



United States
Department of
Agriculture



Supplemental Watershed Plan and Environmental Assessment

for

Floodwater Retarding Structure No. 2

Scraper Hollow Creek Watershed

Adair County, Oklahoma



APPENDICES

April 2026

Oklahoma
Natural
Resources
Conservation
Service



nrcs.usda.gov

Prepared by

USDA Natural Resources Conservation Service

IN COOPERATION WITH

Adair County Conservation District

APPENDIX A

Comments and Responses

Cultural Resources



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CHEROKEE NATION®

P.O. Box 948 • Tahlequah, OK 74465-0948
918-453-5000 • www.cherokee.org

Chuck Hoskin Jr.

Principal Chief

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Bryan Warner

Deputy Principal Chief

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March 27, 2025

K.C. Kraft
United States Department of Agriculture
100 USDA, Suite 206
Stillwater, OK 74075

Re: Scraper Hollow Site 2 Watershed Plan

Dr. K.C. Kraft:

The Cherokee Nation (Nation) is in receipt of your correspondence about and related report for the proposed **Scraper Hollow Site 2 Watershed Plan**, and appreciates the opportunity to provide comment upon this project. This communication is intended for government-to-government consultation with a sovereign federally recognized Tribal Nation. Information received in consultation will be deemed confidential unless explicit consent is provided by the Nation.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office (Office) reviewed this project, cross referenced the project's legal description against our information, and found instances where this project is within close proximity to culturally sensitive resources. No components related to these resources, however, are located within the Area of Potential Effect (APE) according to the related report. Thus, this Office does not object to the project proceeding as long as the following stipulations are observed:

- 1) The Nation requests that the United States Department of Agriculture (USDA) re-contact this Office if there are any changes to the activities within or the scope of the APE;
- 2) The Nation requests that the USDA halt all project activities immediately and re-contact our Office for further consultation if items of cultural significance are discovered during the course of this project; and
- 3) The Nation requests that the USDA conduct appropriate inquiries with other pertinent Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

Additionally, this Office concurs with the State Historic Preservation Office that the Scraper Cemetery is eligible to be listed in the National Register of Historic Places for its association with the Trail of Tears. This resource, however, is outside the APE.

Scraper Hollow Site 2 Watershed Plan

March 27, 2025

Page 2 of 2

If you require additional information or have any questions, please contact me at your convenience.
Thank you for your time and attention to this matter.

Wado,

A handwritten signature in blue ink that reads "Elizabeth Toombs". The signature is fluid and cursive, with the first name and last name clearly distinguishable.

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389

From: [Kraft, KC - FPAC-NRCS, OK](#)
To: [Elizabeth Toombs](#)
Subject: RE: Oklahoma NRCS Scraper Hollow Dam #2 (Adair County), Archaeology Report--Cherokee Nation Concurrence
Date: Thursday, March 27, 2025 9:17:00 AM
Attachments: [image001.png](#)
[Archaeology Report_Scraper Hollow Site 02_09112024_Final.pdf](#)
[Stantec Architectural Report - Scraper Hollow Site 02_no appendix B.pdf](#)

Elizabeth,

I've attached the archaeology report that you requested. I apologize for not contacting you sooner. I also have an architectural report that examines the dam and surrounding structures for their historical significance. The dam is over 50 years old but it's a basic earthen structure, NRCS has over 2000 in the state that are all the same basically. All the surrounding houses, barns, and sheds are somewhat typical for rural Oklahoma and none of them are particularly significant. None of these are considered eligible for the National Register by NRCS.

At the request of Linda Ozan (SHPO), NRCS' historian took a cursory look at Scraper Cemetery also—even though it is well outside the Area of Potential Effect for the undertaking. The initial assessment did not consider the cemetery eligible for the National Register. On the other hand, Linda disagreed with NRCS' determination and did consider it eligible. I wanted to talk to you about the determination since you are THPO and it is a Cherokee Nation cultural property. If you would like, we can discuss the cemetery in a separate email/letter/in-person meeting in the near future.

Currently, I am interested in your opinion about the archaeological report (and architectural report). Having said this, I'm attaching the archaeology report as well as the architectural report since the archaeology report references the architectural report. I have not attached Appendix B of the architectural report since it is a large file (over 100 pages). Appendix B has all the SHPO's Historic Preservation Resource Inventory forms for the dam, houses, barns, and sheds. I can send it in a separate email.

Thank you for taking the time to review the reports and render your opinion. Also, I look forward to talking with you about Scraper Cemetery in the future.

Respectfully,
KCK

K.C. KRAFT, PhD
Archaeologist, RPA



100 USDA Ste 206
Stillwater, OK 74075
p: (405) 742-1271

e: KC.KRAFT@usda.gov | w: www.nrcs.usda.gov/oklahoma

From: Elizabeth Toombs <elizabeth-toombs@cherokee.org>
Sent: Wednesday, March 26, 2025 4:05 PM
To: Kraft, KC - FPAC-NRCS, OK <kc.kraft@usda.gov>
Subject: RE: Oklahoma NRCS Scraper Hollow Dam #2 (Adair County), Archaeology Report--Cherokee Nation Concurrence

Thank you for your email, Dr. Kraft. I could not locate the archeological survey in my records. I can't guarantee a report would be routed to this department if sent by postal mail.

Would it be possible to resend the survey by email? If the file is larger than 10MB, it may need to be sent to me in sections. Thank you for your consideration and understanding.

Wado,

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation
Tribal Historic Preservation Office
PO Box 948
Tahlequah, OK 74465-0948
918.453.5389

From: Kraft, KC - FPAC-NRCS, OK <kc.kraft@usda.gov>
Sent: Wednesday, March 26, 2025 3:49 PM
To: Elizabeth Toombs <elizabeth-toombs@cherokee.org>
Subject: [EXTERNAL] Oklahoma NRCS Scraper Hollow Dam #2 (Adair County), Archaeology Report--Cherokee Nation Concurrence

NOTICE: THIS EMAIL CONTAINS AN ATTACHMENT SENT FROM AN EXTERNAL SENDER.
IF YOU DO NOT KNOW THE SENDER OR WERE NOT EXPECTING THIS EMAIL,
DO NOT OPEN ANY EMAIL ATTACHMENTS AND DELETE THIS MESSAGE.
Thank you: The Cherokee Nation - Information Technology Department

Ms. Toombs,

I am contacting you about an Oklahoma NRCS project (Section 106 undertaking) in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2. Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow. The Cherokee Nation responded on March 14, 2024, to NRCS' invitation to be a consultation partner regarding the undertaking. The Nation concurred with the proposed limits of the Area of Potential Effect and the survey methodology.

On September 17, 2024, the Cherokee Nation was mailed a copy of the archaeology report with the results of the pedestrian survey, subsurface probes, and site assessment. I have attached a copy of the correspondence. NRCS determined that no historic properties would be affected by the undertaking. As I was reviewing my files, I noticed that NRCS had not received a response regarding the report. Please advise me if I have misplaced the Nation's written response. If we have overlooked the letter, we respectfully request a copy be sent via postal mail or electronic mail. My mailing address and electronic mail address is located on my signature block.

Thank you for your attention and we look forward to your response. If you wish to receive another copy of the report, it can be provided.

Sincerely,
KCK

Attachment (1)

K.C. KRAFT, PhD, RPA

Archaeologist

Water Resources Section | Oklahoma State Office



Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

100 USDA Suite 206, Stillwater, OK, 74074

p: (405) 742-1271

e: KC.KRAFT@usda.gov | w: www.nrcs.usda.gov/oklahoma

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From: [Kraft, KC - FPAC-NRCS, OK](#)
To: ["Elizabeth Toombs"](#)
Subject: Oklahoma NRCS Scraper Hollow Dam #2 (Adair County), Archaeology Report--Cherokee Nation Concurrence
Date: Wednesday, March 26, 2025 3:48:00 PM
Attachments: [image001.png](#)
[Scraper #2 \(Cherokee\) ltr 3 \(report\).pdf](#)

Ms. Toombs,

I am contacting you about an Oklahoma NRCS project (Section 106 undertaking) in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2. Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow. The Cherokee Nation responded on March 14, 2024, to NRCS' invitation to be a consultation partner regarding the undertaking. The Nation concurred with the proposed limits of the Area of Potential Effect and the survey methodology.

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Thank you for your attention and we look forward to your response. If you wish to receive another copy of the report, it can be provided.

Sincerely,
KCK

Attachment (1)

K.C. KRAFT, PhD, RPA

Archaeologist

Water Resources Section | Oklahoma State Office



Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

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918.453.5389
10:30 AM 21 Nov 24 (THUR)

"918.506 8391 CELL, IF URGENT"

— ELIZABETH TOOMBS, CHEROKEE THPO

VC: ABOUT SCRAPER Hollow #2

(+ THPO ROLE IN REZ/MCGIRT)

SENT LETTER ABT REPORT MID-SEPT

10:30 AM 22 Nov 24 (THUR)

ELIZABETH TOOMBS, CHEROKEE THPO

Follow-up VC: SCRAPER Hollow #2



Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

November 19, 2024

NRCS – Oklahoma State Office
Attn: Kenneth Kraft, Ph.D., RPA
100 USDA, Suite 206
Stillwater, OK 74074-2655

Re: OAS FY24-2898 *Archaeological Resources Survey Report-Scraper Hollow Site 2 Supplemental Watershed Plan*. Report by Rob Nold & Mitchell Miranda (Stantec Consulting).
Legal Description: Section 36, T17N, R24E, Adair County, Oklahoma.

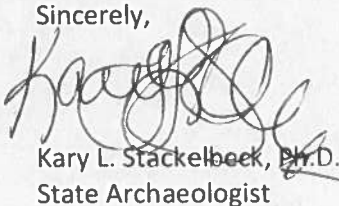
Dear Dr. Kraft,

This agency received the above-referenced cultural resources report in association with the proposed Scraper Hollow Site 2 project in Adair County for review and comment. From the information provided, we understand that Stantec staff surveyed the 50-acre project Area of Potential Effects (APE) on June 25-28, 2024. No archaeological sites or other historic resources were located within the APE. NRCS recommends a finding of *No Historic Properties Affected* for the undertaking.

I concur with the findings and recommendations as they pertain to precontact archaeological resources and defer opinion on the overall project effects to the Oklahoma State Historic Preservation Office.

This review has been conducted in cooperation with the State Historic Preservation Office, Oklahoma Historical Society. You must also have a letter from that office to document your consultation pursuant to Section 106 of the National Historic Preservation Act.

Sincerely,



Kary L. Stackelbeck, Ph.D.
State Archaeologist

cc: SHPO





Oklahoma Historical Society

State Historic Preservation Office

October 22, 2024

Dr. Kenneth C. Kraft
USDA NRCS
100 USDA, Suite 206
Stillwater, OK 74074

RE: File #1491-24; NRCS Proposed Scraper Hollow Watershed Site #2 Project, Adair County, including Scraper Cemetery (Other Properties Listed on Attachment #2 of this Letter) [This corrects our letter of October 21, 2024 to include the subject line on Attachment #1 and to include the list of other properties (Attachment #2).]

Dear Dr. Kraft:

We have reviewed the documentation submitted on the referenced property. Based on the information submitted, it is our opinion that the Scraper Cemetery is eligible for the National Register of Historic Places under Criterion A for its association with the Trail of Tears. Opinions of eligibility are based upon comparisons of historic properties within a context. For purposes of this review, the context is Ethnic Heritage: Native American.

We concur with your opinion that the properties numbered #1 through #18 on the attached list (Attachment #2) are not eligible for listing in the National Register of Historic Places.

If you concur with this opinion on eligibility, please sign and date the attached form (Attachment #1) and return it to our office with a description of the proposed project. We will then complete the review and issue an opinion of effect.

If you do not concur with this opinion of eligibility, we are willing to review any materials you may wish to submit supporting your position. You may also resolve our disagreement about this opinion by writing directly to the Keeper of the National Register, 1849 "C" Street Northwest, Mailstop #7228, Washington, D.C. 20240, as noted in 36 CFR Part 63.

For future correspondence pertaining to this project, please reference the above underlined file number. If you have any questions, please contact Michael Mayes, National Register Program Coordinator, at 405-522-4479, or Kristina Wyckoff, Historical Archaeologist, at 405-521-6381. Thank you.

Sincerely,

Lynda Ozan
Deputy State Historic
Preservation Officer

LO:pm

2 Attachments

cc: Ms. Elizabeth Toombs, Cherokee Nation

(Attachment #1)

State Historic Preservation Office
Oklahoma History Center
800 Nazih Zuhdi Drive
Oklahoma City, OK 73105

RE: File #1491-24; NRCS Proposed Scraper Hollow Watershed Site #2 Project,
Scraper Cemetery, Christie Vicinity, Adair County

I have read and understand the statement of opinion of the Oklahoma State Historic Preservation Officer. I agree with the opinion that this property is eligible for the National Register of Historic Places and so indicate my agreement by my signature as designated agent for the agency responsible for this undertaking.

I hereby concur with the opinion regarding the referenced property.

Signature _____ Date _____

Title _____

FILE # LIST OF PROPERTIES

1491-24 NRCS PROPOSED SCRAPER HOLLOW
 WATERSHED SITE #2 PROJECT,
 CHRISTIE VICINITY, ADAIR COUNTY

- I. SCRAPER HOLLOW WATERSHED
 SITE #2, SEC36 T17NB R24E

STRUCTURES:

1. #1A DAM AND RESERVOIR,
 EAST SIDE OF SOUTH 4671 ROAD
2. #1B PRIMARY INTAKE,
 EAST SIDE OF SOUTH 4671 ROAD
3. #1C PLUNGE BASIN,
 EAST SIDE OF SOUTH 4671 ROAD
4. #1D AUXILLIARY SPILLWAY,
 EAST SIDE OF SOUTH 4671 ROAD

OBJECT:

5. #1E PLAQUE, EAST SIDE OF
 SOUTH 4671 ROAD

BUILDINGS:

6. #2A HOUSE, 76497 SOUTH 4671 ROAD
7. #2B SHED, 76497 SOUTH 4671 ROAD
8. #2C SHED, 76497 SOUTH 4671 ROAD

STRUCTURE:

9. #2D STOCK POND, 76497 SOUTH 4671 ROAD

BUILDINGS:

10. #3 STORAGE BUILDING,
 EAST SIDE OF 4671 ROAD
11. #4A HOUSE, 76656 SOUTH 4671 ROAD
12. #4B SHED, 76656 SOUTH 4671 ROAD
13. #4C SHED, 76656 SOUTH 4671 ROAD
14. #5A HOUSE, 76799 SOUTH 4671 ROAD
15. #5B SHED, 76799 SOUTH 4671 ROAD
16. #5C SHED, 76799 SOUTH 4671 ROAD
17. #5D SHED, 76799 SOUTH 4671 ROAD
18. #53 OUTBUILDING, 76799 SOUTH 4671 ROAD

From: [Kraft, KC - FPAC-NRCS, OK](#)
To: [section 106](#)
Subject: NRCS Undertaking Section 106 Reports for Rehabilitation/Repair of Scraper Hollow Watershed, Site #2, Adair County, eight miles northwest of Stilwell, Oklahoma
Date: Tuesday, September 17, 2024 9:35:00 AM
Attachments: [image001.png](#)
[Scraper #2 \(Quapaw\) cover sheet & letter.pdf](#)
[Archaeology Report_Scraper Hollow Site 02_09112024_Final.pdf](#)

Quapaw Nation Historic Preservation Program Director,

This communication regards a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) undertaking located in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma. The Area of Potential Effect (APE) is in the N ½ of the SW ¼ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. This coordinate is located on the Christie quadrangle of the United States Geological Survey's 7.5-minute series (topographic) map. The geocentric coordinates of Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

A Section 106 archaeological report for the APE using 30-meter interval transects as well as 30-meter intervals for shovel testing was produced. As a result of the pedestrian survey and subsurface probes, NRCS has determined that no historic properties will be affected by the proposed undertaking (36CFR800.4(d)(1)) as defined in 36CFR800.16(i). Included with the electronic mail communication are a cover letter and Section 106 report.

Respectfully,

K.C. KRAFT, PhD, RPA

Archaeologist/Cultural Resources Coordinator

Water Resources Section | Oklahoma State Office



Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

100 USDA Suite 206, Stillwater, OK, 74074

p: (405) 742-1271

e: KC.KRAFT@usda.gov | w: www.nrcs.usda.gov/oklahoma

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Submitting Agency Name and Contact Information US Department of Agriculture—Natural Resources Conservation Service (USDA, NRCS) K.C. KRAFT, 100 USDA, Suite 206, Stillwater, OK 74074	Project Name: Natural Resources Conservation Service, Rehabilitation of Scraper Hollow Watershed Site #2 Project Address: 8 miles northwest of Stilwell, Oklahoma Project County and State: Adair County, Oklahoma Project Coordinates: Latitude 35°54'28.14"N, Longitude 94°42'16.88"W
Project Description Floodwater Control Dam Rehabilitation	Agency Information USDA, NRCS

	Included	In Progress	Notes
Amount of Ground Disturbance: depth and area	YES		Reworking an existing earthen structure
Distance to nearest archeological and architectural sites	1/2 mile		AD-47 (Scraper Cemetery)
Has a Cultural Resource, Archeological or Environmental Survey been conducted? If yes please include	YES		Attached
Maps: APE, County, State maps should be clear and detailed	YES		Attached—within report
Relevant pictures supporting document	YES		Attached—within report
Have any SHPO/THPO comments been received? IF yes please Include		In progress	

All correspondence should be addressed to QNHPP Director, emails should be sent to section106@quapwnation.com



Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

September 17, 2024

Quapaw Nation Historic Preservation Program, Director
Quapaw Nation Historic Preservation Program Office
Quapaw Nation
PO Box 765
Quapaw, Oklahoma 74363-0765

Re: NRCS Undertaking Section 106 Reports for Rehabilitation/Repair of Scraper Hollow Watershed, Site #2, Adair County

Dear Quapaw Nation Historic Preservation Program Director,

This letter regards a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) undertaking located in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2. Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River.

The Area of Potential Effect (APE), including the dam, pool, and breach area is in the N ½ of the SW ¼ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. This coordinate is located on the *Christie* quadrangle of the United States Geological Survey's 7.5-minute series (topographic) map. The geocentric coordinates of Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

A Section 106 archaeological report for the APE using 30-meter interval transects as well as 30-meter intervals for shovel testing was produced by Stantec Consulting Services. No archaeological resources were encountered during the survey of approximately 50 acres. As a result of the pedestrian survey and subsurface probes, NRCS has determined that no historic properties will be affected by the proposed undertaking (36CFR800.4(d)(1)) as defined in 36CFR800.16(i). Please send your comments regarding NRCS' determinations

to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encl. (1)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)



Natural Resources Conservation Service

U.S. DEPARTMENT OF AGRICULTURE

Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

September 17, 2024

Elizabeth Toombs
Tribal Historic Preservation Officer
Cherokee Nation
Tribal Historic Preservation Office
Post Office Box 948
Tahlequah, OK 74465-0948

Re: Rehabilitation of Scraper Hollow Watershed, Site #2, Adair County, Oklahoma

Dear Ms. Toombs,

This letter is a continuation of Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPA), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) undertaking located in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2. Since Scraper Hollow Watershed, Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the earthen structure.

To review, Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. The geocentric coordinates of Scraper Hollow Watershed, Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

This letter is a follow-up to NRCS' March 8, 2023 and March 29, 2024 requests for a NHPA-Section 106 review and initial comments about the possible rehabilitation/repair, proposed survey methodology, and definition of the APE. Your office responded and concurred with the APE dimensions and field methodology on March 14, 2024. In your letter you also noted instances where the NRCS project is within close proximity to a culturally sensitive resource. NRCS presumes you are referencing Scraper Cemetery which is 697.5 meters (0.43 miles) downstream of the dam. According to analysis of digital aerial photographs, LiDAR, topographic surveys, and three field visits to the cemetery, NRCS

determined that the cemetery is 986 feet above mean sea level (amsl) while the valley below is 957 feet amsl. A breach inundation map, produced by NRCS engineers, shows that the cemetery will not be affected in the event of catastrophic dam failure or by the possible rehabilitation/repairs. Further, NRCS has determined that the possible undertaking will not have a negative visual effect on the cemetery. This determination is based on the distance separating the undertaking from the cemetery coupled with the cemetery's wooded setting (blocking direct line of sight) and that the proposed undertaking will not visually alter the feeling or overall setting of the geographic viewshed (built environment).

As a result of the pedestrian survey, subsurface probes, and site assessment, NRCS has determined that no historic properties will be affected by the undertaking [36CFR800.4(d)(1)] as defined in 36CFR800.16(i). As you requested in your March 14, 2024 letter, a copy of the archaeology report is included with this correspondence. Likewise, a copy of the breach inundation map showing Scraper Cemetery and the floodplain below is included with this correspondence. Please send your comments regarding NRCS' determination to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail to kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (2)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)

From: [Kraft, KC - FPAC-NRCS, OK](#)
To: s106@osagenation-nsn.gov
Subject: NRCS Undertaking Section 106 Reports for Rehabilitation/Repair of Scraper Hollow Watershed, Site #2, Adair County
Date: Tuesday, September 17, 2024 9:17:00 AM
Attachments: [Scraper #2 \(Osage\) ltr 3 \(report\).pdf](#)
[image001.png](#)
[Archaeology Report_Scraper Hollow Site 02_09112024_Final.pdf](#)

Dr. Hunter,

This communication regards a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) undertaking located in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma. The Area of Potential Effect (APE) is in the N ½ of the SW ¼ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. This coordinate is located on the *Christie* quadrangle of the United States Geological Survey's 7.5-minute series (topographic) map. The geocentric coordinates of Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

A Section 106 archaeological report for the APE using 30-meter interval transects as well as 30-meter intervals for shovel testing was produced. As a result of the pedestrian survey and subsurface probes, NRCS has determined that no historic properties will be affected by the proposed undertaking (36CFR800.4(d)(1)) as defined in 36CFR800.16(i). Included with the electronic mail communication are a cover letter and Section 106 report.

Respectfully,

K.C. KRAFT, PhD, RPA
Archaeologist/Cultural Resources Coordinator
Water Resources Section | Oklahoma State Office



100 USDA Suite 206, Stillwater, OK, 74074
p: (405) 742-1271
e: KC.KRAFT@usda.gov | w: www.nrcs.usda.gov/oklahoma

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Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

September 17, 2024

Acee Watt
Tribal Historic Preservation Officer
United Keetoowah Band of Cherokee Indians in Oklahoma
18263 West Keetoowah Circle
Tahlequah, OK 74464

Re: Rehabilitation of Scraper Hollow Watershed, Site #2, Adair County, Oklahoma

Dear Ms. Toombs,

This letter is a continuation of Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPA), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) undertaking located in Adair County, Oklahoma. The undertaking entails the possible rehabilitation/repair of an existing NRCS floodwater control structure (dam), Scraper Hollow Watershed, Site #2. Since Scraper Hollow Watershed, Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the earthen structure.

To review, Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. The geocentric coordinates of Scraper Hollow Watershed, Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

This letter is a follow-up to NRCS' March 8, 2023 and March 29, 2024 requests for a NHPA-Section 106 review and initial comments about the possible rehabilitation/repair, proposed survey methodology, and definition of the APE. Scraper Cemetery is 697.5 meters (0.43 miles) downstream of the dam. According to analysis of digital aerial photographs, LiDAR, topographic surveys, and three field visits to the cemetery, NRCS determined that the cemetery is 986 feet above mean sea level (amsl) while the valley below is 957 feet amsl. A breach inundation map, produced by NRCS engineers, shows that the cemetery will not be affected in the event of catastrophic dam failure or by the possible rehabilitation/repairs. Further, NRCS has determined that the possible undertaking will not have a

negative visual effect on the cemetery. This determination is based on the distance separating the undertaking from the cemetery coupled with the cemetery's wooded setting (blocking direct line of sight) and that the proposed undertaking will not visually alter the feeling or overall setting of the geographic viewshed (built environment).

As a result of the pedestrian survey, subsurface probes, and site assessment, NRCS has determined that no historic properties will be affected by the undertaking [36CFR800.4(d)(1)] as defined in 36CFR800.16(i). A copy of the archaeology report is included with this correspondence. Please send your comments regarding NRCS' archaeological report and our determination to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail to kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encl. (1)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)

From: [Kraft, KC - FPAC-NRCS, OK](#)
To: [Green, Debra K.](#)
Subject: NRCS Scraper Hollow Watershed Site #2 Report
Date: Friday, November 22, 2024 11:47:00 AM
Attachments: [image001.png](#)
[Scraper #2 \(OAS\) ltr 2 \(report\).pdf](#)
[Archaeology Report_Scraper Hollow Site 02_09112024_Final.pdf](#)

Hello Deb,

I am checking on the status of the Survey's review of the Scraper Hollow Watershed Site #2 report. I've attached the transmittal letter.

I am pleased to send a hard copy of the report again if necessary. I have attached it in electronic format.

Respectfully,

KCK

K.C. KRAFT, PhD, RPA

Archaeologist

Water Resources Section | Oklahoma State Office



Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

100 USDA Suite 206, Stillwater, OK, 74074

p: (405) 742-1271

e: KC.KRAFT@usda.gov | w: www.nrcs.usda.gov/oklahoma

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From: [Christina Sharp](#)
To: [Kraft, KC - FPAC-NRCS, OK](#)
Cc: [section 106](#)
Subject: [External Email]Rehabilitation/Repair of Scraper Hollow Watershed Site #2
Date: Wednesday, September 25, 2024 2:06:12 PM

[External Email]

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;
Use caution before clicking links or opening attachments.
Please send any concerns or suspicious messages to: Spam.Abuse@usda.gov

Dear **Mr. Kraft**,

The Quapaw Nation Historic Preservation Program (QNHPP) has received and reviewed the information provided for the proposed **project Rehabilitation/Repair of Scraper Hollow Watershed Site #2**.

After reviewing this project, we have determined that it is not located within our tribal area of interest; therefore, we decline comment on this project. We also request that we be removed from your agencies' list of tribes that wish to consult on undertakings for **Adair County, Oklahoma**.

Thank you for updating your records and for contacting the Quapaw Nation. Should you have any questions or need any additional information, please feel free to contact **Christina Sharp** at christina.sharp@quapawnation.com, please copy section106@quapawnation.com to ensure additional information requests are reviewed in a timely manner. Thank you for consulting with the Quapaw Nation on this matter.

Sincerely,
Christina Sharp

On behalf of
-Billie Burtrum
Preservation Officer/ QNHPP Director
Quapaw Nation
P.O. Box 765
Quapaw, OK 74363
(w) 918-238-3100
(f) 918-674-2456



Oklahoma Historical Society
State Historic Preservation Office

May 3, 2024

Dr. K.C. Kraft, Ph.D.
USDA NRCS
100 USDA, Suite 206
Stillwater, OK 74074

RE: File #1491-24; NRCS Proposed Scraper Hollow Watershed Site #2 Project, Adair County

Dear Dr. Kraft:

We have received and reviewed the materials for the referenced undertaking submitted with your letter dated April 18, 2024. Thank you for providing additional documentation to support the exclusion of Scraper Cemetery from the project area of potential effect (APE). We concur with the defined APE with respect to both physical and visual impacts for this project and consider it appropriate for the scope of work.

We look forward to receiving the archaeological and architectural survey reports, completed Historic Preservation Resource Identification (HPRID) form(s), and context statement so as to determine eligibility and effect, if necessary. Please reference the above underlined file number when you provide this documentation.

✓ Please note that this project is located within the reservation boundaries of the Cherokee Nation and is therefore on tribal lands as defined in the National Historic Preservation Act (NHPA) and the Section 106 regulations (36 CFR Part 800).

If you have any questions, please contact Kristina Wyckoff, Historical Archaeologist, at 405-521-6381. Thank you.

Sincerely,

Lynda Ozan
Deputy State Historic
Preservation Officer

LO:pm

cc: Ms. Elizabeth Toombs, Cherokee Nation



Natural Resources Conservation Service

U.S. DEPARTMENT OF AGRICULTURE

Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

April 18, 2024

Ms. Lynda Ozan
Deputy State Historic Preservation Officer
Oklahoma State Historic Preservation Office
800 Nazih Zuhdi Drive
Oklahoma City, Oklahoma 73105-7917

Re: File #1103-23; NRCS Proposed Scraper Hollow Watershed, Site #2, Adair County

Dear Ms. Ozan,

This letter is a continuation of Section 106 consultation per 36CFR800.2(c)(1) as codified in the National Historic Preservation Act of 1966 (NHPA), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2.

In response to your letter dated March 24, 2023 (File #1103-23), four subjects are addressed. I will respond to your comments/questions in the following paragraphs.

First, you noted the presence of Scraper Cemetery approximately 2,400 feet downstream of the undertaking's Area of Potential Effect (APE). Scraper Cemetery is perched on a ridge between county road 4677 and the bluff overlooking Scraper Hollow. Based on two field visits to the cemetery, NRCS determined that the cemetery is approximately 986 feet above mean sea level (amsl) while the valley below is roughly 957 feet amsl. A breach inundation map, produced by NRCS engineers, shows that the cemetery will not be affected in the event of catastrophic dam failure or even the decommissioning of the dam. A copy of this map is included with this correspondence. As a side note, NRCS has consulted with the Cherokee Nation regarding the proposed undertaking and its proximity to Scraper Cemetery.

Second, you requested a Historic Preservation Resource Identification (HPRI) form for Scraper Hollow Watershed, Site #2. The HPRI form and context will be provided in a forthcoming architectural survey report. The architectural survey report will accompany the archaeological survey report in a future correspondence.

Third, you requested a detailed description of the proposed rehabilitation. At this juncture in the planning process, a strategy for addressing the safety deficiencies of the dam have yet to be finalized. Four alternatives are generally considered when developing a NRCS plan of action. The dam can be left as is (Future without Federal Investment), the dam can be decommissioned (removing a portion of the dam—for free flow of runoff), or the dam can be rehabilitated (structural modification). Structural modification can take two forms. Rehabilitation can take the form of armoring the existing auxiliary spillway and replacing the principal spillway pipe, or backfilling the auxiliary spillway and abandoning the principal spillway pipe which will be replaced with an armored spillway that traverses a portion of the dam. Again, none of these alternatives has been chosen by NRCS or the sponsors (Conservation District).

Fourth, you requested an architectural survey with accompanying HPRI forms for all structures within or adjacent to the APE—that are more than 45 years of age. As noted in response number two, HPRI forms will be provided for all structures in a forthcoming architectural survey report.

I trust these responses satisfy your request for additional information about the proposed NRCS undertaking. Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encl. (1)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)



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Chuck Hoskin Jr.
Principal Chief
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Bryan Warner
Deputy Principal Chief
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March 14, 2024

K.C. Kraft
United States Department of Agriculture
100 USDA, Suite 206
Stillwater, OK 74074

Re: Scraper Hollow Watershed, Site #2

Dr. K.C. Kraft:

The Cherokee Nation (Nation) is in receipt of your correspondence about **Scraper Hollow Watershed, Site #2**, and appreciates the opportunity to provide comment upon this project. This communication is intended for government-to-government consultation with a sovereign federally recognized Tribal Nation. Information received in consultation will be deemed confidential unless explicit consent is provided by the Nation.

The Nation maintains databases and records of cultural, historic, and pre-historic resources in this area. Our Historic Preservation Office (Office) reviewed this project, cross referenced the project's legal description against our information, and found instances where this project is within close proximity to culturally sensitive resources. Thus, the Nation concurs with Natural Resources Conservation Service's (NRCS) recommendation to conduct a cultural resources survey for this proposed project, and requests a copy of the related report with comments from the State Historic Preservation Office. The Nation requires that cultural resources survey personnel and reports meet the Secretary of the Interior's standards and guidelines.

However, the Nation requests that the NRCS halt all survey activities immediately and re-contact our Office for further consultation if items of cultural significance are discovered during the course of this survey. Additionally, the Nation requests that NRCS conduct appropriate inquiries with other pertinent Historic Preservation Offices regarding historic and prehistoric resources not included in the Nation's databases or records.

If you require additional information or have any questions, please contact me at your convenience. Thank you for your time and attention to this matter.

Wado,

Elizabeth Toombs, Tribal Historic Preservation Officer
Cherokee Nation Tribal Historic Preservation Office
elizabeth-toombs@cherokee.org
918.453.5389

Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

February 29, 2024

Elizabeth Toombs
Tribal Historic Preservation Officer
Cherokee Nation
Tribal Historic Preservation Office
Post Office Box 948
Tahlequah, OK 74465-0948

Re: Rehabilitation of Scraper Hollow Watershed, Site #2, Adair County, Oklahoma

Dear Ms. Toombs,

This letter is a continuation of Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPA), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2. Since Scraper Hollow Watershed, Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the earthen structure.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. The geocentric coordinates of Scraper Hollow Watershed, Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

Regarding the proposed field survey methodology, the maximum extent of the pool (using the top of dam elevation) and potential breach area (to the NRCS easement limits), will be performed using 30 meter transect-spacing with shovel test pits every 30 meters. The above survey boundaries are used to define the Area of Potential Effect (APE).

Based on our pre-survey review, Scraper Cemetery is 697.5 meters (0.43 miles) downstream of the dam and is perched on a ridge between county road 4677 and the bluff overlooking Scraper Hollow.

As you well know, the Scraper family was prominent in the Going Snake District, the forebearer being Archibald Scraper, the namesake of Scraper Hollow and Scraper Cemetery. Based on two field visits to the cemetery, NRCS determined that the cemetery is 986 feet above mean sea level (amsl) while the valley below is 957 feet amsl. A breach inundation map, produced by NRCS engineers, shows that the cemetery will not be affected in the event of catastrophic dam failure. A copy of this map is included with this correspondence.

This letter is a follow-up to our March 8, 2023 request for a NHPA-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. A copy of the US Geological Survey Christie 7.5-minute topographic map and an aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided as well as a map showing the ingress/egress route and equipment staging area. Please note that Scraper Hollow Watershed, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this correspondence. We welcome the Cherokee Nation as a consultation partner.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

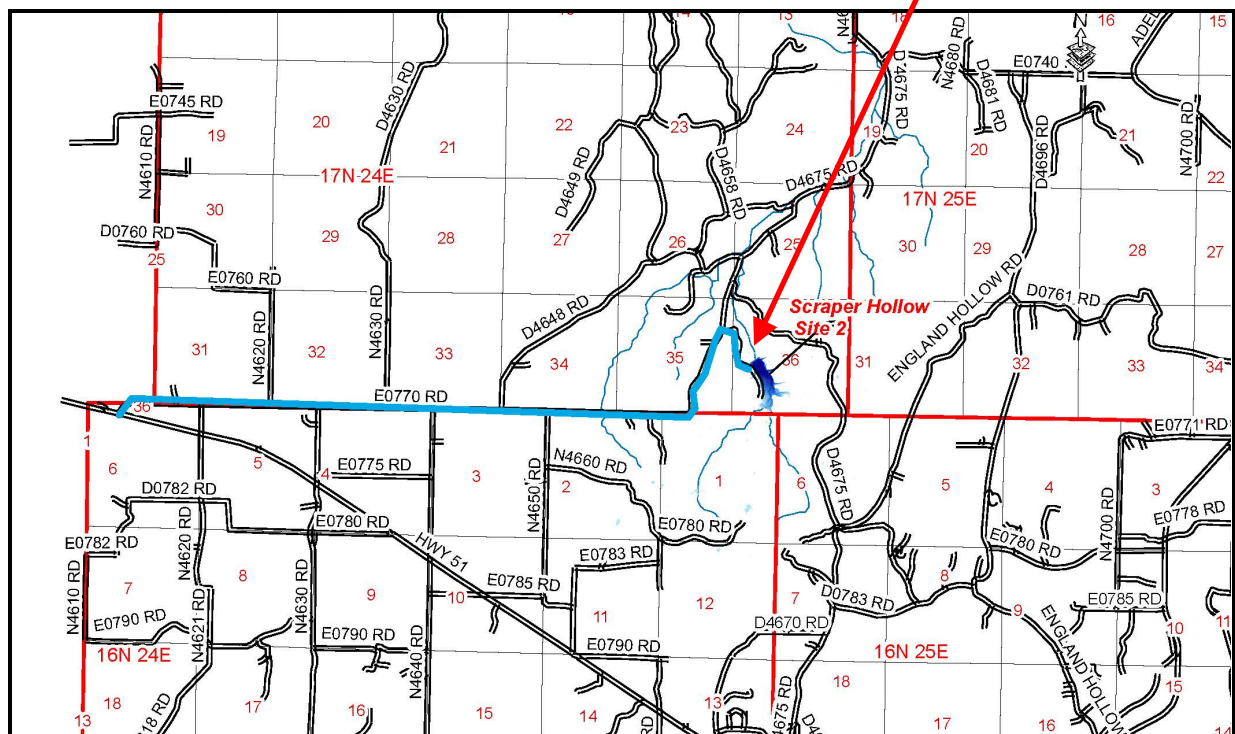
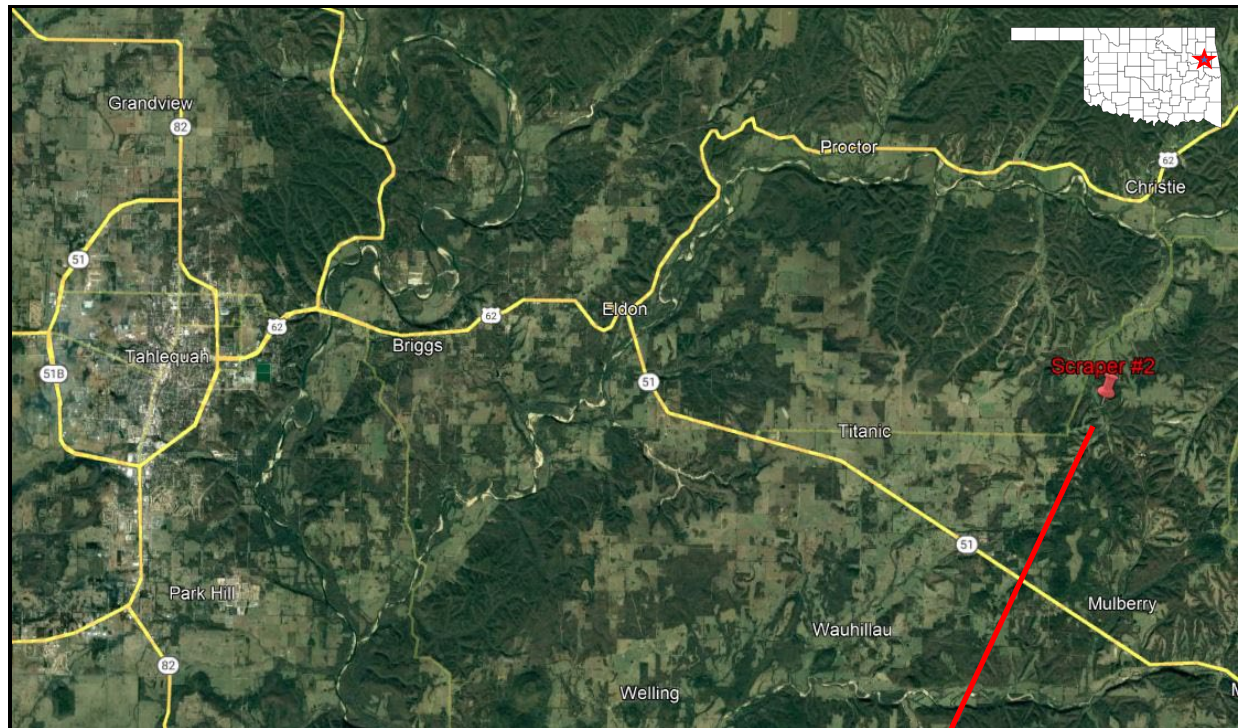
K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (5)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)

Vicinity Maps Enclosure:



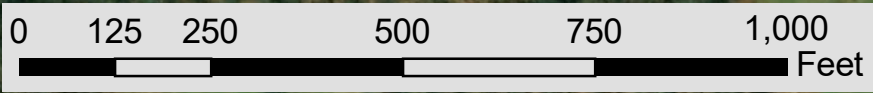
Natural Resources Conservation Service (NRCS) Undertaking—Rehabilitation of Scraper Hollow Watershed,
Site #2, Adair County, Oklahoma

Ingress/Egress and Staging Map Enclosure:



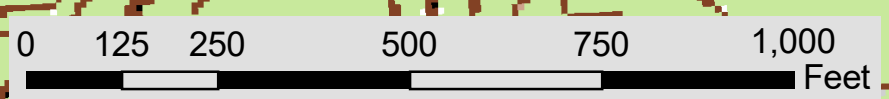
Scraper Hollow Site 2
Adair County
Oklahoma

TOD Elev=1004.5
(LiDAR Created Contour)



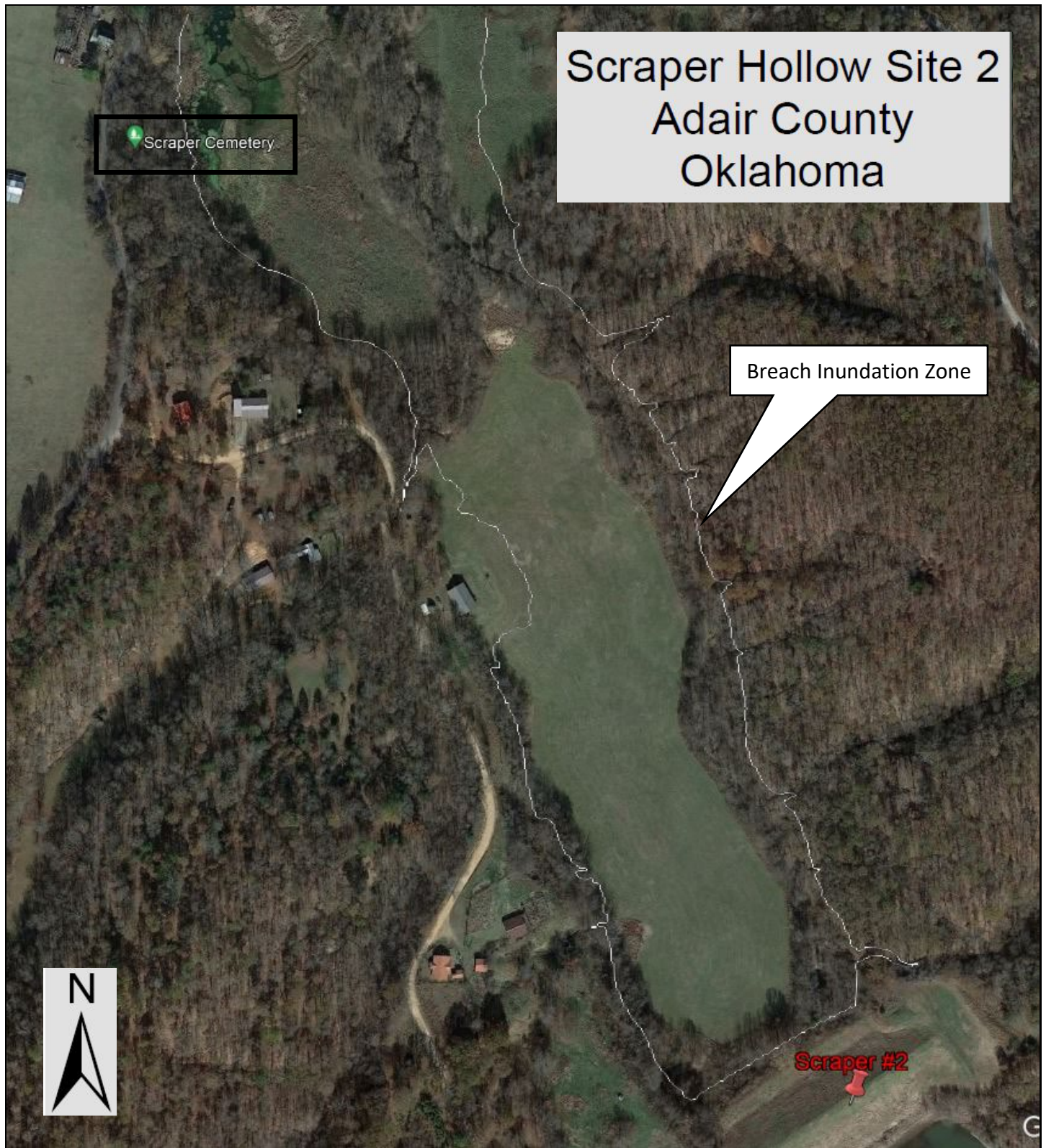
Scraper Hollow Site 2
Adair County
Oklahoma

TOD Elev=1004.5
(LiDAR Created Contour)



Natural Resources Conservation Service (NRCS) Undertaking—Rehabilitation of Scraper Hollow Watershed,
Site #2, Adair County, Oklahoma

Scraper Cemetery Map Enclosure:





Natural Resources Conservation Service

U.S. DEPARTMENT OF AGRICULTURE

Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

February 28, 2024

Whitney Warrior
Director, Office of Historic Preservation
United Keetoowah Band of Cherokee
Post Office Box 746
Tahlequah, OK 74465

Re: Rehabilitation of Scraper Hollow Watershed, Site #2, Adair County, Oklahoma

Dear Ms. Warrior,

This letter is a continuation of Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPA), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2. Since Scraper Hollow Watershed, Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the earthen structure.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N ½ of the SW ¼ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. The geocentric coordinates of Scraper Hollow Watershed, Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

Regarding the field survey methodology, the maximum extent of the pool (using the top of dam elevation) and potential breach area (to the NRCS easement limits), will be performed using 30 meter transect-spacing with shovel test pits every 30 meters. The above survey boundaries are used to define the Area of Potential Effect (APE).

This is a second request for a NHPA-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. for Scraper Hollow Watershed, Site #2. A copy of the US Geological Survey Christie 7.5-minute topographic map and an aerial

photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow Watershed, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence. We welcome the United Keetoowah Band of Cherokee as a consultation partner.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (3)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)

Oklahoma State Office

100 USDA
Suite 206
Stillwater, OK 74074

February 28, 2024

Andrea A. Hunter, Ph.D.
Tribal Historic Preservation Officer
Osage Nation
Historic Preservation Office
627 Grandview
Pawhuska, OK 74056

Re: Rehabilitation of Scraper Hollow Watershed, Site #2, Adair County, Oklahoma

Dear Dr. Hunter,

This letter is a continuation of Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPA), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2. Since Scraper Hollow Watershed, Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the earthen structure.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N ½ of the SW ¼ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. The geocentric coordinates of Scraper Hollow Watershed, Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

Regarding the field survey methodology, the maximum extent of the pool (using the top of dam elevation) and potential breach area (to the NRCS easement limits), will be performed using 30 meter transect-spacing with shovel test pits every 30 meters. The above survey boundaries are used to define the Area of Potential Effect (APE).

This is a second request for a NHPA-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. for Scraper Hollow Watershed,

Site #2. A copy of the US Geological Survey Christie 7.5-minute topographic map and an aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow Watershed, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence. We welcome the Osage Nation as a consultation partner.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (3)

cc: Roderick Dukes, NRCS Assistant State Conservationist (Water Resources)



March 8, 2023

Ms. Lynda Ozan
Deputy State Historic Preservation Officer
Oklahoma State Historic Preservation Office
800 Nazih Zuhdi Drive
Oklahoma City, Oklahoma 73105-7917

Re: Rehabilitation of Scraper Hollow Watershed Site #2, Adair County, Oklahoma

Dear Ms. Ozan,

This letter initiates Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPR), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The undertaking is authorized and funded by PL 106-472, commonly referred to as the *Small Watershed Rehabilitation Amendment of 2000*. PL 106-472 is an amendment to PL 83-566, the *Watershed Protection and Flood Prevention Act of 1954*. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2 (Site #2). Since Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the site.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. This coordinate is located on the *Christie* quadrangle of the United States Geological Survey's 7.5-minute series (topographic) map. The geocentric coordinates of Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

Construction of Site #2 was completed in 1969, hence the dam can be considered a historic property. Structural rehabilitation of the site could be considered an adverse effect. Likewise, a Section 106 assessment and report (36CFR800.4) of the dam centerline and pool were not performed before the site was constructed. To address both deficiencies, National Register of Historic Places-eligibility criteria will be applied to the dam itself and a pedestrian survey with shovel testing will be completed to determine if any historic properties are present. Regarding the field survey methodology, the maximum extent of the pool (using the top of dam elevation) and potential breach area (to the NRCS easement limits), will be performed using 30 meter transect-spacing with shovel test pits every 30 meters. The above survey boundaries are used to define the Area of Potential Effect (APE).

This is a request for a NHPR-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. for Scraper Hollow, Site #2. A copy of the US Geological Survey *Christie* 7.5-minute topographic map and an

aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

Roderick Dukes
Assistant State Conservationist (Water Resources)

Encls. (3)

cc: K.C. Kraft, NRCS Oklahoma, Cultural Resources Coordinator



March 8, 2023

Kary Stackelbeck
Oklahoma State Archaeologist
Oklahoma Archaeological Survey
111 East Chesapeake, Building 134
University of Oklahoma
Norman, OK 73019

Re: Rehabilitation of Scraper Hollow Watershed Site #2, Adair County, Oklahoma

Dear Dr. Stackelbeck,

This letter initiates Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPR), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The undertaking is authorized and funded by PL 106-472, commonly referred to as the *Small Watershed Rehabilitation Amendment of 2000*. PL 106-472 is an amendment to PL 83-566, the *Watershed Protection and Flood Prevention Act of 1954*. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2 (Site #2). Since Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the site.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. This coordinate is located on the *Christie* quadrangle of the United States Geological Survey's 7.5-minute series (topographic) map. The geocentric coordinates of Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

Construction of Site #2 was completed in 1969, hence the dam can be considered a historic property. Structural rehabilitation of the site could be considered an adverse effect. Likewise, a Section 106 assessment and report (36CFR800.4) of the dam centerline and pool were not performed before the site was constructed. To address both deficiencies, National Register of Historic Places-eligibility criteria will be applied to the dam itself and a pedestrian survey with shovel testing will be completed to determine if any historic properties are present. Regarding the field survey methodology, the maximum extent of the pool (using the top of dam elevation) and potential breach area (to the NRCS easement limits), will be performed using 30 meter transect-spacing with shovel test pits every 30 meters. The above survey boundaries are used to define the Area of Potential Effect (APE).

This is a request for a NHPR-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. for Scraper Hollow,

Site #2. A copy of the US Geological Survey *Christie* 7.5-minute topographic map and an aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

Roderick Dukes
Assistant State Conservationist (Water Resources)

Encls. (3)

cc: K.C. Kraft, NRCS Oklahoma, Cultural Resources Coordinator



March 8, 2023

Elizabeth Toombs
Tribal Historic Preservation Officer
Cherokee Nation
Tribal Historic Preservation Office
Post Office Box 948
Tahlequah, OK 74465-0948

Re: Rehabilitation of Scraper Hollow Watershed Site #2, Adair County, Oklahoma

Dear Ms. Toombs,

This letter initiates Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPR), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The undertaking is authorized and funded by PL 106-472, commonly referred to as the *Small Watershed Rehabilitation Amendment of 2000*. PL 106-472 is an amendment to PL 83-566, the *Watershed Protection and Flood Prevention Act of 1954*. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2 (Site #2). Since Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the site.

Scraper Hollow Watershed, Site #2 is approximately eight miles northwest of Stilwell, Oklahoma, in the upper reach of Scraper Hollow, a tributary of the Baron Fork River. The dam and pool are in the N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Section 36, Township 17 North, Range 24 East of the Indian Meridian. This coordinate is located on the *Christie* quadrangle of the United States Geological Survey's 7.5-minute series (topographic) map. The geocentric coordinates of Site #2, in degrees, minutes, and seconds, are Latitude 35°54'28.14"N, Longitude 94°42'16.88"W.

Construction of Site #2 was completed in 1969, hence the dam can be considered a historic property. Structural rehabilitation of the site could be considered an adverse effect. Likewise, a Section 106 assessment and report (36CFR800.4) of the dam centerline and pool were not performed before the site was constructed. To address both deficiencies, National Register of Historic Places-eligibility criteria will be applied to the dam itself and a pedestrian survey with shovel testing will be completed to determine if any historic properties are present. Regarding the field survey methodology, the maximum extent of the pool (using the top of dam elevation) and potential breach area (to the NRCS easement limits), will be performed using 30 meter transect-spacing with shovel test pits every 30 meters. The above survey boundaries are used to define the Area of Potential Effect (APE).

This is a request for a NHPR-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. for Scraper Hollow,

Site #2. A copy of the US Geological Survey *Christie* 7.5-minute topographic map and an aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (3)



March 8, 2023

Andrea A. Hunter, Ph.D.
Tribal Historic Preservation Officer
Osage Nation
Historic Preservation Office
627 Grandview
Pawhuska, OK 74056

Re: Rehabilitation of Scraper Hollow Watershed Site #2, Adair County, Oklahoma

Dear Dr. Hunter,

This letter initiates Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPR), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The undertaking is authorized and funded by PL 106-472, commonly referred to as the *Small Watershed Rehabilitation Amendment of 2000*. PL 106-472 is an amendment to PL 83-566, the *Watershed Protection and Flood Prevention Act of 1954*. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2 (Site #2). Since Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the site.

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Site #2. A copy of the US Geological Survey *Christie* 7.5-minute topographic map and an aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (3)



March 8, 2023

Whitney Warrior
Director, Office of Historic Preservation
United Keetoowah Band of Cherokee
Post Office Box 746
Tahlequah, OK 74465

Re: Rehabilitation of Scraper Hollow Watershed Site #2, Adair County, Oklahoma

Dear Ms. Warrior,

This letter initiates Section 106 consultation per 36CFR800.2(c)(1) as codified in of the National Historic Preservation Act of 1966 (NHPR), as amended, for a proposed US Department of Agriculture, Natural Resources Conservation Service (NRCS) project located in Adair County, Oklahoma. The undertaking is authorized and funded by PL 106-472, commonly referred to as the *Small Watershed Rehabilitation Amendment of 2000*. PL 106-472 is an amendment to PL 83-566, the *Watershed Protection and Flood Prevention Act of 1954*. The project entails the possible rehabilitation of an existing NRCS floodwater control structure, Scraper Hollow Watershed, Site #2 (Site #2). Since Site #2 does not meet current Oklahoma Water Resources Board or NRCS standards for its high hazard dam classification, NRCS is considering our options regarding the future of the site.

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This is a request for a NHPR-Section 106 review and initial comments about the possible rehabilitation, proposed survey methodology, and definition of the APE. for Scraper Hollow, Site #2. A copy of the US Geological Survey *Christie* 7.5-minute topographic map and an

aerial photograph, which shows the site, are attached for your convenience. A vicinity map is also provided. Please note that Scraper Hollow, Site #2 undertaking has yet to be surveyed, thus a Section 106 report is not included nor is there a determination included with this opening consultation correspondence.

Please send your comments to the address above marked to the attention of NRCS Cultural Resources Coordinator K.C. Kraft, or by electronic mail at kc.kraft@usda.gov.

Respectfully,

K.C. KRAFT

Kenneth C. Kraft, PhD, RPA

Encls. (3)

Biological and Water Resources

Jones, Melissa - FPAC-NRCS, OK

From: Jones, Melissa - FPAC-NRCS, OK
Sent: Thursday, November 7, 2024 1:49 PM
To: OK Project Review, FWS
Subject: IPaC Consultation Packet for FWRS Scraper Hollow No. 2 Dam Rehabilitation Project #2023-0116727
Attachments: IPaC Consultation Packet_Project Code 2023-0116727.pdf

Dear USFWS Oklahoma Project Review,

Attached are the following requirements for a USFWS OK Project Review for Project #2023-0116727 Flood Water Retarding Structure (FWRS) Scraper Hollow No. 2 Dam Rehabilitation Project in Adair County, Oklahoma.

- 1) Online Concurrence Letter
- 2) Action Area Map
- 3) Official IPaC species list (November 6, 2024)
- 4) Species Conclusion Table
- 5) NLAA Concurrence for TRI CLR Bat and NLEB
- 6) NRCS formal Request for Consultation with USFWS Letter

After project review, our ESA conclusion was "No Effect" for the Piping plover, Red knot, and Ozark big-eared bat and a conclusion of "May Affect, not likely to Adversely Affect" the Monarch butterfly, Alligator snapping turtle, Gray bat, Indiana bat, NLEB, and Tricolored bat.

Thank you!

Melissa Jones, PhD
Water Resources, Biologist
USDA-NRCS
Stillwater, OK
405-742-1232 - office

Jones, Melissa - FPAC-NRCS, OK

From: Machara, Marley E <marley_machara@fws.gov>
Sent: Monday, November 25, 2024 12:40 PM
To: Jones, Melissa - FPAC-NRCS, OK
Subject: Re: [EXTERNAL] RE: Flood Water Retarding Structure Scraper Hollow No. 2 Dam Rehabilitation Project

Thanks for sending that! Your concurrence letter is now valid 😊
Thanks!

Marley Machara
Fish and Wildlife Biologist
Oklahoma Ecological Services Field Office
U.S. Fish and Wildlife Service
9014 East 21st Street
Tulsa, OK, 74129

From: Jones, Melissa - FPAC-NRCS, OK <Melissa.Jones@usda.gov>
Sent: Monday, November 25, 2024 9:31 AM
To: Machara, Marley E <marley_machara@fws.gov>
Subject: [EXTERNAL] RE: Flood Water Retarding Structure Scraper Hollow No. 2 Dam Rehabilitation Project

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good morning, Marley,

I am so glad you caught that! I have attached the Species Conclusion table for Scraper Hollow No. 2 (Project Code # 2023-0116727).

Thank you!

Melissa Jones, PhD
Water Resources Biologist
USDA-NRCS
Stillwater, OK
405-742-1232 - office

From: Machara, Marley E <marley_machara@fws.gov>
Sent: Monday, November 25, 2024 7:48 AM
To: Jones, Melissa - FPAC-NRCS, OK <Melissa.Jones@usda.gov>
Subject: Re: Flood Water Retarding Structure Scraper Hollow No. 2 Dam Rehabilitation Project



United States Department of the Interior
FISH AND WILDLIFE SERVICE
Ecological Services Program



Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, Oklahoma 74129
(918) 581-7458 (Office) / (918) 581-7467 (Fax)

Date:

November 24, 2024

To:

Jeanne Jasper - Oklahoma State Conservationist
Natural Resources Conservation Service
100 USDA, Suite 206
Stillwater, OK 74074

Project Name:

Flood Water Retarding Structure (FWRS) Scraper Hollow Creek No. 2 Dam
Rehabilitation Project

Consultation Code:

Project Code# 2023-0116727

Dear Project Proponent:

Thank you for using the U.S. Fish and Wildlife Service (Service) Oklahoma Ecological Services Field Office (ESFO) online project review process. By providing this letter in conjunction with your complete project review package, you are certifying that you have accurately completed the USFWS Online Project Review Process for the referenced project in accordance with all instructions provided, using the best available information to reach your conclusions. Concurrence with “not likely to adversely affect” determinations does not provide any exemption for violations of section 9 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA) or “take” of federally-listed species. The Federal action agency is ultimately responsible for ensuring compliance with the ESA and any take that occurs due to your proposed action would be considered a violation under section 9 of the ESA.

This letter and the enclosed project review package complete the review of your project in accordance with the ESA. This letter also provides information for your project review under the National Environmental Policy Act (National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended.

A copy of this letter, with all forms completed, and the project review package must be emailed to **okprojectreview@fws.gov** for this certification to be valid. This letter and the project review package will be maintained in Service records. **Please allow the Oklahoma ESFO 45 days to review your information. If the Oklahoma ESFO determines that the package is not complete, or that additional coordination is necessary, we will contact you. If, after 45 days from the date of your email submittal of your project review package, the Oklahoma ESFO has not contacted you, consider your section 7 consultation complete.**

The proposed action consists of:

Latitude: 35.9076 Longitude: -94.7051

Scraper Hollow Dam No. 2 was constructed as a low-hazard dam for the purpose of flood control. It has since been re-classified as a high-hazard dam. However, the vegetated earthen spillway and dam embankment do not meet NRCS or Oklahoma Water Resources Board (OWRB) dam safety program standards for a high-hazard dam. The purpose of this action is to evaluate alternatives to maintain the existing level of flood protection currently provided by the dam's ability to attenuate flood and thus reduce risk to life and property downstream of the dam.

The need for this Federal action is to bring the dam into compliance with current NRCS and Oklahoma safety and performance standards, and to extend the service life of the dam. By doing so, the dam will continue to provide flood protection in a manner that reduces the risk of loss of human life and is both cost effective and environmentally acceptable. Scraper Hollow Dam No. 2 project site is located approximately six miles northwest of Maryetta in Adair County, Oklahoma. The site is currently located within pastureland used for livestock grazing surrounded by rocky, wooded hillslopes. The proposed normal pool elevation impounds an intermittent tributary of Baron Fork. Principal Spillway: The proposed action, which is the NED plan, consists of structural rehabilitation of Scraper Hollow Dam No. 2 to meet current NRCS and State of Oklahoma safety criteria and performance standards for a high-hazard dam. The designed life of the dam will be 100 years. Principal Spillway: The existing principal spillway is a 30-inch reinforced concrete pipe conduit with a 3-foot x 9-foot x 25-foot dual-stage inlet tower. Proposed improvements include slip-lining the pipe with a 30-inch HDPE pipe. The principal spillway crest will remain unchanged at 764.2 feet. Auxiliary Spillway: The existing auxiliary spillway is composed of an earthen spillway near the right dam abutment. Under this alternative, the proposed modifications include widening the auxiliary spillway from a width of 50 feet to 250 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped RCC spillway will be installed in the middle of the dam. Additionally, the spillway crest can be lowered 3.9 feet, to an elevation of 998.1 feet. The top of the dam will be extended into the existing auxiliary spillway footprint to fill it in.

Project start and completion dates:

2028 - 2029

Federal agency or federal program providing a permit, grant, authorization, loan, etc. associated with the proposed project and how that agency is associated with your project:

NRCS is the lead agency for the proposed project authorized by Public Law 83-566 as amended by Section 313 of Public Law 106-472.

Federal Agency/Program Point of Contact (name, phone, and email address):

Melissa Jones - Biologist - Water Resources Division
405-742-1232
melissa.jones@usda.gov

The species conclusions table in the enclosed project review package summarizes your ESA conclusions. These conclusions resulted in “not likely to adversely affect/modify” determinations for listed species and critical habitat in relation to potential effects of your proposed project. We certify that the use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package results in reaching the appropriate determinations. Therefore, we concur with determinations of “not likely to adversely affect” for listed species and critical habitat reached by proper use of this process. For projects where this particular determination is reached, additional coordination with this office is not needed.

Candidate species are not legally protected pursuant to the ESA. However, the Service encourages efforts to avoid or minimize adverse impacts to them from project effects. Some federal agencies have standing policies that grant limited protections to candidate species. Conservation of candidate species now may preclude future needs to federally list them as endangered or threatened, at which point their legal protection would become required. Please contact this office for additional coordination if your project action area contains candidate species.

Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. You should re-visit the Service's Information, Planning, and Conservation (IPaC) website at <http://ecos/fws.gov/ipac/> within 90 days of project initiation to ensure species information is correct. If new species or critical habitat is identified, this letter is no longer valid and a new project package should be submitted to the Oklahoma ESFO.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Oklahoma is available at our website: <http://www.fws.gov/southwest/es/oklahoma/>. If you have any questions, please call 918-581-7458 or send an email message to OKProjectReview@fws.gov.

Sincerely,
/s/ Kenneth Collins
Field Supervisor

Enclosures:

1) ENTIRE PROJECT REVIEW PACKAGE (check those you are including):

- ☒ Species Conclusion Table (required)
- ☒ IPaC Species List and Action Area map (required)
- ☒ This letter (Online Concurrence Letter) (required)
- ☐ Additional maps (recommended for adequate review)

2) Other relevant project data/documents

Species Conclusion Table
NLAA Concurrence Letter: Northern Long-eared Bat and Tri-colored Bat Rangewide Determination Key



Maxar, Microsoft

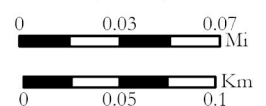


Flood Water Retarding Structure (FWRS) Scraper Hollow No. 2
Action Area
Adair County, Oklahoma

Map ID: Scraper Hollow No. 2
Map Date: November 2024

2024

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere





United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
Phone: (918) 581-7458 Fax: (918) 581-7467



In Reply Refer To:

11/20/2025 20:19:49 UTC

Project Code: 2023-0116727

Project Name: Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam
Rehabilitation

Subject: List of threatened and endangered species that may occur in your proposed project
location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oklahoma Ecological Services Field Office

9014 East 21st Street

Tulsa, OK 74129-1428

(918) 581-7458

PROJECT SUMMARY

Project Code: 2023-0116727

Project Name: Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam Rehabilitation

Project Type: Dam - Maintenance/Modification

Project Description: Latitude: 35.9076 Longitude: -94.7051

Project Purpose: Scraper Hollow Dam No. 2 was constructed as a low-hazard dam for the purpose of flood control. It has since been re-classified as a high-hazard dam. However, the vegetated earthen spillway and dam embankment do not meet NRCS or Oklahoma Water Resources Board dam safety program standards for a high-hazard-dam. The purpose of this action is to evaluate alternatives to maintain the existing level of flood protection currently provided by the dam's ability to attenuate floods and thus reduce risk to life and property downstream of the dam.

Need: The need for this Federal action is to bring the dam into compliance with current NRCS and Oklahoma safety and performance standards, and to extend the service life of the dam. By doing so, the dam will continue to provide flood protection in a manner that reduces the risk of loss of human life and is both cost effective and environmentally acceptable.

Project Description: Scraper Hollow Dam No. 2 project site is located approximately six miles northwest of Maryetta in Adair County,

Oklahoma, The site is currently located within pastureland used for livestock grazing surrounded by rocky, wooded hillslopes. The proposed normal pool elevation impounds an intermittent tributary of Baron Fork.

Principal Spillway: The proposed action, which is the NED plan, consists of structural rehabilitation of Scraper Hollow Dam No. 2 to meet current NRCS and State of Oklahoma safety criteria and performance standards for a high-hazard dam. The designed life of the dam will be 100 years.

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Auxiliary Spillway: The existing auxiliary spillway is composed of an earthen spillway near the right dam abutment. Under this alternative, the proposed modifications include widening the auxiliary spillway from a width of 50 feet to 250 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped RCC spillway will be installed in the middle of the dam. Additionally, the spillway crest can be lowered 3.9 feet, to an elevation of 998.1 feet. The top of the dam will be extended into the existing auxiliary spillway footprint to fill it in.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.9060541,-94.70352080047574,14z>

ENDANGERED SPECIES ACT SPECIES

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Ozark Big-eared Bat <i>Corynorhinus (=Plecotus) townsendii ingens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
Alligator Snapping Turtle <i>Macrochelys temminckii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act ² and the Migratory Bird Treaty Act (MBTA) ¹. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

-
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
 2. The [Migratory Birds Treaty Act](#) of 1918.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act (MBTA). Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing

appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) ¹ prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- PUBHh
- PUBHx

RIVERINE

- R4SBC
- R5UBF

FRESHWATER EMERGENT WETLAND

- PEM1C

Species Conclusion Table – Flood Water Retarding Structure (FWRS) Scraper Hollow No. 2, Adair County, Oklahoma.

Table 1: Listed Species on Official Species List (November 2025)

Species/ Critical Habitat	Habitat Determination	Notes/Documentation	ESA Determination
Piping Plover	No habitat present	Piping plovers nest on unvegetated shoreline of lakes and reservoirs. No bare shorelines/mudflats, which may serve as nesting habitat, were identified.	No effect
Red Knot	No habitat present	Red knots use lakes, wetlands and mudflats as stopover habitat. No bare shorelines/mudflats, which may be used as stopover habitat, were identified.	No effect
Monarch Butterfly	Potential habitat present	Milkweed, used as a host plant, and nectar sources are presumed present but scarce in the area of impact. If host species are identified in the project area, construction activities will be initiated outside of the prime reproductive period (Apr 1 – July 1) to minimize potential impacts to eggs and caterpillars. Approximately 1 – 1.5 acres of potential habitat will be paved over to armor the RCC auxiliary spillway. Other areas will return to conditions that existed pre-construction with no long-term impacts.	May affect, not likely to adversely affect
Alligator Snapping Turtle	Potential habitat present	Downstream dam may limit migration of juvenile species. Lack of overstory /canopy cover along conservation pool perimeter. No evidence of structure (logs, undercut of bank) within conservation pool.	May affect, not likely to adversely affect
Gray Bat	Potential habitat present	Potential foraging habitat of aquatic insects. Short-term adverse effects on aquatic insects from sedimentation and dewatering of the conservation pool will be minimized by erosion control measures (e.g. silt fences) and best management practices. Rehabilitation will require a temporary draw-down of the conservation pool but will not	May affect, not likely to adversely affect

		completely drain the area. No long-term impacts to habitat. Gray bats occupy caves year-round, no caves, which may serve as roosting habitat, were identified.	
Northern long-eared Bat	Potential habitat present	Only a few potential roost trees occur in the area of impact. As a forest dependent species during summer months, potential roost trees will be felled during the bats inactive period (Nov 15 – Mar 15).	May affect, not likely to adversely affect (Determination Key Letter of Concurrence Project Code# 2023-0116727)
Tri-colored Bat	Potential habitat present	A few potential roost trees occur in the area of impact. As a forest dependent species during the summer months, potential roost trees will be felled during the bats inactive period (Nov 15 – Mar 15).	May affect, not likely to adversely affect (Determination Key Letter of Concurrence Project Code# 2023-0116727)
Ozark big-eared Bat	No habitat present	Ozark big-eared bats use limestone and sandstone caves. After consultation with USFWS, a known roosting location does not occur within 0.25 miles of the project location. Mature upland forest and karst areas are not located in the area of impact.	No effect



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
Phone: (918) 581-7458 Fax: (918) 581-7467



In Reply Refer To:

11/20/2025 21:07:58 UTC

Project code: 2023-0116727

Project Name: Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam
Rehabilitation

Federal Nexus: yes

Federal Action Agency (if applicable): Natural Resources Conservation Service

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for 'Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam Rehabilitation'

Dear Melissa Jones:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on November 20, 2025, for 'Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam Rehabilitation' (here forward, Project). This project has been assigned Project Code 2023-0116727 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (<i>Myotis septentrionalis</i>)	Endangered	NLAA
Tricolored Bat (<i>Perimyotis subflavus</i>)	Proposed Endangered	NLAA

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Alligator Snapping Turtle *Macrochelys temminckii* Proposed Threatened
- Gray Bat *Myotis grisescens* Endangered
- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* Endangered
- Piping Plover *Charadrius melodus* Threatened
- Rufa Red Knot *Calidris canutus rufa* Threatened

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the Oklahoma Ecological Services Field Office and reference Project Code 2023-0116727 associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam Rehabilitation

2. Description

The following description was provided for the project 'Flood Water Retention Structure (FWRS) Scraper Hollow No. 2 Dam Rehabilitation':

Latitude: 35.9076 Longitude: -94.7051

Project Purpose: Scraper Hollow Dam No. 2 was constructed as a low-hazard dam for the purpose of flood control. It has since been re-classified as a high-hazard dam. However, the vegetated earthen spillway and dam embankment do not meet NRCS or Oklahoma Water Resources Board dam safety program standards for a high-hazard-dam. The purpose of this action is to evaluate alternatives to maintain the existing level of flood protection currently provided by the dam's ability to attenuate floods and thus reduce risk to life and property downstream of the dam. **Need:** The need for this Federal action is to bring the dam into compliance with current NRCS and Oklahoma safety and performance standards, and to extend the service life of the dam. By doing so, the dam will continue to provide flood protection in a manner that reduces the risk of loss of human life and is both cost effective and environmentally acceptable.

Project Description: Scraper Hollow Dam No. 2 project site is located approximately six miles northwest of Maryetta in Adair County, Oklahoma, The site is currently located within pastureland used for livestock grazing surrounded by rocky, wooded hillslopes. The proposed normal pool elevation impounds an intermittent tributary of Baron Fork. **Principal Spillway:** The proposed action, which is the NED plan, consists of structural rehabilitation of Scraper Hollow Dam No. 2 to meet current NRCS and State of Oklahoma safety criteria and performance standards for a high-hazard dam. The designed life of the dam will be 100 years. **Principal Spillway:** The existing principal spillway is a 30-inch reinforced concrete pipe conduit with a 3-foot x 9-foot x 25-foot dual-stage inlet tower. Proposed improvements include slip-lining the pipe with a 30-inch HDPE pipe. The principal spillway crest will remain unchanged at 764.2 feet. **Auxiliary Spillway:** The existing auxiliary spillway is composed of an earthen spillway near the right dam abutment. Under this alternative, the proposed modifications include widening the auxiliary spillway from a width of 50 feet to 250 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped RCC spillway will be installed in the middle of the dam. Additionally, the spillway crest can be lowered 3.9 feet, to an elevation of 998.1 feet. The top of the dam will be extended into the existing auxiliary spillway footprint to fill it in.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.9060541,-94.70352080047574,14z>

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

Automatically answered

No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Note for projects in Pennsylvania: Projects requiring authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act would be considered as having a federal nexus. Since the U.S. Army Corps of Engineers (Corps) has issued the Pennsylvania State Programmatic General Permit (PASPGP), which may be verified by the PA Department of Environmental Protection or certain Conservation Districts, the need to receive a Corps authorization to perform the work under the PASPGP serves as a federal nexus. As such, if proposing to use the PASPGP, you would answer ‘yes’ to this question.

Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

Automatically answered

No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

No

12. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

No

13. Will the action cause effects to a bridge?

Note: Covered bridges should be considered as bridges in this question.

No

14. Will the action result in effects to a culvert or tunnel at any time of year?

No

15. Are trees present within 1000 feet of the action area?

Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

16. Does the action include the intentional exclusion of bats from a building or building-like structure? **Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

No

17. Does the action involve removal, modification, or maintenance of a human-made building-like structure (barn, house, or other building) **known or suspected to contain roosting bats?**

No

18. Will the action cause construction of one or more new roads open to the public?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

No

21. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

Note: For information regarding NSF/ANSI 60 please visit <https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects>

No

22. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

No

23. Will the action include drilling or blasting?

No

24. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use at night)?

No

25. Will the proposed action involve the use of herbicides or pesticides (e.g., fungicides, insecticides, or rodenticides)?

No

26. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

27. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

No

28. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

Yes

29. Is the project related to the production of coal, including projects that support the mining of coal, as well as the production and/or distribution of energy produced from coal?

No

30. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

No

31. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

No

32. Does the project intersect with the 0- 9.9% forest density category?

Automatically answered

No

33. Does the project intersect with the 10.0- 19.9% forest density category map?

Automatically answered

No

34. Does the project intersect with the 20.0- 29.9% forest density category map?

Automatically answered

No

35. Does the project intersect with the 30.0- 100% forest density category map?

Automatically answered

Yes

36. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 100 acres in total extent?

No

37. Will the proposed action result in the use of prescribed fire?

Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

No

38. Does the action area intersect the northern long-eared bat species list area?

Automatically answered

Yes

39. [Semantic] Is the action area located within 0.5 miles of radius of an entrance/opening to any known NLEB hibernacula or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

40. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

41. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency. Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

Automatically answered

No

42. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?

If unsure, answer "Yes."

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

43. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's [Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines](#) been conducted within the project area?

No

44. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥ 3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

45. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area? **Note:** Bat activity periods for your state can be found in Appendix 2 of the Service's [Northern long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Development Projects](#).

No

46. Does the action area intersect the tricolored bat species list area?

Automatically answered

Yes

47. Is the action area located within 0.5-mile of radius of an entrance/opening to any known tricolored bat hibernacula or winter roost?

Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

Automatically answered

No

48. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

Automatically answered

No

49. Has a presence/probable absence bat survey targeting the [tricolored bat and following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines](#) been conducted within the project area?

No

50. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?

(If unsure, answer ""Yes."")

Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the [Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines](#).

Yes

51. Do any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (*Tillandsia usneoides*), clusters of dead pine needles of large live pine trees)?

Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

Yes

52. Will any tree cutting/trimming or other knocking or bringing down of trees be conducted during the Pup Season for tricolored bat? **Note:** Bat activity periods for your state can be found in Appendix 2 of the Service's [Northern Long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Developmental Projects](#).

No

53. Do you have any documents that you want to include with this submission?

No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

3



Natural Resources Conservation Service

U.S. DEPARTMENT OF AGRICULTURE

Oklahoma State Office
100 USDA
Suite 206
Stillwater, Oklahoma 74074

July 05, 2024

U.S. Fish and Wildlife Service
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428

RE: Formal request for U.S. Fish and Wildlife Service (USFWS) to provide agency input and/or consultation on the Scrapper Hollow Creek Watershed for the Rehabilitation Watershed Plan and Environmental Evaluation (Plan-EE) of Floodwater Retarding Structure (FWRS) Scrapper Hollow Creek No. 2, located in Adair County, Oklahoma. (NID #OK00090) (Latitude: 35.907816, Longitude: -94.704774).

In accordance with the Council on Environmental Quality, regulations implementing the National Environmental Policy Act (NEPA), Endangered Species Act (ESA) Section 7 consultation, and regulations in part of the Watershed Protection and Flood Prevention Act (PL 83-566), Section 12, the Natural Resources Conservation Service (NRCS) is formally requesting your agency to provide input and/or consultation related to the dam rehabilitation project of FWRS Scrapper Hollow Creek No. 2.

This request is being made because your agency has been identified as having special expertise or jurisdiction related to this project. A Supplemental Watershed Plan-EE is being prepared to fulfill NRCS' NEPA compliance responsibilities pertaining to our potential federal financial assistance through PL 83-566. Public Law 83-566 requires NRCS to notify USFWS to make recommendations concerning the conservation and development of wildlife resources related to the proposed dam rehabilitation project plan.

FWRS Scrapper Hollow Creek No. 2 was constructed in 1968 as a low-hazard potential dam. It is currently classified as a high-hazard potential dam due to population at risk downstream. Currently, FWRS Scrapper Hollow Creek No. 2 does not meet NRCS or Oklahoma Water Resources Board dam safety program standards. Therefore, the project sponsors and NRCS are preparing a Plan-EE to evaluate alternatives to meet the current performance and safety criteria for a high hazard potential dam.

Thank you for your timely response and cooperation with this project. If you have any questions or comments, please contact Melissa Jones (Water Resources Biologist) at melissa.jones@usda.gov or 405-742-1232.

Respectfully,

JEANNE HAMILTON
Oklahoma State Conservationist

Enclosures

Natural Resources Conservation Service

USDA is an equal opportunity provider, employer, and lender.



OKLAHOMA

Water Resources Board

OKLAHOMA WATER RESOURCES BOARD

Planning & Management Division

Oklahoma City, OK

PUBLIC NOTICE REVIEW

☒ We have no comments to offer

☐ We offer the following comments

Project is located on state property? ☐ No

Reviewer: Bailey Williams, CFM

Date: 04/01/2026

Project Name: FWRS Scraper Hollow Creek Site No. 2 Supplemental Watershed Plan and Environmental Assessment (Plan-EA) Third Project Meeting.

Name: NRCS and Adair County Conservation District

*Adair County participates in the NFIP and has a floodplain development permitting system.

Oklahoma State Office
100 USDA
Suite 206
Stillwater, Oklahoma 74074

March 11, 2025

Ms. Elena Jigoulina
Watershed Planning Section
Oklahoma Department of Environmental Quality
707 Robinson
Oklahoma City, OK 73102

Re: Clean Water Act 401 Pre-filing Meeting Request – Flood Water Retarding Structure (FWRS) Scraper Hollow Watershed Dam No. 2, Adair County, Oklahoma.

Dear Ms. Jigoulina:

The National Resources Conservation Service (NRCS) is requesting a pre-filing meeting for rehabilitation of FWRS Scraper Hollow Watershed Dam No. 2 in Adair County, Oklahoma.

Project Applicant:

Organization: Natural Resources Conservation Service (on behalf of Adair County Conservation District)
Contact: Melissa Jones – Water Resources Biologist
Email: melissa.jones@usda.gov

Project Information:

Name: Scraper Hollow Watershed Dam No. 2 Rehabilitation
Location: Adair County, Oklahoma
Latitude/Longitude:
Dam Inventory ID:

Brief Project Description and Scope:

Project Purpose: Scraper Hollow Watershed Dam No. 2 (FWRS No. 2) was constructed as a low-hazard dam for the purpose of flood control. The dam has since been re-classified as a high-hazard dam. The vegetated earthen spillway and dam embankment do not meet NRCS or Oklahoma Water Resources Board dam safety program standards for a high-hazard dam. The purpose of this action is to evaluate alternatives to maintain the existing level of flood protection currently provided by the dam's ability to attenuate floods and thus reduce risk to life and property downstream of the dam.

Need: The need for this Federal action is to bring the dam into compliance with current NRCS and Oklahoma safety and performance standards, and to extend the service life of the dam. By doing so, the dam will continue to provide flood protection in a manner that reduces the risk of loss of human life and is both cost effective and environmentally acceptable.

Project Description: FWRS No. 2 project site is located approximately 6 miles northwest of Maryetta in Adair County, Oklahoma. The site is currently located within pastureland used for livestock grazing surrounded by rocky, wooded hillslopes. The proposed normal pool elevation impounds an intermittent tributary (Scraper Hollow Creek) of Baron Fork Creek. **Principal Spillway:** The proposed action consists of structural rehabilitation of FWRS No. 2 to meet current NRCS and State of Oklahoma safety criteria and performance standards for a high-hazard dam. The designed life of the dam will be 100 years. **Principal Spillway:** The existing principal spillway is a 30-inch reinforced concrete pipe conduit with a 3-foot x 9-foot x 25-foot dual-stage inlet tower. Proposed improvements include slip-lining the pipe with a 30-inch HDPE pipe. The principal spillway crest will remain unchanged at 764.2 feet. **Auxiliary Spillway:** The existing auxiliary spillway is composed of an earthen spillway near the right dam abutment. Under this alternative, the proposed modifications include widening the auxiliary spillway from a width of 50 feet to 250 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped RCC spillway will be installed in the middle of the dam. Additionally, the spillway crest can be lowered 3.9 feet, to an elevation of 998.1 feet. The top of the dam will be extended into the existing auxiliary spillway footprint to fill it in.

Special Environmental Concerns: The proposed rehabilitation project involves Probable Waters of the U.S. (WOTUS) and will require U.S. Army Corps of Engineers (USACE) Permit 404. Previous projects of similar scope and scale have been permitted under Nationwide Permit 3. Scraper Hollow Creek flows through FWRS No. 2 towards Baron Fork Creek and is designated as a State Outstanding Resource Water (ORW), subject to Water Quality Certification under Section 401. There is potential for short-term impact to ORW due to sedimentation during construction. Potential impacts will be mitigated by implementing sediment control measures as part of a Storm Water Pollution Prevention Plan (SWPPP), a requirement of Federal Contractors. Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) has concluded the proposed project “may affect, not likely to adversely affect” listed, proposed or candidate species, under the Endangered Species Act (ESA). Cultural resources review and communications with the State Historic Preservation Office, The Oklahoma Archeological Survey, and Affiliated Tribes is ongoing.

Type of Federal Permit applicant is seeking: FWRS No. 2 is in a state designated as a State ORW; therefore, the applicant is seeking Water Quality Certification under Section 401 of the Federal Clean Water Act (CWA) (as identified in WQS, OAC 785:45-5-25). The project is not located within proximity to waters listed by the State of Oklahoma as “impaired” under Section 303(d) of the CWA.

Please note the Adair County Conservation District will be responsible for the Sponsor Certification Request fee.

Thank you for your timely response and cooperation with this project. If you have any questions or comments, please contact Melissa Jones (Water Resources Biologist) at melissa.jones@usda.gov or 405-742-1232.

Respectfully,



JEANNE JASPER
Oklahoma State Conservationist



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
2488 EAST 81ST STREET
TULSA, OKLAHOMA 74137-4290

September 21, 2023

Regulatory Office

Mr. Roderick Dukes
USDA-National Resources Conservation Service (NRCS)
100 USDA Suite 206
Stillwater, OK 74074

Dear Mr. Dukes:

Please reference your correspondence, dated September 8, 2023, regarding the proposed Scraper Hollow Watershed Project for Dam Site 2 located at latitude 35.906717, longitude -94.703981 in Adair County, Oklahoma.

If the proposed work would include any discharge of dredged and/or fill material in aquatic resources (e.g. below the ordinary high water mark of a tributary, adjacent wetlands, open water impoundments, etc.) please resubmit that portion of your project, with a delineation of wetlands and other waters, so that we may determine the appropriate permitting action under Section 404 of the Clean Water Act. The requested delineation report should utilize diagnostic field indicators of hydrophytic vegetation, hydric soils and hydrology in accordance with the 1987 USACE Wetland Delineation Manual and subsequent regional supplements.

Thank you for the opportunity to comment on the subject project at this pre-application stage of project development. In regard to project design, please fully consider and implement all appropriate and practicable opportunities for avoidance and minimization of impacts to aquatic resources.

Your project has been assigned Identification Number SWT-2023-426. If you have any questions, please contact Mr. David Carraway at (918) 669-7618.

Sincerely,

Ed Parisotto

For Andrew R. Commer
Chief, Regulatory Office

Oklahoma State Office
100 USDA
Suite 206
Stillwater, Oklahoma 74074

February 26, 2026

«First_Name» «Last_Name»
«Contact_Title_»
«Address»
«City», «State» «Zip»

Subject: Flood Water Retarding Structure (FWRS) Scraper Hollow Creek Site No. 2 Supplemental Watershed Plan and Environmental Assessment (Plan-EA) Third Project Meeting

Dear «Salutation» «Last_Name»,

The Adair County Conservation District and United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) have been preparing a Plan-EA by evaluating alternatives to meet current performance and safety criteria. The Plan-EA considered four alternatives in detail, and the sponsor has proposed to rehabilitate Scraper Hollow Creek Site No. 2 to meet high hazard criteria.

The public must be informed of the availability of the draft Supplemental Watershed Plan-EA and Finding of No Significant Impact (FONSI) for public review and comment period. You are invited to participate in the third Project Meeting and to review the Supplemental Watershed Plan-EA and FONSI. During the meeting you will be able to review exhibits describing the Preferred Alternative, existing conditions, resource concerns, and evaluations laid out in the Plan-EA. There will be no formal presentations so please come and go at your convenience. NRCS staff will be available to answer any questions you may have.

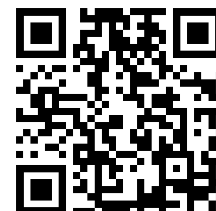
The third Project meeting will be held at the Indian Capital Technology Center – Stilwell Campus (470826 E. 810 Road, Stilwell, OK 74960) from 4pm – 6pm on Wednesday, March 11, 2026. The Plan-EA and FONSI are available to review at the following website <https://scraperhollow2.nrcsdams.com/> or can be accessed by scanning the QR code below. The public comment period begins on March 4 and ends April 4, 2026. Written comments must be postmarked or received by April 4th and can be submitted by mail or electronically using the contact information below.

Written comments can be sent to the Natural Resources Conservation Service, Water Resources – Attn: Rehab comments Scraper Hollow 2, 100 USDA, Suite 206, Stillwater, Oklahoma, 74074. Additionally, you can email your comments to Valerie.glasgow@usda.gov.

Respectfully,



JEANNE JASPER
State Conservationist, Oklahoma





March 21, 2024

Name

Organization

City, State Zip

RE: Second Public Meeting for the Scraper Hollow Supplemental Watershed Plan and Environmental Document (Plan-ED) for Dam Site 2 in Adair County

Dear NAME(S),

Adair County Conservation District and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in Oklahoma are pleased to invite you to participate in the second **Public Meeting** for the *Scraper Hollow Watershed Project*. The meeting will be held on Wednesday, April 3, 2024, from 5 to 7 p.m. at the Indian Capital Technology Center – Stilwell Campus (470826 E. 810 Road) in Stilwell. A map of the project area is enclosed.

The meeting will be formatted as an open house, so you are welcome to stop by anytime during its two-hour timeframe. No formal presentations will be given. This meeting is the second of three public input opportunities for the project. During it, you will be able to review exhibits that describe the project's schedule, Purpose and Need Statement, rehabilitation alternatives, and other information. Representatives from Adair County Conservation District, USDA-NRCS, and the Ad Astra consultant team will be present to listen to comments and answer questions.

Your participation is important to the success of the Plan-ED. If you are unable to participate in the meeting but would like to provide written comments, we would appreciate your response by Friday, May 3. Written comments may be mailed to Roderick Dukes, USDA-NRCS Assistant State Conservationist for Water Resources, at 100 USDA, Suite 206, Stillwater, OK 74074. If we do not hear from you within the comment period, we will assume you have no comment regarding the project at this time.

For additional information about the rationale for the project, please contact Roderick Dukes, USDA-NRCS Assistant State Conservationist for Water Resources, at roderick.dukes@usda.gov or 405-742-1220. You may also visit the project website at scraperhollow2.nrcsdams.com.

Sincerely,

JEANNE HAMILTON

USDA-NRCS State Conservationist



September 6, 2023

Name

Organization

City, State Zip

RE: Agency Scoping Meeting for the Scraper Hollow Supplemental Watershed Plan and Environmental Document (Plan-ED) for Dam Site 2 in Adair County

Dear NAME(S),

Adair County Conservation District and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in Oklahoma are pleased to invite you to participate in an **Agency Scoping Meeting** for the *Scraper Hollow Watershed Project for Dam Site 2*. The meeting will be held on Tuesday, September 26, 2023, from 1 to 3 p.m at the Indian Capital Technology Center in Stilwell OK (470826 E. 810 Road).

The meeting will begin with a brief presentation at the Indian Capital Technology Center – Stilwell Campus in Stilwell, OK. It will describe the project’s schedule, existing conditions, and other information. Representatives from Adair County Conservation District, USDA-NRCS, and the Ad Astra consultant team will be present to listen to comments and answer questions. We welcome your thoughts on potential project issues, concerns, impacts, and/or benefits. Immediately following the presentation, we will drive to the project site. A general map of the area is enclosed for reference.

In addition, an open house will be held for the public and media from 5 to 7 p.m. at the Indian Capital Technology Center – Stilwell Campus. The material presented will be similar to the information shared during the scoping meeting.

Your participation is important to the success of the Plan-ED. If you are unable to participate in the meeting(s), but would like to provide written comments, we would appreciate your response by Monday, October 26. Written comments may be mailed to Roderick Dukes, USDA-NRCS Assistant State Conservationist for Water Resources at 100 USDA, Suite 206, Stillwater, OK 74074. If we do not hear from you within the comment period, we will assume you have no comments regarding the project at this time.

For additional information contact Roderick Dukes, USDA-NRCS Assistant State Conservationist for Water Resources, at roderick.dukes@usda.gov or 405-742-1220.

Sincerely,

JEANNE HAMILTON
State Conservationist

Enclosure

Natural Resources Conservation Service
100 USDA Suite 206
Stillwater, OK 74074



September 6, 2023

Name

Organization

City, State Zip

RE: Public Meeting for the Scraper Hollow Supplemental Watershed Plan and Environmental Document (Plan-ED) for Dam Site 2 in Adair County

Dear NAME(S),

Adair County Conservation District and the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) in Oklahoma are pleased to invite you to participate in a **Public Meeting** for the *Scraper Hollow Watershed Project for Dam Site 2*. The meeting will be held on Tuesday, September 26, 2023, from 5 to 7 p.m. at the Indian Capital Technology Center – Stilwell Campus (470826 E. 810 Road) in Stilwell, OK. A map of the project area is enclosed.

The meeting will be formatted as an open house, so you are welcome to stop by anytime during its two-hour timeframe. No formal presentations will be given. This meeting is the first of three public input opportunities to participate in the project. During it, you will be able to review exhibits that describe the project's schedule, existing conditions, and other information. Representatives from Adair County Conservation District, USDA-NRCS, and the Ad Astra consultant team will be present to listen to comments and answer questions. We welcome your thoughts on potential project issues, concerns, impacts, and/or benefits.

Your participation is important to the success of the Plan-ED. If you are unable to participate in the meeting, but would like to provide written comments, we would appreciate your response by Monday, October 26. Written comments may be mailed to Roderick Dukes, USDA-NRCS Assistant State Conservationist for Water Resources, 100 USDA Suite 206, Stillwater, OK 74074. If we do not hear from you within the comment period, we will assume you have no comment regarding the project at this time.

For additional information contact Roderick Dukes, USDA-NRCS Assistant State Conservationist for Water Resources, at roderick.dukes@usda.gov or 405-742-1220.

Sincerely,

JEANNE HAMILTON
State Conservationist

Enclosure

Public Engagement

Scraper Hollow Creek Supplemental Watershed Plan and Environmental Assessment for Dam Site 2 in Adair County, Oklahoma

1- How would you describe yourself? Select all that apply

- ☐ Resident
- ☐ Business Owner
- ☐ Worker
- ☐ Property Owner
- ☐ Other (please specify) _____

2- What issues or concerns do you have about the preferred alternative?

Landowner access concerns

Kirks, Vough

3- What other comments or questions would you like to share?

4- What is your home zip code? _____



Questions: (405)742-1220 or email
Valerie.Glasgow@USDA.gov

FARM PRODUCTION AND CONSERVATION
FSA | NRCS | RMA | Business Center

From: [Glasgow, Valerie - FPAC-NRCS, OK](#)
To: [Jones, Melissa - FPAC-NRCS, OK](#)
Subject: FW: Scraper Hollow Watershed Site#2 - Project Information
Date: Wednesday, April 8, 2026 1:03:27 PM

From: Glasgow, Valerie - FPAC-NRCS, OK
Sent: Wednesday, April 1, 2026 1:28 PM
To: 'Adair County CD' <adairccd@conservation.ok.gov>; waleli_jo32@yahoo.com
Cc: marty2027@sbcglobal.net
Subject: RE: Scraper Hollow Watershed Site#2 - Project Information

Holly,

We are currently in the planning phase for this project. The next step is the engineering design phase, where detailed plans for the dam and spillway will be developed.

At this stage, the final elevations have not yet been determined. These elevations are critical to understanding how the project may impact surrounding properties, including your barn. Because this information is still being developed, we cannot yet say with certainty what, if any, impacts there will be to your property.

Once the design is complete and the elevations are finalized, we will be able to clearly identify any impacts. At that time, we will contact affected landowners to discuss those impacts and address any issues, if any.

Let us know if you have any other questions or if we need to clarify anything else.

Valerie Glasgow

Acting ASTC Water Resources

From: Adair County CD <adairccd@conservation.ok.gov>
Sent: Tuesday, March 24, 2026 4:05 PM
To: waleli_jo32@yahoo.com
Cc: Glasgow, Valerie - FPAC-NRCS, OK <valerie.glasgow@usda.gov>; marty2027@sbcglobal.net
Subject: Scraper Hollow Watershed Site#2 - Project Information

Good Afternoon Holly,

I was informed that you had an inquiry on the rehabilitation project planned for the watershed. We are more than happy to discuss this with you. What is the best way to

communicate with you?

I've also provided the link to the Rehabilitation Watershed Plan and Environmental Assessment Information Page for your review.

<https://scraperhollow2.nrcsdams.com/>

We can set up a phone call or if you would rather email, that is not a problem. We are here to assist in any way we can. We value your input, thoughts and opinions on this project.

Sincerely,

Ashley Mann

District Manager

Adair County Conservation District

468670 HWY 100

Stilwell, OK 74960

(918) 696-3563

From: [Glasgow, Valerie - FPAC-NRCS, OK](#)
To: [Jones, Melissa - FPAC-NRCS, OK](#); [Kersten, Ted - FPAC-NRCS, OK](#)
Subject: FW: [External Email]Scrapper Hollow watershed
Date: Tuesday, March 24, 2026 2:27:51 PM

From: waleli_jo32 <waleli_jo32@yahoo.com>
Sent: Tuesday, March 24, 2026 1:46 PM
To: Glasgow, Valerie - FPAC-NRCS, OK <valerie.glasgow@usda.gov>
Subject: [External Email]Scrapper Hollow watershed

You don't often get email from waleli_jo32@yahoo.com. [Learn why this is important](#)

[External Email]

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;

Use caution before clicking links or opening attachments.

Please send any concerns or suspicious messages to: Spam.Abuse@usda.gov

Hi, my name is Holly Riddle and my property is part of the watershed. It's my backyard and I was just wondering what this all meant for me?

Sent from my Galaxy

NOTICE OF AVAILABILITY AND PUBLIC MEETING

Notice of **THIRD PROJECT MEETING** to discuss the **SCRAPER HOLLOW SITE No. 2** Supplemental Watershed Plan and Environmental Assessment.

The Natural Resources Conservation Service (NRCS) is holding a third Project meeting to present the Supplemental Watershed Plan and Environmental Assessment (Plan-EA) and all the necessary supporting data for the rehabilitation of Flood Water Retarding Structure (FWRS) Scraper Hollow 2 in Adair County, Oklahoma. Affected individuals, government agencies, and private organizations are invited to attend this meeting. NRCS staff will be available to answer any questions you may have.

When: Wednesday, March 11, 2026 – 4pm to 6pm (no formal presentations)
Where: Indian Capital Technology Center, Stillwell, OK 74960

The third Project meeting will cover the Plan-EA, including the Preferred Alternative and findings from the Environmental Assessment. NRCS is providing a 30-day period to provide written comments on the rehabilitation project and Plan-EA. The Plan-EA is available at the following website: <https://scraperhollow2.nrcsdams.com/> or accessed by scanning the QR code below. The public comment period begins March 4 and ends on April 4, 2026.

If you have any comments or questions, please attend the third Project meeting or send written comments to the Natural Resources Conservation Service, Water Resources - Attn: Rehab Comments Scraper Hollow 2, 100 USDA, Suite 206, Stillwater, Oklahoma, 74074. All written should be postmarked by April 4, 2026. Additionally, you can email your comments to Valerie.glasgow@usda.gov.



Scraper Hollow Supplemental Watershed Plan and Environmental Assessment for Dam Site 2 in Adair County, Oklahoma



Notice of Availability and Public Meeting

Public Review Period

A Supplemental Watershed Plan and Environmental Assessment (Plan-EA) and Finding of No Significant Impact (FONSI) have been prepared by the Oklahoma Natural Resource Conservation Service (NRCS) for the rehabilitation of Floodwater Retarding Structure (FWRS) Scraper Hollow Site 2 in Adair County, OK.

A 30-day public comment period is being provided for written comments on the rehabilitation project. The Plan-EA is available at the following website, or scan the QR code:

scraperhollow2.nrcsdams.com



The Plan-EA is also available for review at the Adair County Conservation District Office at 468670 Hwy 100, Stilwell, OK 74960.

Public Meeting

The NRCS is holding a third Project meeting to present the Plan-EA and all the necessary supporting data for the rehabilitation of FWRS Scraper Hollow 2. Affected individuals, government agencies, and private organizations are invited to attend this meeting.

When: Wednesday, March 11, 2026
4 to 6 p.m. (no formal presentation)

Where: Indian Capital Technology Center -
Stilwell Campus
470826 E. 810 Road, Stilwell, OK 74960



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**Mail written comments by
April 4, 2026 to :**

Natural Resources Conservation Service, Water Resources
Attn: Rehab Comments Scraper Hollow 2
100 USDA, Suite 206
Stillwater, OK 74074

Comments can also be emailed to:

valerie.glasgow@usda.gov

**Natural
Resources
Conservation
Service**

nrcs.usda.gov

Scraper Hollow Supplemental Watershed Plan and Environmental Document for Dam Site 2 in Adair County, Oklahoma



Public Meeting #2 for the Scraper Hollow Watershed Project

Join Us

The second public meeting for the Scraper Hollow Watershed Project's Supplemental Watershed Plan and Environmental Document (Plan-ED) for Dam Site 2 in Adair County has been scheduled. It will be a valuable opportunity to review the project's Purpose and Need Statement, dam rehabilitation alternatives, and other information. The meeting is an open house and everyone who has an interest in the project is welcome to attend.

When: Wednesday, April 3, 2024

5 to 7 p.m. (no formal presentations will be given)

Where: Indian Capital Technology Center - Stilwell Campus
470826 E. 810 Road, Stilwell, OK 74960

Background

Following the National Environmental Policy Act (NEPA) process, USDA-NRCS and the consultant team is blending site analyses with community feedback to develop a proposed dam rehabilitation alternative and describe it in the Plan-ED. Opportunities for public input will be provided along the way. April 3rd is the second of three public input opportunities.



For More Information or Comments:

Roderick Dukes, USDA-NRCS Stillwater
Assistant State Conservationist for Water Resources
roderick.dukes@usda.gov
405-742-1220

Mail written comments by Friday, May 3 to:

ATTN: Roderick Dukes
USDA-NRCS, 100 USDA, Suite 206, Stillwater, OK 74074

scraperhollow2.nrcsdams.com



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Scraper Hollow Supplemental Watershed Plan and Environmental Document for Dam Site 2 in Adair County, Oklahoma



Public Meeting #1 for the Scraper Hollow Watershed Project

Join Us

Attend the first public meeting on the Supplemental Watershed Plan and Environmental Document (Plan-ED) for the Scraper Hollow Watershed Project. The project schedule, existing conditions, and other information will be available to review. The meeting will be formatted as an open house, so stop by anytime during its timeframe. Anyone with an interest in the project is invited to participate.

When: Tuesday, September 26, 2023

5 to 7 p.m. (no formal presentations)

Where: Indian Capital Technology Center - Stilwell Campus
470826 E. 810 Road, Stilwell, OK 74960



Background

Following the National Environmental Policy Act (NEPA) process, USDA-NRCS and the consultant team will blend site analyses with community feedback to develop a proposed dam rehabilitation alternative and describe it in a plan-environmental document for the project. Opportunities for public input will be provided along the way. The public meeting on September 26 is the initial meeting to start the project. We welcome the public's thoughts on potential project issues, concerns, impacts, and/or benefits.



USDA is an equal opportunity provider, employer, and lender.

For More Information or Comments:

Roderick Dukes

Assistant State Conservationist for Water Resources
USDA-NRCS Stilwater

roderick.dukes@usda.gov and 405-742-1220

USDA-NRCS, 100 USDA, Suite 206, Stilwell, OK 74074

Please mail written comments by October 26.

**Natural
Resources
Conservation
Service**

nrcs.usda.gov/

APPENDIX B

Project Maps

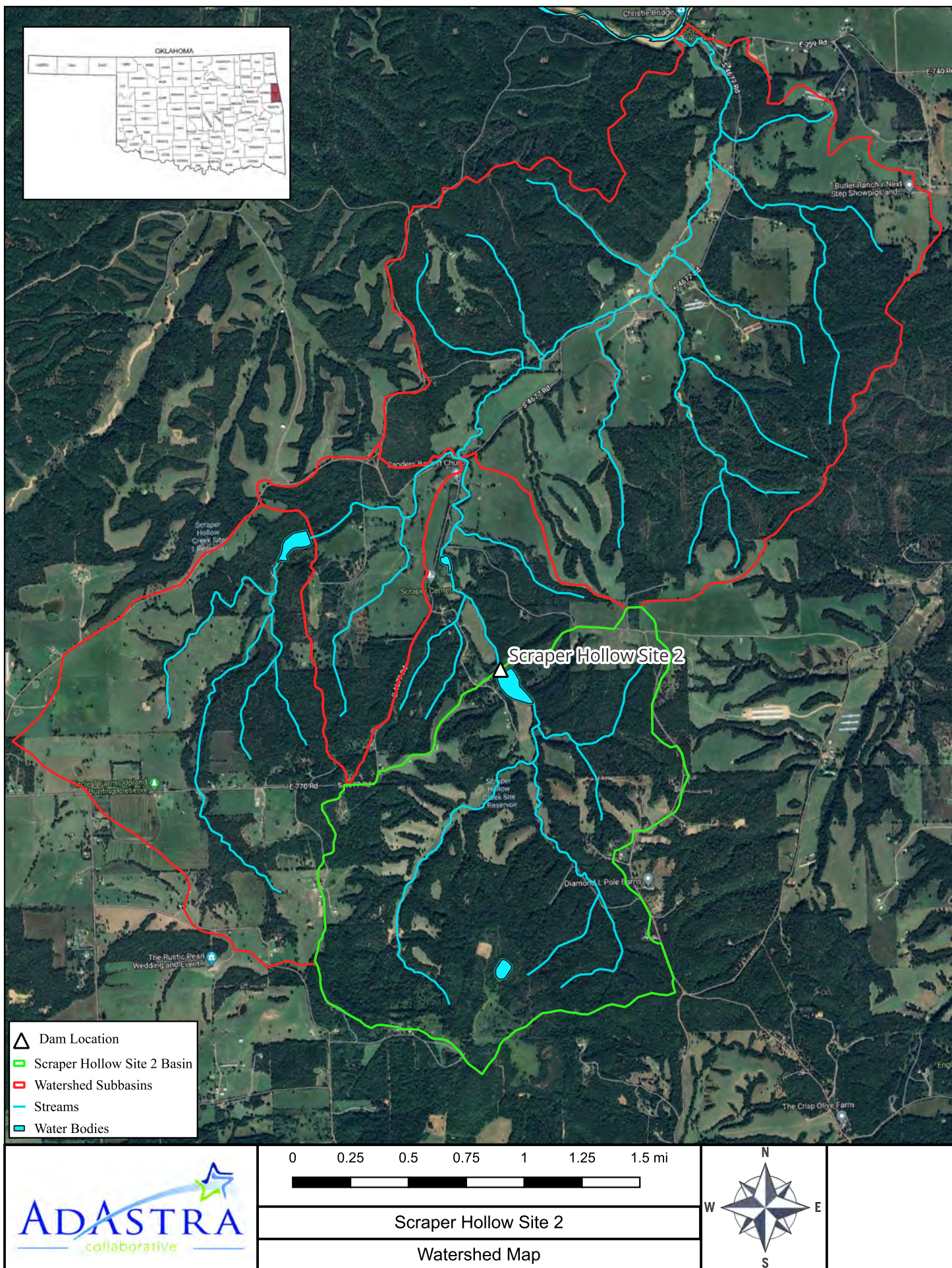


Figure B-1

Scraper Hollow Creek Watershed

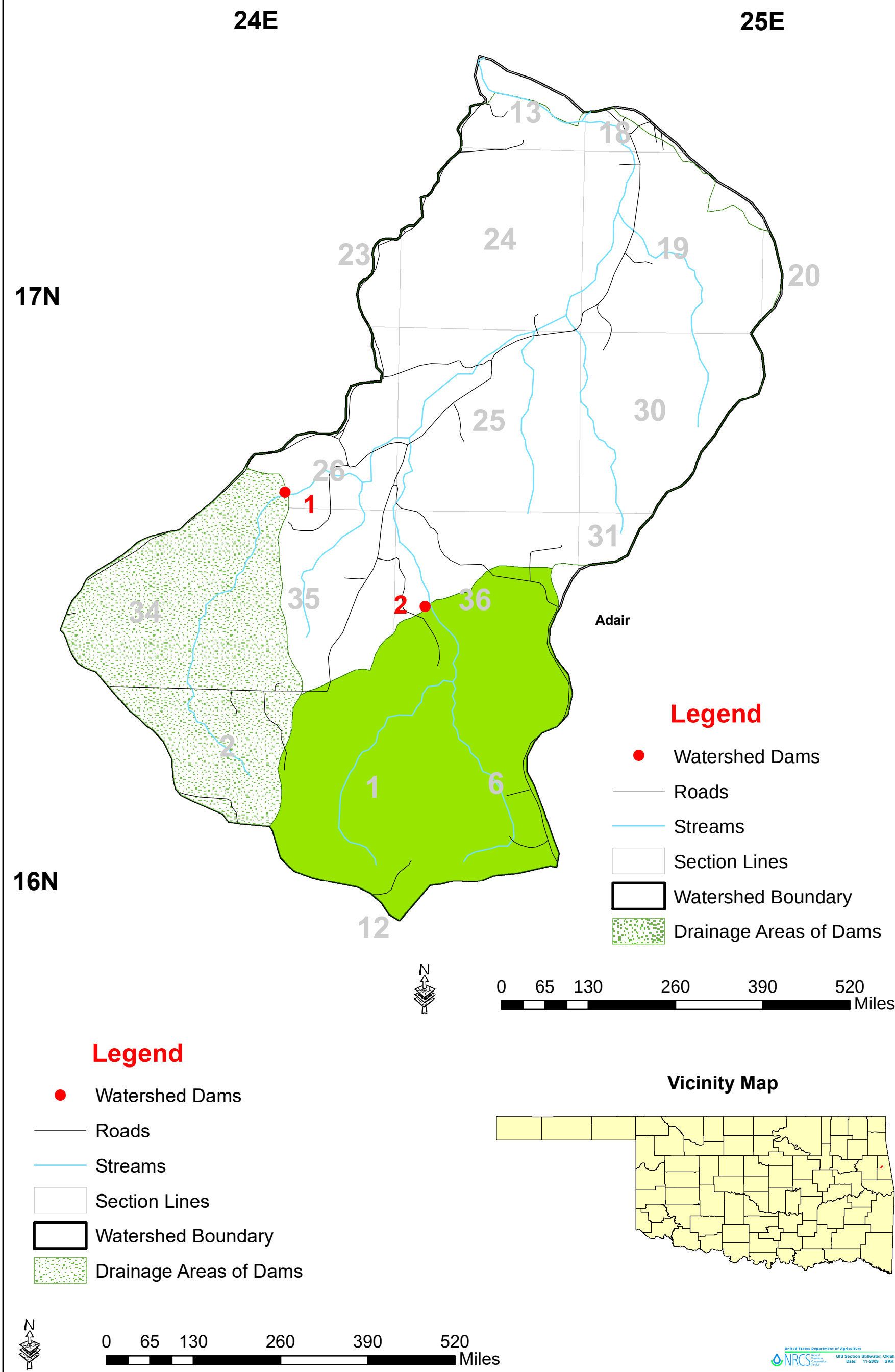
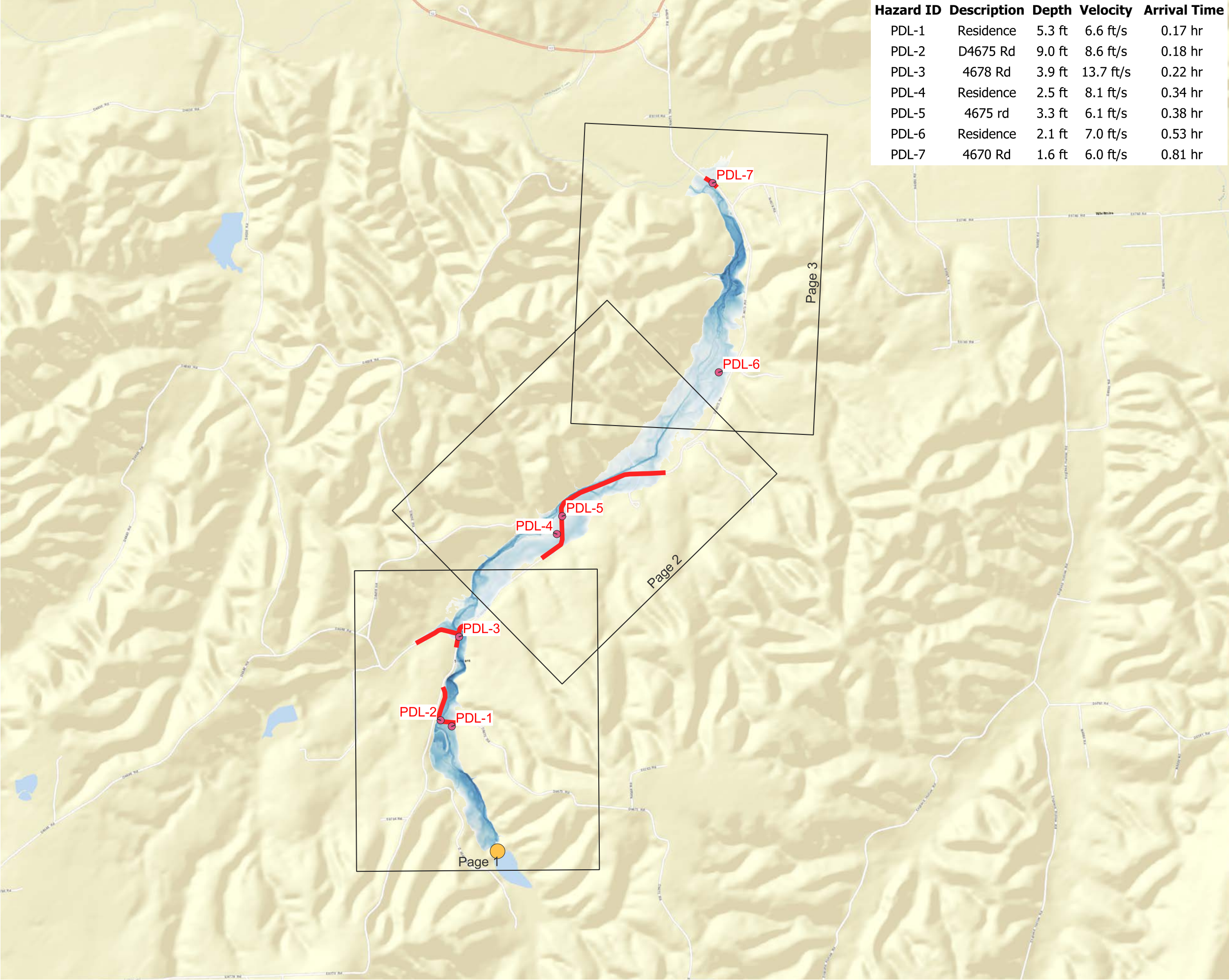


Figure B-2

APPENDIX C

Support Maps

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Hazard ID	Description	Depth	Velocity	Arrival Time
PDL-1	Residence	5.3 ft	6.6 ft/s	0.17 hr
PDL-2	D4675 Rd	9.0 ft	8.6 ft/s	0.18 hr
PDL-3	4678 Rd	3.9 ft	13.7 ft/s	0.22 hr
PDL-4	Residence	2.5 ft	8.1 ft/s	0.34 hr
PDL-5	4675 rd	3.3 ft	6.1 ft/s	0.38 hr
PDL-6	Residence	2.1 ft	7.0 ft/s	0.53 hr
PDL-7	4670 Rd	1.6 ft	6.0 ft/s	0.81 hr

Legend

Pages

Dam Location

Hazard Points

Road Hazards

Depth (ft)

0

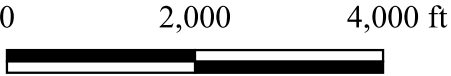
3

6

9

12

15



WRS PROJECT NO.
2023003

DATE CREATED
September 2023

DATUM & COORDINATE SYSTEM
NAD83 / Oklahoma North (ftUS)

FILE NAME
Name: SH2_Inundation_Map

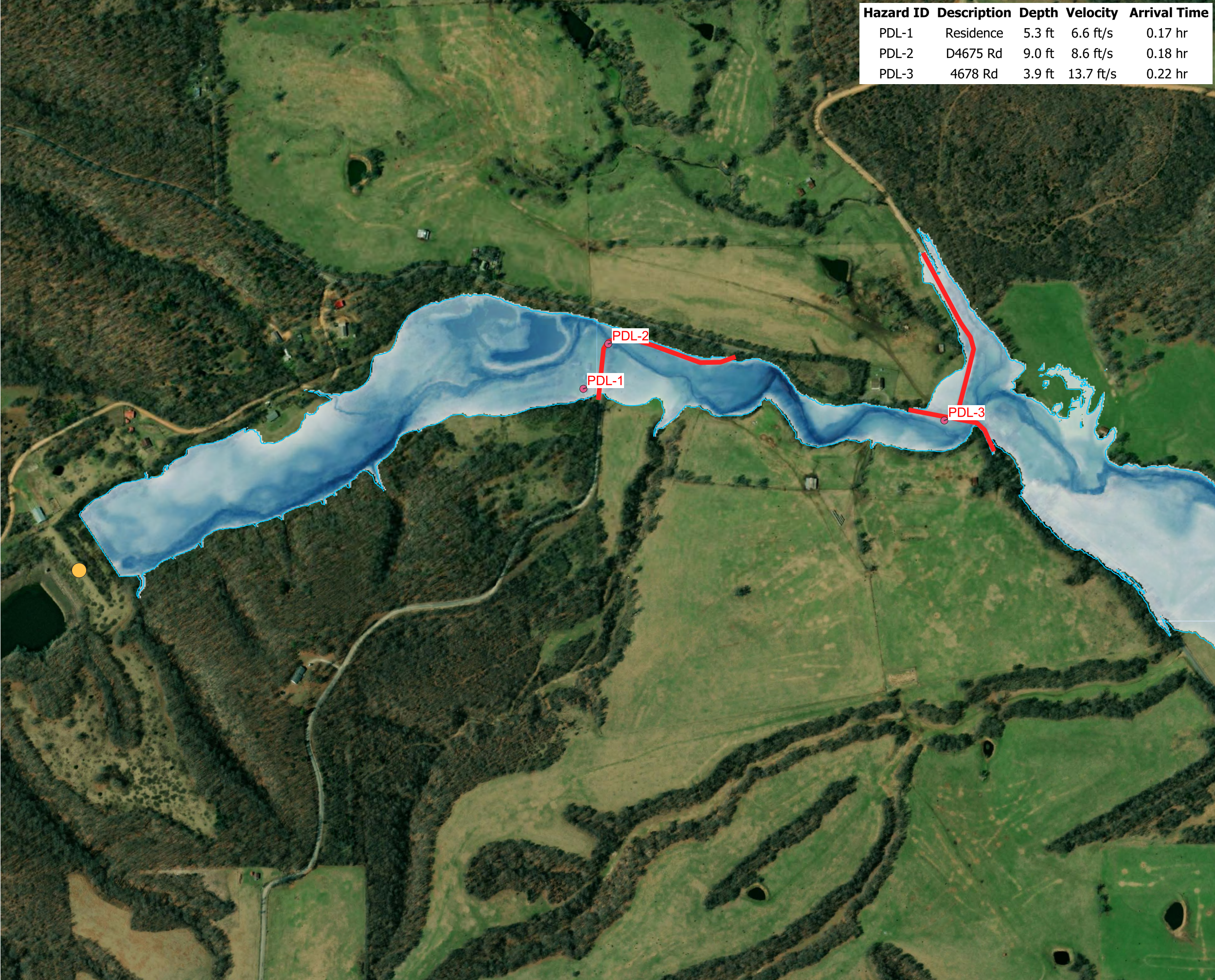
PREPARED BY
Tyler Benschofer

SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

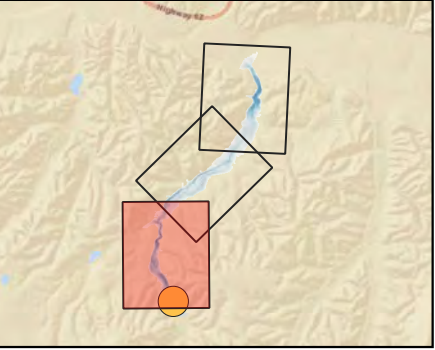
BREACH INUNDATION MAP

Figure C-1

Index



Hazard ID	Description	Depth	Velocity	Arrival Time
PDL-1	Residence	5.3 ft	6.6 ft/s	0.17 hr
PDL-2	D4675 Rd	9.0 ft	8.6 ft/s	0.18 hr
PDL-3	4678 Rd	3.9 ft	13.7 ft/s	0.22 hr



Legend

Dam Location

Road Hazards

Inundation Boundary

Depth(ft)

0

3

6

9

12

15

WRS PROJECT NO.	2023003
DATE CREATED	September 2023
DATUM & COORDINATE SYSTEM	NAD83 / Oklahoma North (ftUS)
FILE NAME	Name: SH2_Inundation_Map
PREPARED BY	Tyler Benschofer



SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

BREACH INUNDATION MAP

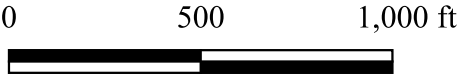
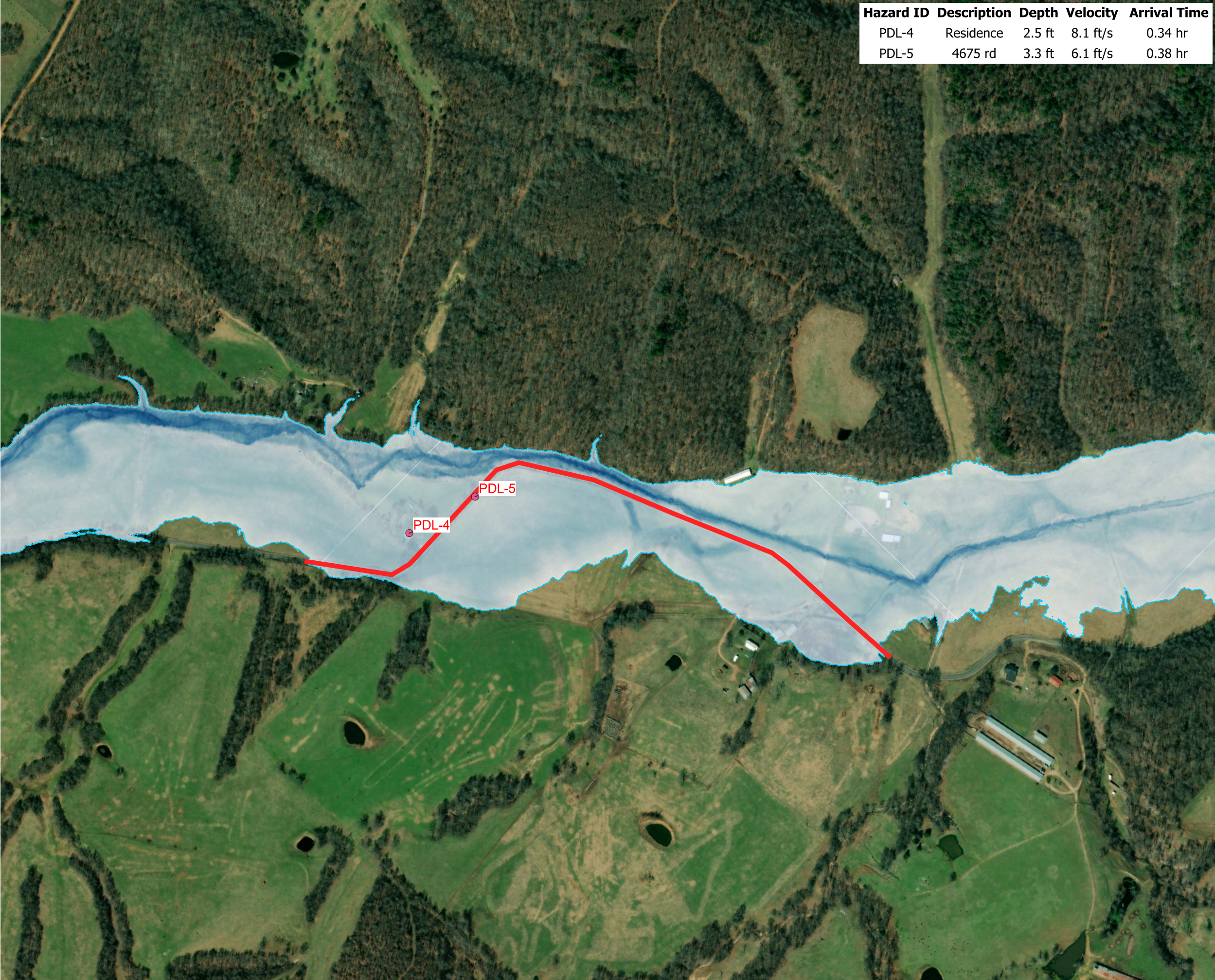
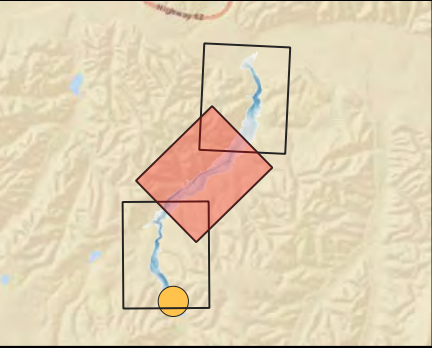


Figure C-1
Page 2



Hazard ID	Description	Depth	Velocity	Arrival Time
PDL-4	Residence	2.5 ft	8.1 ft/s	0.34 hr
PDL-5	4675 rd	3.3 ft	6.1 ft/s	0.38 hr



Location Map

Legend

Road Hazards

Inundation Boundary

Depth(ft)

0

3

6

9

12

15

WRS PROJECT NO.	2023003
DATE CREATED	September 2023
DATUM & COORDINATE SYSTEM	NAD83 / Oklahoma North (ftUS)
FILE NAME	Name: SH2_Inundation_Map
PREPARED BY	Tyler Benschofer



SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

BREACH INUNDATION MAP

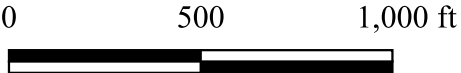
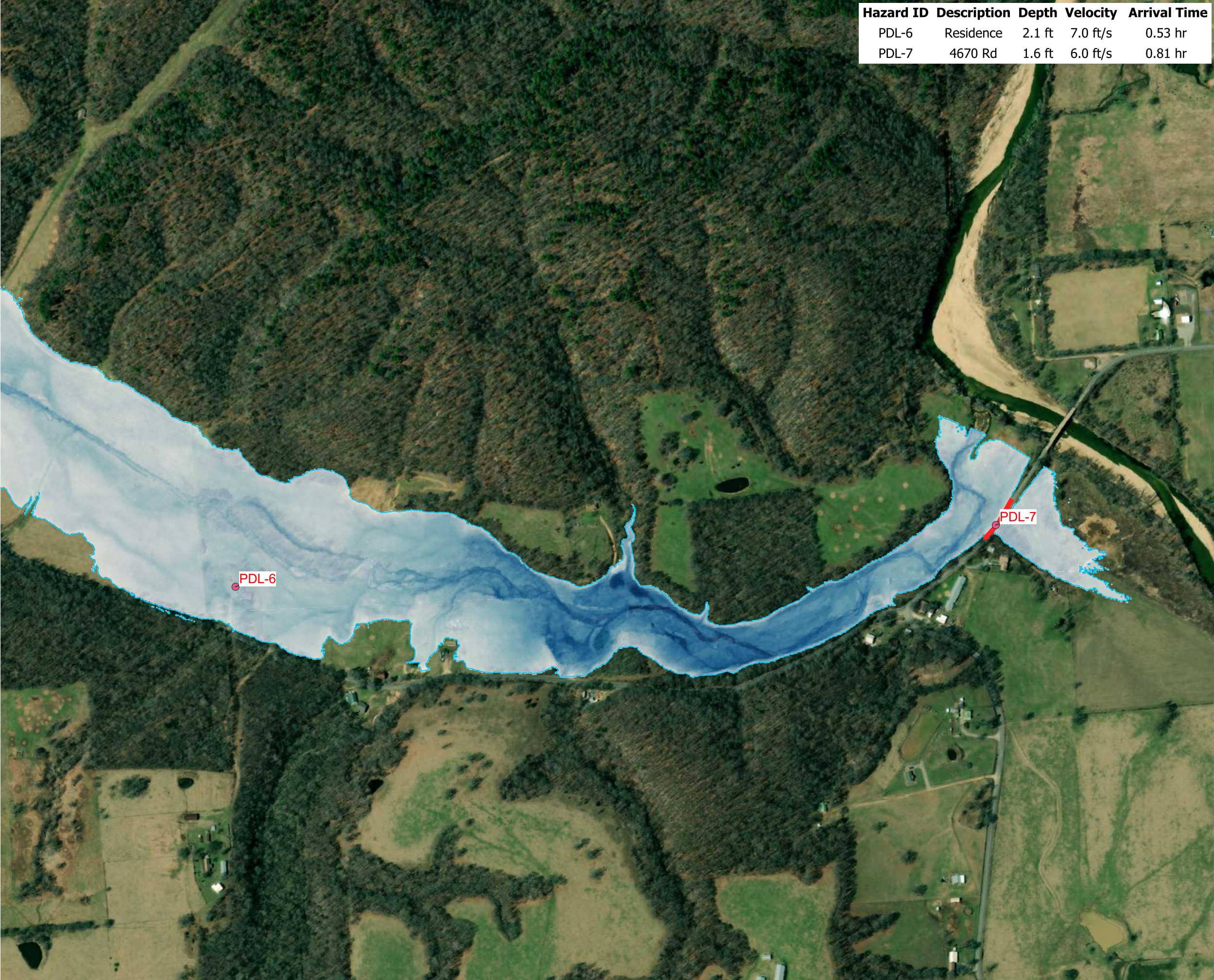
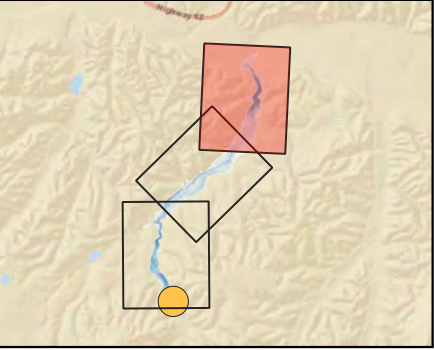


Figure C-1
Page 3



Hazard ID	Description	Depth	Velocity	Arrival Time
PDL-6	Residence	2.1 ft	7.0 ft/s	0.53 hr
PDL-7	4670 Rd	1.6 ft	6.0 ft/s	0.81 hr



Location Map

Legend

Road Hazards

Inundation Boundary

Depth(ft)

0

3

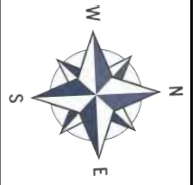
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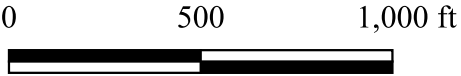
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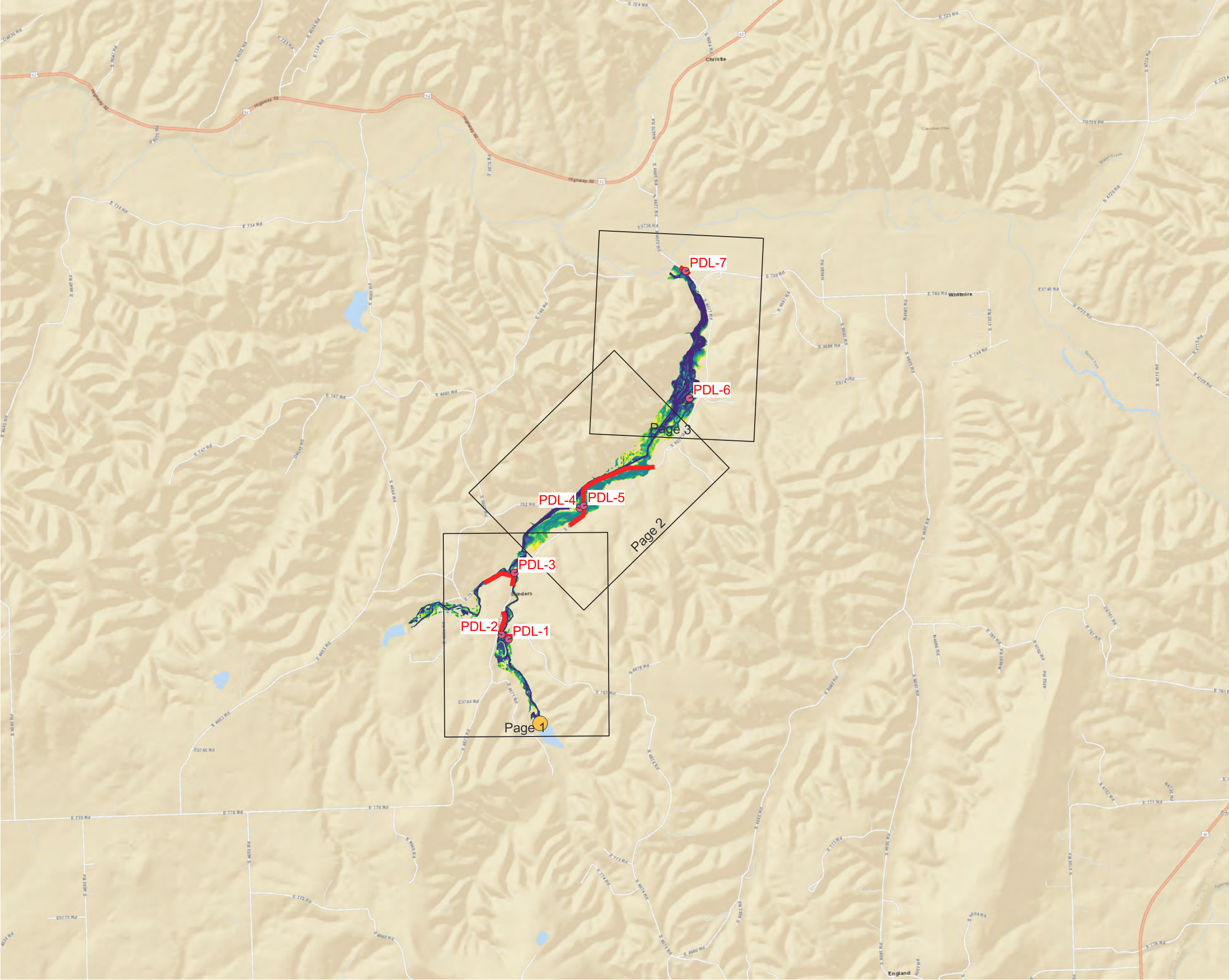
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DATE CREATED	September 2023
DATUM & COORDINATE SYSTEM	NAD83 / Oklahoma North (ftUS)
FILE NAME	Name: SH2_Inundation_Map
PREPARED BY	Tyler Benschofer



SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

BREACH INUNDATION MAP





Legend

Frequency Flood Extents

0.1% - AEP

0.2% - AEP

0.5% - AEP

1% - AEP

2% - AEP

4% - AEP

10% - AEP

20% - AEP

50% - AEP

Pages

Dam Location

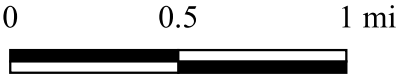
Road Hazards



Location Map

Hazard ID	Note	Flood Risk
PDL-1	Residence	10% - AEP
PDL-2	4675 Rd	20% - AEP
PDL-3	4678 Rd	50% - AEP
PDL-4	Residence	1% - AEP
PDL-5	4675 rd	4% - AEP
PDL-6	Residence	10% - AEP
PDL-7	4670 Rd	N/A*

*Flooded by Baron Fork, as shown in FEMA Floodplain.



WRS PROJECT NO.
2023003

DATE CREATED
September 2023

DATUM & COORDINATE SYSTEM
NAD83 / Oklahoma North (ftUS)

FILE NAME
Name: SH2_Frequency_Flood_map

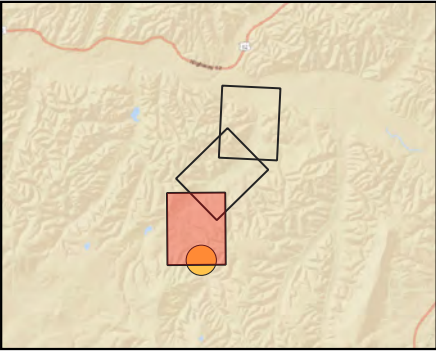
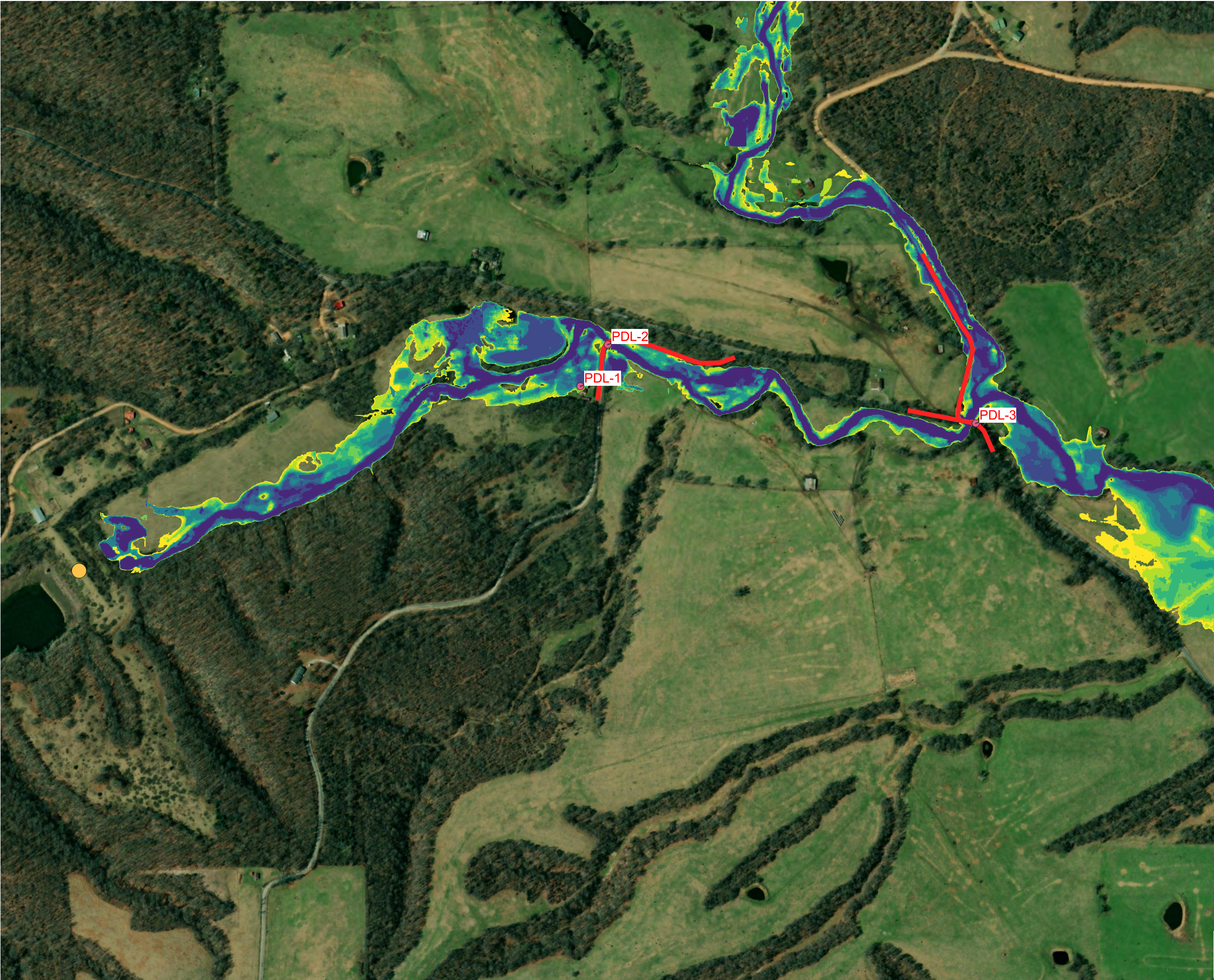
PREPARED BY
Tyler Benschoter

SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

FLOOD FREQUENCY MAP

Figure C-2

Index



Location Map

Legend

- Flood Hazard Points
- Dam Location
- Road Hazards

Frequency Flood Extents

- 0.1% - AEP
- 0.2% - AEP
- 0.5% - AEP
- 1% - AEP
- 2% - AEP
- 4% - AEP
- 10% - AEP
- 20% - AEP
- 50% - AEP

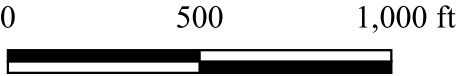
Hazard ID	Note	Flood Risk
PDL-1	Residence	10% - AEP
PDL-2	4675 Rd	20% - AEP
PDL-3	4678 Rd	50% - AEP

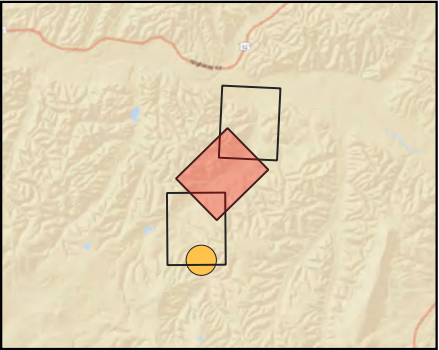
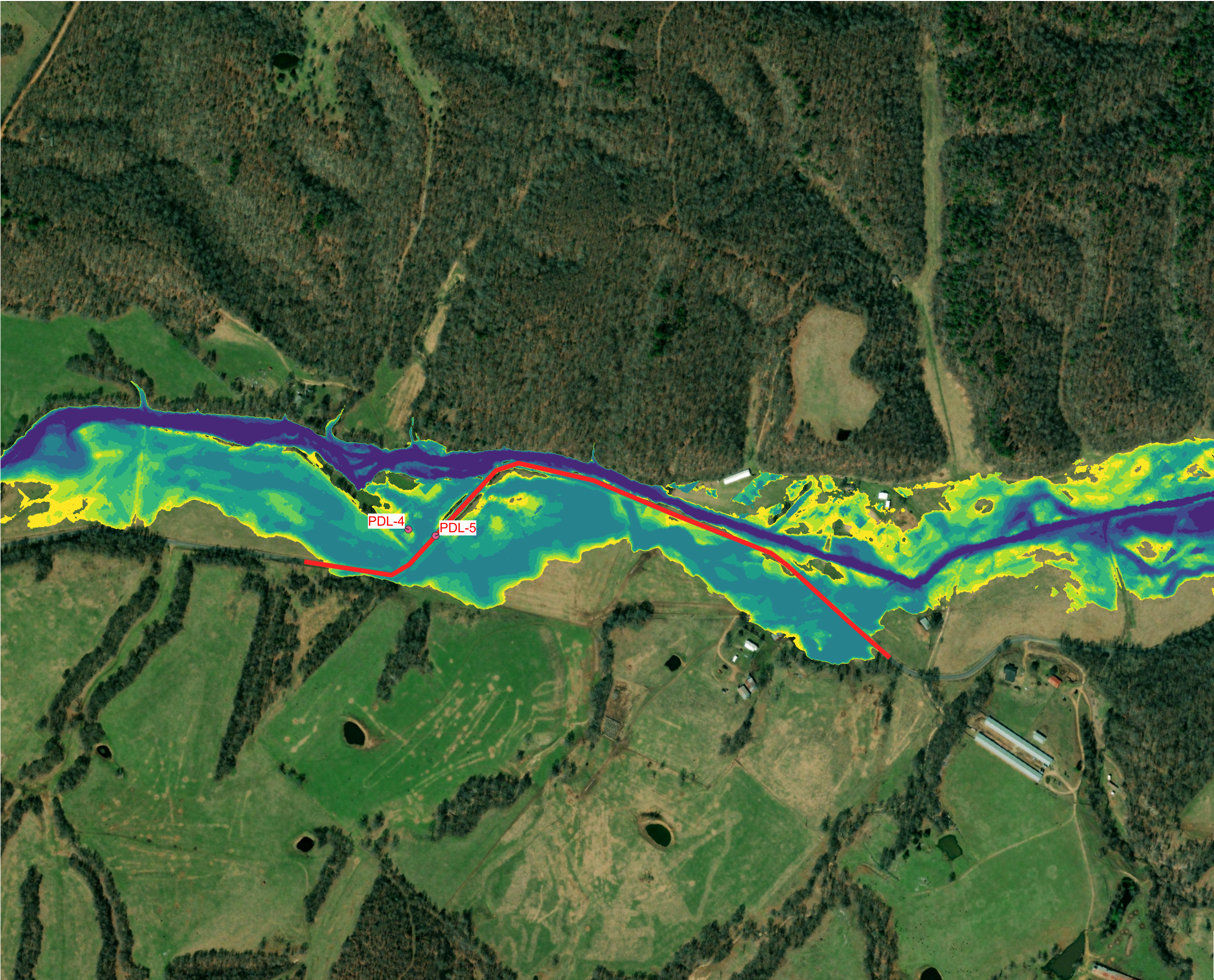
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DATE CREATED	September 2023
DATUM & COORDINATE SYSTEM	NAD83 / Oklahoma North (ftUS)
FILE NAME	Name: SH2_Frequency_Flood_map
PREPARED BY	Tyler Benschofer



SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

FLOOD FREQUENCY MAP





Location Map

Legend

Flood Hazard Points

Road Hazards

Frequency Flood Extents

0.1% - AEP

0.2% - AEP

0.5% - AEP

1% - AEP

2% - AEP

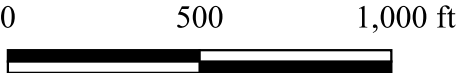
4% - AEP

10% - AEP

20% - AEP

50% - AEP

Hazard ID	Note	Flood Risk
PDL-4	Residence	1% - AEP
PDL-5	4675 rd	4% - AEP

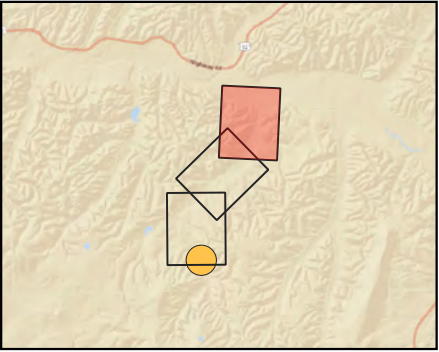
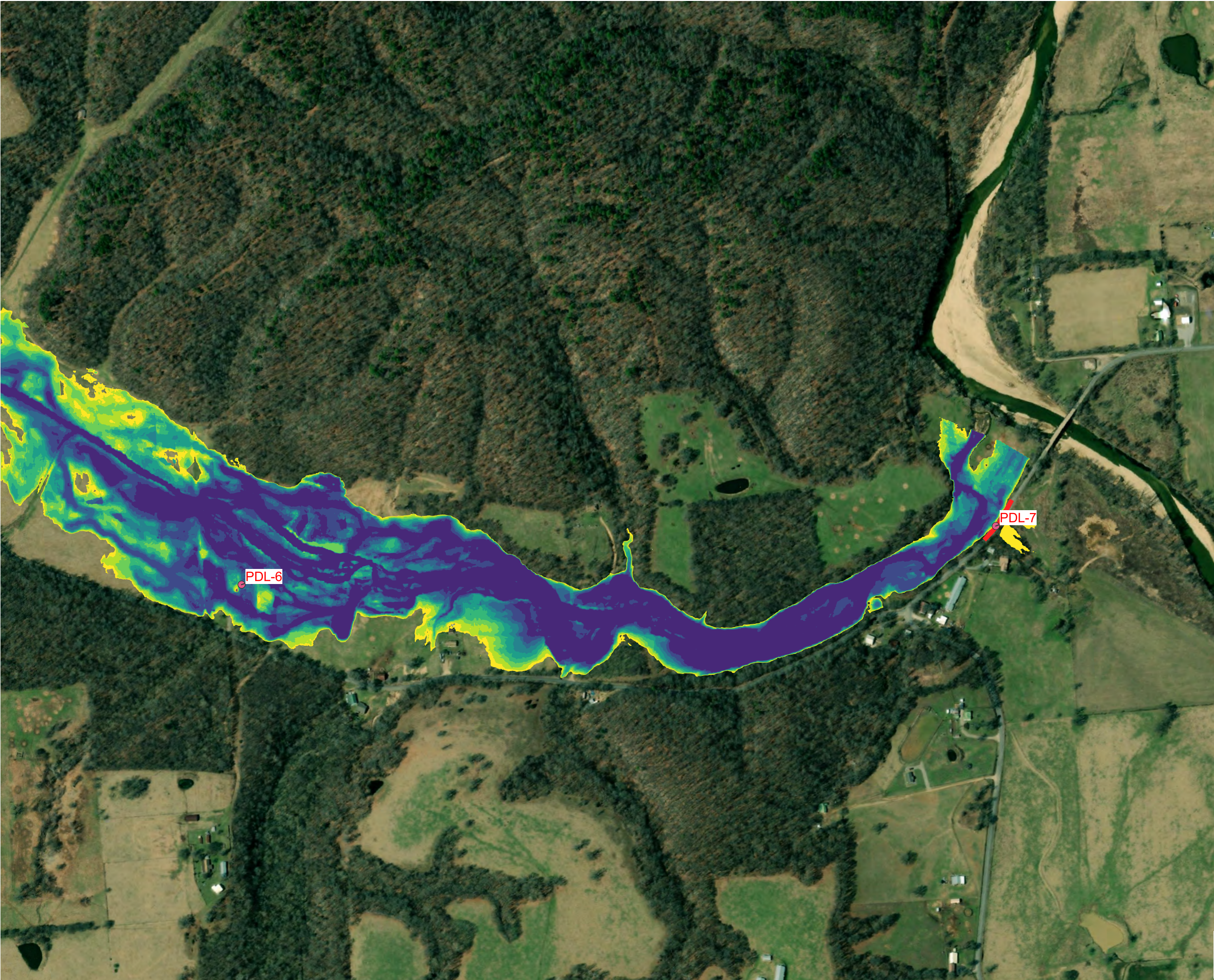


SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

FLOOD FREQUENCY MAP

Figure C-2

WRS PROJECT NO.	2023003
DATE CREATED	September 2023
DATUM & COORDINATE SYSTEM	NAD83 / Oklahoma North (ftUS)
FILE NAME	Name: SH2_Frequency_Flood_map
PREPARED BY	Tyler Benschofer



Location Map

Legend

- Flood Hazard Points
- Road Hazards

Frequency Flood Extents

- 0.1% - AEP
- 0.2% - AEP
- 0.5% - AEP
- 1% - AEP
- 2% - AEP
- 4% - AEP
- 10% - AEP
- 20% - AEP
- 50% - AEP

Hazard ID	Note	Flood Risk
PDL-6	Residence	10% - AEP
PDL-7	4670 Rd	N/A*

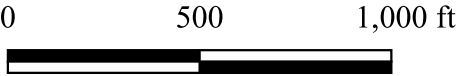
*Flooded by Baron Fork, as shown in FEMA Floodplain.

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FILE NAME	Name: SH2_Frequency_Flood_map
PREPARED BY	Tyler Benschofer



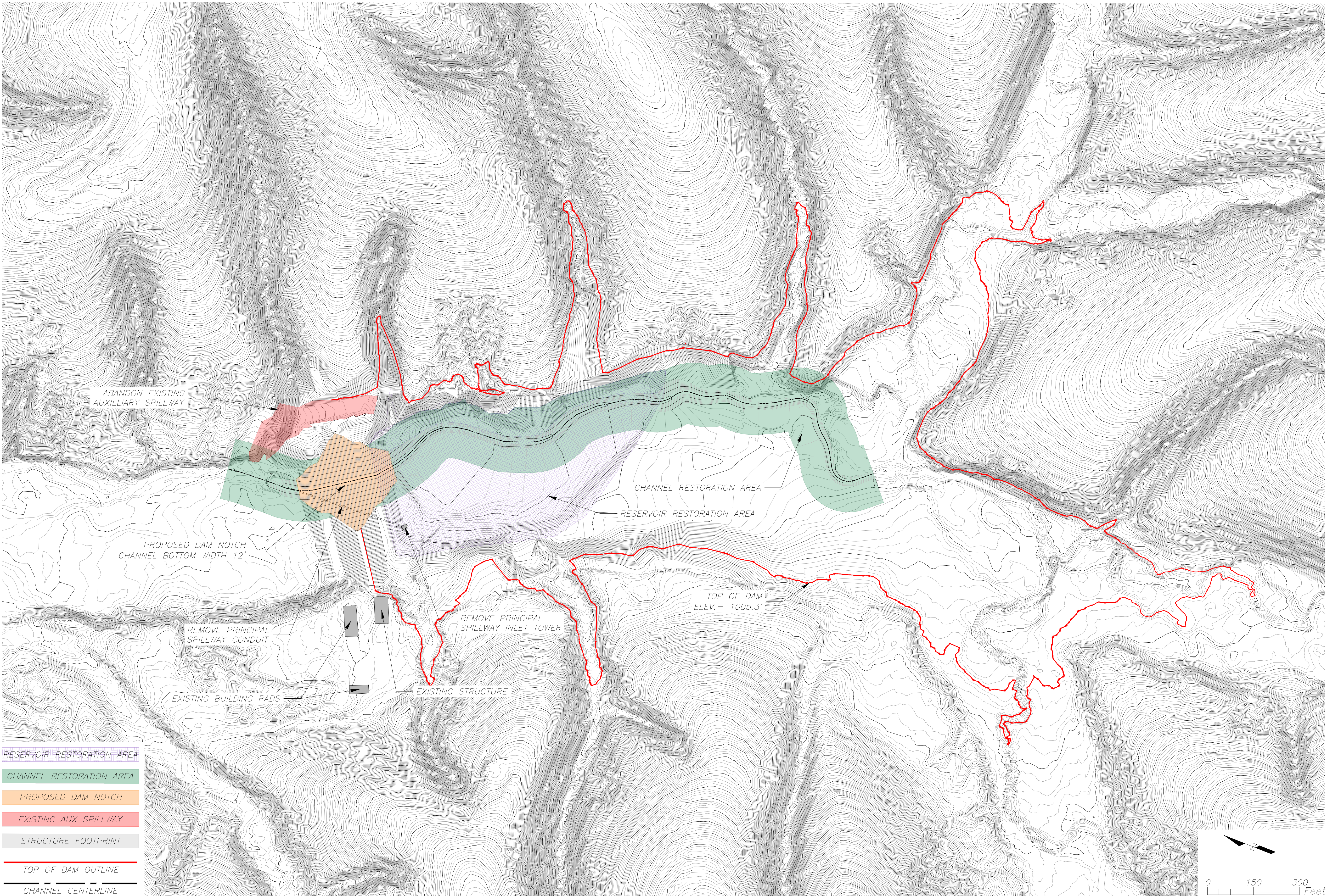
SCRAPER HOLLOW SITE #2 FLOOD PROTECTION DAM

FLOOD FREQUENCY MAP



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ALTERNATIVE NO. 1: DECOMMISSION
FLOODWATER RETARDING STRUCTURE SITE NO.2
SCRAPER HOLLOW CREEK WATERSHED
ADAIR COUNTIES, OKLAHOMA



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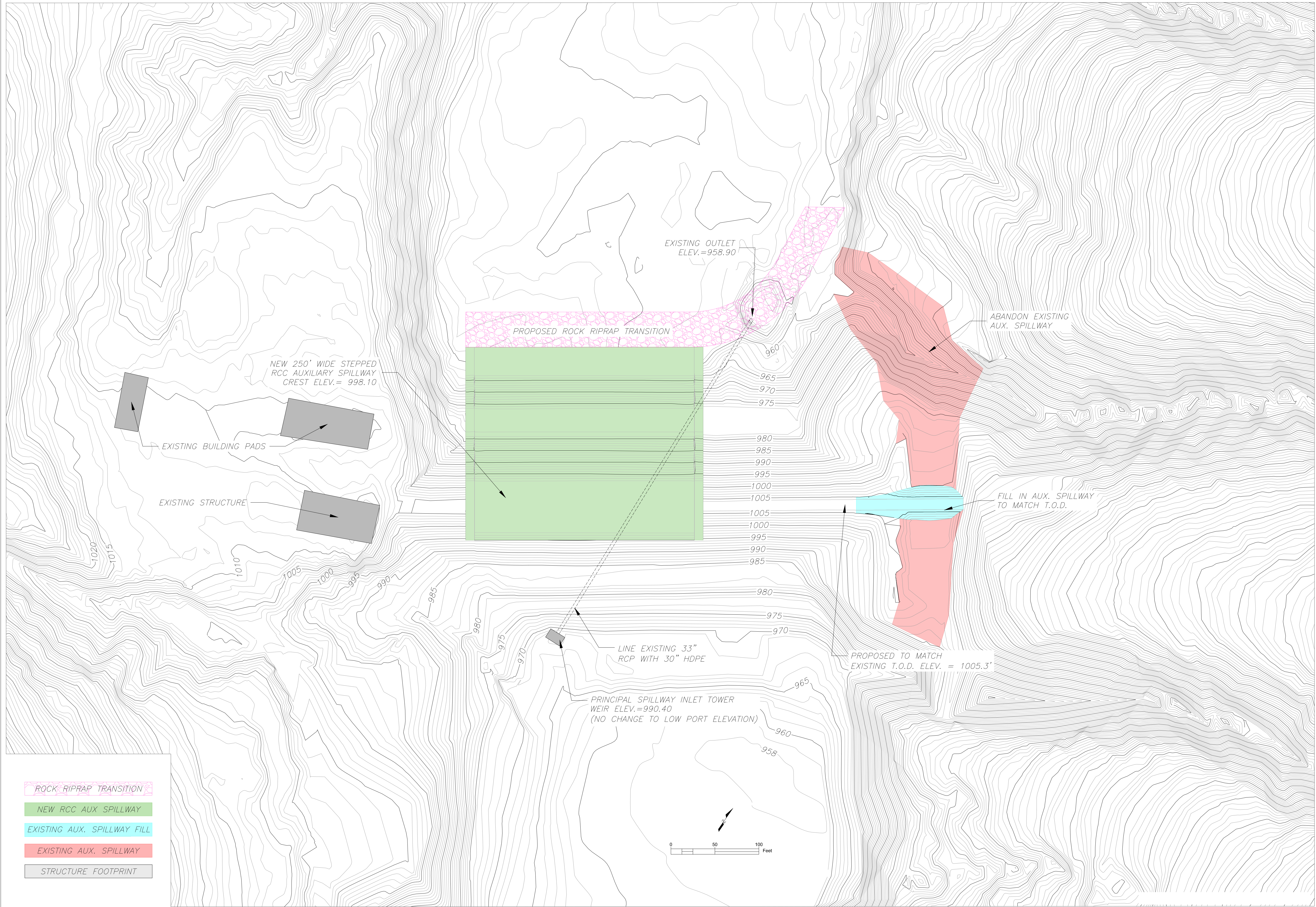
Drawing No.
OK-000

Figure C-3

Designed	KMR	Date	12-23
Drawn	CJD		01-24
Revised	CJD		01-24
Approved	JDD		XX



ROCK RIPRAP TRANSITION
NEW RCC AUX SPILLWAY
EXISTING AUX. SPILLWAY FILL
EXISTING AUX. SPILLWAY
STRUCTURE FOOTPRINT



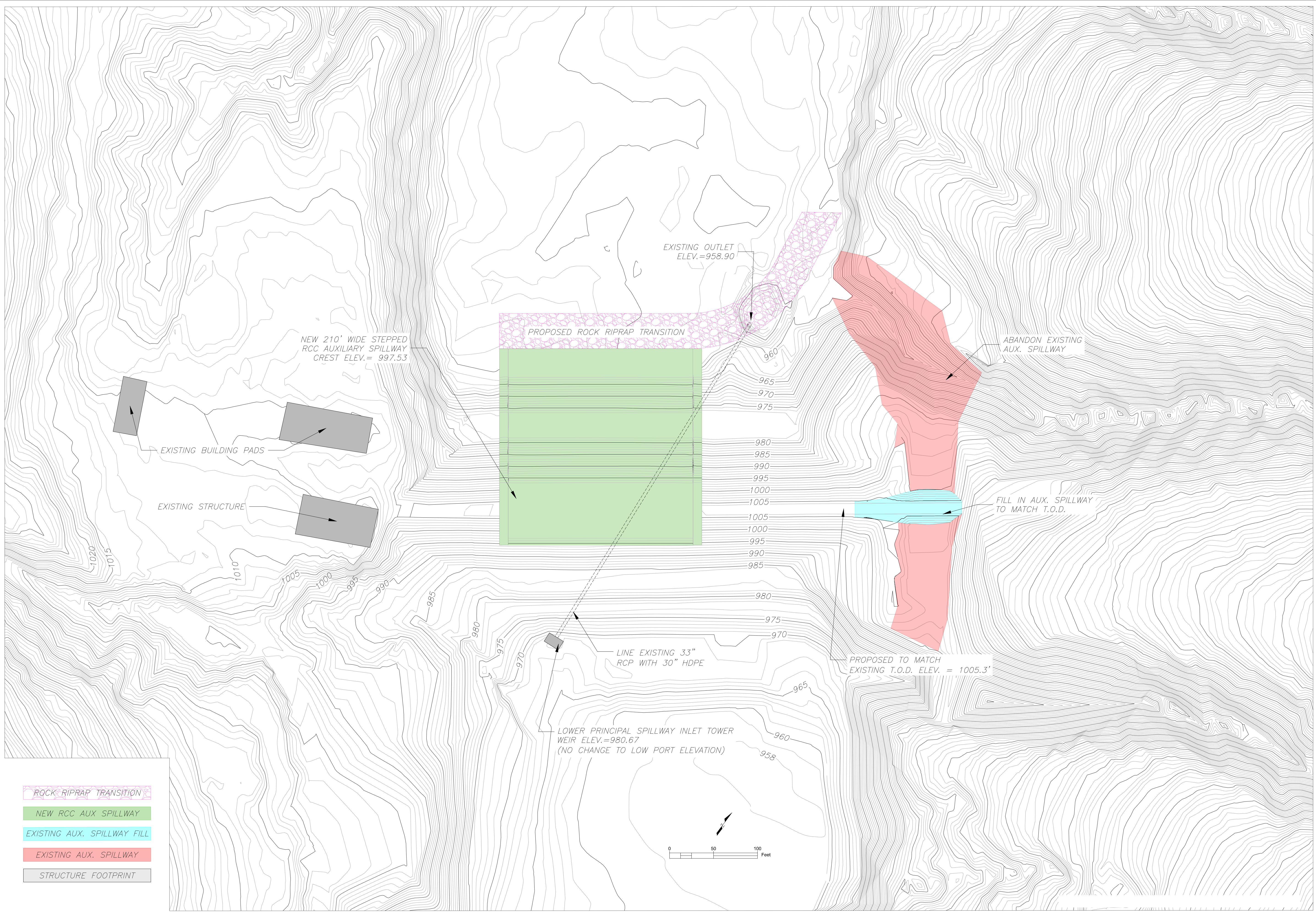
United States
Department of
Agriculture

Natural Resources
Conservation Service

Drawing No.
OK-000

	Date	
Designed	KMR	12-23
Drawn	CJD	01-24
Revised	CJD	01-24
Approved	JDD	XXX

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United States
Department of
Agriculture

USDA

Natural Resources
Conservation Service

E-File Location:
ALT3_Exhibit.dwg

Drawing No.
OK-000

Figure C-5

Alternative No. 3: Lower Principal Spillway Crest
Floodwater Retarding Structure Site No.2
Scraper Hollow Creek Watershed
Adair Counties, Oklahoma

Designed	Drawn	Revised	Approved
KMR	CJD	CJD	JDD

Date
12-23
01-24
01-24
XX

Topographic map showing a dam project area. The map includes contour lines and various engineering annotations. Key features and labels include:

- EXISTING OUTLET ELEV.=958.90**: Points to a specific location on the map.
- PROPOSED RIPRAP TRANSITION**: Points to a pink hatched area.
- NEW 170' WIDE STEPPED RCC AUXILIARY SPILLWAY CREST ELEV.= 996.74**: Points to a green rectangular area.
- FILL IN AUX. SPILLWAY TO MATCH T.O.D.**: Points to a red area.
- ABANDON EXISTING AUX. SPILLWAY**: Points to a blue area.
- PROPOSED TO MATCH EXISTING T.O.D. ELEV. = 1005.3'**: Points to a specific elevation on the map.
- LINE EXISTING 33" RCP WITH 30" HDPE**: Points to a specific line on the map.
- CONVERT TO SINGLE STAGE PRINCIPAL SPILLWAY WEIR ELEV.=978.10'**: Points to a specific location on the map.
- EXISTING BUILDING PADS**: Points to two grey rectangular areas.
- EXISTING STRUCTURE**: Points to a grey rectangular area.

Legend:

- ROCK RIPRAP TRANSITION (Pink hatched)
- NEW RCC AUX SPILLWAY (Green)
- EXISTING AUX. SPILLWAY FILL (Blue)
- EXISTING AUX. SPILLWAY (Red)
- STRUCTURE FOOTPRINT (Grey)
- DREDGE AREA (Purple)

Scale: 0, 50, 100 Feet

 United States Department of Agriculture	Natural Resources Conservation Service		ALTERNATIVE NO. 4: SINGLE-STAGE PRINCIPAL SPILLWAY CREST FLOODWATER RETARDING STRUCTURE SITE NO. 2 SCRAPER HOLLOW CREEK WATERSHED ADAIR COUNTIES, OKLAHOMA		Designed	KMR	—	—	—	Date 12-23	—
					Drawn	CJD	—	—	—	01-24	—
					Revised	CJD	—	—	—	01-24	—
					Approved	JDD	—	—	—	XXX	—
E-File Location: ALT4_Exhibit.dwg											
Drawing No. OK-000											
Figure C-6											

APPENDIX D

Investigations and Analyses Report

APPENDIX D

INVESTIGATIONS AND ANALYSES REPORT

1.0 PLANNING ENGINEERING

1.1 BACKGROUND

Scraper Hollow Floodwater Retarding Structure No. 2 in Adair County, Oklahoma, was completed in 1969 as a low-hazard dam and is currently classified as a high-hazard dam. This classification is given to dams that pose a threat to life. As a result of changes in dam safety criteria and development in the downstream breach inundation area, this dam does not have sufficient spillway and freeboard capacity to meet State of Oklahoma and NRCS dam safety criteria for a high-hazard dam. This supplemental watershed plan-environmental assessment describes the existing conditions; develops alternatives; evaluates those alternatives' economic, social, and environmental impacts; and recommends a proposed action (the preferred alternative). It documents the process by which the NRCS provided technical assistance to the sponsor and the public in addressing resource issues and concerns within the Scraper Hollow Creek watershed. It also documents how the process complied with the requirements of the National Environmental Policy Act. Engineering work items completed as part of this study included the following. Additional detailed information is provided on selected items in subsequent sections:

- Reviewing and documenting the sponsoring local organization's goals and objectives.
- Reviewing the purpose(s) and need for the project.
- Performing inspections and topographic surveys to evaluate the dam.
- Performing hydrologic and hydraulic (H&H) analyses to determine flood prevention/protection needs, to evaluate the dam, and to formulate and evaluate alternatives.
- Conducting H&H analyses for TR-60 and state design floods and for a range of flood recurrence intervals to identify criteria deficiencies of the existing dam's capacity, stability, and integrity.
- Identifying resource problems and opportunities.
- Identifying social issues.
- Performing any necessary geologic and geotechnical investigations to evaluate alternatives for comparison.
- Consulting with involved agencies to scope the project.
- Developing and executing a public participation plan.
- Inventorying and evaluating the environmental, economic, and social resources in the watershed.
- Performing engineering analysis of proposed alternatives per NRCS

requirements, including embankment stability analyses, analysis of reservoir sediment capacity and projected sedimentation rates, hydraulic analyses to determine impacts of a dam failure, and hydraulic analyses to determine downstream impacts of alternatives.

- Developing conceptual figures and cost estimates for plan alternatives.
- Identifying the net monetized benefits for all alternatives and the alternative with the greatest net monetized benefits.
- Identifying the preferred alternative that reasonably maximizes net public benefits to society.
- Preparing a supplemental watershed plan and environmental evaluation document for the project sponsors.

1.2 PURPOSE OF THIS INVESTIGATIONS AND ANALYSES REPORT

This document summarizes the procedures, techniques, assumptions, and the scope and intensity of the investigations and analyses completed for the plan engineering of Scraper Hollow Dam No. 2. The following documents state in detail the assumptions, investigations, and analyses performed, and the conclusions developed:

- USDA-NRCS-Oklahoma, Scraper Hollow 2 Survey Notes, April 24, 2023.
- GFAC Engineering, Geologic Investigation Report: Scraper Hollow Creek Watershed Floodwater Retarding Dam No. 2, Adair County, Oklahoma, Draft Report, November 15, 2024.
- Ad Astra Collaborative, Alternatives Analysis: Scraper Hollow Site 2. March 2025.
- Ad Astra Collaborative. Hydrologic and Hydraulic Evaluation of Existing Dam: Phase I, November 14, 2024.
- Oklahoma Conservation Commission USDA-NRCS Oklahoma, Rehabilitation Assessment Report, Scraper Hollow Creek Watershed Dam No. 2, Adair County, Oklahoma, October 2010.
- Ad Astra Collaborative. Hydrologic Analysis and Frequency-based Floods Routing: Phase I, September 19, 2023.
- Ad Astra Collaborative. Breach Inundation Analysis and Hazard Classification Evaluation: Phase I, September 19, 2023.
- Freese and Nichols, Inc., Ecological Resources Inventory and Analysis: AAC23107—Scraper Hollow 2, September 18, 2023.
- Stantec Consulting Services, Archaeological Resources Survey Report – Scraper Hollow Site 2 Dam, Adair County, Oklahoma, August 2024.
- Stantec Consulting Services, Architectural Resources Survey Report – Scraper Hollow Site 2 Dam, Adair County, Oklahoma, August 2024.

- Freese and Nichols, Inc., Economic Analysis Methodology for Scraper Hollow Dam No. 2, March 24, 2025.
- USDA-NRCS. Assessment and Review of the 2002 Environmental Impact Statement for Rehabilitation of Aging Flood Control Dams in Oklahoma, July 2022.

Current NRCS criteria and standards provided the basis for the plan engineering investigations and analysis and include the following:

- Natural Resources Conservation Service National Engineering Handbook Part 631 Chapter 2 – Engineering Geologic Investigations
- USDA Technical Release 210-60 – Earth Dams and Reservoirs, March 2019
- Title 180 Part 500 National Operations and Maintenance Manual
- Title 190, Part 410, General Manual
- Title 210 Part 500 National Engineering Manual
- Title 390 Part 500 National Watershed Program Manual
- Title 400 General Manual, Part 400 - Public Participation Policy
- Economic and Environmental Principles, Requirements and Guidelines for Water and Related Land Resources Implementation Studies (PR&G)
- Department Manual 9500-013 for PR&G
- Title 180 Part 600 National Planning Procedures Handbook
- Title 190 Part 610 National Environmental Compliance Handbook
- Title 190 Part 601 National Cultural Resources Procedures Handbook
- Title 200 National Resource Economics Handbook Part 611 Water Resources
- Title 200 Economics Technical Notes
- Title 210 Engineering Technical Releases
- Title 210 Engineering Technical Notes
- Title 210 National Engineering Handbooks
- Title 450 National Handbook of Conservation Practices
- Title 390 Part 600 National Watershed Program Handbook

1.3 TOPOGRAPHICAL SURVEY AND MAPPING

On April 6, March 13, and June 17, 2021, staff members of NRCS-Oklahoma conducted topographic survey of the project site and structures, one downstream road, downstream culverts, and nearby fields, based on the Online Position User Service of the National Geodetic Survey of the National Oceanic and Atmospheric Administration. Site photography was collected. Project coordinates were based on the Oklahoma State Plane Coordinate System, Zone 14, NAD 83 National Grid Designator 14SQD4851595736. Additional topographic survey to establish

elevation at the top of geotechnical testing bore holes was conducted by NRCS staff during the week of July 16, 2024, in conjunction with field exploration operations. Surface coordinates and elevation of each test hole were surveyed.

The drainage basins to Scraper Hollow 2, the dams upstream of Scraper Hollow 2, and the major tributaries downstream of Scraper Hollow 2 were delineated from U.S. Geological Survey digital elevation model data obtained from Oklahoma Maps website (<https://okmaps.org/>) using the WhiteboxTools plugin for the QGIS geographic information system. The most current data, from the 2013 digital elevation model, was used. This data was provided in six different rasters, and they were merged into one file. The native coordinate for these files was Oklahoma South State Plane, and the vertical data was in meters. A total of 5 drainage basins were delineated. These drainage basins were selected because the runoff from these basins drains to the Scraper Hollow 2 reservoir or to Baron Fork downstream of Scraper Hollow 2. The five approximate drainage basins were then hand-verified using the contours and aerial imagery to correct regions where the program incorrectly accounted for road crossings and terraced cropland.

1.4 SEDIMENTATION ANALYSIS

A bathymetric survey was performed on this site in 2023 to determine the existing available sediment storage and to determine the sedimentation rate. The sedimentation rate was calculated by comparing the sediment storage volume (at sediment pool elevation) provided on the as-built drawings (DATE) to the calculated storage volume using the bathymetric survey data at the same sediment pool elevation. The difference in storage volumes over the number of days between the as-built drawings and the bathymetric survey provided the daily sedimentation rate. The daily sedimentation rate was then used to determine the annual sedimentation rate. The projected 100-year sediment capacity was calculated using the annual sedimentation rate over 100 years. The projected 100-year sediment volume capacity was then compared to the design 100-year sediment volume capacity to complete the sedimentation analysis.

Erosion and sedimentation damages were not independently estimated for this study to maintain consistency with the original watershed plan. Estimates for erosion and sedimentation were included in the original work plan for the Scraper Hollow Watershed (USDA 1957). These estimates were not separated by the individual flood control structures and have a price base of 1957. The following assumptions were used in order to include these damages in the economic analysis:

- Erosion and sedimentation damage estimates in the original work plan for the Scraper Hollow watershed were assumed to be representative of the present conditions. Significant development has occurred in the study area but does not appear to have caused a significant change to the stream channels, except for the addition of some culverts and bridges. The stream channels downstream of Scraper Hollow Dam No. 2 do not appear to be noticeably modified based on aerial imagery and historical USGS topographic maps. The upstream

watershed contributing to Scraper Hollow Dam No. 2 has met some development; however, the sedimentation rate originally estimated in the watershed plan has proven to be significantly overestimated. Thus, the damage values were adjusted to reflect the decreased sedimentation rate. Land treatment measures included in the work plan were not included in the original flood damage reduction benefits.

- Erosion and sedimentation damages are generally proportional to watershed area.
- Erosion and sedimentation damages generally change in cost over time according to the US GDP implicit price deflator.
- The proposed plans would have generally no effect on erosion and sedimentation damages compared to the existing conditions between the 2-year and 1000-year flood events. Damages for the proposed plans are assumed to be equal to those estimated for the existing structure under the original work plan.
- Erosion and sedimentation damages were included by taking the proportion of the damages from the original work plan for Scraper Hollow Site 12 based on contribution to the total Scraper Hollow Watershed and adjusting the prices to 2023 dollars using the GDP implicit price deflator.

Table D - 1 contains the expected annualized erosion and sedimentation damages based on the watershed plan and the updated damage amounts for 2023 dollars.

Table D - 1: Erosion and Sedimentation Damage

	Agricultural Damages	Non-Ag Damages	Total Effect \$
Annual Damage without Plan	\$6,090	\$1,835	\$7,925
Annual Damage with Structural Project	\$831	\$286	\$1,117
Price Base	1955	1955	
1957 GDP Deflator	14.744	14.744	NA
2023 GDP Deflator (Q3)	123.273	123.273	
Annual Damage without Plan	\$50,918	\$15,342	\$66,260
Annual Damage with Project	\$6,948	\$2,391	\$9,339
Benefits under Plan	\$43,970	\$12,951	\$56,921
Total Watershed Area (ac)	5,338	5,338	N/A
Watershed Area (ac)	1254.4	1254.4	N/A
Damages without Plan	\$11,965	\$3,605	\$15,571
Damages with Project	\$1,633	\$562	\$2,195
Benefits under Plan	\$10,333	\$3,043	\$13,376

1.5 GEOLOGIC AND GEOTECHNICAL INVESTIGATIONS

A planning phase geological investigation comprised of geotechnical drilling and soil sample collection was conducted by GFAC Engineering between June 9 and July 16, 2023, to assess the geologic and subsurface conditions. A total of 31 test holes were planned and created for this project as accepted by NRCS-OK. These locations included 3 holes at the centerline of the dam, 12 borrow borings, 8 auxiliary spillway, 3 principal spillway, 2 upstream berm, and 2 downstream toe of dam/plunge pool test holes. Test holes were drilled using Central Mining Equipment 55 truck mounted and a buggy mounted CME 550 drill rig. All were advanced using 6.25-inch outer diameter hollow-stem augers. Bedrock sampling used NQ-diamond bit rock coring procedures with introduced water. Materials were sampled at approximately 5-foot intervals primarily using a 2-inch diameter split spoon sampler in conjunction with the standard penetration test. Recovered spoon samples were field classified based on hand lens examination, textural plasticity, cohesion, dilatancy (if high moisture content), and calcareous carbonate reactivity with hydrochloric acid. These techniques were used to inform the field logging but were not specifically recorded when performed. At completion, the samples were placed in clear poly-plastic bags and sealed, and the sample bags were consolidated into larger bags that were organized by test hole. To accommodate possible laboratory strength testing, cohesive soils were collected at selected intervals using 3-inch diameter Shelby tubes. Material types were field logged by viewing the end of the tube. Tubes were sealed with caps and duct tape, and the tubes were placed and maintained in a vertical position in special transport containers to minimize transport disturbance. Test holes were backfilled with cement/bentonite grout, pressure-tremied from the bottom of the test hole up to the ground surface. Three piezometers consisting of 10 feet of screen with the remainder of depth consisting of riser were installed in three test holes.

Samples from test holes were delivered for analysis to the NRCS laboratory located in Lincoln, Nebraska. Boring logs included sample material description, sample depth, moisture content/water level, boring elevation, percent recovered, and standard penetration testing blow counts.

The resulting geologic investigation was prepared in accordance with the guidelines of the NRCS National Engineering Handbook Part 628 Chapter 52 – Field Procedures Guide for the Headcut Erodibility Index, 210-VH-NEH, 1997, as well as NRCS National Engineering Handbook Part 631 Chapter 4 – Engineering Classification of Rock Materials, 210-VH-NEH, Amend. 55, January 2012. Local topography, geologic formations, and surface deposits for the project area were described using existing published sources. Soil formations were described based on NRCS soil survey reports. Seismic evaluation was described using existing sources, including regional and local dip and strike and presence of known faults, joints, unconformities, and others. The geologic formation, surface deposit, and structure and faulting data was collected from Oklahoma Geological Survey (OGS) quadrangle maps, Oklahoma Water Resources Board mapping, and Oklahoma Highway Department 1970 geologic materials engineering classification mapping. The Geologic Atlas of Oklahoma (Oklahoma Geologic Quadrangle OGQ-95) was consulted for the presence of active faults within the project vicinity. The Preliminary Oklahoma Optimal Fault

Orientations Map (OF4-2015, Plate A.4) was used for determining potential earthquakes. A 100-kilometer (62-mile) radius search for earthquake events was conducted using USGS's NEIC website (2014).

Current and historical aerial imagery was evaluated to provide some evidence of reservoir pool continuity.

1.6 SOIL MECHANICS INVESTIGATION

A planning phase soil mechanics report was not created as part of this plan. A soil mechanics report should be completed during the design phase, should the project advance to that stage.

2.0 ENVIRONMENTAL CONDITIONS INVENTORY

Freese and Nichols, Inc., personnel conducted a pedestrian survey of the Scraper Hollow 2 project site on September 18, 2023. The purpose of the survey was to identify potential waters of the United States that could be regulated by Section 404 of the Clean Water Act, and areas that could be potential habitat for federally listed threatened or endangered species within the proposed limits of investigation. The survey was also performed to characterize the soils, floodplains, fish and wildlife habitat, invasive species, and riparian areas identified within the proposed area of interest. Site photography was taken and catalogued.

2.1 THREATENED AND ENDANGERED SPECIES

The U.S. Fish and Wildlife Service's Information for Planning and Consultation resource list received on August 15, 2023, was consulted to identify federally listed threatened, endangered, or candidate species that may occur or could potentially be affected by construction activities in the project area. The Oklahoma Department of Wildlife Conservation list of State Threatened and Endangered Species was likewise consulted.

During the pedestrian survey described previously, the presence of migratory birds was observed, but migratory bird nests, bald and golden eagles, or their nests were not observed. The likelihood the proposed project activity might result in a take of those species was noted as well as the presence or absence of suitable nest habitats. This was done in accordance with the Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940. Amphibian and reptile communities were observed and noted. Common amphibians and reptiles were documented based on the department of wildlife conservation's lists (Threatened and Endangered Species/ Oklahoma Field Guide). Other common terrestrial vertebrates as well as fish were documented based on the department's information. Finally, vegetative invasive species were documented during the survey, as well as any evidence of invasive animals, fungi, or microbial organisms.

2.2 WATER QUALITY

Aerial image analysis was conducted to determine the presence or absence of open water bodies or impoundments in the project areas. The Oklahoma Department of Environmental Quality maintains a list of impaired water through the National Pollutant Discharge Elimination System. The 303(d) and 305(b) lists were used to identify surface water quality concerns to Public Health and Safety.

2.3 WETLANDS IDENTIFICATION

The U.S. National Wetlands Inventory digital data bundle is a set of records of wetland locations and classifications as defined by the U.S. Fish and Wildlife Service. This dataset is one of a series available in 7.5 minute by 7.5 minute blocks containing ground planimetric coordinates of wetlands point, line, and area features and wetlands attributes. A test wetland determination data form was used to determine the existence of wetlands within the proposed project area.

2.4 FEMA FLOODPLAINS INVENTORY

The Federal Emergency Management Agency Flood Insurance Rate Map 40001C0200D was consulted to identify and map the floodplain of the project area. It was used to characterize the hazard zones in the downstream valley, and to map the structures and infrastructure at risk. See FEMA Firmette map E-3 in Appendix E for additional floodplain information.

2.5 CULTURAL RESOURCES INVENTORY

In June 2024, Stantec Consulting personnel conducted a reconnaissance-level survey of the area of potential effect for the proposed rehabilitation project area. The area of potential effect, encompassing approximately 50 acres, was defined by NRCS Oklahoma based on the flood pool at the top of dam elevation and the auxiliary spillway. The project will receive funding from the United States Department of Agriculture NRCS; therefore, it is subject to the National Environmental Policy Act and Section 106 of the National Historic Preservation Act. Stantec staff conducted the cultural resources survey using Oklahoma State Historic Preservation Office Fact Sheet 16: Guidelines for Developing Archaeological Survey Reports in Oklahoma. Survey standards were coordinated with NRCS prior to fieldwork. In June 2024, Stantec conducted a site file review at OAS to determine the extent of cultural resources surveys conducted in the area of potential effect, as well as to identify any previously recorded archaeological sites within a 1-mile (1.6-kilometer) buffer zone surrounding the area of potential effect. The Determinations of Eligibility in Oklahoma list, the National Register of Historic Places in Oklahoma, and the Oklahoma Landmarks Inventory Database, available from the Oklahoma Historical Society (OHS) were reviewed to determine if any NRHP, NRHP-eligible, or previously recorded resources are located within the affected or surrounding area. A review of available General Land Office maps, historic aerials, topographic maps, and other map resources was undertaken to determine how the project area has been utilized over time; these sources include Google Earth™, the Nationwide

Environmental Title Research website (NETR 2024), USGS Topographic Map Explorer (USGS 2024b), and the Bureau of Land Management's General Land Office records. Historic aerial images of the area of potential effect were also examined. The earliest available aerial image on the NETR website was from 1971.

The entire area of potential effect was subject to a pedestrian survey augmented with the excavation of shovel test units. In total, 116 shovel tests were excavated. Shovel tests were placed at 98-foot (30-meter) intervals throughout the extent of the area of potential effect, with a few exceptions (e.g., inundation, extreme disturbance). The excavated matrix was screened through a 0.25-inch (0.64-centimeter) hardware screen, and deposits were described using conventional texture classifications with reference to NRCS soil series and Munsell color designations. All observations were recorded on handheld tablets using the ArcGIS Survey 123 (version 3.19.121) and the ArcGIS Field maps (version 24.2.0) applications. Shovel test units were backfilled after recording. Photographs were taken of the project area. No artifacts or cultural materials were observed within the shovel test units or on the ground surface during archeological survey.

A reconnaissance-level architectural survey of the area of potential effect was also conducted at the same time, to identify all built environment resources located in the area of potential effect, to perform a preliminary evaluation of any identified resources' potential for inclusion in the NRHP, and to make recommendations. Background research for the reconnaissance-level architectural survey included review of the OK/SHPO online database for potentially relevant historic resource surveys. Stantec also conducted a site file review at the Oklahoma Archeological Survey, to determine the extent of prior cultural resources surveys. Prior to survey, Stantec historians reviewed high-resolution historical aerial images of the survey area. By comparing historical aerial photographs of the survey area to current aerial photographs, Stantec was able to identify the location of resources and mark them as historic-age or non-historic-age on an ArcGIS online map. Additionally, areas that appeared currently vacant or obscured by tree cover in aerial imagery were marked for closer inspection during fieldwork. Fieldworkers used GIS-enabled tablet computers loaded with the ArcGIS map and preliminary aerial review data, to navigate to known built environmental resources, areas with former resources, and areas with a high probability to contain resources based on historical and current photographs. The architectural survey consisted of photographing the dam, spillway, and other elements associated with the dam and its operation. This included all other historic-age and non-historic-age buildings, structures, sites, and objects in the area of potential effect. All identified historic-age resources (45 years old or older; built in or before 1978) would have been documented on OK/SHPO historic preservation resource identification forms, researched, and contextualized through the development of a historic context.

The Tribal Directory Assessment Tool developed by the Office of Environment and Energy of the U.S. Department of Housing and Urban Development and a recent cultural resources management plan for the Oklahoma Army National Guard was used to review tribal interest in the area of

potential effect (HUD 2024; Oklahoma Military Department 2017). NRCS personnel led Tribal and agency consultations.

3.0 ALTERNATIVES DEVELOPMENT

The benefited area for the Scraper Hollow 2 project is shown in Figure D - 1. Formulation of the alternative rehabilitation plan for Scraper Hollow 2 followed procedures outlined in the NRCS National Watershed Program Manual (NWPM).

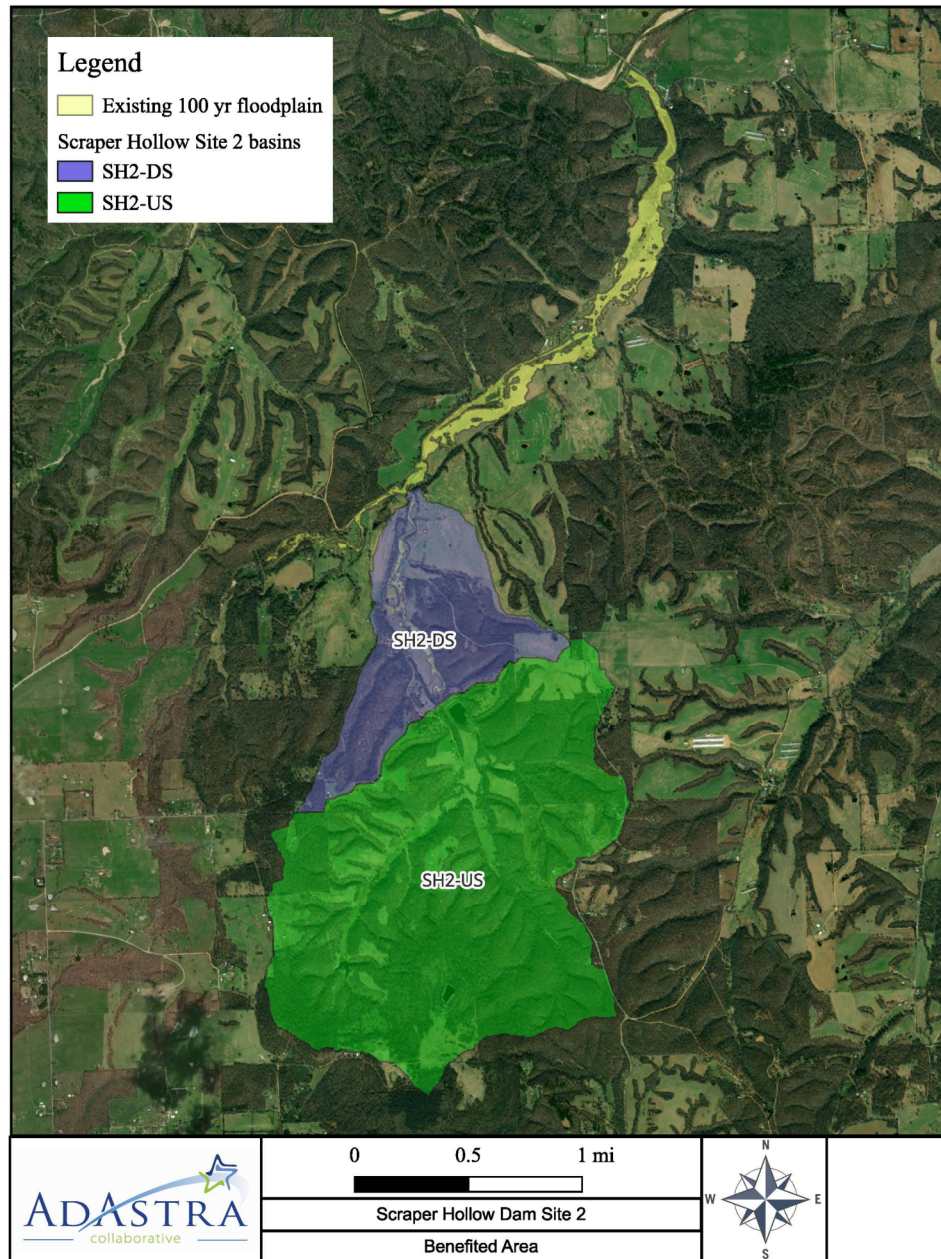


Figure D - 1: Benefited Area, Scraper Hollow 2

A SITES model was developed to evaluate the condition of the existing structure and was used to determine hydraulic capacity and integrity of the dam. The SITES Version used was 2005.1.12. Data development and SITES modeling procedures were conducted in accordance with standard NRCS procedures as referenced in this report. All elevations for the existing conditions model were updated to use the as-built drawing elevations with a datum adjustment. The storage capacity, soil parameters, and hydrologic parameters were also updated. Hydrologic data parameters, including the probable maximum precipitation (PMP) depths for the 6-, 12-, and 24-hour events, were updated using the ArcGIS regional PMP tool in place of the HMR52 method. The gridded PMP tool from the “Regional Probable Maximum Precipitation Study for Oklahoma, Arkansas, Louisiana, and Mississippi Final Report” (Applied Weather Associates, 2019) was used to compute the PMP depths for the basin. The maximum depth of the tropical, general, and local storm was selected for each duration. Other hydrologic parameters include watershed area (mi²), max/min basin elevation (ft), average basin slope (ft/mi), initial abstraction (in), curve number, time of concentration (hr), and lag time (min).

Elevation data to determine the top of dam and auxiliary spillway crest elevations were taken from LiDAR data collected in conjunction with the 2021 dam assessment. The as-built drawing elevation with a datum adjustment were used to evaluate the existing condition as directed by the NRCS Oklahoma. This datum adjustment was done using the NGS Coordinate Conversion and Transformation Tool (NCAT) which can be found at <https://geodesy.noaa.gov/NCAT/>, to convert from the NAVD 29 to NAVD 88 at the dam location. The datum adjustment was found to be +.522 feet. A value of +0.52 was used, as all as-built elevation precision is to the tenth of a foot.

The top of dam and auxiliary spillway elevations were evaluated under high hazard classification criteria for both the 6-hour freeboard hydrograph and the 24-hour free board hydrograph, in accordance with procedures outline in TR-60. The SITES results were also evaluated under the Oklahoma Dam Safety Program coordinated by the Oklahoma Water Resources Board. An integrity analysis was performed for the auxiliary spillway using the 6-hour and 24-hour freeboard hydrographs routed through SITES. The 6-hour freeboard hydrograph was the controlling event. A frequency analysis was performed to determine the return periods of the two modes of failure, by plotting the water surface elevation versus the storm frequency and comparing the intersecting elevations of each mode of failure.

To determine the expected impacts downstream of the dam in the event of failure of the dam due to no action, a breach hydrograph was developed to coincide with the 1,000-year storm event and was run in a 2D HEC-RAS model. Impacted roads and residences were inventoried.

Other guidance incorporated into the formulation process included O.S. 785:25. The formulation process began with formal discussions between the sponsors and NRCS Oklahoma. For structural alternatives, plan sheets showing conceptual layouts and typical sections of each alternative were

developed using typical assumptions based on similar project experience. Those assumptions would need to be refined during any final design stage of the project. Geotechnical and structural aspects were not evaluated per the scope of work.

A total of seven alternatives were considered:

- No-Action Alternative
- Alternative No. 1 – Decommissioning
- Alternative No. 2 – New Roller-Compacted Concrete Auxiliary Spillway
- Alternative No. 3 – New Roller-Compacted Concrete Auxiliary Spillway, Lower High Stage Principal Spillway Crest
- Alternative No. 4 – New Roller-Compacted Concrete Auxiliary Spillway, Eliminate High Stage Principal Spillway Crest
- Alternative No. 5 – Dam Raise
- Alternative No. 6 – Dam Raise with New Auxiliary Spillway
- Alternative No. 7 – Non-Structural, Downstream Flood Protection

The No-Action alternative is “an estimation of the most probable future condition expected to occur in the absence of the study’s alternative plans” (NWPM Part 506, Section 506.50 Glossary). For the purposes of this study, it is assumed that no action will be taken to address current safety concerns and hazards. This alternative summarizes the expected downstream impacts in the event of a complete failure of the existing dam. The procedure to determine these impacts is outlined in Part 303 – Clarification and Instructions for the No-Action Alternative in Supplemental Watershed Rehabilitation Plans. An economic analysis was calculated for annual flood damages with no action. Because the probability for overtopping the dam is less than 0.1%, the worst possible economic damage was estimated with the 0.1% annual exceedance.

Alternative No. 1 (decommissioning) was evaluated using a 2-D HEC-RAS model to establish the 100-year floodplain extent and elevation (required under Federal policy). At risk downstream locations were identified and located. There is one habitable structure and four roads in the currently determined effective regulatory 100-year floodplain. The downstream culverts and roads would have to be protected. If the dam were removed, the five locations identified in the hydrologic and static breach zones would be at risk from flooding during the 100-year storm. Water surface elevations would increase approximately 3 feet near W 130 Road and would also increase water surface elevations downstream. Mitigation of induced damages to the buildings includes relocation or floodproofing the impacted structures, home buyouts, or purchasing easements.

The residences located within the breach inundation area would have to be bought out or floodproofed. In addition, approximately 233 acres of land within the breach inundation area would need to be regulated to prevent future development in the area. A cost estimate (Table D - 2) was then developed, including the post dam decommissioning slope stabilization.

Table D - 2: Summary of cost estimate for decommissioning the dam

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Mobilization and Demobilization	5%	% Const.	\$531,000	\$531,000
2	Construction Survey	2%	% Const.	\$212,400	\$212,400
3	Contractor Quality Control	4%	% Const.	\$424,800	\$424,800
4	Removal of Water	5%	% Const.	\$531,000	\$531,000
5	Pollution Control	3%	% Const.	\$318,600	\$318,600
6	Structure Removal - Existing Principal Spillway	1	LS	\$70,000	\$70,000
7	Excavation, Common (Main Dam Embankment)	43,000	CY	\$10	\$430,000
8	Excavation, Common (Stream Channel)	10,500	CY	\$10	\$105,000
9	Rock Riprap	14,500	CY	\$180	\$2,610,000
10	Riprap Bedding	10,200	CY	\$180	\$1,836,000
11	Hydro-seeding and Hydro-mulching (reservoir area and auxiliary spillway)	8.5	AC	\$5,000	\$42,500
12	Riparian Corridor Plantings (trees/shrubs 100' on each side of stream)	2,600	LF	\$17.50	\$45,500
13	Topsoil	57,600	SY	\$3	\$172,800
14	Road Raise	1	LS		\$5,308,000
	Construction - Subtotal				\$12,637,600
	Construction - Contingency	30%	% Const.		\$3,791,280
	Construction - Total				16,428,880
	Engineering (% of Construction)	10%	% Const.		\$1,642,900
	Remapping of FEMA Floodplain	1	LS		\$400,000
	Land Acquisition / Easements	38	AC		\$114,000
	Real Property Rights (Home Buyouts)	3	LS		\$462,000
	Project Administration (% of Construction)	12%	% Const.		\$1,971,500
Total (Construction + Engineering + Administration + Easements)					\$21,019,280

Alternative No. 2 – New Roller-Compacted Concrete Auxiliary Spillway focuses on structural upgrades to the dam to increase capacity by replacing the existing auxiliary spillway with a new stepped roller-compacted concrete spillway. The new stepped spillway will be wider than the existing spillway and have a lower crest. The new auxiliary spillway will also cut through the dam embankment due to land constraints. This alternative will slip line the existing principal spillway conduit with a 30” high-density polyethylene (HDPE) pipe. These modifications are designed to match the existing 100-year water surface elevation (WSE), to not increase the discharge of the 100-year storm. The existing principal spillway (PSW) is a 33-inch reinforced concrete pipe

conduit with a 3' x 9' x 25' dual-stage inlet tower. Proposed improvements include slip-lining the pipe with a 30" HDPE pipe. The existing auxiliary spillway is composed of an earthen spillway near the right dam abutment. Under this alternative, the proposed modifications include widening the auxiliary spillway from a width of 50 feet to 250 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped roller compacted concrete spillway will be installed in the middle of the dam. Additionally, the spillway crest can be lowered 3.9 feet to an elevation of 998.1 feet. The top of the dam will be extended into the existing auxiliary spillway footprint to fill it in. Geotechnical and structural analyses were not performed as part of this analysis. Table D - 3 lists the major cost components of Alternative No. 2.

Table D - 3: Alternative No. 2 Cost Summary

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Mobilization and Demobilization	5.0 %	% Const.	\$ 286,100	\$ 286,100
2	Construction Survey	2.0 %	% Const.	\$ 114,500	\$ 114,500
3	Contractor Quality Control	4.0 %	% Const.	\$ 228,900	\$ 228,900
4	Removal of Water	5.0 %	% Const.	\$ 286,100	\$ 286,100
5	Pollution Control	3.0 %	% Const.	\$ 171,700	\$ 171,700
<i>Principal Spillway</i>					
6	Pipe, Slip Lining	420	LF	\$ 167	\$ 70,200
7	Concrete, Structural - Intake tower	28	CY	\$ 2,000	\$ 56,000
8	Outlet Modifications	1	LS	\$ 50,000	\$ 50,000
<i>Auxiliary Spillway</i>					
9	Excavation, Common	12,400	CY	\$ 6	\$ 74,400
10	RCC, Spillway	11,100	CY	\$ 450	\$ 4,995,000
11	Rock Riprap	2,200	CY	\$ 180	\$ 396,000
12	Riprap Bedding	360	CY	\$ 180	\$ 64,800
13	Earthfill, Dam Embankment	330	CY	\$ 25	\$ 8,300
14	Topsoil	420	SY	\$ 3	\$ 1,300
15	Hydro-seeding and Hydro-mulching	1	AC	\$ 6,000	\$ 6,000
	Construction - Subtotal				\$ 6,809,300
	Construction - Contingency	30%	% Const.		\$ 2,042,790
	Construction - Total				\$ 8,852,090
	Engineering (% of Construction)	10%	% Const.		\$ 885,300
	Construction QA Testing	1	LS		\$ 30,000
	Remapping of FEMA Floodplain	1	LS		\$ 105,000
	Land Acquisition / Easements	0.5	AC		\$ 1,500
	Project Administration (% of Construction)	12%	% Const.		\$ 1,062,300
Total (Construction + Engineering + Administration + Easements)					\$ 10,936,190

Alternative No. 3 – New Roller-Compacted Concrete Auxiliary Spillway, Lower High Stage Principal Spillway Crest – focuses on structural upgrades to the dam to increase capacity by replacing the existing auxiliary spillway with a new stepped roller-compacted concrete spillway. The new stepped spillway will be wider than the existing spillway and have a lower crest. The new auxiliary spillway will also cut through the dam embankment due to land constraints. This alternative will slip line the existing principal spillway conduit with a 30" high-density

polyethylene (HDPE) pipe and lower the crest. These modifications are designed to match the existing 100-year water surface elevation (WSE), to not increase the discharge of the 100-year storm. Proposed improvements include slip-lining the pipe with a 30" HDPE pipe. Additionally, the high-stage crest of the principal spillway's dual-stage inlet tower will be lowered 9.7 feet to an elevation of 980.7 feet. The low-stage crest will remain the same (978.1 feet), so there will be no impact to the normal pool. Under this alternative, the proposed modifications to the auxiliary spillway include widening it from 50 feet to 210 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped roller compacted concrete spillway will be installed in the middle of the dam. Additionally, the spillway crest can be lowered 4.5 feet to an elevation of 997.5 feet. The top of the dam will be extended into the existing auxiliary spillway footprint to fill it in. Geotechnical and structural analyses were not performed as part of this analysis. Table D - 4 lists the major cost components of Alternative No. 3.

Table D - 4: Alternative No. 3 Cost Estimate Summary

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Mobilization and Demobilization	5.0 %	% Const.	\$ 262,400	\$ 262,400
2	Construction Survey	2.0 %	% Const.	\$ 105,000	\$ 105,000
3	Contractor Quality Control	4.0 %	% Const.	\$ 209,900	\$ 209,900
4	Removal of Water	5.0 %	% Const.	\$ 262,400	\$ 262,400
5	Pollution Control	3.0 %	% Const.	\$ 157,500	\$ 157,500
<i>Principal Spillway</i>					
6	Structure Removal	1	LS	\$ 70,000	\$ 70,000
7	Concrete, Structural - Intake tower	28	CY	\$ 2,000	\$ 56,000
8	Pipe, Slip Lining	420	LF	\$ 167	\$ 70,200
9	Outlet Modifications	1	LS	\$ 50,000	\$ 50,000
<i>Auxiliary Spillway</i>					
10	Excavation, Common	11,300	CY	\$ 6	\$ 67,800
11	RCC, Spillway	10,000	CY	\$ 450	\$ 4,500,000
12	Rock Riprap	2,000	CY	\$ 180	\$ 360,000
13	Riprap Bedding	320	CY	\$ 180	\$ 57,600
14	Earthfill, Dam Embankment	330	CY	\$ 25	\$ 8,300
15	Topsoil	420	SY	\$ 3	\$ 1,300
16	Hydro-seeding and Hydro-mulching	1	AC	\$ 6,000	\$ 6,000
	Construction - Subtotal				\$ 6,244,400
	Construction - Contingency	30%	% Const.		\$ 1,873,320
	Construction - Total				\$ 8,117,720
	Engineering (% of Construction)	10%	% Const.		\$ 811,800
	Construction QA Testing	1	LS		\$ 30,000
	Remapping of FEMA Floodplain	1	LS		\$ 105,000
	Land Acquisition / Easements	0.5	AC		\$ 1,500
	Project Administration (% of Construction)	12%	% Const.		\$ 974,200
Total (Construction + Engineering + Administration + Easements)					\$ 10,040,220

Alternative No. 4 – New Roller-Compacted Concrete Auxiliary Spillway, Eliminate High Stage Principal Spillway Crest – would replace the existing auxiliary spillway with a new stepped roller-compacted concrete spillway. The new stepped spillway will be wider than the existing spillway and have a lower crest. The new auxiliary spillway will also cut through the dam embankment due to land constraints. This alternative will slip line the existing principal spillway conduit with a 30” high-density polyethylene (HDPE) pipe and replace the dual-stage inlet tower with a single-stage. These modifications are designed to match the existing 100-year water surface elevation (WSE), to not increase the discharge of the 100-year storm. The existing principal spillway would be slip-lined with a 30” HDPE pipe. Additionally, this alternative proposes replacing the current dual-stage inlet tower with a single-stage tower. The high-stage crest of the principal spillway would be eliminated. This would lower the principal spillway crest 5.3 feet to the low-stage crest, 978.1 feet. The low-stage crest will remain the same (978.1 feet), so there will be no impact to the normal pool. Replacing the principal spillway inlet tower would require increasing the sediment storage of the dam. Approximately 32,500 cubic yards of material would need to be dredged from the pool to provide adequate storage for the dam. This material will need to undergo characterization testing to determine if the sediment contains any hazardous compounds. Then the material would be excavated and dewatered. Since the existing easements do not permit onsite disposal, the material would need to be hauled offsite for disposal. Assuming the waste is not hazardous, land rights would have to be acquired to allow for offsite disposal. If the waste is hazardous, the material would have to be disposed of in an approved landfill. In general, hauling the material offsite adds additional transportation costs to this alternative. Under this alternative, the proposed modifications include widening the auxiliary spillway from a width of 50 feet to 170 feet. Since there is not enough space to widen the auxiliary spillway within its current footprint, a new stepped roller compacted concrete spillway will be installed in the middle of the dam. Additionally, the spillway crest will be lowered 5.3 feet to an elevation of 996.7 feet. The embankment will be extended through the existing auxiliary spillway at the current top of dam elevation. Geotechnical and structural analyses were not performed as part of this analysis. Table D - 5 lists the major cost components.

Table D - 5: Alternative No. 4 Cost Estimate Summary

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Mobilization and Demobilization	5.0 %	% Const.	\$ 332,800	\$ 332,800
2	Construction Survey	2.0 %	% Const.	\$ 133,200	\$ 133,200
3	Contractor Quality Control	4.0 %	% Const.	\$ 266,300	\$ 266,300
4	Removal of Water	5.0 %	% Const.	\$ 332,800	\$ 332,800
5	Pollution Control	3.0 %	% Const.	\$ 199,700	\$ 199,700
<i>Principal Spillway</i>					
6	Structure Removal	1	LS	\$ 70,000	\$ 70,000
7	Concrete, Structural - Intake tower	28	CY	\$ 2,000	\$ 56,000
8	Pipe, Slip Lining	420	LF	\$ 167	\$ 70,200
9	Outlet Modifications	1	LS	\$ 50,000	\$ 50,000

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
<i>Auxiliary Spillway</i>					
10	Excavation, Common	9,800	CY	\$ 6	\$ 58,800
11	RCC, Spillway	8,800	CY	\$ 450	\$ 3,960,000
12	Rock Riprap	1,800	CY	\$ 180	\$ 324,000
13	Riprap Bedding	300	CY	\$ 180	\$ 54,000
14	Earthfill, Dam Embankment	330	CY	\$ 25	\$ 8,300
15	Topsoil	420	SY	\$ 3	\$ 1,300
16	Hydro-seeding and Hydro-mulching	1	AC	\$ 6,000	\$ 6,000
<i>Dredging</i>					
17	Excavation, Common	32,500	CY	\$ 6	\$ 195,000
18	Hazardous Waste Testing	1	LS	\$ 4,000	\$ 4,000
19	Transport Spoiled Material	48,750	CY	\$ 25	\$ 1,218,800
20	Land Application of Spoiled Material	48,750	CY	\$ 10	\$ 487,500
21	Land Acquisition / Easements	30.5	AC	\$ 3,000	\$ 91,500
	Construction - Subtotal				\$ 7,920,200
	Construction - Contingency	30%	% Const.		\$ 2,376,060
	Construction - Total				\$10,296,260
	Engineering (% of Construction)	10%	% Const.		\$ 1,029,700
	Geophysical Testing	1	LS		\$ 30,000
	Remapping of FEMA Floodplain	1	LS		\$ 105,000
	Land Acquisition / Easements	0.5	AC		\$ 1,500
	Project Administration (% of Construction)	12%	% Const.		\$ 1,235,600
Total (Construction + Engineering + Administration + Easements)					\$12,698,060

Alternative No. 5 – Dam Raise – would increase dam capacity by raising the top of the dam and lowering the auxiliary spillway crest. This alternative was not studied in depth due to landowner concerns. Additionally, the cost of hauling in offsite borrow for the dam embankment was considered prohibitive. The crest of the existing auxiliary spillway would be lowered 2.8 feet to 998.33 feet. The existing spillway would also need to be hard armored with roller-compacted concrete to address stability concerns. Hydrologic analyses in SITES showed that the top of the dam would need to be raised 6.84 feet to an elevation of 1011.80 feet to accommodate the 6-hour and 24-hour FBHs. This alternative was not explored in depth due to NRCS Oklahoma’s concerns about the additional construction cost of sourcing offsite borrow for raising the dam embankment and adjacent landowner residential structures which would be submerged during the design flood.

Alternative No. 7 – Nonstructural Flood Protection — is similar to the decommission alternative in that it provides downstream flood protection by removing properties from the floodplain and raising roads to prevent flooding during the 100-year storm. This alternative assumes the dam is left in place. A cost estimate was completed during the assessment of the Decommission alternative and was used for estimating the approximate cost of this alternative.

Under this alternative, the properties located downstream of the structure would be bought out and the three roads impacted by the 100-year floodplain would be raised to prevent overtopping.

Property plat maps and aerial imagery were used to count and classify existing structures within the modeled 100-year floodplain of the project area. The cost of purchasing properties and relocating associated buildings within the 100-year floodplain was calculated based on an approximate average total building value per parcel average farm storage building value. Raising the three roads is a significant project cost, approximately \$9.9 million. The high project cost is due to the significant increase in height needed for many of these roads, which increases the amount of fill needed to raise the road. Also included in that cost is the price of new culverts and bridges for the impacted roads. The property buyout alternative would require deed restrictions to limit future development at those locations, but deed restriction costs were not included in this preliminary evaluation.

While this alternative was not explored in depth, a simple cost estimate based on rough quantities is shown in Table D - 6.

Table D - 6: Alternative No. 7 Flood Protection Cost Estimate Summary

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	Mobilization and Demobilization	5.0 %	% Const.	\$ 232,800	\$ 232,800
2	Construction Survey	2.0 %	% Const.	\$ 93,200	\$ 93,200
3	Contractor Quality Control	4.0 %	% Const.	\$ 186,300	\$ 186,300
4	Pollution Control	3.0 %	% Const.	\$ 139,700	\$ 139,700
<i>E 763 Road (10-foot raise)</i>					
5	Subgrade Fill	1,000	LF	\$ 740	\$ 740,000
6	New Gravel Roadway	1,000	LF	\$ 50	\$ 50,000
7	Concrete Span Bridge	90	LF	\$ 3,170	\$ 285,300
<i>S 4677 Road (2 – 6.5-foot raise)</i>					
8	Subgrade Fill	5,800	LF	\$ 380	\$ 2,204,000
9	New Gravel Roadway	5,800	LF	\$ 50	\$ 290,000
10	Concrete Span Bridge	60	LF	\$ 2,560	\$ 153,600
11	Concrete Span Bridge	100	LF	\$ 3,170	\$ 317,00
<i>S 4677 Road – By Bridge (2-foot raise)</i>					
12	Subgrade Fill	400	LF	\$ 80	\$ 32,000
13	New Gravel Roadway	400	LF	\$ 50	\$ 20,000
<i>E 757 Road (6-foot raise)</i>					
14	Subgrade Fill	1,200	LF	\$ 420	\$ 504,000
15	New Gravel Roadway	1,200	LF	\$ 50	\$ 60,000
	Construction - Subtotal				\$ 5,307,900
	Construction - Contingency	30%	% Const.		\$ 1,592,400
	Construction - Total				\$ 6,900,300
	Engineering (% of Construction)	10%	% Const.		\$ 690,100
	Remapping of FEMA Floodplain	1	LS		\$ 400,000
	Land Acquisition / Easements	250	AC	\$ 6,000	\$ 1,500,000
	Real Property Rights (Home Buyouts)	3	LS		\$ 462,000
	Project Administration (% of Construction)	12%	% Const.		\$ 828,100
Total (Construction + Engineering + Administration + Easements)					\$ 9,952,400

Construction plans consisting of detailed drawings were prepared in AutoCAD Civil 3D 2020 for Alternative No. 2, No. 3, and No. 4. (See Appendix C.) Modified standard drawings were used. An opinion of probable construction cost was developed for each structure based on the calculated quantities from the final design and unit construction costs based on recent project bids and other data available with adjustments to reflect individual site characteristics.

4.0 FLOODPLAIN HYDROLOGIC AND HYDRAULIC INVESTIGATION

A hydrologic analysis for this study included delineating the drainage basins to the dam and major tributaries upstream and downstream of the dam, identifying and quantifying land uses, developing weighted curve numbers, and calculating times of concentration to develop both inflow hydrographs and tributary hydrographs.

The time of concentration for each drainage basin was calculated using the methods outlined in Chapter 15, “Time of Concentration,” of Part 630, “Hydrology,” of the National Engineering Handbook. The watershed lag method was used to calculate the time of concentration for the drainage basins. The watershed lag method is recommended for watersheds with a drainage area of 19 square miles or less, under which Scraper Hollow 2 qualifies. The watershed lag method, developed by Victor Mockus in 1961, uses the flow length, lag, average watershed slope, and maximum potential retention to calculate the time of concentration. To develop parameters to calculate watershed lag, the longest flow path for each subbasin was first estimated in QGIS using the “LongestFlowpath” tool from WhiteboxTools and the project digital elevation model data. Then, a visual inspection using the generated contours was used to compare other possible flowpaths. The final flowpath value was selected by tracing the remote boundary point of the watershed downslope until it reached the subbasin pourpoint using the “TraceDownslopeFlowpaths” tool from WhiteboxTools. For the subbasins that contained a dam, these paths were trimmed to the point where the path met the permanent pool elevation. The average basin slope for each subbasin was determined in QGIS using the raster slope calculation for the terrain model, then clipping the slope data to the drainage basin boundary for each subbasin using the “Clip Raster by Mask Layer” tool. Then, the statistical mean for each subbasin was collected and converted to percent slope.

The hydrologic analysis developed NRCS weighted curve numbers with antecedent runoff conditions I, II, and III for existing and future conditions using the most recent NRCS procedures and hydrologic soil groups. An NRCS weighted curve number was developed with antecedent runoff conditions I, II, and III for each of the drainage basins, following the methods outlined in Chapter 9, “Hydrologic Soil- Cover Complexes,” of Part 630, “Hydrology,” of the “National Engineering Handbook,” using the National Land Cover Database land use information and the U.S. Department of Agriculture Web Soil Survey. The department’s Soil Survey Geographic Database soils layer and the National Land Cover Database land cover layer were joined with the subbasin layer to create a union layer, and the resulting curve numbers for each subbasin were

determined using the land use classification as approved by NRCS TR-55: “Urban Hydrology for Small Watersheds.”

4.1 METEOROLOGY

The precipitation data for the subbasins was obtained from the updated National Oceanic Atmospheric Administration Atlas 14 precipitation frequency estimates, via the administration’s Precipitation Frequency Data Server website. The routing of the frequency-based floods consisted of routing 24-hour duration 2-, 5-, 10-, 25-, 50-, 100-, 200-, 500-, and 1,000-year storm event floods downstream of the dam, to evaluate the agricultural and urban flood damages for the existing dam condition, the non-existent dam condition, and dam improvement alternatives. The hydrologic analysis of Scraper Hollow 2 was completed using the U.S. Army Corps of Engineers Hydrologic Engineering Center Hydrologic Modeling System (HEC-HMS) modeling program, Version 4.10.

4.2 LAND USE INFORMATION

Land use data was collected to determine the simulated roughness of the surface and its impact on flow (Manning’s n value). The land use was assigned based on land cover classification for the area as defined in the U.S. Geological Survey National Land Cover Database (2016) and the USDA Web Soil Survey. These were then equated to the corresponding TR-55 land use designations. Manning’s values assigned were based on the HEC-RAS 2D Modeling Manual and agreed upon with NCRS Oklahoma. An assessment of the soil types and current land use was used to estimate the curve number. Land use is shown in Table D - 7.

Table D - 7: Land Use Information

Land Use	Total Area (acres)				
	DA-1	SH1-DS	SH1-US	SH2-DS	SH2-US
Water	n/a	n/a	1.92	n/a	6.16
Developed open space	70.59	34.13	37.61	36.87	37.12
Developed low	8.12	0.84	6.53	2.54	2.29
Developed med	4.94	0.22	0.60	0.49	0.75
Developed high	0.22	n/a	n/a	n/a	n/a
Barren land	0.11	n/a	n/a	n/a	n/a
Deciduous forest	1,215.76	176.22	354.28	197.77	955.87
Evergreen forest	7.41	n/a	n/a	n/a	n/a
Mixed forest	89.55	n/a	n/a	0.44	n/a

Land Use	Total Area (acres)				
	DA-1	SH1-DS	SH1-US	SH2-DS	SH2-US
Shrubs/scrub	103.61	9.42	33.93	12.64	94.80
Herbaceous	61.70	0.80	3.33	10.69	36.80
Pasture/hay	784.07	161.37	578.70	135.56	184.55
Cultivated crops	n/a	n/a	n/a	n/a	n/a
Woody wetlands	0.92	n/a	0.88	n/a	0.66
Emergent wetland	n/a	n/a	0.22	n/a	n/a
TOTAL AREA (ac)	2,347	383	1,018	392	1,319
TOTAL AREA (sq mi)	3.67	0.60	1.59	0.61	2.06

4.3 SSURGO SOILS

The Soil Survey Geographic Database was used to derive the prime farmland and hydrologic soils group information for the project's watershed. SSURGO datasets consist of MPA and tabular data that is used to develop a soil survey area. This can consist of a single county, multiple counties, or parts of multiple counties. The SSURGO map data was viewed using the NRCS' Web Soil Survey.

4.4 HYDRAULIC GEOMETRY

The HEC-RAS model began at Scraper Hollow 2 Dam and extended approximately 3.4-miles downstream along a tributary to Baron Fork, ending just before the confluence with Baron Fork, in Scraper Hollow, OK. A 2D computation mesh with 100x100 foot grid size was used, which is sufficient for flood modeling in the overbank regions. Cells with 50 foot spacing were added in regions where the flow varied more rapidly, including along breaklines. Manning's roughness coefficient was determined from land cover data provided by the 2016 National Land Cover Dataset consistent with Oklahoma NCRS guidelines for dam breach analysis.

4.5 HYDRAULIC BOUNDARY CONDITIONS

After the flow area was defined, computational limits were set up to account for inflow and outflow locations. One boundary condition was set at the toe of the dam to represent the breach inflow using the breach hydrograph. The other boundary condition was set downstream of the location at which all flow was contained in the channel and further hazards would be encountered and modeled as a friction slope boundary where the slope was set to match the channel bed. Computational inaccuracy at the downstream boundary was minimized by ensuring enough distance between where the last critical elevation was measured, and the boundary placed. Bridges

and culverts in the direct flow path to the downstream boundary condition were modeled as two-dimensional connections with application of culvert parameters best representing the parameters of the hydraulic structure, as evaluated through a combination of field survey, LiDAR data, or aerial imagery. Additional culverts were represented in the model through terrain modification. Elevated roads and other embankments were represented by enforcing 2-D connections and breaklines along their crests to capture their terrain profile in the hydraulic mesh.

4.6 PROJECT IMPACT AREA

The purpose of the project impact area was to verify that the model extents captured the full area of economic impact of the project, and to limit the spatial extent of flood damage inventory data to features that would be affected by evaluated project alternatives. The project area was determined as the combination of the 1000-year and breach inundation areas, clipped where the breach water surface elevation falls below the 1000-year water surface elevation. The project area limits selected for the analysis include the watershed that drains to the site and the inundation area downstream of the dam along an unnamed tributary to Baron Fork. Structures identified within the project area were categorized using aerial photography, street level imagery, and data from the Addair County appraisal district.

4.7 FREQUENCY STORM ANALYSIS

Frequency storm modeling of the Scraper Hollow Creek was conducted to evaluate proposed flood impacts in the floodplain below Scraper Hollow 2. Existing flood control structures in the study area were evaluated in SITES version 2005.1.8 to obtain discharge rating curves applied to Scraper Hollow 2 modeling. HEC-HMS version 4.10 was used to develop tributary hydrographs for each of the drainage basins. The information calculated and collected, including weighted curve number, time of concentration, and precipitation data, were entered into the HEC-HMS modeling program to generate the hydrographs for each of the storm events. Several different flood control structures were included in this study of Scraper Hollow 2. These were modeled assuming that the structures would remain in place and continue providing flood protection for the watershed. This assessment does not take into account future changes to other flood control structures in the watershed. Two dams are located within the drainage basins included in the frequency-based flood modeling for Scraper Hollow 2. They include Scraper Hollow Creek Site 1 and Scraper Hollow Creek Site 2. The dam information for the Scraper Hollow site 1 and 2 Dams came from the SITES models completed for this study and from the previously completed dam assessments in 2022. The stage-storage of these dams was determined using the lidar, and the normal pool was set from the volume stated on the as-built plans. Cursory SITES models were prepared using as-built data to determine the stage-discharge curves for use in the HEC-HMS models for the Scraper Hollow 1 and 2 dams. Figure D - 2 shows the HEC-HMS layout.

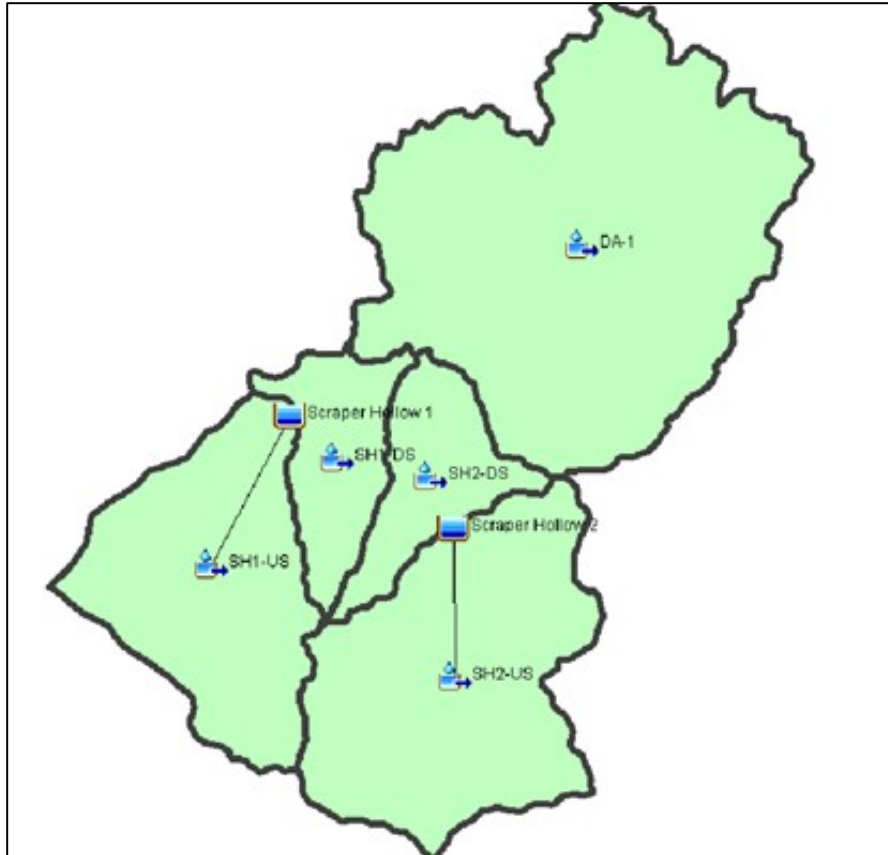


Figure D - 2: HEC-HMS model layout for Scraper Hollow Dams 1 and 2

The frequency-based floods routing consisted of routing 24-hour duration 2-, 5-, 10-, 25-, 50-, 100-, 200-, 500-, and 1,000-yr storm event floods downstream of the dam, to evaluate the agricultural and urban flood damages for the existing dam condition, the non-existent dam condition, and all dam improvement alternatives.

The two-dimensional HEC-RAS model developed as part of the breach modeling was modified and used for the frequency-based floods routing. Each basin from the HEC-HMS model was identified as a boundary condition in the HEC-RAS model. The results from the HEC-HMS Data Storage System results file were read by the HEC-RAS model as inflows at each boundary condition. The breach HEC-RAS model was modified for the frequency-based floods routing by adding boundary conditions for the additional flow from the frequency storms. The procedures outlined in the “Breach Inundation Analysis and Hazard Classification Evaluation, Phase I,” for Scraper Hollow 2 describe how the hydraulic model was constructed.

The 24-hour duration 2-, 5-, 10-, 25-, 50-, 100-, 200-, 500-, and 1,000-year storm event floods downstream of the dam were modeled and mapped. Flood inundation maps for each of the storm events were created showing the roads, railroad, and structures inundated by each storm event flood.

5.0 DAM BREACH ANALYSIS

Dam breach analysis was performed by inputting the breach hydrograph into the unsteady flow routine of the two-dimensional HEC-RAS model, version 5.0.7. Road crossings with existing channel bed information were modeled with breaklines where the water never overtopped the bridge and as internal two-dimensional connections at low water crossings and culverts where channel bed information was not available. Culvert sizes were taken from survey or assumed via available visual and terrain data. Breach scenarios were created for the dam. Dam breach analysis was conducted by inputting breach hydrograph into the unsteady flow routine of a two-dimensional HEC-RAS model, version 5.0.7. High-resolution LiDAR data was used to create a digital elevation model to accurately depict the existing terrain of the channel downstream of the dam and overbank areas. The LiDAR data was acquired from Oklahoma Maps website (<https://okmaps.org/>). The most current LiDAR data available was created in 2013. The digital elevation model (DEM) was brought into RAS Mapper, the geospatial visualization toolkit in HEC-RAS to create a terrain for the model. The terrain modifications tool in RAS Mapper was used to add road surface and culvert elevation data collected during the site survey that was not well-represented by the DEM data alone. Four roadway crossings and three residents were located downstream of the dam. Once the physical geometry was adequately modeled, the simulated roughness of the surface was assigned to complete the flow calculations using previously discussed method. Computational limits were set up to account for inflow and outflow locations. One boundary condition was set at the toe of the dam to represent the breach inflow using the breach hydrograph. The other boundary condition was set downstream of the location at which all flow was contained in the channel and no further hazards would be encountered and was modeled as a friction slope boundary where the slope was set to match the channel bed. Computational inaccuracy at the downstream boundary is minimized by ensuring there is enough distance between where the last critical elevation is measured, and the boundary is placed.

Computational grid cell size was determined per the USACE HEC-RAS 2D User's Manual:

“Make sure the cell sizes, shapes, and orientations adequately describe the terrain. Specifically, since the cell faces control the movement of water, there must be enough of them oriented correctly to describe the key features of the terrain that will control water movement. [...] The cell size must be adequate to describe changes in the water surface slope and changes in velocity. If the water surface slope and velocity does not change rapidly, larger cell sizes can be used to accurately compute the water surface elevation and slope. If the water surface slope and/or velocity changes rapidly, then smaller cell sizes need to be used to have enough computation points to describe the changing water surface and velocity, as well as to compute the force/energy losses that are occurring in that area. While cell sizes (and shapes) can vary, transitioning from larger to smaller cell sizes should be done gradually to improve computational accuracy.”

Breaklines were defined in the model where the default grid of cells does not capture elements of the topography. Per the USACE, “This includes barriers to flow, such as roads, levees, floodwalls, and natural high ground areas, that will prevent flow from going from one area to another, until the water surface elevation is higher than the barrier.”

6.0 ECONOMIC ANALYSIS

An economic analysis of project alternatives advanced for further study was conducted using the NRCS National Watershed Program Manual, along with three other documents: the National Resource Economics Handbook, Part 611 Water Resources Handbook for Economics, USDA/Natural Resources Conservation Service, July 1998; Principles and Guidelines for Water and Land Related Resources Implementation Studies (P&G), December 1983; and Guidance for Conducting Analyses Under the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water Resource Investments (PR&G), DM 9500-013. The latter includes requirements set forth in the Council on Environmental Quality (CEQ) Principles and Requirements for Federal Investments in Water Resources (P&R) and Interagency Guidelines (IAG). DM 9500-013 provides guidance on completing a PR&G analysis, including steps in the planning and evaluation process, differences between project- and programmatic-level evaluations, direction on incorporating an ecosystem services framework, and techniques for economic analysis.

The project area limits selected for the analysis included the watershed that drains to the site and the inundation area downstream of the dam along an unnamed tributary to Baron Fork. The analysis evaluated five potential plans. Analyzed benefits under the proposed plans were limited to flood damage reduction, including damages to structures, crops, pasture, bridges and culverts in addition to erosion and sedimentation damages. A “no-action” alternative was used to set the baseline to perform the economic analysis.

6.1 LAND ACQUISITION

The costs for purchasing easements below the proposed top of dam elevations to prohibit future construction were developed by overlaying the area of the proposed top of dam contour over the parcel data containing parcel land values. For each affected property, the overlapped area was divided by the total parcel area and multiplied by the total land value, resulting in a total cost of acquisition for each parcel easement area. This value is then summed up to generate the total cost of upstream land acquisition.

6.2 FLOOD DAMAGES

The dam breach analysis described in a previous section performed for each of the conceptual structural alternatives was utilized to identify structures and roads that could be potentially impacted by flooding from each of the failure scenarios modeled. To determine the expected impacts downstream of the dam in the event of failure of the dam due to no action being taken to

improve the dam, a breach hydrograph was developed to coincide with the 1,000-year storm event and was run in a 2D HEC-RAS model. The 1,000-year storm event was selected to evaluate and compare alternatives that may change a spillway crest elevation, modify a conduit diameter or increase a spillway capacity width that solely relying on a dam breach and PAR cannot do. It's likely that downstream flood impacts that are currently in place may not have existed when the dam was originally designed and constructed. This evaluation seeks to identify those impacts and how they may be affected during each alternative. Damages did include less frequent floods (e.g. 2-500-year floods) to provide additional data points for similar alternatives. Additionally, there are several instances where a dam with similar alternatives will breach in effectively the same inundation area, while discharges during individual frequency storms may vary significantly.

This model indicated that during the 1,000-year event and dam failure, three roads and seventeen buildings will be impacted. Five of the buildings are residences. Under this scenario, there is a potential for loss of life, as the residential structures are inundated between 1.1 and 5.8 feet due to the 1000-year flood and dam breach. There are three roads impacted: E 757 Road, E 763 Road, and S 4677 Road. Both E 757 Road and E 763 Road have a single location where the culvert overtops, and S 4677 Road overtops in multiple locations.

6.2.1 STRUCTURE DAMAGES

There was no regulatory 100-yr floodplain established, which meant the 2-D HEC-RAS model was used to determine the floodplain. In the currently determined 100-year floodplain there is one habitable structure and four roads.

Estimated floodwater depths for various storms for each structure were based on the results of the H&H simulation modeling. The maximum water depths and flow velocities were imported into ArcMap directly from the HEC-RAS 2D hydraulic model for each alternative and frequency event. The water depths and flow velocities are then identified at the locations of interest (e.g., bridges, culverts, houses, structures, etc.) using Google Earth web imagery. This process is possible due to HEC-RAS 2D capabilities to generate georeferenced shapefiles. The values obtained at the desired locations are then used in conjunction with the stage/velocity damage curves associated to each kind of structure.

Structures identified within the project area were categorized using aerial photography, street level imagery, and data from the Adair County appraisal district. The project area was determined as the combination of the 1000-year and breach inundation areas, clipped where the breach water surface elevation falls below the 1000-year water surface elevation. The floor elevations of the structures were assigned based on the 2019 LiDAR.

For multiple structure types, stage-damage and associated uncertainty was based on guidance from the U.S. Army Corps of Engineers Economic Guidance Memorandum 04-01 (USACE 2003, 2006). This document includes damage to structures and contents based on the relationship between water depth and flood damage as percentage of the structure's total damageable value.

The finished floor elevation from which damage was computed was assumed to be equal to the mean terrain elevation at the structure footprint plus 6 inches to represent the concrete slab. The content values for each structure were computed as 100% of the structure value for residential and commercial structures, based on NRCS guidance. The content values for barns/outbuildings was computed as 30% of the structure value. The damage to contents was estimated using interpolation of flood depth-damage curves developed by FEMA. The damage to contents was computed based on unique depth-damage curves for contents, shown in Figure D - 3.

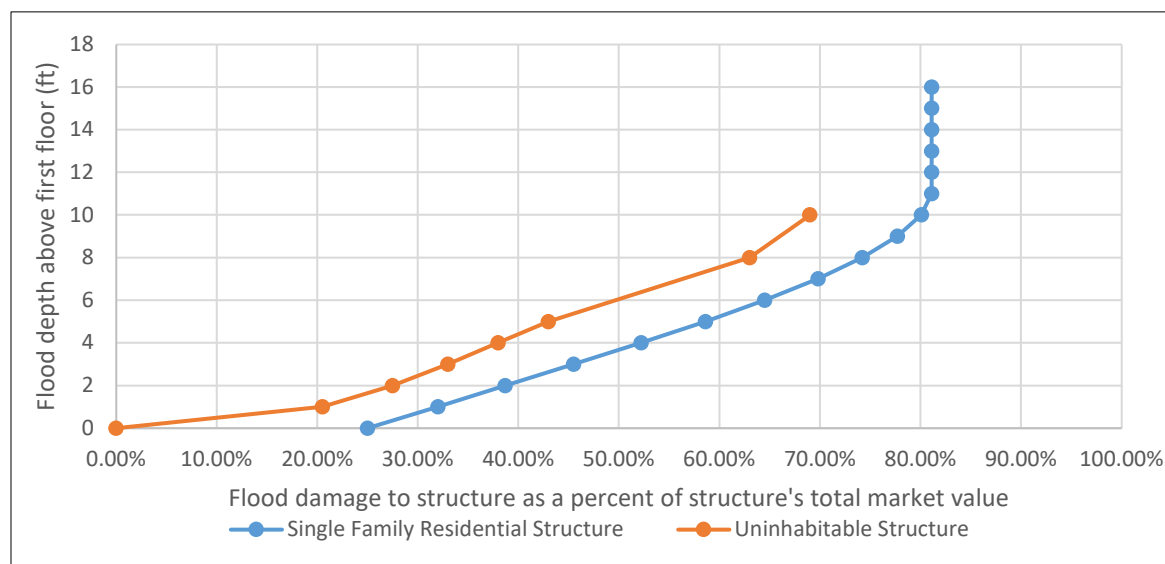


Figure D - 3: Structure Depth-Damage Curves

Structure Inventory

Data from the Adair County appraisal district was used to determine the depreciated value of affected structures. Many barns/outbuildings did not have appraisal data available, and some had unrealistically low costs. The value of barns/outbuildings was assumed to be \$30/SF based on online information about prefabricated structures on tuffshed.com. Appraisal district information did not provide sufficient detail to obtain the value of barns/outbuildings, with most omitted or having no value provided. The structures inventory is shown in Table D - 8 and the damages for each structure in existing conditions are shown in Table D - 9.

Table D - 8: Impacted Properties within Project Area

Struct ID	Appraised Value of Structure	Lowest Adjacent Grade	Occupancy Type
1	\$1,000.00	840.38	Outbuilding
2	\$31,814.00	840.81	Residential
3	\$51,044.00	838.56	Residential
4	\$1,000.00	836.53	Outbuilding
5	\$1,000.00	861.22	Outbuilding
6	\$1,000.00	872.69	Outbuilding
7	\$1,000.00	865.81	Outbuilding

8	\$1,000.00	867.38	Outbuilding
9	\$65,238.00	882.69	Residential
10	\$1,000.00	864.19	Outbuilding
11	\$1,000.00	836.34	Outbuilding
12	\$175,120.00	865.19	Residential
13	\$1,000.00	904.72	Outbuilding
14	\$1,000.00	930.00	Outbuilding
Struct ID	Appraised Value of Structure	Lowest Adjacent Grade	Occupancy Type
15	\$61,269.00	931.09	Residential
16	\$1,000.00	935.94	Outbuilding
17	\$1,000.00	930.69	Outbuilding

Table D - 9: Impacted Properties Within Project Area Scraper Hollow Dam No. 2--Flood Damages in No-Action Alternative by Frequency Event

Struct ID	Appraised Value of Structure	2-year	5-year	10-year	25-year	50-year	100-year	200-year	500-year	1000-year
1	\$1,000.00	\$169	\$298	\$399	\$451	\$493	\$537	\$564	\$608	\$802
2	\$31,814.00	\$16,041	\$18,152	\$19,844	\$21,797	\$23,208	\$25,602	\$25,742	\$27,471	\$35,933
3	\$51,044.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$32,977
4	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$663
5	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$24	\$107	\$525	\$777
6	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4
7	\$1,000.00	\$0	\$0	\$0	\$131	\$340	\$465	\$482	\$539	\$700
8	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$47	\$159	\$308	\$594
9	\$65,238.00	\$0	\$0	\$0	\$0	\$0	\$38,962	\$41,742	\$45,007	\$65,118
10	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$495
11	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,000
12	\$175,120.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$132,392
13	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$235
14	\$1,000.00	\$135	\$324	\$411	\$455	\$482	\$474	\$522	\$545	\$1,096
15	\$61,269.00	\$0	\$32,047	\$35,206	\$36,692	\$38,683	\$40,363	\$40,784	\$41,743	\$77,769
16	\$1,000.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$249
17	\$1,000.00	\$0	\$0	\$0	\$40	\$140	\$177	\$206	\$256	\$922

The flood damage for each structure was determined using the water depths obtained from HEC-RAS, the stage-damage relationship, and the structure market value. The flood damage to the structure as a percent of the total market value was determined using the water depths obtained in HEC-RAS, then this percentage multiplied by the structure's total damageable value and the result corresponds to the damage for a specific structure. This process is repeated for each of the frequency storm events to plot a damage-probability curve for each alternative. The damages for each frequency storm by alternative are shown in Table D - 10. The integral of this curve is the annual damage to the structures for each alternative, shown in Table D - 11.

Table D - 10: Expected Frequency Storm Damages to Structure

Frequency Event	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
2-year	\$16,344	\$59,473	\$16,344	\$31,769	\$49,789	\$303
5-year	\$50,821	\$63,627	\$50,821	\$53,577	\$53,987	\$622
10-year	\$55,860	\$66,730	\$55,108	\$58,749	\$58,834	\$810
25-year	\$59,567	\$109,227	\$59,567	\$63,974	\$64,021	\$1,077
50-year	\$63,346	\$116,781	\$64,677	\$65,419	\$65,440	\$1,454
100-year	\$106,651	\$122,937	\$106,651	\$107,611	\$107,616	\$1,724
200-year	\$110,307	\$224,751	\$113,431	\$113,829	\$113,826	\$2,039
500-year	\$117,001	\$243,995	\$121,346	\$121,419	\$121,420	\$2,780
1000-year	\$352,726	\$253,665	\$216,105	\$216,626	\$208,180	\$173,905

Table D - 11: Expected Annual Damages to Structures by Scraper Hollow Dam No. 2

Category	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Structure	\$22,100	\$1,500	\$22,000	\$25,400	\$28,200	\$500

6.2.2 ROAD AND ROAD CROSSINGS

The area of each road crossing was determined using aerial photography and LIDAR data. The replacement cost of each road/crossing was assumed to be the area flooded times the base aggregate and asphalt paving. Roads were assumed to receive no damage at water elevations below the road embankment crests. Damage to the roads was assumed to occur based on flow mean depth, with the assumption that a headcut would form and undermine the base layers of the road structure. Many of these roads were overtopped by several feet with high velocity flows during the more extreme storm events. Damage was assumed because these roads were not designed to withstand the high modeled velocities. Loose aggregate will particularly be affected by any inundation. Depth rasters were generated from HEC-RAS, and the mean depth across each road/crossing was used to determine in GIS. It was assumed that, if damaged these roads would be replaced with base aggregate and asphalt paving which RS means provides an estimate of cost. This data was last published in 2020, so these costs were adjusted to 2023 dollars using the ENR construction cost index.

There are three impacted culverts in the project area. Replacement costs were adjusted to 2023 dollars using the ENR construction cost index. The area of each crossing was determined using

aerial photography and LIDAR data. The replacement cost of each bridge/culvert is assumed to be the deck area times the average unit price in 2023 dollars.

Bridges

There were no impacted bridges in the project area below Scraper Hollow Dam No. 2.

Culverts

According to a 1987 Federal Highway Administration report (USDA 1969), performance of culvert embankments during flooding is influenced by a number of factors that have not been determined as a part of this study, including fill material types, grain size distributions of embankment material, armoring and vegetative cover, and duration of overtopping. For this reason, and the fact that culvert damages are not anticipated to constitute a significant portion of the flood damage reduction benefits generated by improvements to the dam (based on engineering judgment and the damage estimates in the original watershed plan) a simplified model was developed to account for damages to the culvert embankments. Damage was assumed to begin when the water surface elevation in the stream reached the top of the culvert embankment and progress linearly to complete failure of the embankment at six feet of overtopping depth. Table D - 12 shows the expected damages to bridges and culverts in frequency events.

Table D - 12: Expected Frequency Storm Damages to Bridges and Culverts

Frequency Event	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
2- year	\$6,594	\$36,598	\$5,605	\$13,518	\$10,880	\$0
5- year	\$7,913	\$50,775	\$7,583	\$13,518	\$17,475	\$0
10-year	\$15,496	\$62,315	\$15,496	\$19,783	\$22,750	\$0
25-year	\$22,091	\$75,174	\$22,091	\$25,058	\$27,696	\$0
50-year	\$28,685	\$88,692	\$28,685	\$33,960	\$36,927	\$0
100-year	\$37,587	\$100,891	\$37,587	\$41,873	\$43,851	\$0
200-year	\$43,851	\$114,739	\$43,851	\$47,808	\$49,127	\$0
500-year	\$56,710	\$129,905	\$55,391	\$59,677	\$53,413	\$0
1000-year	\$197,826	\$141,445	\$69,898	\$75,833	\$73,855	\$0

Table D-13 summarizes the results obtained for the bridges and culverts analyzed in the project area.

Table D - 13: Expected Annual Damages to Bridges and Culverts

Category	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Bridges	\$0	\$0	\$0	\$0	\$0	\$0
Culverts	\$7,500	\$7,000	\$6,900	\$11,900	\$12,000	\$100
Total	\$7,500	\$7,000	\$6,900	\$11,900	\$12,000	\$100

Road Damages

There are three roads impacted by frequency storms in the project area. The area of each crossing was determined using aerial photography and LIDAR data. The replacement cost of each road/crossing is assumed to be the area flooded times the base aggregate and asphalt paving.

Roads were assumed to receive no damages at water elevations below the road embankment crests. Damages to the roads were assumed to occur based on flow mean depth. Depth rasters were generated from HEC-RAS, and the mean depth across each road/crossing was used to determine in GIS. It was assumed that, if damaged these roads would be replaced with base aggregate and asphalt paving which RS means provides an estimate of cost. Table D - 14 shows the expected damages to roads in frequency events. Table D - 15 summarizes the results obtained for the road crossings analyzed in the project area.

Table D - 14: Expected Frequency Storm Damages to Roads

Frequency Event	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
2- year	\$83,301	\$0	\$83,301	\$84,159	\$82,471	\$0
5- year	\$114,528	\$0	\$114,528	\$188,448	\$126,036	\$0
10-year	\$264,855	\$0	\$264,766	\$267,566	\$268,397	\$0
25-year	\$393,953	\$0	\$393,953	\$409,074	\$416,211	\$0
50-year	\$546,049	\$0	\$742,249	\$756,693	\$758,650	\$0
100-year	\$883,037	\$0	\$890,009	\$898,187	\$898,187	\$0
200-year	\$990,201	\$1,220,324	\$968,611	\$975,227	\$975,227	\$990,201
500-year	\$1,107,628	\$1,305,093	\$1,100,868	\$1,101,874	\$1,102,179	\$1,107,268
1000-year	\$1,182,962	\$1,348,380	\$1,177,729	\$1,179,174	\$1,182,783	\$1,182,962

Table D - 15: Expected Annual Damages to Road Crossings

	Plan Annual Expected Benefits					
Category	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Roads	\$95,500	\$8,200	\$96,800	\$112,900	\$100,600	\$6,800

6.2.3 CROP, PASTURE, AND LIVESTOCK DAMAGE

For the purpose of this study, agricultural damages include damages to crops and pastureland productivity due to inundation by floodwaters. Damages to the value of the land itself relative to agricultural production are included in the Erosion and Sedimentation category below.

Crops. The NASS publishes the *Cropscape* GIS data layer of land use (USDA n.d.-b). HEC-RAS provides GIS shapefiles of areal inundation extents for each frequency flood event. These shapefiles were intersected with the *Cropscape* layer to aggregate the area inundated for each land use type, depth category, and plan for each frequency storm event. As *Cropscape* shows no crops

present within the project area downstream from Scraper Hollow No. 2, no expected annual damages to crops for any studied alternatives were assumed. Table D - 16 contains the costs of annualized expected crop damages.

Table D - 16: Expected Annual Damages to Crops

Alternative	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Average Annual Losses	\$0	\$0	\$0	\$0	\$0	\$0

Pasture. NASS publishes county-wide average pasture cash rental rates each year (USDA 2023). This is assumed to be the flood-free productive value of the land. NRCS developed generalized damage factors for pastureland grasses in a 1978 Technical Note (USDA 1978). Pastureland was assumed to be made up of Grassland and Shrubland cover types in the NASS Cropscape dataset. The damage factors are expressed as a percentage of the flood-free yield and include seasonal changes and changes in actual damage to productive value based on depth. Using the same methodology and land use data as the crop damage analysis, inundated pastureland areas were aggregated for each depth category, frequency storm event, and plan. The total damages for each frequency storm event are summed up and plotted with probability. The integral of this curve is the expected annual damages to pastureland productive value for each plan. Table D - 17 and Table D - 18 present the development of pastureland damageable values in the project area and the expected annual damages for each alternative, respectively.

Table D - 17: Development of Pastureland Damageable Values

Damage factor (≤ 2 feet depth)	0.14
Damage factor (> 2 feet depth)	0.23
2023 Cash Rental Rate for Pasture	\$13.00
Adjusted Cash Rental Rate (2023 dollars)	\$13.00
Damageable Value per Acre (≤ 2 ft)	\$1.76
Damageable Value per Acre (> 2 ft)	\$2.96

Table D - 18: Expected Annual Damages to Pastureland Affected by Scraper Hollow Dam No. 2

Category	FWOFI	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Damages	\$35	\$60	\$35	\$37	\$37	\$35

6.2.4 EROSION AND SEDIMENTATION DAMAGES

To maintain consistency with the original watershed plan, erosion and sedimentation damages were not independently estimated for this study. One of the original purposes of this structure was sediment control, as discussed in the original watershed workplan (USDA 1957). Estimates for erosion and sedimentation damage were included in the original work plan, indicating estimated damages within the watershed due to sediment without the plan are approximately \$66,260/year

in 2024 dollars. The watershed workplan further indicates that with the project the estimated damage due to sedimentation within the watershed is reduced to \$9,339/year. Multiple assumptions were used to include these damages in the economic analysis. First, erosion and sedimentation damage estimates were assumed to be representative of the present conditions. Significant development has occurred in the study area but does not appear to have caused significant changes to stream channels, except for the addition of some culverts and bridges. The stream channels of Scraper Hollow Dam No. 2 do not appear to be modified based on aerial imagery and historical USGS topographical maps. The upstream watershed contributing to Scraper Hollow Dam No. 2 has met some development; however, the initial sedimentation rate estimate in the watershed plan has proven to be a significant overestimate. The damage values were adjusted to reflect the decreased sedimentation rate. Estimated damages in the original watershed work plan were not separated by the individual flood control structures, instead it was assumed erosion and sedimentation damages are generally proportional to watershed areas. Because this structure represents approximately 24% of the total watershed, the associated damages due to sedimentation as affected by this structure are estimated to be \$2,195/year. Erosion and sedimentation damages generally change in cost over time according to US GDP implicit price deflator. The proposed plans would have generally no effect on erosion and sedimentation damages compared to the existing conditions between the 2-year and 1000-year flood events. Finally, erosion and sedimentation damages were included by taking the proportion of the damages from the original work plan for Scraper Hollow Site 2 based on contribution to the total Scraper Hollow Watershed and adjusting the prices to 2023 dollars using the GDP implicit price deflator.

Table D - 19 contains the expected annualized erosion and sedimentation damages based on the watershed plan and the updated damage amounts for 2023 dollars.

Table D - 19: Erosion and Sedimentation Damages

	Agricultural Damages	Non-Ag Damages	Total Effect \$
Annual Damage without Plan	\$6,090	\$1,835	\$7,925
Annual Damage with Structural Project	\$831	\$286	\$1,117
Price Base	1955	1955	
1957 GDP Deflator	14.744	14.744	Not Applicable
2024 GDP Deflator	123.273	123.273	
Annual Damage without Plan	\$50,918	\$15,342	\$66,260
Annual Damage with Project	\$6,948	\$2,391	\$9,339
Benefits under Plan	\$43,970	\$12,951	\$56,921
Total Watershed Area (ac)	5338	5338	Not Applicable
Watershed Area (ac)	1254.4	1254.4	
Damages without Plan	\$11,965	\$3,605	\$15,571
Damages with Project	\$1,633	\$562	\$2,195
Benefits under Plan	\$10,333	\$3,043	\$13,376

6.3 BENEFIT-COST ANALYSIS

The flood damage reduction benefits are computed by subtracting the flood damages associated with each plan from the damages associated with the “future without federal investment” plan. Project costs were developed for each proposed plan and include construction costs, engineering, real property rights/acquisition, project administration, and annual operation and maintenance costs. These costs, except O&M, are capital costs and must be amortized in order to compare them to the annualized flood damage reduction benefits.

Federal agencies are required by the Water Resources Development Act of 1974 to use a specified discount rate in the formulation and evaluation of water and related land resource plans for the purpose of discounting future benefits and computing costs. The discount rate formula is established by Section 80 of the Act and is tied to yields on government securities with more than 15 years to maturity. This rate is computed annually and published by the Bureau of Reclamation (DOI n.d.-c). The FY 2024 discount rate is 2.75 percent. It was assumed that the project lifespan will be 100 years based on available sediment volume. The final portion of the economic analysis is a comparison between the costs and benefits for the proposed plan. The benefit-cost ratio (BCR) is the total annualized benefits divided by the total annualized costs. The following tables show the results of the economic analysis. Table D - 20 sums the expected yearly damages for each at-risk category for each alternative, including the no action. Table D - 21 summarizes the flood damage reduction benefits of each alternative compared to the no action. Table D - 22 summarizes the costs of each alternative, and Table D - 23 presents the benefit-cost analysis for each alternative.

Table D - 20: Expected Annual Damages

Damage Category	No Action	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Structures	\$22,100	\$1,500	\$22,000	\$25,400	\$28,200	\$500
Crops and pastureland	\$100	\$100	\$100	\$100	\$100	\$100
Road Crossings	\$7,500	\$1,400	\$6,900	\$11,900	\$12,000	\$100
Roads	\$95,500	\$8,200	\$96,800	\$112,900	\$100,600	\$6,800
Erosion and Sedimentation	\$15,600	\$15,600	\$2,200	\$2,200	\$2,200	\$2,200
Total	\$140,800	\$26,800	\$128,000	\$152,500	\$143,100	\$9,700

Table D - 21: Expected Annual Benefits Compared to FWOFI

Damage Category	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Structures	\$20,700	\$100	(\$3,300)	(\$6,100)	\$21,700
Crops and pastureland	(\$100)	\$100	(\$100)	(\$100)	\$0
Road Crossings	\$6,100	\$600	(\$4,500)	(\$4,600)	\$7,400
Roads	\$87,200	(\$1,500)	(\$17,500)	(\$5,200)	\$88,700
Erosion and Sedimentation	\$0	\$13,400	\$13,400	\$13,400	\$13,400
Total	\$114,000	\$12,700	(\$12,000)	(\$2,600)	\$131,200

Table D - 22: Project Costs for Scraper Hollow Dam No. 2

Cost Category	No Action	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Capital Costs	\$-	\$21,020,000	\$10,937,00	\$10,041,000	\$12,699,000	\$9,953,000
O&M	\$7,400	\$2,000	\$7,400	\$7,400	\$7,400	\$7,400
Discount Rate	2.75%	2.75%	2.75%	2.75%	2.75%	2.75%
Project Lifespan (years)	100	100	100	100	100	100
Total Annual Costs	\$7,400	\$621,100	\$328,300	\$302,000	\$380,000	\$299,500

Table D - 23: Benefit-Cost Calculations for Scraper Hollow Dam No. 2

Cost Category	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Flood Damage Reduction Benefits ¹	\$113,900	\$12,700	(\$12,000)	(\$2,600)	\$131,200
Total Benefits	\$113,900	\$12,700	(\$12,000)	(\$2,600)	\$131,200
Annual Costs²	\$618,800	\$328,300	\$302,000	\$380,000	\$299,500
Benefit-Cost Ratio	0.18	0.04	-0.04	-0.01	0.44
Net NED Benefits	(\$504,900)	(\$315,600)	(\$314,000)	(\$382,600)	(\$168,300)

6.3.1 THREAT TO LIFE

The threat to life calculation was performed by using the procedure set by the NRCS population at risk process. The 500-year frequency flood depth raster for the no action alternative and each structural alternative were used to estimate the threat to life at inundated road crossings and buildings in the project area for each scenario. Three breach scenarios including hydrologic, static, and seismic were computed to estimate maximum population-at-risk (PAR). The potential maximum loss of life was estimated using the process prescribed by the worksheets “PAR Computation Worksheet” and “Evaluation of Potential Rehabilitation Projects” (390 – National Watershed Program Handbook, Part 506, subpart D, Section 506.40) and the failure and risk indexes computed. They are illustrated in Table D - 24.

Table D - 24: Computation of Population at Risk during Dam Failure

STATE	Oklahoma		BY	WRS	DATE	9/4/24
DAM	Scraper Hollow Site-2		CHECKED BY		DATE	
YEAR BUILT	1968	DESIGN HAZARD CLASS	H	DRAINAGE AREA	1.96	mi ²
WORK PLAN DATE	12/31/1962	CURRENT HAZARD CLASS	H	DAM HEIGHT	48	ft
	STATIC FAILURE SCENARIO (ver. 2013-01)				NID ID	OK00090
Structures (Elevated) Impacted by Potential Breach	Number of Structures			PAR per Exposure with Inundation Depths >=2.0 Ft.	PAR	
	Inundation Depth Above Natural Ground		Total			
	<2.0 Ft	>=2.0 Ft.				
Mobile Homes				3		
Seasonal Use RV's				2		
Other						
Structures (With Foundations) Impacted by Potential Breach	Number of Structures			PAR per Exposure with Inundation Depths >=1.0 Ft.	PAR	
	Inundation Depth Above Natural Ground		Total			
	<1.0 Ft	>=1.0 Ft.				
Homes		3	3	3	9	
Seasonal Use Homes and Cabins				1.5		
Duplexes				5		
Apartments						

Commercial Buildings					
Schools (In Use)					
Schools (Not in Use)					
Hospitals					
Other					
Highways and Railroads	Number of Roads, Highways & Railways			PAR per Exposure with Inundation Depths >=1.0 Ft.	PAR
	Road Overflow Depth		Total		
	<1.0 Ft	>=1.0 Ft.			
Main Local Roads and Minor State Highways					
D4675 Rd, 4678 Rd, 4675 Rd, 4670 Rd		4	4	2	8
Name(s) (if applicable)				2	
Major State and Minor Federal Highways					
Highway Name(s) or Number(s)				4	
Highway Name(s) or Number(s)				4	
Major Federal and Interstate Highways					
Highway Name(s) or Number(s)				8	
Highway Name(s) or Number(s)				8	
Railroads					
UPSF Freight Traffic Only				3	
Passenger Traffic				20	
TOTAL NUMBER OF PEOPLE AT RISK (PAR)					17

6.3.2 PERIOD OF ANALYSIS DETERMINATION

Federal agencies are required by the Water Resources Development Act of 1974 to use a specified discount rate in the formulation and evaluation of water and related land resource plans for the purpose of discounting future benefits and computing costs. The discount rate formula is established by Section 80 of the Act and is tied to yields on government securities with more than

15 years to maturity. This rate is computed annually and published by the Bureau of Reclamation (DOI n.d.-c). The FY 2024 discount rate is 2.75 percent. It was assumed that the project lifespan will be 100 years. The final portion of the economic analysis is a comparison between the costs and benefits for the proposed plan. The benefit-cost ratio (BCR) is the total annualized benefits divided by the total annualized costs.

APPENDIX E

Other Supporting Information

Farmland Classification—Adair County, Oklahoma
(Site 2)

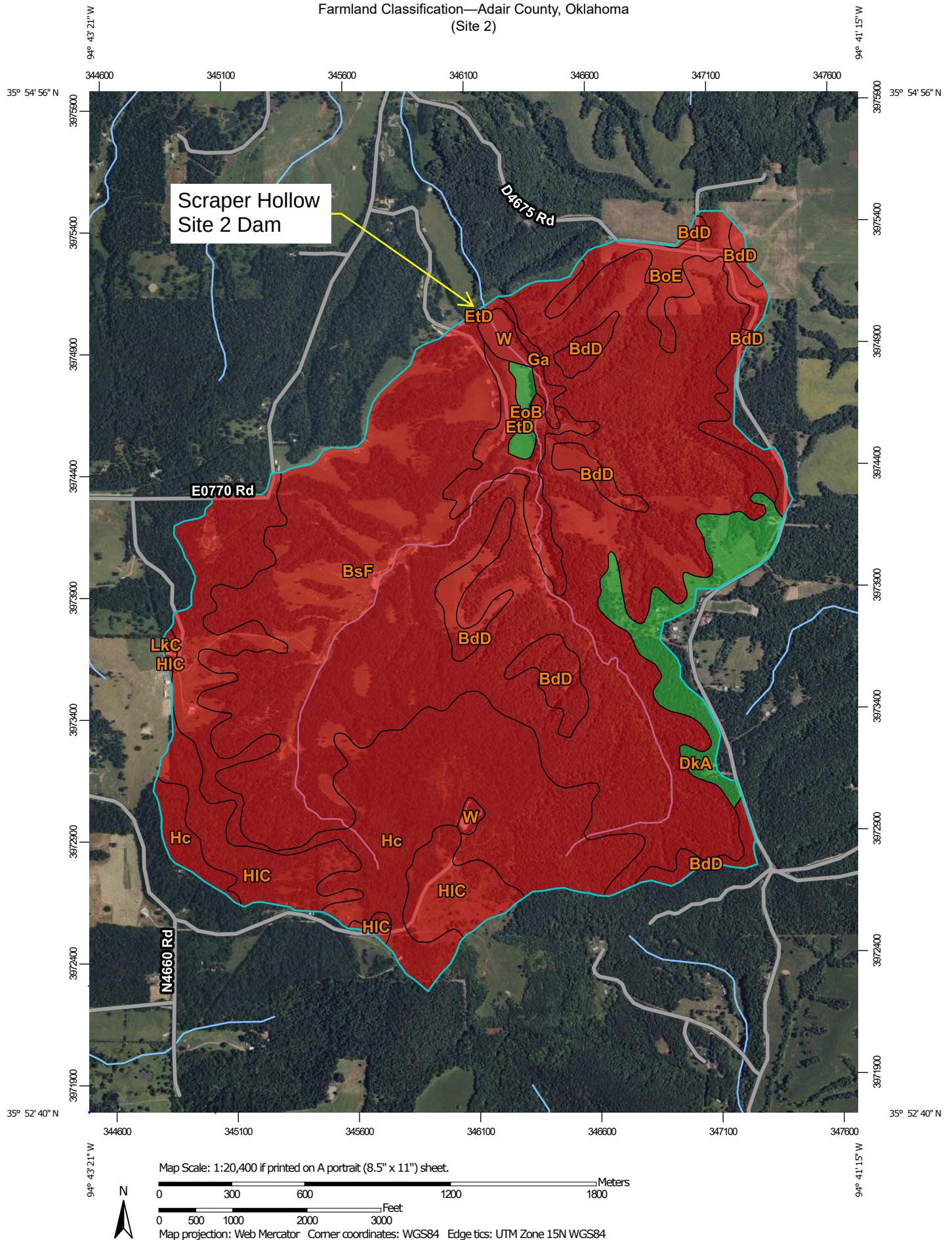
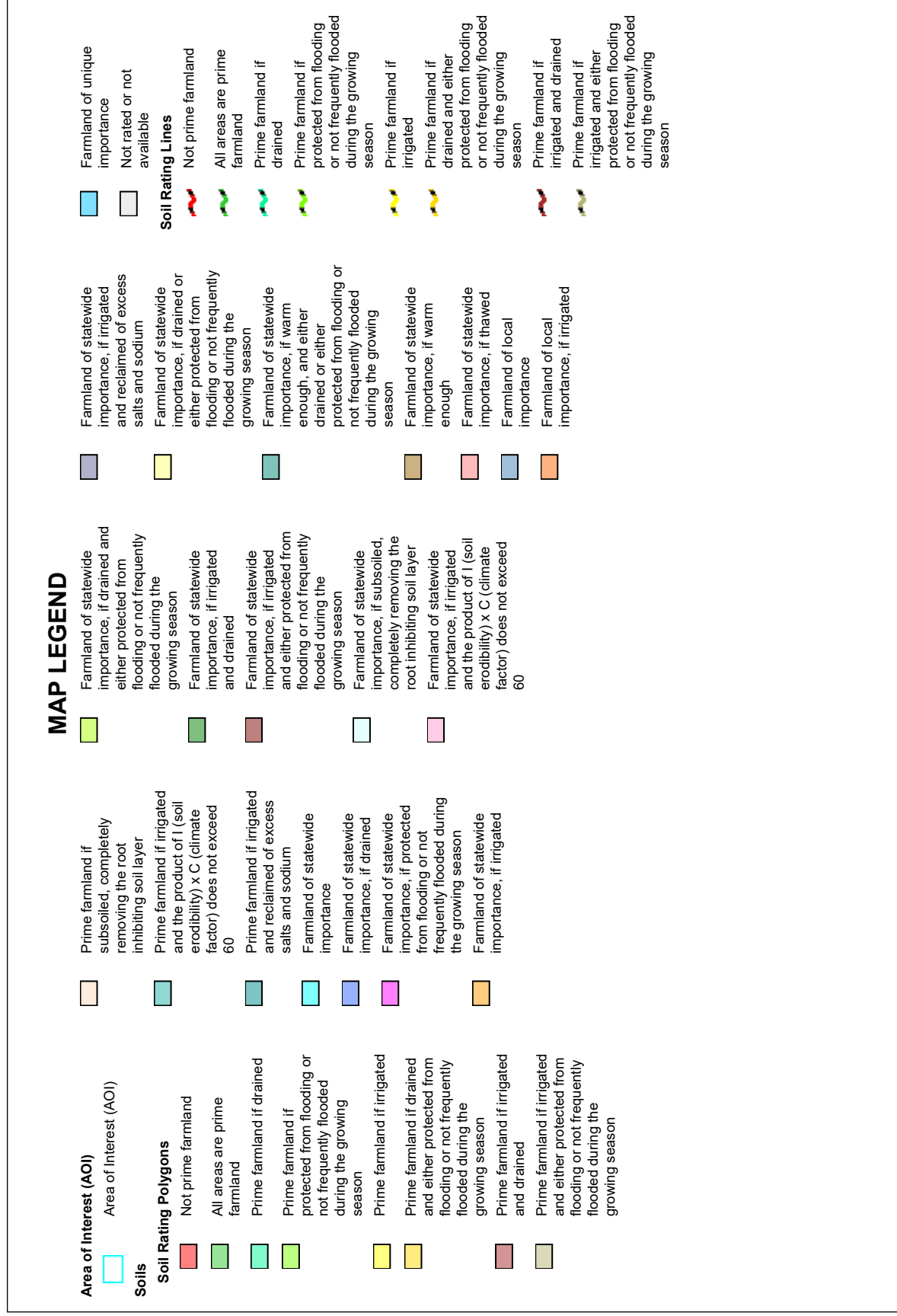
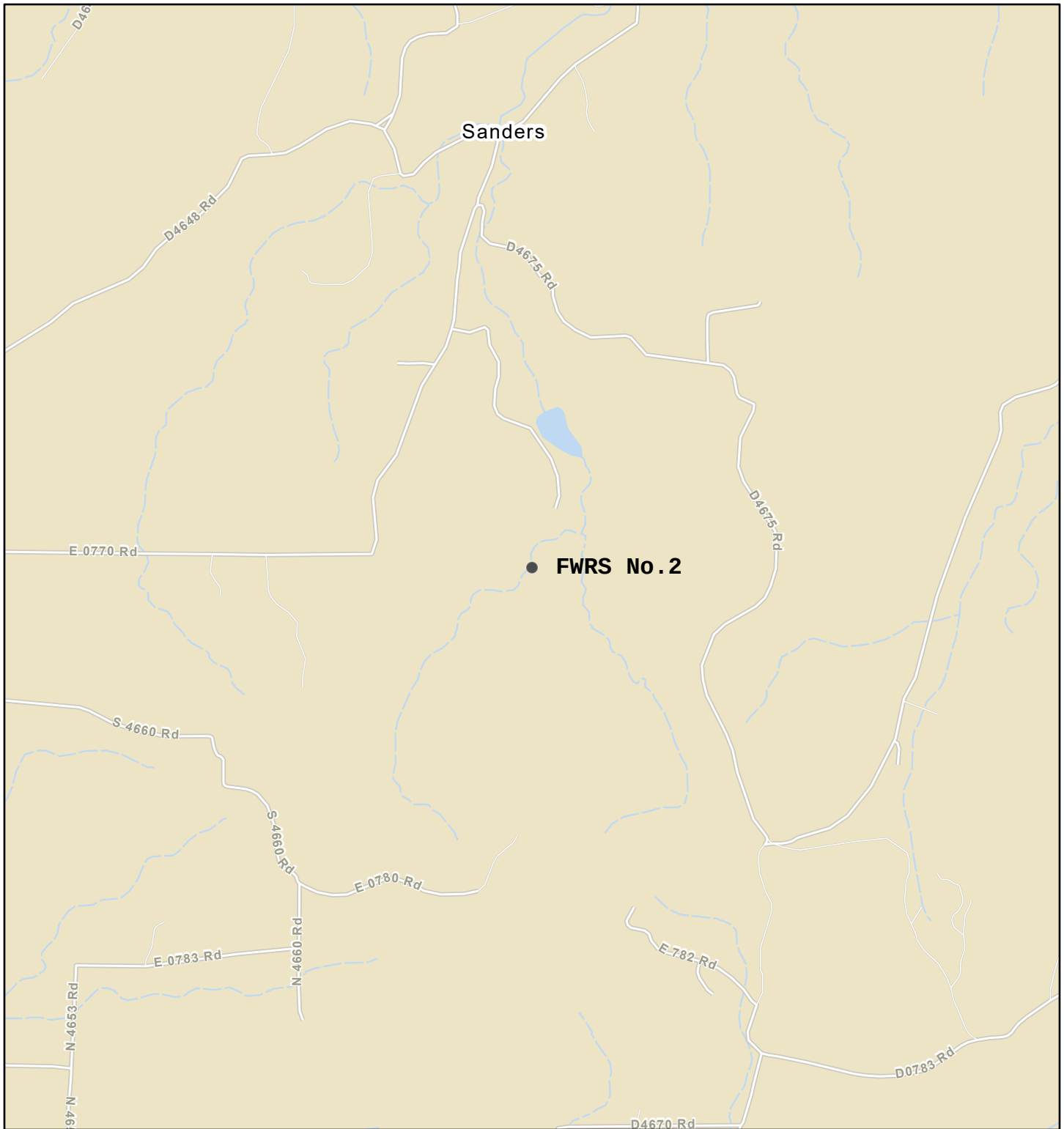


Figure E-1. Map of prime farmland within the watershed and the project area.

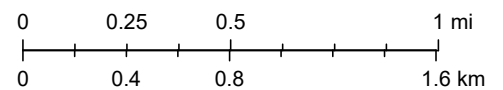


ArcGIS Web AppBuilder



3/8/2025, 11:16:42 AM

1:36,112



Texas Parks & Wildlife, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS

Figure E-2. Map showing the absence of sole source aquifers within the watershed and the project area.

National Flood Hazard Layer FIRMette



94°42'33"W 35°54'40"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

Without Base Flood Elevation (BFE)
Zone A, V, AE

With BFE or Depth
Zone AE, AO, AH, VE, AR

Regulatory Floodway

0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
Zone X

Future Conditions 1% Annual Chance Flood Hazard
Zone X

Area with Reduced Flood Risk due to Levee. See Notes.
Zone X

Area with Flood Risk due to Levee
Zone D

NO SCREEN

Area of Minimal Flood Hazard
Zone X

Effective LOMRs

Area of Undetermined Flood Hazard
Zone D

Cross Sections with 1% Annual Chance Water Surface Elevation

Coastal Transect

Base Flood Elevation Line (BFE)

Limit of Study

Jurisdiction Boundary

Coastal Transect Baseline

Profile Baseline

Hydrographic Feature

Digital Data Available

No Digital Data Available

Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

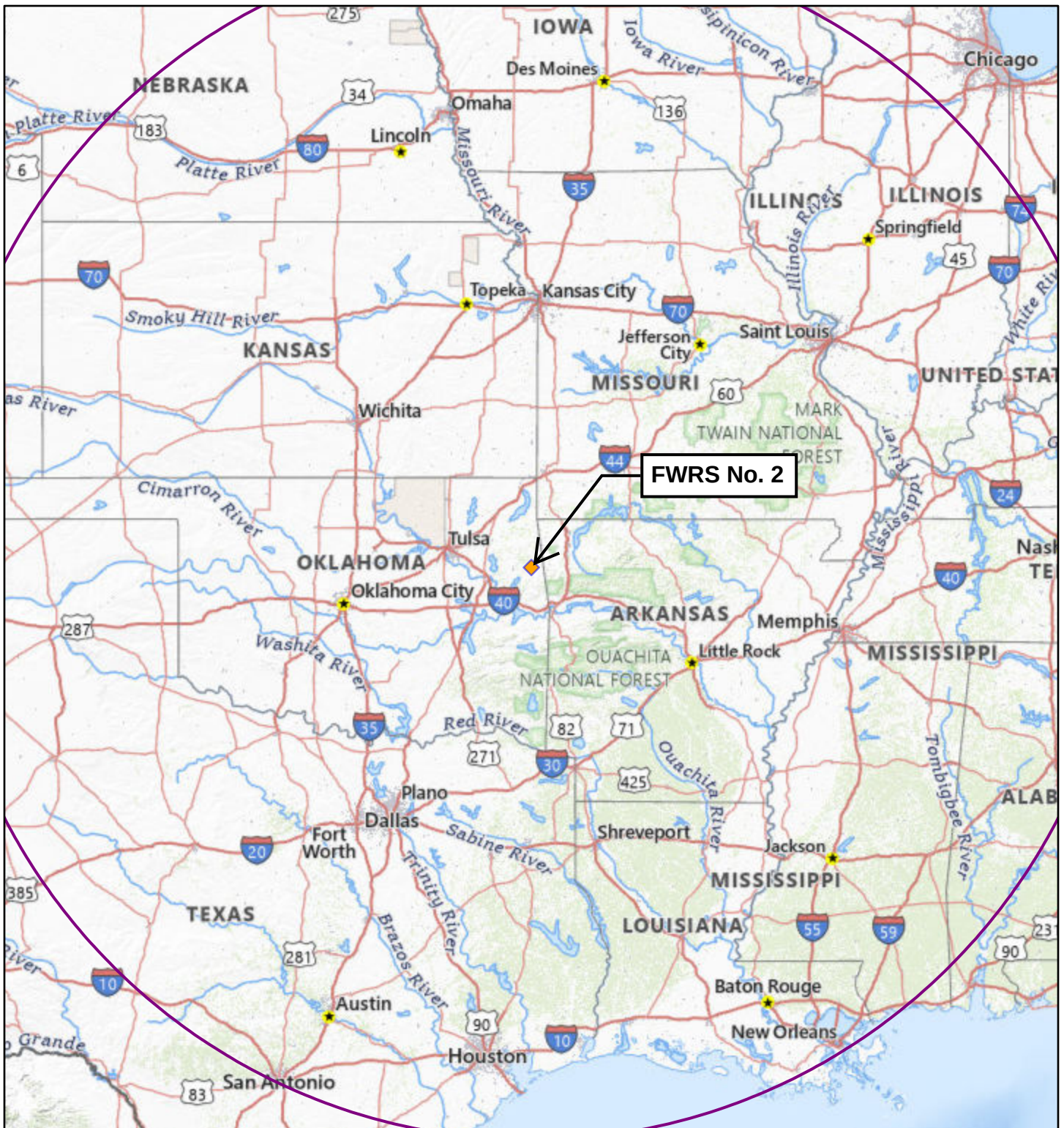
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **3/8/2025 at 5:13 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



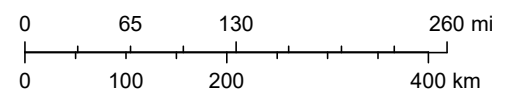
Figure E-3. FEMA firmette map of the project area.

The National Map Advanced Viewer



3/8/2025, 10:46:48 AM

1:9,244,649



USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S.

Figure E-4. Map showing the distance from the project area to the closest ocean.



(<https://nps.maps.arcgis.com/apps/View/index.html?appid=ff42a57d0aae43c49a88daee0e353142>)

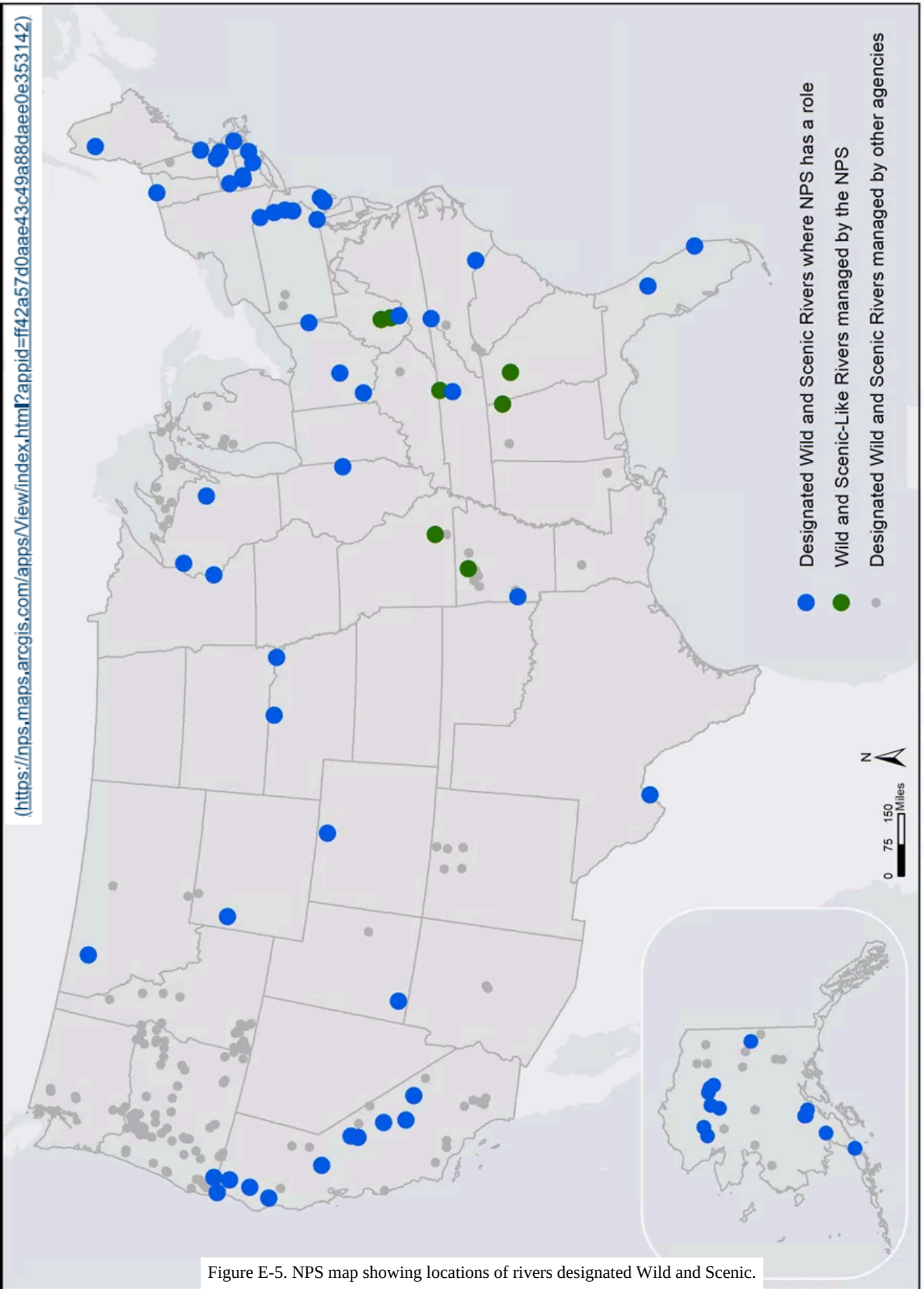
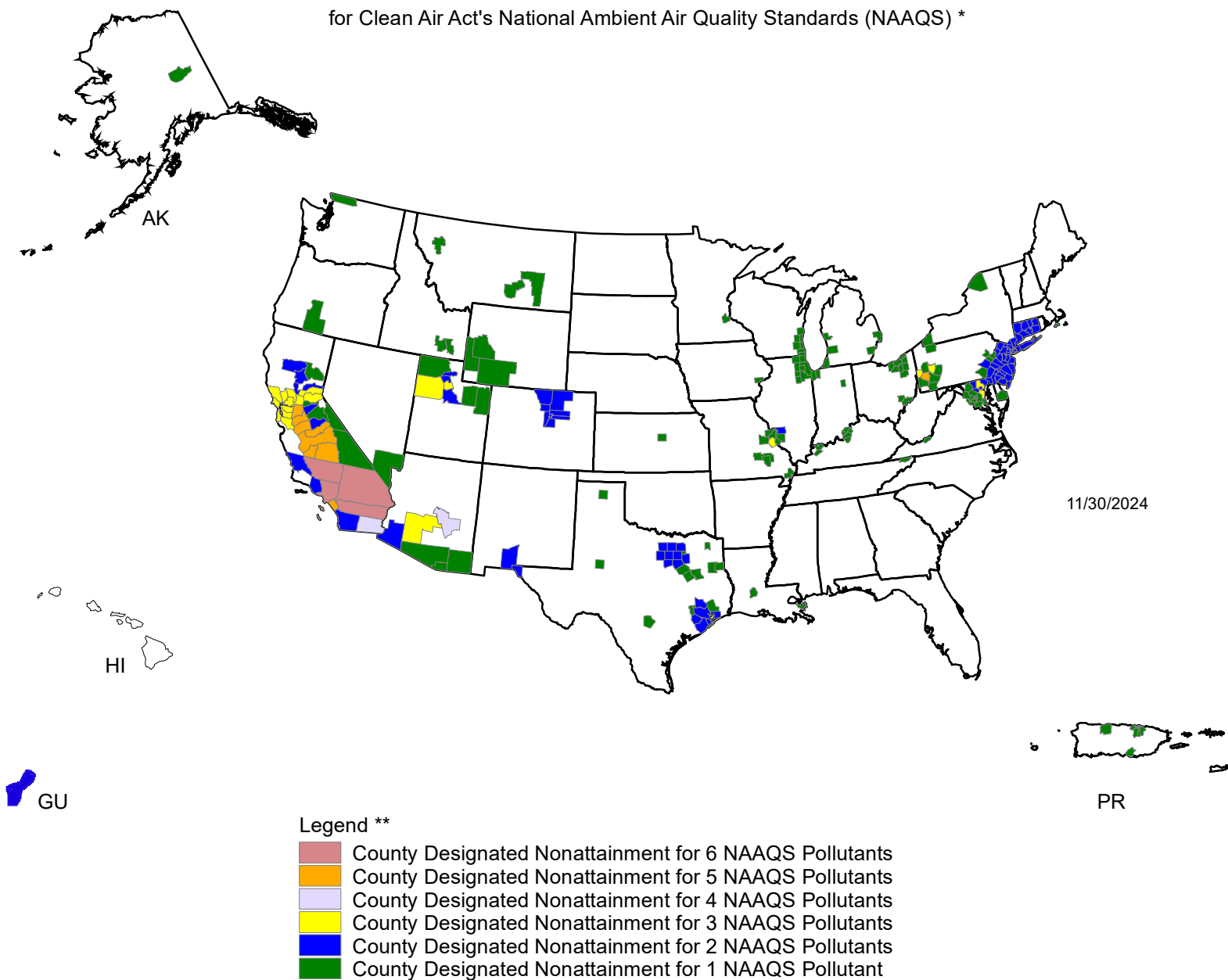


Figure E-5. NPS map showing locations of rivers designated Wild and Scenic.

Counties Designated "Nonattainment"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) *



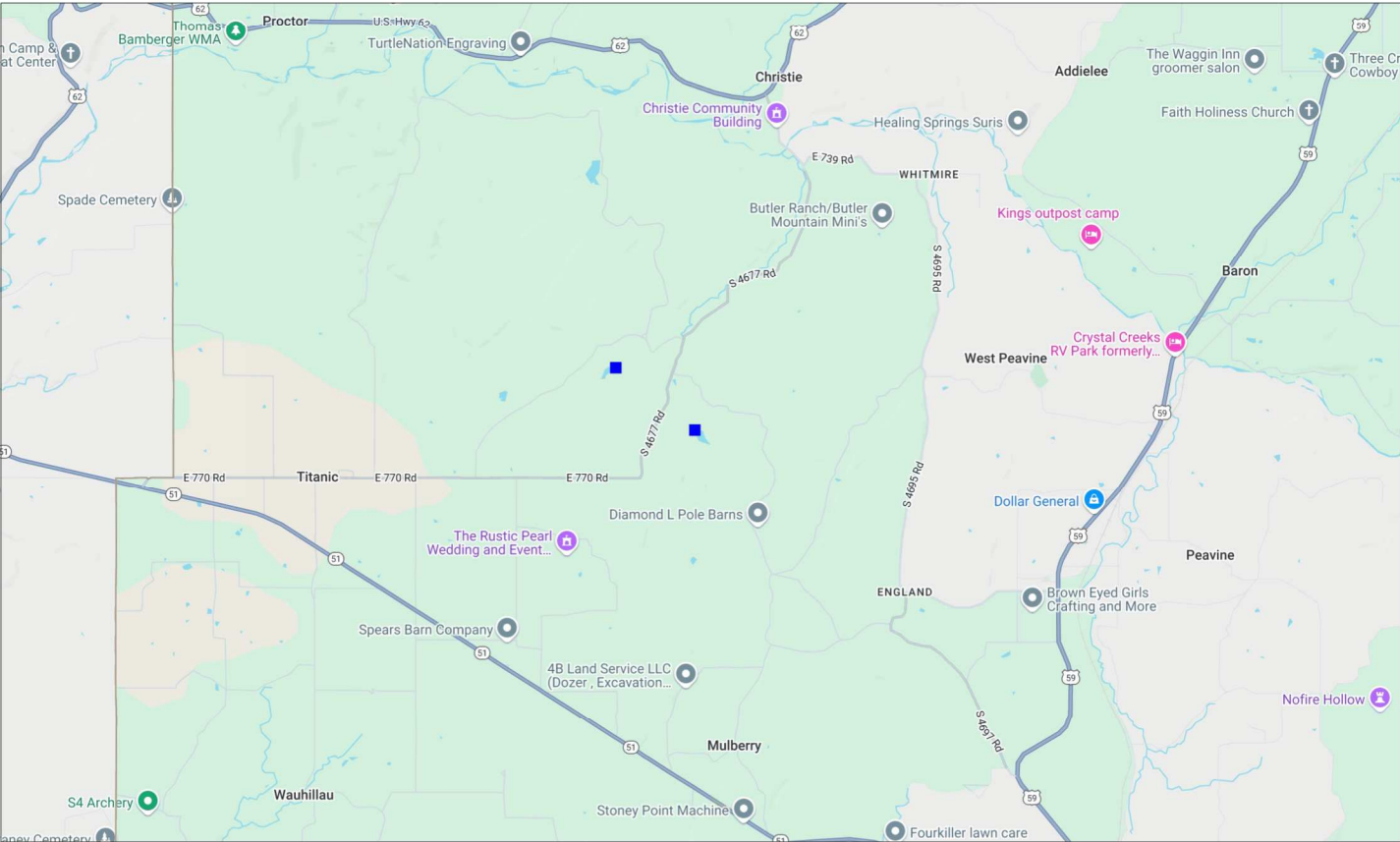
* The National Ambient Air Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead (1978 and 2008), Nitrogen Dioxide, 8-hour Ozone (2008), Particulate Matter (PM-10 and PM-2.5 (1997, 2006 and 2012), and Sulfur Dioxide.(1971 and 2010)

** Included in the counts are counties designated for NAAQS and revised NAAQS pollutants. Revoked 1-hour (1979) and 8-hour Ozone (1997) are excluded. Partial counties, those with part of the county designated nonattainment and part attainment, are shown as full counties on the map.

Figure E-6. USEPA map of counties designated nonattainment for air quality indicators.



Hazardous Waste Sites



03/08/2025

1 in = 0.85 mi

Watershed Dams_NRCS

- 0 to 10 Acres
- 10 to 30
- 30 to 50
- 50 to 80
- Greater than 80

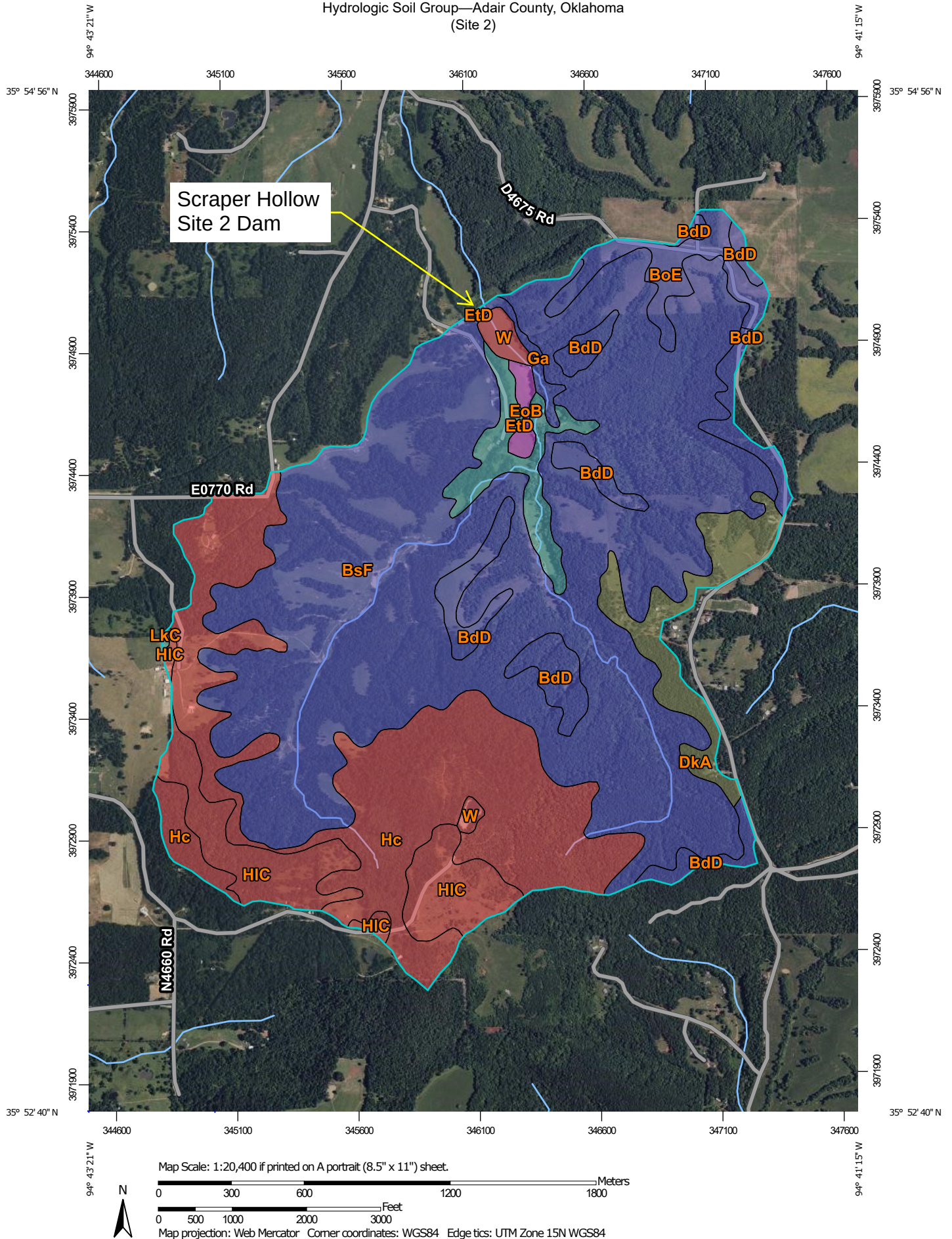
ODEQ Hazardous Waste Facilities

- ODEQ Haz Waste Sites
- Comm Haz Waste Site
- Non-Comm Haz Waste Site
- Transfer Station Site

Oklahoma Counties

Figure E-7.OK DEQ map showing the absence of hazardous materials sites within the watershed and the project area.

Hydrologic Soil Group—Adair County, Oklahoma (Site 2)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

Figure E-8. Map of hydric soils within the watershed and the project area.

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Adair County, Oklahoma

Survey Area Data: Version 18, Sep 1, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 12, 2022—Jun 22, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

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TO: Laurie Brown, LEED AP

CC: Patrick Garnett, PWS, CWB, CPESC, ISA Certified Arborist

FROM: Wes Wiegrefe, CWB

SUBJECT: Ecological Resources Inventory and Analysis

DATE: January 6, 2025

PROJECT: AAC23107 – Scraper Hollow 2

Introduction

Freese and Nichols, Inc. (FNI) personnel conducted a pedestrian survey of the proposed Scraper Hollow 2 project site on June 1, 2023. The purpose of the survey was to inventory the ecological resources within the proposed project limits of investigation (LOI), including identifying potential waters of the U.S. that could be regulated by Section 404 of the Clean Water Act and areas that could be potential habitat for federally listed threatened or endangered species. Furthermore, the survey was performed to characterize the soils, floodplains, fish and wildlife habitat, invasive species, and riparian areas identified within the proposed LOI. Figures and site photographs are presented in **Appendices A and B**, respectively.

Project Description

The Scraper Hollow 2 project includes the completion of a Natural Resource Conservation Service (NRCS) Supplemental Watershed Plan-Environmental Document (Plan-ED) for the existing Scraper Hollow Flood Retarding Structure (FRS) No. 2. Adair County Conservation District and NRCS are seeking to complete an authorized plan assessing project alternatives, which would address the reclassification of the FRS to a high-hazard dam. The Plan-ED will describe the existing conditions, develop alternatives, evaluate the economic, social, and environmental impact of the alternatives, and recommend a preferred alternative. The Plan-ED must be prepared in accordance with the National Environmental Policy Act (NEPA).

Ecological Setting

The LOI is located within the Dissected Springfield Plateau – Elk River Hills ecoregion of the Ozark Highlands. This ecoregion is composed of narrow ridgetops and intervening, steep V-shaped valleys with characteristic carbonate rocks and karst features. More rugged and wooded than the nearby Springfield Plateau, upland vegetation is characterized by oak-hickory and oak-hickory-pine forests and woodlands. Today, livestock and poultry farming, woodland grazing, logging, recreation, and quarrying are the main land uses. Cherty limestone of the Mississippian Boone Formation is extensive, but older shales, limestone, and dolomite are also exposed in valley bottoms. Bank and hillslope erosion results in aggradation within streams, filling them with gravel and promoting subsurface flow.

Site Conditions

The Scraper Hollow 2 project site is located approximately 6 miles northwest of Maryetta in Adair County, Oklahoma (**Figures 1 and 2**). The site is currently located within pastureland used for livestock grazing surrounded by rocky, wooded hillslopes. The proposed normal pool elevation impounds an intermittent tributary of Baron Fork. Site photos are attached in **Appendix B**.

Adair County has a humid subtropical climate with hot summers and cool winters. Average summer temperatures are near 77 °F, and are near 40 °F during the winter. Precipitation is abundant throughout the year, with an approximate yearly average of 50 inches. The county receives a fair amount of snow during colder months, with an average annual snowfall of 4 inches.

Soil series present within the proposed LOI include: Clarksville very gravelly silt loam, 20 to 50 percent slopes, stony; Waben gravelly silt loam, 1 to 3 percent slopes; Waben gravelly silt loam, 3 to 8 percent slopes; Elsay gravelly silt loam, 0 to 1 percent slopes, frequently flooded; and Water. According to the NRCS list of hydric soils, none of the soil series within the proposed LOI are classified as hydric (**Figure 3**).

Vegetation at the site is consistent with the surrounding area and includes tree and shrub species such as: American elm (*Ulmus americana*), American sycamore (*Platanus occidentalis*), black tupelo (*Nyssa biflora*), black walnut (*Juglans nigra*), box elder (*Acer negundo*), bur oak (*Quercus macrocarpa*), coralberry (*Symphoricarpos orbiculatus*), hackberry (*Celtis occidentalis*), mockernut hickory (*Carya tomentosa*), and post oak (*Quercus stellata*). Herbaceous and vine species included: bermudagrass (*Cynodon dactylon*), frostweed (*Verbesina virginica*), giant ragweed (*Ambrosia trifida*), Japanese brome (*Bromus japonicas*), Japanese stiltgrass (*Microstegium vimineum*), Johnson grass (*Sorghum halepense*), mayapple (*Podophyllum peltatum*), perennial rye (*Lolium perenne*), and sawtooth greenbrier (*Smilax bona-nox*).

Potential Waters of the U.S.

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the U.S. (WOTUS), including wetlands, under Section 404 of the Clean Water Act. WOTUS (i.e., jurisdictional waters) include streams that display ordinary high water marks (OHWMs) and a surface downstream hydrologic connection with traditional navigable waters (TNW) of the U.S., impoundments of such streams, and wetlands adjacent to these jurisdictional waters. The term OHWM means “that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 CFR 328.3). Official determination of the presence or absence of WOTUS can only be obtained by requesting an approved jurisdictional determination (AJD) from the USACE. **Figure 4** displays the locations and types of waterbodies present within the LOI.

Open Water Bodies/Impoundments

Two open waterbodies were identified in the proposed LOI. Scraper Hollow 2 Reservoir is an impoundment of Stream 1 (**Photo 1**). Pond 1 is an off-channel stock pond located approximately 250 ft west of the dam (**Photo 2**). Pond 1 appears to have been constructed in uplands and drains only uplands.

Streams

Ten streams were identified in the proposed LOI. Stream 1 (Scraper Hollow Creek) is an intermittent tributary of Baron Fork impounded by the Scraper Hollow 2 FRS within the LOI (**Photos 3-4**). Stream 1 flows north through the LOI and has an average OHWM width of 25 ft upstream of Scraper Hollow 2 Reservoir, and 40 ft downstream of the FRS. Stream 2 is an intermittent stream which flows west into the reservoir and has an average OHWM width of 6 ft (**Photo 5**). Stream 3 is an intermittent tributary of Stream 1 which flows west through the LOI and has an average OHWM width of 8 ft (**Photo 6**). Stream 4 is an ephemeral tributary of Stream 1 which flows north through the LOI in a potential historic channel of Stream 1 and has an average OHWM width of 10 ft (**Photos 7**). Stream 5 is an intermittent tributary of Stream 1 which flows west through the LOI and has an OHWM width of 15 ft (**Photo 8**). Stream 6 is an ephemeral tributary of Stream 5 which flows west through the LOI and has an average OHWM width of 6 ft (**Photo 9**). Stream 7 is an intermittent tributary of Stream 1 which flows north through the LOI and has an average OHWM width of 20 ft (**Photo 10**). The approximately 250 ft southern (upstream) reach of Stream 7 within the LOI appears to have been filled and does not exhibit bed and banks, or an OHWM (**Photo 11**). Stream 8 is an ephemeral tributary of Stream 7 which flows west through the LOI and has an average OHWM width of 3 ft (**Photo 12**). Stream 9 is an intermittent tributary of Stream 1 downstream of the dam which flows west through the LOI and has an average OHWM width of 5 ft (**Photo 13**). Stream 10 is an ephemeral stream which flows west into the reservoir and has an average OHWM width of 8 ft (**Photo 14**).

Wetlands

A single wetland was identified within the proposed LOI. Wetland 1 is a riparian emergent wetland adjacent to Stream 7 which is dominated by American bur-reed (*Sparganium americanum*) (**Photo 15**).

Table 1 summarizes the potential WOTUS within the LOI. See relevant maps (**Figures 4 and 7**) in **Appendix A**, and site photos in **Appendix B**.

Table 1 – Impacts to Waterbodies within the Proposed LOI

Feature Name	Feature Type	Potential Jurisdictional Status*	Area in LOI (Acreage)	Length in LOI (Linear Feet)
Stream 1 (Scraper Hollow Creek)	Intermittent Stream	Jurisdictional	1.45	3,337
Stream 2	Intermittent Stream	Jurisdictional	0.14	986
Stream 3	Intermittent Stream	Jurisdictional	0.21	1,140
Stream 4	Ephemeral Stream	Jurisdictional	0.09	384
Stream 5	Ephemeral Stream	Jurisdictional	0.62	2,132
Stream 6	Ephemeral Stream	Jurisdictional	0.07	493
Stream 7	Intermittent Stream	Jurisdictional	0.57	1,182**
Stream 8	Ephemeral Stream	Jurisdictional	0.02	331
Stream 9	Intermittent Stream	Jurisdictional	0.09	819
Stream 10	Ephemeral Stream	Jurisdictional	0.08	422
Emergent Wetland 1	Emergent Wetland	Jurisdictional	0.01	-
Scraper Hollow 2 Reservoir	Impoundment	Jurisdictional	7.99	-
Pond 1	Off-channel Pond	Non-Jurisdictional	0.07	-

*Official determination of the presence or absence of WOTUS can only be obtained by requesting an AJD from the USACE.

**An additional 250 ft of Stream 7 has been removed due to impacts from agricultural activity.

Impacts to WOTUS & Section 404

Stream 1 is a tributary of the Baron Fork, which is a perennial tributary of the Arkansas River, listed as a TNW by the USACE. Therefore, due to the presence of a downstream surface hydrologic connection to a TNW, Stream 1, its tributaries, and any adjacent wetlands or impoundments would be considered WOTUS by the USACE and subject to Section 404 jurisdiction.

Based on the results of the pedestrian survey and preliminary project design, construction of the proposed project would most likely result in permanent impacts to WOTUS and are subject to Section 404 permitting regulations.

Nationwide Permit (NWP) 43, Stormwater Management Facilities, authorizes the discharge of dredged or fill material into non-tidal WOTUS for the construction of stormwater management facilities, including stormwater detention and retention basins, and other stormwater management facilities, including stormwater drainage features. If the construction of the proposed project would involve rehabilitation of the dam and would not result in the loss of over 0.5 acre of WOTUS, the project could be authorized by NWP 43 with the submittal of a pre-construction notification (PCN) to the USACE.

NWP 27, Aquatic Habitat Restoration, Enhancement, and Establishment Activities, authorizes activities in WOTUS associated with the restoration and enhancement of tidal and non-tidal wetlands, riparian areas, streams, and other open waters, provided those activities result in net increases in aquatic resource functions and services. If the construction of the proposed project would involve the decommissioning of the dam and would result in a net increase in aquatic resource function, the project could be authorized by NWP 27 without a PCN. However, the NRCS and sponsors would be required to notify the USACE according to the reporting requirements of NWP 27.

If impacts to WOTUS resulting from project alternatives are greater than 0.5 acre the project would not be authorized by a USACE nationwide permit, but would require authorization by a USACE Individual Permit (IP).

If the project is authorized by NWP 43 or an IP, and would result in over 0.1 acre of loss to jurisdictional wetlands or open waters, or over 0.03 acre of loss to streams, compensatory mitigation would generally be required for unavoidable impacts to WOTUS. Acceptable forms of mitigation would include the purchase of mitigation bank credits from a private mitigation bank or In-lieu fee bank, which services the Illinois HUC-8 Watershed (11110103) with sufficient stream and wetland bank credits. The USACE Tulsa District uses the Oklahoma Stream Mitigation Method (OSMM) to calculate the required number of mitigation credits to offset losses to jurisdictional streams.

Water Quality (Sections 303 (d), 305 (b), & 402)

Section 303(d) requires States, territories, and Tribes to identify “impaired waters” and to establish total maximum daily loads (TMDLs). A TMDL is a regulatory planning term used to describe a plan for restoring impaired waters that identifies the maximum amount of pollutant that a body of water can receive while still meeting water quality standards.

The Oklahoma Department of Environmental Quality (ODEQ) maintains a list of impaired water through the National Pollutant Discharge Elimination System (**Appendix C**). The 303(d) and 305(b) lists were used to identify surface water quality concerns to Public Health and Safety. The lists identified impaired surface waters within the Illinois River watershed (HUC 11110103), but not within the Scraper Hollow 2 project limits; however, the Scraper Hollow 2 project limits are hydraulically connected to the identified impaired surface waters and TMDLs. For this evaluation, hydraulically connected is defined as the flow path to the last stream with an Oklahoma Waterbody Identification number, or classified segment, within the Hydraulic Unit Code (HUC) 12 watershed. Discharges from the Scraper Hollow 2 project site eventually reach the following classified segments within Baron Fork Creek (HUC 12) (**Figure 5**):

- Scraper Hollow Creek (OK121700050130_00)
- Baron Fork Creek (OK121700050010_00)

Scraper Hollow Creek flows through the Scraper Hollow 2 project from south to north toward Baron Fork Creek. Scraper Hollow Creek receives discharges from the Scraper Hollow 2 project directly. According to the 2022 305(b) list, Scraper Hollow Creek has either not been assessed or insufficient information is available to determine designated uses but is recognized for Outstanding Resource Water (ORW), which is defined as a water of the state which constitutes an outstanding resource or is of exceptional recreational and/or ecological significance and

must receive special protection against degradation. While additional protections for ORWs are required by the Oklahoma Administrative Code (OAC), stormwater discharges from temporary construction activities are an exception in accordance with OAC 252:730-5-25(1). However, construction activities must still abide by the general permit OKR10 for Stormwater Discharges from Construction Activities within the State of Oklahoma. Currently surface waters within the Illinois Subbasin Watershed are not subject to a TMDL and impairments have not been identified on the 2022 303(d) list.

Baron Fork Creek runs west, southwest towards Tenkiller Lake, which is southwest of the Scraper Hollow 2 project. Baron Fork Creek receives stormwater from the Scraper Hollow 2 project indirectly by way of Scraper Hollow Creek. Baron Fork Creek fully supports designated uses for Agriculture, Fish Consumption, Primary Body Contact Recreation, and Public Private Water Supply while not supporting Aesthetic, respectively. Additionally, Baron Fork Creek is identified as an ORW. Cool Water Aquatic Communities are currently noted as having insufficient information. Baron Fork Creek is identified on the 2022 Oklahoma 303(d) List of Impaired Waters and is impaired for Aesthetics due to Total Phosphorous. Baron Fork Creek does not currently have a TMDL; however, a TMDL is currently underway or will be scheduled in the future.

Table 2 – Classified Segment Summary

Classified Water Body/Watershed	Receiving Water Body Name	Receives Stormwater Directly or Indirectly	303(d) or 305(b) List	TMDL	Listed Water Quality Concerns
Baron Fork Creek (HUC 111101030707)	Scraper Hollow Creek (OK121700050130_00)	Directly	305(b)	No	Phosphorous (2010)
	Baron Fork Creek (OK121700050010_00)	Indirectly	305(b) 303(d) Phosphorus	No	

If construction activities discharge stormwater directly to an impaired segment or discharge stormwater indirectly to a segment with a TMDL, the entire watershed is subject to the TMDL requirements. The Illinois River Subbasin (HUC 11110103), nor the Baron Fork Creek watershed, are not subject to TMDL requirements at this time. The classified segments listed above, as well as unclassified/unnamed water bodies that receive stormwater discharges are summarized in Table 2.

TMDLs

Baron Fork Creek has been placed in Category 5A according to the 2022 Oklahoma Integrated Report. A Category 5A listing in the 2022 Oklahoma Integrated Report indicates that a TMDL is underway or will soon be scheduled in the future. No category was provided for Scraper Hollow.

Impairment

Phosphorous concentrations in surface waters can be affected by a variety of items such as sewage treatment facilities, animal and human waste, lawns and gardens, and crop residue. Scraper Hollow 2 construction activities are not anticipated to be a source of Total Phosphorus and are unlikely to contribute to the impairment in Baron Fork.

Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) Program, which is administered by the State of Oklahoma. Section 402 requires a permit for sewer and stormwater discharges from developments, construction sites, or other areas of soil disturbance. As mentioned, while Scraper Hollow Creek and Baron Fork are not subjected to TMDLs, Baron Fork is listed on Oklahoma's 303(d) list as an impaired waterbody. The impairment for Phosphorous does not explicitly list construction activities as a point or non-point source and do not have any additional requirements for construction activities. Notwithstanding, construction activities must maintain compliance with the Oklahoma NPDES General Permit for Stormwater Runoff from Construction Activities and should monitor the potential for these contaminants, among others, during construction.

Clean Air Act

The Clean Air Act (CAA) regulates air emissions from stationary and mobile sources and authorizes the U. S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants. Non-attainment areas are areas considered to have air quality worse than the NAAQS defined in the Clean Air Act. The proposed LOI is currently not within a non-attainment area.

The proposed project is expected to result in only minor, short-term emissions of dust and other particulate matter from construction, and will not significantly increase the emission rate of any regulated air pollutant.

FEMA Floodplains

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 40001C0200D, the proposed project site would be constructed within the floodplain of Stream 1 (**Figure 5**). As such, the local floodplain administrator should be contacted prior to construction for the proposed project to acquire floodplain-related authorizations, if needed.

Threatened and Endangered Species

The proposed project LOI was surveyed for potential habitat of both federal and state listed threatened and endangered species. Table 3 lists federal and state listed species which may be located in Adair County.

**Table 3. Federally & State Listed Species
of Potential Occurrence in Adair County, Oklahoma¹**

Common Name	Scientific Name ²	Federal Status ²	State Status ²	Effects Determination
Gray Bat	<i>Myotis grisescens</i>	E	E	No Effect
Indiana Bat	<i>Myotis sodalis</i>	E	E	May Effect
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	E	E	May Effect
Ozark Big-eared Bat	<i>Corynorhinus townsendii ingens</i>	E	E	No Effect
Tricolored Bat	<i>Perimyotis subflavus</i>	PE	-	May Effect
Piping Plover	<i>Charadrius melodus</i>	T	T	No Effect
Rufa Red Knot	<i>Calidris canutus rufa</i>	T	T	No Effect
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	PT	-	No Effect
Monarch Butterfly	<i>Danaus plexippus</i>	PT	-	May Effect
Blackside Darter	<i>Percina maculata</i>	-	T	No Effect
Longnose Darter	<i>Percina nasuta</i>	-	E	No Effect

¹ According to ODWC (2023) and USFWS (2023).

² E = Endangered; T = Threatened; PE = Proposed Endangered; PT = Proposed Threatened; C = Candidate

Federally Listed Species

According to the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) resource list received on January 6, 2025 (**Appendix D**), the following species are listed as threatened, endangered, or candidate under the Endangered Species Act (ESA), and may occur in the LOI located within Adair County, Oklahoma:

The gray bat (*Myotis grisescens*) is federally listed as endangered in Adair County. Gray bats occupy caves or cave-like structures year-round, and summer colonies have been documented using dams, mines, quarries, concrete box culverts and the undersides of bridges. No caves/structures, which may serve as roosting habitat, were identified within the proposed LOI. Therefore, no alternatives may affect the gray bat.

The Indiana bat (*Myotis sodalis*) is federally listed as endangered in Adair County. Indiana bats hibernate during winter in hibernacula, such as caves or abandoned mines. During the summer, Indiana bats migrate to habitat in wooded areas where they usually roost under loose tree bark on dead or dying trees. While no individuals were identified during the pedestrian survey, preferred summer habitat for this species was identified within the proposed project LOI (**Appendix A, Figure 6; Appendix B, Photo 18**). Therefore, alternatives that would impact trees within the LOI may affect the Indiana bat.

The northern long-eared bat (*Myotis septentrionalis*) is federally listed as endangered in Adair County. Northern long-eared bats hibernate during winter in hibernacula, such as caves or abandoned mines. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both living and

dead trees, and have been found rarely roosting in structures, like barns and sheds. While no individuals were identified during the pedestrian survey, preferred summer habitat for the species was identified within the proposed project LOI (**Appendix A, Figure 6; Appendix B, Photo 18**). Therefore, alternatives that would impact trees within the LOI may affect the northern long-eared bat.

The Ozark big-eared bat (*Corynorhinus townsendii ingens*) is federally listed as endangered in Adair County. Ozark big-eared bats use limestone and sandstone caves surrounded by oak-hickory hardwood forest. No caves which may serve as roosting habitat were identified within the proposed LOI. Therefore, no alternatives may affect the Ozark big-eared bat.

The tricolored bat (*Perimyotis subflavus*) is species proposed for federal listing as endangered in Adair County. Tricolored bats roost in deciduous hardwood forests, pine trees, eastern red cedar (*Juniperus virginiana*), Spanish moss (*Tillandsia usneoides*), and human structures such as barns, beneath porch roofs, bridges, and concrete bunkers during the spring, summer, and fall. They prefer mature deciduous hardwood forests which provide more structural diversity for roosting sites. Winter hibernacula in the southern US frequently include road-associated culverts and other human structures; caves and tree cavities may also be used. While no individuals were identified during the pedestrian survey, preferred summer habitat for this species was identified within the proposed project LOI (**Appendix A, Figure 6; Appendix B, Photo 18**). Therefore, alternatives that would impact trees within the LOI may affect the tricolored bat.

The piping plover (*Charadrius melodus*) is federally listed as threatened in Adair County. In the interior U.S., piping plovers nest on the unvegetated shorelines of alkaline lakes, reservoirs, or river sandbars. No shorelines/sandbars, which may serve as nesting habitat, were identified within the proposed LOI. Therefore, no alternatives may affect the piping plover.

The rufa red knot (*Calidris canutus rufa*) is federally listed as threatened in Adair County. In the interior U.S., rufa red knots use saline lakes, and possibly large wetlands and riverine sandbars as stopover habitat. No potential stopover habitats were identified within the proposed LOI. Therefore, no alternatives may affect the rufa red knot.

The alligator snapping turtle (*Macrochelys temminckii*) is a species proposed for federal listing as threatened in Adair County. Alligator snapping turtles are bottom-dwellers, which generally occupy the deeper waters of large rivers and major tributaries, but are also found in fresh waterbodies with high canopy cover and aquatic structures (tree root masses, stumps, submerged trees, etc.). No freshwater areas, which may serve as habitat for alligator snapping turtles, were identified within the proposed LOI. Therefore, no alternatives may affect the alligator snapping turtle.

The monarch butterfly (*Danaus plexippus*) is a species proposed for federal listing as threatened in Adair County. Monarch butterflies undergo long-distance migrations throughout North America and lay their eggs on obligate milkweed host plants in a variety of forested and grassland habitats. While no individuals were identified during the pedestrian survey, grassland and forested habitats that is not regularly mowed or maintained which may serve

as habitat for the monarch butterfly was identified within the proposed LOI (**Appendix A, Figure 6; Appendix B, Photo 16 & 18**). Therefore, alternatives that would impact these habitats within the LOI may affect the monarch butterfly.

State Listed Species

According to the Oklahoma Department of Wildlife Conservation (ODWC) list of State Threatened and Endangered Species, the following state listed threatened or endangered species may occur within Adair County, Oklahoma:

The blackside darter (*Percina maculata*) is state listed as threatened in Oklahoma. Blackside darters have been found in the Mountain Fork, Poteau, Kiamichi, and Little River watersheds in Oklahoma and their associated tributaries and records exist from the Sallisaw and Lee Creek watersheds. This species most likely prefers streams with high water quality and substrates containing a mix of gravel and larger cobble. This species has not been recorded within the watershed of the proposed project site and no high quality streams were identified within the LOI. Therefore, there is no preferred habitat for the species within the LOI and impacts to the species are not expected.

The longnose darter (*Percina nasuta*) is state listed as endangered in Oklahoma. Longnose darters have been found in Lee Creek and Little Lee Creek, as well as the Poteau River and its major tributaries. This species most likely prefers streams with high water quality and substrates containing a mix of gravel and larger cobble. This species has not been recorded within the watershed of the proposed project site and no high quality streams were identified within the LOI. Therefore, there is no preferred habitat for the species within the LOI and impacts to the species are not expected.

Migratory Birds and Bald and Golden Eagle Protection

The Migratory Bird Treaty Act (MBTA) of 1918 prohibits the “take” (e.g., pursue, hunt, shoot, wound, kill, trap, capture, or collect) or possession of migratory birds, as well as the parts, nest, or eggs of migratory birds. According to the U.S. Department of the Interior Director’s Order No. 225, “incidental take”, which includes the take or kill of migratory birds that results from, but is not the purpose of an activity, is included as “take” under the MBTA.

The following migratory birds were observed during the site visit: brown-headed cowbird (*Molothrus ater*), Carolina wren (*Thryothorus ludovicianus*), eastern phoebe (*Sayornis phoebe*), great blue heron (*Ardea herodias*), indigo bunting (*Passerina cyanea*), Louisiana waterthrush (*Parkesia motacilla*), mourning dove (*Zenaida macroura*), northern cardinal (*Cardinalis cardinalis*), northern parula (*Setophaga americana*), painted bunting (*Passerina ciris*), red-headed woodpecker (*Melanerpes erythrocephalus*), red-winged blackbird (*Agelaius phoeniceus*), black-and-white warbler (*Mniotilta varia*), red-shouldered hawk (*Buteo lineatus*), and yellow-billed cuckoo (*Coccyzus americanus*).

No migratory bird nests were observed during the survey; however, migratory birds are likely to nest within the LOI or the immediate vicinity. Thus, the project may impact migratory birds. Two common avoidance practices to reduce the potential for the incidental take of migratory birds are (1) clearing or grading of the site during the non-breeding season, or (2) conducting migratory bird nest surveys shortly before project construction.

Coordination with the USFWS would be required by the Bald and Golden Eagle Protection Act of 1940, if proposed project activities would “take” or disturb a protected eagle or their nest. It is generally not considered disturbance if construction activities occur greater than 660 feet from a protected nest. Bald and golden eagles or their nests were not observed during the pedestrian survey and are unlikely to use the proposed LOI due to the absence of large trees and agricultural land use.

Amphibian and Reptile Community

The following amphibians and reptiles were observed during the site visit: common box turtle (*Terrapene carolina*), common snapping turtle (*Chelydra serpentina*), southern leopard frog (*Lithobates sphenoccephala*), and diamondback watersnake (*Nerodia rhombifer*). According to the ODWC, other common amphibians and reptiles found in this area of Oklahoma include: American bullfrog (*Lithobates catesbeianus*), American toad (*Anaxyrus americanus*), Blanchard’s cricket frog (*Acris blanchardi*), Cajun chorus frog (*Pseudacris fouquettei*), cave salamander (*Eurycea lucifuga*), dark-sided salamander (*Eurycea longicauda*), eastern narrow-mouthed toad (*Gastrophryne carolinensis*), eastern newt (*Notophthalmus viridescens*), gray tree frog (*Hyla versicolor*), green frog (*Lithobates clamitans*), pickerel frog (*Lithobates palustris*), small-mouthed salamander (*Ambystoma texanum*), spotted salamander (*Ambystoma maculatum*), spring peeper (*Pseudacris crucifer*), western slimy salamander (*Plethodon albagula*), common five-lined skink (*Plestiodon fasciatus*), Dekay’s brownsnake (*Storeria dekayi*), eastern copperhead (*Agkistrodon contortrix*), eastern hog-nosed snake (*Heterodon platirhinos*), eastern racer (*Coluber constrictor*), little brown skink (*Scincella lateralis*), ornate box turtle (*Terrapene ornate*), plain-bellied watersnake (*Nerodia erythrogaster*), prairie kingsnake (*Lampropeltis calligaster*), prairie lizard (*Sceloporus consobrinus*), red-eared slider (*Trachemys scripta elegans*), ring-necked snake (*Diadophis punctatus*), river cooter (*Pseudemys concinna*), rough greensnake (*Opheodrys aestivus*), six-lined racerunner (*Aspidoscelis sexlineatus*), speckled kingsnake (*Lampropeltis holbrooki*), timber rattlesnake (*Crotalus horridus*), western milksnake (*Lampropeltis gentilis*), western ribbonsnake (*Thamnophis proximus*) and western worms snake (*Carphophis vermis*).

Terrestrial Vertebrate Community

The following terrestrial vertebrates were observed during the site visit: fox squirrel (*Sciurus niger*) and whitetail deer (*Odocoileus virginianus*). According to the ODWC, other common terrestrial vertebrates found in this area of Oklahoma include: American black bear (*Ursus americanus*), American beaver (*Castor canadensis*), bobcat (*Lynx rufus*), coyote (*Canis latrans*), eastern chipmunk (*Tamias striatus*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), eastern mole (*Scalopus aquaticus*), eastern woodrat (*Neotoma floridana*), gray fox (*Urocyon cinereoargenteus*), nine-banded armadillo (*Dasypus novemcinctus*), racoon (*Procyon lotor*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and woodchuck (*Marmota monax*).

Fish Habitat

The following fish were observed during the site visit: bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), southern redbelly dace (*Chrosomus erythrogaster*), and western mosquitofish (*Gambusia affinis*). According to the ODWC, other common fish found within this area of Oklahoma include: black crappie (*Pomoxis nigromaculatus*), cardinal shiner (*Luxilus cardinalis*), channel catfish (*Ictalurus punctatus*), flathead catfish

(*Pylodictis olivaris*), golden shiner (*Notemigonus crysoleucas*), green sunfish (*Lepomis cyanellus*), largemouth bass (*Micropterus salmoides*), longear sunfish (*Lepomis megalotis*), orangethroat darter (*Etheostoma spectabile*), redbot chub (*Nocomis biguttatus*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), white bass (*Morone chrysops*), and white crappie (*Pomoxis annularis*). The proposed LOI is inland and not located in or adjacent to areas designated as Essential Fish Habitat.

Invasive Species

Vegetative invasive species observed during the site visit include bermudagrass, Japanese brome, Johnsongrass, and perennial ryegrass throughout uplands in the LOI, while Japanese stiltgrass was identified within riparian areas. Because these species are ubiquitous within the LOI, if excavated fill from the LOI is not removed, but is used on-site for project related earthwork, construction of the proposed project would not contribute to the spread of vegetative invasive species within or outside the LOI.

No evidence of invasive animals, fungi, or microbial organisms were observed during the site visit, and no areas at risk for future invasions were identified.

Riparian Areas

Riparian areas adjacent to Streams 1-10 and the Scraper Hollow Site 2 Reservoir are located within the project LOI. These areas contribute to floodplain function, streambank stability and integrity, nutrient cycling, pollutant filtering, sediment retention, and biological diversity of these habitats. NRCS policy requires project alternatives to maintain or improve water quality benefits of riparian areas as a result of project construction. If preferred alternatives do not maintain or improve water quality benefits, the NRCS must discontinue assistance on those portions of the plan impacting riparian areas.

Natural Areas

No recorded designations of Federal, non-federal, or private natural areas were observed within the limits of the proposed LOI.

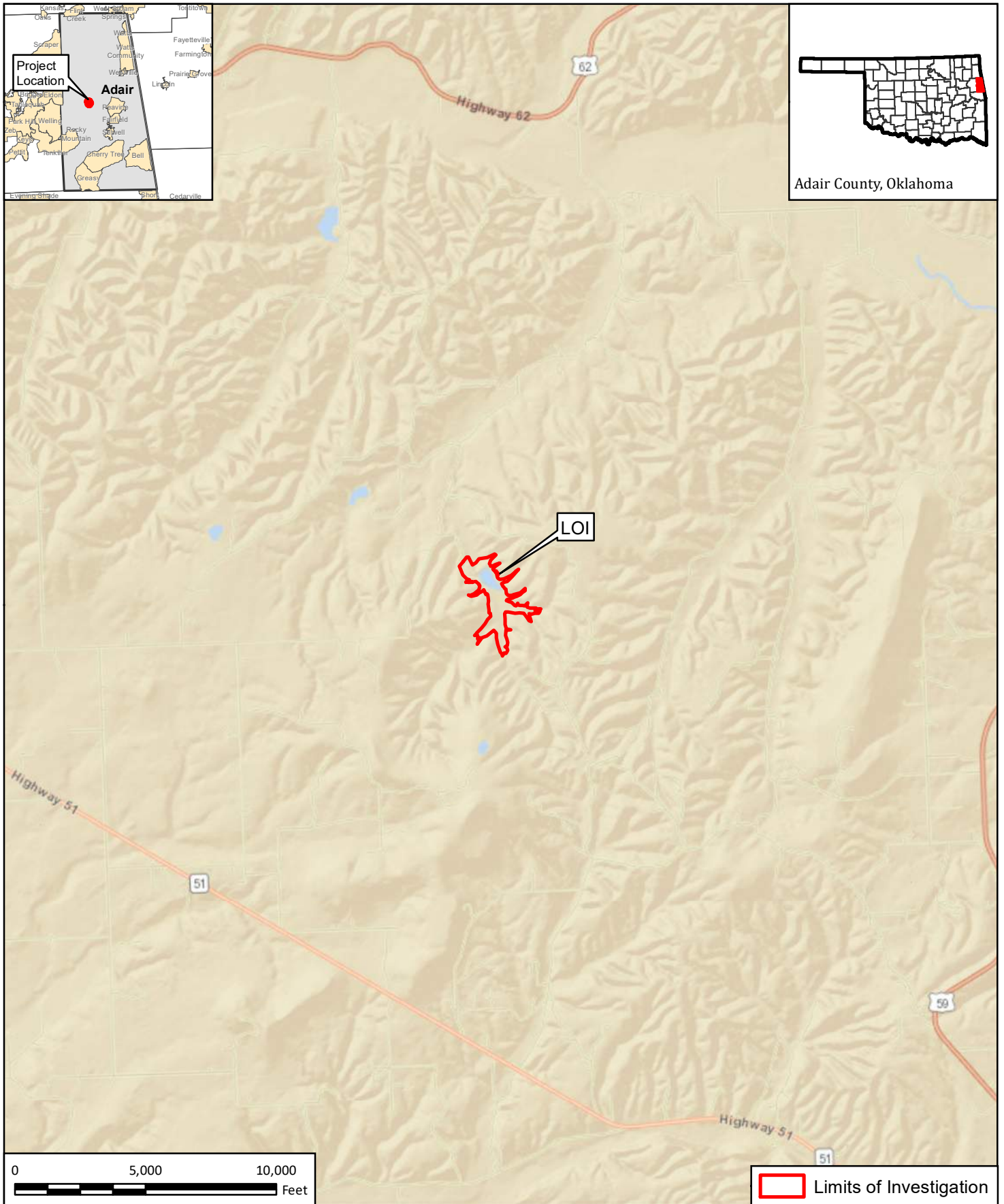
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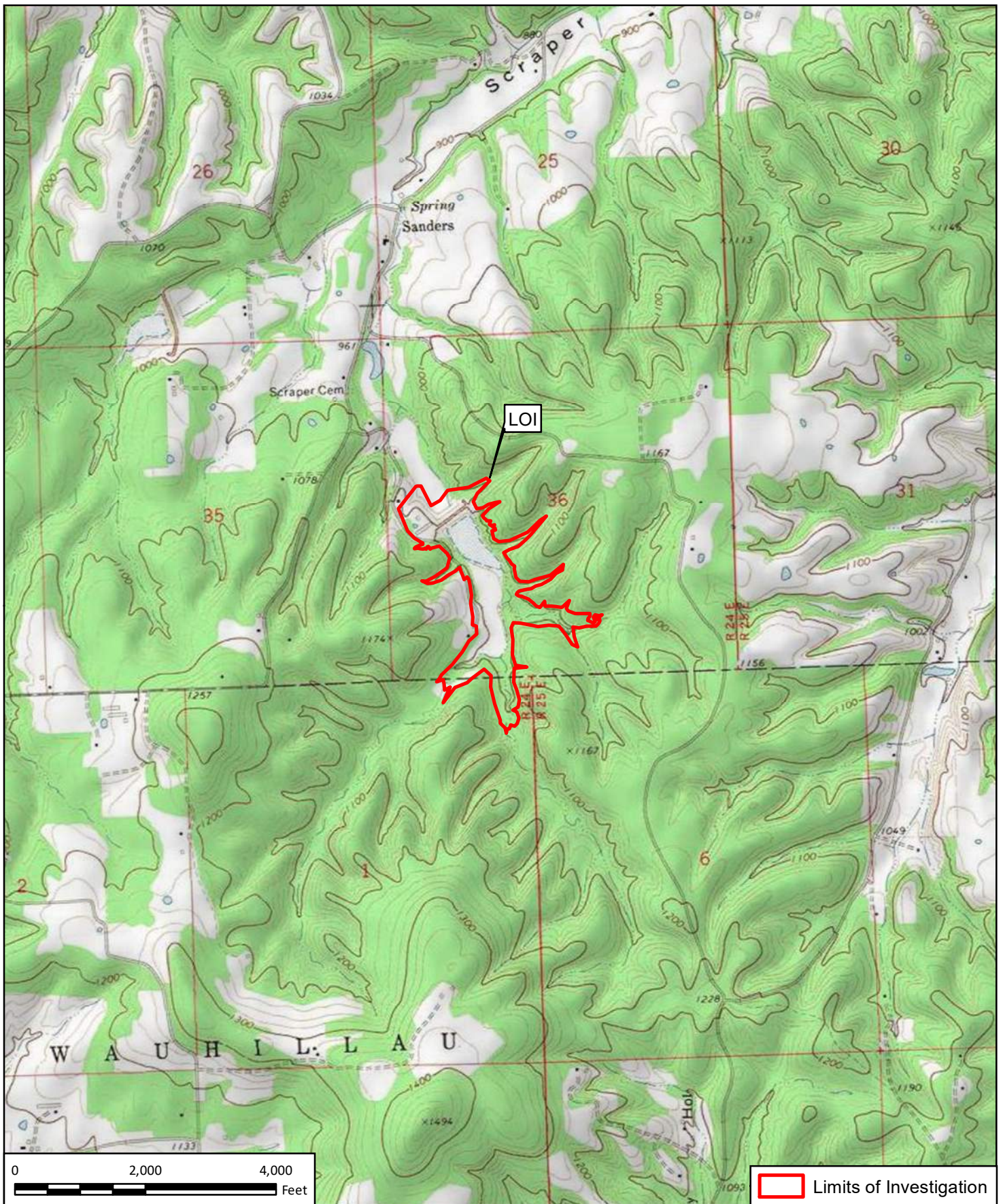
Woods, A.J., Omernik, J.M., Butler, D.R., Ford, J.G., Henley, J.E., Hoagland, B.W., Arndt, D.S., and Moran, B.C., 2005, Ecoregions of Oklahoma (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,250,000).

Appendix A

Figures



FREESE AND NICHOLS, INC. 801 Cherry Street, Suite 2800 Fort Worth, TX 76102 Phone - (817) 735 - 7300		AD ASTRA COLLABORATIVE, LLC Scraper Hollow 2 SWP-EE Overview Map		FN JOB NO AAC23131	1 FIGURE
				FILE NAME Fig1_Overview.mxd	
				DATE 7/7/2023	
				DESIGNED MK	
				DRAFTED MK	



 FREASE AND NICHOLS, INC. 801 Cherry Street, Suite 2800 Fort Worth, TX 76102 Phone - (817) 735 - 7300		AD ASTRA COLLABORATIVE, LLC Scraper Hollow 2 SWP-EE USGS Topographic Map Quad Name: Christie	FN JOB NO AAC23131 FILE NAME Fig2_Topo.mxd DATE 7/7/2023 DESIGNED MK DRAFTED MK	2 FIGURE

NRCS Mapunit Symbol and Name

 BdD - Clarksville very gravelly silt loam, 1 to 8 percent slopes

 BoE - Clarksville stony silt loam, 5 to 15 percent slopes

 BsF - Clarksville very gravelly silt loam, 20 to 50 percent slopes, stony

 DKA - Tonti gravelly silt loam, 0 to 3 percent slopes

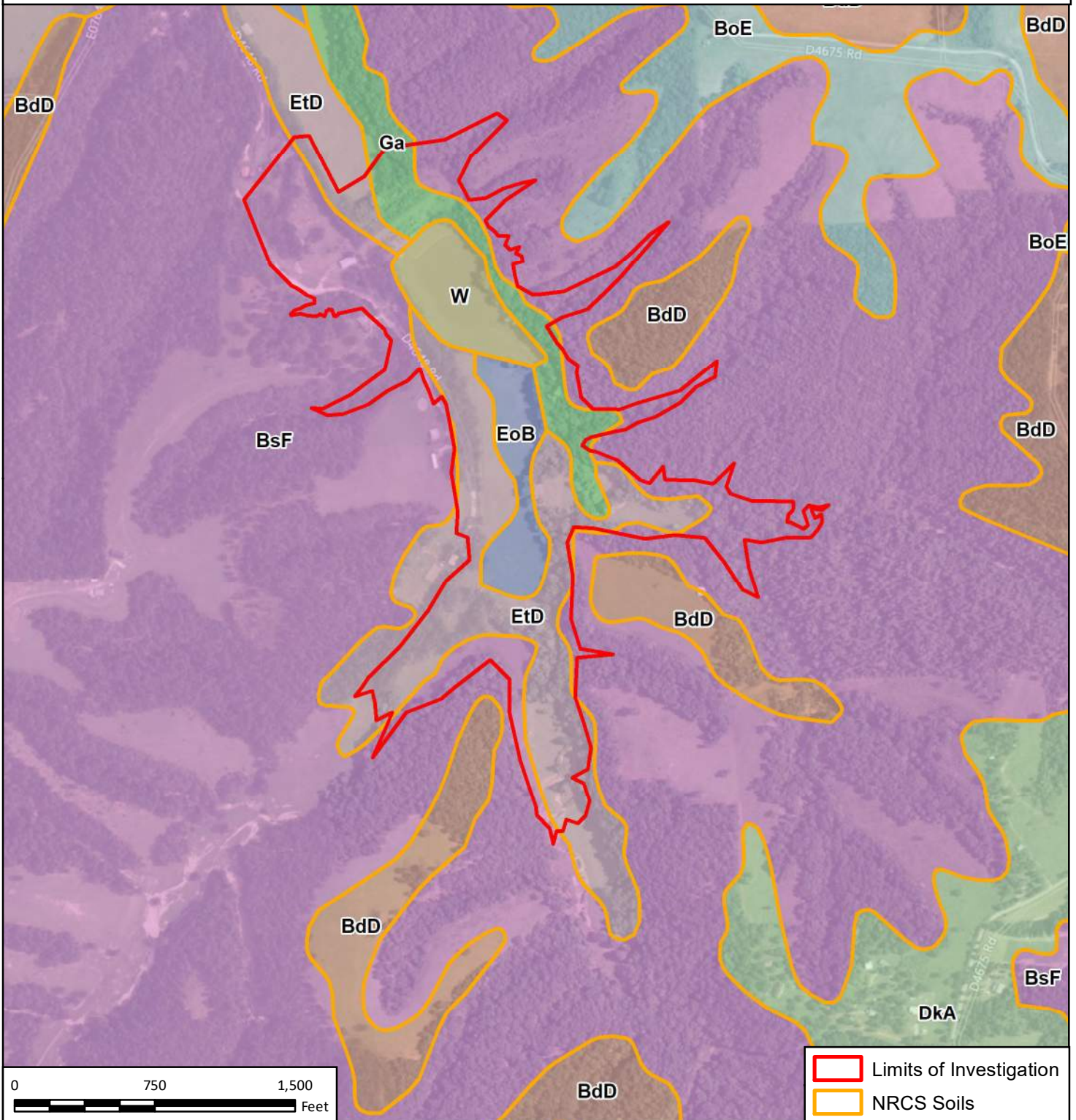
 EoB - Waben gravelly silt loam, 1 to 3 percent slopes

 EtD - Waben gravelly silt loam, 3 to 8 percent slopes

 Ga - Elsah gravelly silt loam, 0 to 1 percent slopes, frequently flooded

 W - Water

No Hydric or Partially Hydric Soils



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 Fort Worth, TX 76102
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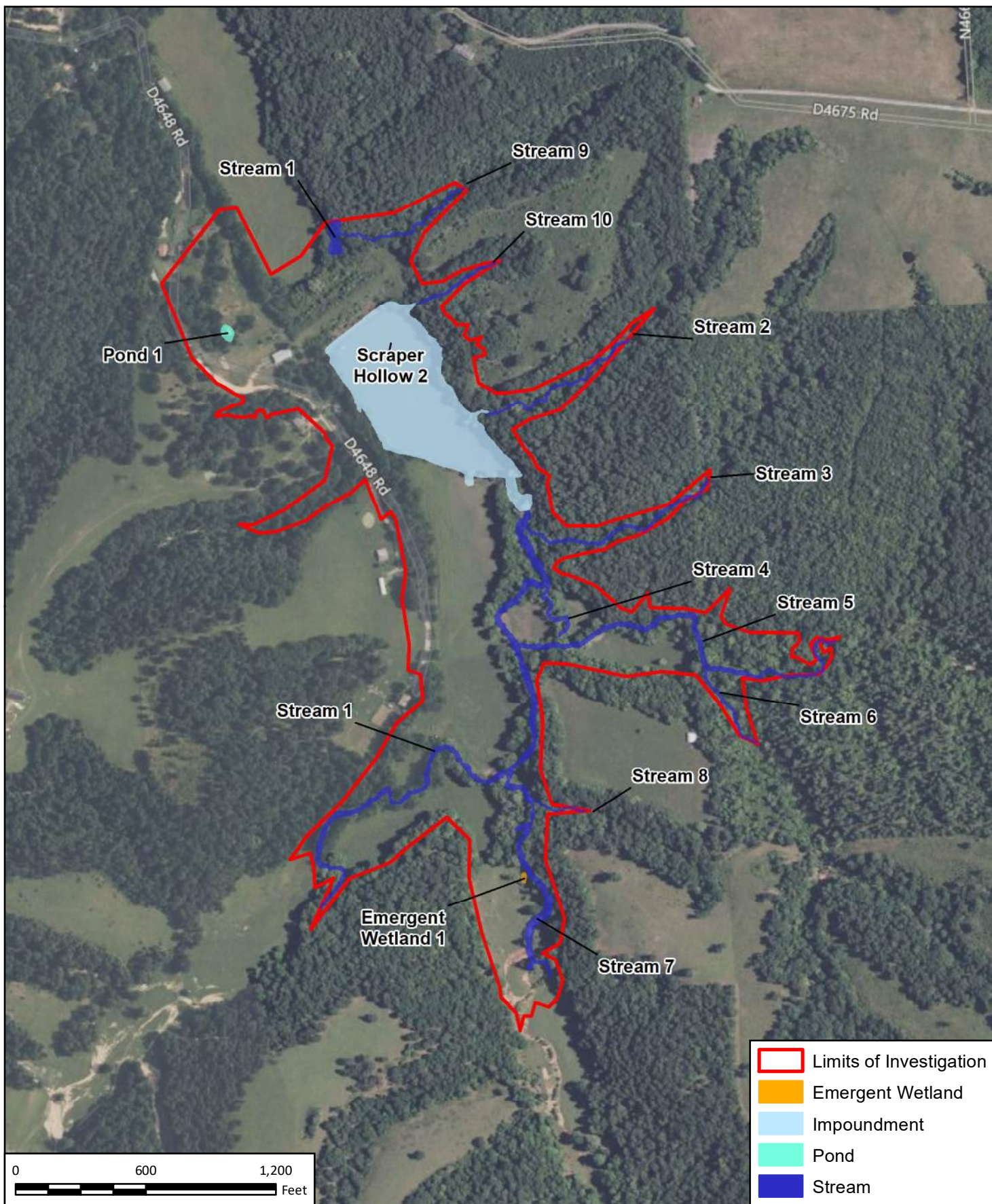


AD ASTRA COLLABORATIVE, LLC
Scraper Hollow 2 SWP-EE
NRCS Soils Map

FN JOB NO	AAC23131
FILE NAME	Fig3_Soils.mxd
DATE	8/15/2023
DESIGNED	MK
DRAFTED	MK

3

FIGURE



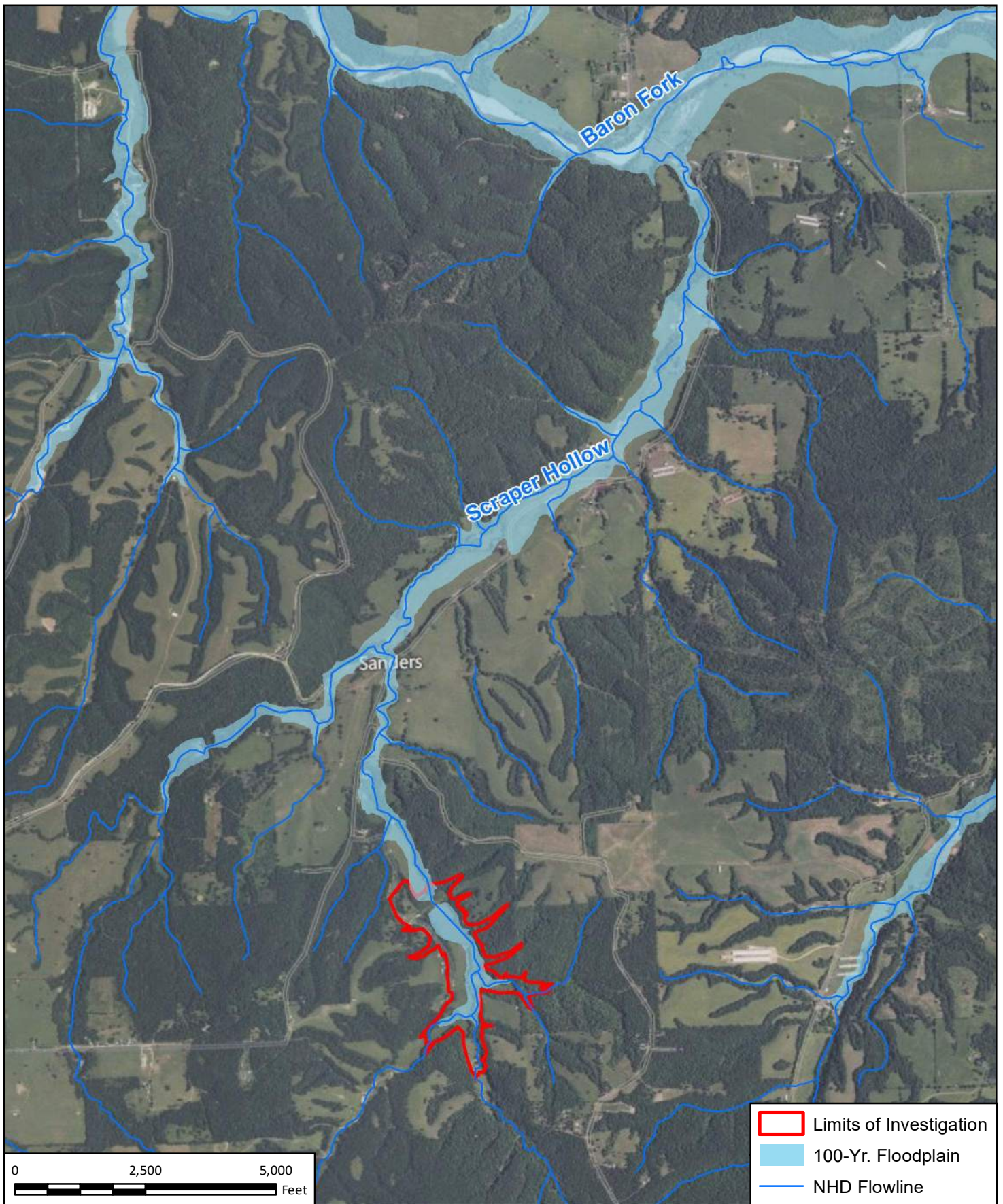
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AD ASTRA COLLABORATIVE, LLC
Scraper Hollow 2 SWP-EE
Waterbodies Map

FN JOB NO	AAC23131
FILE NAME	Fig4_Waterbodies.mxd
DATE	8/15/2023
DESIGNED	MK
DRAFTED	MK

4
FIGURE



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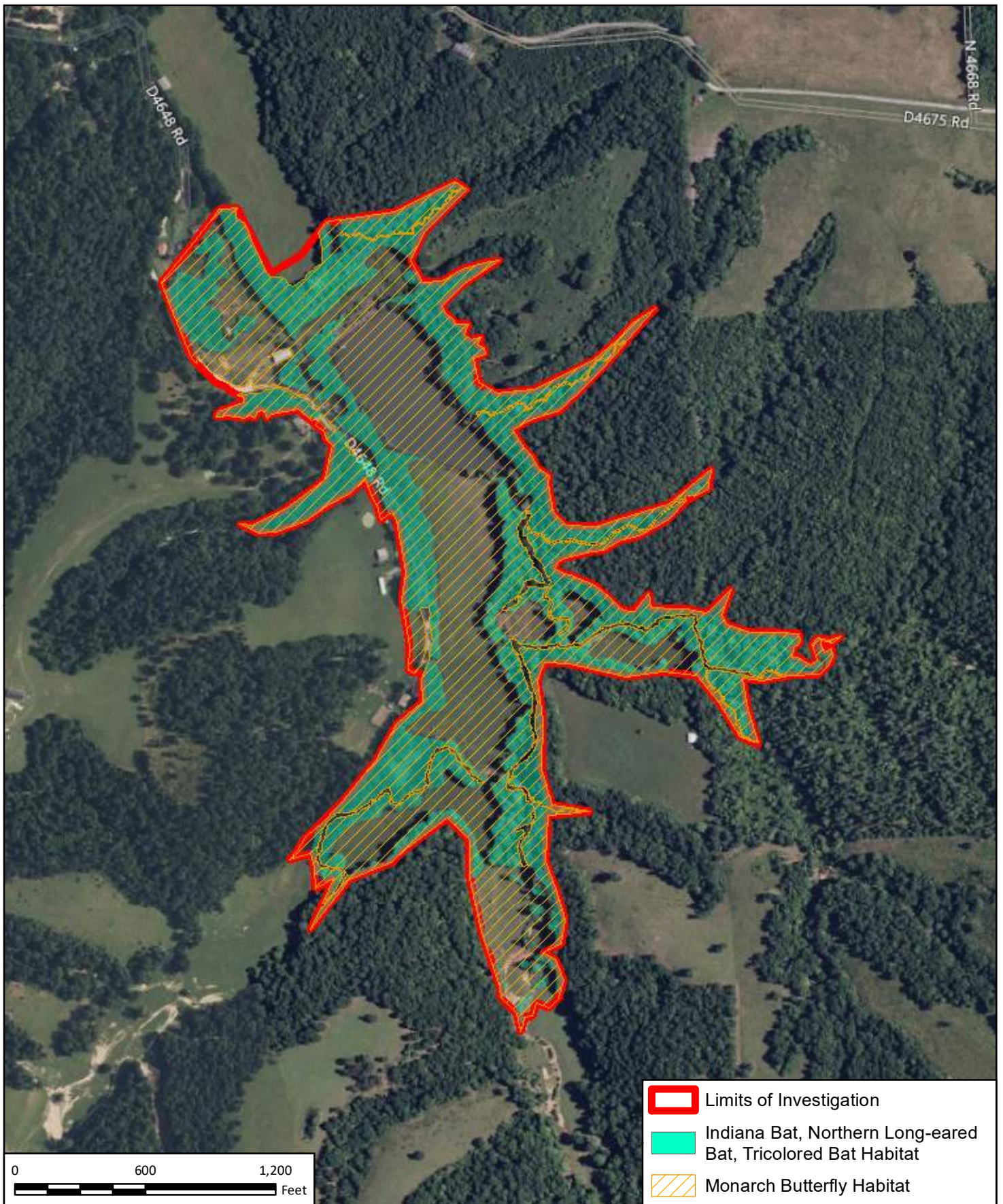
Scraper Hollow 2 SWP-EE

FEMA 100-Yr. Floodplain Map

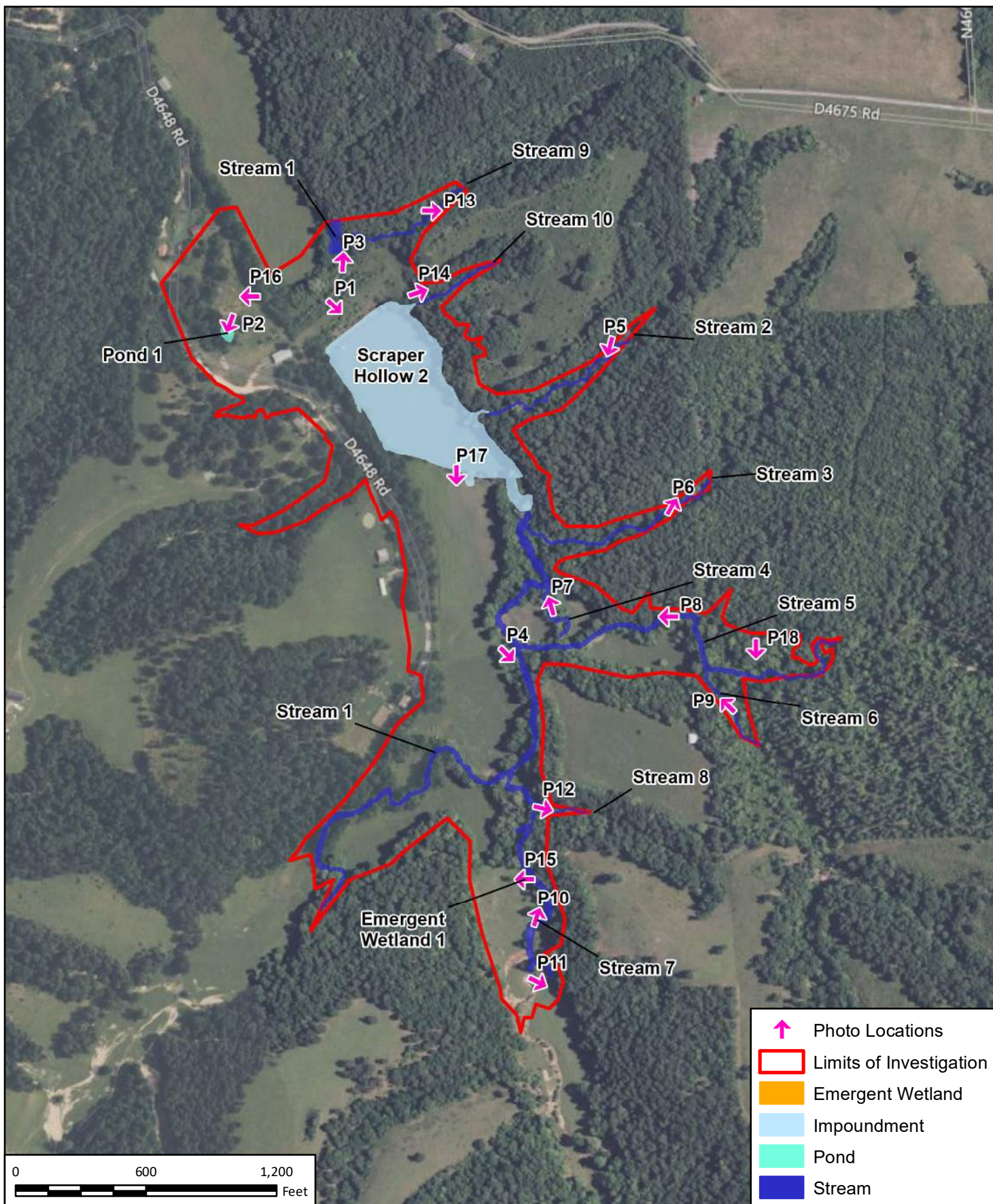
FN JOB NO	AAC23131
FILE NAME	Fig5_Flood_v2.mxd
DATE	9/12/2023
DESIGNED	MK
DRAFTED	MK

5

FIGURE



 FREESE AND NICHOLS, INC. 801 Cherry Street, Suite 2800 Fort Worth, TX 76102 Phone - (817) 735 - 7300		AD ASTRA COLLABORATIVE, LLC Scraper Hollow 2 SWP-EE	FN JOB NO AAC23131 FILE NAME Fig6_Habitat.mxd	6 FIGURE
		Endangered Species Habitat	DATE 1/6/2025 DESIGNED MK DRAFTED MK	



FREASE AND NICHOLS, INC. 801 Cherry Street, Suite 2800 Fort Worth, TX 76102 Phone - (817) 735 - 7300		AD ASTRA COLLABORATIVE, LLC		FN JOB NO	AAC23131	7 FIGURE
		Scraper Hollow 2 SWP-EE		FILE NAME	Fig7_Photo.mxd	
		Photo Locations Map		DATE	9/5/2023	
				DESIGNED	MK	
				DRAFTED	MK	

Appendix B
Site Photographs



Photo 1. View looking southeast towards Scrapper Hollow 2 Reservoir from the existing dam crest.



Photo 2. View looking southwest toward Pond 1, an off-channel stock pond in the LOI.



Photo 3. View looking north (downstream) along Stream 1 and the principal spillway outfall north of the Scraper Hollow 2 FRS.

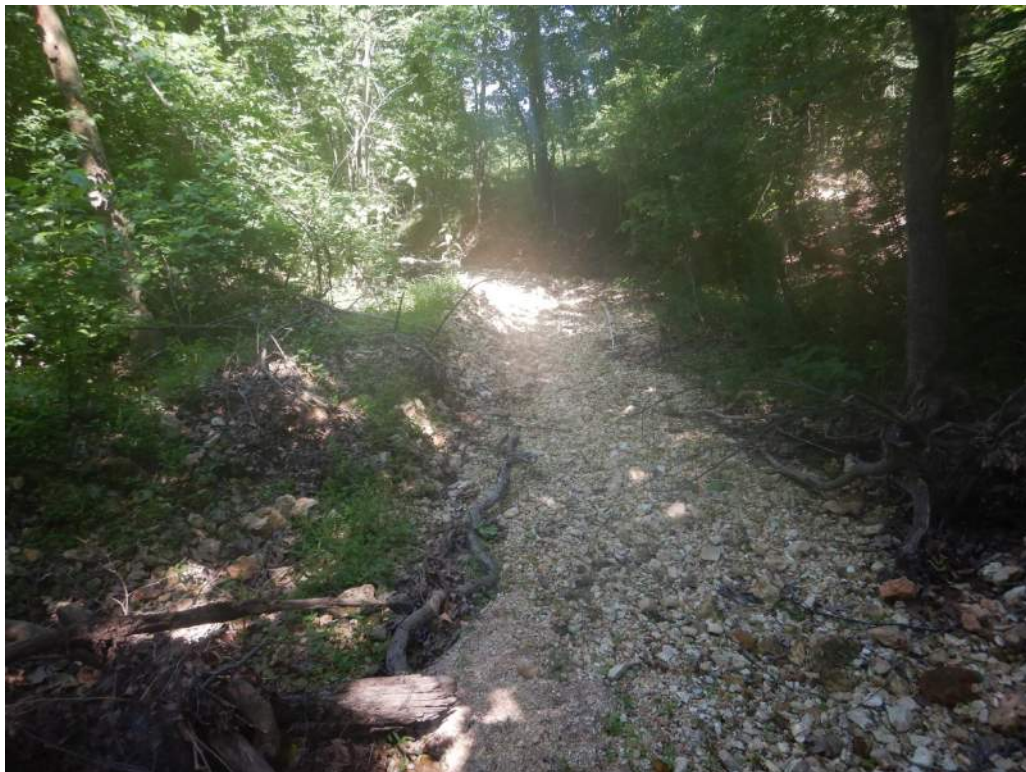


Photo 4. View looking south (upstream) along Stream 1 south of its impoundment by the existing Scraper Hollow 2 Reservoir.



Photo 5. View looking west (downstream) along Stream 2, an intermittent stream in the LOI.



Photo 6. View looking east (upstream) along Stream 3, an intermittent stream in the LOI.



Photo 7. View looking north (downstream) along Stream 4, an ephemeral stream in the LOI.



Photo 8. View looking west (downstream) along Stream 5, an ephemeral stream in the LOI.



Photo 9. View looking northwest (downstream) along Stream 6, an ephemeral stream in the LOI.



Photo 10. View looking north (downstream) along Stream 7, an intermittent stream in the LOI.



Photo 11. View looking south along the historic path of Stream 7, which has been filled and no longer exhibits bed and banks or an OHWM.



Photo 12. View looking east (upstream) along Stream 8, an ephemeral stream in the LOI.



Photo 13. View looking east (upstream) along Stream 9, an intermittent stream in the LOI.



Photo 14. View looking east (upstream) towards Stream 10, an ephemeral stream in the LOI.



Photo 15. View looking west within Emergent Wetland 1 at American bur-reed; located west of Stream 7.



Photo 16. View looking west at an old field overgrown with shrubs west of the Scraper Hollow 2 FRS dam.



Photo 17. View looking south at a hayfield south of the Scraper Hollow 2 Reservoir, typical of the pastureland surrounding the reservoir.



Photo 18. View looking south at a forested area southeast of the Scraper Hollow 2 Reservoir, typical of the wooded hillslopes surrounding the reservoir

Appendix C
Illinois River Subbasin
Total Maximum Daily Load Records

Category 4 - Impaired or threatened for one or more designated uses but does not require the development of a TMDL.

4A - TMDL has been completed.

Waterbodies are listed in this subcategory once all TMDL(s) have been developed and approved by EPA that, when implemented, are expected to result in full attainment of the standard. Where more than one pollutant is associated with the impairment of a waterbody, the waterbody will remain in Category 5 until all TMDLs for each pollutant have been completed and approved by EPA. Monitoring shall be scheduled for these waterbodies to verify that the water quality standard is met when the water quality management actions needed to achieve all TMDLs are implemented.

4B - Other pollution control requirements are reasonably expected to result in the attainment of the water quality standard in the near future.

Consistent with the regulation under 130.7(b)(i),(ii), and (iii), waterbodies are listed in this subcategory when other pollution control requirements required by local, state, or federal authority are stringent enough to implement any water quality standard (WQS) applicable to such waters. These requirements must be specifically applicable to the particular water quality problem. Monitoring shall be scheduled for these waterbodies to verify that the water quality standard is attained as expected.

4C - Impairment is not caused by a pollutant.

Waterbodies are listed in this subcategory if the impairment is not caused by a pollutant. Scheduling of these waterbodies for monitoring to confirm that there continues to be no pollutant-caused impairment and to support water quality management actions necessary to address the cause(s) of the impairment, shall be considered.

Category 5 - The water quality standard is not attained. The waterbody is impaired or threatened for one or more designated uses by a pollutant(s), and requires a TMDL.

This category constitutes the Section 303(d) list of waters impaired or threatened by a pollutant(s) for which one or more TMDL(s) are needed. A waterbody is listed in this category if it is determined, in accordance with the CPP, that a pollutant has caused, is suspected of causing, or is projected to cause an impairment. Where more than one pollutant is associated with the impairment of a single waterbody, the waterbody will remain in Category 5 until TMDLs for all pollutants have been completed and approved by EPA. For waterbodies listed in this category, monitoring schedules shall be provided that describe when data and information will be collected to support TMDL establishment and to determine if the standard is attained. While the waterbody is being monitored for a specific pollutant to develop a TMDL, the watershed shall also be monitored to assess the attainment status of other uses. A schedule for the establishment of TMDLs for all waters in Category 5 shall be submitted. This schedule shall reflect the priority ranking of the listed waters. Category 5 waterbodies are further divided into the following subcategories:

5A - TMDL is underway or will be scheduled.

5B - A review of the Water Quality Standards will be conducted before a TMDL is scheduled.

5C - Additional data and information will be collected before a TMDL or review of the Water Quality Standards is scheduled.

The CPP will provide a companion to the 2022 Integrated Report. It is anticipated that this will be a living document and will be modified, as appropriate, to accompany subsequent Integrated Reports.

Oklahoma's comprehensive waterbody category list is available in Appendix B. Impaired waterbodies (Category 4 & 5) can be viewed exclusively in Appendix C.

**2022 Oklahoma 303 (d) & 305 (b) Integrated Report –
Appendix B, 2022 Comprehensive Waterbody Assessment, Pg. 29**

Waterbody ID	Waterbody Name	Size (Lake Acres or Stream Miles)	Type	Category	Aesthetic	Agriculture	Cool Water Aquatic Comm	Habitat Limited Aquatic Comm	Trout Fishery	Warm Water Aquatic Comm	Fish Consumption	Navigation	Primary Body Contact Rec	Secondary Body Contact Rec	Public and Private Water Supply	Emergency Water Supply	High Quality Water	Outstanding Resource Water	Sensitive Water Supply
OK121700040010_00	Caney Creek	20.92	R	5a	F	F	N				F		N		F				
OK121700040020_00	Negro Jake Hollow Creek	5.74	R	3	X	X	X				X		X						
OK121700040030_00	Tailholt Creek	3.83	R	3	X	X				X	X		X						
OK121700040040_00	Bidding Creek	5.77	R	3	X	I				I	X		I						
OK121700040050_00	Spade Creek	5.23	R	3	X	X				X	X		X						
OK121700040060_00	Spade Branch	3.83	R	3	X	X				X	X		X						
OK121700040070_00	Smith Hollow Creek	4.22	R	2	X	X				F	X		X						
OK121700040080_00	Goat Mountain Creek	3.61	R	3	X	X				X	X		X						
OK121700040090_00	Mulberry Hollow Creek	3.55	R	3	X	X				X	X		X						
OK121700050005_00	Illinois River, Baron Fork	1.08	R	3	I	I	X				X		X					*	
OK121700050010_00	Illinois River, Baron Fork	25.15	R	5a	N	F	I				F		F		F			*	
OK121700050030_00	Welling Creek	3.53	R	3	X	X				X	X		X						
OK121700050040_00	Mining Camp Hollow Creek, North	2.91	R	3	X		X				X		X						
OK121700050050_00	Willow Branch Creek	2.94	R	3	X	X				X	X		X						
OK121700050052_00	Field Hollow Creek	3.01	R	3	X	X				X	X		X						
OK121700050060_00	Briggs Hollow Creek, South	5.39	R	3	X	X				X	X		X						
OK121700050070_00	Walltrip Branch	6.90	R	5c	X	X				N	X		X						
OK121700050080_00	Proctor Mountain Creek	4.07	R	3	X	I				I	X		I						
OK121700050090_00	Tyner Creek	15.92	R	5a	F	F	N				X		F		I			*	
OK121700050100_00	South Proctor Creek, West	4.11	R	3	X	X				X	X		X						
OK121700050110_00	Dennison Hollow Creek	2.64	R	3	X	X	X				X		X		X			*	
OK121700050111_00	South Proctor Creek, East	4.61	R	3	X	X				X	X		X						
OK121700050120_00	Peachwater Creek	10.95	R	2	F	F	F				X		F		I			*	
OK121700050130_00	Scraper Hollow Creek	2.78	R	3	I	I	X				X		X		X			*	
OK121700050140_00	England Hollow Creek	6.08	R	3	X	X	X				X		X		X			*	
OK121700050150_00	Green Creek	7.82	R	3	X	I	I				X		I		X			*	
OK121700050160_00	Westville Lake	1	L	3	X	X				X	X		X						
OK121700050170_00	Illinois River, Baron Fork	3.27	R	3	I	X	X				X		X					*	
OK121700050170_10	Illinois River, Baron Fork	7.78	R	2	F	I	I				X		F		I			*	
OK121700050180_00	Shell Branch	7.77	R	2	I	I	F				X		X		X			*	
OK121700050190_00	Peavine Creek	7.19	R	2	F	F	F				X		F						

F = Fully Supporting I = Insufficient Information X = Not Assessed N = Not Supporting

Appendix B - Page 29 of 137

**2022 Oklahoma 303 (d) & 305 (b) Integrated Report –
Appendix C, 2022 Oklahoma 303(d) List of Impaired Waters, Pg. 12**

Waterbody ID	Waterbody Name	New WB	Waterbody Size	Units	WB Category	Cause Category	Impaired Use	Cause of Impairment	New Cause	TMDL Priority	TMDL ID	Unconfirmed Potential Sources
OK121700030010_00	Illinois River		7.68	MILES	5a	5a	PBCR	Enterococcus		1		4, 46, 59, 92, 100, 108, 133, 136, 140, 146
						5a	AES	Phosphorus, Total		1		4, 46, 59, 85, 92, 100, 108, 140
OK121700030020_00	Tahlequah Creek	X	1.84	MILES	5a	5a	PBCR	Enterococcus	X	1		140
						5a	PBCR	Escherichia coli	X	1		140
OK121700030030_00	Stick Ross Creek (Ross Branch)		4.54	MILES	5c	5c	WWAC	Macroinvertebrate Bio		1		140
OK121700030040_00	Tahlequah Creek (Town Branch)		6.21	MILES	5a	5a	PBCR	Escherichia coli		1		46, 92, 108, 133, 136, 140
OK121700030080_00	Illinois River		31.68	MILES	5a	5a	PBCR	Enterococcus		1		46, 59, 85, 92, 100, 108, 136, 140
						5a	AES	Phosphorus, Total		1		4, 46, 59, 108, 133, 136, 140, 146
OK121700030090_00	Pumpkin Hollow Creek		9.27	MILES	5a	5a	WWAC	Oxygen, Dissolved		1		140
OK121700030110_00	Cedar Hollow Creek		3.60	MILES	5c	5c	WWAC	Macroinvertebrate Bio		1		39, 140
						5c	WWAC	Fish Bioassessments	X	1		140
OK121700030280_00	Illinois River		15.65	MILES	5a	5a	PBCR	Enterococcus		1		46, 59, 85, 92, 100, 108, 136, 140
						5a	PBCR	Escherichia coli		1		46, 59, 85, 92, 100, 108, 136, 140
						5a	AES	Phosphorus, Total		1		4, 46, 59, 85, 92, 100, 108, 133, 136, 140, 146
						5a	CWAC	Turbidity		1		46, 59, 85, 108, 140
OK121700030290_00	Flint Creek		1.60	MILES	5a	5a	CWAC	Oxygen, Dissolved		1		4, 46, 59, 92, 108, 133, 136, 140, 146
						5a	AES	Phosphorus, Total		1		4, 46, 59, 92, 108, 133, 136, 140, 146
OK121700030350_00	Illinois River		5.18	MILES	5a	5a	PBCR	Enterococcus		1		4, 46, 59, 140
						5a	PBCR	Escherichia coli		1		4, 46, 59, 140
						5a	AES	Phosphorus, Total		1		4, 34, 46, 59, 85, 92, 100, 108, 133, 136, 140, 146
OK121700040010_00	Caney Creek		20.92	MILES	5a	5c	CWAC	Macroinvertebrate Bio		3		140
						5a	PBCR	Enterococcus		3		46, 59, 85, 92, 100, 108, 136, 140
						5a	PBCR	Escherichia coli		3		46, 59, 85, 92, 100, 108, 136, 140
OK121700050010_00	Illinois River, Baron Fork		25.15	MILES	5a	5a	AES	Phosphorus, Total		3		4, 46, 59, 85, 92, 100, 108, 133, 136, 140, 146

New Waterbody for 2022 New Cause for 2022

Appendix C - Page 12 of 69

Appendix D
USFWS IPaC



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
Phone: (918) 581-7458 Fax: (918) 581-7467



In Reply Refer To:
Project Code: 2023-0080849
Project Name: Scraper Hollow 2 Dam Rehabilitation

01/06/2025 15:04:31 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oklahoma Ecological Services Field Office

9014 East 21st Street

Tulsa, OK 74129-1428

(918) 581-7458

PROJECT SUMMARY

Project Code: 2023-0080849

Project Name: Scraper Hollow 2 Dam Rehabilitation

Project Type: Dam - Maintenance/Modification

Project Description: The NRCS along with local sponsors proposes to rehabilitate the dam of the Scraper Hollow 2 FRS in Adair County, Oklahoma.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@35.9039334,-94.70237732111296,14z>



Counties: Adair County, Oklahoma

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Ozark Big-eared Bat <i>Corynorhinus (=Plecotus) townsendii ingens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

REPTILES

NAME	STATUS
Alligator Snapping Turtle <i>Macrochelys temminckii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat.	Proposed Threatened

NAME

STATUS

Species profile: <https://ecos.fws.gov/ecp/species/9743>

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

-
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
 2. The [Migratory Birds Treaty Act](#) of 1918.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO BALD AND GOLDEN EAGLES WITHIN THE VICINITY OF YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R4SBC
- R5UBF

FRESHWATER POND

- PUBHh
- PUBHx

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1A

FRESHWATER EMERGENT WETLAND

- PEM1C

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Wesley Wiegreffe
Address: 801 Cherry Street
Address Line 2: Suite 2800
City: Fort Worth
State: TX
Zip: 76102
Email: wes.wiegreffe@freese.com
Phone: 8177357514

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Natural Resources Conservation Service



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