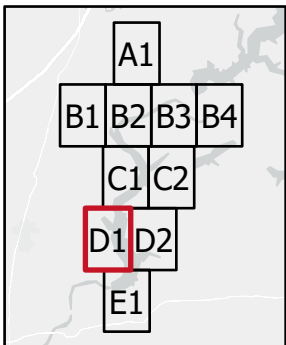
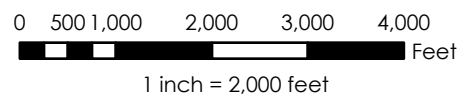
MAP: C2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021



HISTORICAL INUNDATION SCENARIO



MAX INUNDATION*

- July 2007
- September 1993
- December 2015
- October 2009
- June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: D1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494

August 2021

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

C1

C2

C2

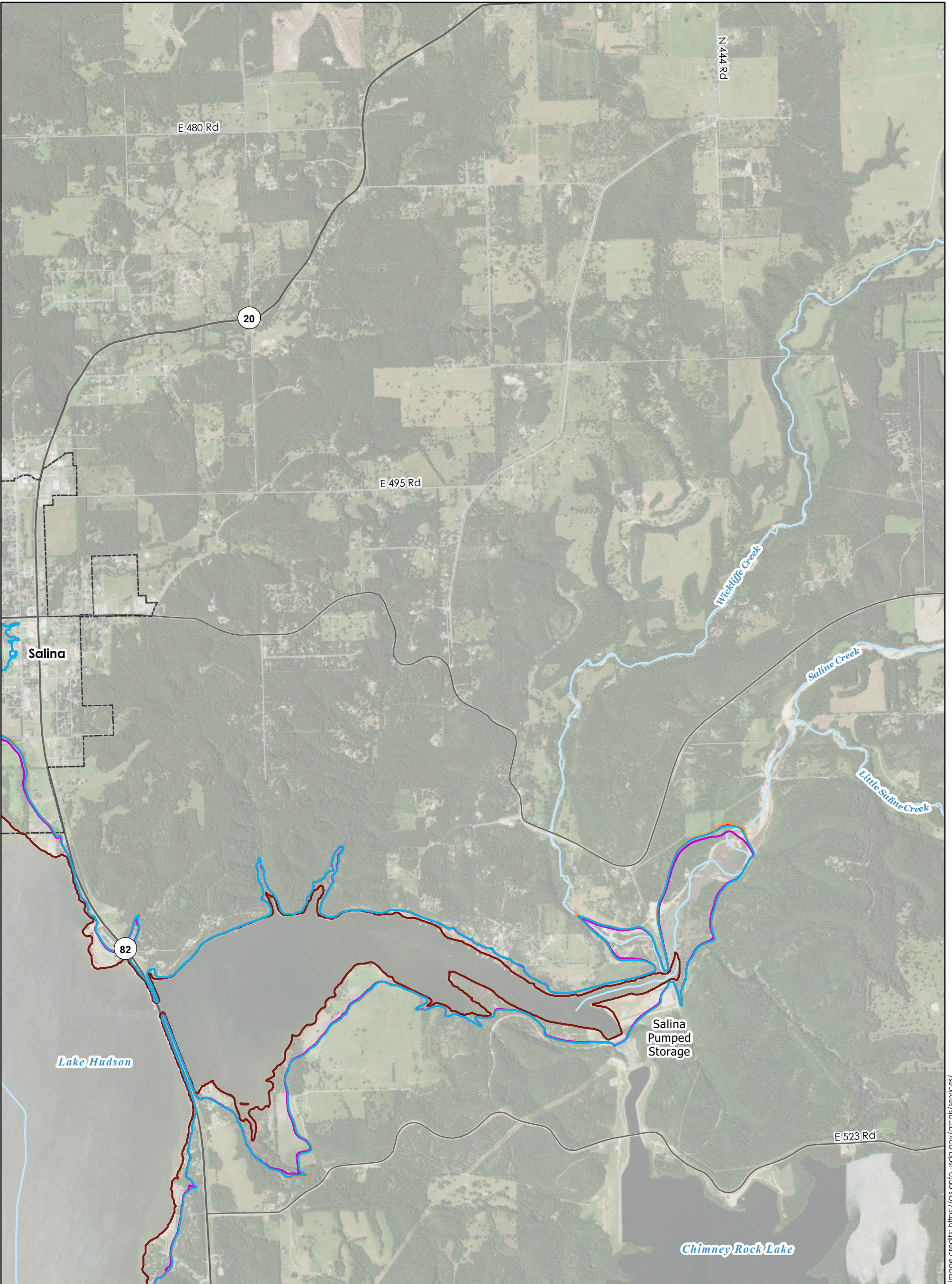


Image credits: https://glt.apfo.usda.gov/arcgis/services/NAIP/USDA_CONUS_PRIME/ImageServer, 2019

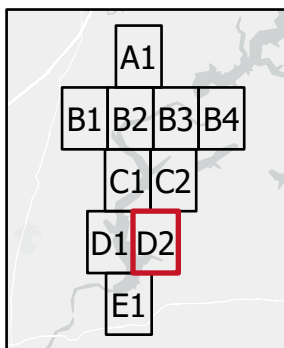
E1

HISTORICAL INUNDATION SCENARIO



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

1 inch = 2,000 feet



MAX INUNDATION*

- █ July 2007
- █ September 1993
- █ December 2015
- █ October 2009
- █ June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

PENSACOLA DAM DOWNSTREAM HYDRAULIC MODEL

GRAND RIVER DAM AUTHORITY

MAP: D2

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494
August 2021

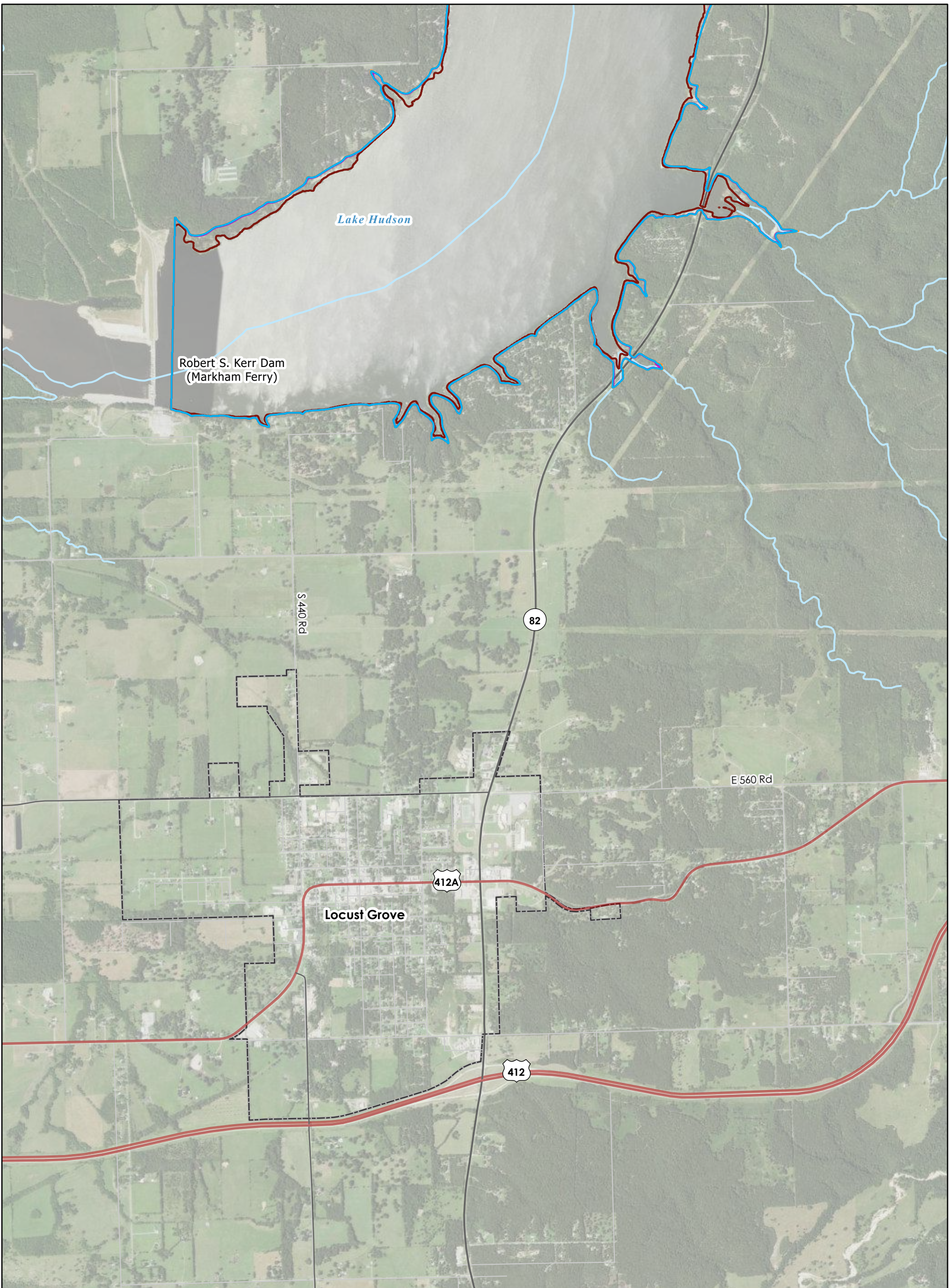


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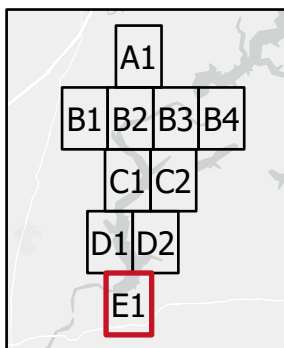
HISTORICAL INUNDATION SCENARIO



NORTH



1 inch = 2,000 feet



MAX INUNDATION*

- July 2007
- September 1993
- December 2015
- October 2009
- June 2004

LEGEND NOTES

* Simulations of historical inflow events use historical starting stage at Pensacola Dam. Stage at Pensacola Dam and Kerr Dam during the inflow event are calculated by the Operations Model.

Legend

ROAD CLASS

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

- Stream
- Project Boundary
- County Boundary
- Municipal Boundary

**PENSACOLA DAM
DOWNSTREAM HYDRAULIC MODEL**

GRAND RIVER DAM AUTHORITY

MAP: E1

CRAIG, DELAWARE, AND MAYES
COUNTIES, OKLAHOMA

FERC No. 1494

August 2021