



US Army Corps
of Engineers®
Little Rock District

PUBLIC NOTICE

CORPS OF ENGINEERS

Application Number: MVK 2022-00416

Date: July 20, 2022

Comments Due: August 15, 2022

TO WHOM IT MAY CONCERN: **Comments are invited on the work described below. Please see the Public Involvement section for details on submitting comments.**

Point of Contact. If additional information is desired, please contact the regulator, Johnny McLean, telephone number: (501) 340-1382, mailing address: Little Rock District Corps of Engineers, Regulatory Division, PO Box 867, Little Rock, Arkansas 72203-0867, email address: Johnny.L.McLean@usace.army.mil

Project Information. Pursuant to Section 404 of the Clean Water Act (33 U.S. Code 1344), notice is hereby given that

**Arkansas Department of Transportation
PO Box 2261
Little Rock, Arkansas 72203-2261**

has requested authorization for work, including the placement of dredged and fill material, in waters of the United States associated with constructing a new highway bypass that will traverse the South, East and West sides of the City of Arkadelphia. The proposed project is located in several streams and adjacent wetlands located, in sections 17, 19, 20, 21 and 30, T. 7 S., R. 19 W., and sections 24 and 25, T. 7 S., R. 20 W., Clark County, Arkansas.

The project purpose is to improve safety, mobility, and connectivity for the City of Arkadelphia.

The project will provide an alternate route to reduce the number of logging and other large trucks traveling through the Central Business District, a safer east-west travel route for both local and through traffic, and Interstate 30/State Highway 51 interchange modifications to reduce traffic congestion and increase emergency vehicle access to and from the Baptist Hospital.

The proposed project is approximately 4.1 miles in length, will consist of five lanes and will be constructed on new location. It will also include the modification of the existing Interstate 30/State Highway 51 interchange in the City of Arkadelphia. The project will be constructed in two phases. The first phase will include the construction of three lanes, two travel lanes and a middle turn lane, and construction will begin in 2022. The second phase will add two more travel lanes when funding becomes available. This permit review will evaluate the impacts for the five-lane project; however, mitigation for the impacts to wetlands and streams will be concurrent with impacts. ArDOT proposes to provide compensatory mitigation for the three-lane project as it is being constructed and compensatory mitigation for the additional two lanes will be provided as they are constructed.

The project will require the acquisition of 112 acres of new right-of-way and clear a total of 35 acres. Approximately 15.3 acres of wetlands and 5,191 linear feet of streams will be adversely impacted. The majority of the streams are unnamed ephemeral and intermittent tributaries that are moderately to fully functional. The wetlands are a mix of forested, scrub-shrub and emergent areas, along with four shallow water ponds. The majority of the wetlands are slightly impaired to fully functional. All of the waters are located in the Upper Ouachita River watershed. The three-lane phase will impact 19 streams (13 ephemeral, 5 intermittent, and 1 perennial) and 14.2 acres of wetlands. Stream channel relocation along with the construction of the stream crossing structures, 13 pipe culverts and 6 box culverts, will permanently impact approximately 4,280 linear feet of stream. The 14.2 acres of wetland impacts will consist of 8.8 acres of embankment fill for the new roadway and 5.4 acres of clearing for right-of-way. The project will impact approximately 10 acres of the 100-year floodplain and ArDOT determined that it will not result in a net rise of the floodplain or affect surface water elevations. Two residential properties and 11 businesses will likely require relocation. ArDOT determined that the project may affect the Federally threatened Northern Long-Eared Bat (*Myotis septentrionalis*). The project will require the acquisition of approximately 29 acres of Prime Farmlands. A cultural resource survey and historic structure survey were completed for the project and the State Historic Preservation Officer in April 2021, concurred that no historic properties will be affected by the Selected Alternative.

The Environmental Assessment (EA) for the project was completed in September 2020, and the finding of no significant impact (FONSI) was approved by the Federal Highway Administration (FHWA) on August 17, 2021. The EA evaluated three bypass alternatives for both, the East and West sides of the City of Arkadelphia, in addition to four interchange alternatives. For the eastern bypass options, the Selected Alternative had the least wetland impacts. The Selected Alternative for the interchange had fewer wetland/stream impacts than all other alternatives. The Selected Alternative for the western bypass had 2 acres fewer of wetland impacts than one alternative and 3 acres more of wetland impacts than another alternative, and had the least stream impacts. During construction, erosion control best management practices such as silt fences will be utilized to minimize sedimentation entering streams and adjacent wetlands. ArDOT proposes to mitigate for the unavoidable stream channel impacts with 16,252.4 stream credits from the Department's Upper Saline Mitigation Bank at a 2x penalty, totaling 32,504.8 stream credits. One stream (OW 26) will be mitigated onsite as permittee-responsible mitigation. ArDOT proposes 124.8 wetland credits as compensatory mitigation for the wetland impacts. This will be fulfilled by a combination of permittee-responsible mitigation sites and the Upper Saline Mitigation Bank. Two adjoining tracts to the ArDOT Middle Ouachita Mitigation Bank near Arkadelphia will be purchased and developed as permittee-responsible wetland mitigation sites.

Arkadelphia is an economic center in southwest Arkansas that hosts a substantial volume of commercial traffic, including large trucks. Arkadelphia is also an educational center due to the presence of Henderson State University and Ouachita Baptist University. Clark County and Arkadelphia have populations of approximately 22,385 and 10,611, respectively. Highway 51 is the primary east-west traffic corridor through Arkadelphia and provides the only Ouachita River crossing in the region. Highway 67 is the primary north-south traffic corridor. Interstate 30 is located along the western edge of the city. The Central Business District (CBD) lies at the crossroads of Highways 51 and 67, and is the hub of Arkadelphia's business and social life. This

area is home to many offices, government facilities, restaurants, and retail establishments. The CBD's many businesses and restaurants attract a large number of pedestrians. Pedestrian crossings therefore occur throughout the CBD, including at Highways 51 and 67. Both of these highways experience commercial traffic, including large trucks. The presence of trucks presents safety concerns for pedestrians. Several ArDOT planning studies have identified the CBD and the east side of the I-30/Highway 51 interchange as areas in Arkadelphia where safety and mobility are inadequate. The Arkadelphia Bypass Traffic Study evaluated crash rates from 2015-2017 for roadways in the project study area. The study results indicated that crash rates on each of these roadway segments were above the statewide average. Both, local and through traffic also converge in the CBD. Trucks comprise up to 5 percent of the through traffic vehicle mix on Highways 51 and 67, which are primary routes through Arkadelphia. The timber industry is one of the largest sectors of the regional economy and a number of processing mills operate within 40 miles of Arkadelphia. Highway 67 is regularly used by logging trucks traveling to the processing mills in Gurdon, located approximately 15 miles south of Arkadelphia. Because they are prohibited on interstates, logging trucks passing through Clark County do not have a viable alternative to Highway 67, which runs parallel to I-30. Also, the intersection of Highway 51 and Professional Park Drive is especially problematic because Professional Park Drive is the main access for emergency vehicles going to or leaving from the Baptist Hospital. When traffic backs up, emergency vehicles are impeded and/or emergency response time delays occur, creating public safety concerns. For the reasons described above, providing an alternate route around the CBD would increase both vehicular and public safety by reducing crash rates, creating safer pedestrian conditions, and improving the I-30/Highway 51 interchange. ArDOT evaluated a broad range of alternatives (3 western bypass, 3 eastern bypass, 4 interchange) that would address these issues and meet the purpose and need.

The location and general plan for the proposed work are shown on the enclosed sheets 1 through 23 of 23.

Water Quality Certification. The Clean Water Act (CWA) Section 401 Certification Rule (Certification Rule, 40 Code of Federal Regulations (CFR) Part 121), effective September 11, 2020, requires certification for any license or permit that authorizes an activity that may result in a discharge. The scope of a CWA Section 401 certification is limited to assuring that a discharge from a Federally licensed or permitted activity will comply with water quality requirements. The applicant is responsible for requesting certification and providing required information to the certifying agency. As of the date of this public notice, the applicant has not submitted a certification request to the Arkansas Department of Energy and Environment, Division of Environmental Quality (certifying authority). In accordance with Certification Rule Part 121.6, once the applicant submits a certification request the Corps will determine the reasonable period of time for the certifying agency to act upon the certification and provide written notification. In accordance with Certification Rule Part 121.12, the Corps will notify the U.S. Environmental Protection Agency Administrator when it has received the subject certification. The Administrator is responsible for determining if the discharge may affect water quality in a neighboring jurisdiction. The DA permit may not be issued pending the conclusion of the Administrator's determination of effects on neighboring jurisdictions.

Cultural Resources. ArDOT staff archeologists have reviewed topographic maps, the National Register of Historic Places, and other data on reported sites in the area. The FHWA has completed coordination with all associated Native American Nations and tribal governments. The District Engineer invites responses to this public notice from Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns with historic properties in the area.

Endangered Species. ArDOT determined that the project may affect the Northern Long-Eared Bat and the project may affect but is not likely to adversely affect the following species: Eastern Black Rail (*Laterallus jamaicensis ssp.jamaicensis*), Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), Red-cockaded Woodpecker (*Picoides borealis*) and Winged Mapleleaf (*Quadrula fragosa*). A copy of this notice is being furnished to the U.S. Fish and Wildlife Service and appropriate state agencies and constitutes a request to those agencies for information on whether any other listed or proposed-to-be-listed endangered or threatened species may be present in the area which would be affected by the proposed activity.

Floodplain. ArDOT determined that the project will impact approximately 10 acres of the 100-year floodplain. We are providing copies of this notice to appropriate floodplain officials in accordance with 44 Code of Federal Regulations (CFR) Part 60 (Floodplain Management Regulations Criteria for Land Management and Use) and Executive Order 11988 on Floodplain Management.

Section 404(b)(1) Guidelines. The evaluation of activities to be authorized under this permit, which involves the discharge of dredged or fill material will include application of guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act. These guidelines are contained in 40 Code of Federal CFR 230.

Public Involvement. Any interested party is invited to submit to the above-listed POC written comments or objections relative to the proposed work on or before **August 15, 2022**. Substantive comments, both favorable and unfavorable, will be accepted and made a part of the record and will receive full consideration in determining whether this work would be in the public interest. The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of

Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request in writing within the comment period specified in this notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. The District Engineer will determine if the issues raised are substantial and whether a hearing is needed for making a decision.

NOTE: The mailing list for this Public Notice is arranged by state and county(s) where the project is located, and includes any addressees who have asked to receive copies of all public notices. Please discard notices that are not of interest to you. If you have no need for any of these notices, please advise us so that your name can be removed from the mailing list.

Enclosures

Approximate Coordinates of Project Center

Latitude: **34.105091°** Longitude: **-93.084561°**

UTM Zone: **15N** North: **3773811** East: **492200**

Arkadelphia Bypass – ARDOT No. 070442

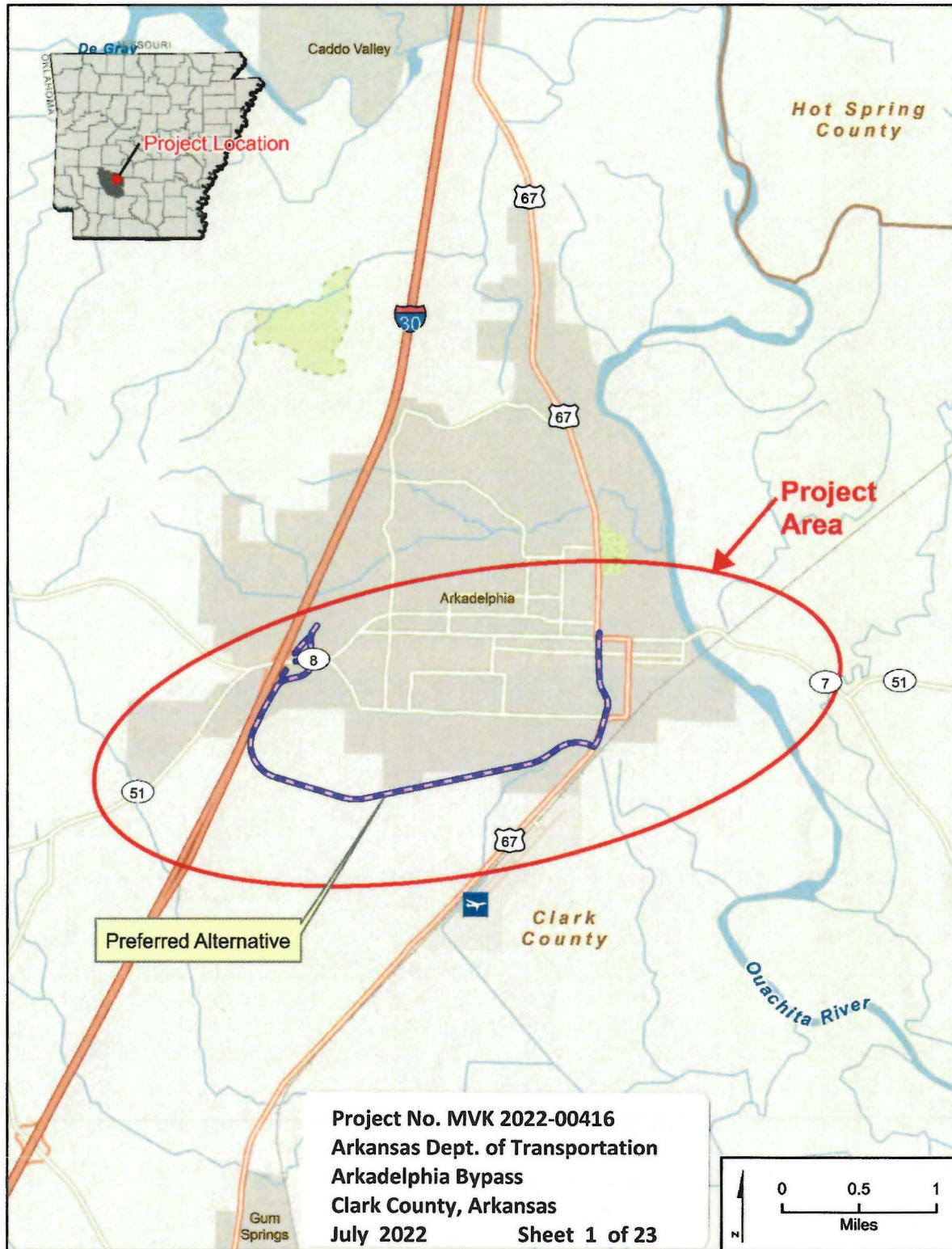
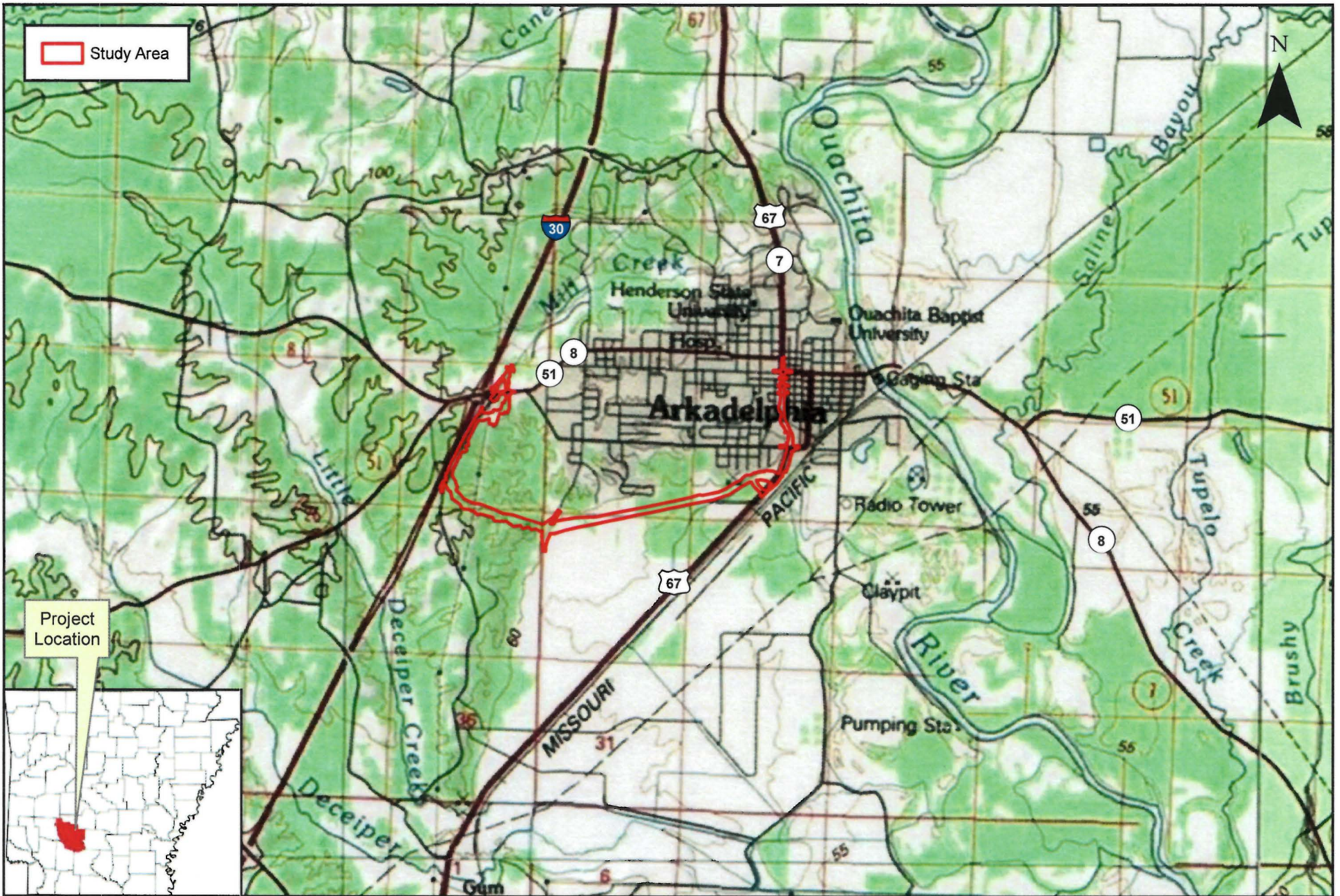


Figure 1: Project Area

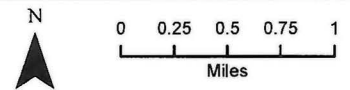




SITE LOCATION MAP

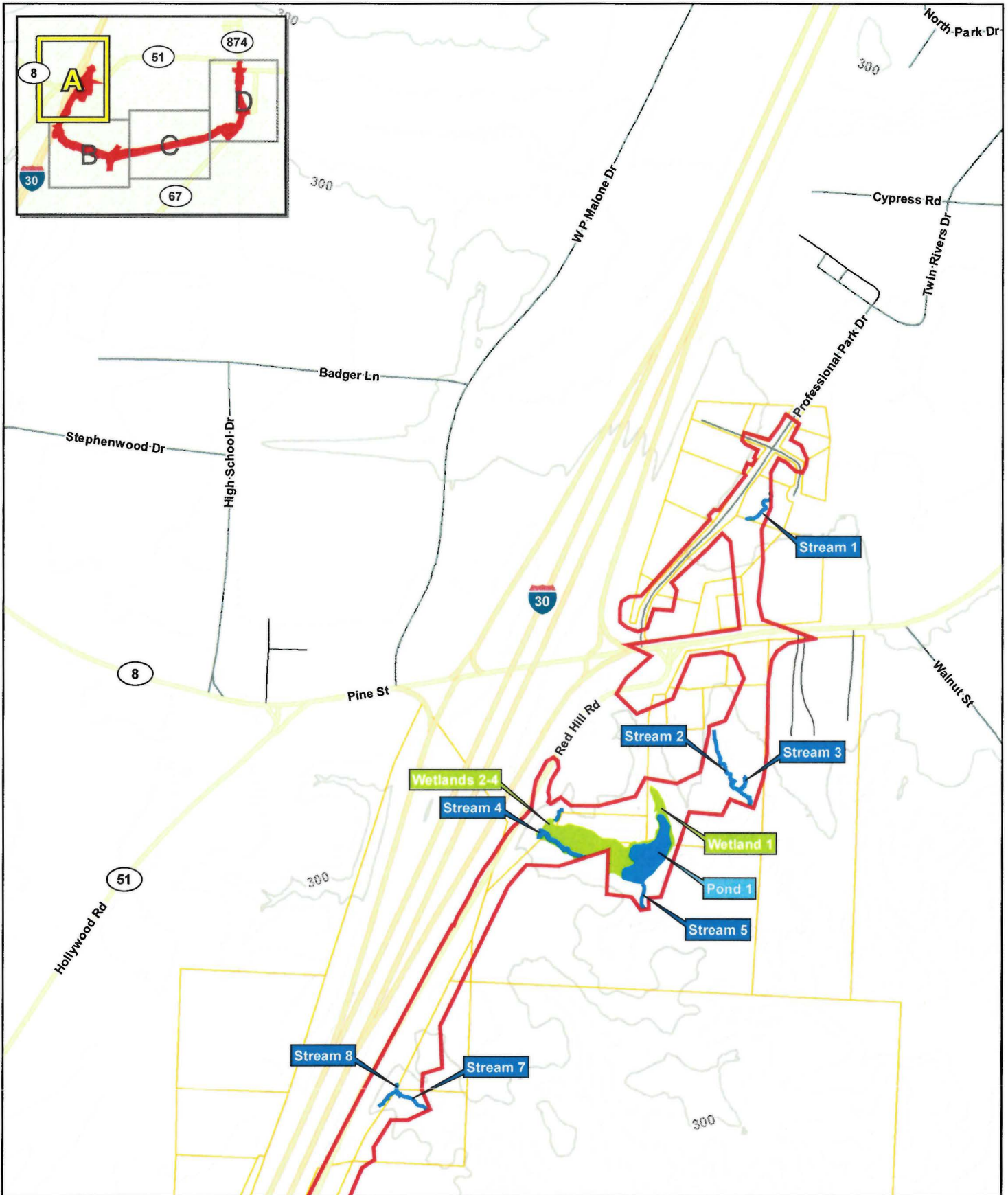
ARDOT Job No. 070442, Hwy. 67 to Hwy. 51 (Arkadelphia Bypass) P.E.
 Arkadelphia, Clark County, Arkansas

Lat: 34.105091
 Long: -93.084561
 Sec. 17, 19-20, & 30 of T7S, R19W
 Sec. 24-25 of T7S, R20W



USGS Topographic Map; ESRI GIS INFORMATION

Appendix A



- Proposed ROW
- Property Boundary
- Stream
- Wetland
- Pond

WETLAND & STREAM IMPACTS

ARDOT Job No. 070442
 Hwy. 67 to Hwy. 51 (Arkadelphia Bypass) P.E.
 Arkadelphia, Clark County, Arkansas
 2021 World Imagery; ESRI GIS INFORMATION

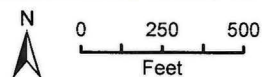
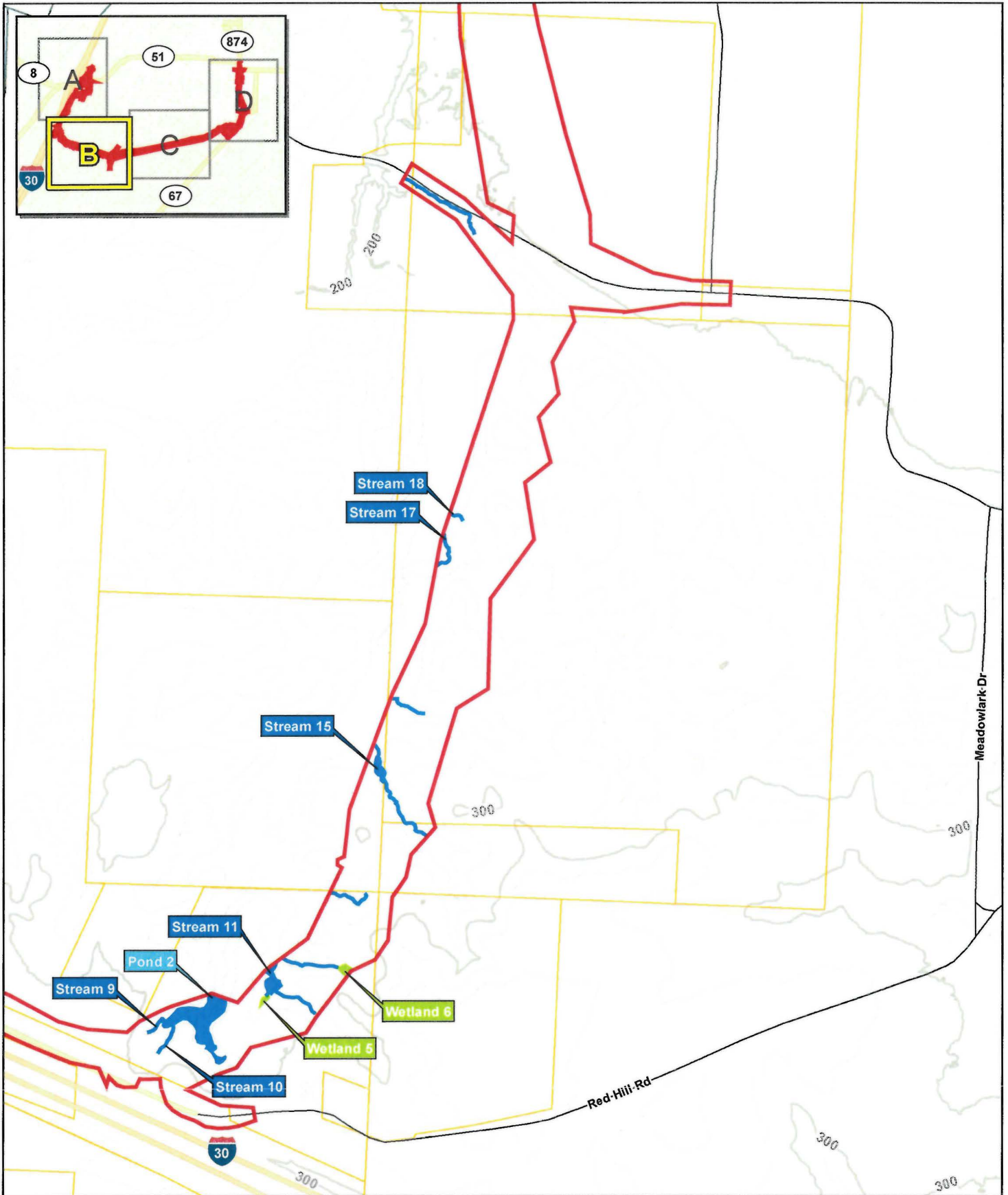


Figure A



- Proposed ROW
- Property Boundary
- Stream
- Wetland
- Pond

WETLAND & STREAM IMPACTS

ARDOT Job No. 070442
 Hwy. 67 to Hwy. 51 (Arkadelphia Bypass) P.E.
 Arkadelphia, Clark County, Arkansas
 2021 World Imagery; ESRI GIS INFORMATION

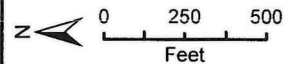
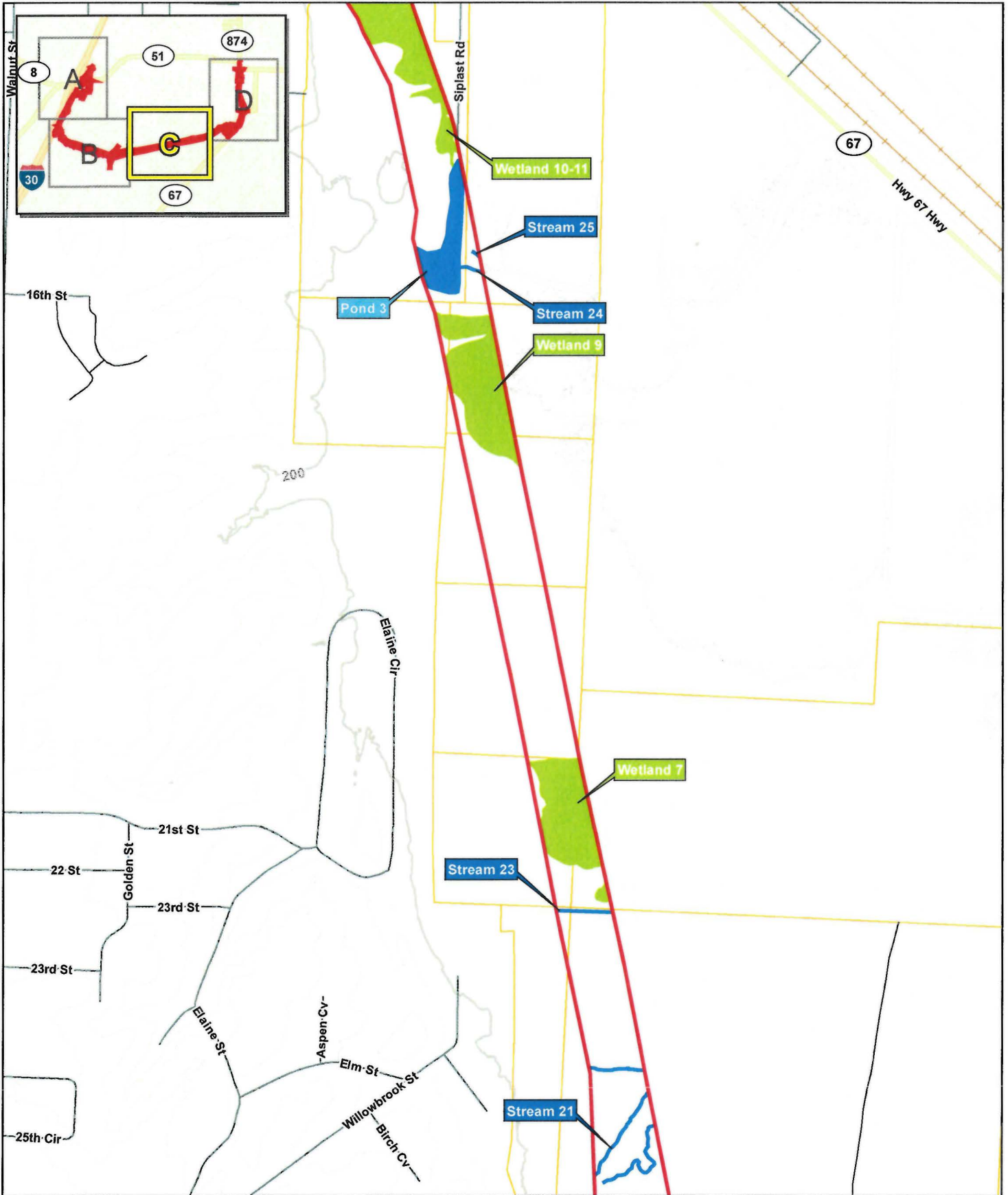


Figure B



- Proposed ROW
- Property Boundary
- Stream
- Wetland
- Pond

WETLAND & STREAM IMPACTS

ARDOT Job No. 070442
 Hwy. 67 to Hwy. 51 (Arkadelphia Bypass) P.E.
 Arkadelphia, Clark County, Arkansas
 2021 World Imagery; ESRI GIS INFORMATION

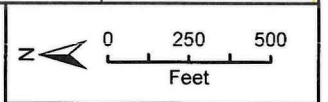
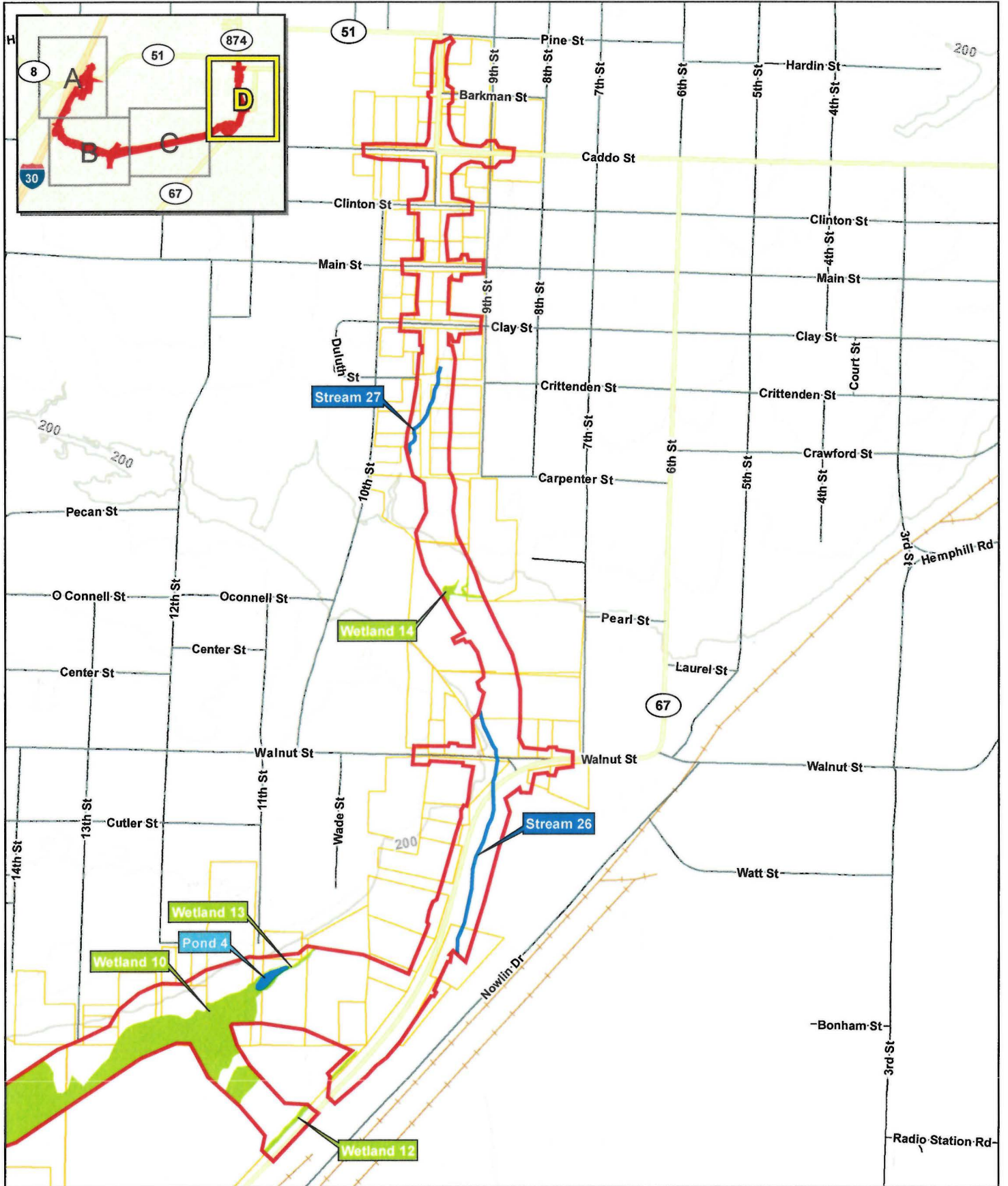








Figure C

| | |
|---|---|
|  Proposed ROW |  Wetland |
|  Property Boundary |  Pond |
|  Stream | |

WETLAND & STREAM IMPACTS

ARDOT Job No. 070442
 Hwy. 67 to Hwy. 51 (Arkadelphia Bypass) P.E.
 Arkadelphia, Clark County, Arkansas
 2021 World Imagery; ESRI GIS INFORMATION

N

0 250 500
Feet

Figure D

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|------------------------------------|--------------|--------------------|-------|---------|-----------|--------------|
| | | 6 | ARK. | 070442 | | |
| PLAN SHEET - PROFESSIONAL PARK DR. | | | | | | |



STA. 91+80 CONSTRUCT DROP INLET ON LT. H=3'-6" WITH 18"x76" PIPE OUTLET TO DROP INLET AT STA. 92+62 LT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 76 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 76 LIN. FT.

STA. 92+62 CONSTRUCT DROP INLET ON LT. H=5'-5" W/4' EXT. WITH 18"x29" PIPE OUTLET TO DROP INLET AT STA. 94+00 LT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 129 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 129 LIN. FT.

STA. 94+00 CONSTRUCT DROP INLET ON LT. H=5'-0" WITH 18"x54" PIPE INLET FROM FES ON RT. AND 30"x47" PIPE OUTLET TO FES ON LT. TYPE MO DROP INLET = 5" DIA. TYPE C DROP INLET = 5"x4" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 54 LIN. FT. 30" R.C. PIPE (CLASS II) (TYPE 3 BEDDING) = 47 LIN. FT. 18" FES = TEACH 30" FES = TEACH

STA. 95+35 CONSTRUCT DROP INLET ON LT. H=3'-5" W/ 4' EXT. WITH 36"x68" PIPE INLET FROM FES ON RT. AND 30"x26" PIPE OUTLET TO DROP INLET AT STA. 94+00 LT. TYPE MO DROP INLET = 5" DIA. TYPE C DROP INLET = 5"x4" 36" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 68 LIN. FT. 30" R.C. PIPE (CLASS II) (TYPE 3 BEDDING) = 126 LIN. FT. 30" SLPMPCCS PIPE (TYPE 2 BEDDING) = 126 LIN. FT. 36" FES = TEACH

STA. 97+50 CONSTRUCT DROP INLET ON LT. H=5'-3" W/ 4' EXT. WITH 18"x210" PIPE OUTLET TO DROP INLET AT STA. 95+35 LT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 210 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 210 LIN. FT.

STA. 98+00 CONSTRUCT DROP INLET ON LT. H=4'-0" W/ 4' EXT. WITH 18"x46" PIPE OUTLET TO DROP INLET AT STA. 97+50 LT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 46 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 46 LIN. FT.

STA. 98+50 CONSTRUCT DROP INLET ON LT. H=3'-6" W/ 4' EXT. WITH 18"x46" PIPE OUTLET TO DROP INLET AT STA. 98+00 LT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 46 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 46 LIN. FT.

C.L. PROFESSIONAL PARK DR.

| | |
|----|-----------------|
| PI | = 93+61.7 |
| A | = 38°52'58" LT. |
| D | = 10°30'00" |
| T | = 192.61' |
| L | = 370.31' |
| PC | = 91+68.56 |
| PT | = 95+38.87 |
| e | = 0.0407' |
| LS | = 150° |

CONCRETE WALKS (TYPE SPECIAL)

| STA. | STA. | SIDE | "W" | LIN. FT. | SO. YD. |
|-------|-------|------|-------|----------|---------|
| 90+03 | 91+01 | LT. | 6'-0" | 98 | 65 |

C.L. PROFESSIONAL PARK DR. STA. 91+39.00 =
C.L. EXECUTIVE CIRCLE STA. 10+00.00
← 86°00'00"

STA. 99+54 CONSTRUCT TYPE 4 WHEELCHAIR RAMP ON LT. = 5.9 SQ. YD.

STA. 99+54 CONSTRUCT TYPE 3 WHEELCHAIR RAMP ON RT. = 4.4 SQ. YD.

OW 1 (Eph)
203 LF Pipe
13 LF Clearing

CONCRETE DITCH PAVING (TYPE B)

| STA. | STA. | SIDE | "W" | SO. YDS. |
|-------|-------|------|-----|----------|
| 93+00 | 94+44 | RT. | 160 | 107 |
| 95+21 | 95+90 | RT. | 82 | 75 |

STA. 92+05 CONSTRUCT APPROACH ON RT. = 4 CU. YDS.

STA. 92+82 CONSTRUCT APPROACH ON RT. = 8 CU. YDS.

STA. 92+22 CONSTRUCT DROP INLET 26" RT. H=3'-0" WITH 18"x39" PIPE OUTLET TO DROP INLET AT STA. 92+62, 27" RT. TYPE E DROP INLET = 3"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 39 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 39 LIN. FT.

STA. 92+62 CONSTRUCT DROP INLET 27" RT. H=4'-10" WITH 18"x39" PIPE OUTLET TO DROP INLET AT STA. 92+62 LT. TYPE E DROP INLET = 3"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 39 LIN. FT.

STA. 97+50 CONSTRUCT DROP INLET ON RT. H=5'-0" W/ 8' EXT. WITH 18"x28" PIPE OUTLET TO DROP INLET AT STA. 97+50 LT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 28 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 28 LIN. FT.

STA. 97+85 CONSTRUCT DROP INLET ON RT. H=4'-6" W/ 8' EXT. WITH 18"x31" PIPE OUTLET TO DROP INLET AT STA. 97+50 RT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 31 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 31 LIN. FT.

STA. 98+15 CONSTRUCT DROP INLET ON RT. H=4'-0" W/ 8' EXT. WITH 18"x26" PIPE OUTLET TO DROP INLET AT STA. 97+85 RT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 26 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 26 LIN. FT.

STA. 98+50 CONSTRUCT DROP INLET ON RT. H=3'-6" WITH 18"x31" PIPE OUTLET TO DROP INLET AT STA. 98+15 RT. TYPE MO DROP INLET = 4" DIA. TYPE C DROP INLET = 4"x3" 18" R.C. PIPE (CLASS III) (TYPE 3 BEDDING) = 31 LIN. FT. 18" SLPMPCCS PIPE (TYPE 2 BEDDING) = 31 LIN. FT.

6/7/2022 10:05:11 AM
 P:\Joseph.L\PROJECTS\110101055 - I-490 Arkansas Bypass\Drawings\AS\Plan\Stream\A04 Permit\010442.P1.25.Professional Park Drive.dwg
 REVISION DATE:

| DATE REVISION | DATE | REV. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---------------|------|----------|-------|---------|-----------|--------------|
| | | 6 | ARK. | 070442 | | |



PLAN SHEET - BYPASS

REMOVAL AND DISPOSAL OF FENCE (STATIONING ALONG C.L. BYPASS)

| STA. | STA. | SIDE | LT. | 104 LIN. FT. |
|--------|--------|------|-----|--------------|
| 100+80 | 101+63 | | | |

| STA. | STA. | SIDE | LT. | SO. YDS. |
|--------|--------|------|-------|----------|
| 103+20 | 104+72 | | 6'-0" | 85 |
| 105+70 | 106+50 | | 6'-0" | 77 |
| 104+00 | 107+75 | | 6'-0" | 68 |
| 105+00 | 106+00 | | 6'-0" | 71 |
| 105+55 | 106+00 | | 6'-0" | 38 |

C.L. BYPASS
 PI = 106+55.87
 Δ = 80°27'25" RT.
 D = 10'30'00"
 T = 461.60'
 L = 156.26'
 PC = 101+94.27
 PT = 109+60.53
 e = 0.0040'
 Ls = 180'

STA. 106+07 CONSTRUCT
 30" X 280' R.C. PIPE CULVERT
 20' LT. F.W.D. SKEW
 CLASS V (TYPE 2 BEDDING) W/
 F.E.S. LT. & RT.
 050 = 23 CFS DA = 4 ACRES
 30" R.C. PIPE = 280 LIN. FT.
 30" F.E.S. = 2 EA.

OW 3 (Eph)
 82 LF Fill

STA. 105+00 INSTALL
 18" X 124' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 537 CU. YDS.

OW 2 (Eph)
 377 LF Pipe
 85 LF Clearing

STA. 108+50 INSTALL
 18" X 30' PIPE CULVERT
 LT. SIDE DRAIN
 CONSTRUCT APPROACH = 13 CU. YDS.

P 1 (pond)
 0.074 ac Fill

OW 5 (Eph)
 125 LF Clearing

STA. 10+05 CONSTRUCT
 36" X 186' R.C. PIPE CULVERT
 2' LT. F.W.D. SKEW
 CLASS IV (TYPE 2 BEDDING) W/
 F.E.S. LT. & RT.
 050 = 44 CFS DA = 7 ACRES
 36" R.C. PIPE = 186 LIN. FT.
 36" F.E.S. = 2 EA.

W 1 (PEM)
 0.147 ac Fill

W 2 (PSS)
 0.003 ac Fill
 0.277 ac Clear

BYPASS STA. 100+27.88
 BEGIN JOB 070442
 (BYPASS)

STA. 100+70 CONSTRUCT
 DROP INLET 28" RT. H=3'-9"
 WITH 18" X 32' PIPE OUTLET
 TO DROP INLET AT STA. 101+00 RT.
 TYPE ST DROP INLET = 3' X 3'
 18" R.C. PIPE (CLASS III)
 (TYPE 3 BEDDING) = 32 LIN. FT.

STA. 101+00 CONSTRUCT
 DROP INLET ON RT. H=4'-6"
 WITH 18" X 34' PIPE OUTLET
 TO DROP INLET AT STA. 102+50 RT.
 TYPE MO DROP INLET = 4' DIA.
 TYPE C DROP INLET = 4' X 3'
 18" R.C. PIPE (CLASS III)
 (TYPE 3 BEDDING) = 13 LIN. FT.
 18" FES = 1 EACH

STA. 104+25 CONSTRUCT
 TYPE SPECIAL INLET ON RT. W/ 4' EXT.

STA. 108+00 CONSTRUCT
 TYPE SPECIAL INLET ON RT. W/ 4' EXT.

STA. 107+75 CONSTRUCT
 TYPE SPECIAL INLET ON RT. W/ DBL. 4' EXT.

STA. 111+50 CONSTRUCT
 TYPE SPECIAL INLET ON RT. W/ 4' EXT.

STA. 113+97 CONSTRUCT
 24" X 194' R.C. PIPE CULVERT
 3' RT. F.W.D. SKEW
 CLASS IV (TYPE 2 BEDDING) W/
 F.E.S. LT. & RT.
 050 = 5 CFS DA = 1ACRE
 24" R.C. PIPE = 194 LIN. FT.
 24" F.E.S. = 2 EA.

W 3 (PEM)
 0.232 ac Fill

W 4 (PFO)
 0.388 ac Fill
 0.022 ac Clear

C.L. BYPASS STA. 115+00.00 =
 C.L. RED HILL RD. NORTH STA. 20+00.00
 < 90°00'00"

STA. 112+83 INSTALL
 18" X 42' PIPE CULVERT
 RT. SIDE DRAIN
 CONSTRUCT APPROACH = 33 CU. YDS.

FENCING

| STA. | STA. | SIDE | LT. |
|--------|--------|------|--------------|
| 105+35 | 104+25 | | 535 LIN. FT. |
| 108+75 | 105+00 | | 495 LIN. FT. |
| 100+65 | 107+10 | | 671 LIN. FT. |
| 107+67 | 112+53 | | 653 LIN. FT. |
| 113+15 | 113+35 | | 505 LIN. FT. |

6/27/2022 10:12:25 AM
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 Auto Archiepops
 REVISION DATE

| DATE REVISION | DATE | REV. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|---------------|------|----------|-------|---------|-----------|--------------|
| | | 6 | ARK. | 070442 | | |

PLAN SHEET - BYPASS



C.L. BYPASS
 PI = 116+52.53
 A = 48°56'21" LT.
 D = 10°30'00"
 T = 248.32'
 L = 466.08'
 PC = 114+04.21
 PT = 118+70.29
 Δ = 0.040°/7'
 Ls = 180'

OBTERATE EXISTING ROADWAY

CONCRETE DITCH PAVING (TYPE B)

| STA. | STA. | SIDE | "W" | "W" | SO. YDS. |
|--------|--------|---------------------|-------|-----|----------|
| 116+00 | 116+50 | L.T. = 48 LIN. FT. | 6'-0" | 32 | |
| 116+00 | 117+40 | R.T. = 149 LIN. FT. | 6'-0" | 100 | |
| 120+50 | 121+00 | R.T. = 53 LIN. FT. | 6'-0" | 36 | |
| 128+59 | 129+22 | L.T. = 106 LIN. FT. | 6'-0" | 71 | |

STA. 118+50 CONSTRUCT TYPE SPECIAL INLET ON LT.

FENCING

| STA. | STA. | SIDE | WIRE FENCE (TYPE A) |
|--------|--------|------|---------------------|
| 115+00 | 119+50 | L.T. | 419 LIN. FT. |
| 124+25 | 130+00 | L.T. | 745 LIN. FT. |

STA. 115+54 CONSTRUCT 30" X 120' R.C. PIPE CULVERT 4' LT. F.W.D. SKEW CLASS III (TYPE 3 BEDDING) W/ F.E.S. LT. & RT. OSO = 23 CFS DA = 6 ACRES 30" R.C. PIPE = 120 LIN. FT. 30" F.E.S. = 2 EA.

STA. 119+80 INSTALL 18" X 70' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 31 CU. YDS.

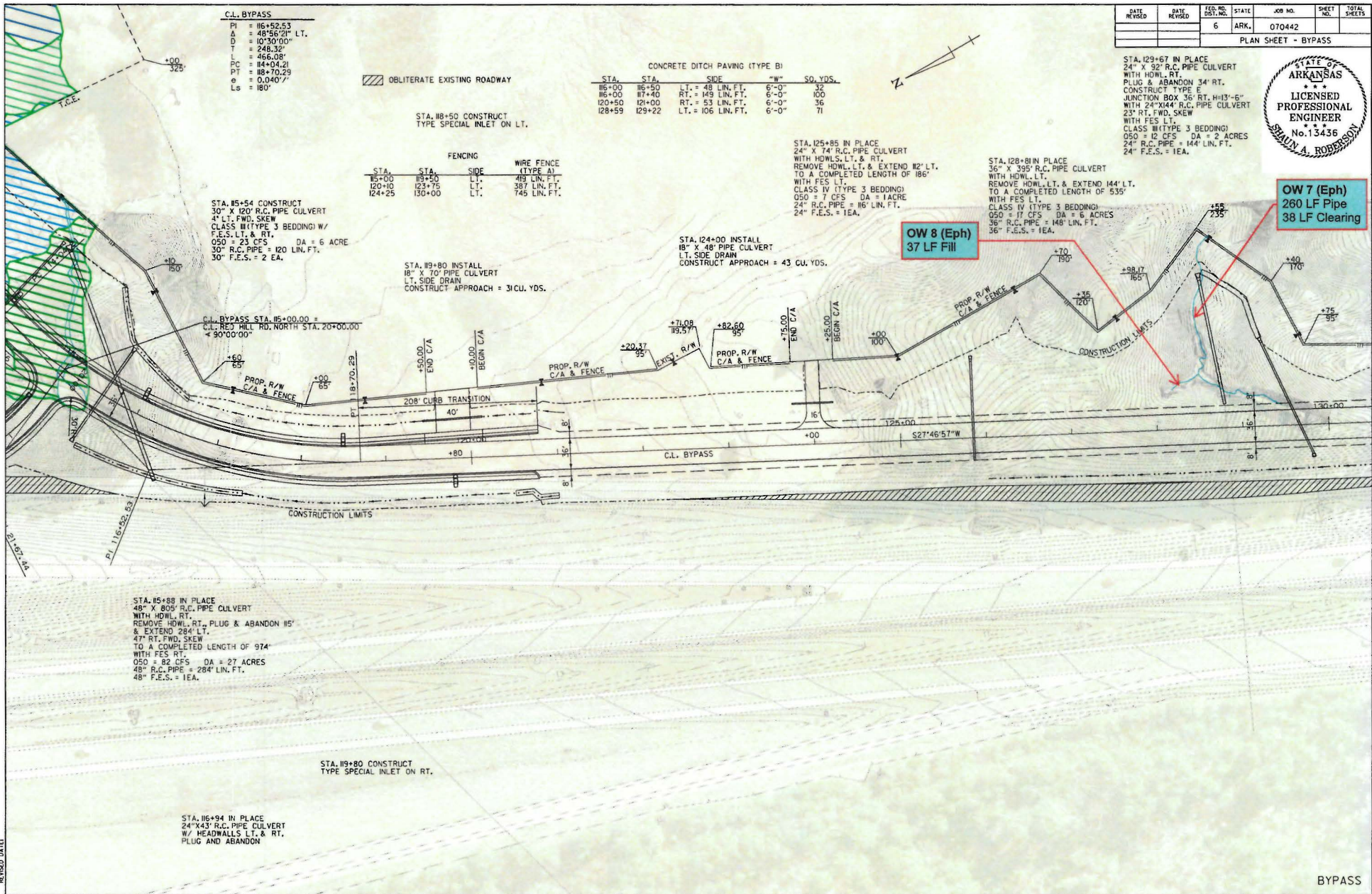
STA. 124+00 INSTALL 18" X 48' PIPE CULVERT LT. SIDE DRAIN CONSTRUCT APPROACH = 43 CU. YDS.

STA. 125+85 IN PLACE 24" X 74' R.C. PIPE CULVERT WITH HDWLS. LT. & RT. REMOVE HDWL. LT. & EXTEND W2' LT. TO A COMPLETED LENGTH OF 186' WITH FES LT. CLASS IV (TYPE 3 BEDDING) OSO = 7 CFS DA = 1 ACRE 24" R.C. PIPE = 116' LIN. FT. 24" F.E.S. = 1EA.

STA. 128+81 IN PLACE 36" X 395' R.C. PIPE CULVERT WITH HDWL. LT. REMOVE HDWL. LT. & EXTEND 144' LT. TO A COMPLETED LENGTH OF 535' WITH FES LT. CLASS IV (TYPE 3 BEDDING) OSO = 17 CFS DA = 6 ACRES 36" R.C. PIPE = 148' LIN. FT. 36" F.E.S. = 1EA.

OW 7 (Eph)
260 LF Pipe
38 LF Clearing

OW 8 (Eph)
37 LF Fill



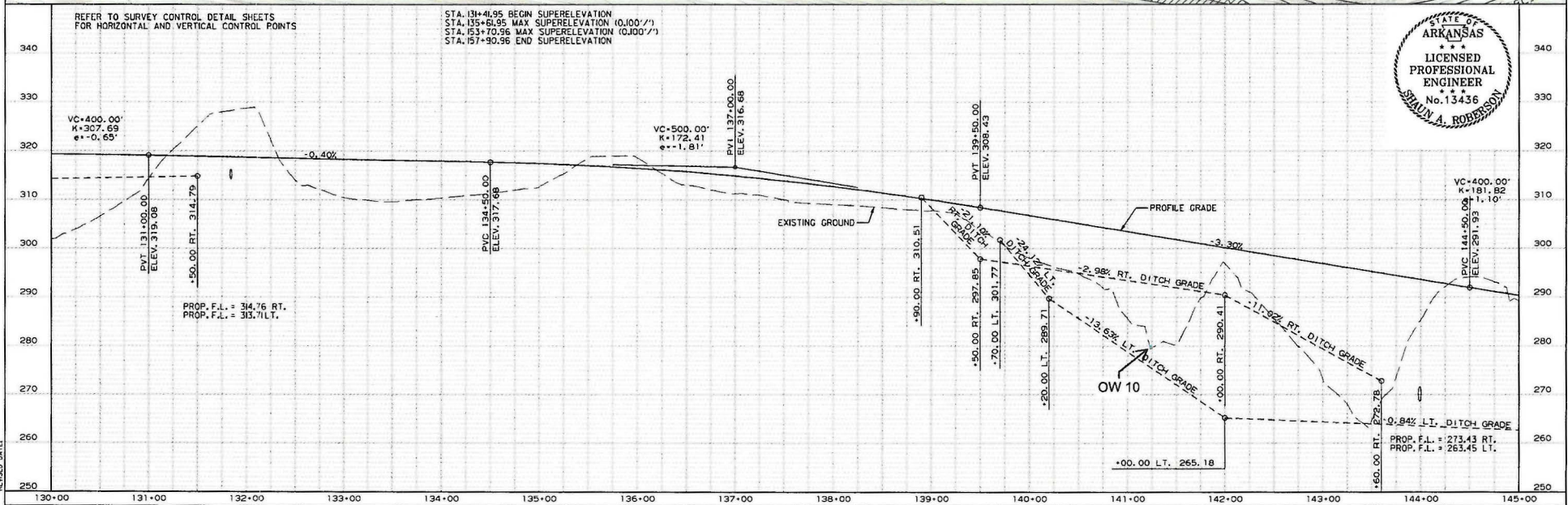
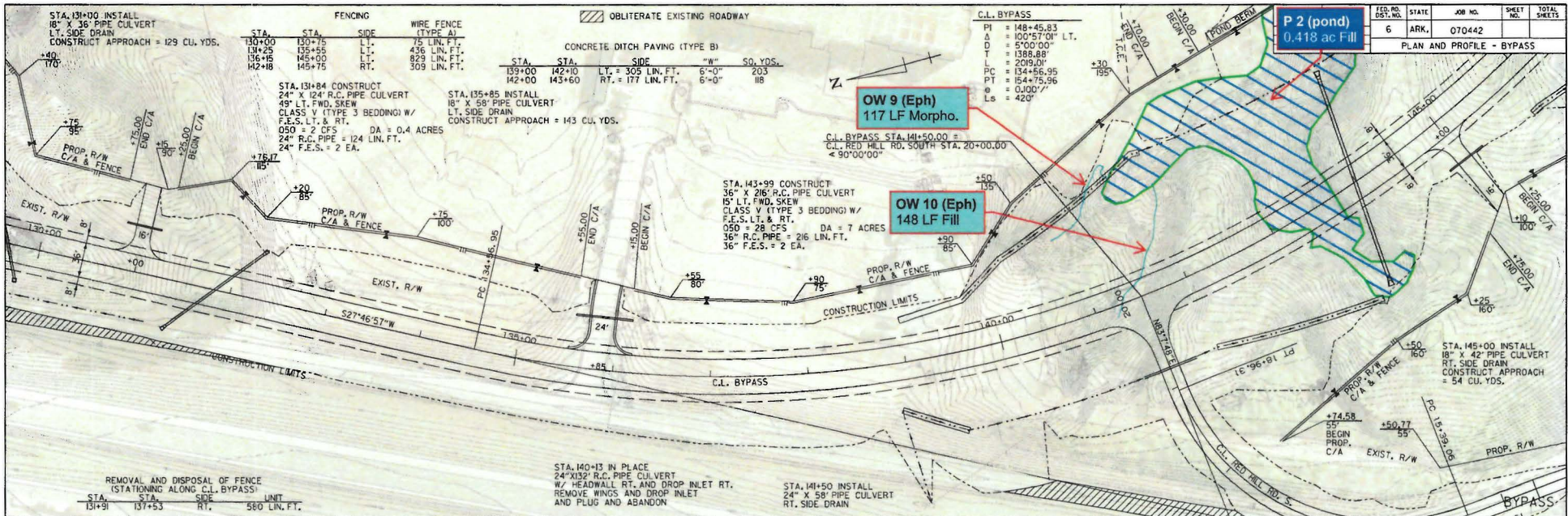
STA. 115+88 IN PLACE 48" X 808' R.C. PIPE CULVERT WITH HDWL. RT. REMOVE HDWL. RT. PLUG & ABANDON 115' & EXTEND 284' LT. 47' RT. F.W.D. SKEW TO A COMPLETED LENGTH OF 974' WITH FES RT. OSO = 82 CFS DA = 27 ACRES 48" R.C. PIPE = 284' LIN. FT. 48" F.E.S. = 1EA.

STA. 119+80 CONSTRUCT TYPE SPECIAL INLET ON RT.

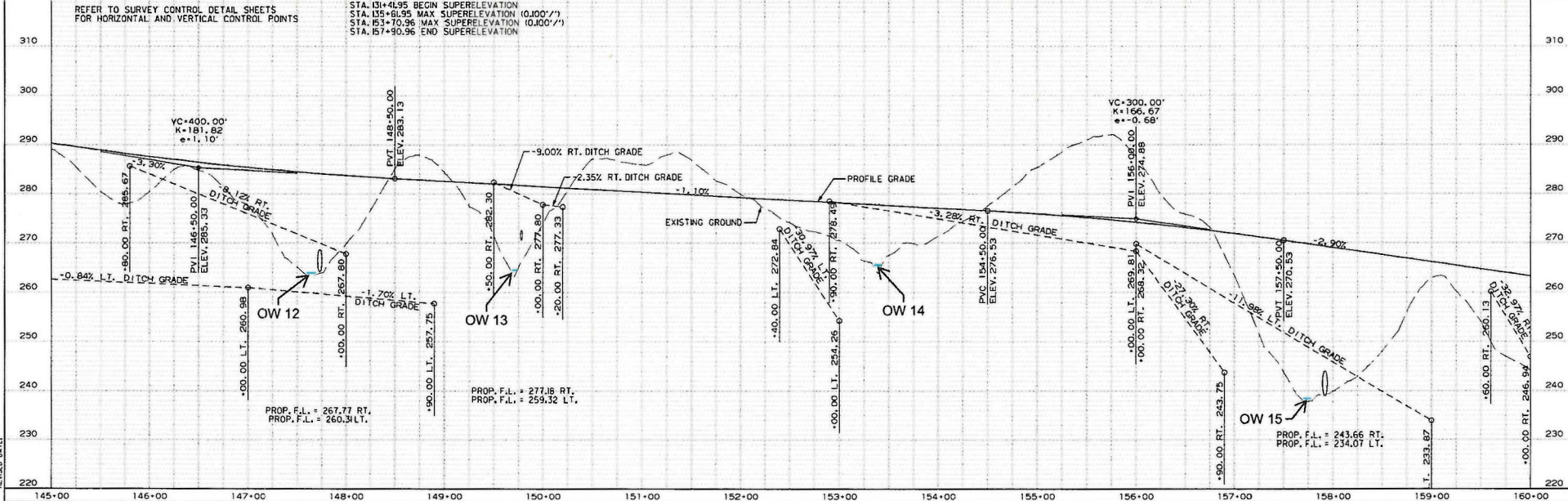
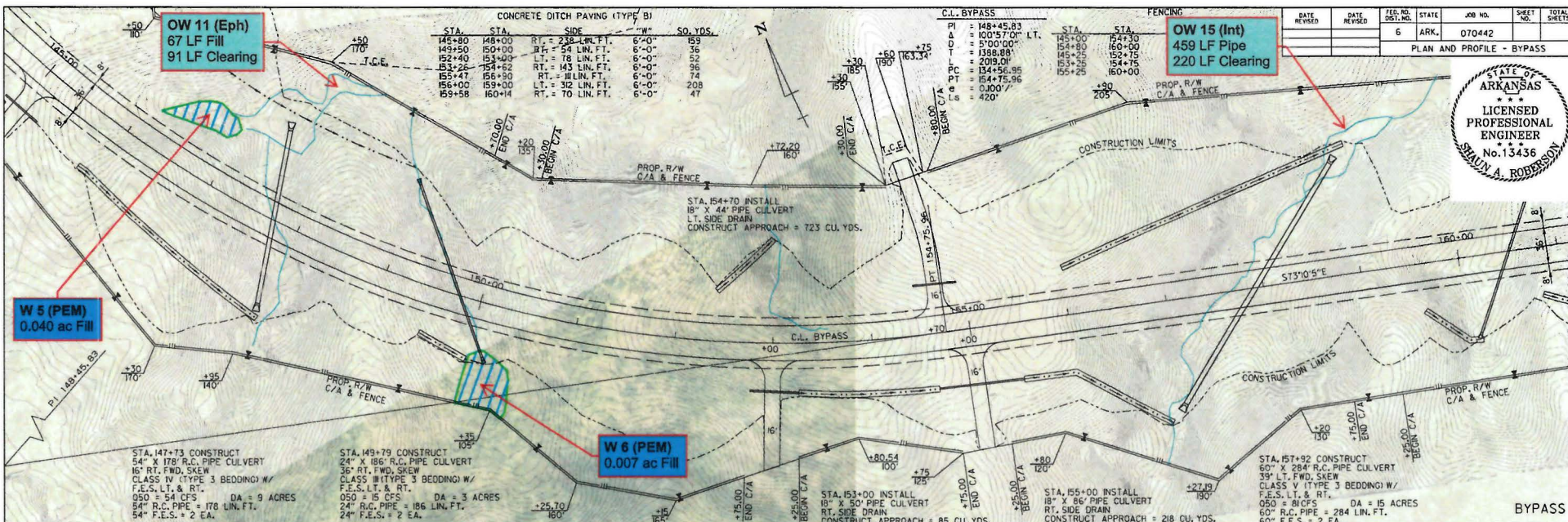
STA. 116+94 IN PLACE 24" X 43' R.C. PIPE CULVERT W/ HEADWALLS LT. & RT. PLUG AND ABANDON

6/21/2022 10:13:38 AM
 Joseph C. ... AND ...
 REVISED DATE:

BYPASS



PROJECT: 6/7/2022 10:56 AM
 WORKSPACE: AND
 LAYOUT: AND
 REVISIONS: - AND
 REVISION DATE:



6/7/2022 10:02:03 AM
 Joseph M. Robison
 1335 N. 10th St.
 Little Rock, AR 72202
 REVISED DATE:

STA. 161+93 CONSTRUCT
 36" X 195' R.C. PIPE CULVERT
 2' LT. FWD. SKEW
 CLASS V (TYPE 3 BEDDING) W/
 F.E.S. LT. & RT.
 O50 = 28 CFS DA = 5 ACRES
 36" R.C. PIPE = 196 LIN. FT.
 36" F.E.S. = 2 EA.

| STA. | STA. | FENCING | WIRE FENCE (TYPE A) |
|--------|--------|---------|---------------------|
| 160+00 | 175+00 | LT. | 1507 LIN. FT. |
| 160+00 | 175+00 | RT. | 1647 LIN. FT. |

| STA. | STA. | SIDE | "W" | SQ. YDS. |
|--------|--------|------|--------------|----------|
| 160+80 | 161+90 | RT. | 120 LIN. FT. | 80 |
| 167+50 | 168+58 | RT. | 134 LIN. FT. | 89 |
| 167+58 | 168+05 | LT. | 168 LIN. FT. | 92 |
| 171+80 | 173+80 | RT. | 205 LIN. FT. | 137 |
| 172+85 | 173+49 | LT. | 81 LIN. FT. | 54 |

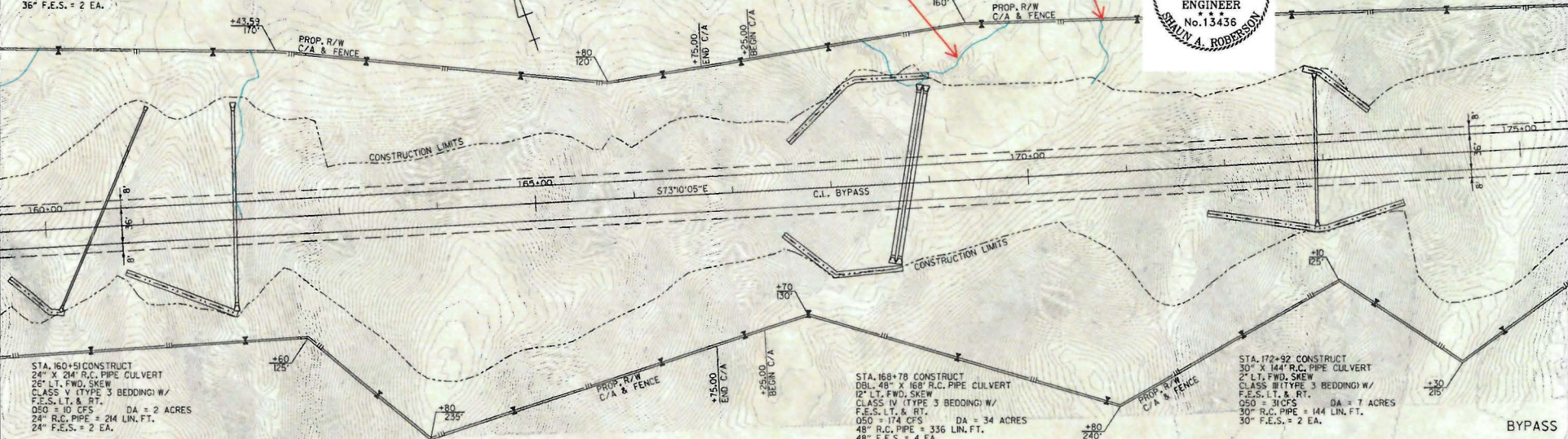
OW 17 (Int)
 47 LF Morph.
 147 LF Clearing

OW 18 (Eph)
 7 LF Fill
 67 LF Clearing



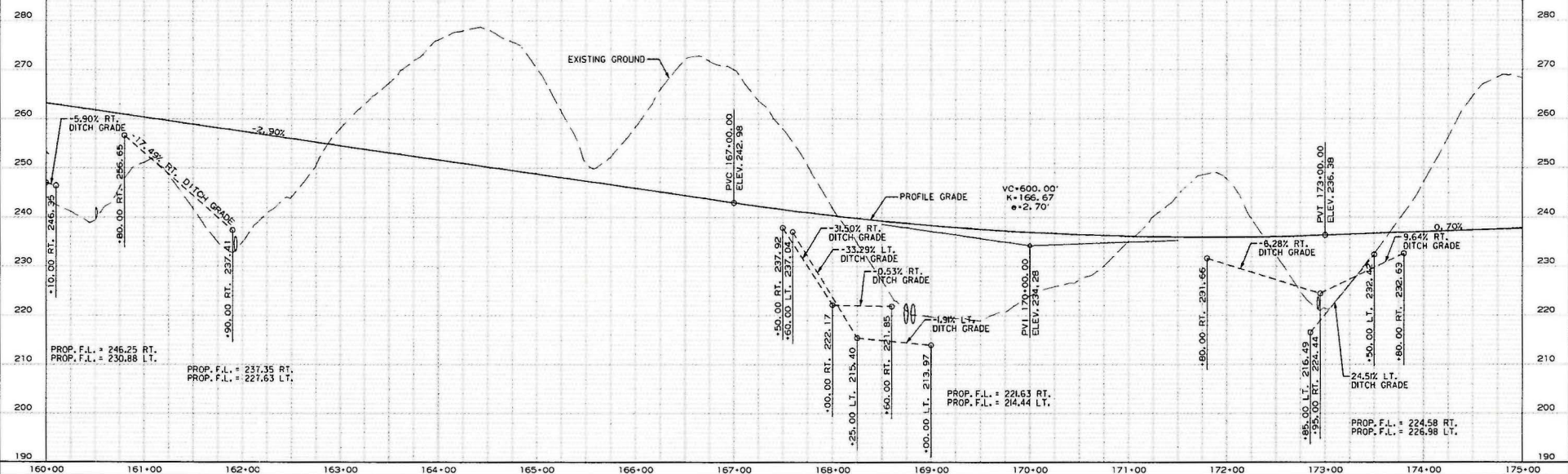
| DATE REVISED | DATE REVISED | REV. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|--------------|--------------|----------|-------|---------|-----------|--------------|
| | | 6 | ARK. | 070442 | | |

PLAN AND PROFILE - BYPASS



BYPASS

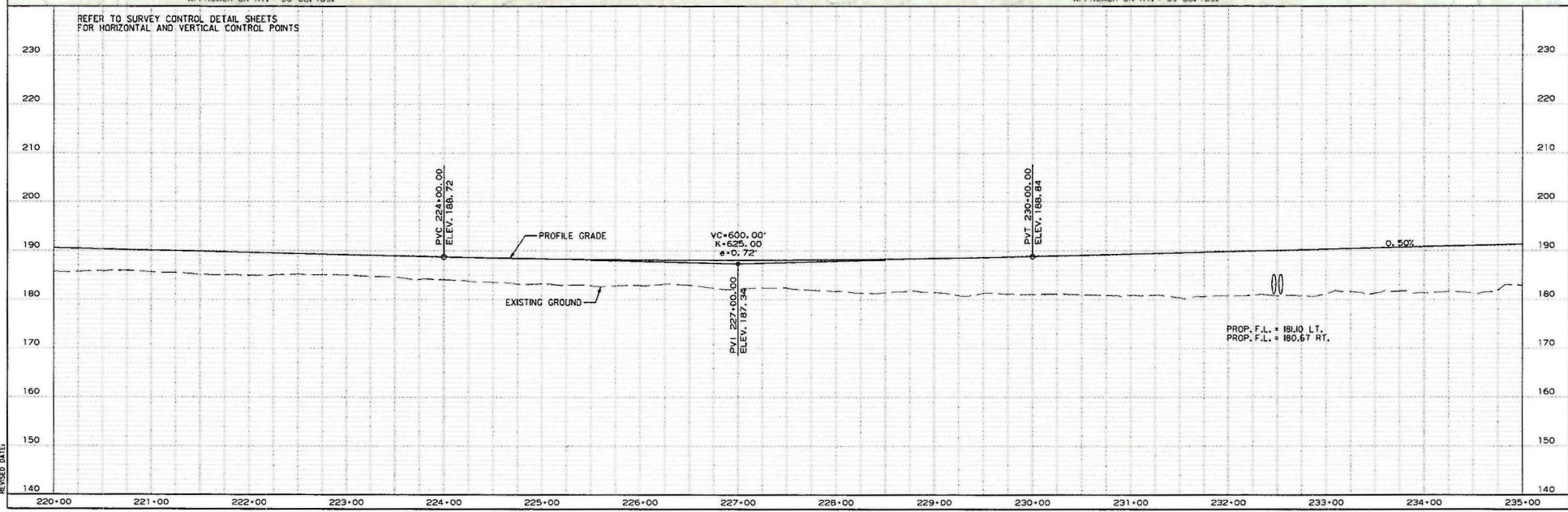
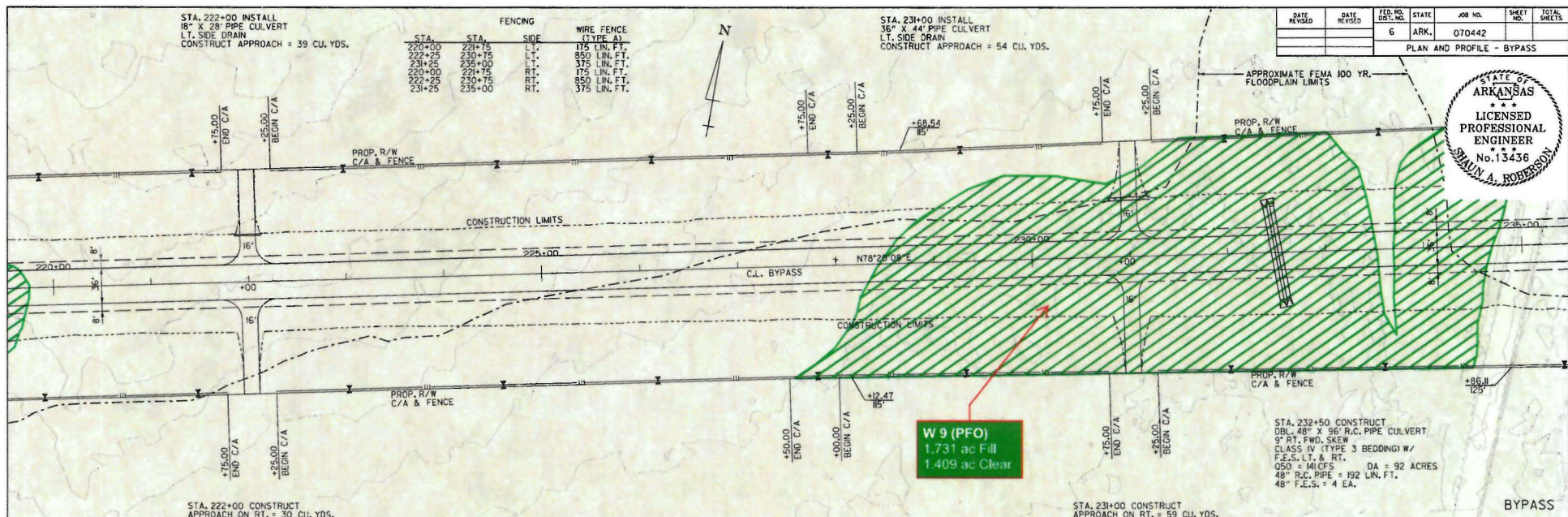
REFER TO SURVEY CONTROL DETAIL SHEETS
 FOR HORIZONTAL AND VERTICAL CONTROL POINTS



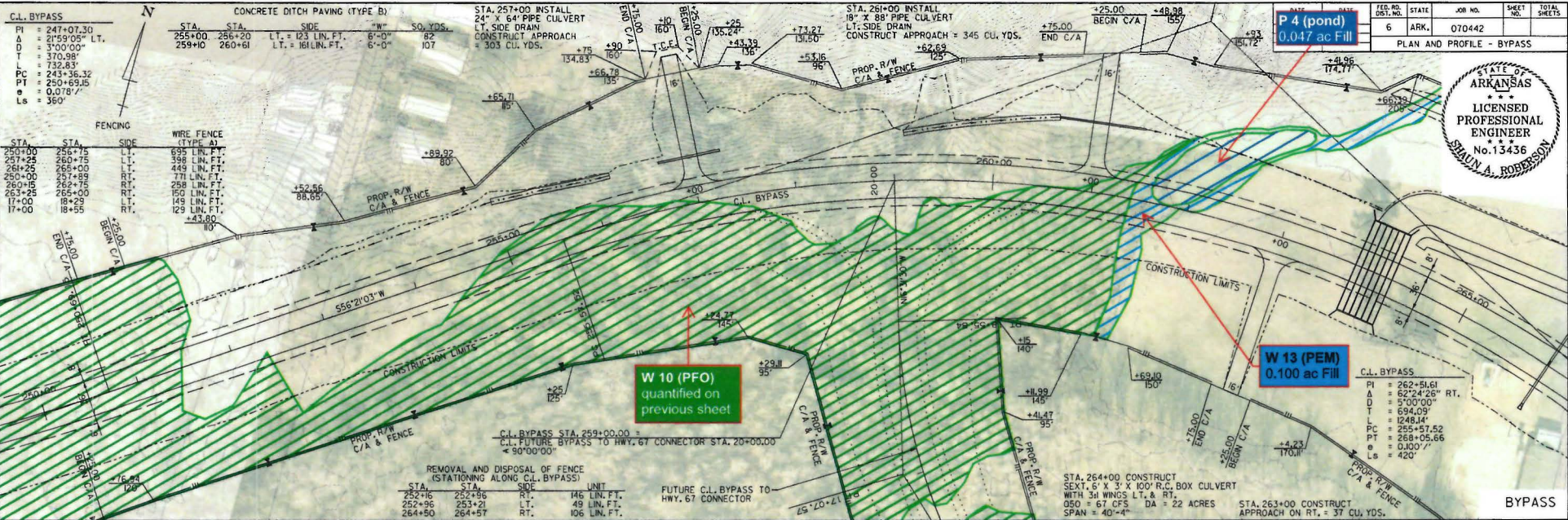
6/7/2022 10:02:26 AM
 P:\03\07\10\25\1110_Arkadelphia bypass\DWG\PLAN\070442_Plan.dwg
 REVISED DATE:

| DATE REVISED | DATE REVISED | FED. RD. DIST. NO. | STATE | JOB NO. | SHEET NO. | TOTAL SHEETS |
|--------------|--------------|--------------------|-------|---------|-----------|--------------|
| | | 6 | ARK. | 070442 | | |

STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 No. 13436
 SHAWN A. ROBERTSON



6/27/2022 10:02:54 AM
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 REVISED DATE:



STATE OF ARKANSAS
 LICENSED PROFESSIONAL ENGINEER
 No. 13436
 SHAWN A. ROBERTSON

6/21/2022 10:03:24 AM
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 REVISION DATE:

070442 Arkadelphia Bypass - Required Stream Credits (Little Rock Stream Method 2011)

| Factor | OW 1 (Eph) Pipe | OW 1 (Eph) Clearing | OW 2 (Eph) Pipe | OW 2 (Eph) Clearing | OW 3 (Eph) Fill | OW 4 (Int) Pipe | OW 4 (Int) Clearing | OW 5 (Eph) Clearing | OW 7 (Eph) Pipe | OW 7 (Eph) Clearing |
|--|-----------------|---------------------|-----------------|---------------------|-----------------|-----------------|---------------------|---------------------|-----------------|---------------------|
| Stream Type Impacted | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 |
| Priority Area | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Existing Condition | 0.8 | 0.8 | 1.6 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Duration | 0.3 | 0.1 | 0.3 | 0.1 | 0.3 | 0.3 | 0.1 | 0.1 | 0.3 | 0.1 |
| Activity | 2.2 | 0.05 | 2.2 | 0.05 | 2.5 | 2.2 | 0.05 | 0.05 | 2.2 | 0.05 |
| Cumulative Linear Impact | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sum of Factors (M) | 4.3 | 2.0 | 5.1 | 2.8 | 5.4 | 4.6 | 2.3 | 2.0 | 4.3 | 2.0 |
| Linear Feet of Stream Impacted in Reach (LF) | 203 | 13 | 377 | 85 | 82 | 196 | 23 | 125 | 260 | 38 |
| M x LF = | 872.9 | 25.4 | 1,922.7 | 233.8 | 442.8 | 901.6 | 51.8 | 243.8 | 1,118.0 | 74.1 |

| Factor | OW 8 (Eph) Fill | OW 9 (Eph) Morphologic | OW 10 (Eph) Fill | OW 11 (Eph) Fill | OW 11 (Eph) Clearing | OW 15 (Int) Pipe | OW 15 (Int) Clearing | OW 17 (Int) Morphological | OW 17 (Int) Clearing | OW 18 (Eph) Fill |
|--|-----------------|------------------------|------------------|------------------|----------------------|------------------|----------------------|---------------------------|----------------------|------------------|
| Stream Type Impacted | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 |
| Priority Area | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Existing Condition | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Duration | 0.3 | 0.3 | 0.3 | 0.3 | 0.1 | 0.3 | 0.1 | 0.3 | 0.1 | 0.3 |
| Activity | 2.5 | 1.5 | 2.5 | 2.5 | 0.05 | 2.2 | 0.05 | 1.5 | 0.05 | 2.5 |
| Cumulative Linear Impact | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sum of Factors (M) | 4.6 | 3.6 | 4.6 | 4.6 | 2.0 | 5.4 | 3.1 | 4.7 | 3.1 | 5.4 |
| Linear Feet of Stream Impacted in Reach (LF) | 37 | 117 | 148 | 67 | 91 | 459 | 220 | 47 | 147 | 7 |
| M x LF = | 170.2 | 421.2 | 680.8 | 308.2 | 177.5 | 2,478.6 | 671.0 | 220.9 | 448.4 | 37.8 |

| Factor | OW 18 (Eph) Clearing | OW 21 (Int) Pipe | OW 21 (Int) Morphological | OW 21 (Int) Clearing | OW 23 (Int) Pipe | OW 23 (Int) Clearing | OW 24 (Eph) Fill | OW 24 (Eph) Clearing | OW 25 (Eph) Clearing | OW 27 (Eph) Pipe | OW 27 (Eph) Clearing |
|--|----------------------|------------------|---------------------------|----------------------|------------------|----------------------|------------------|----------------------|----------------------|------------------|----------------------|
| Stream Type Impacted | 0.1 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Priority Area | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Existing Condition | 1.6 | 1.6 | 1.6 | 1.6 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.1 | 0.1 |
| Duration | 0.1 | 0.3 | 0.3 | 0.1 | 0.3 | 0.1 | 0.3 | 0.1 | 0.1 | 0.3 | 0.1 |
| Activity | 0.05 | 2.2 | 1.5 | 0.05 | 2.2 | 0.05 | 2.5 | 0.05 | 0.05 | 2.2 | 0.05 |
| Cumulative Linear Impact | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Sum of Factors (M) | 2.8 | 5.4 | 4.7 | 3.1 | 4.6 | 2.3 | 4.6 | 2.0 | 2.0 | 3.6 | 1.3 |
| Linear Feet of Stream Impacted in Reach (LF) | 67 | 137 | 87 | 231 | 130 | 123 | 37 | 64 | 45 | 384 | 59 |
| M x LF = | 184.3 | 739.8 | 408.9 | 704.6 | 598.0 | 276.8 | 170.2 | 124.8 | 87.8 | 1,382.4 | 73.8 |

Total Stream Mitigation Credits Required = (M x LF) = 16,252.4

070442 Arkadelphia Bypass - Required Wetland Credits (Charleston 2002)

| Factor | W 1 (PEM) Fill | W 2 (PSS) Fill | W 2 (PSS) Clear | W 3 (PEM) Fill | W 4 (PFO) Fill | W 4 (PFO) Clear | W 5 (PEM) Fill | W 6 (PEM) Fill | W 7 (PEM) Fill |
|--------------------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------------|-------------------|-------------------|-------------------|
| Lost Type | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Priority Category | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Existing Condition | 2.5 | 2.5 | 2.5 | 2 | 2.5 | 2.5 | 2 | 2 | 2 |
| Duration | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Dominant Impact | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 3 |
| Cumulative Impact | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| Sum of r Factors | 10.66 | 10.66 | 8.66 | 10.16 | 10.66 | 8.66 | 10.16 | 10.16 | 10.16 |
| Impacted Area | 0.147 | 0.003 | 0.277 | 0.232 | 0.388 | 0.022 | 0.04 | 0.007 | 1.455 |
| R x AA = | 1.57 | 0.03 | 2.40 | 2.36 | 4.14 | 0.19 | 0.41 | 0.07 | 14.78 |

| Factor | W 9 (PFO) Fill | W 9 (PFO) Clear | W 10 (PFO) Fill | W 10 (PFO) Clear | W 11 (PEM) Fill | W 13 (PEM) Fill | W 12 (PEM) Fill | W 14 (PFO) Fill | W 14 (PFO) Clear |
|--------------------|-------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
| Lost Type | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Priority Category | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| Existing Condition | 2.5 | 2.5 | 2.5 | 2.5 | 2 | 2 | 2 | 2.5 | 2.5 |
| Duration | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Dominant Impact | 3 | 1 | 3 | 1 | 3 | 3 | 3 | 3 | 1 |
| Cumulative Impact | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 | 0.66 |
| Sum of r Factors | 10.66 | 8.66 | 10.66 | 8.66 | 10.16 | 10.16 | 10.16 | 10.66 | 8.66 |
| Impacted Area | 1.731 | 1.409 | 2.945 | 2.836 | 0.041 | 0.1 | 0.044 | 0.102 | 0.038 |
| R x AA = | 18.45 | 12.20 | 31.39 | 24.56 | 0.42 | 1.02 | 0.45 | 1.09 | 0.33 |

| Factor | P 1 (pond) Fill | P 2 (pond) Fill | P 3 (pond) Fill | P 4 (pond) Fill |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| Lost Type | 0.2 | 0.2 | 0.2 | 0.2 |
| Priority Category | 0.5 | 0.5 | 0.5 | 0.5 |
| Existing Condition | 1 | 0.1 | 0.1 | 1 |
| Duration | 2 | 2 | 2 | 2 |
| Dominant Impact | 3 | 3 | 3 | 3 |
| Cumulative Impact | 0.66 | 0.66 | 0.66 | 0.66 |
| Sum of r Factors | 7.36 | 6.46 | 6.46 | 7.36 |
| Impacted Area | 0.074 | 0.418 | 0.835 | 0.047 |
| R x AA = | 0.54 | 2.70 | 5.39 | 0.35 |

Required Wetland Mitigation Credits = $\sum (R \times A) =$ 124.8