

ARKANSAS STATE HIGHWAY  
AND  
TRANSPORTATION DEPARTMENT

Scott E. Bennett, P.E.  
Director  
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Little Rock, Arkansas 72203-2261  
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February 8, 2017

Ms. M. Elaine Edwards  
Chief, Regulatory Division  
Little Rock District Corps of Engineers  
P.O. Box 867  
Little Rock, AR 72203-0867

RE: AHTD Job Number CA0702  
Hwy. 274 – Hampton (Widening)(S)  
Calhoun Counties

Dear Ms. Edwards:

Enclosed are the Standard Individual Permit application, Categorical Exclusion, wetland and other waters assessment reports and proposed construction plans for the referenced AHTD project. Construction of this project will replace three bridges and widen the existing alignment of Highway 167 from Hampton to Highway 274 in Calhoun County.

Construction of this project will impact approximately 3.88 acres of wetlands and 1,433 linear feet of streams. Tables 1, 2, and 3 further illustrate the wetland and other water impacts as they are referred to in the wetland and other waters assessment report. Every effort was made throughout the design process to avoid or minimize impacts to wetlands and other waters. For those unavoidable impacts, credits required for mitigation of wetland impacts were determined using the 2010 Charleston Method and stream impacts were determined using the 2011 Little Rock District Stream Method.

Of the total stream impacts, 1,112 linear feet consist of perpendicular culvert replacements or extensions of less than 300 feet per crossing. Those impacts were not included in the mitigation credit calculations. Therefore, a total of 321 linear feet of impacts were used for the compensatory mitigation calculation. AHTD proposes compensatory mitigation to offset unavoidable wetland impacts with 51.5 wetland credits from the Great Bear Mitigation Bank and 1,252 stream credits from the Pelican Foster Mitigation Bank.

If additional information is required, please contact Clint Hutcheson or Josh Seagraves of my staff at (501) 569-2281.

Sincerely,

A handwritten signature in blue ink that reads "John Fleming". The signature is written in a cursive style and is positioned above a horizontal line.

John Fleming  
Division Head  
Environmental Division

JF:JS:CAP:ym

Enclosures: Standard Individual Permit Application  
Categorical Exclusion (CA0702)  
Wetland and Other Water Assessment  
Proposed Construction Plans

**U.S. ARMY CORPS OF ENGINEERS  
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT**  
33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved -  
OMB No. 0710-0003  
Expires: 30-SEPTEMBER-2015*

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

**PRIVACY ACT STATEMENT**

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
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**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

5. APPLICANT'S NAME First - John                      Middle -                      Last - Fleming Company - Arkansas State Highway & Transportation Department E-mail Address - John.Fleming@arkansashighways.com		8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First -                      Middle -                      Last - Company - E-mail Address -	
6. APPLICANT'S ADDRESS: Address- 10324 Interstate 30 City - Little Rock              State - AR              Zip - 72209              Country - U.S.		9. AGENT'S ADDRESS: Address- City -                      State -                      Zip -                      Country -	
7. APPLICANT'S PHONE NOs. w/AREA CODE a. Residence              b. Business              c. Fax 501-569-2281		10. AGENTS PHONE NOs. w/AREA CODE a. Residence              b. Business              c. Fax	

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, \_\_\_\_\_ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

\_\_\_\_\_  
SIGNATURE OF APPLICANT                      DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME OR TITLE (see instructions) CA0702 Highway 167 (Highway 274 to Hampton) (widening)	
13. NAME OF WATERBODY, IF KNOWN (if applicable) Champagnolle Creek and tributaries and wetlands	14. PROJECT STREET ADDRESS (if applicable) Address City -                      State-                      Zip-
15. LOCATION OF PROJECT Latitude: +N 33.552656                      Longitude: -W -92.467806	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID                      Municipality Section -                      Township -                      Range -	

17. DIRECTIONS TO THE SITE

From Thornton, drive approximately 11 miles south on Highway 167 to the Highway 167/Highway 274 intersection, which is the north end of the project area. The project area extends south to near the Hampton city limits.

18. Nature of Activity (Description of project, include all features)

Refer to the design plans for project details.

The proposed centerline will be offset from the existing centerline in the following locations:

VARIES FROM 0'-0" AT STA. 196+20.16 TO 27'-4" AT STA. 237+30, VARIES FROM 27'-4" AT STA. 237+30.00 TO 25'-0" AT STA. 241+30.00, VARIES FROM 25'-0" AT STA. 241+30.00 TO 17'-8" AT STA. 247+54.37, VARIES FROM 17'-8" AT STA. 247+54.37 TO 0'-0" AT STA. 268+07.03

The proposed centerline is on the existing centerline in the following locations:

STA. 196+00.00 TO STA. 196+20.16, STA. 274+81.92 TO STA. 297+00.00 (OVERLAY), STA. 323+37.17 TO STA. 406+85.00 (OVERLAY), STA. 406+85.00 TO STA. 421+20.00 (PROFILE GRADE).

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of this project is to improve capacity and safety on Highway 167, a major rural arterial. The total length of the project is 4.3 miles.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

Roadway widening, bridge construction, and culvert demolition/construction.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type	Type	Type
Amount in Cubic Yards	Amount in Cubic Yards	Amount in Cubic Yards
Permanent Earthen Fill - 29,350 cubic yards	Rip Rap - 15 cubic yards	

Additional details regarding fill is provided in the PJD Report and summary table

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 3.88 acres of wetland impact [3.00 acres of bottomland hardwoods (PFO) and 0.88 acres of emergent wetlands (PEM)].  
or

Linear Feet 537 feet perennial stream impact (2 streams); 896 feet in 13 ephemeral/intermittent streams (5 intermittent and 8 ephemeral).

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Roadway was reduced from a four-lane divided highway to a five-lane section (4 traffic lanes with a center turn lane). This reduced the overall footprint of the project by nearly 30 percent. Please see the attached Preliminary Jurisdictional Determination Report.

24. Is Any Portion of the Work Already Complete?  Yes  No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Please see attached Adjoining Property Owner List.

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
Refer to attached approved Categorical Exclusion					

\* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

John Fleming  
SIGNATURE OF APPLICANT

2/8/2017  
DATE

\_\_\_\_\_  
SIGNATURE OF AGENT

\_\_\_\_\_  
DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

**Impact Summary Tables**

Note: Impacts to Waters of the U.S. must be under ½ acre to use Nationwide Permit 14 (the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States). These summary tables will be attached to the Individual Permit Application to the Little Rock District, U.S. Army Corps of Engineers.

<b>Table 1. Perennial Stream Summary</b>							
<b>Stream Name/ID</b>	<b>Stream Type</b>	<b>Station # (begin:end)</b>	<b>Feet in Study Limits</b>	<b>Feet Impacted in Proposed Construction Limits</b>	<b>Channelization required?</b>	<b>Type/Cubic Yards of Fill</b>	<b>Mitigation</b>
Champagnolle Creek / S2a	Perennial stream that is the main stream channel for Champagnolle Creek.	209+14	588	258	Yes, some channelization to move a bend eastward on the east side of the proposed roadway within WTL-7.	5900 (223)	Roadway was reduced from a four-lane divided highway to a five-lane section (4 traffic lanes with a center turn lane). This reduced the overall footprint of the project by nearly 30 percent.
S2b	Perennial stream at the north end of the Champagnolle Creek floodplain that ran to the west and then south along Highway 167 to Champagnolle Creek.	209+24 238+62	3,328	279	Yes, some channelization east of the proposed roadway north of the North Bridge.	3200 (145)	
S2g	Perennial stream in Champagnolle Creek floodplain.	238+62 240+44	37	0	No	0	
<b>TOTAL:</b>			<b>3,953</b>	<b>537</b>		<b>9100 (368)</b>	

Note: Channelization is assumed for sections of streams that are in the proposed construction limits but are less than a 45 degree angle to the roadway.

Note: Estimates of impact are based upon GIS analysis including the proposed construction limits as supplied by Crafton Tull, and are subject to change.

Note: Feet in Study Limits includes total length within the Study Limits including the existing Highway 167 culverts, and Feet Impacted in Proposed Construction Limits length excludes all existing Highway 167 culverts.

(xx) - Riprap

**Impact Summary Tables cont.**

<b>Table 2. Intermittent and Ephemeral Stream Summary</b>							
<b>Stream Name/ID</b>	<b>Stream Type</b>	<b>Station # (begin:end)</b>	<b>Feet in Study Limits</b>	<b>Feet Impacted in Proposed Construction Limits</b>	<b>Channelization required?</b>	<b>Type/Cubic Yards of Fill</b>	<b>Mitigation</b>
S1	Ephemeral stream flowing west under Highway 167. This stream is within the Champagnolle Creek floodplain.	198+26	355	62	No	70 (15)	Roadway was reduced from a four-lane divided highway to a five-lane section (4 traffic lanes with a center turn lane). This reduced the overall footprint of the project by nearly 30 percent.
S2c	Ephemeral stream flowing into S2e east of Highway 167. This stream is within the Champagnolle Creek floodplain.	227+28 228+30	110	110	No	0	
S2d	The intermittent portion of an overflow channel for Champagnolle Creek.	228+35	57	57	No	1300	
S2d	Ephemeral stream flowing into S9d east of Highway 167. This stream is within the Champagnolle Creek floodplain.	228+31	87	20	No	0	
S2e	The intermittent portion of an overflow channel for Champagnolle Creek.	228+57	138	81	No	1850 (165)	
S2e	Ephemeral stream flowing southwest and then west under Highway 167. This stream is within the Champagnolle Creek floodplain.		273	200	Yes, some channelization east of the proposed roadway within WTL-9.	0	
S2f	Intermittent stream flowing to the west on the west side of Highway 167 in the north end of the Champagnolle Creek floodplain.	225+50	24	0	No	0	
S3	Ephemeral stream flowing east under Highway 167 within the Champagnolle Creek watershed.	299+24	301	57	No	10 (6)	
S4	Ephemeral stream flowing east under Highway 167 within the Champagnolle Creek watershed.	306+52 306+81	220	43	No	10 (4)	

<b>Table 2. Intermittent and Ephemeral Stream Summary</b>							
<b>Stream Name/ID</b>	<b>Stream Type</b>	<b>Station # (begin:end)</b>	<b>Feet in Study Limits</b>	<b>Feet Impacted in Proposed Construction Limits</b>	<b>Channelization required?</b>	<b>Type/Cubic Yards of Fill</b>	<b>Mitigation</b>
S5	Ephemeral stream beginning at WTL-10 and flowing east under Highway 167 within the Champagnolle Creek watershed.	326+41	218	73	No	20 (15)	
S6	Ephemeral stream flowing east under Highway 167 within the Champagnolle Creek watershed.	335+73	206	41	No	20	
S7	Ephemeral stream flowing west under Highway 167 from WTL-14 to WTL-13 and then under W. Calhoun 89 into WTL-12. The stream continues west along W. Calhoun 89 and is within the Taylor Creek watershed.	364+65	166	21	No	5 (6)	
S8	Intermittent stream flowing west under Highway 167 within the Taylor Creek watershed.	385+56	390	73	No	40	
S9	Intermittent stream flowing west under Highway 167 within the Taylor Creek watershed.	399+56	230	58	No	30	
<b>TOTAL:</b>			<b>2,775</b>	<b>896</b>		<b>3355 (,211)</b>	
<p>Note: Channelization is assumed for sections of streams that are in the proposed construction limits but are less than a 45 degree angle to the roadway.</p> <p>Note: Estimates of impact are based upon GIS analysis including the proposed construction limits as supplied by Crafton Tull and are subject to change.</p> <p>Note: Feet in Study Limits includes total length within the Study Limits including the existing Highway 167 culverts, and Feet Impacted in Proposed Construction Limits length excludes all existing Highway 167 culverts.</p> <p>Note: Intermittent and ephemeral stream lengths are included in this single table, because some of the stream segments transition from ephemeral to intermittent.</p> <p>(xx) - Riprap</p>							

**Impact Summary Tables cont.**

<b>Table 3. Wetland Summary</b>						
<b>Wetland ID</b>	<b>Wetland Type and Cowardin Classification</b>	<b>Station # (begin:end)</b>	<b>Acreage in Study Limits</b>	<b>Acreage Impacted in Proposed Construction Limits</b>	<b>Type/Cubic Yards of Fill</b>	<b>Mitigation</b>
Wetland 1 (WTL-1)	Bottomland hardwood wetland. PFO	190+42 191+24	1.43	0	0	Roadway was reduced from a four-lane divided highway to a five-lane section (4 traffic lanes with a center turn lane). This reduced the overall footprint of the project by nearly 30 percent.
Wetland 2 (WTL-2)	Bottomland hardwood wetland. PFO		0.92	0	0	
Wetland 3 (WTL-3)	Bottomland hardwood wetland with emergent herbaceous ditches along outside edge. PFO/PEM	196+00 200+17	1.07 - PFO 0.03 - PEM	0.11 – PFO 0.03 - PEM	600	
Wetland 4 (WTL-4)	Bottomland hardwood wetland. PFO	197+16 199+82	0.81	0	0 (15)	
Wetland 5 (WTL-5)	Bottomland hardwood wetland with emergent herbaceous ditches along outside edge. PFO/PEM	200+48 209+52	1.68 – PFO 0.40 - PEM	0.54 - PFO 0.40 - PEM	8400	
Wetland 6 (WTL-6)	Bottomland hardwood wetland. PFO	209+21 222+46	0.50	0	0	
Wetland 7 (WTL-7)	Bottomland hardwood wetland. PFO	209+52 238+29	5.92	2.29	19,000	
Wetland 8 (WTL-8)	Side channel bottomland hardwood wetland. PFO	229+22 229+52	0.07	0.02	130	
Wetland 9 (WTL-9)	Emergent herbaceous wetland. PEM	244+50 246+12	0.38	0.13	250	
Wetland 10 (WTL-10)	Pine flatland wetland. PFO	325+90 226+80	0.67	0.02	260	
Wetland 11 (WTL-11)	Emergent herbaceous wetland. PEM	359+69 364+41	0.81	0.22	400	
Wetland 12 (WTL-12)	Emergent herbaceous wetland with a forest edge component in the study limits. PEM/PFO	361+09 363+00	0.17 – PFO 0.02 - PEM	0 - PFO 0.01 - PEM	35	
Wetland 13 (WTL-13)	Forested wetland with an emergent herbaceous edge component. PFO/PEM	363+18 364+87	0.23 - PFO 0.01 - PEM	0 - PFO 0.01 - PEM	30	
Wetland 14 (WTL-14)	Emergent herbaceous wetland. PEM	364+23 365+72	0.13	0.06	130	

<b>Table 3. Wetland Summary</b>						
<b>Wetland ID</b>	<b>Wetland Type and Cowardin Classification</b>	<b>Station # (begin:end)</b>	<b>Acreage in Study Limits</b>	<b>Acreage Impacted in Proposed Construction Limits</b>	<b>Type/Cubic Yards of Fill</b>	<b>Mitigation</b>
Wetland 15 (WTL-15)	Hillslope seep primarily herbaceous wetland with a small forest edge component. PEM/PFO	408+71 409+47	0.06 – PFO 0.06 - PEM	0.02 - PFO 0.02 - PEM	115	
<b>TOTAL:</b>			<b>15.37</b>	<b>3.88</b>		
Note: Wetland acronyms include: PEM (Palustrine Emergent – 1.84 acres total) and PFO (Palustrine Forested – 13.53 acres total).						

**Summary**

A total of 29,350 yds<sup>3</sup> of permanent earthen fill and 15 yds<sup>3</sup> of rip-rap will be added to waters of the U.S. in 3 perennial streams, 5 intermittent streams, 9 ephemeral streams, and 15 wetlands.

There will be 983 yds<sup>3</sup> of temporary fill material for six temporary haul roads associated with the three bridge crossings. Please see attached 3-page drawing (Conceptual Work Plan for Temporary Fill).

## CA0702 Property Owner List and Addresses

Jarrell B. & Jo Felton, Trustees  
109 S. Lee Street  
Hampton, AR 71744

Victor & LouNeil Myers  
P. O. Box 179  
Hermitage, AR 71647

C B Realty Corporation  
241 Lee  
Hampton, AR 71744

Norris Mechanical Shop Inc.  
C/o Bruce Floss  
2400 Lorene  
El Dorado, AR 71730

Ted & Sylvia Jo Roark  
329 Lee  
Hampton, AR 71744

Cabun Rural Health Services  
P. O. Box 851  
Hampton, AR 71744

John R. & Angela Newton  
P. O. Box 1045  
Hampton, AR 71744

Samba's Liquor, Inc  
P. O. Box 1161  
Hampton, AR 71744

Sara Strickland  
515 Lee  
Hampton, AR 71744

Roy A. & Carol Thompson  
Sportman's One Stop  
P. O. Box 928  
Hampton, AR 71744

PB General Holdings (Hampton) LLC  
P. O. Box 22407  
Little Rock, AR 72221

Floyd & Myra Hearnberger  
P.O. Box 268  
Hampton, AR 71744

Frances Turner O'Mary  
P.O. Box 826  
Hampton, AR 71744

Robert N. & Carolyn L. Loveless  
P. O. Box 683  
Hampton, AR 71744

L D Becton III & Mary Ann Becton  
P.O. Box 3  
Hampton, AR 71744

Doyle K. Parker  
P.O. Box 10033  
El Dorado, AR 71730

Bobby Lee & Josie Oliver  
P.O. Box 662  
Hampton, AR 71744

John & Judy Southall  
111 S Lee  
Hampton, AR 71744

Central Arkansas Development Council  
722 Gaunt St.  
Benton, AR 72018

Heart Associates of S Ark LLC  
619 W Grove St.  
El Dorado, AR 71730

Fred Bradshaw  
P.O. Box 1214  
Hampton, AR 71744

J & S Mini Storage Inc.  
424 Olive St.  
Hampton, AR 71744

E T & Verta Mae Buzbee  
P.O. Box 25  
Hampton, AR 71744

Carlton E Loftis  
P.O. Box 305  
Hampton, AR 71744

Richard Buchanan  
PO Box 719  
Hampton, AR 71744

Charlette Harrell Dunn  
P.O. Box 966  
Hampton, AR 71744

Harrell Auto Supply  
PO Box 657  
Hampton, AR 71744

R & L Properties  
P.O. Drawer A  
Batesville, AR 72503

JMB Properties LLC  
5504 Calhoun 22  
Hampton, AR 71744

## CA0702 Property Owner List and Addresses

Beene Holdings LLC  
5502 Calhoun 22  
Hampton, AR 71744

Michael & Anne Martin  
PO Box 375  
Hampton, AR 71744

H P Rowen & Mary Lee Rowen  
PO Box 126  
Hampton, AR 71744

Robert Porter  
PO Box 342  
Hampton, AR 71744

Jeffery & Karen Carlock  
PO Box 997  
Hampton, AR 71744

Hampton Builders Supply  
PO Box 647  
Hampton, AR 71744

J & K Transport Inc.  
1599 E US 278 Hwy  
Hampton, AR 71744

Keith Nutt  
PO Box 261  
Hampton, AR 71744

Nutt & Osborne Properties LP  
PO Box 1014  
Camden, AR 71701-1014

Richard Carson  
2996 Calhoun 182  
Hampton, AR 71744

Whipple Family United Partnership  
P. O. Box 515  
Arkadelphia, AR 71923

Robert N. & Carolyn L. Loveless  
P.O. Box 683  
Hampton, AR 71744

Deltic Timber Corporation  
P. O. Box 7200  
El Dorado, AR 71730

Vernon R. Nutt  
Patsy & Brian R. Nutt  
P. O. Box 734  
Hampton, AR 71744

Harry Joe & Sherry Ritchie  
842 Calhoun 24  
Hampton, AR 71744

Kent & Elizabeth Strickland  
3624 S. Hwy 167  
Hampton, AR 71744

Dunn/Hanson/Strickland/Jackson  
C/o Sheila Dunn  
P. O. Box 653  
Hampton, AR 71744

Sherry McElyea  
3682 S. US 167 Hwy  
Hampton, AR 71744

Michael Stevens  
3754 S. US 167 Hwy  
Hampton, AR 71744

Darrell & Pat Donaldson  
3778 S. US 167 Hwy  
Hampton, AR 71744

Cheryl Dunn & Douglas Blann  
3906 S. US 167 Hwy  
Hampton, AR 71744

Ronald G. & June J. Southall  
919 Hazelhurst Street  
El Dorado, AR 71730

L. Memard & Lynda Strickland  
P.O. Box 19205  
Houston, TX 77224

James L. & Doris Burrow  
3821 S. Hwy 167  
Hampton, AR 71744

Barry L. & Claudette A. Southall  
P. O. Box 516  
Hampton, AR 71744

W. Phillip & Jan H. Strickland  
3012 Bay Villas Drive  
Destin, FL 32550-4568

James Haywood Nutt  
P. O. Box 704  
Hampton, AR 71744

Wade & Rexanne Nutt  
4505 US 167 Hwy  
Hampton, AR 71744

Marilyn Furlow Peace  
P. O. Box 115  
Hampton, AR 71744

## **CA0702 Property Owner List and Addresses**

Calhoun County Timber, LLC  
1575 Cash Road SW  
Camden, AR 71701

Plum Creek Timberlands LP  
P. O. Box 717  
Crossett, AR 71635

Cellco Partnership DBA Verizon Wireless  
P. O. Box 635  
Baskin Ridge, NJ 07920

Nu-Quest Acquisitions LLC  
4505 S. US 167 Hwy  
Hampton, AR 71744

# ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

Scott E. Bennett  
Director  
Telephone (501) 569-2000  
Voice/TTY 711



P.O. Box 2261  
Little Rock, Arkansas 72203-2261  
Telefax (501) 569-2400  
www.arkansashighways.com

May 23, 2016

Mr. Angel Correa  
Division Administrator  
Federal Highway Administration  
700 West Capitol, Room 3130  
Little Rock, Arkansas 72201-3298

Re: Job Number CA0702  
FAP Number ACNHPP-0007(27)  
Hampton – Hwy. 274 (Widening) (S)  
Calhoun County  
Tier 3 Categorical Exclusion

Dear Mr. Correa:

The Environmental Division has reviewed the referenced project and it falls within the definition of the Tier 3 Categorical Exclusion as defined by the AHTD/FHWA Memorandum of Agreement on the processing of Categorical Exclusions. The following information is included for your review and, if acceptable, approval as the environmental documentation for this project.

The purpose of this project is to widen Highway 167 from Hampton to Highway 274 in Calhoun County. Total length of the project is 4.3 miles. An enclosed figure illustrates the project location.

The existing roadway consists of two 12-foot wide paved travel lanes with 3'- 6' wide shoulders. The existing right of way width averages 120 feet. Information about the existing structures is provided in Table 1.

Proposed improvements include four 12-foot wide paved travel lanes with 8-foot wide shoulders and an 11-foot wide painted median. The proposed average right of way width will average 145' - 292'. Approximately 17.2 acres of additional right of way will be required for this project. Information about the proposed structures is provided in Table 2.

Table 1		
Bridge No.	Stream	Existing Structure Information
A0309	Champagnolle Creek	175' x 43' reinforced concrete deck girder spans supported by concrete pile bents and a sufficiency rating of 86.9
A2041	Champagnolle Creek Relief	162' x 43' reinforced concrete deck girder spans supported by concrete pile bents and a sufficiency rating of 93.3
A0308	Champagnolle Creek Relief	75' x 43' reinforced concrete deck girder spans supported by concrete pile bents and a sufficiency rating of 93.3

Table 2		
Stream	Proposed Structure	Detour Location
Champagnolle Creek	Sextuple 12' x 7' x 140' reinforced concrete box culvert	None
Champagnolle Creek Relief	Quadruple 12' x 7' x 140' reinforced concrete box culvert	None
Champagnolle Creek Relief	Triple 12' x 7' x 140' reinforced concrete box culvert	None

Design data for this project is as follows:

Design Year	Average Daily Traffic	Percent Trucks	Design Speed
2016	3,700	26	60 mph
2036	4,600	26	60 mph

There are no relocatees, environmental justice issues, or endangered species associated with this project. Field inspections found no evidence of existing underground storage tanks or hazardous waste deposits. No impacts to cultural resources are anticipated; concurrence from the State Historic Preservation Officer is enclosed. Noise predictions have been made for this project utilizing the Federal Highway Administration's Traffic Noise Model 2.5 procedures. A noise assessment is enclosed. Approximately 5.8 acres of Prime Farmland will be converted to highway right of way and Form NRCS-CPA-106 is enclosed.

Calhoun County participates in the National Flood Insurance Program. All of the floodplain encroachments within this highway construction project will be designed to comply with the county's local flood damage prevention ordinance. The project lies within the Zone A, Special Flood Hazard Area. The final project design will be reviewed to confirm that the design is adequate and that the potential risk to life and property are minimized. Adjacent properties should not be impacted nor have a greater flood risk than existed before construction of the project. None of the encroachments will constitute a significant floodplain encroachment or a significant risk to property or life.

A Preliminary Jurisdictional Determination for Wetlands and Waters of the United States was prepared for the Arkansas Highway and Transportation Department and is included in the project file. A total of 15 wetlands and 17 streams were identified within the project corridor. The streams included three perennial streams, five intermittent streams and nine ephemeral streams. Construction of this project will impact a total of 3.9 acres of wetlands and 1,433 linear feet of streams (537 linear feet of perennial streams, 269 linear feet of intermittent streams, 627 linear feet of ephemeral streams). The proposed project should be allowed under the terms of Standard Individual Section 404 Permit.

A public involvement meeting for this project was held on January 14, 2016 in Hampton Arkansas. A public involvement synopsis is enclosed.

If you have any questions, please contact the Environmental Division at 569-2281.

Sincerely,

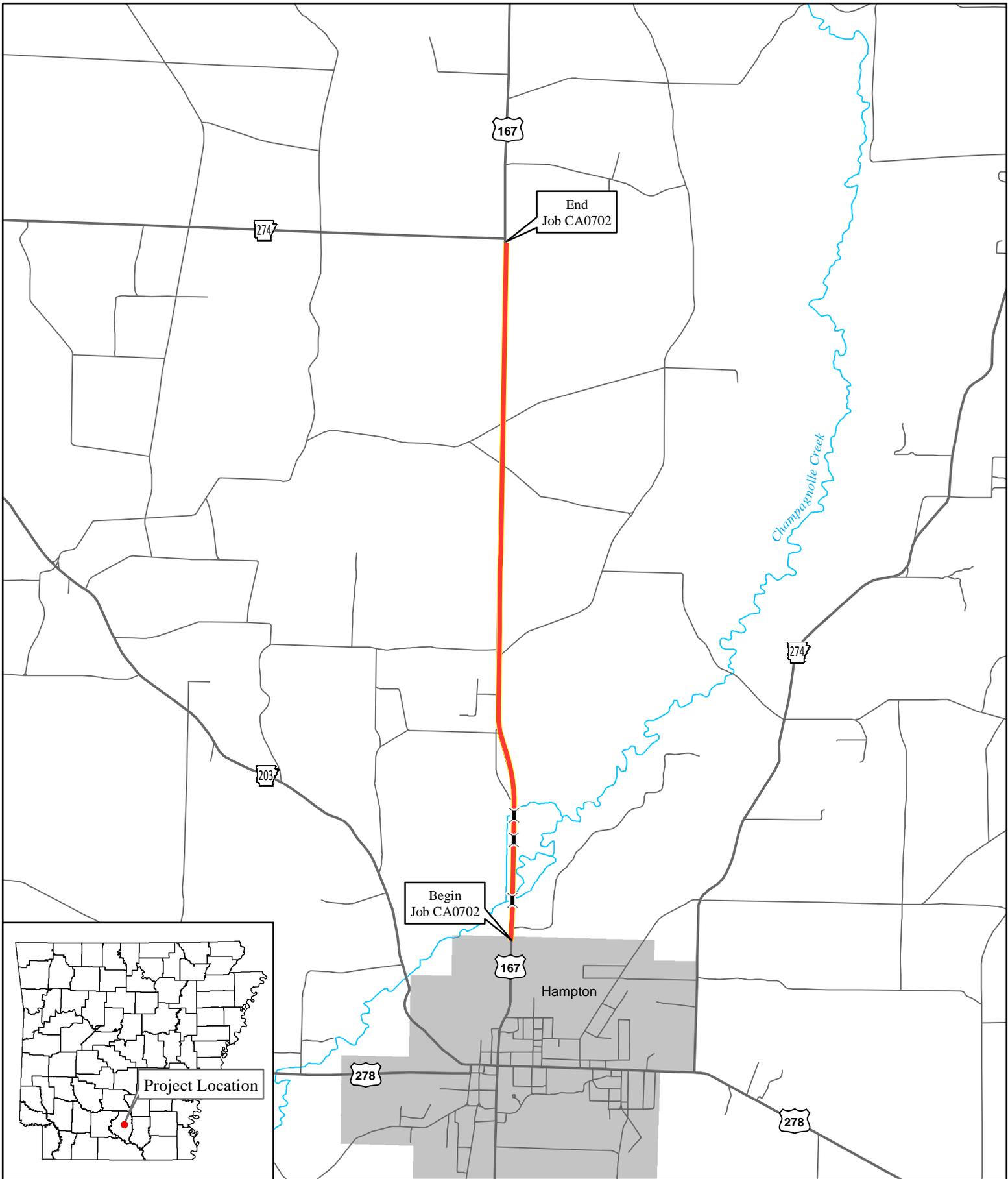


John Fleming  
Division Head  
Environmental Division

Enclosures

JF:JB:fc

- c: Program Management
- Right of Way
- Roadway Design
- CAP Manager
- District 7
- Master File



Job CA0702  
Hampton - Hwy. 274  
(Widening) (Hwy. 167)  
Calhoun County

Project Location

**FARMLAND CONVERSION IMPACT RATING  
FOR CORRIDOR TYPE PROJECTS**

<b>PART I (To be completed by Federal Agency)</b> Job CA0702	3. Date of Land Evaluation Request 5/13/2016	4. Sheet 1 of _____
--	--	---------------------

1. Name of Project Hampton – Hwy. 274 (Widening)	5. Federal Agency Involved FHWA
--	---------------------------------

2. Type of Project Widening	6. County and State Calhoun AR.
-----------------------------	---------------------------------

<b>PART II (To be completed by NRCS)</b>	1. Date Request Received by NRCS	2. Person Completing Form
--	----------------------------------	---------------------------

3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form).	YES	NO	4. Acres Irrigated	Average Farm Size
--	-----	----	--------------------	-------------------

5. Major Crop(s)	6. Farmable Land in Government Jurisdiction Acres: %	7. Amount of Farmland As Defined in FPPA Acres: %
------------------	---	--

8. Name Of Land Evaluation System Used	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS
--	---	---

<b>PART III (To be completed by Federal Agency)</b>	<b>Alternative Corridor For Segment</b>			
	Corridor A	Corridor B	Corridor C	Corridor D

A. Total Acres To Be Converted Directly				
---	--	--	--	--

B. Total Acres To Be Converted Indirectly, Or To Receive Services				
---	--	--	--	--

C. Total Acres In Corridor				
----------------------------	--	--	--	--

<b>PART IV (To be completed by NRCS) Land Evaluation Information</b>				
--	--	--	--	--

A. Total Acres Prime And Unique Farmland	5.8			
--	-----	--	--	--

B. Total Acres Statewide And Local Important Farmland				
---	--	--	--	--

C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				
---	--	--	--	--

D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				
--	--	--	--	--

<b>PART V (To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)</b>				
--	--	--	--	--

<b>PART VI (To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))</b>	Maximum Points			
--	----------------	--	--	--

1. Area in Nonurban Use	15	15		
-------------------------	----	----	--	--

2. Perimeter in Nonurban Use	10	10		
------------------------------	----	----	--	--

3. Percent Of Corridor Being Farmed	20	5		
-------------------------------------	----	---	--	--

4. Protection Provided By State And Local Government	20	0		
--	----	---	--	--

5. Size of Present Farm Unit Compared To Average	10	0		
--	----	---	--	--

6. Creation Of Nonfarmable Farmland	25	0		
-------------------------------------	----	---	--	--

7. Availability Of Farm Support Services	5	5		
--	---	---	--	--

8. On-Farm Investments	20	0		
------------------------	----	---	--	--

9. Effects Of Conversion On Farm Support Services	25	0		
---	----	---	--	--

10. Compatibility With Existing Agricultural Use	10	0		
--	----	---	--	--

TOTAL CORRIDOR ASSESSMENT POINTS	160	35		
----------------------------------	-----	----	--	--

<b>PART VII (To be completed by Federal Agency)</b>				
---	--	--	--	--

Relative Value Of Farmland (From Part V)	100	100		
--	-----	-----	--	--

Total Corridor Assessment (From Part VI above or a local site assessment)	160	35		
---	-----	----	--	--

<b>TOTAL POINTS (Total of above 2 lines)</b>	<b>260</b>	<b>135</b>		
--	------------	------------	--	--

1. Corridor Selected: New Location Adjacent to existing	2. Total Acres of Farmlands to be Converted by Project: 5.8 acres of Prime Farmland	3. Date Of Selection:	4. Was A Local Site Assessment Used?  YES <input type="checkbox"/> NO <input type="checkbox"/>
---	---	-----------------------	--

5. Reason For Selection:

Signature of Person Completing this Part:	DATE 5/23/16
---	--------------

**NOTE: Complete a form for each segment with more than one Alternate Corridor**

## AHTD JOB NUMBER CA0702

### NOISE ANALYSIS

#### *Fundamentals of Sound and Noise*

“Noise” is defined as an unwanted sound. Sounds are described as noise if they interfere with an activity or disturb the person hearing them. Sound is measured in a logarithmic unit called a decibel (dB). The human ear is more sensitive to middle and high frequency sounds than it is to low frequency sounds, so sound levels are weighted to more closely reflect human perceptions. These “A-weighted” sounds are measured using the decibel unit dB(A). Because the dB(A) is based on a logarithmic scale, a 10 dB(A) increase in sound level is generally perceived as twice as loud while a 3 dB(A) increase is just barely perceptible to the human ear.

Sound levels fluctuate with time depending on the sources of the sound audible at a specific location. In addition, the degree of annoyance associated with certain sounds varies by time of day, depending on other ambient sounds affecting the listener and the activities of the listener. The time-varying fluctuations in sound levels at a fixed location can be quite complex, so they are typically reported using statistical or mathematical descriptors that are a function of sound intensity and time. A commonly used descriptor of the equivalent sound level is  $Leq$ , which represents the equivalent of a steady, unvarying level over a defined period of time containing the same level of sound energy as the time varying noise environment.  $Leq(h)$  is a sound level averaged over one hour. For highway projects, the  $Leq(h)$  is commonly used to describe traffic-generated sound levels at locations of outdoor human use and activity (such as residences).

#### *Noise Impact Criteria*

Traffic noise impacts take place when the predicted traffic noise levels approach or exceed the noise abatement standard, or when the predicted traffic noise levels exceed the existing noise level by ten dB(A) (decibels on the A-scale). The noise abatement standard of 67 dB(A) is used for sensitive noise receptors such as residences, schools, churches, cemeteries and parks. The term “approach” is considered to be one dB(A) less than the noise abatement standard.

The number of noise receptors was estimated for this project utilizing the Federal Highway Administration’s Traffic Noise Model 2.5, existing and proposed roadway information, existing traffic information, and projected traffic levels for 2038.

#### *Traffic noise analyses*

Traffic noise analyses were performed for the project utilizing a roadway cross-section for Highway 167 consisting of four 12-foot paved travel lanes, one 11-foot turn lane, and paved shoulder widths of 8 feet.

### ***Effects of Project***

The traffic noise estimates for the project resulted in a noise abatement distance of 148 feet from the centerline of Highway 167 in project area. Approximately 2 sensitive receptors could be affected by future noise levels greater than 66 dB(A).

### ***Traffic Noise Abatement***

Since noise impacts are predicted within 500 feet of the proposed project, the feasibility and reasonableness of potential noise abatement measures must be evaluated. Based upon AHTD's "Policy on Highway Traffic Noise Abatement", any noise abatement effort using barrier walls or berms is not warranted for this project. In order to provide direct access to the highway from adjacent properties, breaks in the barrier walls or berms would be required. These necessary breaks for highway access would render any noise barrier ineffective.

To avoid noise levels in excess of design levels, any future receptors should be located a minimum of 10 feet beyond the distance that the noise abatement standard is projected to occur. This distance should be used as a general guide and not a specific rule since the noise will vary depending upon the roadway grades and other noise contributions.

Any excessive project noise, due to construction operations, should be of short duration and have a minimum adverse effect on land uses or activities associated with this project area.

In compliance with Federal guidelines, a copy of this analysis will be transmitted to the South West Arkansas Planning and Development District for possible use in present and future land use planning.



IN REPLY REFER TO:

# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
110 S. Amity Road, Suite 300  
Conway, Arkansas 72032  
Tel.: 501/513-4470 Fax: 501/513-4480



February 17, 2015

Mr. John Fleming  
Division Head, Environmental Division  
c/o Mr. Josh Seagraves  
Arkansas State Highway and Transportation Department  
P.O. Box 2261  
Little Rock, Arkansas 72203-2261

Dear Mr. Fleming:

The Fish and Wildlife Service (Service) has reviewed your letter dated December 16, 2014, regarding the Arkansas State Highway and Transportation Department (AHTD) proposal to widen Highway 167 from the city of Hampton, Arkansas north to Highway 79 with four separate projects, a distance of 18.92 miles. Our comments are submitted in accordance with the Endangered Species Act (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.) and represents the report of the Department of the Interior.

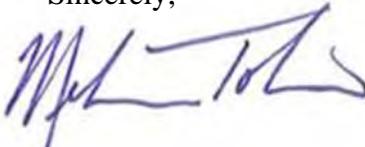
The AHTD letter stated the following:

“USFWS county records list six threatened and endangered species from Calhoun County. They include the Ouachita Rock-Pocketbook (*Arcidens wheeleri*), Pink Mucket (*Lampsilis abrupta*), Redcockaded Woodpecker (*Picoides borealis*), Winged Mapleleaf (*Quadrula fragosa*), Rabbitsfoot (*Quadrula cylindrica*), and Spectaclecase (*Cumberlandia monodonta*). A records check of the Arkansas Natural Heritage Commission's Sensitive Species Database found no record for these species within the project area. Based on these observations, we have determined that the project is not likely to adversely affect listed species. We request your concurrence in our determination.”

According to our records, there are no known federally listed or proposed threatened or endangered species in the affected area of the project. Furthermore, the Service concurs with your determination.

We thank you for your cooperation in helping to protect endangered species. For further assistance or if you have any questions, please contact Lindsey Lewis at (501) 513-4489 or [Lindsey\\_Lewis@fws.gov](mailto:Lindsey_Lewis@fws.gov).

Sincerely,



Melvin Tobin  
Deputy Project Leader

cc:

Randal Looney, Federal Highway Administration

Cindy Osborne, Arkansas Natural Heritage Commission

Jennifer Sheehan, Arkansas Game and Fish Commission

John Turner, Arkansas Natural Resources Conservation Commission

Mark Hathcote, Arkansas Department of Environmental Quality

Wanda Boyd, United States Environmental Protection Agency

C:\Users\lilewis\Documents\PROJECTS\FY2015\AHTD\AHTD - HWY 167 Improvements\Concurrence HWY 167.doc



THE DEPARTMENT OF ARKANSAS  
**HERITAGE**

September 28, 2015

Mr. Bill McAbee  
CAP Environmental Project Manager  
Arkansas State Highway & Transportation Department  
Connecting Arkansas Program  
P.O. Box 2261  
Little Rock, AR 72203-2261

Asa Hutchinson  
Governor

Stacy Hurst  
Director

RE: Calhoun County – General  
Section 106 Review – FHWA  
Report Titled *Cultural Resources Survey for the Highway 167, Section 4 Widening Project (AHTD Job No. CA0702), from Hampton to Highway 274, Calhoun County, Arkansas*  
AHPP Tracking Number 92926.1

Arkansas Arts Council

Arkansas Natural Heritage  
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars  
Cultural Center

Old State House Museum

Dear Mr. McAbee:

The staff of the Arkansas Historic Preservation Program has reviewed the above-referenced cultural resources report. Based on the information presented in this report, we concur that those sections of sites SCA0092 and SCA0179 within the proposed right of way are significantly disturbed and do not retain any integrity or intact subsurface deposits that might contribute to the sites being eligible for the National Register of Historic Places. Therefore, we find that the proposed undertaking will have no effect on historic properties.

We would note that, as stated in the report, the eligibility of the site segments outside of the proposed project are still considered undetermined.

Although SCA0092 and SCA0179 are discussed as archeological sites, we would point out that as transportation structures these types of properties are more likely to be determined eligible to the National Register of Historic Places under Criterion A, B or C. We recommend that during future evaluations of transportation properties listed as archeological sites a more in-depth investigation of early transportation maps (including Auto Trail Maps, early rural mail delivery maps, 1879 Post Route Map of Arkansas.), engineering references, early county road records (including Road Improvement District documents) and AHTD records be conducted. These records can help determine if these types of transportation properties may be eligible for the NRHP under Criterion A, B or C, for their association with the history of road construction and transportation in Arkansas, noted railroad, highway or bridge engineers or for their design and construction.

Thank you for the opportunity to review this undertaking. Please refer to the AHPP Tracking Number listed above in all correspondence. If you have any questions, please call Bob Scoggin of my staff at 501-324-9270

Sincerely,

Frances McSwain  
Deputy State Historic Preservation Officer

cc: Mr. Randal Looney, Federal Highway Administration  
Ms. Tamara Francis-Fourkiller, Caddo Nation  
Dr. Ian Thompson, Choctaw Nation of Oklahoma  
Dr. Andrea Hunter, Osage Nation  
Mr. Everett Bandy, Quapaw Tribe of Oklahoma  
Ms. Kim Jumper, Shawnee Tribe of Oklahoma  
Dr. Ann Early, Arkansas Archeological Survey



Arkansas Historic  
Preservation Program



323 Center Street, Suite 1500  
Little Rock, AR 72201

(501) 324-9880  
fax: (501) 324-9184  
tdd: 711

e-mail:

[info@arkansaspreservation.org](mailto:info@arkansaspreservation.org)

website:

[www.arkansaspreservation.com](http://www.arkansaspreservation.com)

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THE DEPARTMENT OF ARKANSAS  
**HERITAGE**

Asa Hutchinson  
*Governor*

Stacy Hurst  
*Director*

---

Arkansas Arts Council

Arkansas Natural Heritage  
Commission

Delta Cultural Center

Historic Arkansas Museum

Mosaic Templars  
Cultural Center

Old State House Museum

---



Arkansas Historic  
Preservation Program



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website:  
[www.arkansaspreservation.com](http://www.arkansaspreservation.com)

An Equal Opportunity Employer

May 14, 2015

Mr. Bill McAbee  
CAP Environmental Program Manager  
Arkansas State Highway and Transportation Department  
PO Box 2261  
Little Rock, AR 72203-2261

RE: Calhoun County – Hampton  
Section 106 Review – FHWA  
Request for Technical Assistance  
AHTD Job Number CA0702  
Hwy 274 – Hampton (Widening)(S)  
AHPP Tracking Number 92926

Dear Mr. McAbee:

This letter is written in response to your inquiry regarding properties of architectural or historical significance in the area of the proposed referenced project. The staff of the Arkansas Historic Preservation Program has reviewed the documents that pertain to this undertaking and has determined that the five structures (Structures 1-5) pictured in the documentation provided with your April 4, 2015, letter are not eligible for inclusion in the National Register of Historic Places.

Once the undertaking is further along in the planning stages, we look forward to reviewing the proposed project. If you should have any questions or comments, please do not hesitate to contact Theresa Russell of my staff at (501)-324-9357.

Sincerely,

Frances McSwain  
Deputy State Historic Preservation Officer

cc: Mr. Randal Looney, Federal Highway Administration  
Mr. Robert Cast, Caddo Nation  
Dr. Andrea Hunter, Osage Nation  
Mr. Everett Bandy, Quapaw Tribe of Oklahoma  
Ms. Kim Jumper, Shawnee Tribe of Oklahoma  
Dr. Ann Early, Arkansas Archeological Survey



## Public Meeting Synopsis

### **Job CA0702**

### **Hampton – Highway 274 (Widening) (Hwy. 167)**

### **Calhoun County**

**Thursday, January 14, 2016**

An open-forum public involvement meeting for the proposed widening of Highway 167 extending from Hampton to Highway 274 in Calhoun County was held at Hampton High School (Cafeteria), 455 East Main Street in Hampton, Arkansas from 4:00 – 7:00 p.m. on January 14, 2016. A public officials meeting was held at 3:00 p.m. on the same day. Efforts to involve minorities and local property owners in the meeting included:

- Display ads were placed in the South Arkansas Sun on January 7, 2016 and January 14, 2016.
- A radio Public Service Announcement (PSA) was run twice a day from January 11, 2016 through January 14, 2016 on KCXY-FM 95.3.
- Letters to public officials were mailed on December 28, 2015, and fliers were emailed on January 7, 2016.
- Fliers to adjacent property owners were mailed December 28, 2015.
- Fliers to stakeholders and people interested in the project were mailed on December 28, 2015 and emailed January 7, 2016.
- Meeting notice fliers were delivered door-to-door along the project route and to churches in Hampton on January 6, 2016.
- A news release was distributed to the media on January 8, 2016.
- A meeting announcement was listed on [ConnectingArkansasProgram.com](http://ConnectingArkansasProgram.com) and [ArkansasHighways.com](http://ArkansasHighways.com) on December 17, 2015.
- Exhibits showing Hooder and Bowen properties were provided by the CAP Manager after the public meeting at the property owner's request.

The following information was available for inspection and comment:

- Two aerial photograph roll plots at a scale of 1" = 200', illustrating the entire length of the proposed project
- Two 24" x 36" aerial photographs on mounted boards at a scale of 1" = 1000', illustrating the entire length of the proposed project
- Two 24" by 36" boards showing the proposed typical section of improvements for Highway 167.
- Three CAP informational boards.



# Public Meeting Synopsis

Handouts for the public included a comment sheet and a small-scale map illustrating the project location, which was identical to the aerial photography display. Copies of these are attached to this synopsis.

Table 1 describes the results of public officials participation at the 3 p.m. meeting.

Table 1	
Public Official Participation	Total
Attendance at meeting (including AHTD, CAP and CTA staff)	13
Comments received	0

Table 2 describes the results of public participation at the 4-7 p.m. meeting.

Table 2	
Public Participation	Total
Attendance at meeting (including AHTD, CAP and CTA staff)	19
Comments received	3

Crafton Tull reviewed all comments received and evaluated their contents. The summary of comments listed below reflects the personal perception or opinion of the person or organization making the statement. The sequencing of the comments is random and is not intended to reflect importance or numerical values. Some of the comments were combined and/or paraphrased to simplify the synopsis process.

An analysis of the responses received from the public survey is shown in Table 3.



## Public Meeting Synopsis

Table 3

Survey Results	Totals
Supports improvements to Hwy. 167	3
Does not support improvements to Hwy. 167	0
Believes the project would have beneficial impacts	1
Believes the project would have adverse impacts	1
Knowledge of historical, archeological or cemetery sites	0
Knowledge of area environmental constraints	0
Home or property offers limitations to the project that need to be considered during the design	1
Suggestion to better serve the needs of the community	0
Additional Comments	3
<b>Total Comments Received</b>	<b>3</b>

The following is a listing of comments concerning issues associated with this project:

- One comment said they have a well close to the highway but doesn't know if it will be affected.
- One comment said the project was needed because there is a lot of traffic.
- One comment said the project was beneficial because it will generate revenue.
- One comment said the project was beneficial because it will help travel to Little Rock.
- One comment said there is too much water flowing into their yard (2319 US N. Hwy. 167).
- One comment said the project would have an adverse effect on their property because it will move cars closer to their house increasing traffic noise.
- One comment said there was a culvert just north of the AHTD maintenance building that causes flooding on the east side of Hwy. 167.



## Public Meeting Synopsis

---

### **Attachments:**

- Blank comment form
- Public officials sign-in sheet
- 11x17 map handout
- Small-scale copy of the display board
- Small-scale copy of Typical Section board

# ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT (AHTD)



## CITIZEN COMMENT FORM

AHTD JOB NUMBER CA0702  
HAMPTON-HWY. 274 (WIDENING)  
CALHOUN COUNTY

**LOCATION:**  
**HAMPTON HIGH SCHOOL (CAFETERIA)**  
**455 EAST MAIN STREET, HAMPTON, AR**  
**4:00 – 7:00 P.M.**  
**THURSDAY, JANUARY 14**

Make your comments on this form and leave it with AHTD Connecting Arkansas Program personnel at the meeting or mail it within 15 days to: AHTD Connecting Arkansas Program, Attn: Jon Hetzel, 4701 Northshore Drive, North Little Rock, AR 72118.

Email: [Info@ConnectingArkansasProgram.com](mailto:Info@ConnectingArkansasProgram.com).

**Yes**    **No**

    Do you feel there is a need for the proposed widening of Highway 167 between Hampton and Hwy. 274? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

    Do you feel that the proposed widening project will have any impacts ( Beneficial or  Adverse) on your property and/or community (either economically, socially, or environmentally, etc.)? Please explain. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

    Do you know of any historical sites, family cemeteries, or archaeological sites in the proposed area? Please note and discuss with staff. \_\_\_\_\_

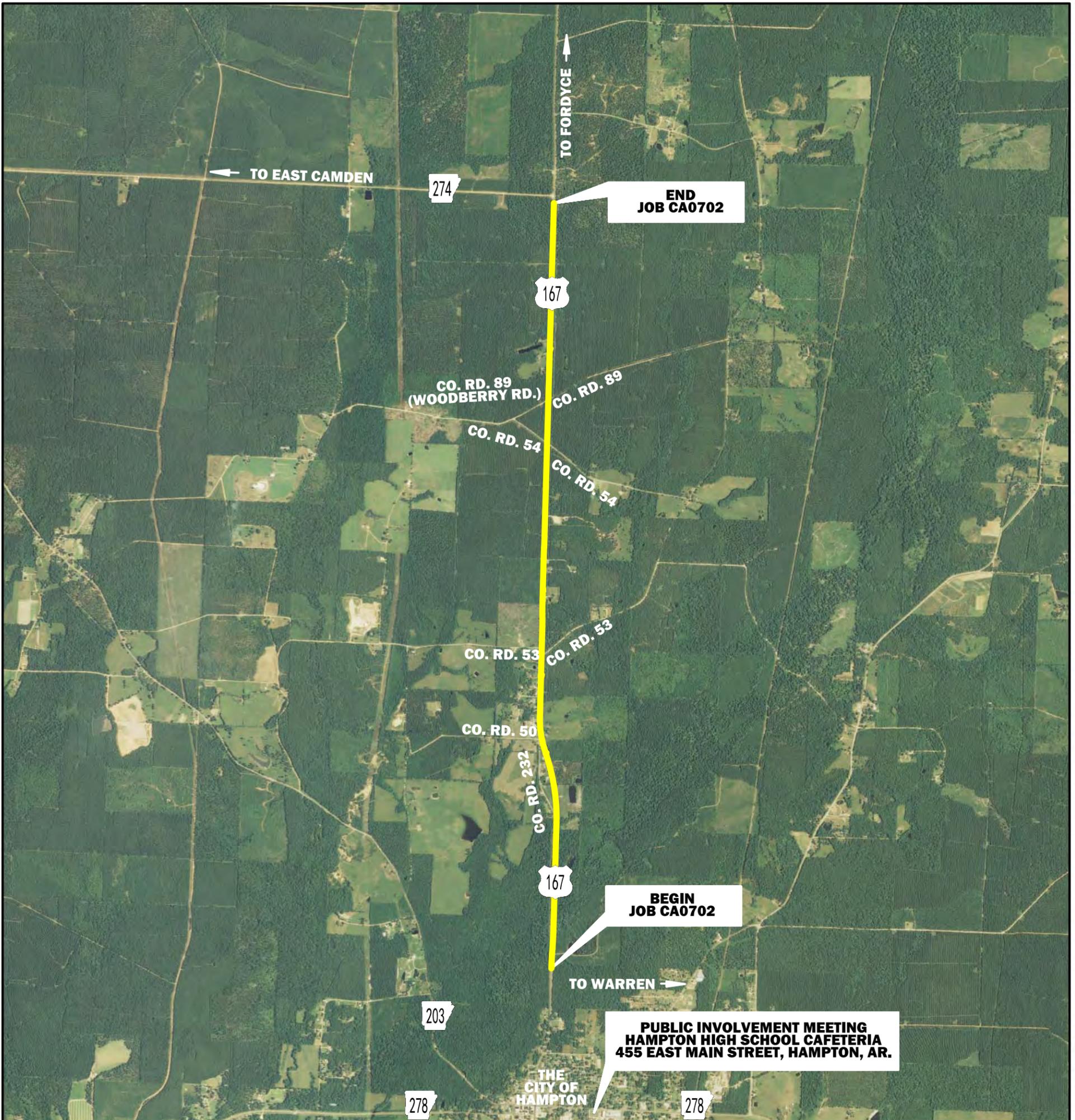
\_\_\_\_\_  
\_\_\_\_\_

    Do you know of any environmental constraints, such as endangered species, hazardous waste sites, existing or former landfills, or parks and public lands in the vicinity of the project? Please note and discuss with staff. \_\_\_\_\_

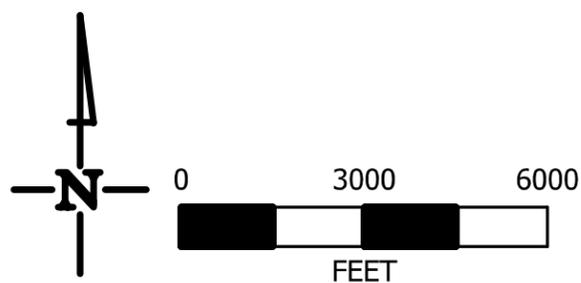
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(Continued on back)





NOTES:

HAMPTON - HWY. 274 (WIDENING) (S)  
 ROUTE 167 SECTION 4  
 CALHOUN COUNTY  
 AHTD JOB CA0702



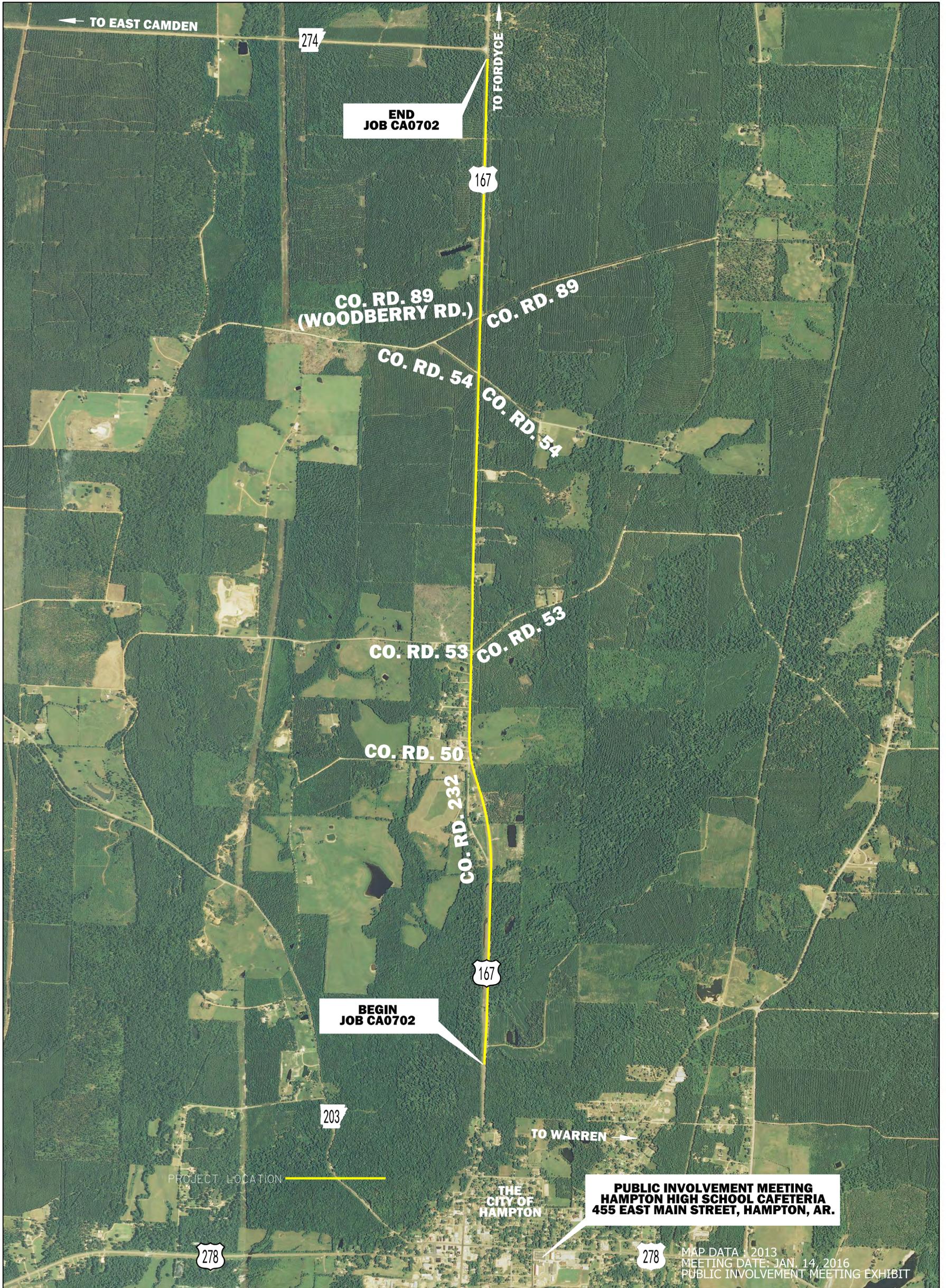
MAP DATA : APRIL 2015  
 MEETING DATE: JAN. 14, 2016  
 PUBLIC INVOLVEMENT MEETING HANDOUT

PROJECT LOCATION

**PRELIMINARY  
 SUBJECT TO REVISION**



**Crafton Tull**  
 architecture | engineering | surveying



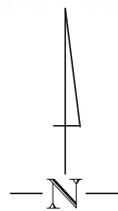
MAP DATA: 2013  
 MEETING DATE: JAN. 14, 2016  
 PUBLIC INVOLVEMENT MEETING EXHIBIT

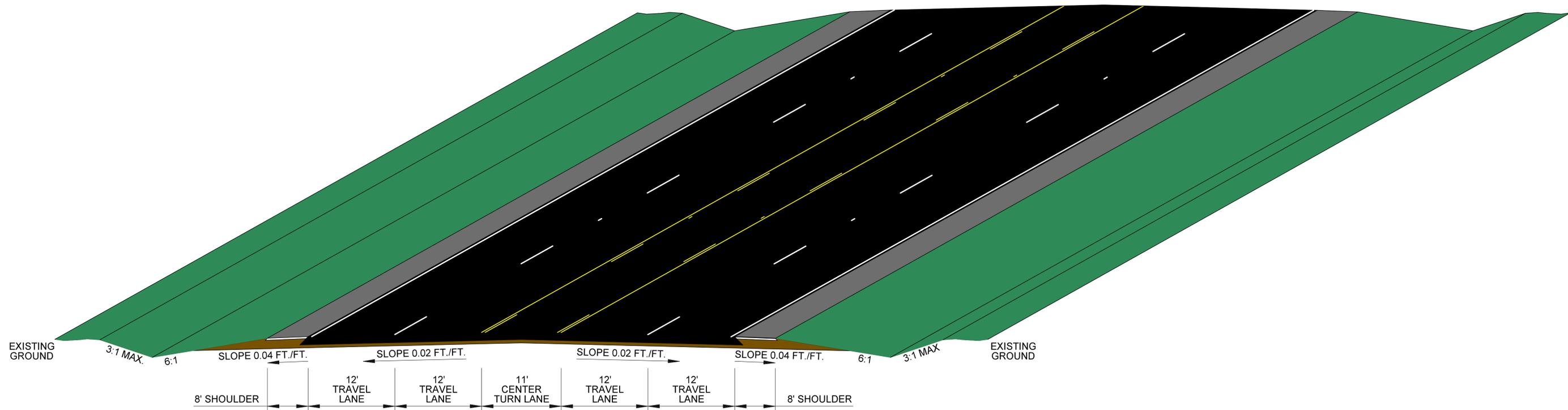


HAMPTON - HWY. 274  
 (WIDENING) (S)  
 ROUTE 167 SECTION 4  
 CALHOUN COUNTY  
 AHTD JOB CA0702



**PRELIMINARY  
 SUBJECT TO REVISION**





TYPICAL SECTION OF IMPROVEMENTS  
HWY 167

PRELIMINARY  
SUBJECT TO REVISION



HAMPTON - HWY. 274  
(WIDENING) (S)  
ROUTE 167 SECTION 4  
CALHOUN COUNTY  
AHTD JOB CA0702



# AHTD ENVIRONMENTAL IMPACTS ASSESSMENT FORM

AHTD Job Number CA0702 FAP Number ACNHPP-0007(27)  
 Job Title Hampton - Hwy. 274 (Widening) (S)

Environmental Impacts	None	Minor	Significant	Comments
Air Quality	X			
Construction Impacts		X		Temporary
Cultural Resources	X			
Economic	X			
Endangered Species	X			See USFWS consultation
Energy Resources	X			
Environmental Justice/Title VI	X			
Fish and Wildlife		X		Minor loss of habitat
Floodplains		X		Minor impacts to floodplain
Forest Service Property	X			
Hazardous Materials/Landfills	X			
Land Use Impacts	X			
Migratory Birds		X		Bird SP
Navigation/Coast Guard	X			
Noise Levels		X		2 receptors
Prime Farmland		X		5.8 acres of Prime Farmland
Protected Waters	X			
Public Recreation Lands	X			
Public Water Supply/WHPA	X			
Relocates	X			
Section 4(f)/6(f)	X			
Social	X			
Underground Storage Tanks	X			
Visual Impacts	X			
Stream Impacts		X		Standard Individual Section 404 Permit
Water Quality		X		Temporary during construction
Wetlands		X		3.9 acres impacted Standard Individual Section 404 Permit
Wildlife Refuges	X			

Section 401 Water Quality Certification Required? Yes  
 Short-term Activity Authorization Required? Yes  
 Section 404 Permit Required? Yes Type Individual

Remarks: Stream and Wetland impacts will be mitigated at the closest approved mitigation bank.

Signature of Evaluator  Date 5/23/16

## DESIGN INFORMATION

Job Number CA0702 FAP Number \_\_\_\_\_ County Calhoun

Job Name Hampton-Hwy. 274 (Widening) (S) of Highway 167

Design Engineer Crafton Tull

Brief Project Description Approximately 4.3 miles of the existing two lane roadway will be widened to a 5 lane section.

EXISTING CONDITIONS:

Roadway Width: 24' Shoulder Width: 3'-6'

Number of Lanes and Width: 2 @ 12'

Average Existing ROW Width 120'

PROPOSED CONDITIONS:

Roadway Width: 59' Shoulder Width: 8'

Number of Lanes and Width: 4 @ 12' and 1 @ 11' center turn lane

Average Proposed ROW Width 131'

CONSTRUCTION INFORMATION:

If detour: Where N/A Length N/A

DESIGN DATA:

2016 ADT 3700 2036 ADT 4600 %Trucks 26 Design Speed 60 mph

Approximate total length of project: 4.3 mile(s)

Justification for improvements: To increase both safety and capacity of this major rural arterial.

**BRIDGE DESIGN INFORMATION**Job Number CA0702 FAP Number 9991 County CalhounJob Name Hampton – Hwy. 274 (Widening)(S)Design Engineer Chuck Wipf (Crafton Tull)**Description of Existing Bridge:**Bridge Number A0309 over Champagnolle CreekBridge Location: Rte: 167 Section: 4 Log Mile: 1.00Length: 175 ft. Br. Rdwy. width: 43.3 ft. Deck width (Out-to-Out) 47 ft.Type Construction: Concrete girder and floorbeam systemDeficiencies crkg@fixed end conc. Angle brace esp. sp#1&7. Girders 1-2-3 Bents 2&7 are cracked and spalled with some exposed stl. Minor sec. lossHBRRP Eligibility: N/A Qualifying Code: NQ Sufficiency Rating: 86.9**Proposed Improvements:**Length: 88.33" Rdwy. Width: 75 ft. Deck Width (Out-to-out) N/A ftTravel Lanes: 5 @ 12' Shoulder Width: 8'Sidewalks: None Location: N/A Width: N/A**Construction Information**Location in relation to existing bridge: Approx. 27.4' East (upstream)Superstructure Type: Sextuple barrel box culvertSpan Lengths: (12'-12'-12'-12'-12'-12')Substructure Type: N/A for culvert, spread footing for wing wallsOrdinary High Water Elev. 157 No. of Bents inside OHW Contours: N/AConcrete Volume below OHW: 509 yd<sup>3</sup> Vol. Excavation: 504 yd<sup>3</sup>Is backfill req'd? YesIs Channel excavation req'd? No Surface Area: N/A ft<sup>2</sup> Volume: N/A yd<sup>3</sup>Is fill below OHW req'd? Yes Surface Area: 14,930 ft<sup>2</sup> Volume: 1981 yd<sup>3</sup>Is riprap req'd? Yes**Work Road Information:**Is work road(s) required? No Location: N/A Top width: N/A ftIs fill below OHW req'd? N/A Surface Area: N/A ft<sup>2</sup> Volume yd<sup>3</sup> N/AAre pipes required to meet backwater criteria? N/A**Detour Information:**Is a detour bridge required? No Location in relation to existing bridge: N/ALength: N/A ft Br. Rdwy. Width: N/A ft Deck Elevation: N/AVolume of fill below OHW: N/A yd<sup>3</sup> Surface area: N/A ft<sup>2</sup>

**BRIDGE DESIGN INFORMATION**Job Number CA0702 FAP Number 9991 County CalhounJob Name Hampton – Hwy. 274 (Widening)(S)Design Engineer Chuck Wipf (Crafton Tull)**Description of Existing Bridge:**Bridge Number A2041 over Champagnolle Creek-ReliefBridge Location: Rte: 167 Section: 4 Log Mile: 1.38Length: 162 ft. Br. Rdwy. width: 43.0 ft. Deck width (Out-to-Out) 47 ft.Type Construction: Concrete girder and floorbeam systemDeficiencies Bt.4&5 spalling. Bearing packrust and 100% paint failure. Bt.1 erosion.HBRRP Eligibility: N/A Qualifying Code: NQ Sufficiency Rating: 93.3**Proposed Improvements:**Length: 59.08' Rdwy. Width: 75 ft. Deck Width (Out-to-out) N/A ftTravel Lanes: 5 @ 12' Shoulder Width: 8'Sidewalks: None Location: N/A Width: N/A**Construction Information**Location in relation to existing bridge: Approx. 27.4' East (upstream)Superstructure Type: Quadruple barrel box culvertSpan Lengths: (12'-12'-12'-12')Substructure Type: N/A for culvert, spread footing for wing wallsOrdinary High Water Elev. 158 No. of Bents inside OHW Contours: N/AConcrete Volume below OHW: 363 yd<sup>3</sup> Vol. Excavation: 351 yd<sup>3</sup>Is backfill req'd? YesIs Channel excavation req'd? No Surface Area: N/A ft<sup>2</sup> Volume: N/A yd<sup>3</sup>Is fill below OHW req'd? Yes Surface Area: 7560 ft<sup>2</sup> Volume: 233 yd<sup>3</sup>Is riprap req'd? Yes**Work Road Information:**Is work road(s) required? No Location: N/A Top width: N/A ftIs fill below OHW req'd? N/A Surface Area: N/A ft<sup>2</sup> Volume yd<sup>3</sup> N/AAre pipes required to meet backwater criteria? N/A**Detour Information:**Is a detour bridge required? No Location in relation to existing bridge: N/ALength: N/A ft Br. Rdwy. Width: N/A ft Deck Elevation: N/AVolume of fill below OHW: N/A yd<sup>3</sup> Surface area: N/A ft<sup>2</sup>

**BRIDGE DESIGN INFORMATION**Job Number CA0702 FAP Number 9991 County CalhounJob Name Hampton – Hwy. 274 (Widening)(S)Design Engineer Chuck Wipf (Crafton Tull)**Description of Existing Bridge:**Bridge Number A0308 over Champagnolle Creek-ReliefBridge Location: Rte: 167 Section: 4 Log Mile: 1.54Length: 75 ft. Br. Rdwy. width: 43.0 ft. Deck width (Out-to-Out) 46.8 ft.Type Construction: Concrete girder and floorbeam systemDeficiencies Bt #1&#2 columns exposed by scour.HBRRP Eligibility: N/A Qualifying Code: NQ Sufficiency Rating: 93.3**Proposed Improvements:**Length: 44.74' Rdwy. Width: 75 ft. Deck Width (Out-to-out) N/A ftTravel Lanes: 5 @ 12' Shoulder Width: 8'Sidewalks: None Location: N/A Width: N/A**Construction Information**Location in relation to existing bridge: Approx. 27.4' East (upstream)Superstructure Type: Triple barrel box culvertSpan Lengths: (12'-12'-12')Substructure Type: N/A for culvert, spread footing for wing wallsOrdinary High Water Elev. 160 No. of Bents inside OHW Contours: N/AConcrete Volume below OHW: 268 yd<sup>3</sup> Vol. Excavation: 277 yd<sup>3</sup>Is backfill req'd? YesIs Channel excavation req'd? No Surface Area: N/A ft<sup>2</sup> Volume: N/A yd<sup>3</sup>Is fill below OHW req'd? Yes Surface Area: 5808 ft<sup>2</sup> Volume: 179 yd<sup>3</sup>Is riprap req'd? Yes**Work Road Information:**Is work road(s) required? No Location: N/A Top width: N/A ftIs fill below OHW req'd? N/A Surface Area: N/A ft<sup>2</sup> Volume yd<sup>3</sup> N/AAre pipes required to meet backwater criteria? N/A**Detour Information:**Is a detour bridge required? No Location in relation to existing bridge: N/ALength: N/A ft Br. Rdwy. Width: N/A ft Deck Elevation: N/AVolume of fill below OHW: N/A yd<sup>3</sup> Surface area: N/A ft<sup>2</sup>

# Preliminary Jurisdictional Determination Report

## Waters of the U.S.

Prepared for:

Arkansas State Highway and Transportation Department



Prepared by:

**PARSONS**

Highway 274 – Hampton (Widening) (S)  
Highway 167 in Calhoun County, Arkansas

Job CA0702

## **CA0702 HIGHWAY 274 – HAMPTON (WIDENING) (S) OF HIGHWAY 167**

### **1. PROJECT LENGTH AND SCOPE**

The approximately 5.3 mile Highway 167 project area would be widened from the existing 2-lanes to 5-lanes. The proposed facility located entirely in Calhoun County will have four 12-foot through lanes, an 11-foot paved median, and 8-foot shoulders. The purpose and need for the project is to increase both capacity and safety on this major rural arterial.

### **2. FIELD SURVEY AND EXISTING CONDITIONS**

A windshield survey of the CA0702 project area was conducted on March 26, 2015, and a detailed field survey was conducted on April 27-28, 2015 to identify waters of the U.S. including perennial streams, intermittent streams, ephemeral streams, and wetlands. The field survey was conducted early in the growing season and much of the herbaceous vegetation that had senesced from the previous growing season was still present. The project area had recently received approximately 2-3 inches of rainfall within the previous three days. The heavy rainfall inundated some of the wetlands and caused ephemeral stream channels to be actively flowing during the field surveys. Flood water within most of the Champagnolle Creek floodplain had receded to near the ordinary high water mark by the end of the field survey allowing field teams to fully assess the soils, vegetation, and hydrology indicators. Due to the high water levels remaining in streams, long-term evidence of stream hydrology was used to make determinations on the likely stream type (i.e. perennial, intermittent, or ephemeral).

#### **A. Habitats Present**

Most of the habitats present within the study area were upland habitats that had been degraded by construction of Highway 167 and its associated right-of-way, residential development, and ongoing silviculture practices. There were moderately high quality bottomland hardwood wetlands and perennial streams in the Champagnolle Creek floodplain near the southern quarter of the project area; however the areas to be directly impacted by the highway widening have primarily been degraded by the construction of the existing Highway 167.

#### **B. Probable Impacts to Waters of the U.S.**

In total, there were 3,953 feet of perennial stream channels identified within the study limits. A total of 537 feet of perennial stream would be permanently impacted by the project. There were 839 feet of intermittent stream channels identified, with 269 feet expected to be permanently impacted. There were 1,936 feet of ephemeral stream channels identified, with 627 feet expected to be impacted.

There were 15 wetlands (15.37 acres total) identified within the study limits. Of the total acreage, it is estimated that 3.88 acres (3.0 acres of bottomland hardwoods and 0.88 acres of emergent wetlands) are expected to be permanently impacted by the project.

### **3. STREAMS**

There were 17 stream segments identified during the survey. A total of three perennial streams, five intermittent streams, and nine ephemeral streams were identified within the study limits. The perennial streams all had fish and other aquatic fauna, evidence of prolonged flow, and hydrogeomorphic position to be considered perennial streams. Each of the perennial streams was previously mapped as a blueline stream on U.S. Geological Survey topographic maps. The majority of the stream segments were mapped as ephemeral (nine stream segments) or intermittent streams (five stream segments). Areas that appeared to be natural channels at some point, and that provided drainage for more than just the

roadway, were mapped as ephemeral streams; whereas, the areas that were in uplands that were considered ditches or wet weather conveyances strictly for the roadway drainage were not mapped as ephemeral streams. Two of the streams transitioned from ephemeral to intermittent streams due to connections to groundwater in the downstream portions of their channels within the study area. Both of these streams were located within WTL-7 and the Champagnolle Creek floodplain.

**A. Perennial**

A total of three perennial streams were identified within the study limits. The perennial streams all had fish and other aquatic fauna, evidence of prolonged flow, and hydrogeomorphic position to be considered perennial streams. There were 3,953 feet of perennials streams identified in the study limits, and a total of 537 feet of perennial stream channel would be impacted within the proposed construction limits. The two perennial segments of Champagnolle Creek that would be impacted have been degraded by past activities including the construction of Highway 167 through the Champagnolle Creek floodplain and from past logging activities. The perennial streams are listed on Table 1.

<b>Table 1. Stream Summary</b>				
<b>Stream Name/ID</b>	<b>Stream Type</b>	<b>Feet in Study Limits</b>	<b>Feet Impacted in Proposed Construction Limits</b>	<b>Channelization required?</b>
Champagnolle Creek / S2a	Perennial stream that is the main stream channel for Champagnolle Creek.	588	258	Yes, some channelization to move a bend eastward on the east side of the proposed roadway within WTL-7.
S2b	Perennial stream at the north end of the Champagnolle Creek floodplain that ran to the west and then south along Highway 167 to Champagnolle Creek.	3,328	279	Yes, some channelization east of the proposed roadway north of the North Bridge.
S2g	Perennial stream in Champagnolle Creek floodplain.	37	0	No
	<b>TOTAL:</b>	<b>3,953</b>	<b>537</b>	
Note: Channelization is assumed for sections of streams that are in the proposed construction limits but are less than a 45 degree angle to the roadway. Note: Estimates of impact are based upon GIS analysis including the proposed construction limits as supplied by Crafton Tull, and are subject to change. Note: Feet in Study Limits includes total length within the Study Limits including the existing Highway 167 culverts, and Feet Impacted in Proposed Construction Limits length excludes all existing Highway 167 culverts.				

**B. Intermittent and Ephemeral Streams**

There were five stream segments mapped as intermittent and nine stream segments mapped as ephemeral. Areas that appeared to be natural channels at some point, and that provided drainage for more than just the roadway, were mapped as ephemeral streams; whereas, the areas that were in uplands that were considered ditches or wet weather conveyances strictly for the roadway drainage were not mapped as ephemeral streams. Two of the streams transitioned from ephemeral to intermittent streams due to connections to groundwater in the downstream

portions of their channels within the study area. Both of these streams were located within WTL-7 and the Champagnolle Creek floodplain.

There were a total of 2,775 feet of intermittent (839 feet) and ephemeral (1,936 feet) stream channels within the study area. A total of 269 feet of intermittent stream channel, and 627 feet of ephemeral stream channel would be impacted within the proposed construction limits. The intermittent and ephemeral streams are listed on Table 2.

<b>Stream Name/ID</b>	<b>Stream Type</b>	<b>Feet in Study Limits</b>	<b>Feet Impacted in Proposed Construction Limits</b>	<b>Channelization required?</b>
S1	Ephemeral stream flowing west under Highway 167. This stream is within the Champagnolle Creek floodplain.	355	62	No
S2c	Ephemeral stream flowing into S2e east of Highway 167. This stream is within the Champagnolle Creek floodplain.	110	110	No
S2d	The intermittent portion of an overflow channel for Champagnolle Creek.	57	57	No
S2d	Ephemeral stream flowing into S9d east of Highway 167. This stream is within the Champagnolle Creek floodplain.	87	20	No
S2e	The intermittent portion of an overflow channel for Champagnolle Creek.	138	81	No
S2e	Ephemeral stream flowing southwest and then west under Highway 167. This stream is within the Champagnolle Creek floodplain.	273	200	Yes, some channelization east of the proposed roadway within WTL-9.
S2f	Intermittent stream flowing to the west on the west side of Highway 167 in the north end of the Champagnolle Creek floodplain.	24	0	No
S3	Ephemeral stream flowing east under Highway 167 within the Champagnolle Creek watershed.	301	57	No
S4	Ephemeral stream flowing east under Highway 167 within the Champagnolle Creek watershed.	220	43	No
S5	Ephemeral stream beginning at WTL-10 and flowing east under Highway 167 within the Champagnolle Creek watershed.	218	73	No
S6	Ephemeral stream flowing east under Highway 167 within the Champagnolle Creek watershed.	206	41	No

<b>Stream Name/ID</b>	<b>Stream Type</b>	<b>Feet in Study Limits</b>	<b>Feet Impacted in Proposed Construction Limits</b>	<b>Channelization required?</b>
S7	Ephemeral stream flowing west under Highway 167 from WTL-14 to WTL-13 and then under W. Calhoun 89 into WTL-12. The stream continues west along W. Calhoun 89 and is within the Taylor Creek watershed.	166	21	No
S8	Intermittent stream flowing west under Highway 167 within the Taylor Creek watershed.	390	73	No
S9	Intermittent stream flowing west under Highway 167 within the Taylor Creek watershed.	230	58	No
<b>TOTAL:</b>		<b>2,775</b>	<b>896</b>	
<p>Note: Channelization is assumed for sections of streams that are in the proposed construction limits but are less than a 45 degree angle to the roadway.</p> <p>Note: Estimates of impact are based upon GIS analysis including the proposed construction limits as supplied by Crafton Tull and are subject to change.</p> <p>Note: Feet in Study Limits includes total length within the Study Limits including the existing Highway 167 culverts, and Feet Impacted in Proposed Construction Limits length excludes all existing Highway 167 culverts.</p> <p>Note: Intermittent and ephemeral stream lengths are included in this single table, because some of the stream segments transition from ephemeral to intermittent.</p>				

#### **4. WETLANDS**

There were 15 wetlands delineated that had some portion of their boundary within the project study limits. Three of the wetlands are not anticipated to be directly impacted by construction activities. Of the total wetland acreage of 15.37 acres, a total of 3.88 acres of wetlands (0.88 acres of emergent and 3.0 acres of bottomland hardwood) would be impacted within the proposed construction limits for the project. The wetland summary is shown on Table 3.

All of the wetlands identified would likely be considered jurisdictional, because they meet the criteria for soils, hydrology, and vegetation as identified in the 1987 *U.S. Army Corps of Engineers Wetland Delineation Manual* and the 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2)*, and they are all adjacent to other waters of the U.S., i.e. other streams and/or headwaters.

##### **A. Emergent Wetlands**

There were 1.84 acres of herbaceous emergent wetlands identified during the survey, and 0.88 acres would be within the construction limits of the project. Most of the herbaceous wetlands were in jurisdictional ditches near or in the existing the project right-of-way. The emergent wetlands were generally very small and had low functional values for wildlife, water quality, and floodwater conveyance. Their juxtaposition with the existing Highway 167, greatly limited their potential benefit to wildlife.

## B. Bottomland Hardwood Wetlands

The bottomland hardwood wetlands within the study area were primarily located within or near the floodplain of Champagnolle Creek. Common plant species within the wetland areas included water oak (*Quercus nigra*), loblolly pine (*Pinus taeda*), willow oak (*Quercus phellos*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), wax myrtle (*Morella cerifera*), soft rush (*Juncus effusus*), lizard’s tail (*Saururus cernuus*), *Carex* spp., and *Smilax* spp.. Soil types within the wetlands included Guyton soils- frequently flooded, Amy silt loam, and Smithton fine sandy loam. Each of these soils is included on the hydric soils list for Calhoun County, and/or contain hydric components based on the soils descriptions available.

There were 13.53 acres of bottomland hardwood wetlands identified in the study area and 3.0 acres would be directly impacted within the construction limits of the project. The bottomland hardwood wetlands generally extended beyond the study limits of the project and their functional values for wildlife, water quality, and floodwater conveyance were low to moderate. Their juxtaposition with the existing Highway 167, limited their potential benefit to wildlife, but the areas in the Champagnolle floodplain had moderately high values for floodwater conveyance and storage and low to moderate value for water quality improvement/enhancement.

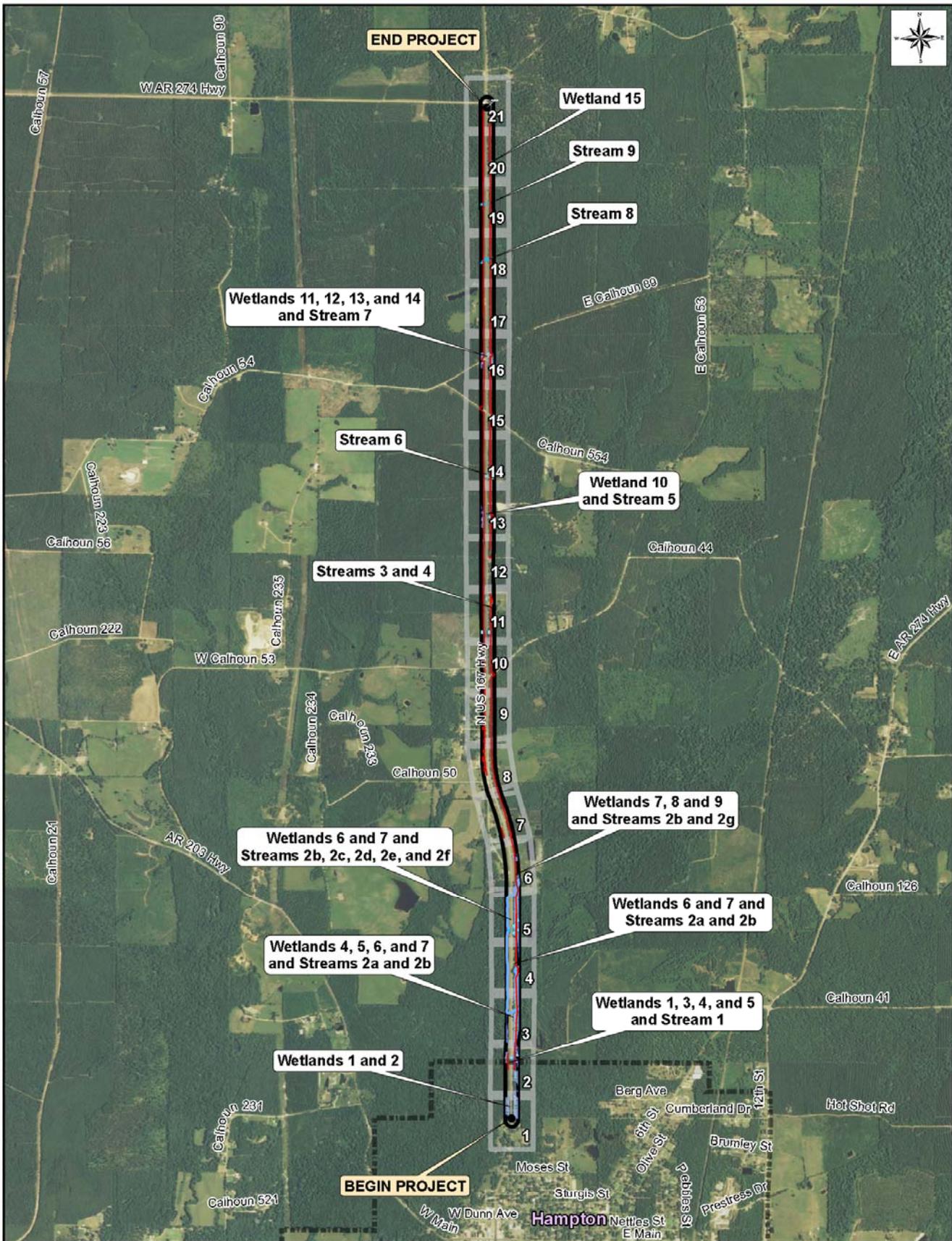
Wetland ID	Wetland Type and Cowardin Classification	Acreage in Study Limits	Acreage Impacted in Proposed Construction Limits
Wetland 1 (WTL-1)	Bottomland hardwood wetland. PFO	1.43	0
Wetland 2 (WTL-2)	Bottomland hardwood wetland. PFO	0.92	0
Wetland 3 (WTL-3)	Bottomland hardwood wetland with emergent herbaceous ditches along outside edge. PFO/PEM	1.07 - PFO 0.03 - PEM	0.11 – PFO 0.03 - PEM
Wetland 4 (WTL-4)	Bottomland hardwood wetland. PFO	0.81	0
Wetland 5 (WTL-5)	Bottomland hardwood wetland with emergent herbaceous ditches along outside edge. PFO/PEM	1.68 – PFO 0.40 - PEM	0.54 - PFO 0.40 - PEM
Wetland 6 (WTL-6)	Bottomland hardwood wetland. PFO	0.50	0
Wetland 7 (WTL-7)	Bottomland hardwood wetland. PFO	5.92	2.29
Wetland 8 (WTL-8)	Side channel bottomland hardwood wetland. PFO	0.07	0.02
Wetland 9 (WTL-9)	Emergent herbaceous wetland. PEM	0.38	0.13
Wetland 10 (WTL-10)	Pine flatland wetland. PFO	0.67	0.02
Wetland 11 (WTL-11)	Emergent herbaceous wetland. PEM	0.81	0.22
Wetland 12 (WTL-12)	Emergent herbaceous wetland with a forest edge component in the study limits. PEM/PFO	0.17 – PFO 0.02 - PEM	0 - PFO 0.01 - PEM
Wetland 13 (WTL-13)	Forested wetland with an emergent herbaceous edge component. PFO/PEM	0.23 - PFO 0.01 - PEM	0 - PFO 0.01 - PEM
Wetland 14 (WTL-14)	Emergent herbaceous wetland. PEM	0.13	0.06
Wetland 15 (WTL-15)	Hillslope seep primarily herbaceous wetland with a small forest edge component. PEM/PFO	0.06 – PFO 0.06 - PEM	0.02 - PFO 0.02 - PEM
<b>TOTAL:</b>		<b>15.37</b>	<b>3.88</b>
Note: Wetland acronyms include: PEM (Palustrine Emergent – 1.84 acres total) and PFO (Palustrine Forested – 13.53 acres total).			

## **5. SUMMARY**

In total, there were 3,953 feet of perennial stream channels identified within the study limits. A total of 537 feet of perennial stream would be permanently impacted by the project. There were 839 feet of intermittent stream channels identified, with 269 feet expected to be permanently impacted. There were 1,936 feet of ephemeral stream channels identified, with 627 feet expected to be impacted.

There were a total of 15.37 acres of wetland identified within the study limits. Of those, 3.88 acres (3.0 acres of bottomland hardwoods and 0.88 acres of emergent wetlands) are expected to be permanently impacted by the project.

Summary addendum: Six (6) conceptual work roads (2 at each bridge crossing) were added in the Conceptual Work Plan for Temporary Fill drawings. There will be 983 cubic yards of materials below the OHWM for the six temporary haul roads (please see the 3-page Conceptual Work Plan for Temporary Fill sheets at the end of Section 404 permit package.). This material will be removed post construction, restored to pre-construction grades, soil will be stabilized, and vegetation will be reestablished.

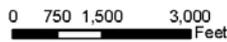


- Study Limits
- Sheet Boundaries
- City Limits (Approximate)
- Proposed ROW

- Watercourses in Study Limits**
- Ephemeral Stream
  - Intermittent Stream
  - Perennial Stream
  - Wetlands in Study Limits

**Jurisdictional Waters Map Legend (Overview)**

Date: 11/5/2015

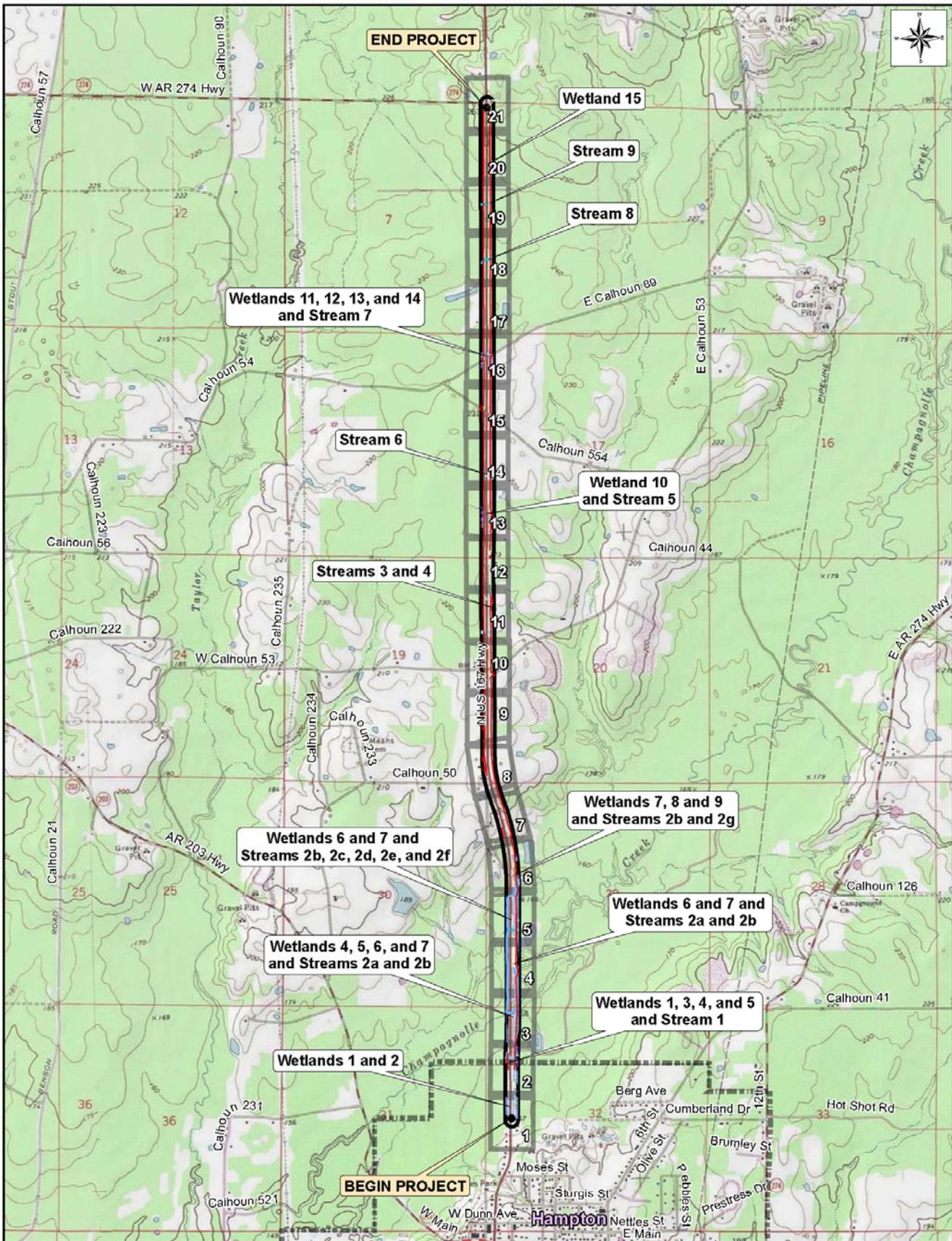


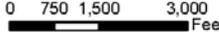
1 in = 2,100 feet

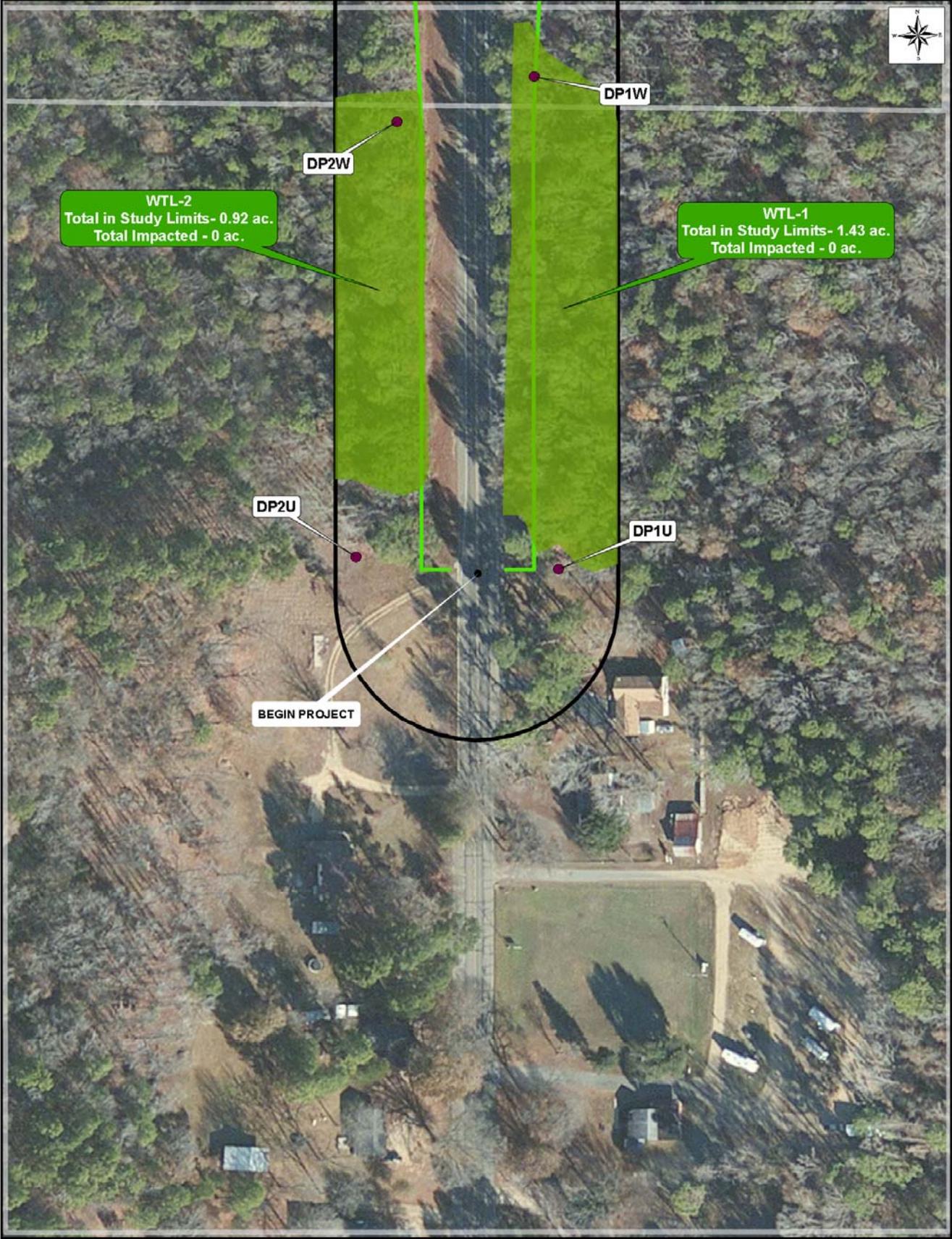
**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



<ul style="list-style-type: none"> <li> Study Limits</li> <li> Sheet Boundaries</li> <li> City Limits (Approximate)</li> <li> Proposed ROW</li> </ul>	<p><b>Watercourses in Study Limits</b></p> <ul style="list-style-type: none"> <li> Ephemeral Stream</li> <li> Intermittent Stream</li> <li> Perennial Stream</li> <li> Wetlands in Study Limits</li> </ul>	<p><b>Jurisdictional Waters Map Legend (Overview)</b></p>	<p><b>ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT</b></p>
		<p>Date: 11/5/2015</p>	<p><b>CONNECTING ARKANSAS PROGRAM HWY. 274 - HAMPTON (WIDENING) (S) HWY. 167 in CALHOUN COUNTY, ARKANSAS</b></p>
		<p>0 750 1,500 3,000 Feet</p>  <p>1 in = 2,100 feet</p>	<p><b>JOB CA0702</b></p>



**WTL-2**  
 Total in Study Limits- 0.92 ac.  
 Total Impacted - 0 ac.

**WTL-1**  
 Total in Study Limits- 1.43 ac.  
 Total Impacted - 0 ac.

DP2U

DP1U

BEGIN PROJECT

DP1W

DP2W

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 1 of 21      Date: 11/19/2015

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM**  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS

JOB CA0702



Inundation in Wetland 1, facing east.



Water-stained leaves in drainage swale portion of Wetland 1.



Western edge of Wetland 1, facing east.



Inundated portion of Wetland 1, facing east.



Lizard's tail (*Saururus cernuus*) at the outer edge of Wetland 1, facing south.



Upland ridge on left that is adjacent to Wetland 1 on right.



Eastern edge of Wetland 2, facing north.



Crayfish borrows and water-stained leaves in Wetland 2.



Saturated areas in Wetland 2 with relatively sparse vegetation and pine seedlings.



Soils in Wetland 2.



Bottomland hardwoods in Wetland 2.



Southern portion of Wetland 2 facing north.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP1W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.547193 Long: -92.468037 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Although Wetland 1 is a bottomland hardwood wetland is in the Champagnolle Creek floodplain, the primary hydrology is from runoff from adjacent uplands. Jurisdictional road ditches are also considered part of this wetland. There are some small ridges or high spots that have been excluded from the wetland.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input type="checkbox"/> Saturation (A3)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water did not reach Wetland 1 is the recent flood.  The area's primary hydrology comes from runoff from the adjacent uplands to the south and overflow flooding from Champagnolle Creek is believed to happen only rarely.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP1W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>water oak (Quercus nigra)</u>	40%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	10%	No	FAC		
3. <u>willow oak (Quercus phellos)</u>	40%	Yes	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>red maple (Acer rubrum)</u>	5%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>soft rush (Juncus effusus)</u>	5%	Yes	OBL		
2. <u>lizard's tail (Saururus cernuus)</u>	5%	Yes	OBL		
3. <u>willow oak (Quercus phellos)</u>	10%	Yes	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.   <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax bona-nox</u>	5%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>					

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Remarks: (If observed, list morphological adaptations below).

The bottomland hardwood portion of the wetland had an almost completely closed canopy with a dense layer of leaf litter, water-stained leaves, or standing water, therefore the herbaceous vegetation layer was virtually absent except for the willow oak seedlings. The herbaceous road ditches were dominated by soft rush and lizard's tail. The greenbrier only occurred in the ecotone between the forest and herbaceous habitat.

**SOIL**

Sampling Point: DP1W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	2.5Y5/1	95%	10YR4/4	5%			silty clay loam	very sticky soils

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

There was a lot of organic matter in the top three inches of the core samples.  
  
The adjacent upland soils are 10YR5/3.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP1U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace in floodplain Local relief (concave, convex, none): convex Slope (%): < 2%  
 Subregion (LRR or MLRA): LRR O Lat: 33.545755 Long: -92.467996 Datum: WGS84  
 Soil Map Unit Name: 7 - Pheba silt loam (components on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This upland sample point is south of Wetland 1, which is a bottomland hardwood wetland/swamp in the Champagnolle Creek floodplain. The area is well drained, has turf grasses, and slopes toward the floodplain.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>																				
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water does not reach this area except in a very rare severe flood event.  The sloping area appears to drain well.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP1U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.67%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____					
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>tall fescue (Festuca arundinacea)</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. <u>Kentucky bluegrass (Poa pratensis)</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>		
3. <u>dock (Rumex crispus)</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>		
4. <u>Carex spp.</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>36.5</u> 20% of total cover: <u>14.6</u>					
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____					
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____					
Remarks: (If observed, list morphological adaptations below).  This sample point is primarily in a mowed/maintained lawn with some large loblolly pine trees in the yard. Areas under the pine trees were sparsely vegetated.  Mowed Carex spp. was assumed to be FAC, but could not be identified to species.					

**SOIL**

Sampling Point: DP1U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	10YR5/3	95%	none				silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

**Remarks:**

The adjacent upland soils are 10YR5/3 at the sample point but become lighter in color as you proceed up slope to 10YR4/4.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP2W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.547073 Long: -92.468522 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 2 is a water and willow oak/loblolly pine flatwoods (bottomland hardwood) wetland in the Champagnolle Creek floodplain that lies just west of the Hampton city limits sign west of Highway 167.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
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<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 1 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water did not reach this portion of the floodplain, however.  This area receives infrequent overflow flooding from Champagnolle Creek. The primary hydrology is from surface water runoff from adjacent uplands to the south.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP2W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>water oak (Quercus nigra)</u>	45%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	3%	No	FAC		
3. <u>willow oak (Quercus phellos)</u>	45%	Yes	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>46.5</u> 20% of total cover: <u>18.6</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____					
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>Carex spp.</u>	5%	Yes	FAC		
2. <u>Loblolly pine (Pinus taeda) - seedlings</u>	5%	Yes	FAC		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____					
<b>Remarks:</b> (If observed, list morphological adaptations below).					
Bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter and water-stained leaves, therefore the herbaceous vegetation layer was almost absent. The sedge (Carex spp.) in the forest floor was obviously water and shade tolerant, but not flowering at the time of the survey, so identification to species was not determined (it is assumed at a minimum the species would be FAC).					

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y4/1	95%	10YR4/6	5%			silty clay loam	soils are very sticky

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

The mottling in these core samples was very distinct.  
  
 The adjacent upland soils are 10YR4/4.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP2U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace in floodplain Local relief (concave, convex, none): convex Slope (%): < 2%  
 Subregion (LRR or MLRA): LRR O Lat: 33.545805 Long: -92.468700 Datum: WGS84  
 Soil Map Unit Name: 7 - Pheba silt loam (components on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This is the upland data point south of Wetland 2, which is a bottomland hardwood wetland in the Champagnolle Creek floodplain. The area is well drained, has turf grasses, and slopes toward the floodplain.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>																				
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water does not appear to reach this sample point except on a rare severe flood event.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP2U

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>65</u> x 3 = <u>195</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species _____ x 5 = _____ Column Totals: <u>95</u> (A) <u>315</u> (B)  Prevalence Index = B/A = <u>3.32</u>
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Sapling/Shrub Stratum (Plot size: _____ )</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Herb Stratum (Plot size: _____ )</b>				
1. <u>Carex spp.</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>dock (Rumex crispus)</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>tall fescue (Festuca arundinacea)</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>	
4. <u>Kentucky bluegrass (Poa pratensis)</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>47.5</u> 20% of total cover: <u>19</u>				
<b>Woody Vine Stratum (Plot size: _____ )</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				

**Dominance Test worksheet:**  
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)  
Total Number of Dominant Species Across All Strata: 2 (B)  
Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

**Prevalence Index worksheet:**  
Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_  
OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_  
FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_  
FAC species 65 x 3 = 195  
FACU species 30 x 4 = 120  
UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_  
Column Totals: 95 (A) 315 (B)  
  
Prevalence Index = B/A = 3.32

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Four Vegetation Strata:**  
**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  
**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  
**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  
**Woody vine** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

Remarks: (If observed, list morphological adaptations below).  
  
This sample point was in the sloping mowed area south of the bottomland forest. The area was recently mowed, which made identification to species difficult. The Carex spp. are assumed to be FAC.

**SOIL**

Sampling Point: DP2U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	10YR4/4	95%	none				fine sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

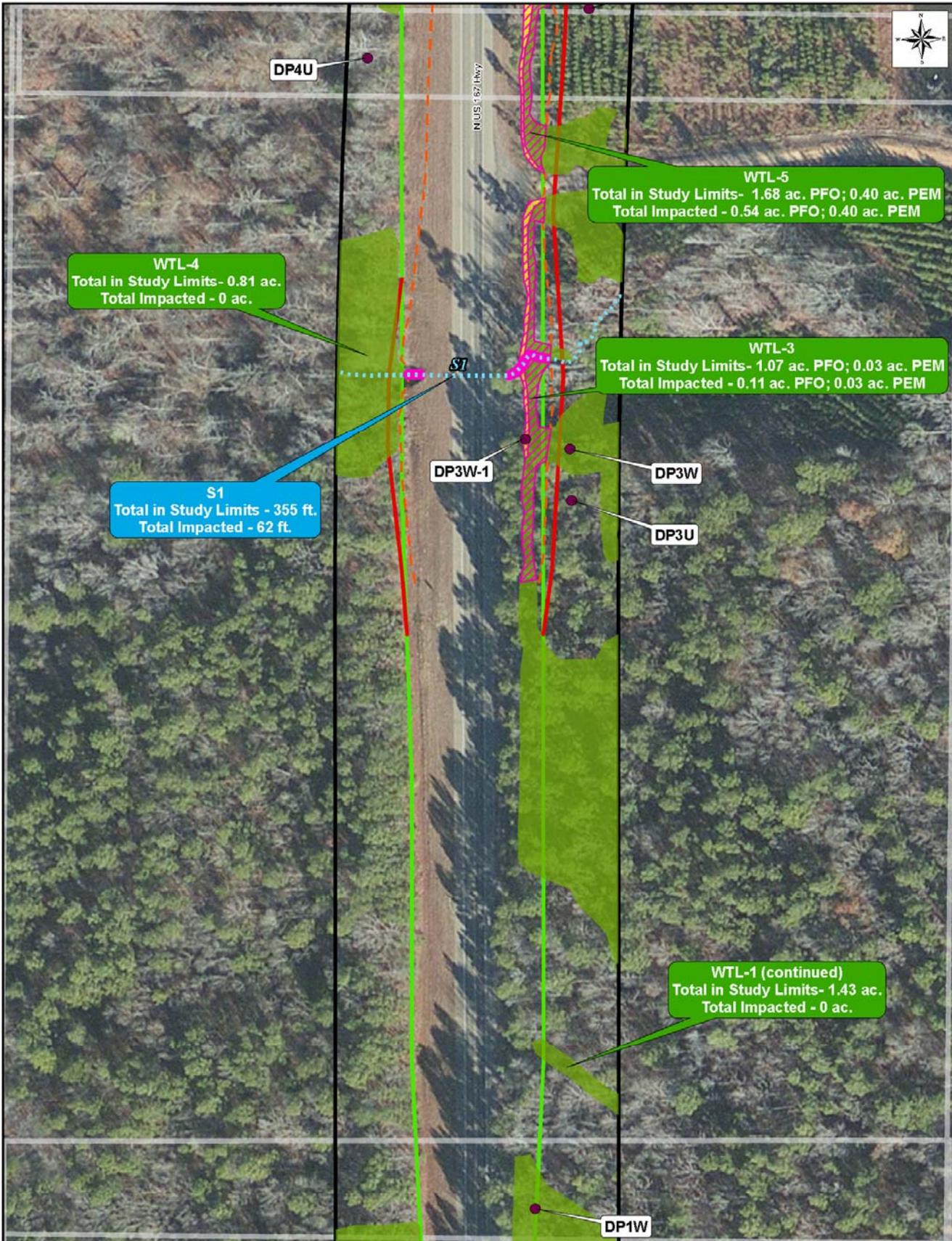
**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

The soils in this core sample appear to be somewhat disturbed.



**WTL-4**  
 Total in Study Limits - 0.81 ac.  
 Total Impacted - 0 ac.

**WTL-5**  
 Total in Study Limits - 1.68 ac. PFO; 0.40 ac. PEM  
 Total Impacted - 0.54 ac. PFO; 0.40 ac. PEM

**WTL-3**  
 Total in Study Limits - 1.07 ac. PFO; 0.03 ac. PEM  
 Total Impacted - 0.11 ac. PFO; 0.03 ac. PEM

**S1**  
 Total in Study Limits - 355 ft.  
 Total Impacted - 62 ft.

**WTL-1 (continued)**  
 Total in Study Limits - 1.43 ac.  
 Total Impacted - 0 ac.

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 2 of 21	Date: 11/19/2015
---------------	------------------

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND  
 TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS**

JOB CA0702



Inundation from overflow flooding in Wetland 3.



Drift and drainage patterns in Wetland 3.



Water-stained leaves in Wetland 3 bottomland hardwoods.



Emergent herbaceous portion of Wetland 3 facing north near culvert for S1.



Soils in Wetland 3.



Depressions in floodplain Wetland 3.



Champagnolle Creek adjacent to northwest corner of Wetland 4.



Wetland 4 side channel.



Side channel in Wetland 4.



Wetland vegetation in a side channel of Wetland 4.



Soil sample in Wetland 4.



Upland ridge in background that separates Wetland 4 from Wetland 2.



Inundated area in planted pines in Wetland 5.



Outer edge of Wetland 5 showing the emergent herbaceous area, facing north.



Crayfish burrows in Wetland 5.



Shallow root system in Wetland 5, notice fallen tree.



Soils in Wetland 5 showing reduced conditions.



Southern end of Wetland 5 facing south.



S1 ephemeral channel facing west (downstream) from Highway 167.



East end of ephemeral channel S1, facing south (upstream) with Highway 167 on the right.



S1 culvert west of Highway 167 facing south.



Ephemeral channel S1 facing east (upstream) from Highway 167.



S1 ephemeral channel flowing into floodplain forest west of Highway 167.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP3W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.549404 Long: -92.467852 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 3 is a bottomland hardwood wetland in the Champagnolle Creek floodplain. It is primarily BH but also includes jurisdictional herbaceous ditches along Highway 167 (see DP3W-1. There are a few small high spots within the wetland boundary, but they are too small to reasonably exclude.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey. The jurisdictional road ditches still had 4-8 inches of water, but they were dropping rapidly.  The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek. There are depressions and drainage patterns throughout the wetland, with all of the depressions being full of water following the recent flood. There are a few small high spots within the wetland boundary, but they are too small to reasonably exclude. It appears that there may be some groundwater seepage from some small channels that extend into adjacent uplands.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP3W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>green ash (Fraxinus pennsylvanica)</u>	10%	Yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>10</u> (A)  Total Number of Dominant Species Across All Strata: <u>10</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>loblolly pine (Pinus taeda)</u>	20%	Yes	FAC	
3. <u>sweetgum (Liquidambar styraciflua)</u>	10%	Yes	FAC	
4. <u>overcup oak (Quercus lyrata)</u>	10%	Yes	OBL	
5. <u>red maple (Acer rubrum)</u>	10%	Yes	FAC	
6. _____				
7. _____				
8. _____				
60% = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: <u>30</u>		20% of total cover: <u>12</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	30%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>sweetgum (Liquidambar styraciflua)</u>	30%	Yes	FAC	
3. <u>red maple (Acer rubrum)</u>	30%	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
90% = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>45</u>		20% of total cover: <u>18</u>		
<b>Herb Stratum</b> (Plot size: _____ )				
1. _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax bona-nox</u>	5%	Yes	FAC	
2. <u>Vitis sp.</u>	2%	Yes	FAC	
3. _____				
4. _____				
5. _____				
7% = Total Cover				
50% of total cover: <u>3.5</u>		20% of total cover: <u>1.4</u>		

Remarks: (If observed, list morphological adaptations below).

Bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter, water-stained leaves, and loblolly pine needles, therefore the herbaceous vegetation layer was nearly absent in the forest, but there was dense herbaceous vegetation in the jurisdictional road ditches (see DP3W-1).

**SOIL**

Sampling Point: DP3W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
4-12 inches	2.5Y5/2	95%	7.5YR5/8	5%			silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

The soils were dark and appeared to be significantly reduced.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP3W-1  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.549404 Long: -92.467852 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 3 is a primarily a bottomland hardwood wetland in the Champagnolle Creek floodplain. However this point is at the western edge of the wetland in a jurisdictional herbaceous ditch along Highway 167. There are a few small high spots within the wetland boundary, but they are too small to reasonably exclude.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input checked="" type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																															
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey. The jurisdictional road ditches still had 4-8 inches of water, but they were dropping rapidly.  The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek.																																

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP3W-1

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____	
50% of total cover: _____		20% of total cover: _____			
Sapling/Shrub Stratum (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
50% of total cover: _____		20% of total cover: _____			
Herb Stratum (Plot size: _____ )					
1. <u>Juncus acuminatus</u>	<u>8%</u>	<u>No</u>	<u>OBL</u>		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. <u>Juncus effusus</u>	<u>20%</u>	<u>Yes</u>	<u>OBL</u>		
3. <u>Carex subrecta</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>		
4. <u>lizard's tail (Saururus cernuus)</u>	<u>10%</u>	<u>Yes</u>	<u>OBL</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: <u>21.5</u>		20% of total cover: <u>8.6</u>			
Woody Vine Stratum (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
50% of total cover: _____		20% of total cover: _____			

Remarks: (If observed, list morphological adaptations below).

This herbaceous vegetation was in the jurisdictional road ditch along the western edge of Wetland 3. The road ditch were primarily dominated with soft rush (*Juncus effusus*) and lizard's tail (*Saururus cernuus*).

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
4-12 inches	2.5Y5/2	95%	7.5YR5/8	5%			silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

The soils were dark and appeared to be significantly reduced.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP3U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace in floodplain Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.549255 Long: -92.467850 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This sample point is in one of the high areas near the Wetland 3 area. The entire area is a bottomland hardwood forest in the Champagnolle Creek floodplain.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u>	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. The overflow flood water did not inundate this sample point, but the heavy rainfall did saturate the soils. Based upon the evidence at the sample point, it does not appear that the area remains saturated for a significant duration during the growing season.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP3U

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>eastern red cedar (Juniperus virginiana)</u>	20%	Yes	FACU	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
2. <u>loblolly pine (Pinus taeda)</u>	50%	Yes	FAC	
3. <u>sweetgum (Liquidambar styraciflua)</u>	10%	No	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
80% = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	40%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>sweetgum (Liquidambar styraciflua)</u>	10%	No	FAC	
3. <u>red maple (Acer rubrum)</u>	10%	No	FAC	
4. <u>winged elm (Ulmus alata)</u>	5%	No	FACU	
5. _____				
6. _____				
7. _____				
8. _____				
65% = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>32.5</u>		20% of total cover: <u>13</u>		
<b>Herb Stratum</b> (Plot size: _____ )				
1. _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax bona-nox</u>	10%	Yes	FAC	
2. <u>Vitus spp.</u>	4%	No		
3. _____				
4. _____				
5. _____				
14% = Total Cover				
50% of total cover: <u>7</u>		20% of total cover: <u>2.8</u>		

Remarks: (If observed, list morphological adaptations below).

Bottomland hardwoods had a closed canopy with a dense layer of leaf litter and loblolly pine needles, therefore the herbaceous vegetation layer was nearly absent in the forest.

**SOIL**

Sampling Point: DP3U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	2.5Y3/2	95%					silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: The soils were dark, but there was no mottling.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP4W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.552065 Long: -92.468605 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 4 is a bottomland hardwood wetland in the Champagnolle Creek floodplain. There are some small ridges that are excluded.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey.  The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek. There are depressions and drainage patterns throughout the wetland, with all of the depressions being full of water following the recent flood. There are some higher ridges that are excluded from the wetland.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP4W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>water oak (Quercus nigra)</u>	25%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	10%	No	FAC		
3. <u>willow oak (Quercus phellos)</u>	20%	Yes	FACW		
4. <u>overcup oak (Quercus lyrata)</u>	10%	No	OBL		
5. <u>cherrybark oak (Quercus pagoda)</u>	5%	No	FACW		
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>Carex spp</u>	15%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover 50% of total cover: <u>7.5</u> 20% of total cover: <u>3</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax bona-nox</u>	10%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below).  Bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter and water-stained leaves, therefore the herbaceous vegetation layer was reduced. The sedge (Carex spp.) in the forest floor was obviously water tolerant, but not flowering at the time of the survey, so identification to species was not determined (it is assumed at a minimum the species would be FAC).					

**SOIL**

Sampling Point: DP4W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y5/1	95%	10YR4/4	5%			silty clay loam	soils are very sticky

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

There was a lot of organic matter in the top three inches of the core samples.  
  
The adjacent upland soils are 10YR5/3.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP4U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace in floodplain Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.550558 Long: -92.468525 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: This is the upland area south of Wetland 4 (Wetland 4 is a bottomland hardwood wetland) in the Champagnolle Creek floodplain. The sample point is on a ridge that runs through the floodplain, but only floods very infrequently.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u>	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water did not cover the ridge where this sample point was taken. The soils were saturated from the recent heavy rainfall, but they are believed to dry out relatively quickly.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP4U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>water oak (Quercus nigra)</u>	25%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.33%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	30%	Yes	FAC		
3. <u>willow oak (Quercus phellos)</u>	20%	Yes	FACW		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>winged elm (Ulmus alata)</u>	10%	Yes	FACU		
2. <u>green ash (Fraxinus pennsylvanica)</u>	10%	Yes	FACW		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax glauca</u>	10%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below).  The bottomland forest had an almost completely closed canopy with a dense layer of leaf litter, therefore the herbaceous vegetation layer was reduced.					

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	10YR5/3	98%					silt loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP5W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.550842 Long: -92.467885 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____
Remarks: Wetland 5 is a bottomland hardwood wetland in the Champagnolle Creek floodplain. It is primarily BH but also includes jurisdictional herbaceous ditches along Highway 167 (see DP5W-1). There are some ponded areas in depressions within the wetland.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input checked="" type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input checked="" type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input checked="" type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)																															
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																															
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																															
<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																															
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																															
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																															
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																															
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																															
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																																
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																																
<input type="checkbox"/> Surface Soil Cracks (B6)																																
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)																																
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<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)																																
<input type="checkbox"/> Geomorphic Position (D2)																																
<input type="checkbox"/> Shallow Aquitard (D3)																																
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																
<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)																																

<b>Field Observations:</b> Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>up to 12 inches</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <u>X</u> No _____
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey. The jurisdictional road ditches still had 6-12 inches of water, but they were dropping rapidly.  
  
 The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek. There are depressions and drainage patterns throughout the wetland, with all of the depressions being full of water following the recent flood.

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP5W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>willow oak (Quercus phellos)</u>	10%	No	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>loblolly pine (Pinus taeda)</u>	60%	Yes	FAC	
3. <u>sweetgum (Liquidambar styraciflua)</u>	10%	No	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
80% = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	50%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>sweetgum (Liquidambar styraciflua)</u>	20%	Yes	FAC	
3. <u>willow oak (Quercus phellos)</u>	2%	No	FACW	
4. <u>red maple (Acer rubrum)</u>	20%	Yes	FAC	
5. _____				
6. _____				
7. _____				
8. _____				
92% = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>46</u>		20% of total cover: <u>18.4</u>		
<b>Herb Stratum</b> (Plot size: _____ )				
1. _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	5%	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
5% = Total Cover				
50% of total cover: <u>2.5</u>		20% of total cover: <u>1</u>		

Remarks: (If observed, list morphological adaptations below).

Bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter, water-stained leaves, and loblolly pine needles, therefore the herbaceous vegetation layer was nearly absent in the forest, but dense herbaceous vegetation in the jurisdictional road ditches (see DP5W-1). The road ditches were primarily dominated with soft rush (*Juncus effusus*) and acuminate rush (*Juncus acumi} atus*).

**SOIL**

Sampling Point: DP5W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y5/1	80%	2.5Y4/6	10%			silt loam	soils core had some sand/gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

The soils were very dark and appeared to be significantly reduced.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP5W-1  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.550842 Long: -92.467885 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: This is the herbaceous portion of Wetland 5. This wetland is primarily forested, but this area includes jurisdictional herbaceous ditches along Highway 167. There are some ponded areas in depressions within the wetland.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					

<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 12 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey. The jurisdictional road ditches still had 6-12 inches of water, but they were dropping rapidly.  
  
 The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek. There are depressions and drainage patterns throughout the forested portion of the wetland east of the herbaceous area, with all of the depressions being full of water following the recent flood.

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP5W-1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>Juncus acuminatus</u>	30%	Yes	OBL	
2. <u>Juncus effusus</u>	60%	Yes	OBL	
3. <u>Carex suberecta</u>	10%	No	OBL	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	5%	Yes	FAC	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>				

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

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**Prevalence Index worksheet:**

Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

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**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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**Definitions of Four Vegetation Strata:**

**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vine** – All woody vines greater than 3.28 ft in height.

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**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below).

There was dense herbaceous vegetation in the jurisdictional road ditches. The road ditches were primarily dominated with soft rush (*Juncus effusus*) and acuminate rush (*Juncus acuminatus*).

**SOIL**

Sampling Point: DP5W-1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y5/1	80%	2.5Y4/6	10%			silt loam	soils core had some sand/gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

The soils were very dark and appeared to be significantly reduced.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP5U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S32,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace in floodplain Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.550684 Long: -92.467748 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: This is the upland area adjacent to Wetland 5, which is a bottomland hardwood wetland in the Champagnolle Creek floodplain. The upland sampling point was on an elevated area that was outside of the primary study area.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u>	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey.  This sample point was not flooded by the overflow flooding, but was saturated by the recent heavy rainfall. The area appears to drain rapidly and does not have wetland hydrology for a long duration during the growing season.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP5U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>willow oak (Quercus phellos)</u>	5%	No	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	70%	Yes	FAC		
3. <u>sweetgum (Liquidambar styraciflua)</u>	15%	No	FAC		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	10%	Yes	FAC		
2. <u>sweetgum (Liquidambar styraciflua)</u>	20%	Yes	FAC		
3. <u>red maple (Acer rubrum)</u>	10%	Yes	FAC		
4. <u>winged elm (Ulmus alata)</u>	5%	No	FACU		
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>					
<b>Herb Stratum</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____					
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax glauca</u>	5%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>					
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.					
Remarks: (If observed, list morphological adaptations below).  The bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter and loblolly pine needles, therefore the herbaceous vegetation layer was nearly absent in the forest.					

**SOIL**

Sampling Point: DP5U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	10YR5/3	95%	10YR4/6	5%			silt loam	mottles were faint

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

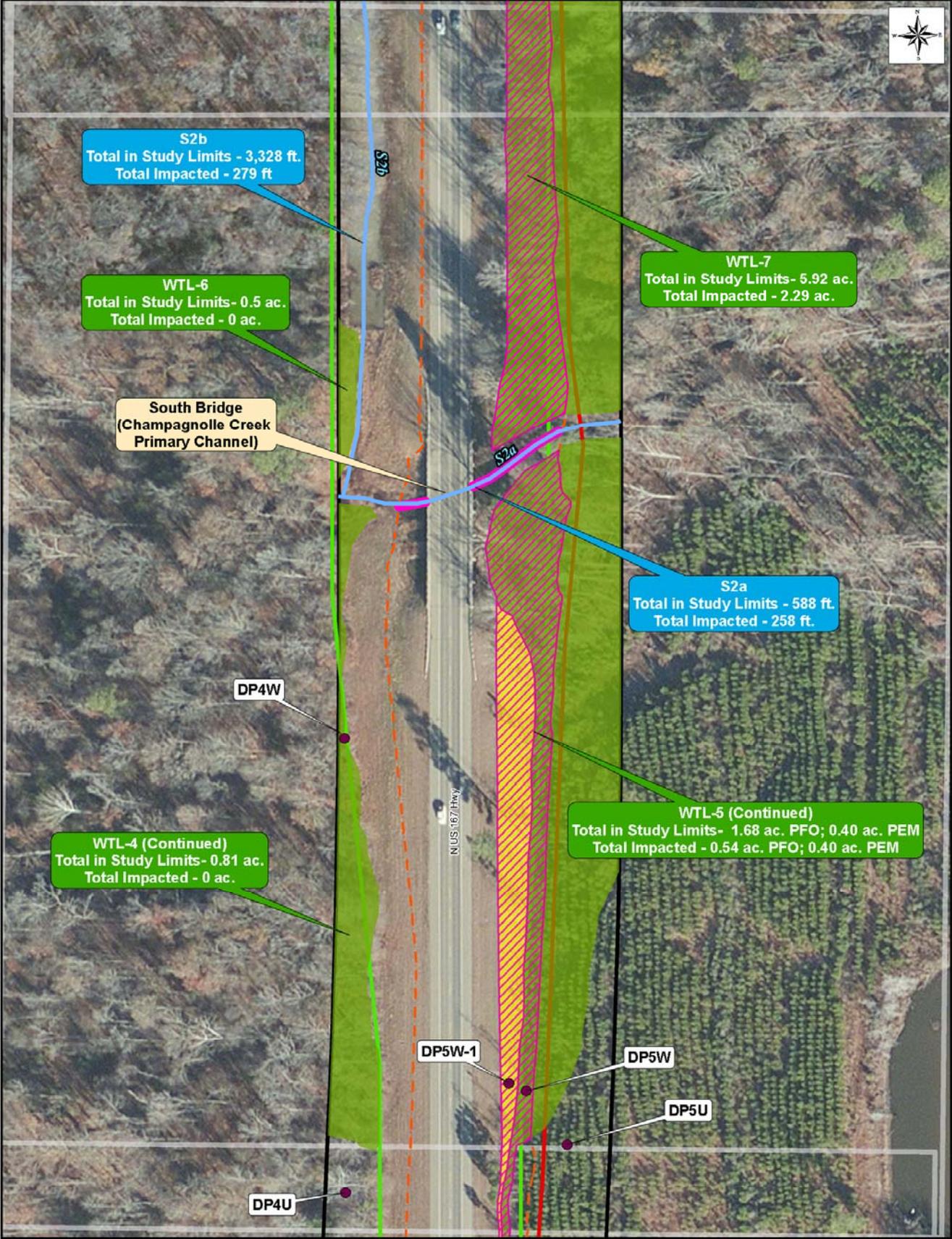
**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

The soils were somewhat dark, and there were a few faint mottles. There was some coarse sand in the various upland soil cores but not in this sample.



**S2b**  
Total in Study Limits - 3,328 ft.  
Total Impacted - 279 ft

**WTL-6**  
Total in Study Limits- 0.5 ac.  
Total Impacted - 0 ac.

**South Bridge**  
(Champagnolle Creek  
Primary Channel)

**WTL-7**  
Total in Study Limits- 5.92 ac.  
Total Impacted - 2.29 ac.

**S2a**  
Total in Study Limits - 588 ft.  
Total Impacted - 258 ft.

**WTL-4 (Continued)**  
Total in Study Limits- 0.81 ac.  
Total Impacted - 0 ac.

**WTL-5 (Continued)**  
Total in Study Limits- 1.68 ac. PFO; 0.40 ac. PEM  
Total Impacted - 0.54 ac. PFO; 0.40 ac. PEM

DP4W

DP5W-1

DP5W

DP5U

DP4U

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 3 of 21      Date: 11/19/2015

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM**  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS

JOB CA0702



DP7U

S2b (Continued)  
Total in Study Limits - 3,328 ft.  
Total Impacted - 279 ft

WTL-6 (Continued)  
Total in Study Limits- 0.5 ac.  
Total Impacted - 0 ac.

S2a (Continued)  
Total in Study Limits - 588 ft.  
Total Impacted - 258 ft.

WTL-7 (Continued)  
Total in Study Limits- 5.92 ac.  
Total Impacted - 2.29 ac.

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 4 of 21      Date: 11/19/2015

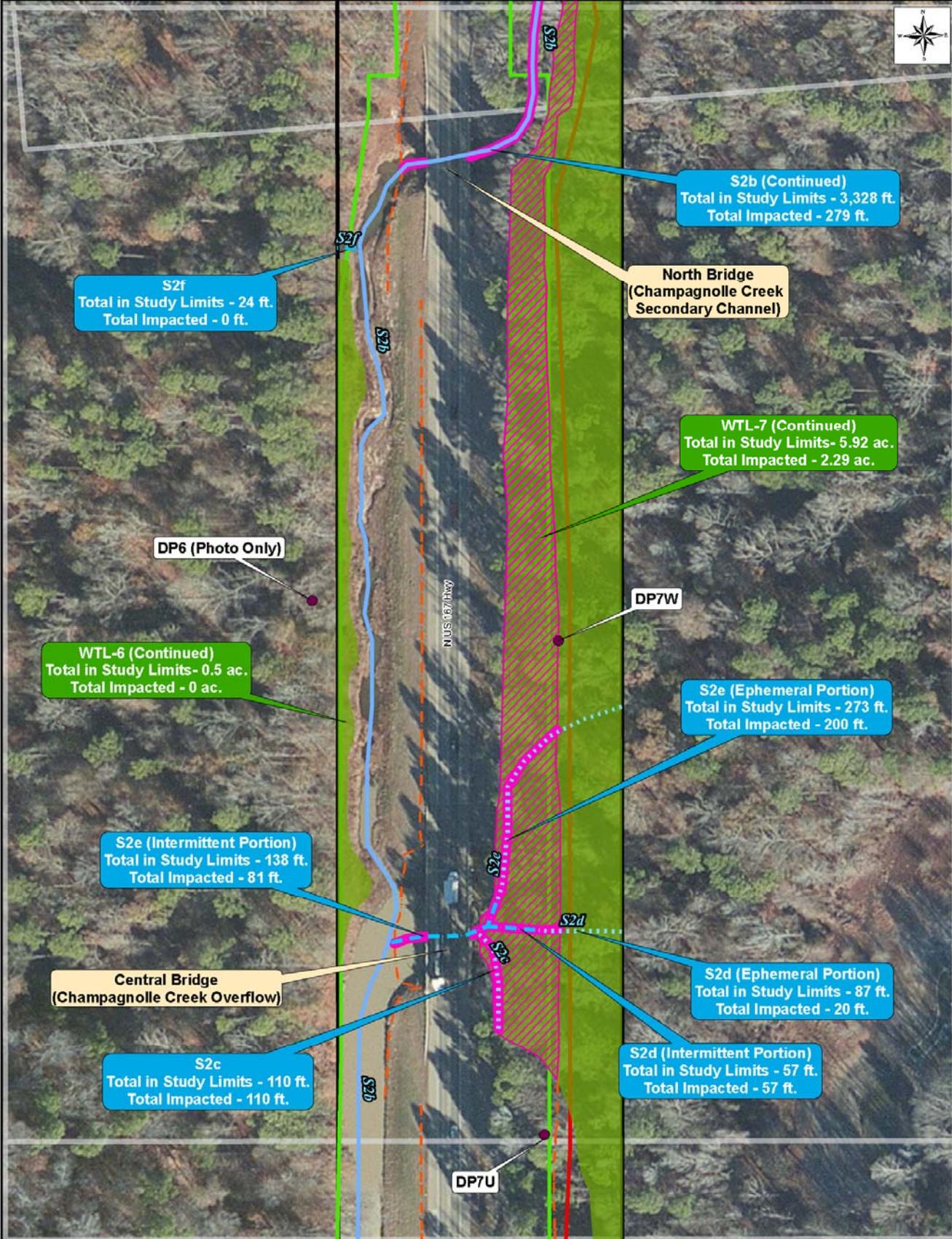
0 25 50 100 Feet

1 in = 95 feet

ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT

CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS

JOB CA0702



<ul style="list-style-type: none"> <li><span style="color: red;">—</span> Proposed ROW</li> <li><span style="color: orange; border-bottom: 1px dashed orange;">—</span> Proposed Construction Limits</li> <li><span style="color: green;">—</span> Existing ROW</li> </ul>	<p><b>Watercourses in Study Limits</b></p> <ul style="list-style-type: none"> <li><span style="color: blue; border-bottom: 1px dotted blue;">—</span> Ephemeral Stream</li> <li><span style="color: blue; border-bottom: 1px dashed blue;">—</span> Intermittent Stream</li> <li><span style="color: blue; border-bottom: 1px solid blue;">—</span> Perennial Stream</li> </ul>	<p><b>Jurisdictional Waters Map</b></p>		<p>ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT</p>
<p><b>Wetlands in Study Limits</b></p> <ul style="list-style-type: none"> <li><span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Emergent</li> <li><span style="background-color: green; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Forested</li> <li><span style="background-color: pink; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Wetland Impact</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 2px solid magenta; display: inline-block; width: 15px; height: 10px;"></span> Watercourse Impact</li> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Study Limits</li> <li><span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Sheet Boundaries</li> </ul>	<p>Sheet 5 of 21      Date: 11/19/2015</p>	<p>CONNECTING ARKANSAS PROGRAM HWY. 274 - HAMPTON (WIDENING) (S) HWY. 167 in CALHOUN COUNTY, ARKANSAS</p> <p>JOB CA0702</p>	
		<p>0 25 50 100 Feet</p> <p>1 in = 95 feet</p>		



Flood water flowing into a side channel of Wetland 6. High water excluded access in April 2015.



Bottomland hardwoods in Wetland 6 facing west from Highway 167 in March 2015.



Bottomland hardwood forest in Wetland 6.



Wetland 6 on left adjacent to eroded ditch at the base of Highway 167 facing north.



Wetland 6 on left adjacent to eroded ditch at the base of Highway 167 facing north.



Outer edge of Wetland 7 showing receding flood waters, facing north.



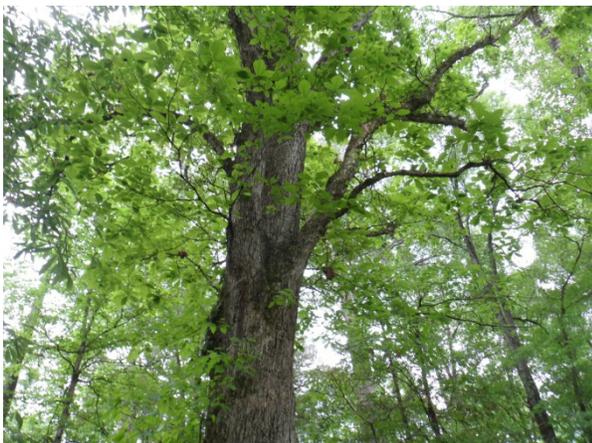
Drainage patterns in Wetland 7.



Buttressed tree trunks and water-stained leaves in Wetland 7.



Drainage patterns in Wetland 7.



Large chestnut oak in Wetland 7 in the Champagnolle Creek floodplain.



S2a (main Champagnolle Creek channel) just east of Highway 167, facing south (March 2015).



S2a (Champagnolle Creek) flowing west (downstream) west of Highway 167.



S2a (Champagnolle Creek) facing west (downstream) from Highway 167 (March 2015).



S2a east (upstream) of Highway 167 bridge facing east.



S2a (Champagnolle Creek) facing west (downstream) from Highway 167 (April 2015).



S2a facing south with Champagnolle Creek flowing under the Highway 167 bridge.



S2b west of Highway 167 facing upstream.



S2f confluence with S2b (road ditch) facing east from west of Highway 167.



S2b facing north (upstream) from east side of Highway 167 bridge.



S2f side channel flowing toward the west (downstream) west of Highway 167.



Upstream end of S2b before it flows under Highway 167 facing northeast (upstream).



S2c, S2d, and S2e ephemeral channels meet S2d and S2e intermittent stream channels east of Highway 167 flowing toward central bridge in Champagnolle Creek floodplain, facing south (March 2015).



Drainage patterns through Wetland 7 flowing west toward S2d and S2e just upstream of the central overflow bridge (end of April 2015).



Overflow flooding in Wetland 7 flowing into S2d just east of Highway 167 central overflow bridge.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP6  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.558848 Long: -92.468403 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 6 is a bottomland hardwood wetland in the Champagnolle Creek floodplain. This wetland was not accessible due to the current flooding, but the vegetation and hydrology indicators were easily visible from Highway 167. The soils are assumed to be similar to the adjacent Wetland 4.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey.  The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek. There are depressions and drainage patterns throughout the wetland, with all of the depressions being full of water following the recent flood. This entire area was flooded within the previous two days just prior to the field survey. Wetland 6 is bounded by Champagnolle Creek on the east and south and there are no visible uplands present.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP6

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>water oak (Quercus nigra)</u>	25%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>loblolly pine (Pinus taeda)</u>	10%	No	FAC	
3. <u>willow oak (Quercus phellos)</u>	30%	Yes	FACW	
4. <u>overcup oak (Quercus lyrata)</u>	5%	No	OBL	
5. <u>cherrybark oak (Quercus pagoda)</u>	4%	No	FACW	
6. _____				
7. _____				
8. _____				
74% = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: <u>37</u> 20% of total cover: <u>14.8</u>				
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>red maple (Acer rubrum)</u>	10%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>American elm (Ulmus americana)</u>	5%	Yes	FACW	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
15% = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>7.5</u> 20% of total cover: _____				
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>Carex spp</u>	5%	Yes	FAC	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
5% = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: _____ 20% of total cover: _____				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	5%	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
5% = Total Cover				
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>				

Remarks: (If observed, list morphological adaptations below).

The bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter and water-stained leaves, therefore the herbaceous vegetation layer was reduced. The sedge (Carex spp.) in the forest floor was obviously water tolerant, but not flowering at the time of the survey and not readily visible from the west side of the flooded ditch, so identification to species was not determined (it is assumed at a minimum the species would be FAC).

**SOIL**

Sampling Point: DP6

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y5/1	95%	10YR4/4	5%			silty clay loam	soil sample from adjacent Wetland 12

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

**Remarks:**

The soil sample is based upon the adjacent Wetland 4, because flood waters did not allow access across Champagnolle Creek into Wetland 6. No soil cores could be taken, however soil profiles throughout the adjacent wetlands are fairly uniform, and it is presumed that they will be consistent with Wetland 6.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP7W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.558714 Long: -92.467552 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 7 is a bottomland hardwood wetland in the Champagnolle Creek floodplain. It is primarily BH but also includes jurisdictional herbaceous ditches along Highway 167. A high area in the south end of the wetland near the creek channel has upland trees and is excluded from the wetland boundary.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input checked="" type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 12 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had receded almost to the ordinary high water mark in the creek channel by the time of the survey. Overflow flood water was still returning from the floodplain wetlands to the creek channel at the time of the survey. The jurisdictional road ditches still had 6-12 inches of water, but they were dropping rapidly.  The area's primary hydrology comes from its terrain position and overflow flooding from Champagnolle Creek. There are depressions and drainage patterns throughout the wetland.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP7W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>water oak (Quercus nigra)</u>	20%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. <u>cherrybark oak (Quercus pagoda)</u>	10%	No	FACW		
3. <u>swamp chestnut oak (Quercus michauxii)</u>	20%	Yes	FACW		
4. <u>cypress (Taxodium distichum)</u>	20%	Yes	OBL		
5. <u>loblolly pine (Pinus taeda)</u>	25%	Yes	FAC		
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>47.5</u> 20% of total cover: <u>19</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>American elm (Ulmus americana)</u>	5%	Yes	FAC		
2. <u>swamp privet (Forestiera acuminata)</u>	3%	Yes	OBL		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
_____ = Total Cover 50% of total cover: <u>4</u> 20% of total cover: <u>1.6</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax glauca</u>	5%	Yes	FAC		
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks: (If observed, list morphological adaptations below).

Bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter, water-stained leaves, and loblolly pine needles, therefore the herbaceous vegetation layer was nearly absent. The road ditches were dominated with soft rush (*Juncus effusus*) and acuminate rush (*Juncus acumi} atus*). The swamp privet and cypress were primarily along the margins of the Champagnolle Creek channel.

**SOIL**

Sampling Point: DP7W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y5/1	95%	10YR5/4	5%			sandy clay loam	soils core were very hard

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

The soils were very hard, and there was a high clay content in the soil cores.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 28, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP7U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace in floodplain Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.557283 Long: -92.467640 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: This sample point was in the Champagnolle Creek floodplain, but it is considered an upland because of the lack of hydrophytic vegetation and reduced soils. This high area to the south of Wetland 9 was near the creek channel and had upland trees/vegetation. The area may receive infrequent overflow flooding from Champagnolle Creek, but this infrequent flooding has not created anaerobic soil conditions.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input checked="" type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b></td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <u>X</u> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>																															
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																
Remarks: There was a significant amount of rainfall within the previous 3 days. Champagnolle Creek had just flooded most of its floodplain just prior to the survey, but it had not flooded this high area south of Wetland 9. The area may receive infrequent overflow flooding from Champagnolle Creek, but this infrequent flooding has not created anaerobic soil conditions. There is no evidence of prolonged inundation or soil saturation.																																

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP7U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>American beech (Fagus grandifolia)</u>	<u>40%</u>	<u>Yes</u>	<u>FACU</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>8</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>winged elm (Ulmus alata)</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
<u>90%</u> = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>40</u> x 3 = <u>120</u> FACU species <u>95</u> x 4 = <u>380</u> UPL species _____ x 5 = _____ Column Totals: <u>165</u> (A) <u>560</u> (B)  Prevalence Index = B/A = <u>3.39</u>	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>winged elm (Ulmus alata)</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>		
2. <u>hop hornbeam (Ostrya virginiana)</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
<u>35%</u> = Total Cover 50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>switch cane (Arundinaria tecta)</u>	<u>30%</u>	<u>Yes</u>	<u>FACW</u>		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
<u>30%</u> = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax bona-nox</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
2. <u>Smilax rotundifolia</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
3. _____					
4. _____					
5. _____					
<u>10%</u> = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>					<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
Remarks: (If observed, list morphological adaptations below).					

Bottomland hardwoods had an almost completely closed canopy with a dense layer of leaf litter, water-stained leaves, and loblolly pine needles, therefore the herbaceous vegetation layer was nearly absent.

**SOIL**

Sampling Point: DP7U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	10YR5/3	95%	none				sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

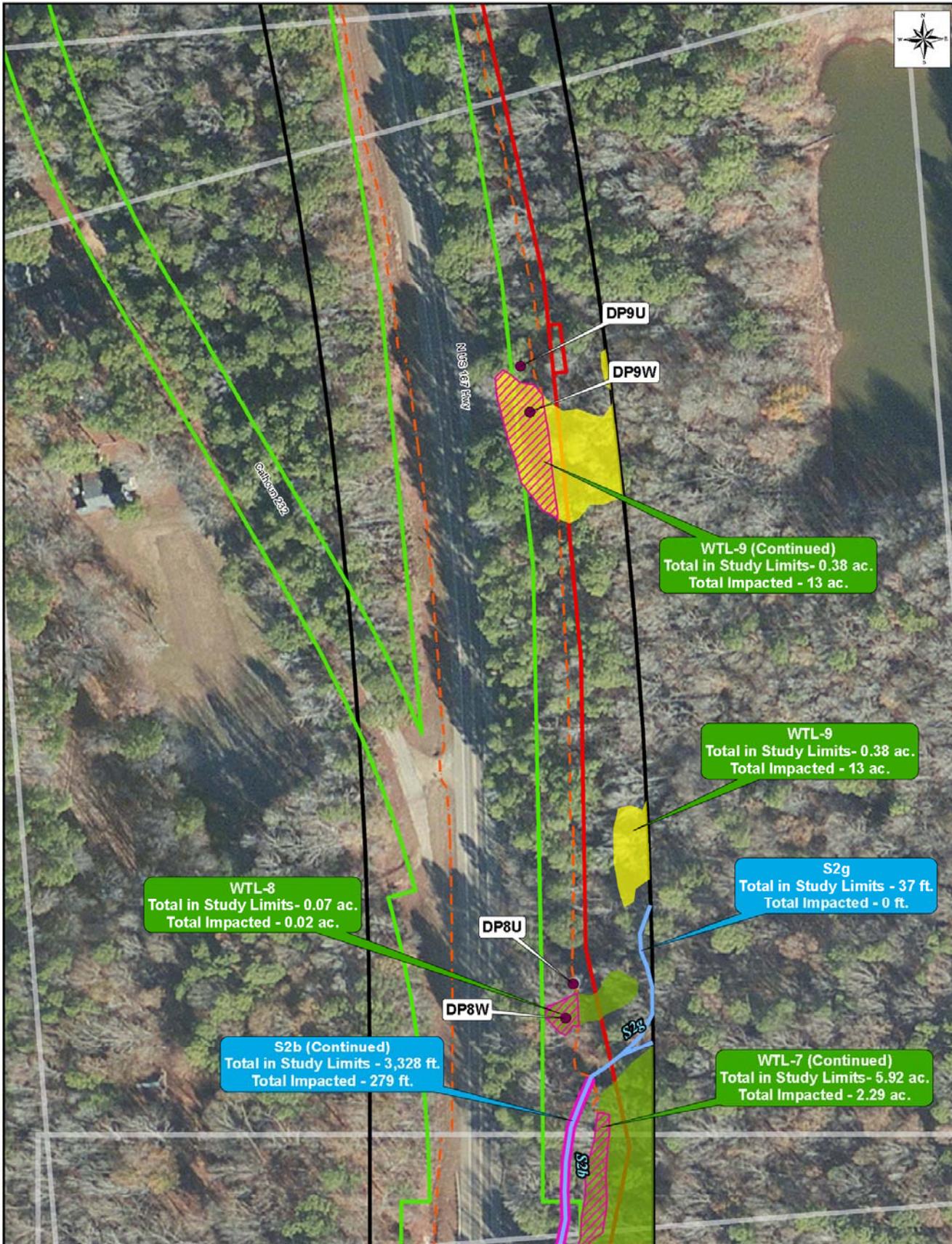
**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

The soils were not as hard as the wetland soils and were much more loamy. They were also not reduced like the wetland soils.



<ul style="list-style-type: none"> <li><span style="color: red;">—</span> Proposed ROW</li> <li><span style="color: orange;">- - -</span> Proposed Construction Limits</li> <li><span style="color: green;">—</span> Existing ROW</li> </ul> <p><b>Wetlands in Study Limits</b></p> <ul style="list-style-type: none"> <li><span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Emergent</li> <li><span style="background-color: lightgreen; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Forested</li> <li><span style="background-color: pink; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Wetland Impact</li> </ul>	<p><b>Watercourses in Study Limits</b></p> <ul style="list-style-type: none"> <li><span style="color: blue;">⋯</span> Ephemeral Stream</li> <li><span style="color: blue;">- - -</span> Intermittent Stream</li> <li><span style="color: blue;">—</span> Perennial Stream</li> </ul> <ul style="list-style-type: none"> <li><span style="color: magenta;">—</span> Watercourse Impact</li> <li><span style="border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Study Limits</li> <li><span style="border: 1px solid gray; display: inline-block; width: 15px; height: 10px;"></span> Sheet Boundaries</li> </ul>	<p align="center"><b>Jurisdictional Waters Map</b></p> <p>Sheet 6 of 21      Date: 11/19/2015</p> <p align="center">0 25 50 100 Feet</p> <p align="center">1 in = 95 feet</p>	<p align="center"><b>ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT</b></p> <p align="center"><b>CONNECTING ARKANSAS PROGRAM</b> HWY. 274 - HAMPTON (WIDENING) (S) HWY. 167 in CALHOUN COUNTY, ARKANSAS</p> <p align="center">JOB CA0702</p>
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Side channel Wetland 8 in Champagnolle Creek floodplain.



*Juncus effusus* in Wetland 9. There was a dense mat of senesced sedges from the previous growing season under the new spring growth.



Soils in Wetland 8.



Reduced soil conditions in Wetland 9 soil core.



Sedge marsh in cutover of Wetland 9, note planted pines following clear cutting operation.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP8W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.560890 Long: -92.467573 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 8 is a small secondary channel bottomland hardwood wetland. The adjacent uplands are well defined and 2-3 feet higher.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 2 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. The inundated areas were in the old secondary channel while the remainder of the wetland is saturated. The area receives frequent overflow flooding from the adjacent creek.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP8W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>willow oak (Quercus phellos)</u>	<u>40%</u>	<u>Yes</u>	<u>FACW</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. <u>cherrybark oak (Quercus pagoda)</u>	<u>50%</u>	<u>Yes</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>45</u>		20% of total cover: <u>18</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>Morella cerifera</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>		
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>Juncus acuminatus</u>	<u>5%</u>	<u>Yes</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>soft rush (Juncus effusus)</u>	<u>2%</u>	<u>Yes</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>3.5</u>		20% of total cover: <u>1.4</u>		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>1</u>		20% of total cover: <u>0.4</u>		
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below). <b>There was winged elm on the adjacent upland.</b> <b>Bottomland hardwoods have buttressed trunk along the secondary channel.</b>				

**SOIL**

Sampling Point: DP8W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	2.5Y5/1	95%	None				sandy loam	some gravel in soil cores

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Adjacent upland soils were 10YR5/4.  
There was a lot of gravel in some of the soil cores which likely washed into the secondary channel from the main creek.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP8U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.560989 Long: -92.467544 Datum: WGS84  
 Soil Map Unit Name: 5 - Guyton soils, frequently flooded (on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: This sample point is in the adjacent uplands to Wetland 8 and is well defined (2-3 feet higher in elevation).	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b></td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																															
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<input type="checkbox"/> FAC-Neutral Test (D5)																																
<input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>																																
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>																															
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																
Remarks: There was a significant amount of rainfall within the previous 3 days. This sample point is in the upland that is 2-3-feet higher in elevation than Wetland 8.																																

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP8U

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>willow oak (Quercus phellos)</u>	40%	Yes	FACW	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>6</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
2. <u>winged elm (Ulmus alata)</u>	30%	Yes	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover 70%				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>70</u> x 4 = <u>280</u> UPL species _____ x 5 = _____ Column Totals: <u>125</u> (A) <u>405</u> (B)  Prevalence Index = B/A = <u>3.24</u>
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>hop hornbeam (Ostrya virginiana)</u>	30%	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>winged elm (Ulmus alata)</u>	10%	Yes	FACU	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover 40%				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>poison ivy (Toxicodendron radicans)</u>	5%	Yes	FAC	<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover 5%				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	10%	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover 10%				
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				
Remarks: (If observed, list morphological adaptations below).				

**SOIL**

Sampling Point: DP8U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	10YR5/4	95%	None				sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP9W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.562657 Long: -92.467648 Datum: WGS84  
 Soil Map Unit Name: 1 - Amy silt loam - (components on hydric soils list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 9 is a soft rush marsh/wetland in the Champagnolle floodplain. The area has been recently clear cut and replanted with loblolly pine. It is a wet depression/drainageway into the floodplain from adjacent uplands.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 3 inches</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>surface</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. The area receives runoff from adjacent uplands including the Highway 167 road ditches. The area is very boggy and supersaturated in areas that are not inundated. This wetland may receive infrequent overflow flooding from Champagnolle Creek as well.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP9W

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____	
50% of total cover: _____		20% of total cover: _____			
Sapling/Shrub Stratum (Plot size: _____ )					
1. loblolly pine (Pinus taeda)	5%	Yes	FAC		
2. Crataegus opaca	5%	Yes	OBL		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>			
Herb Stratum (Plot size: _____ )					
1. soft rush (Juncus effusus)	80%	Yes	OBL		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. Carex frankii	5%	No	OBL		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
50% of total cover: <u>42.5</u>		20% of total cover: <u>17</u>			
Woody Vine Stratum (Plot size: _____ )					
1. Smilax glauca	1%	No	FAC		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. Japanese honeysuckle (Lonicera japonica)	1%	No	FACU		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: <u>1</u>		20% of total cover: <u>0.4</u>			
Remarks: (If observed, list morphological adaptations below).  The loblolly pine were planted and are few in the wetland boundary (primarily around the wetland margins).					

**SOIL**

Sampling Point: DP9W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6 inches	2.5Y5/2	90%	10YR5/4	5%			silt loam	
6-12 inches	2.5Y5/1	95%	None				sandy clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Primarily silt in the top 6 inches then more clay from 6-12 inches. There was a lot of organic matter throughout the soil cores.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP9U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S29,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2-3%  
 Subregion (LRR or MLRA): LRR O Lat: 33.562791 Long: -92.467675 Datum: WGS84  
 Soil Map Unit Name: 21 - Savannah fine sandy loam - (not hydric) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks: This is the upland data point upslope from Wetland 9, which is a soft rush marsh/wetland in the Champagnolle floodplain. The area was recently clear cut and replanted with loblolly pine.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <u>X</u> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days, however this sample point was on the slope that was very well drained. It is possible that a severe overflow flood from Champagnolle Creek could reach this sample point, but it would occur only rarely.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP9U

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				<b>Dominance Test worksheet:</b>
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>winged elm (Ulmus alata)</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>				
<b>Herb Stratum</b> (Plot size: _____ )				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.   <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
1. <u>broomsedge (Andropogon virginicus)</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Japanese honeysuckle (Lonicera japonica)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>				
Remarks: (If observed, list morphological adaptations below).				
<b>The loblolly pine were planted recently.</b>				

**SOIL**

Sampling Point: DP9U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	10YR5/4	90%					silt loam	Soils disturbed from recent logging.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

The soils appeared to be very disturbed from recent logging activities.



Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 7 of 21	Date: 11/19/2015
---------------	------------------

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 8 of 21	Date: 11/19/2015
---------------	------------------

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



- Proposed ROW
- Proposed Construction Limits
- Existing ROW
- Wetlands in Study Limits**
- Emergent
- Forested
- Wetland Impact
- Watercourses in Study Limits**
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Watercourse Impact
- Study Limits
- Sheet Boundaries

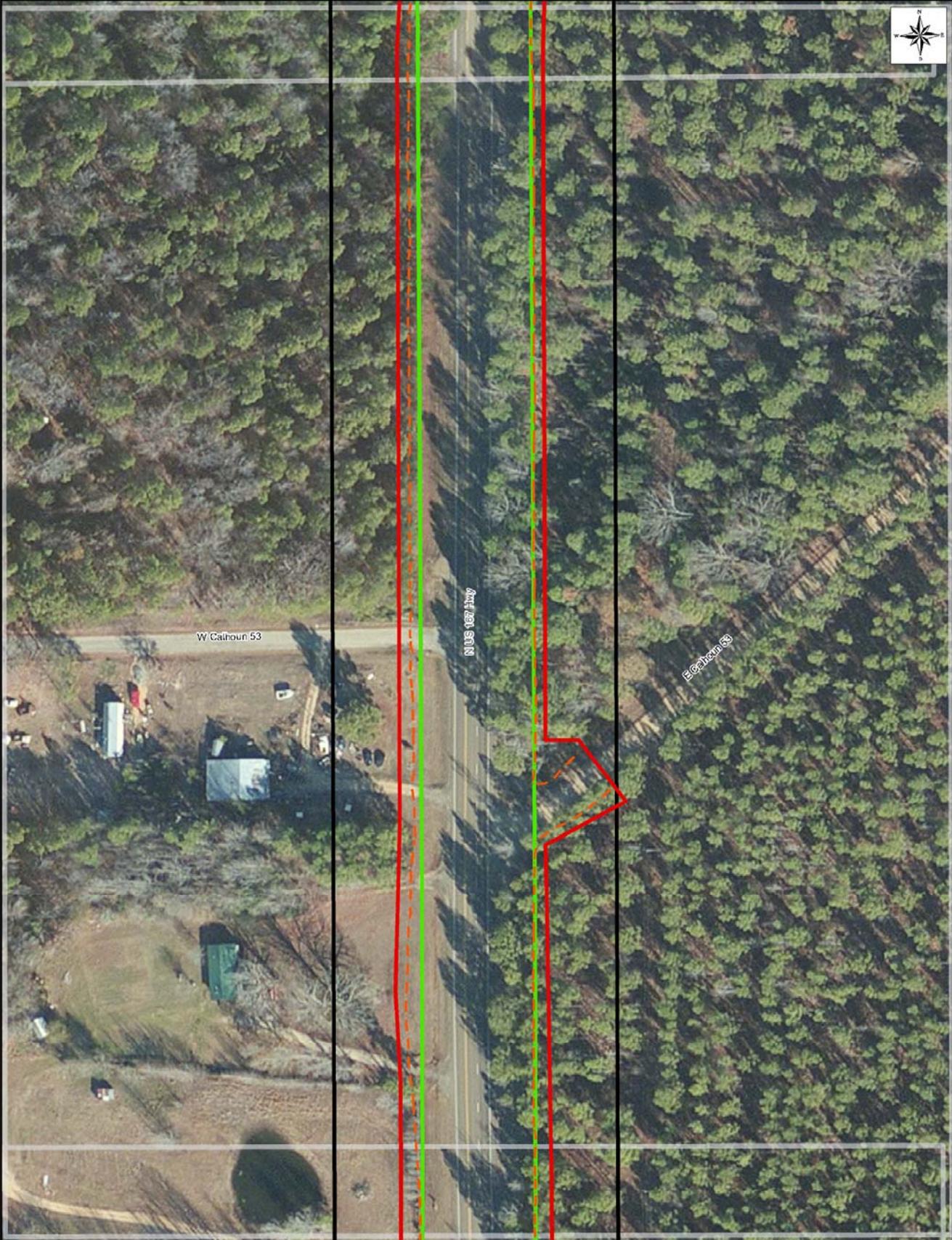
**Jurisdictional Waters Map**

Sheet 9 of 21	Date: 11/19/2015
1 in = 95 feet	

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

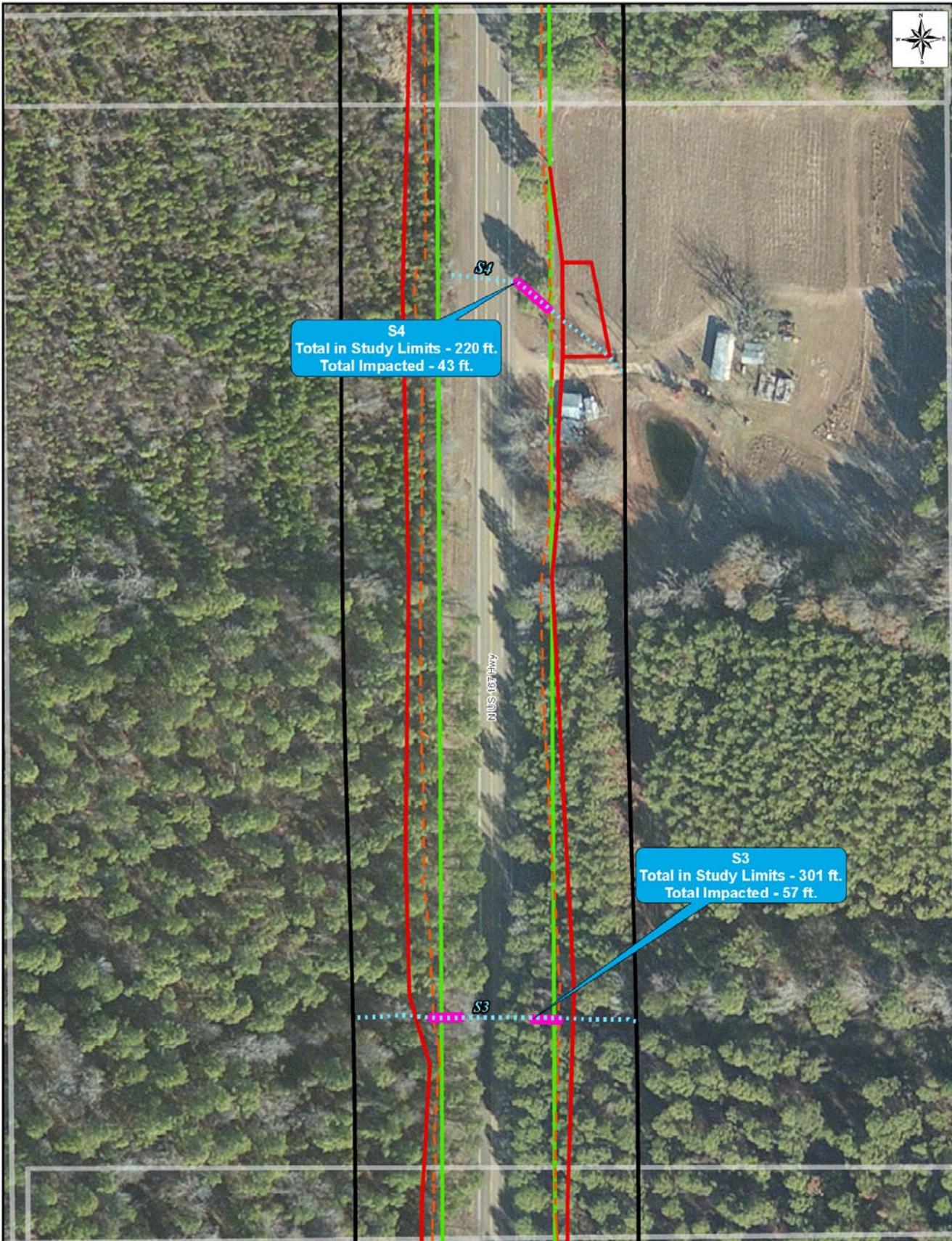
**Jurisdictional Waters Map**

Sheet 10 of 21	Date: 11/19/2015
1 in = 95 feet	

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



**S4**  
 Total in Study Limits - 220 ft.  
 Total Impacted - 43 ft.

**S3**  
 Total in Study Limits - 301 ft.  
 Total Impacted - 57 ft.

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 11 of 21      Date: 11/19/2015

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM**  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS

**JOB CA0702**



S3 ephemeral channels from clearcut to the west (upstream) from Highway 167 facing west.



S4 ephemeral channel facing east (downstream) from Highway 167.



S3 culvert west of Highway 167 facing north.



S4 ephemeral channel/swale flowing to the southeast.



S3 culvert facing east (downstream) from Highway 167.



- |                                 |                                     |
|---------------------------------|-------------------------------------|
| Proposed ROW                    | <b>Watercourses in Study Limits</b> |
| Proposed Construction Limits    | Ephemeral Stream                    |
| Existing ROW                    | Intermittent Stream                 |
| <b>Wetlands in Study Limits</b> | Perennial Stream                    |
| Emergent                        | Watercourse Impact                  |
| Forested                        | Study Limits                        |
| Wetland Impact                  | Sheet Boundaries                    |

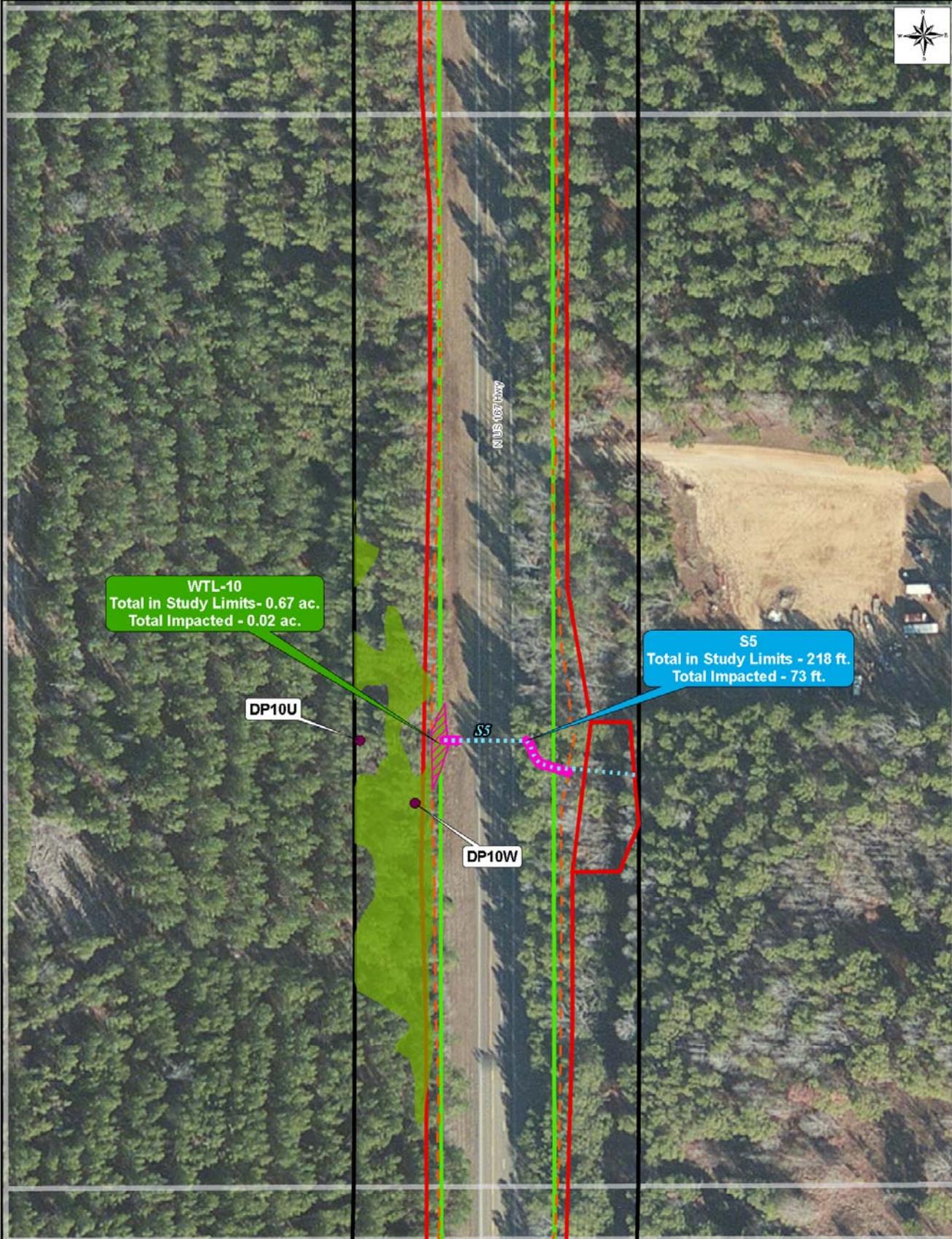
**Jurisdictional Waters Map**

Sheet 12 of 21	Date: 11/19/2015
1 in = 95 feet	

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 13 of 21	Date: 11/19/2015
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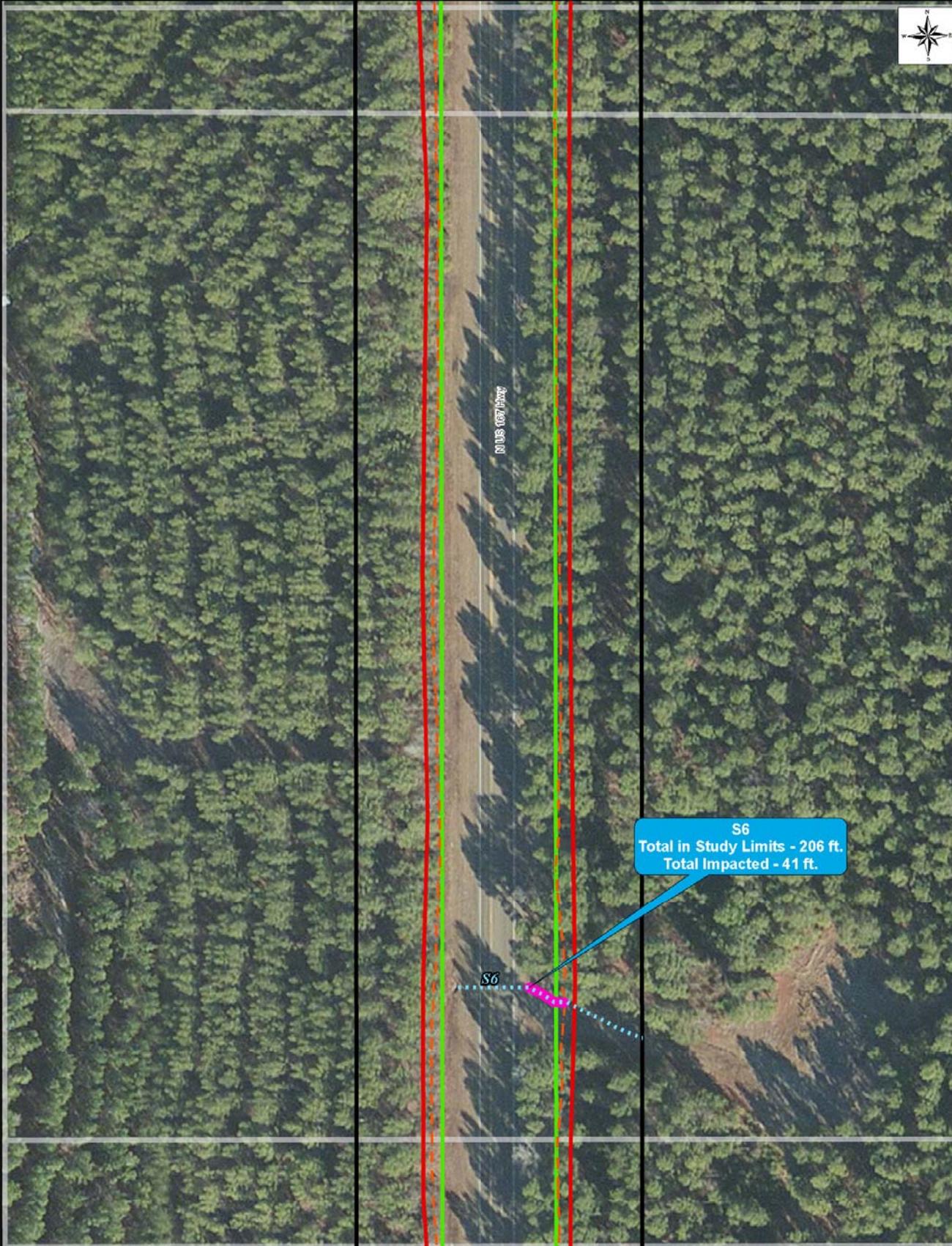
0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



S6  
Total in Study Limits - 206 ft.  
Total Impacted - 41 ft.

S6

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 14 of 21      Date: 11/19/2015

0 25 50 100 Feet

1 in = 95 feet

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS

JOB CA0702



Wetland 10 habitat facing NW from Highway 167 culvert. Wetland has forest and emergent areas.



Wetland 10 draining into culvert under Highway 167 facing south.



Soft rush (*Juncus effusus*) in Wetland 10, facing northeast.



Saturation in pine forest habitat in Wetland 10.



Standing water in Wetland 10 facing NW.



Wetland 10 soil core.



West end (upstream) end of S5 facing south.  
Area drains Wetland 10 and road ditches.



S6 ephemeral channel flowing east (downstream)  
from Highway 167.



S5 ephemeral channel facing southeast  
(downstream) east of Highway 167.



Ephemeral channel for S5 flowing to the east  
(downstream) from Highway 167.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP10W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.584500 Long: -92.469305 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 10 is a complex braided pine flatland wetland that is saturated for a significant portion of the growing season. Multiple braided channels extend to the west from the Highway 167 culvert. The wet areas are intermingled with various humps and high spots.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 3 inches</u> Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. The primary hydrology appears to be from surface runoff and seepage from surrounding uplands. The area is generally poorly drained. The swales and drainage patterns are inundated or saturated, and the higher areas are very moist. It is not feasible to excludes the very small humps/high spots, likely formed during logging operations. in this wetland area.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP10W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	<u>80%</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>sweetgum (Liquidambar styraciflua)</u>	<u>10%</u>	<u>No</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>45</u> 20% of total cover: <u>18</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>red maple (Acer rubrum)</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>		
2. <u>willow oak (Quercus phellos)</u>	<u>1%</u>	<u>No</u>	<u>FACW</u>		
3. <u>wax myrtle (Morella cerifera)</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>31</u> 20% of total cover: <u>12.4</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>acuminate rush (Juncus acuminatus)</u>	<u>10%</u>	<u>Yes</u>	<u>OBL</u>		
2. <u>Carex suberecta</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>		
3. <u>greenbrier (Smilax rotundifolia)</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>bullbrier (Smilax bona-nox)</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>1</u> 20% of total cover: <u>0.4</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks: (If observed, list morphological adaptations below).

Much of the forest understory is bare with a dense mat of pine needles.

**SOIL**

Sampling Point: DP10W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y3/1	98%	none				silt loam	some fine sand in core samples

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

**Remarks:**

Soils were very gray and reduced throughout the wetland. There was generally no mottling in the core samples.  
 There was a lot of organic matter and some concretions in the soil cores.  
 Adjacent upland soils ranged from 10YR4/4 to 10YR5/6 with the drier areas being 5/6.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP10U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.584686 Long: 89.111111 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u>
Remarks:  This was the upland data point in the cutover adjacent to Wetland 6, which is a complex braided pine flatland wetland that is saturated for a significant portion of the growing season. This data point does not have the requisite hydrology or soils to be considered jurisdictional.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) ( <b>LRR U</b> ) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) ( <b>LRR T, U</b> )
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <u>X</u> No _____ Depth (inches): <u>Surface</u>	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  Remarks:  There was a significant amount of rainfall within the previous 3 days. The upper two inches were saturated from the recent heavy rainfall, but the soils core was moist and not saturated.  The sample point was on the drier portion of the upland adjacent to Wetland 6.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP10U

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	80%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
2. <u>sweetgum (Liquidambar styraciflua)</u>	10%	No	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
90% = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: <u>45</u>		20% of total cover: <u>18</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>winged elm (Ulmus alata)</u>	10%	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>possumhaw (Ilex dedidua)</u>	10%	Yes	FACW	
3. <u>loblolly pine (Pinus taeda)</u>	10%	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
30% = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		
<b>Herb Stratum</b> (Plot size: _____ )				
1. _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>bullbrier (Smilax bona-nox)</u>	2%	No	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
2% = Total Cover				
50% of total cover: <u>1</u>		20% of total cover: <u>0.4</u>		

Remarks: (If observed, list morphological adaptations below).

Much of the forest understory is bare with a dense mat of pine needles. This area was probably clearcut within the past 20 years.

**SOIL**

Sampling Point: DP10U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	10YR4/4	98%	none				silt loam	some fine sand in core samples

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

There was a lot of organic matter in the soil cores.  
 The upland soils ranged from 10YR4/4 to 10YR5/6 with the drier areas being 5/6.



Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

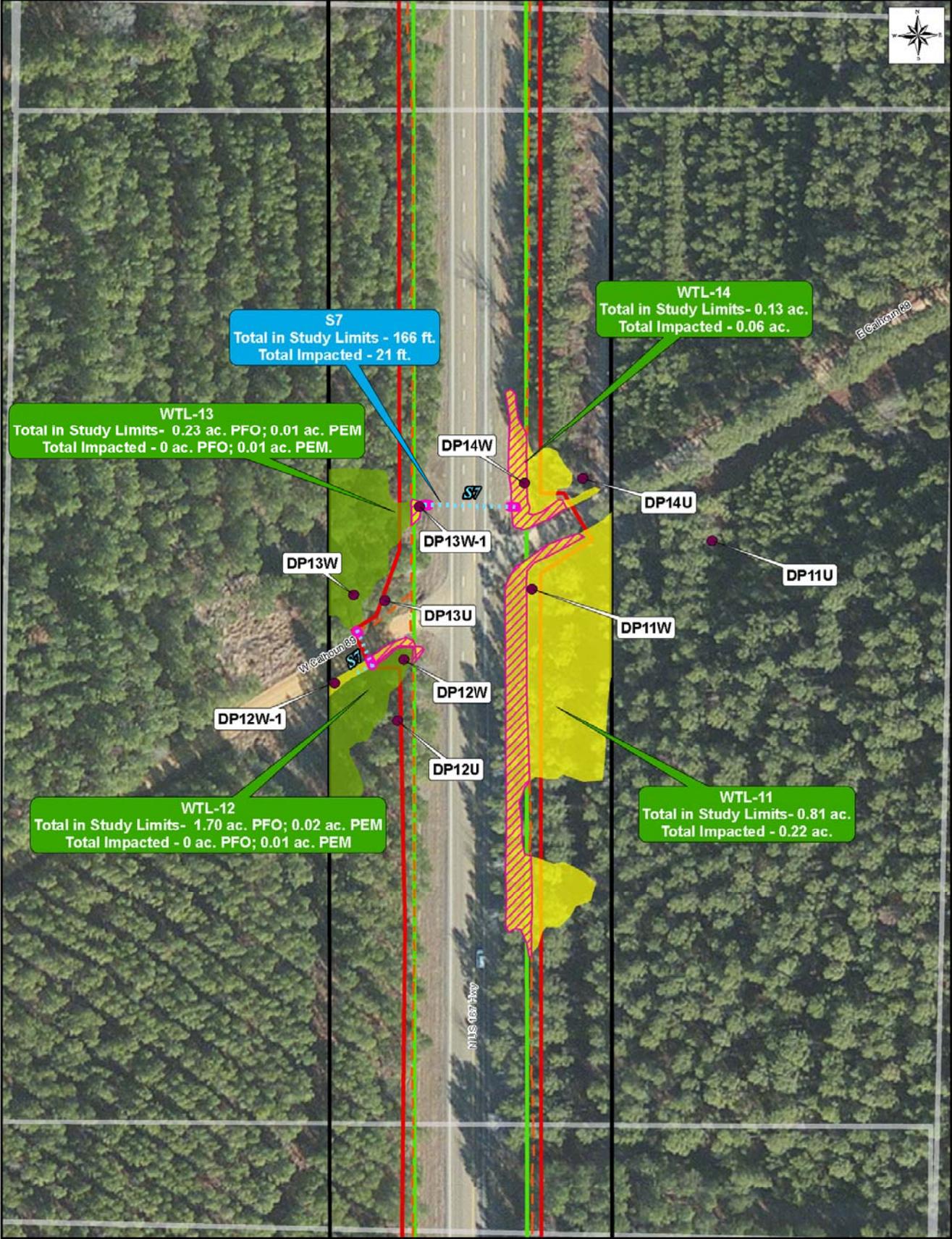
Sheet 15 of 21	Date: 11/19/2015
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1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



**S7**  
 Total in Study Limits - 166 ft.  
 Total Impacted - 21 ft.

**WTL-13**  
 Total in Study Limits - 0.23 ac. PFO; 0.01 ac. PEM  
 Total Impacted - 0 ac. PFO; 0.01 ac. PEM.

**WTL-14**  
 Total in Study Limits - 0.13 ac.  
 Total Impacted - 0.06 ac.

**WTL-12**  
 Total in Study Limits - 1.70 ac. PFO; 0.02 ac. PEM  
 Total Impacted - 0 ac. PFO; 0.01 ac. PEM

**WTL-11**  
 Total in Study Limits - 0.81 ac.  
 Total Impacted - 0.22 ac.

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 16 of 21      Date: 11/19/2015

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM**  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS

JOB CA0702



Wetland 11 facing south along Highway 167.



Wetland 12 facing East toward Highway 167 and along Calhoun 89.



Wetland 11 soil core.



Loblolly pine growing in Wetland 12 on a raised area.



*Juncus effusus* in Wetland 11 facing south.



Wetland 12 soil sample showing reduced conditions.



Wetland 13 has herbaceous and forested components, facing west from Highway 167.



Wetland 14, facing south toward Calhoun 89 with Highway 167 to the west (right).



Very dense stand of *Juncus effuses* in Wetland 13 facing NE.



Wetland 14 soil core.



Reduced soil conditions in Wetland 13.



Ephemeral channel S7 culvert under Highway 167 facing north and draining Wetland 14 and road ditches.



Ephemeral channel S7 (right) parallel to Calhoun 89 facing east toward Highway 167.



Ephemeral channel S7 flowing west (downstream) into Wetland 13.



Ephemeral channel S7 proceed through Wetland 13 and Wetland 12 facing west.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP11W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S17,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594891 Long: -92.468517 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: This depressional wetland is east of Hwy 167 and south of Calhoun 89. It is drained by an ephemeral channel that flows through a culvert to the west (under Hwy 167). It has been affected by logging operations recently, but it is clearly a depressional wetland.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) (LRR U) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 5 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>surface</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days. Heavy logging equipment mired out an area in the powerline ROW, but it is clear that overall this area is a depression that is poorly drained, and it remains ponded/saturated for a long duration during the growing season. Most of the area was logged in 2014 with some damage from logging equipment.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP11W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	5%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>sweet gum (Liquidambar styraciflua)</u>	2%	Yes	FAC		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>3.5</u> 20% of total cover: <u>1.4</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>Juncus effusus</u>	30%	Yes	OBL		
2. <u>Juncus acuminatus</u>	35%	Yes	OBL		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>32.5</u> 20% of total cover: <u>13</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.   <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax rotundifolia</u>	5%	Yes	FAC		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>					

Remarks: (If observed, list morphological adaptations below).

Most of the area was logged in 2014 with some damage from logging equipment. Much of the area was bare ground or inundated with no vegetation at this point in the growing season. There was a dense stand of dead soft rush in a portion of the wetland from the previous growing season. The loblolly pine and sweetgum were primarily remnants along the Hwy 167 road ditch.

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	2.5Y4/2		10YR5/4				sandy loam	Lot of organic matter in soil core.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Adjacent upland soil colors were 10YR5/4 sandy loam. Soils appear to be reduced and are much darker than adjacent upland soils nearby. There was a high level of organic matter in undisturbed portions of the wetland.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP11U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S17,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): slight rise/convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.595019 Long: -92.467886 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This is the upland area southeast of the adjacent depressional wetland 11 that is east of Hwy 167 and south of Calhoun 89. The area has been recently clearcut (2014), and it has not yet been replanted with pines.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: There was a significant amount of rainfall within the previous 3 days.  Most of the area was logged in 2014 with some damage from logging equipment, however this area is clearly an upland with no evidence of wetland hydrology.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP11U

Tree Stratum (Plot size: _____ )	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: _____ 20% of total cover: _____				
Sapling/Shrub Stratum (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>sweet gum (Liquidambar styraciflua)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>winged elm (Ulmus alata)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>				
Herb Stratum (Plot size: _____ )				
1. <u>broomsedge (Andropogon virginicus)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>				
Woody Vine Stratum (Plot size: _____ )				
1. <u>Smilax rotundifolia</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>				
<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____				
				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Remarks: (If observed, list morphological adaptations below).  Most of the area was logged in 2014 with some damage from logging equipment. Much of the area was bare ground with little or no herbaceous vegetation at this point in the growing season. The loblolly pine appears to be voluntary growth and not planted seedlings.				

**SOIL**

Sampling Point: DP11U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	10YR5/4	95%					sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Soils were not reduced, especially when compared to the adjacent wetland.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP12W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594693 Long: -92.468972 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 12 is a depressional wetland that is saturated/inundated for a significant portion of the growing season. It is part of complex of wetlands that are bisected by Highway 167 and Calhoun 89. This is the eastern half of Wetland 12 and is primarily loblolly pine.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input checked="" type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)</td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input checked="" type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)																																

<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 12 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 There was a significant amount of rainfall within the previous 3 days. Depressional area is bisected by Hwy 167 and Calhoun 89 on the west. The loblolly pines grow on humps on higher areas within the wetland boundary.

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP12W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>sweetgum (Liquidambar styraciflua)</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>		<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>wax myrtle (Morella cerifera)</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Herb Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____					
Remarks: (If observed, list morphological adaptations below). <b>The wax myrtle is on the wetland margins only.</b>					

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	2.5Y5/2	95%	10YR4/4	2%			sandy loam	Thin layer of organic matter near the surface.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Soils are consistent in texture and color throughout the wetland.  
 Adjacent upland soils to the southeast are a 10YR5/4 sandy loam.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP12W-1  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594693 Long: -92.468972 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 12 is a depressional wetland that is saturated/inundated for a significant portion of the growing season. It is part of complex of wetlands that are bisected by Highway 167 and Calhoun 89. The eastern half of Wetland 12 is primarily loblolly pine (see DP12W) .	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 12 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Depressional area is bisected by Hwy 167 and Calhoun 89 on the west. The loblolly pines associated with DP12W grow on humps on higher areas within the wetland boundary.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP12W-1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				<b>Dominance Test worksheet:</b>
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.           <b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>acuminate rush (Juncus acuminatus)</u>	<u>25%</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>soft rush (Juncus effusus)</u>	<u>20%</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Carex spp.</u>	<u>2%</u>	<u>No</u>	_____	
4. <u>Smilax rotundifolia</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>33.5</u> 20% of total cover: <u>13.4</u>				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Remarks: (If observed, list morphological adaptations below).				
Dead panicum and broom sedge exists along Calhoun 89 road ditch. There are scattered green ash and loblolly pine saplings in the herbaceous area of the wetland, but they are not dominant with less than 2% coverage each.				

**SOIL**

Sampling Point: DP12W-1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	2.5Y5/2	95%	10YR4/4	2%			sandy loam	Thin layer of organic matter near the surface.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Soils are consistent in texture and color throughout the wetland.  
Adjacent upland soils to the southeast are a 10YR5/4 sandy loam.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP12U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594517 Long: -92.468999 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This upland sample point is in the adjacent upland near Wetland 12, and it is approximately 2 feet higher in elevation. The area is primarily forested with loblolly pine, and does have wetland plants. However, the soils are not reduced and the requisite wetland hydrology is absent.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b> <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: This sample point is approximately 2 feet higher in elevation than the margin of Wetland 12. In this area, minor changes in elevation can drastically alter the hydrology.	

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP12U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>sweetgum (Liquidambar styraciflua)</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>		<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>wax myrtle (Morella cerifera)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>winged elm (Ulmus alata)</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>broom sedge (Andropogon virginicus)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>					
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax bona-nox</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>					

Remarks: (If observed, list morphological adaptations below).

The wax myrtle is on the wetland/upland margin. Broomsedge is sparse in the planted loblolly pine understory.

**SOIL**

Sampling Point: DP12U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10 inches	10YR5/4	95%	none				sandy loam	Sample near Wetland 5 but higher elevation.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Soils are consistent in texture and color near Wetland 12, but they do not appear to be reduced. The soils appear to have more sand than the adjacent wetland soils.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP13W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594887 Long: -92.469141 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 13 is a depressional wetland that is saturated/inundated for a significant portion of the growing season. This area is dominated by loblolly pines.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 4 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. Depressional area is bisected by Hwy 167 and Calhoun 89 on the west																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP13W

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>red maple (Acer rubrum)</u>	<u>10%</u>	<u>no</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	<u>50%</u>	<u>yes</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>Acer rubrum</u>	<u>5%</u>	<u>no</u>	<u>FAC</u>		
2. <u>Pinus taeda</u>	<u>5%</u>	<u>no</u>	<u>FAC</u>		
3. <u>wax myrtle (Morella cerifera)</u>	<u>20%</u>	<u>yes</u>	<u>FAC</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>15</u> 20% of total cover: <u>6</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax glauca</u>	<u>2%</u>	<u>no</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>1</u> 20% of total cover: <u>0.4</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks: (If observed, list morphological adaptations below).

This loblolly pine depressional area is dominated by hydrophytic vegetation.

**SOIL**

Sampling Point: DP13W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
4-12 inches	2.5Y5/2	90%	10YR5/4	5%			silt loam	Some sand present in soil core.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Top 4 inches was organic matter and muck.  
Adjacent upland soils were primarily 10YR 5/4.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP13W-1  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594887 Long: -92.469141 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 13 is a depressional wetland that is saturated/inundated for a significant portion of the growing season.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input checked="" type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
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<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					

<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 4 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>Surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 There was a significant amount of rainfall within the previous 3 days. Depressional area is bisected by Hwy 167 and Calhoun 89 on the west

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP13W-1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<b>Herb Stratum</b> (Plot size: _____ )				
1. <u>acuminate rush (Juncus acuminatus)</u>	<u>10%</u>	<u>yes</u>	<u>OBL</u>	
2. <u>soft rush (Juncus effusus)</u>	<u>30%</u>	<u>yes</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>20</u> 20% of total cover: <u>8</u>				
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>Smilax glauca</u>	<u>2%</u>	<u>no</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>1</u> 20% of total cover: <u>0.4</u>				

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

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**Prevalence Index worksheet:**

Total % Cover of: \_\_\_\_\_ Multiply by: \_\_\_\_\_

OBL species \_\_\_\_\_ x 1 = \_\_\_\_\_

FACW species \_\_\_\_\_ x 2 = \_\_\_\_\_

FAC species \_\_\_\_\_ x 3 = \_\_\_\_\_

FACU species \_\_\_\_\_ x 4 = \_\_\_\_\_

UPL species \_\_\_\_\_ x 5 = \_\_\_\_\_

Column Totals: \_\_\_\_\_ (A) \_\_\_\_\_ (B)

Prevalence Index = B/A = \_\_\_\_\_

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**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0<sup>1</sup>

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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**Definitions of Four Vegetation Strata:**

**Tree** – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/Shrub** – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vine** – All woody vines greater than 3.28 ft in height.

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**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks: (If observed, list morphological adaptations below).

This is the herbaceous portion of the wetland located near the road ditch/culvert at the east side of the wetland.

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
4-12 inches	2.5Y5/2	90%	10YR5/4	5%			silt loam	Some sand present in soil core.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Top 4 inches was organic matter and muck.  
 Adjacent upland soils were primarily 10YR 5/4.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP13U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S18,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.594867 Long: -92.469032 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <input checked="" type="checkbox"/>
Remarks: This sample point is in the upland adjacent to Wetland 4.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <table style="width:100%; border: none;"> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b></td></tr> </table>	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																
Remarks: There was a significant amount of rainfall within the previous 3 days. Depressional area is bisected by Highway 167 and Calhoun 89 on the west. This sample point is on the higher ground to the NW.																																

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP13U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>red maple (Acer rubrum)</u>	<u>5%</u>	<u>no</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)	
2. <u>loblolly pine (Pinus taeda)</u>	<u>80%</u>	<u>yes</u>	<u>FAC</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
<u>85%</u> = Total Cover 50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>wax myrtle (Morella cerifera)</u>	<u>10%</u>	<u>yes</u>	<u>FAC</u>		
2. <u>winged elm (Ulmus alata)</u>	<u>10%</u>	<u>yes</u>	<u>FACU</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
<u>20%</u> = Total Cover 50% of total cover: <u>10</u> 20% of total cover: <u>4</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: _____      20% of total cover: _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>Smilax bona-nox</u>	<u>7%</u>	<u>yes</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
<u>7%</u> = Total Cover 50% of total cover: <u>3.5</u> 20% of total cover: <u>1.4</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____

Remarks: (If observed, list morphological adaptations below).

This loblolly pine forest has a closed canopy with virtually no herbaceous understory.

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0- 12 inches	10YR5/4	95%					sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP14W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S17,T13S,R13W  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.595199 Long: -92.468535 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 14 is part of a larger complex of wetlands that are bisected by Highway 167 and Calhoun 89.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input checked="" type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days. An ephemeral channel from the NE, the Hwy 167 road ditch, and Calhoun 89 road ditch all bring water to this area, which remains inundated and/or saturated for a long duration during the growing season.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP14W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				<b>Dominance Test worksheet:</b>
1. <u>n/a</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
_____ = Total Cover				<b>Prevalence Index worksheet:</b>
50% of total cover: _____		20% of total cover: _____		Total % Cover of: _____ Multiply by: _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				OBL species _____ x 1 = _____
1. <u>sweet gum (Liquidambar styraciflua)</u>	<u>7%</u>	<u>yes</u>	<u>FAC</u>	FACW species _____ x 2 = _____
2. _____				FAC species _____ x 3 = _____
3. _____				FACU species _____ x 4 = _____
4. _____				UPL species _____ x 5 = _____
5. _____				Column Totals: _____ (A) _____ (B)
6. _____				Prevalence Index = B/A = _____
7. _____				
8. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b>
50% of total cover: <u>3.5</u>		20% of total cover: <u>1.4</u>		<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
<b>Herb Stratum</b> (Plot size: _____ )				<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
1. <u>soft rush (Juncus effusus)</u>	<u>40%</u>	<u>Yes</u>	<u>FACW</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. <u>acuminate rush (Juncus acuminatus)</u>	<u>20%</u>	<u>Yes</u>	<u>OBL</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. <u>Carex suberecta</u>	<u>10%</u>	<u>No</u>	<u>OBL</u>	
4. <u>woolgrass (Scirpus cyperinus)</u>	<u>3%</u>	<u>No</u>	<u>OBL</u>	
5. <u>marsh fern (Thelypteris palustris)</u>	<u>2%</u>	<u>No</u>	<u>OBL</u>	
6. <u>sensitive fern (Onoclea sensibilis)</u>	<u>2%</u>	<u>No</u>	<u>FACW</u>	
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>38.5</u>		20% of total cover: <u>15.4</u>		<b>Definitions of Four Vegetation Strata:</b>
<b>Woody Vine Stratum</b> (Plot size: _____ )				<b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
1. <u>greenbrier (Smilax rotundifolia)</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	<b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.
2. _____				<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
3. _____				<b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: <u>2.5</u>		20% of total cover: <u>1</u>		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below).				
<b>Wetland 14 is primarily dominated by soft rush and acuminate rush.</b>				

**SOIL**

Sampling Point: DP14W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y4/2		10YR5/4				sandy silt	soils supersaturated/slurry

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Adjacent upland soils were 10YR 5/4.  
 Soils clearly reduced in the wetland.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP14U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S17,T13S,R13W  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): < 1%  
 Subregion (LRR or MLRA): LRR O Lat: 33.595210 Long: -92.468330 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soil list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This sample point is in the adjacent upland near Wetland 14 and the larger complex of wetlands that are bisected by Highway 167 and Calhoun 89.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>																				
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: This sample point is in the upland adjacent to Wetland 14. The change in elevation of approximately 2.5 feet creates an upland situation where surface waters quickly run off of this area and are not allowed to create wetland hydrology.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP14U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	<u>60%</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)	
2. <u>winged elm (Ulmus alata)</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>40</u> 20% of total cover: <u>16</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>sweet gum (Liquidambar styraciflua)</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>1</u> 20% of total cover: <u>0.4</u>				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>broomsedge (Andropogon virginicus)</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>greenbrier (Smilax rotundifolia)</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover 50% of total cover: <u>2.5</u> 20% of total cover: <u>1</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below).					
This upland is primarily dominated by loblolly pine and winged elm. Based upon the dominance test, the vegetation would be considered hydrophytic, however.					

**SOIL**

Sampling Point: DP14U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	10YR5/4	90%	2.5Y5/3	2%			sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

Soils were not reduced.



- Proposed ROW
- Proposed Construction Limits
- Existing ROW
- Wetlands in Study Limits**
- Emergent
- Forested
- Wetland Impact
- Watercourses in Study Limits**
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Watercourse Impact
- Study Limits
- Sheet Boundaries

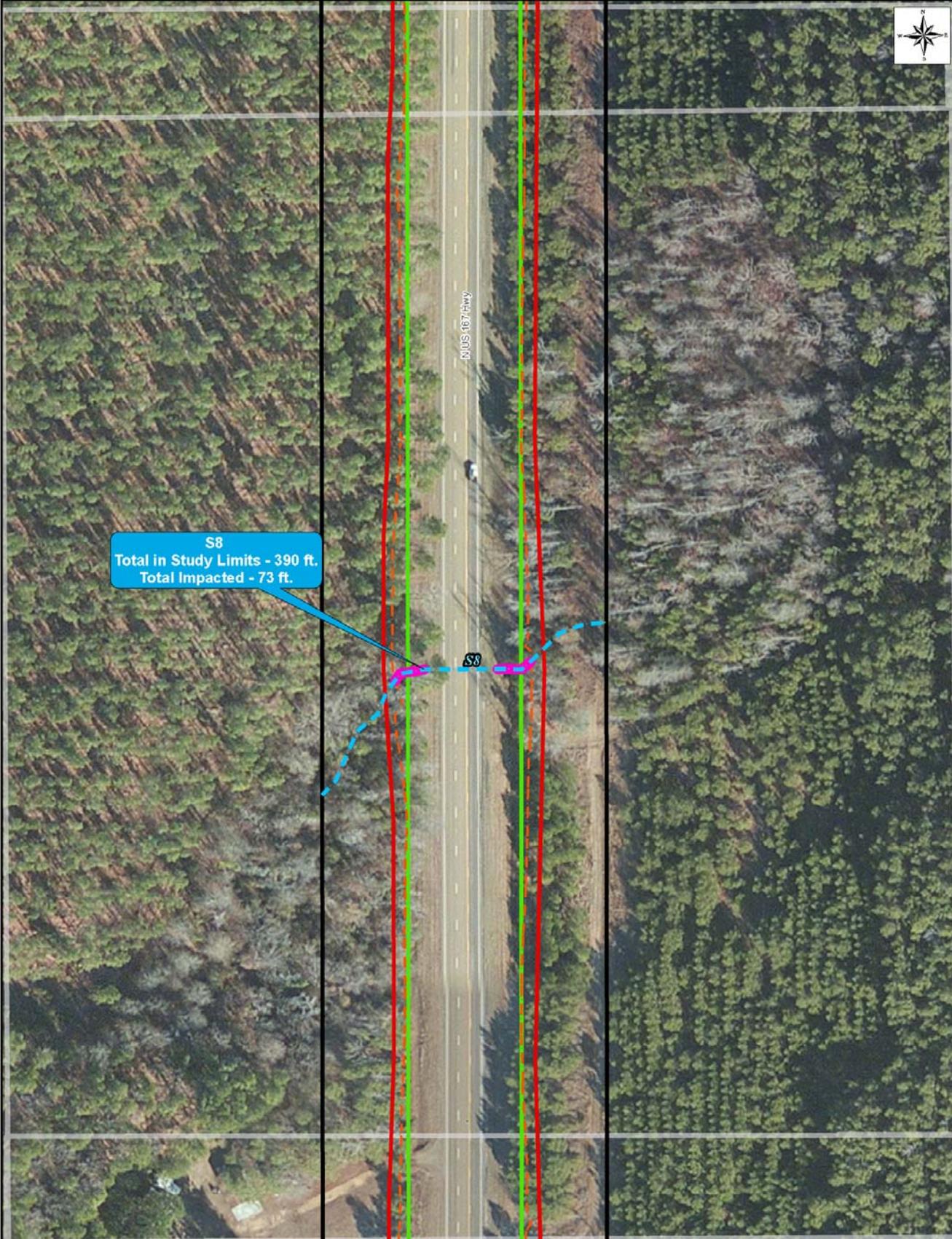
**Jurisdictional Waters Map**

Sheet 17 of 21	Date: 11/19/2015
1 in = 95 feet	

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



S8  
 Total in Study Limits - 390 ft.  
 Total Impacted - 73 ft.

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 18 of 21	Date: 11/19/2015
----------------	------------------

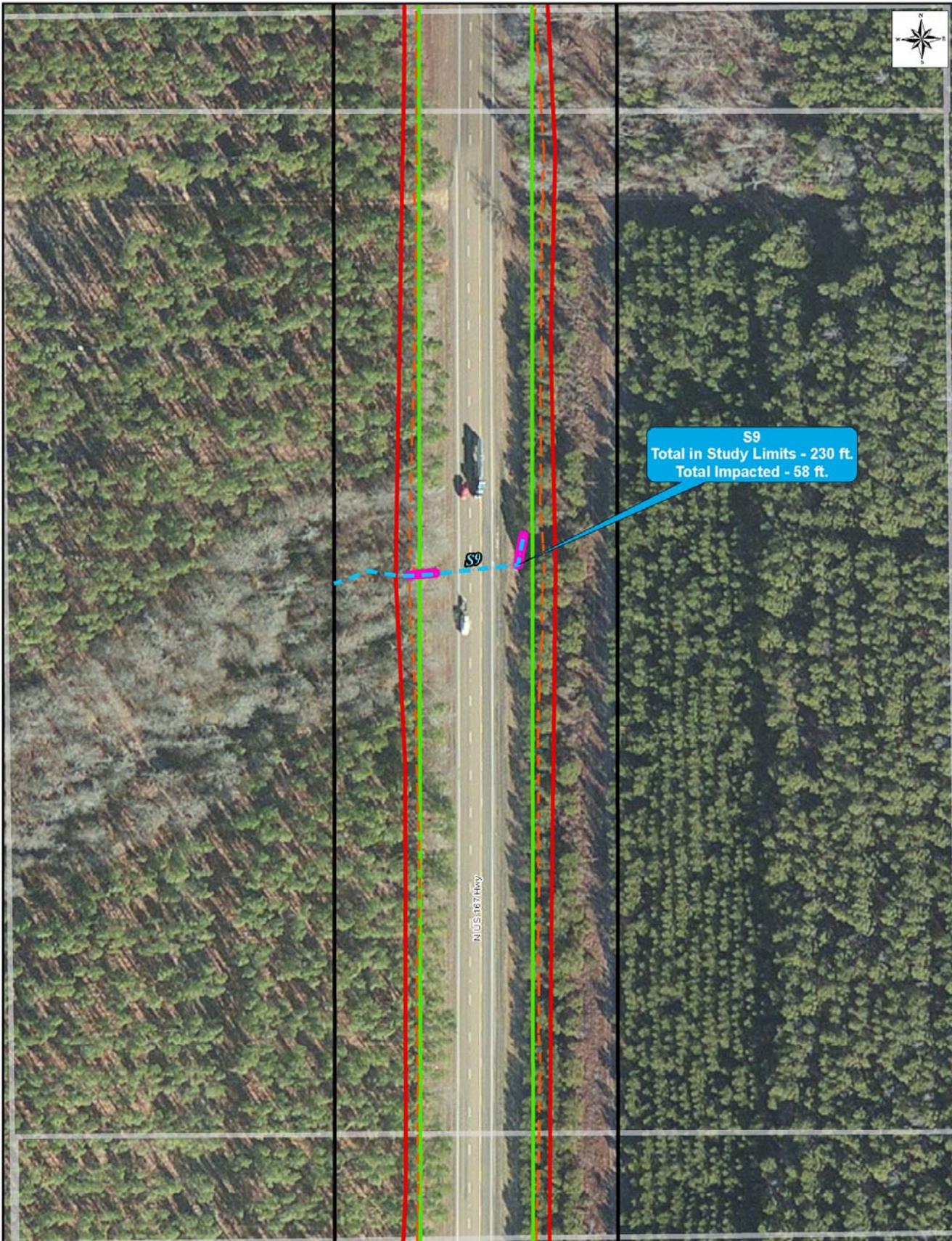
0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM**  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS

**JOB CA0702**



S9  
Total in Study Limits - 230 ft.  
Total Impacted - 58 ft.

N105167 Hwy

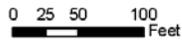
S9

- |                                 |                                     |
|---------------------------------|-------------------------------------|
| Proposed ROW                    | <b>Watercourses in Study Limits</b> |
| Proposed Construction Limits    | Ephemeral Stream                    |
| Existing ROW                    | Intermittent Stream                 |
| <b>Wetlands in Study Limits</b> | Perennial Stream                    |
| Emergent                        | Watercourse Impact                  |
| Forested                        | Study Limits                        |
| Wetland Impact                  | Sheet Boundaries                    |

**Jurisdictional Waters Map**

Sheet 19 of 21

Date: 11/19/2015



1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



Intermittent stream S8 facing southwest (downstream) from Highway 167.



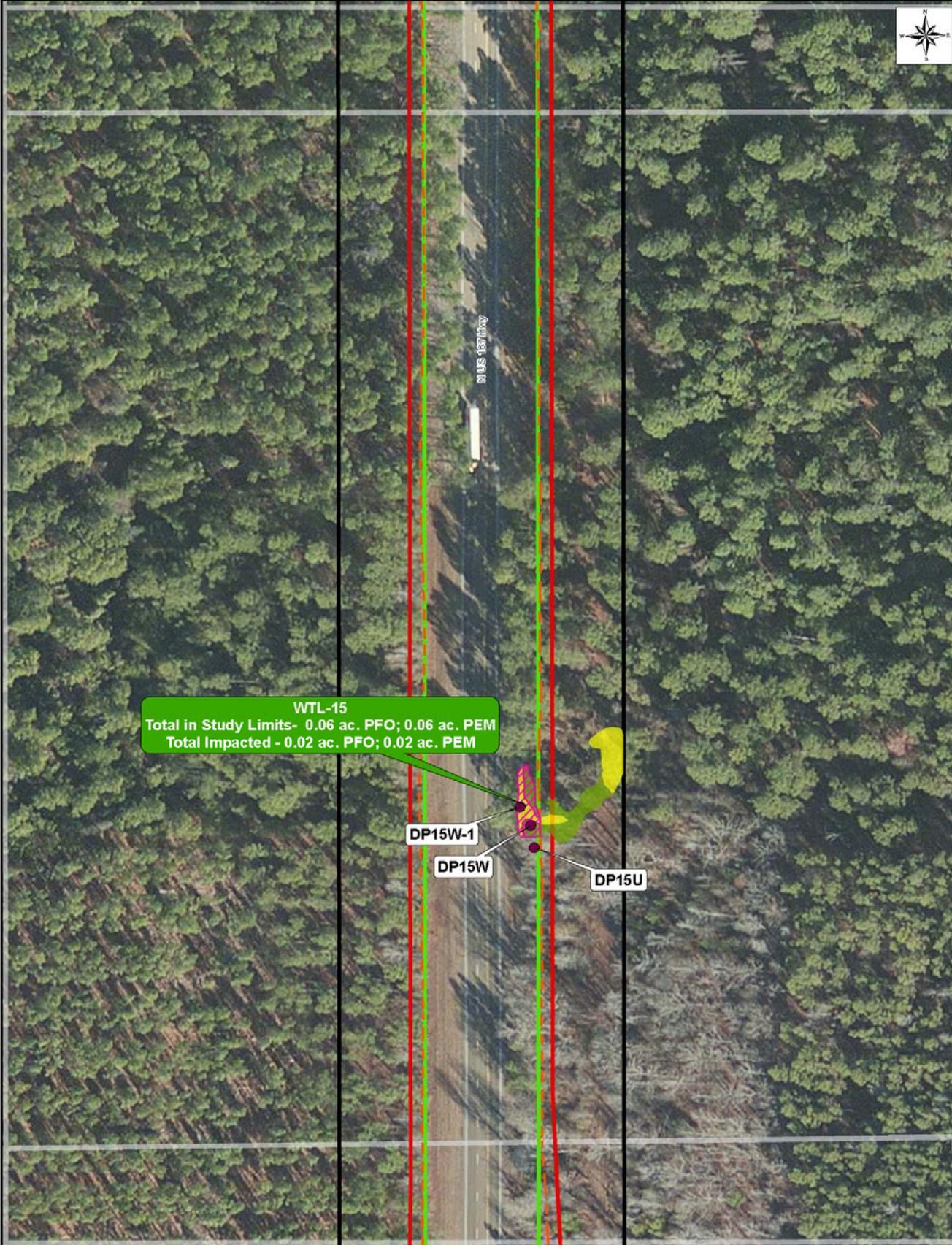
Intermittent S9 facing north (upstream) with channels and road ditches entering culvert.



Intermittent stream S8 facing north from Highway 167.



Intermittent stream S9 channel facing west (downstream) from Highway 167.



**WTL-15**  
 Total in Study Limits- 0.06 ac. PFO; 0.06 ac. PEM  
 Total Impacted - 0.02 ac. PFO; 0.02 ac. PEM

DP15W-1

DP15W

DP15U

Proposed ROW	<b>Watercourses in Study Limits</b>
Proposed Construction Limits	Ephemeral Stream
Existing ROW	Intermittent Stream
<b>Wetlands in Study Limits</b>	Perennial Stream
Emergent	Watercourse Impact
Forested	Study Limits
Wetland Impact	Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 20 of 21      Date: 11/19/2015

0 25 50 100 Feet

1 in = 95 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM**  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS

**JOB CA0702**



Wetland 15 facing east. Wetland has emergent and forest components. March 2015



Wetland 15 facing east. May 2015



Wetland 15 facing northeast. March 2015



Wetland soil sample in Wetland 15.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP15W  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S8,T13S,R13W  
 Landform (hillslope, terrace, etc.): slight hillslope Local relief (concave, convex, none): concave Slope (%): < 2%  
 Subregion (LRR or MLRA): LRR O Lat: 33.607319 Long: -92.468217 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (on hydric soils list) NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 15 is a hillslope seep/depression that remains saturated for a long duration during the growing season. This wetland contains both forested and herbaceous components. See DP15W-1 for the emergent herbaceous component.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
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<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>surface</u> (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days.  This hillslope area appears to have seep water coming to the surface in this area. A portion of the wetland is depressional and ponds water for a long duration.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP15W

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____ )				
1. <u>loblolly pine (Pinus taeda)</u>	20%	Yes	FAC	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
2. <u>water oak (Quercus nigra)</u>	25%	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
45% = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
50% of total cover: <u>22.5</u>		20% of total cover: <u>9</u>		
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )				
1. <u>sweet gum (Liquidambar styraciflua)</u>	7%	Yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>loblolly pine (Pinus taeda)</u>	10%	Yes	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
17% = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: <u>8.5</u>		20% of total cover: <u>3.4</u>		
<b>Herb Stratum</b> (Plot size: _____ )				
1. _____				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
_____ = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
50% of total cover: _____		20% of total cover: _____		
<b>Woody Vine Stratum</b> (Plot size: _____ )				
1. <u>greenbrier (Smilax bona-nox)</u>	7%	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
7% = Total Cover				
50% of total cover: <u>3.5</u>		20% of total cover: <u>1.4</u>		
Remarks: (If observed, list morphological adaptations below).				
Wetland 15 is primarily dominated by water oak and loblolly pine. There appears to be some damage to the terrain from past logging activities.				

**SOIL**

Sampling Point: DP15W

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y4/1	85%	10YR5/4	15%			silt loam	some sand in soil cores

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Adjacent upland soils were 10YR 4/4.  
 Soils clearly reduced in the wetland.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP15W-1  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S8,T13S,R13W  
 Landform (hillslope, terrace, etc.): slight hillslope Local relief (concave, convex, none): concave Slope (%): < 2%  
 Subregion (LRR or MLRA): LRR O Lat: 33.607319 Long: -92.468217 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (on hydric soils list) NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: Wetland 15 is a hillslope seep/depression that remains saturated for a long duration during the growing season. This wetland contains both emergent herbaceous and forested areas. See DP15W for the forested portion of the wetland.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input checked="" type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) (LRR U)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) (LRR T, U)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) (LRR U)																				
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
<input type="checkbox"/> Water Marks (B1)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)																				
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>up to 6 inches</u> Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>surface</u>	<b>Wetland Hydrology Present?</b> Yes <input checked="" type="checkbox"/> No _____																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days.  This hillslope area appears to have seep water coming to the surface in this area. A portion of the wetland is depressional and ponds water for a long duration.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP15W-1

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____	
50% of total cover: _____ 20% of total cover: _____					
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>sweet gum (Liquidambar styraciflua)</u>	_____	_____	_____		
2. <u>loblolly pine (Pinus taeda)</u>	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
_____ = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
50% of total cover: _____ 20% of total cover: _____					
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>soft rush (Juncus effusus)</u>	40%	Yes	OBL		
2. <u>acuminate rush (Juncus acuminatus)</u>	20%	Yes	OBL		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
50% of total cover: <u>30</u> 20% of total cover: _____					
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
Remarks: (If observed, list morphological adaptations below).					
The emergent portions of Wetland 15 are primarily dominated by soft rush and acuminate rush. There appears to be some damage to the terrain from past logging activities.					

**SOIL**

Sampling Point: DP15W-1

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	2.5Y4/1	85%	10YR5/4	15%			silt loam	some sand in soil cores

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes X No \_\_\_\_\_

Remarks:

Adjacent upland soils were 10YR 4/4.  
 Soils clearly reduced in the wetland.

**WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region**

Project/Site: CA0702 Highway 167 Widening City/County: Calhoun County Sampling Date: April 27, 2015  
 Applicant/Owner: AHTD State: AR Sampling Point: DP15U  
 Investigator(s): Luke F. Eggering PWS, and Joel Budnik Section, Township, Range: S8,T13S,R13W  
 Landform (hillslope, terrace, etc.): slight hillslope Local relief (concave, convex, none): concave Slope (%): < 2%  
 Subregion (LRR or MLRA): LRR O Lat: 33.607257 Long: -92.468207 Datum: WGS84  
 Soil Map Unit Name: 30 - Smithton fine sandy loam - (components on hydric soils list) NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil , or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: This is the upland data point near Wetland 15, which is a hillslope seep/depression. The upland data point is primarily an upland forest that had been logged or thinned within the past 10-15 years.	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b></td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Sphagnum moss (D8) <b>(LRR T, U)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)																				
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Marl Deposits (B15) <b>(LRR U)</b>																				
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																				
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<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)																				
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																				
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)																				
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)																				
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)																					
<input type="checkbox"/> Water-Stained Leaves (B9)																					
<b>Field Observations:</b> Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <input checked="" type="checkbox"/>																				
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																					
Remarks: There was a significant amount of rainfall within the previous 3 days.  This sample point was well-drained, and the soils were moist but not saturated.																					

**VEGETATION (Four Strata) – Use scientific names of plants.**

Sampling Point: DP15U

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: _____ )					
1. <u>loblolly pine (Pinus taeda)</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>57.14</u> (A/B)	
2. <u>white oak (Quercus alba)</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>		
3. <u>post oak (Quercus stellata)</u>	<u>10%</u>	<u>No</u>	<u>UPL</u>		
4. <u>black oak (Quercus veluntina)</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>		
5. _____					
6. _____					
7. _____					
8. _____					
<u>55%</u> = Total Cover 50% of total cover: <u>27.5</u> 20% of total cover: <u>11</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A)      _____ (B)  Prevalence Index = B/A = _____	
<b>Sapling/Shrub Stratum</b> (Plot size: _____ )					
1. <u>winged elm (Ulmus alata)</u>	<u>7%</u>	<u>Yes</u>	<u>FACU</u>		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
<u>7%</u> = Total Cover 50% of total cover: _____      20% of total cover: _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Herb Stratum</b> (Plot size: _____ )					
1. <u>little bluestem (Schizachyrium scoparium)</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>		
2. <u>silver plumegrass (Saccharum alopecuroides)</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>		
3. <u>broomsedge (Andropogon virginicus)</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
12. _____					
<u>25%</u> = Total Cover 50% of total cover: <u>12.5</u> 20% of total cover: <u>5</u>				<b>Definitions of Four Vegetation Strata:</b>  <b>Tree</b> – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/Shrub</b> – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vine</b> – All woody vines greater than 3.28 ft in height.	
<b>Woody Vine Stratum</b> (Plot size: _____ )					
1. <u>greenbrier (Smilax bona-nox)</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>		
2. _____					
3. _____					
4. _____					
5. _____					
<u>10%</u> = Total Cover 50% of total cover: <u>5</u> 20% of total cover: <u>2</u>					<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____
Remarks: (If observed, list morphological adaptations below).					

There appears to be some damage to the terrain from past logging activities.

**SOIL**

Sampling Point: DP15U

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12 inches	10YR4/4	95%	none				silt loam	Soils appear to be disturbed.

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Organic Bodies (A6) (LRR P, T, U)
- 5 cm Mucky Mineral (A7) (LRR P, T, U)
- Muck Presence (A8) (LRR U)
- 1 cm Muck (A9) (LRR P, T)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Coast Prairie Redox (A16) (MLRA 150A)
- Sandy Mucky Mineral (S1) (LRR O, S)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR P, S, T, U)

- Polyvalue Below Surface (S8) (LRR S, T, U)
- Thin Dark Surface (S9) (LRR S, T, U)
- Loamy Mucky Mineral (F1) (LRR O)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR U)
- Depleted Ochric (F11) (MLRA 151)
- Iron-Manganese Masses (F12) (LRR O, P, T)
- Umbric Surface (F13) (LRR P, T, U)
- Delta Ochric (F17) (MLRA 151)
- Reduced Vertic (F18) (MLRA 150A, 150B)
- Piedmont Floodplain Soils (F19) (MLRA 149A)
- Anomalous Bright Loamy Soils (F20) (MLRA 149A, 153C, 153D)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR O)
- 2 cm Muck (A10) (LRR S)
- Reduced Vertic (F18) (outside MLRA 150A,B)
- Piedmont Floodplain Soils (F19) (LRR P, S, T)
- Anomalous Bright Loamy Soils (F20) (MLRA 153B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

The soils appear to be disturbed from past logging operations.



- Proposed ROW
- - - Proposed Construction Limits
- Existing ROW
- Wetlands in Study Limits**
- Emergent
- Forested
- Wetland Impact
- Watercourses in Study Limits**
- ⋯ Ephemeral Stream
- - - Intermittent Stream
- Perennial Stream
- Watercourse Impact
- Study Limits
- Sheet Boundaries

**Jurisdictional Waters Map**

Sheet 21 of 21	Date: 11/19/2015
1 in = 95 feet	

**ARKANSAS STATE HIGHWAY AND  
TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**

## Little Rock / Charleston SOP for Calculating Required Mitigation Credits From the Banking Instrument for a Commercial Mitigation Bank

### Definitions

**Cumulative impact** ( $r = y\sum A_i$ ): This factor estimates the potential cumulative and indirect impacts of the proposed project (r), where “y” is the estimated magnitude of secondary impacts. Cumulative Impact is an evaluation of the cumulative adverse impacts to aquatic sites for the overall project. Cumulative Impact equals the sum of acreage for all areas times “y” for that option. Cumulative Impact is calculated for each option this way. The degree (high, medium, or low) of cumulative impact is determined in the evaluation process of the DA permit application. The following “y” values will be utilized in this factor calculation:

- High (y = 0.025)
- Medium (y = 0.005)
- Low (y = 0.001)

**Duration** means the length of time adverse impacts will last (in years).

**Dominant impact** factors include fill, impound, drain, dredge, clear, and shade.

**Existing Condition** means the degree of disturbance.

**Fully functional** means the system type is functionally naturally. Examples: pristine wetlands or riverine habitats, wetlands with no effective drainage.

**Slightly impaired** means site disturbances have occurred but functional recovery could be reversed through natural processes, such as clear-cut wetlands, utility corridors, wetlands with ditches that impair but don't eliminate wetland hydrology.

**Impaired** means functional recovery from disturbance is unlikely to occur naturally. Bedded pine monoculture, severely fragmented areas, channelized streams. Vegetated ditches are here included.

**Very impaired** means full recovery would require major restoration effort. Filled areas, drained wetlands.

**Location** is here defined for the project in order to increase mitigation ratios for impacts occurring further from the mitigation site.

**On-site** is here defined as impacts occurring in the Lower Ouachita-Smackover 8-digit HUC.

**Off-site** is here defined as impacts occurring outside the Lower Ouachita-Smackover 8-digit HUC.

**Lost Type** categories are based on the suite of functions that they perform.

**Type A** includes: Riverine systems including headwaters and riparian zones or Bottomland hardwoods.

**Type B** includes: Seeps and bogs, Savannahs and flatwoods, Depressions, or Pocosins and bays.

**Type C** includes: Man-made lakes and ponds, Vegetated lake littoral, or Impoundments.

Other habitat types need to be evaluated and assigned a category ranking. Farmed wetlands and vegetated ditches are here defined as Type C. Scrub-Shrub wetlands are here defined as Type B.

**Priority Category** means designated areas of aquatic systems that provide functions of recognized importance because of their inherent functions, their position in the landscape, or their rarity.

**Primary priority** areas provide important contributions to biodiversity or high levels of functions contributing to landscape or human values. Examples include Wild and Scenic Rivers, Heritage or TNC natural areas, national wildlife refuges, old growth communities, etc.

**Secondary priority** areas include bay forest, high elevation seep, pond cypress pond, upland depression swamp

**Adverse Impact Factors for Wetlands and Other Waters of the U.S. Excluding Streams**

FACTORS	OPTIONS					
	Lost Type	Type C		Type B		Type A
0.2		2.0		3.0		
Priority Category	Tertiary		Secondary		Primary	
	0.5		1.5		2.0	
Existing Condition	Very Impaired	Impaired		Slightly Impaired	Fully Functional	
	0.1	1.0		2.0	2.5	
Duration	Seasonal	0 to 1	1 to 3	3 to 5	5 to 10	Over 10
	0.1	0.2	0.5	1.0	1.5	2.0
Dominant Impact	Shade	Clear	Dredge	Drain	Impound	Fill
	0.2	1.0	1.5	2.0	2.5	3.0
Cumulative Impact ( $\sum EAA_i$ ) <sup>1</sup>	Low		Medium		High	
	y Factor					
	0.001		0.005		0.025	
Location	Onsite			Offsite		
	0.0			3.0		

<sup>1</sup>  $\sum EAA_x$  = Impacted Area, see attached Required Mitigation Credits Worksheet

Factor	Wetland 1	Wetland 2	Wetland 3a	Wetland 3b	Wetland 4	Wetland 5a	Wetland 5b	Wetland 6	Wetland 7	Wetland 8	Wetland 9	Wetland 10	Wetland 11	Wetland 12a	Wetland 12b	Wetland 13a	Wetland 13b	Wetland 14	Wetland 15a	Wetland 15b	TOTALS	
Wetland Type	Forested	Forested	Forested	Emergent	Forested	Forested	Emergent	Forested	Forested	Forested	Emergent	Forested	Emergent	Forested	Emergent	Forested	Emergent	Emergent	Forested	Emergent		
Lost Type	Type A	Type A	Type A	Type B	Type A	Type A	Type B	Type A	Type A	Type A	Type B	Type B	Type B	Type A	Type B	Type A	Type B	Type B	Type A	Type B		
	3.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0		
Priority Category	Tertiary																					
	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Existing Condition	Slightly impaired																					
	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Duration	Over 10																					
	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Dominant Impact	Fill																					
	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Cumulative Impact	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Location	Off-site																					
	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Sum of r Factors (Rx)	13.5	13.5	13.5	12.5	13.5	13.5	12.5	13.5	13.5	13.5	12.5	12.5	12.5	13.5	12.5	13.5	12.5	12.5	13.5	12.5		
Impacted Area (AAx)	0	0	0.11	0.03	0	0.54	0.4	0	2.29	0.02	0.13	0.02	0.22	0	0.01	0	0.01	0.06	0.02	0.02	3.88	
RxAA=	0.00	0.00	1.49	0.38	0.00	7.29	5.00	0.00	30.92	0.27	1.63	0.25	2.75	0.00	0.13	0.00	0.13	0.75	0.27	0.25	51.50	

Total Required Credits =  $\sum(RxAA)$  = **51.50**

\*\*Credit per acre at Commercial Mitigation Bank = **3.5**

\* Assume that the commercial mitigation site's service area will cover the project area in Calhoun County, Arkansas (Great Bear Mitigation Bank).

\*\* Assume commercial mitigation bank credit per acre of 3.5.

Acres = **14.71**

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		1	16
PLAN AND PROFILE SHEETS								

**TOTAL AREAS**  
 AREA OF WETLAND NO.4 = 0.81 AC  
 AREA OF IMPACT WETLAND NO.4 = 0.00 AC  
 VOLUME OF FILL NO.4 = 0 CY

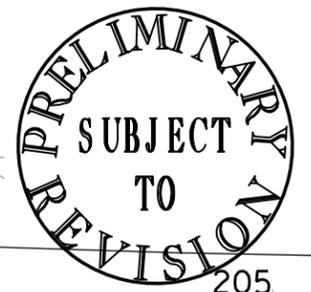
Wetland 1

**TOTAL AREAS**  
 AREA OF WETLAND NO.3 = 1.07 AC. PFO, 0.03 AC. PEM  
 AREA OF IMPACT WETLAND NO.3 = 0.11 AC. PFO, 0.03 AC. PEM  
 VOLUME OF FILL NO.3 = 600 CY

Wetland 4

Stream 1

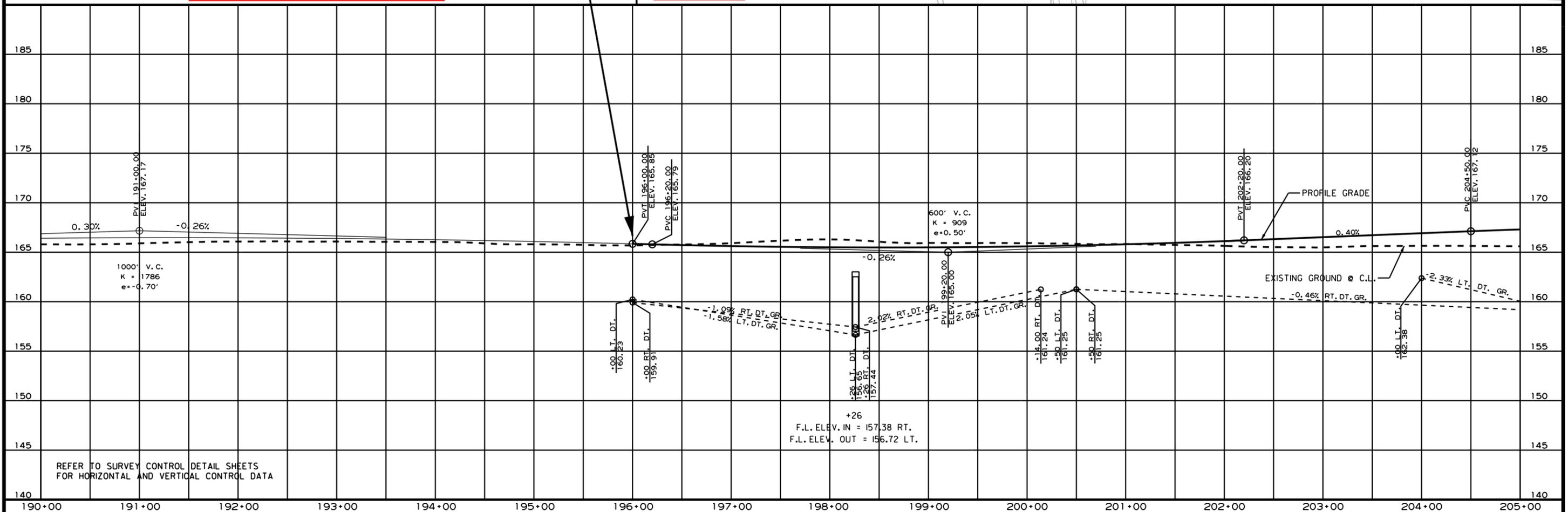
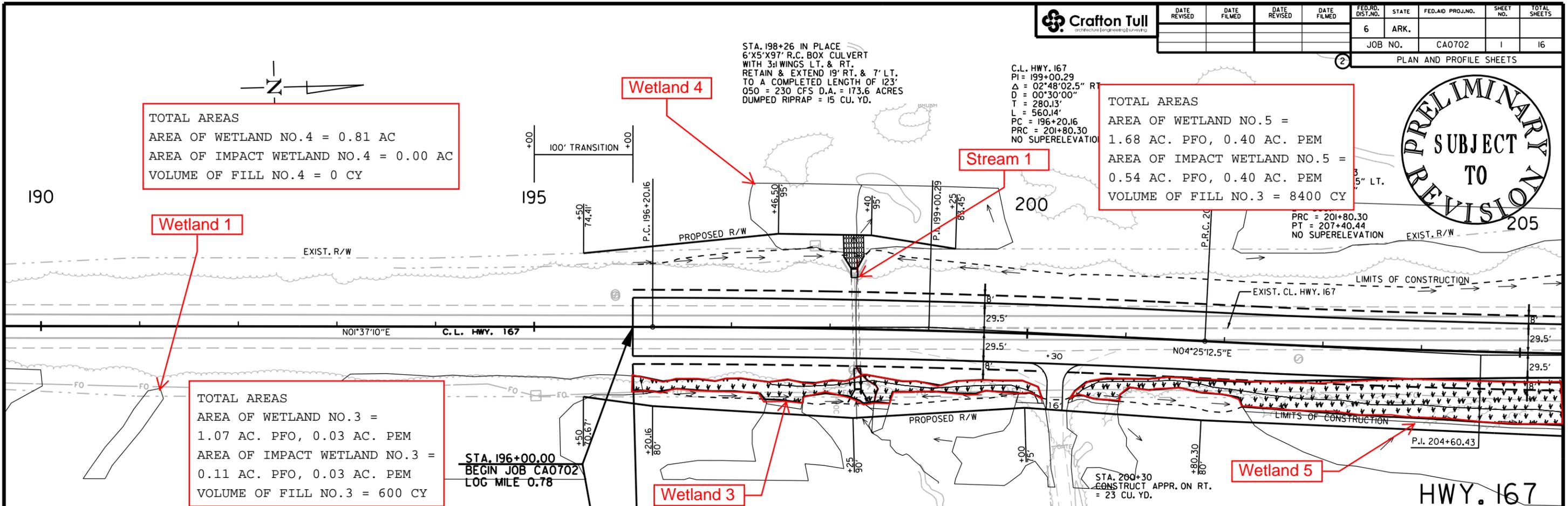
**TOTAL AREAS**  
 AREA OF WETLAND NO.5 = 1.68 AC. PFO, 0.40 AC. PEM  
 AREA OF IMPACT WETLAND NO.5 = 0.54 AC. PFO, 0.40 AC. PEM  
 VOLUME OF FILL NO.3 = 8400 CY



STA. 198+26 IN PLACE  
 6'X5'X97' R.C. BOX CULVERT  
 WITH 3:1 WINGS LT. & RT.  
 RETAIN & EXTEND 19' RT. & 7' LT.  
 TO A COMPLETED LENGTH OF 123'  
 O50 = 230 CFS D.A. = 173.6 ACRES  
 DUMPED RIPRAP = 15 CU. YD.

C.L. HWY. 167  
 PI = 199+00.29  
 Δ = 02°48'02.5" R  
 D = 00°30'00"  
 T = 280.13'  
 L = 560.14'  
 PC = 196+20.16  
 PRC = 201+80.30  
 NO SUPERELEVATION

PRC = 201+80.30  
 PT = 207+40.44  
 NO SUPERELEVATION

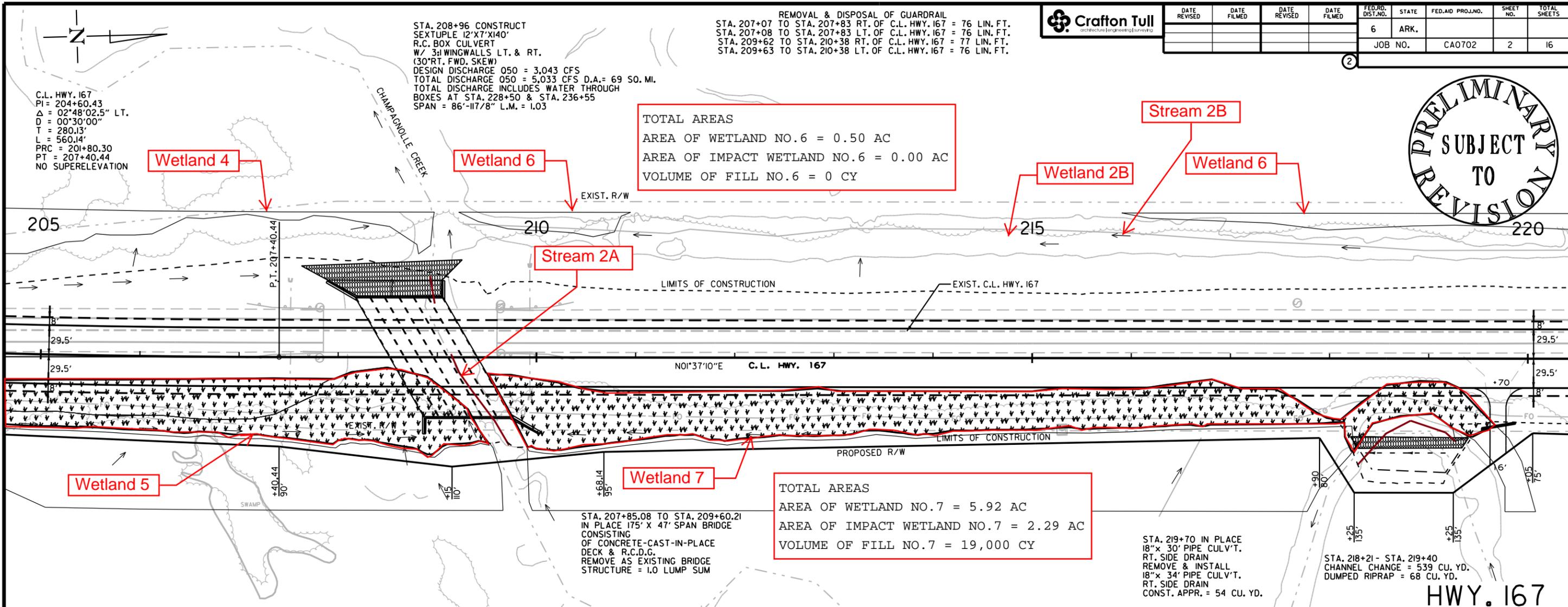


REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA

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 MODEL: PLAN AND PROFILE  
 SCALE: 99.99%



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		2	16



STA. 208+96 CONSTRUCT  
SEXTUPLE 12'X7'X140'  
R.C. BOX CULVERT  
W/ 3 WINGWALLS LT. & RT.  
(30° RT. FWD. SKEW)  
DESIGN DISCHARGE Q50 = 3,043 CFS  
TOTAL DISCHARGE Q50 = 5,033 CFS D.A. = 69 SQ. MI.  
TOTAL DISCHARGE INCLUDES WATER THROUGH  
BOXES AT STA. 228+50 & STA. 236+55  
SPAN = 86'-11 7/8" L.M. = 1.03

REMOVAL & DISPOSAL OF GUARDRAIL  
STA. 207+07 TO STA. 207+83 RT. OF C.L. HWY. 167 = 76 LIN. FT.  
STA. 207+08 TO STA. 207+83 LT. OF C.L. HWY. 167 = 76 LIN. FT.  
STA. 209+62 TO STA. 210+38 RT. OF C.L. HWY. 167 = 77 LIN. FT.  
STA. 209+63 TO STA. 210+38 LT. OF C.L. HWY. 167 = 76 LIN. FT.

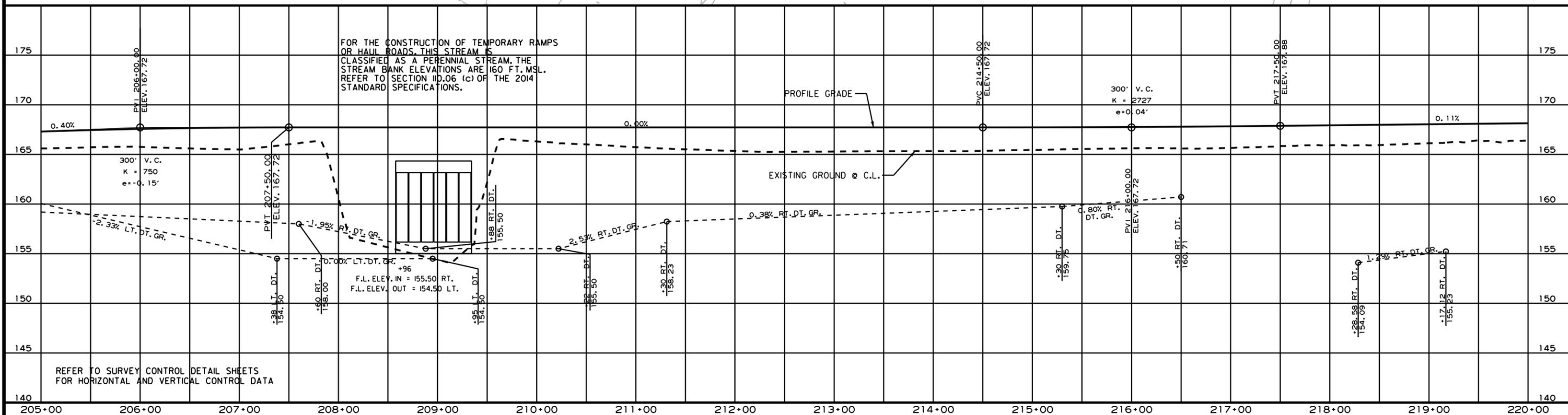
TOTAL AREAS  
AREA OF WETLAND NO. 6 = 0.50 AC  
AREA OF IMPACT WETLAND NO. 6 = 0.00 AC  
VOLUME OF FILL NO. 6 = 0 CY

TOTAL AREAS  
AREA OF WETLAND NO. 7 = 5.92 AC  
AREA OF IMPACT WETLAND NO. 7 = 2.29 AC  
VOLUME OF FILL NO. 7 = 19,000 CY

STA. 207+85.08 TO STA. 209+60.21  
IN PLACE 175' X 47' SPAN BRIDGE  
CONSISTING OF CONCRETE-CAST-IN-PLACE  
DECK & R.C.D.G.  
REMOVE AS EXISTING BRIDGE  
STRUCTURE = 1.0 LUMP SUM

STA. 219+70 IN PLACE  
18" X 30' PIPE CULV'T.  
RT. SIDE DRAIN  
REMOVE & INSTALL  
18" X 34' PIPE CULV'T.  
RT. SIDE DRAIN  
CONST. APPR. = 54 CU. YD.

STA. 218+21 - STA. 219+40  
CHANNEL CHANGE = 539 CU. YD.  
DUMPED RIPRAP = 68 CU. YD.



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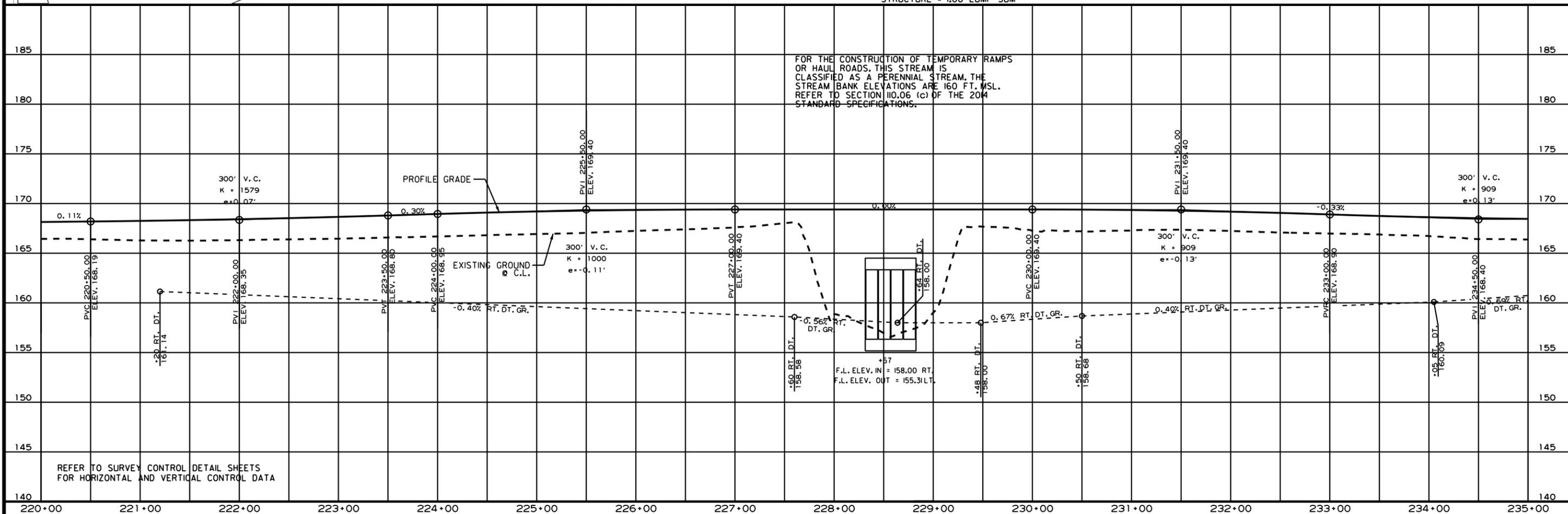
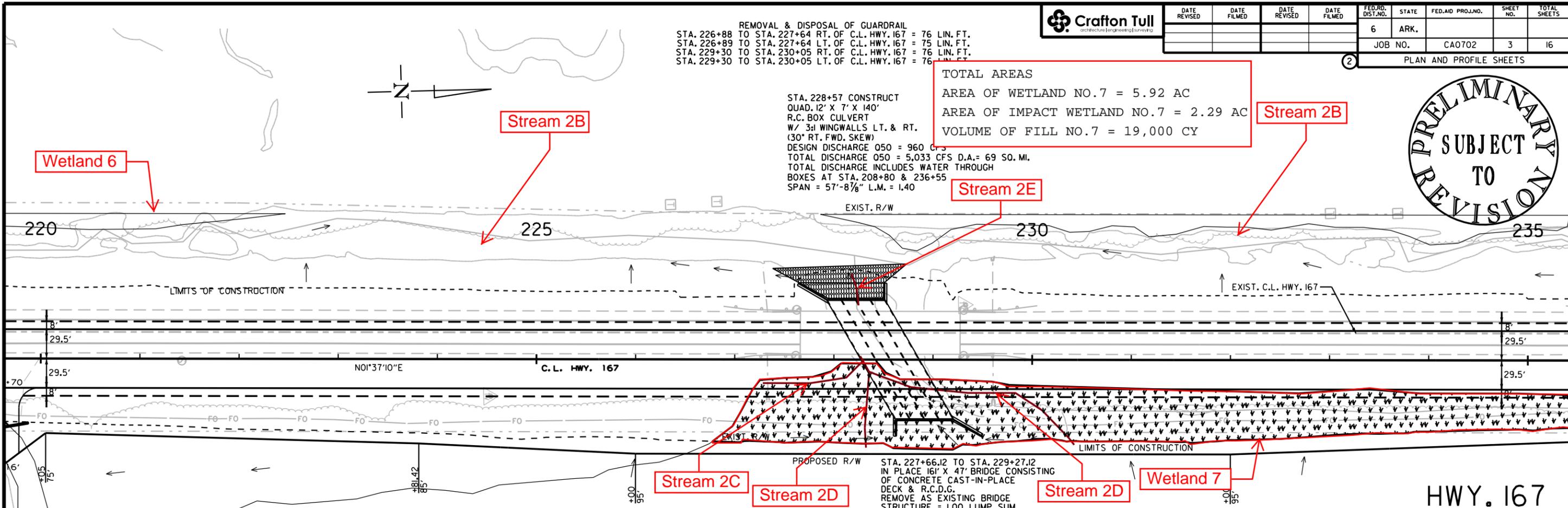
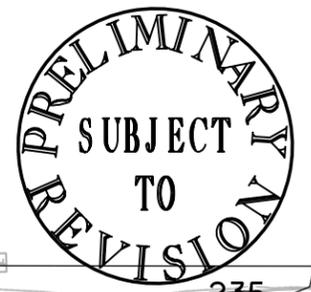
REMOVAL & DISPOSAL OF GUARDRAIL  
 STA. 226+88 TO STA. 227+64 RT. OF C.L. HWY. 167 = 76 LIN. FT.  
 STA. 226+89 TO STA. 227+64 LT. OF C.L. HWY. 167 = 75 LIN. FT.  
 STA. 229+30 TO STA. 230+05 RT. OF C.L. HWY. 167 = 76 LIN. FT.  
 STA. 229+30 TO STA. 230+05 LT. OF C.L. HWY. 167 = 76 LIN. FT.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		3	16
PLAN AND PROFILE SHEETS								

TOTAL AREAS  
 AREA OF WETLAND NO. 7 = 5.92 AC  
 AREA OF IMPACT WETLAND NO. 7 = 2.29 AC  
 VOLUME OF FILL NO. 7 = 19,000 CY

STA. 228+57 CONSTRUCT  
 QUAD. 12' X 7' X 140'  
 R.C. BOX CULVERT  
 W/ 3:1 WINGWALLS LT. & RT.  
 (30° RT. FWD. SKEW)  
 DESIGN DISCHARGE Q50 = 960 CFS  
 TOTAL DISCHARGE Q50 = 5,033 CFS D.A. = 69 SQ. MI.  
 TOTAL DISCHARGE INCLUDES WATER THROUGH  
 BOXES AT STA. 208+80 & 236+55  
 SPAN = 57'-8 1/2" L.M. = 1.40

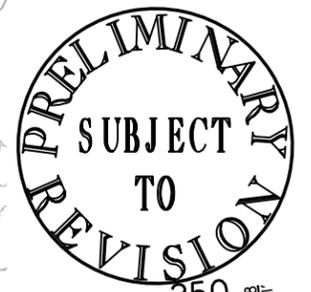


FOR THE CONSTRUCTION OF TEMPORARY RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 160 FT. MSL. REFER TO SECTION 110.06 (c) OF THE 2004 STANDARD SPECIFICATIONS.

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

USER: a15106  
 DESIGN FILE: G:\4109400\_Hwy\_167\PROJ\_MGMT\04\_Comm\Consultants\Parsons\to parsons 5-27-16\CA0702\_PP\_Hwy167\_003.dgn  
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 MODEL: PLAN AND PROFILE  
 SCALE: 99.99H

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		4	16
PLAN AND PROFILE SHEETS								



REMOVAL & DISPOSAL OF GUARDRAIL  
 STA. 235+38 TO STA. 236+14 LT. OF C.L. HWY. 167 = 76 LIN. FT.  
 STA. 235+39 TO STA. 236+14 RT. OF C.L. HWY. 167 = 76 LIN. FT.  
 STA. 236+94 TO STA. 237+69 RT. OF C.L. HWY. 167 = 76 LIN. FT.  
 STA. 236+94 TO STA. 237+69 LT. OF C.L. HWY. 167 = 76 LIN. FT.

STA. 236+69 CONSTRUCT  
 TRIPLE 12' X 7' X 140'  
 R.C. BOX CULVERT  
 W/ 3:1 WINGWALLS LT. & RT.  
 (30° RT. FWD. SKEW)  
 DESIGN DISCHARGE Q50 = 1030 CFS  
 TOTAL DISCHARGE Q50 = 5,033 CFS D.A. = 69 SQ. MI.  
 TOTAL DISCHARGE INCLUDES WATER THROUGH  
 BOXES AT STA. 208+80 & 228+57  
 CHANNEL CHANGE = 165 CU. YD.  
 SPAN = 43'-1 1/8" L.M. = 1.55

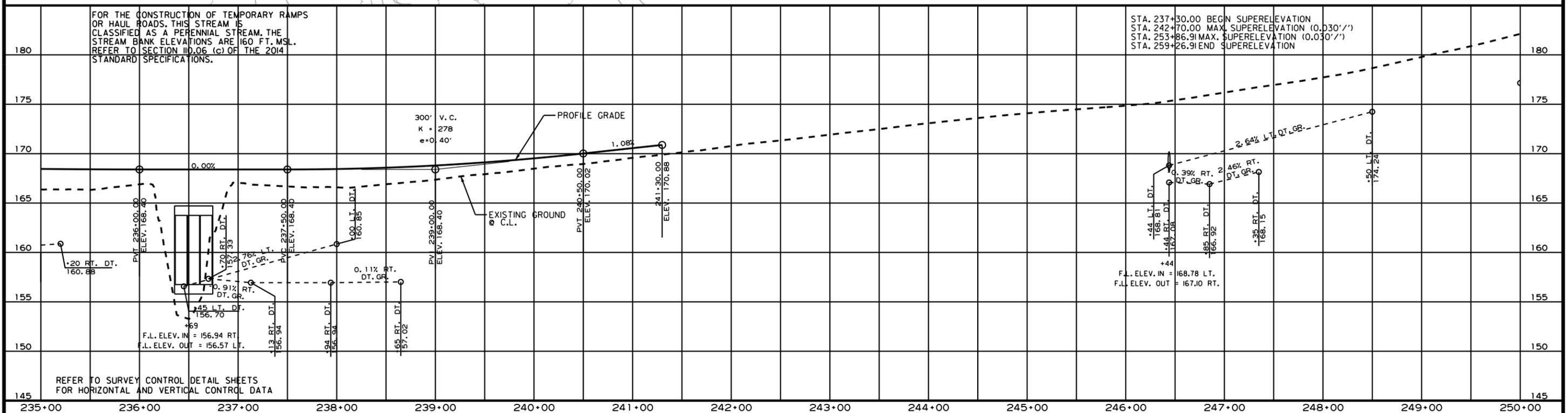
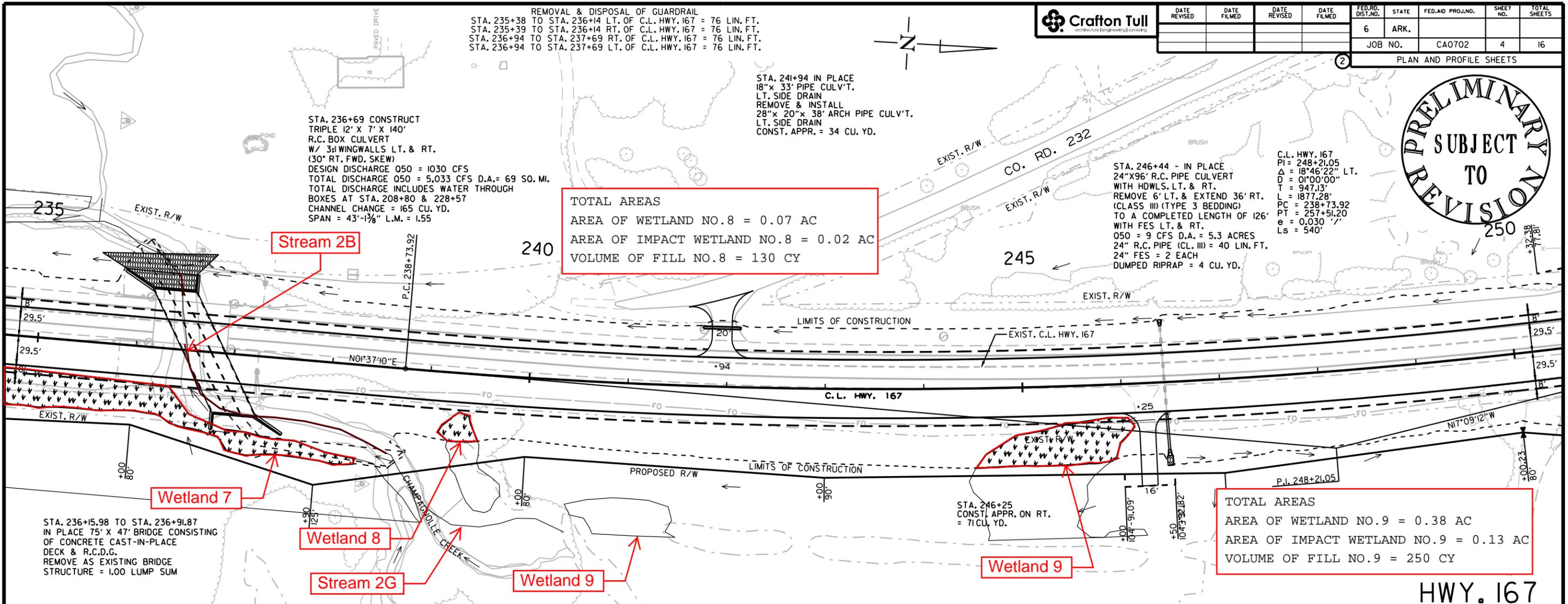
STA. 241+94 IN PLACE  
 18" X 33' PIPE CULV'T.  
 LT. SIDE DRAIN  
 REMOVE & INSTALL  
 28" X 20" X 38' ARCH PIPE CULV'T.  
 LT. SIDE DRAIN  
 CONST. APPR. = 34 CU. YD.

STA. 246+44 - IN PLACE  
 24" X 96' R.C. PIPE CULVERT  
 WITH HDWLS. LT. & RT.  
 REMOVE 6' LT. & EXTEND 36' RT.  
 (CLASS III) (TYPE 3 BEDDING)  
 TO A COMPLETED LENGTH OF 126'  
 WITH FES LT. & RT.  
 Q50 = 9 CFS D.A. = 5.3 ACRES  
 24" R.C. PIPE (CL. III) = 40 LIN. FT.  
 24" FES = 2 EACH  
 DUMPED RIPRAP = 4 CU. YD.

C.L. HWY. 167  
 PI = 248+21.05  
 Δ = 18°46'22" LT.  
 D = 0'00'00"  
 T = 947.13'  
 L = 1877.28'  
 PC = 238+73.92  
 PT = 257+51.20  
 e = 0.030' /'  
 Ls = 540'

**TOTAL AREAS**  
 AREA OF WETLAND NO.8 = 0.07 AC  
 AREA OF IMPACT WETLAND NO.8 = 0.02 AC  
 VOLUME OF FILL NO.8 = 130 CY

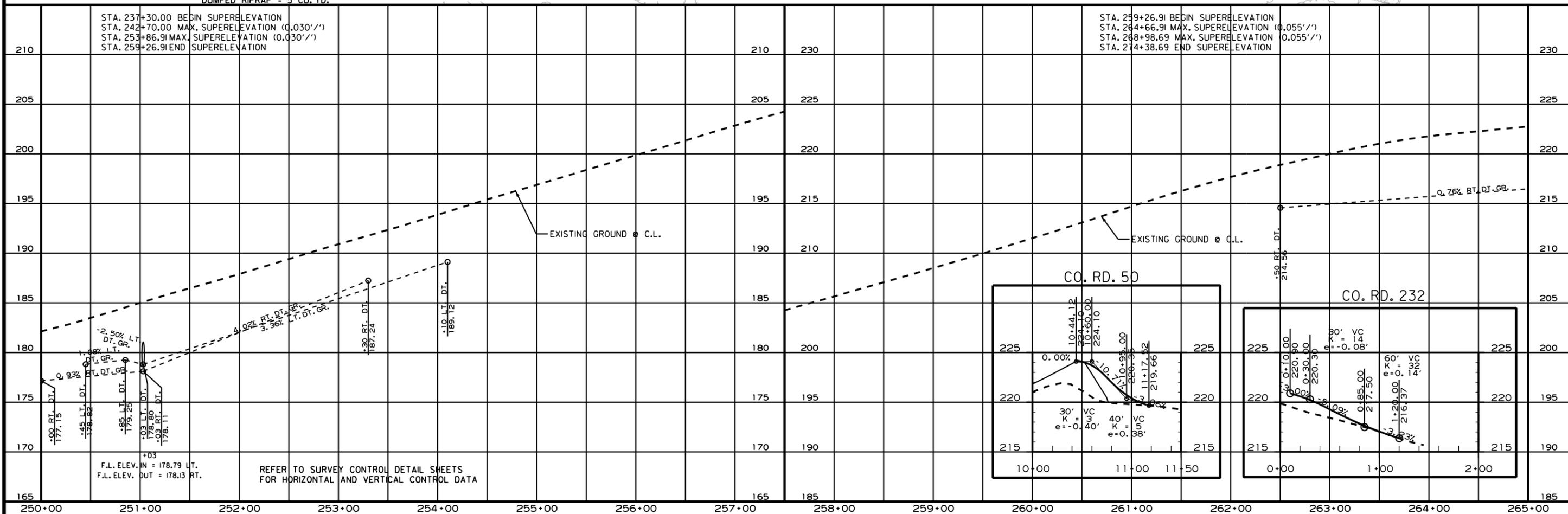
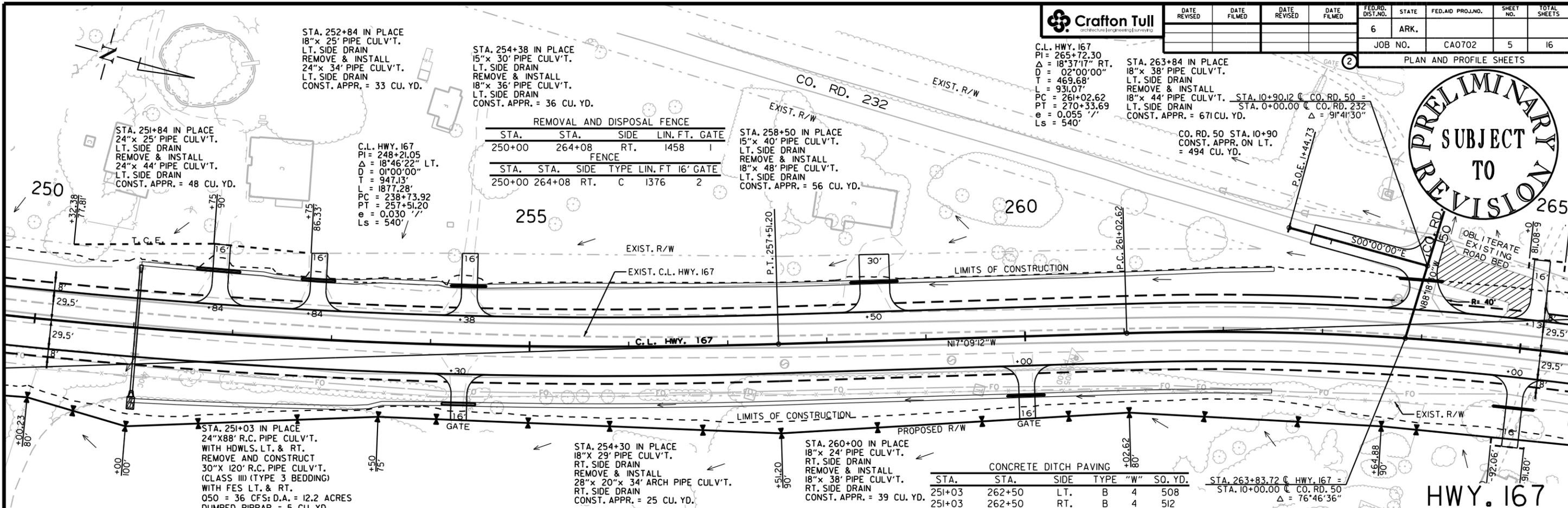
**TOTAL AREAS**  
 AREA OF WETLAND NO.9 = 0.38 AC  
 AREA OF IMPACT WETLAND NO.9 = 0.13 AC  
 VOLUME OF FILL NO.9 = 250 CY



USER: at5106  
 DESIGN FILE: G:\14109400\_Hwy\_167\PROJ\_MGMT\04\_Comm\Consultants\Parsons\to parsons 5-27-16\CA0702\_PP\_Hwy167\_004.dgn  
 PLOTTED: 5/27/2016 10:55  
 MODEL: PLAN AND PROFILE  
 SCALE: 99.99%

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		5	16
				JOB NO.	CA0702	PLAN AND PROFILE SHEETS		

**PRELIMINARY**  
**TO**  
**REVISION**

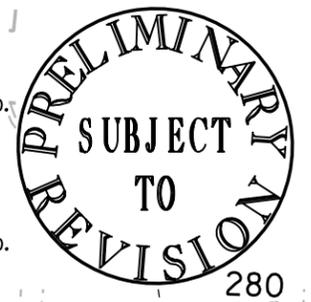
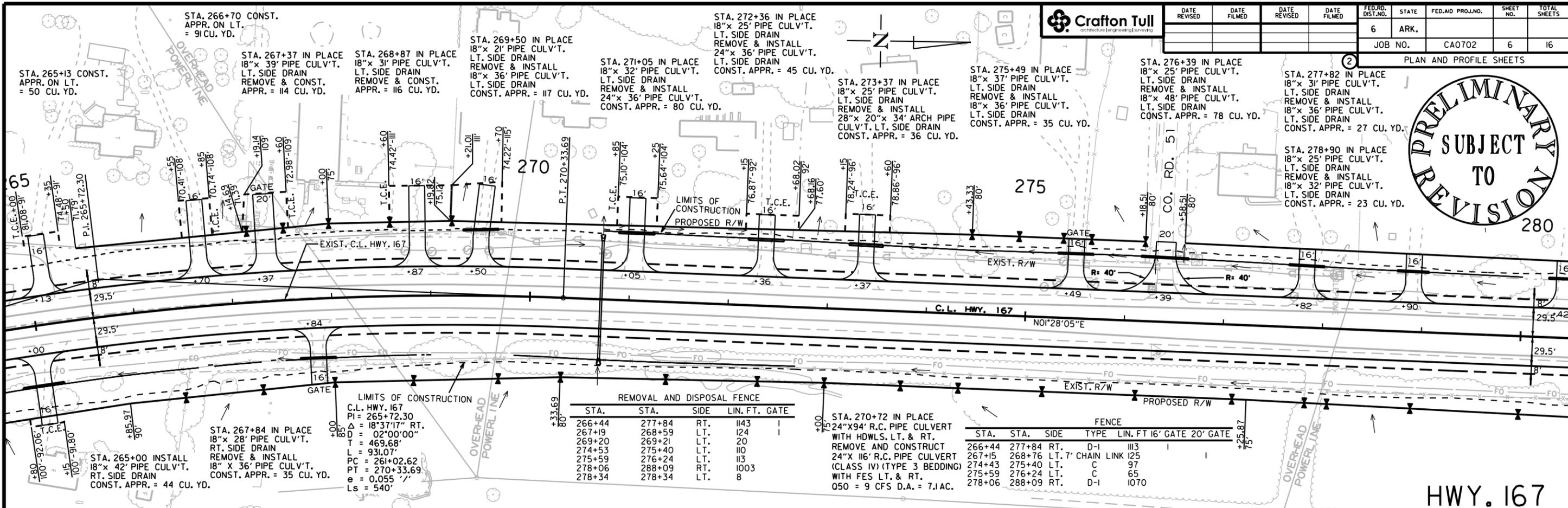


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 MODEL: PLAN AND PROFILE  
 SCALE: 99.99%



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		6	16
				JOB NO.		CA0702		
PLAN AND PROFILE SHEETS								

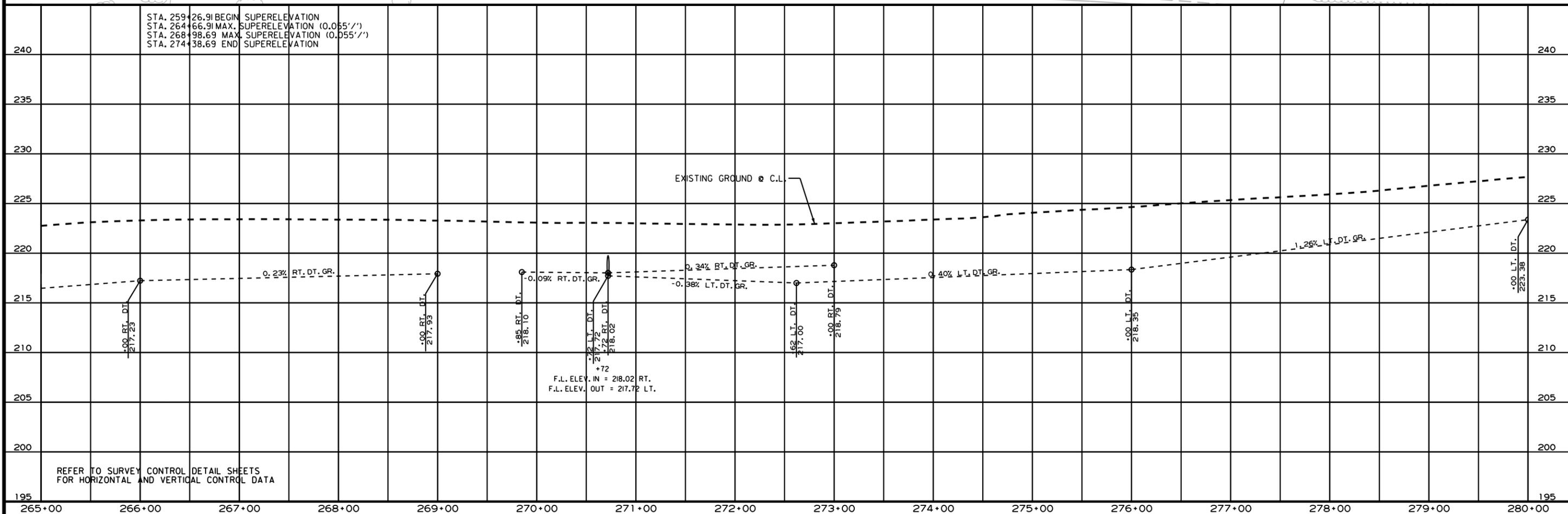


LIMITS OF CONSTRUCTION  
 C.L. HWY. 167  
 PI = 265+72.30  
 $\Delta = 18^{\circ}37'17''$  RT.  
 $D = 02^{\circ}00'00''$   
 $L = 469.68'$   
 $T = 931.07'$   
 $PC = 261+02.62$   
 $PT = 270+33.69$   
 $e = 0.055'$   
 $Ls = 540'$

REMOVAL AND DISPOSAL FENCE				
STA.	STA.	SIDE	LIN. FT.	GATE
266+44	277+84	RT.	1143	
267+19	268+59	LT.	124	
269+20	269+21	LT.	20	
274+53	275+40	LT.	110	
275+59	276+24	LT.	113	
278+06	288+09	RT.	1003	
278+34	278+34	LT.	8	

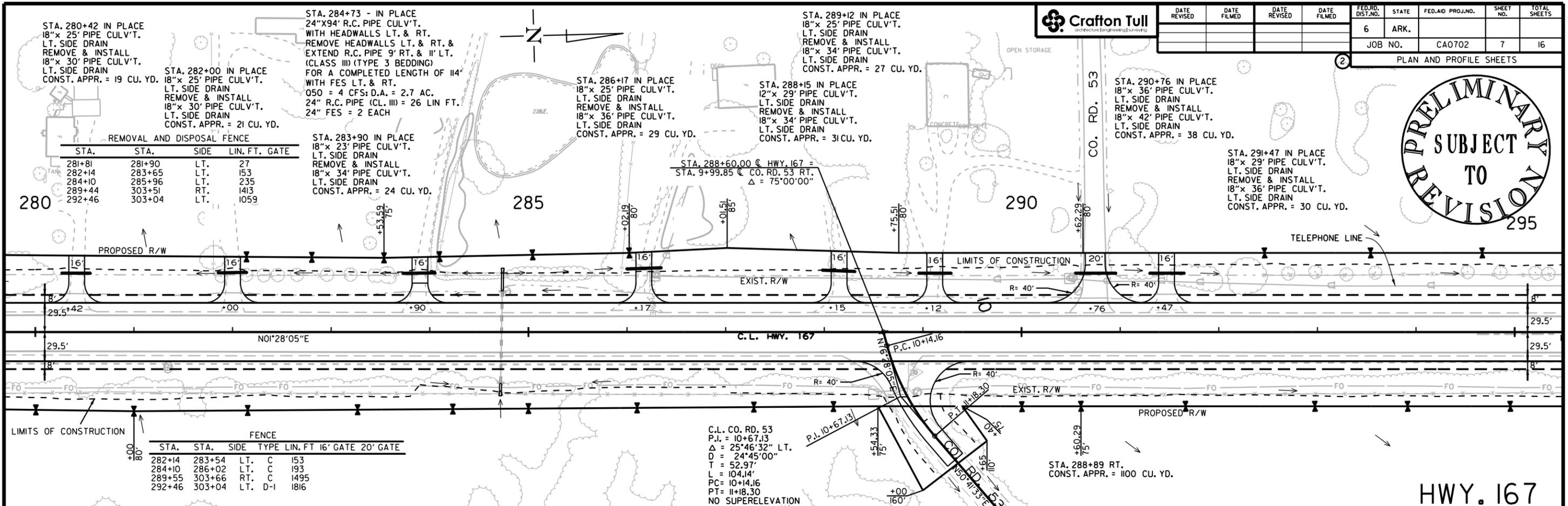
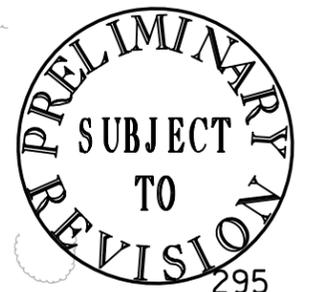
STA. 270+72 IN PLACE  
 24"X94" R.C. PIPE CULVERT  
 WITH HDWLS. LT. & RT.  
 REMOVE AND CONSTRUCT  
 24"X 116" R.C. PIPE CULVERT  
 (CLASS IV) (TYPE 3 BEDDING)  
 WITH FES LT. & RT.  
 Q50 = 9 CFS D.A. = 7.1 A.C.

FENCE				
STA.	STA.	SIDE	TYPE	LIN. FT
266+44	277+84	RT.	D-1	1113
267+15	268+76	LT.	7' CHAIN LINK	125
274+43	275+40	LT.	C	97
275+59	276+24	LT.	C	65
278+06	288+09	RT.	D-1	1070



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

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		7	16
				JOB NO.	CA0702			
PLAN AND PROFILE SHEETS								



REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT.	GATE
281+81	281+90	LT.	27	
282+14	283+65	LT.	153	
284+10	285+96	LT.	235	
289+44	303+51	RT.	1413	
292+46	303+04	LT.	1059	

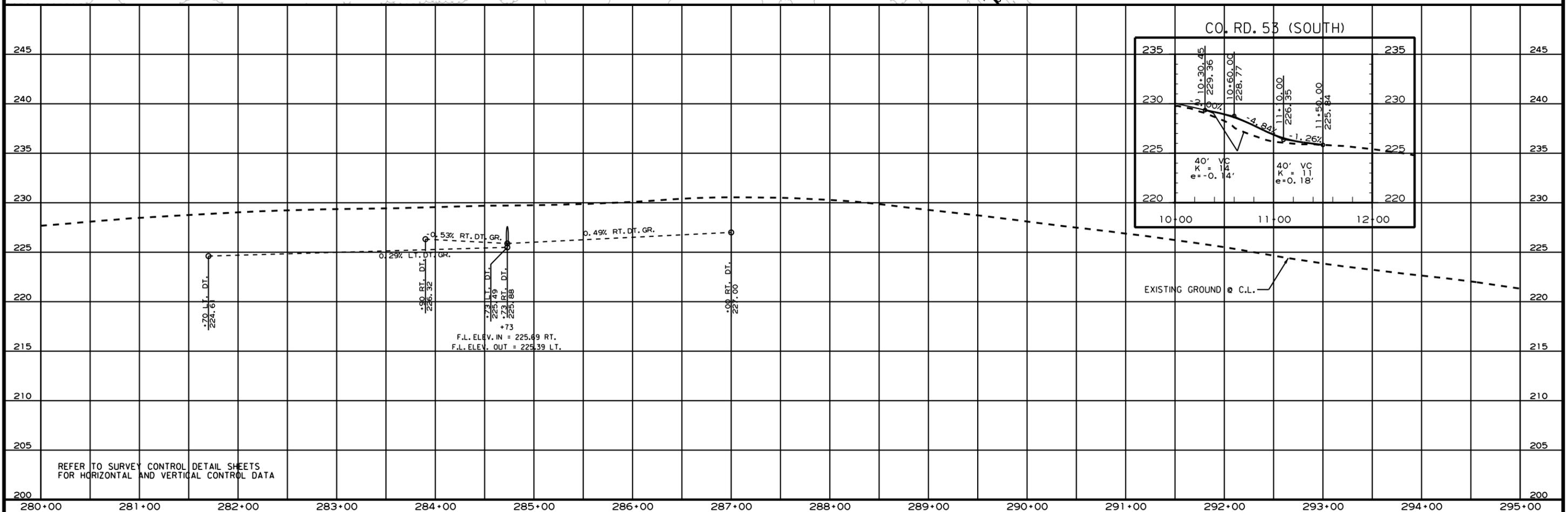
FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE	20' GATE
282+14	283+54	LT.	C	153		
284+10	286+02	LT.	C	193		
289+55	303+66	RT.	C	1495		
292+46	303+04	LT.	D-1	1816		

C.L. CO. RD. 53  
 P.I. = 10+67.13  
 $\Delta = 25^\circ 46' 32''$  LT.  
 $D = 24^\circ 45' 00''$   
 $T = 52.97'$   
 $L = 104.14'$   
 $PC = 10+14.16$   
 $PT = 11+18.30$   
 NO SUPERELEVATION

STA. 288+89 RT.  
 CONST. APPR. = 1100 CU. YD.

HWY. 167

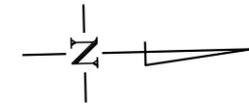


REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA

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 PLOTTED: 5/27/2016 10:55  
 MODEL: PLAN AND PROFILE  
 SCALE: 99.99%



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		9	16
PLAN AND PROFILE SHEETS								



REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT.	GATE
318+24	320+85	RT.	261	
321+11	321+23	RT.	24	
323+64	329+14	RT.	550	
329+76	329+89	RT.	14	

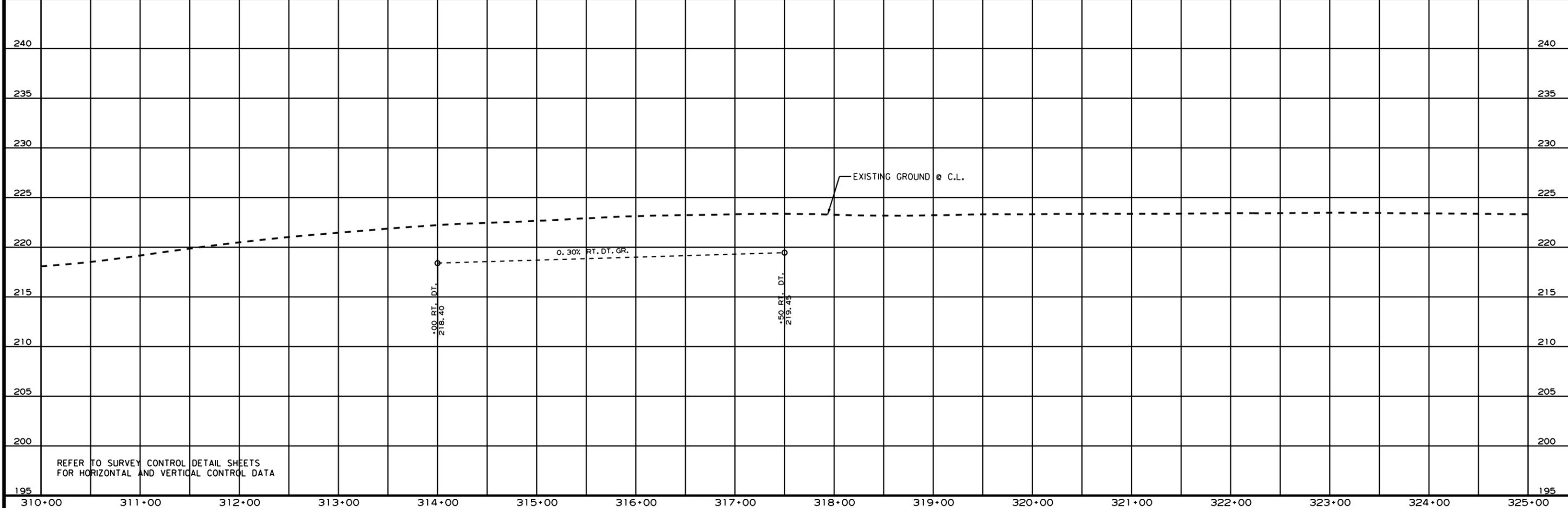
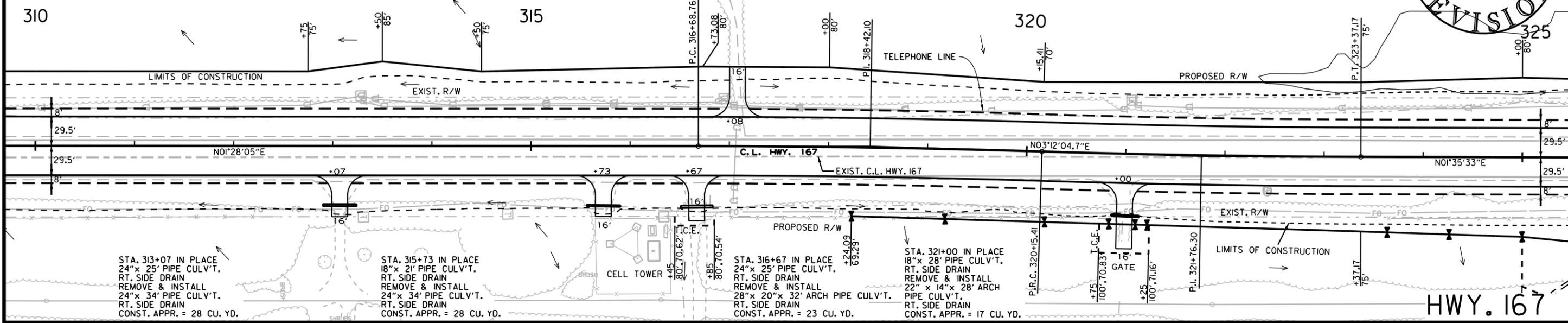
FENCE

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE	20' GATE
318+24	320+85	RT.	C	260		
321+11	321+23	RT.	C	13		
323+64	329+14	RT.	C	553		
329+76	329+87	RT.	C	11		

STA. 317+08 CONST.  
APPR. ON LT. = 27 CU. YD.

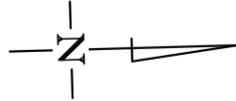
C.L. HWY. 167  
PI = 318+42.10  
 $\Delta = 01^{\circ}43'59.7''$  RT.  
D = 00'30'00"  
T = 173.34'  
L = 346.65'  
PC = 316+68.76  
PRC = 320+15.41  
NO SUPERELEVATION

C.L. HWY. 167  
PI = 321+76.30  
 $\Delta = 01^{\circ}36'31.7''$  LT.  
D = 00'30'00"  
T = 160.89'  
L = 321.76'  
PC = 320+15.41  
PT = 323+37.17  
NO SUPERELEVATION



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

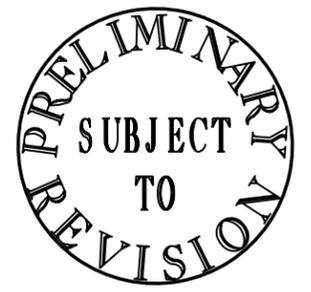
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PLOTTED: 5/27/2016 10:55  
SCALE: 99.99H  
MODEL: PLAN AND PROFILE



**TOTAL AREAS**  
 AREA OF WETLAND NO.10 = 0.67 AC  
 AREA OF IMPACT WETLAND NO.10 = 0.02 AC  
 VOLUME OF FILL NO.10 = 260 CY



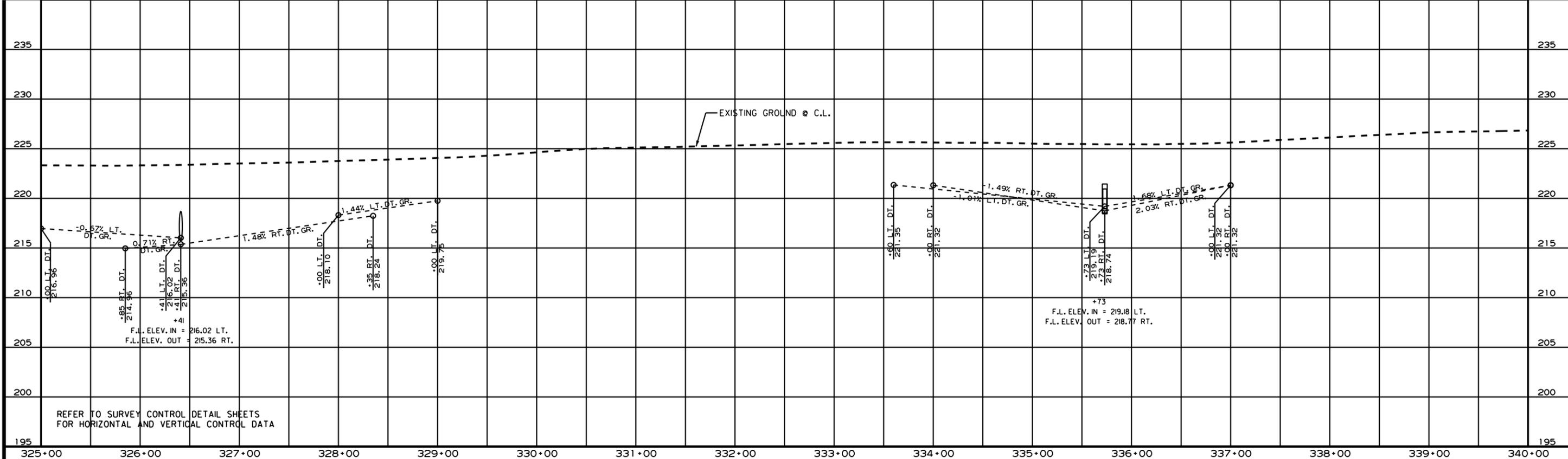
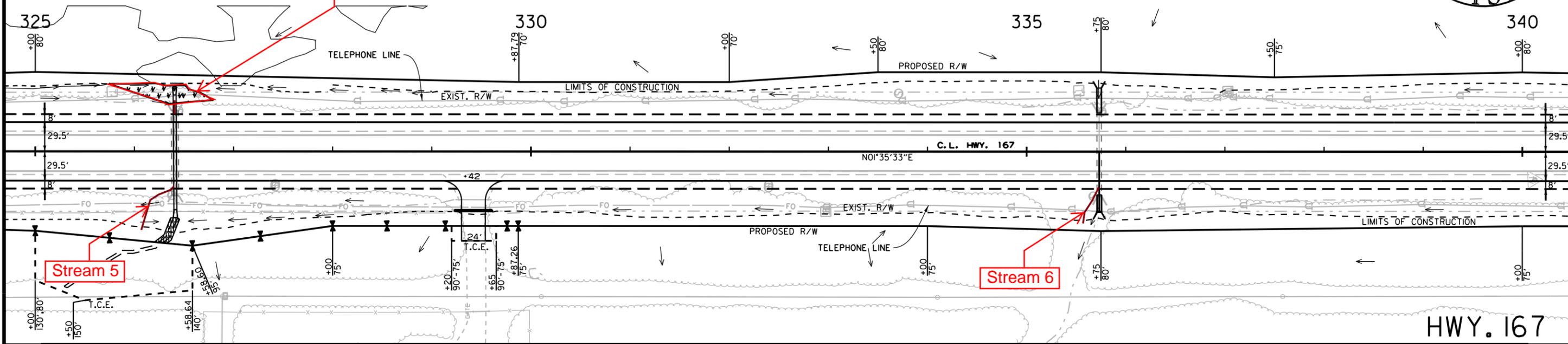
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		10	16
				PLAN AND PROFILE SHEETS				



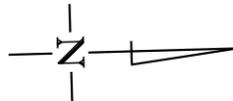
STA. 326+41 - IN PLACE  
 DBL. 3'x2'x86' R.C. BOX CULV'T.  
 WITH 3:1 WINGS LT. & RT.  
 REMOVE AND CONSTRUCT  
 36" X 116' R.C. PIPE CULV'T.  
 (CLASS III TYPE 3 BEDDING)  
 WITH FES LT. & RT.  
 Q50 = 33 CFS; D.A. = 42.3 AC.  
 CHANNEL CHANGE = 20 CU. YD.  
 DUMPED RIPRAP = 8 CU. YD.

STA. 329+42 IN PLACE  
 18" x 37' PIPE CULV'T.  
 RT. SIDE DRAIN  
 REMOVE & INSTALL  
 18" x 38' PIPE CULV'T.  
 RT. SIDE DRAIN  
 CONST. APPR. = 29 CU. YD.

STA. 335+73 - IN PLACE  
 4'x2'x86' R.C. BOX CULV'T.  
 WITH 3:1 WINGS LT. & RT.  
 RETAIN & EXTEND 25' LT. & 11' RT.  
 TO A COMPLETED LENGTH OF 122'  
 Q50 = 22 CFS D.A. = 32.1 ACRES



USER: at5106  
 DESIGN FILE: G:\4109400.HWY\_167\PROJ.MGMT\04.Comm\Consultants\Parsons\to parsons 5-27-16\16\CA0702\_PP\_HWY167\_010.dgn  
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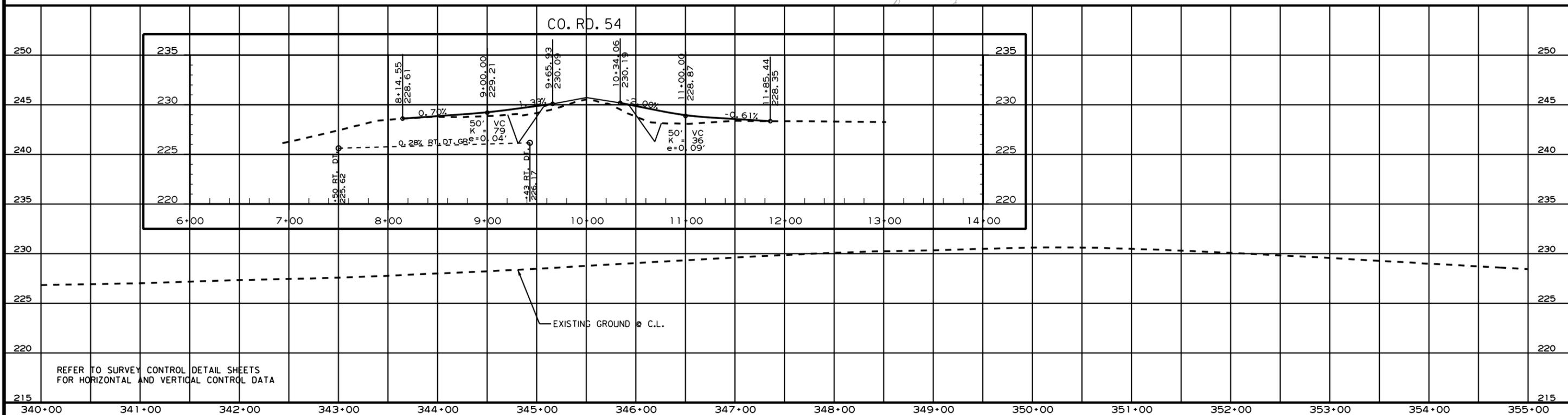
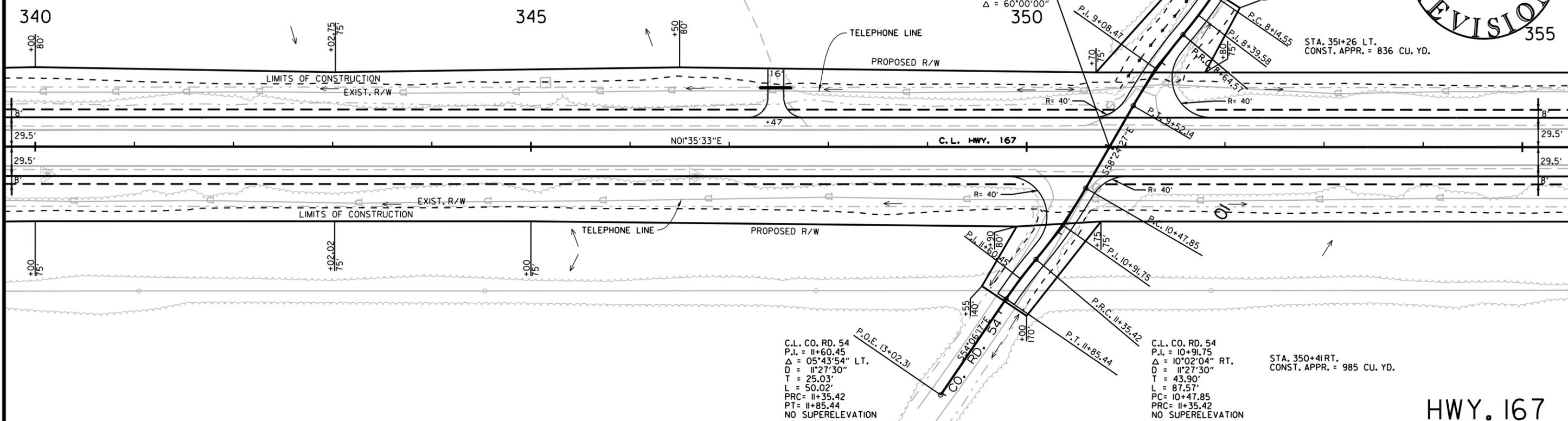
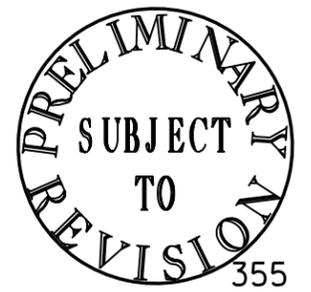


C.L. CO. RD. 54  
 P.I. = 9+08.47  
 $\Delta = 10^{\circ}02'04''$  LT.  
 D = 11'27'30"  
 T = 43.90'  
 L = 87.57'  
 PRC = 8+64.57  
 PT = 9+52.14  
 NO SUPERELEVATION

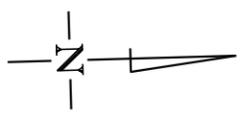
C.L. CO. RD. 54  
 P.I. = 8+39.58  
 $\Delta = 05^{\circ}43'54''$  RT.  
 D = 11'27'30"  
 T = 25.03'  
 L = 50.02'  
 PC = 8+14.55  
 PRC = 8+64.57  
 NO SUPERELEVATION



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		II	16
				JOB NO.	CA0702			
PLAN AND PROFILE SHEETS								



USER: at5106  
 DESIGN FILE: G:\14109400.HWY.167\PROJ.MGMT\04.Comm\Consultants\Parsons\to parsons 5-27-16\16\CA0702.PP.HWY167\_01.dgn  
 PLOTTED: 5/27/2016 10:55  
 MODEL: PLAN AND PROFILE  
 SCALE: 99.99H



C.L. CO. RD. 89  
 P.I. = 8+90.21  
 $\Delta = 05^{\circ}07'34''$  LT.  
 $D = 11^{\circ}27'30''$   
 $T = 22.38'$   
 $L = 44.74'$   
 $PC = 8+67.83$   
 $PRC = 9+12.57$   
 NO SUPERELEVATION

C.L. CO. RD. 89  
 P.I. = 9+34.95  
 $\Delta = 05^{\circ}07'34''$  RT.  
 $D = 11^{\circ}27'30''$   
 $T = 22.38'$   
 $L = 44.74'$   
 $PRC = 9+12.57$   
 $PT = 9+57.31$   
 NO SUPERELEVATION

STA. 363+29 IN PLACE  
 18" x 37" PIPE CULV'T.  
 LT. SIDE DRAIN  
 REMOVE & INSTALL  
 18" x 58" PIPE CULV'T.  
 LT. SIDE DRAIN  
 CONST. APPR. = 1125 CU. YD.

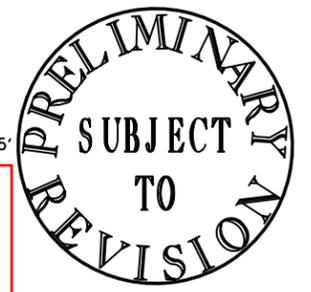
STA. 364+47 IN PLACE  
 24" x 88" R.C. PIPE CULV'T  
 WITH HDWLS. LT. & RT.  
 REMOVE HDWLS. LT. & RT. &  
 FILL & ABANDON PIPE CULV'T

STA. 364+65 CONSTRUCT  
 30" x 114" R.C. PIPE CULV'T  
 (CLASS IV) (TYPE 3 BEDDING)  
 WITH FES LT. & RT.  
 $050 = 23$  CFS D.A. = 32.7 ACRES  
 DUMPED RIPRAP = 6 CU. YD.

STA. 369+60 IN PLACE  
 24" x 92" R.C. PIPE CULV'T  
 WITH HDWLS. LT. & RT.  
 REMOVE HDWLS. LT. & RT.  
 EXTEND 9' LT. & 14' RT.  
 (CLASS III) (TYPE 3 BEDDING)  
 FOR A COMPLETED LENGTH OF 115'  
 WITH FES LT. & RT.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702		12	16
PLAN AND PROFILE SHEETS								

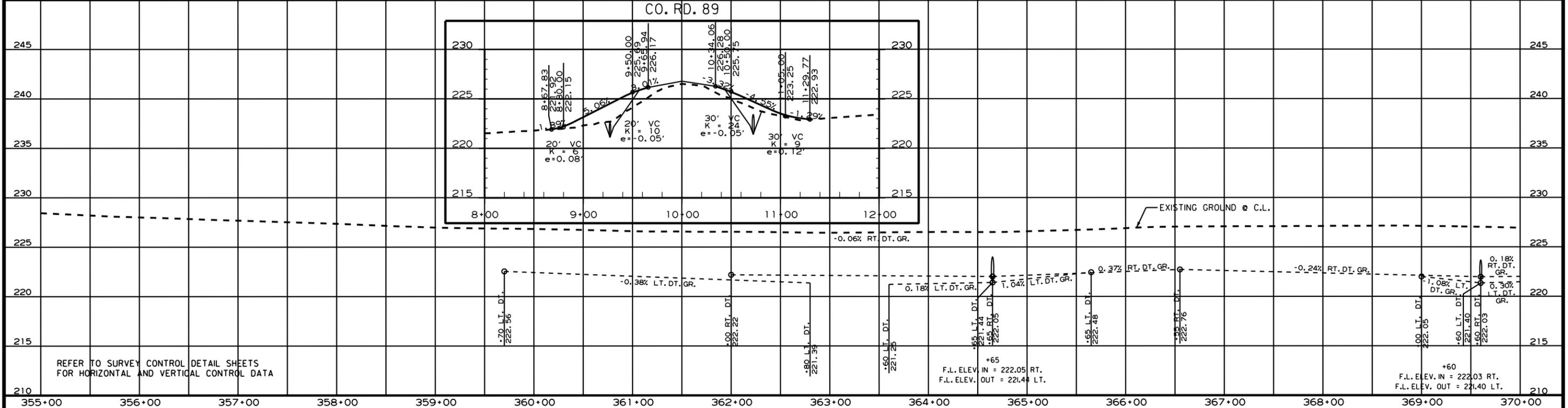
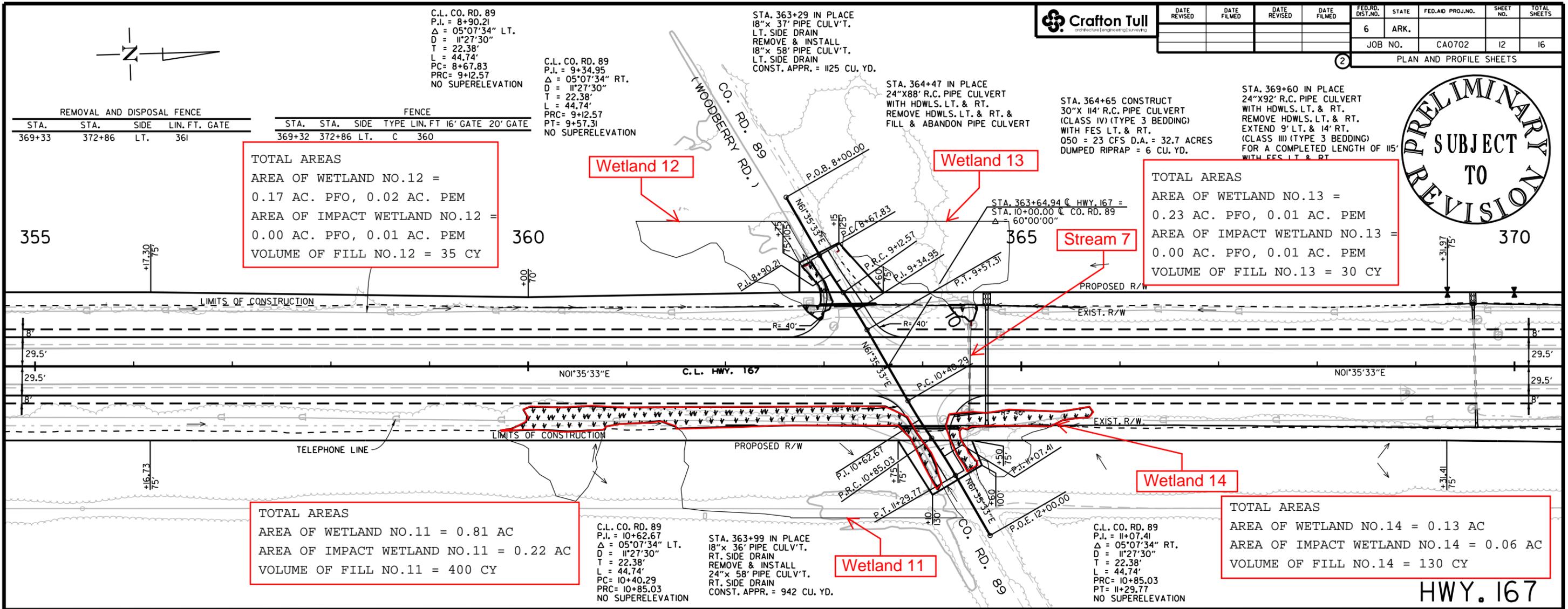


TOTAL AREAS  
 AREA OF WETLAND NO.12 =  
 0.17 AC. PFO, 0.02 AC. PEM  
 AREA OF IMPACT WETLAND NO.12 =  
 0.00 AC. PFO, 0.01 AC. PEM  
 VOLUME OF FILL NO.12 = 35 CY

TOTAL AREAS  
 AREA OF WETLAND NO.13 =  
 0.23 AC. PFO, 0.01 AC. PEM  
 AREA OF IMPACT WETLAND NO.13 =  
 0.00 AC. PFO, 0.01 AC. PEM  
 VOLUME OF FILL NO.13 = 30 CY

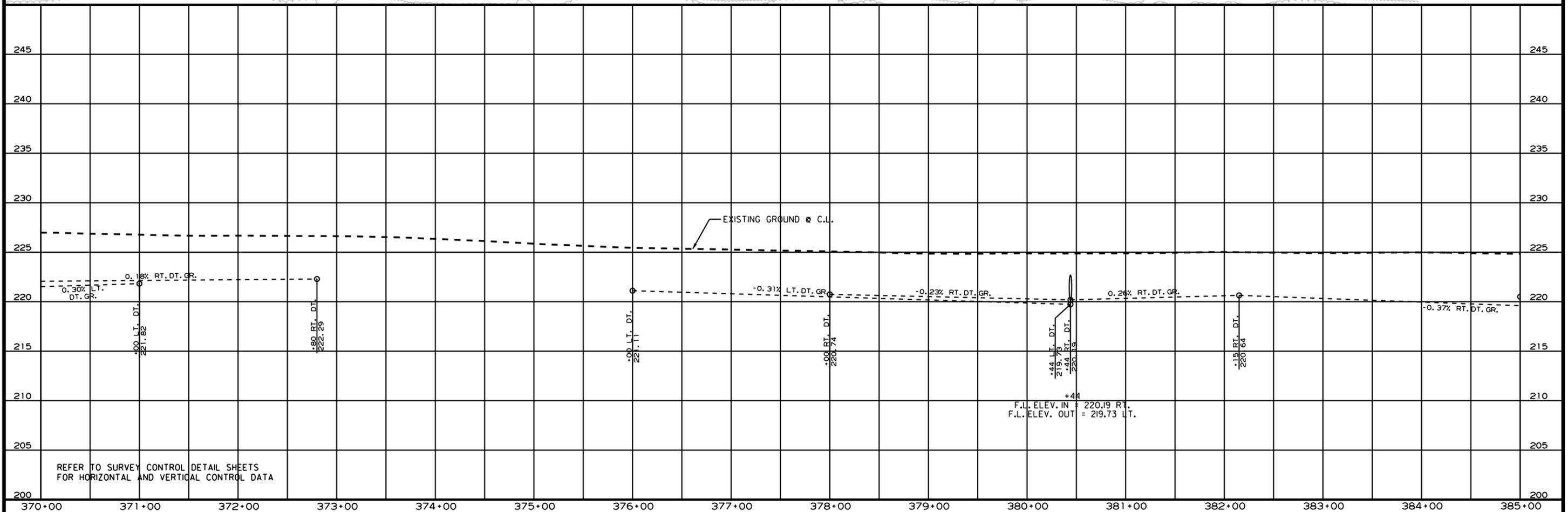
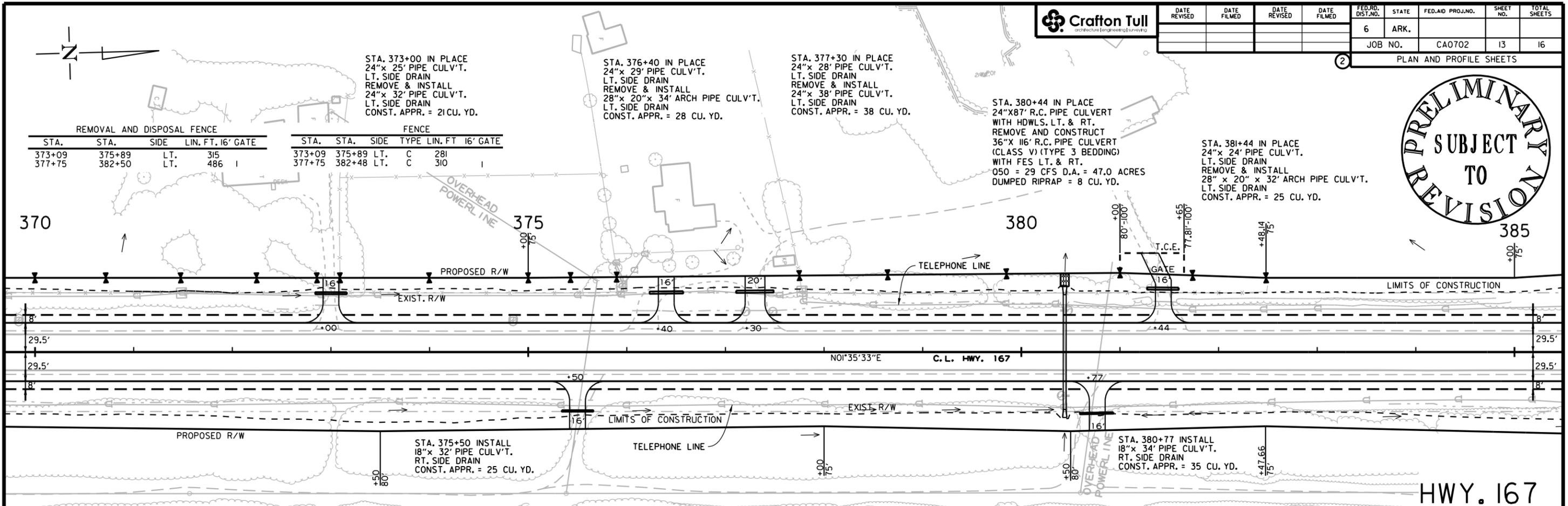
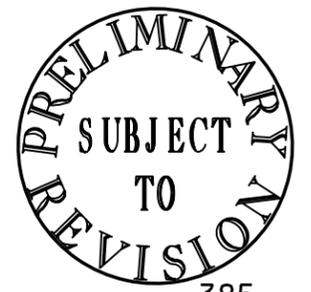
TOTAL AREAS  
 AREA OF WETLAND NO.11 = 0.81 AC  
 AREA OF IMPACT WETLAND NO.11 = 0.22 AC  
 VOLUME OF FILL NO.11 = 400 CY

TOTAL AREAS  
 AREA OF WETLAND NO.14 = 0.13 AC  
 AREA OF IMPACT WETLAND NO.14 = 0.06 AC  
 VOLUME OF FILL NO.14 = 130 CY



USER: a15106  
 DESIGN FILE: G:\14109400.HWY.167\PROJ.MGMT\04.Comm\Consultants\Parsons\to parsons 5-27-16\16\CA0702\_PP\_HWY167\_012.dgn  
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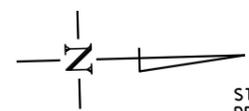
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				6	ARK.			
				JOB NO.	CA0702	13	16	
PLAN AND PROFILE SHEETS								



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

USER: a15106  
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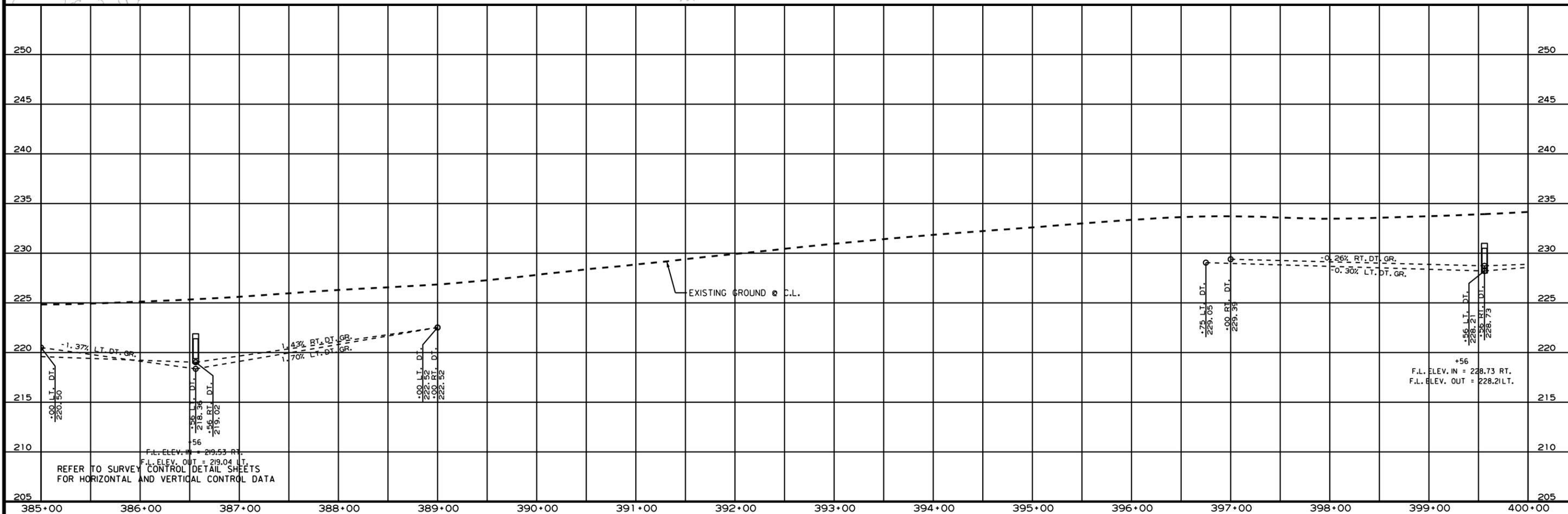
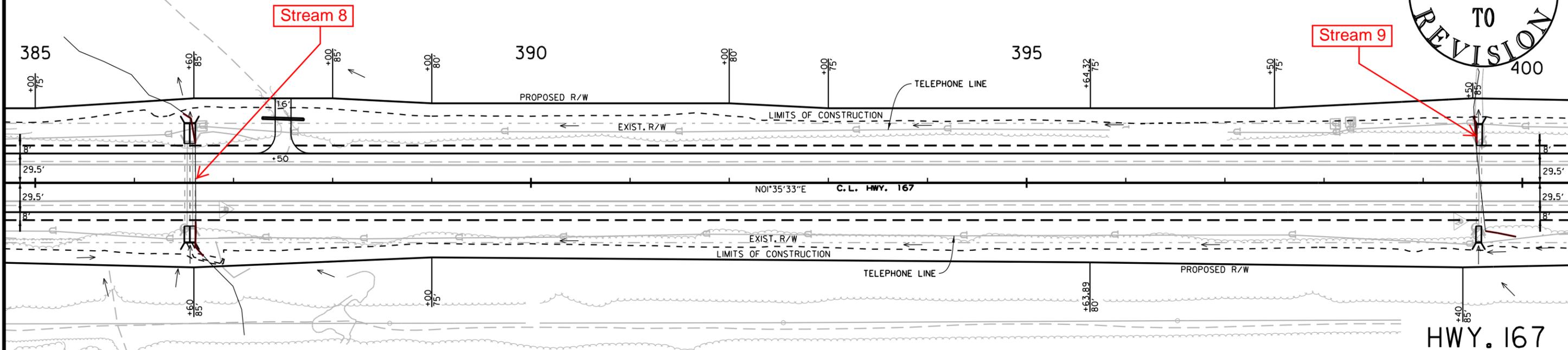
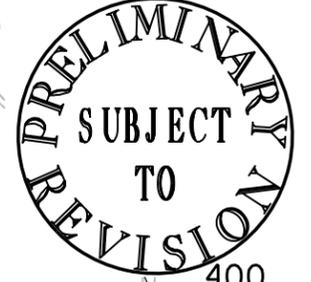
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				6	ARK.		14	16
				JOB NO.	CA0702			
PLAN AND PROFILE SHEETS								



STA. 386+56 IN PLACE  
DBL. 5'X2'X88' R.C. BOX CULVERT  
WITH 3:1 WINGS LT. & RT.  
RETAIN & EXTEND 19' LT. & 14' RT.  
TO A COMPLETED LENGTH OF 121'  
Q50 = 83 CFS D.A. = 134.0 ACRES  
CHANNEL CHANGE = 20 CU. YD.

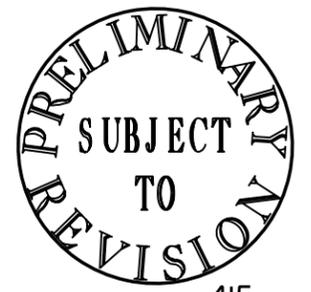
STA. 387+50 IN PLACE  
18"X 38' PIPE CULV'T.  
LT. SIDE DRAIN  
REMOVE AND INSTALL  
24"X 42' PIPE CULV'T.  
LT. SIDE DRAIN  
CONST. APPR. = 46 CU. YD.

STA. 399+56 IN PLACE  
5'X2'X86' R.C. BOX CULVERT  
WITH 3:1 WINGWALLS LT. & RT.  
RETAIN & EXTEND 20' LT. & 15' RT.  
TO A COMPLETED LENGTH OF 121'  
Q50 = 79 CFS D.A. = 88.5 ACRES



USER: at5106  
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 MODEL: PLAN AND PROFILE  
 SCALE: 99.99%

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702	15	16	
PLAN AND PROFILE SHEETS								



REMOVAL AND DISPOSAL FENCE

STA.	STA.	SIDE	LIN. FT.	GATE
407+59	418+48	LT.	1089	
408+93	418+43	RT.	951	

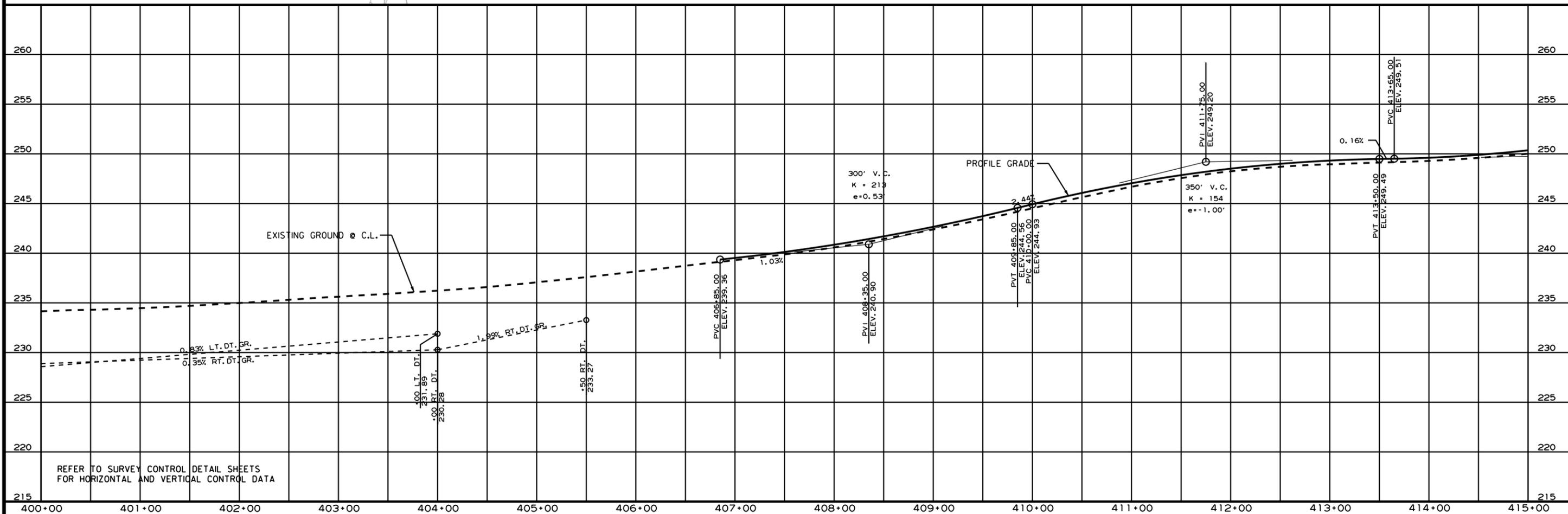
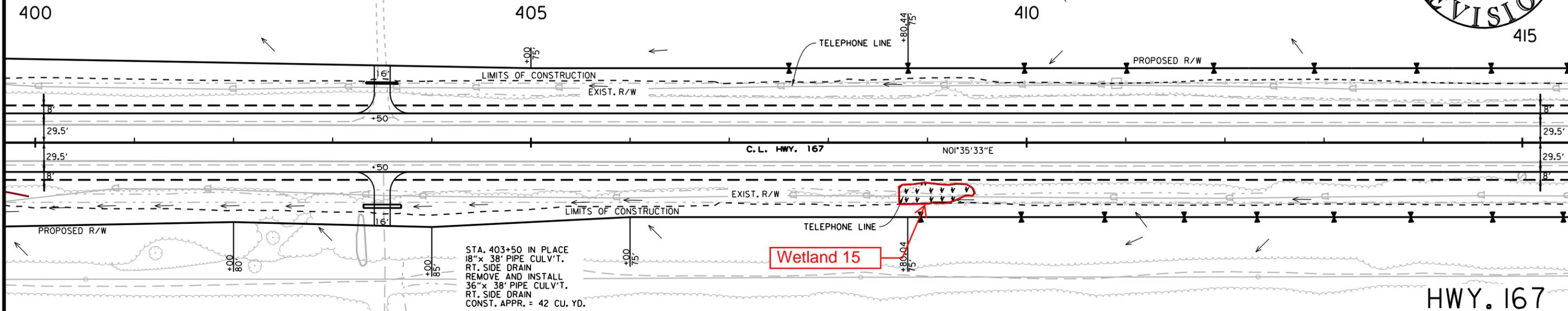
FENCE

STA.	STA.	SIDE	TYPE	LIN. FT	16' GATE	20' GATE
407+61	418+48	LT.	C	1089		
408+93	418+43	RT.	C	950		

TOTAL AREAS  
 AREA OF WETLAND NO.15 =  
 0.06 AC. PFO, 0.06 AC. PEM  
 AREA OF IMPACT WETLAND NO.15 =  
 0.02AC. PFO, 0.02 AC. PEM  
 VOLUME OF FILL NO.15 = 115 CY

STA. 403+50 INSTALL  
 18" x 32' PIPE CULV'T.  
 LT. SIDE DRAIN  
 CONST. APPR. = 25 CU. YD.

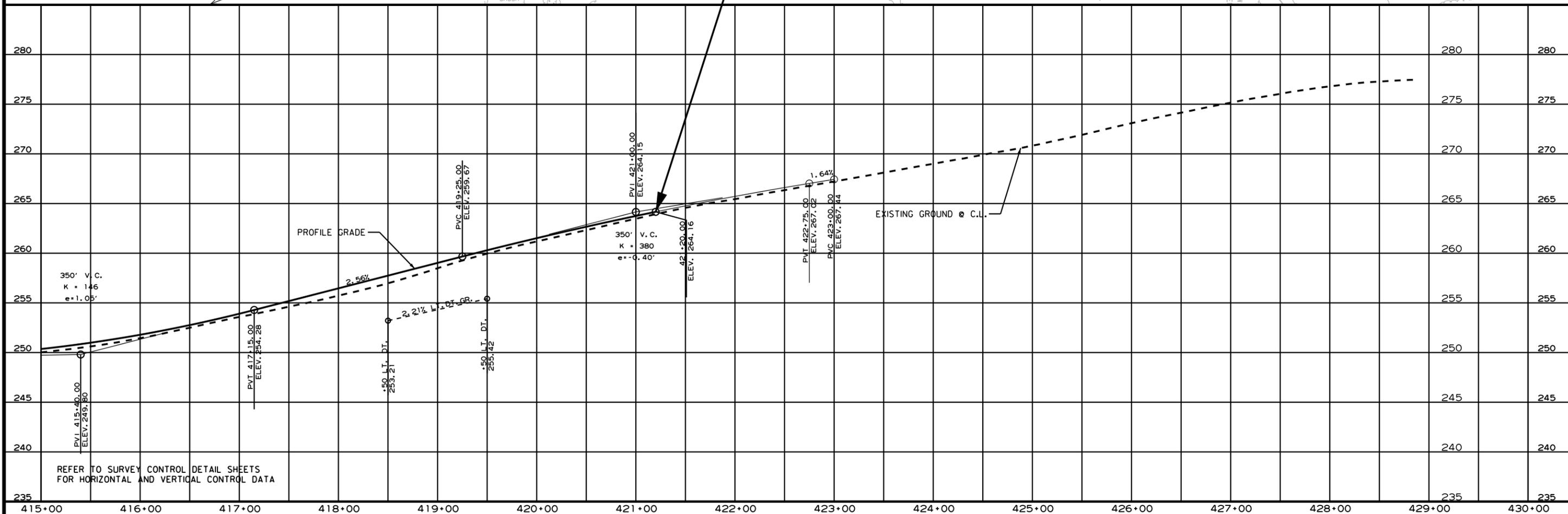
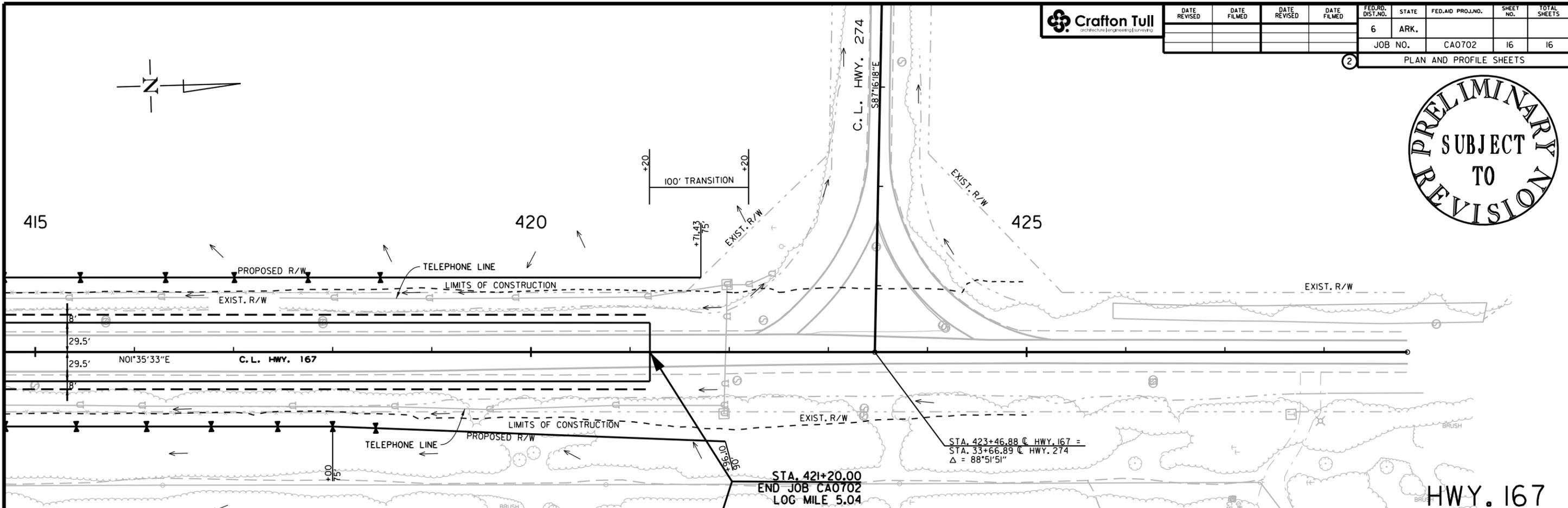
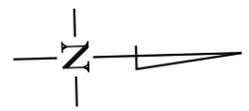
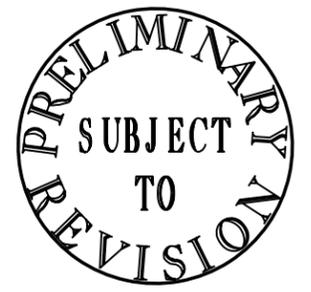
STA. 403+50 IN PLACE  
 18" x 38' PIPE CULV'T.  
 RT. SIDE DRAIN  
 REMOVE AND INSTALL  
 36" x 38' PIPE CULV'T.  
 RT. SIDE DRAIN  
 CONST. APPR. = 42 CU. YD.



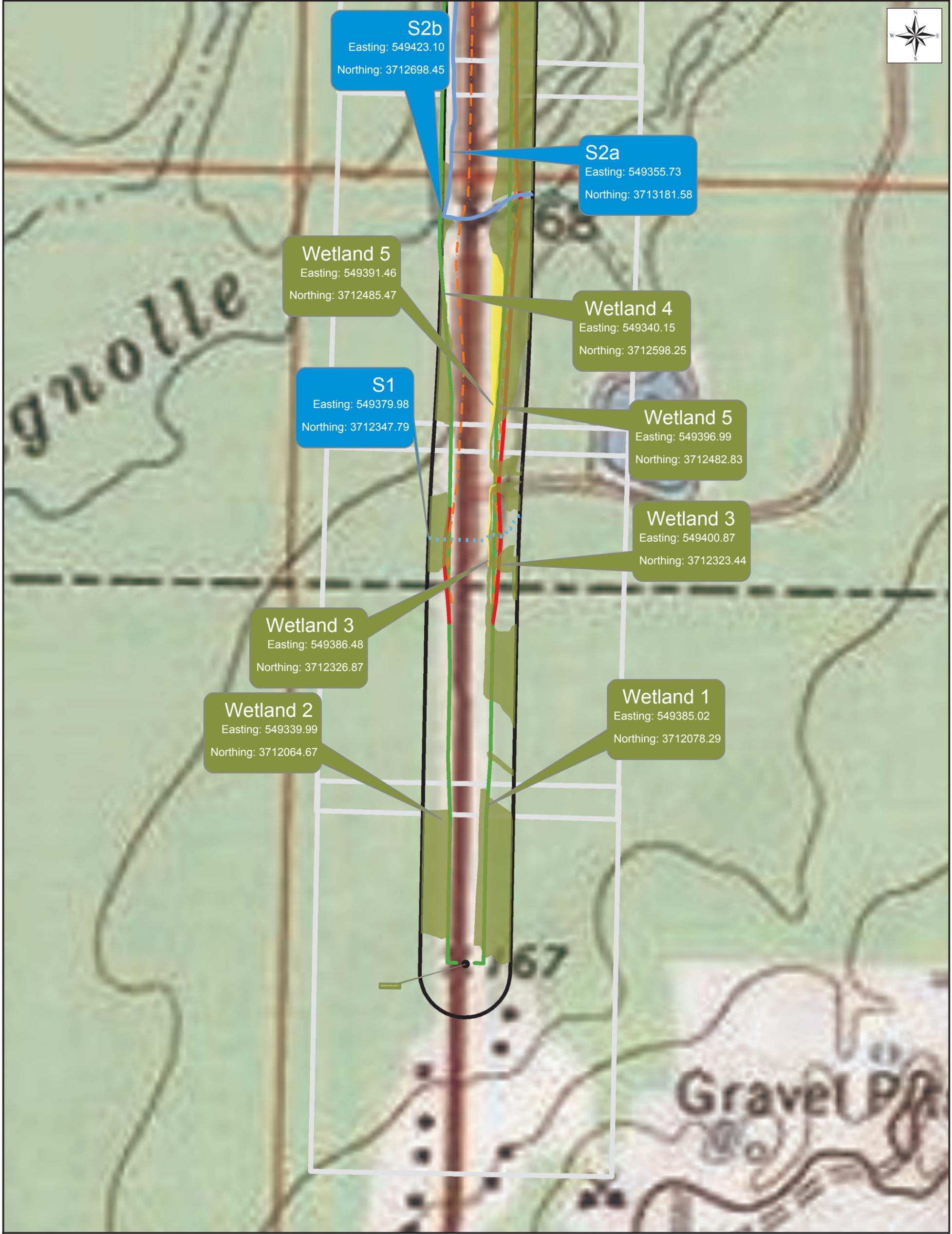
REFER TO SURVEY CONTROL DETAIL SHEETS  
 FOR HORIZONTAL AND VERTICAL CONTROL DATA

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 PLOTTED: 5/27/2016 10:55  
 MODEL: PLAN AND PROFILE  
 SCALE: 99.99H

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0702	16	16	
PLAN AND PROFILE SHEETS								



USER: at5106  
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PLOTTED: 5/27/2016 10:55  
SCALE: 99.99H  
MODEL: PLAN AND PROFILE



- Proposed ROW
- - - Proposed Construction Limits
- Existing ROW
- Wetlands in Study Limits**
- Emergent
- Forested
- Study Limits
- Sheet Boundaries
- ..... Ephemeral Stream
- - - Intermittent Stream
- Perennial Stream
- Easting / Northing Zone 15S

**Jurisdictional Waters Map**

Sheet 1 of 7

Date: 11/9/2016



1 in = 296 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



- Proposed ROW
  - - - Proposed Construction Limits
  - Existing ROW
  - Wetlands in Study Limits**
  - Emergent
  - Forested
  - Study Limits
  - Sheet Boundaries
  - ⋯ Ephemeral Stream
  - · - · Intermittent Stream
  - Perennial Stream
- Easting / Northing Zone 15S

**Jurisdictional Waters Map**

Sheet 2 of 7

Date: 11/9/2016



1 in = 296 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



- Proposed ROW
- - - Proposed Construction Limits
- Existing ROW
- Emergent
- Forested
- Study Limits
- Sheet Boundaries
- ⋯ Ephemeral Stream
- · - · Intermittent Stream
- Perennial Stream
- Easting / Northing Zone 15S

**Jurisdictional Waters Map**

Sheet 3 of 7

Date: 11/9/2016

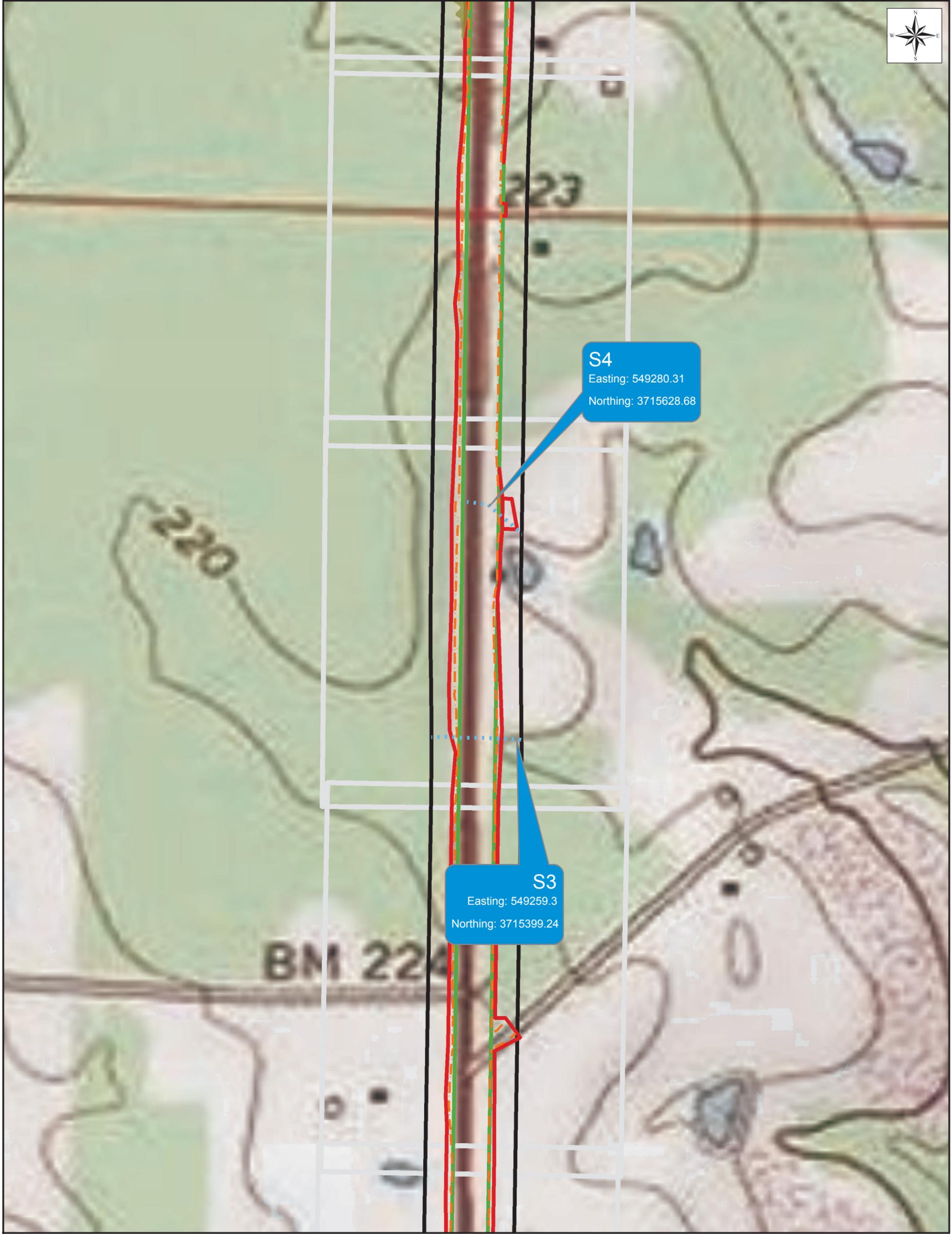


1 in = 296 feet

**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
HWY. 274 - HAMPTON (WIDENING) (S)  
HWY. 167 in  
CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



**S4**  
 Easting: 549280.31  
 Northing: 3715628.68

**S3**  
 Easting: 549259.3  
 Northing: 3715399.24

	Proposed ROW		Ephemeral Stream
	Proposed Construction Limits		Intermittent Stream
	Existing ROW		Perennial Stream
<b>Wetlands in Study Limits</b>			
	Emergent	Easting / Northing Zone 15S	
	Forested		
	Study Limits		
	Sheet Boundaries		

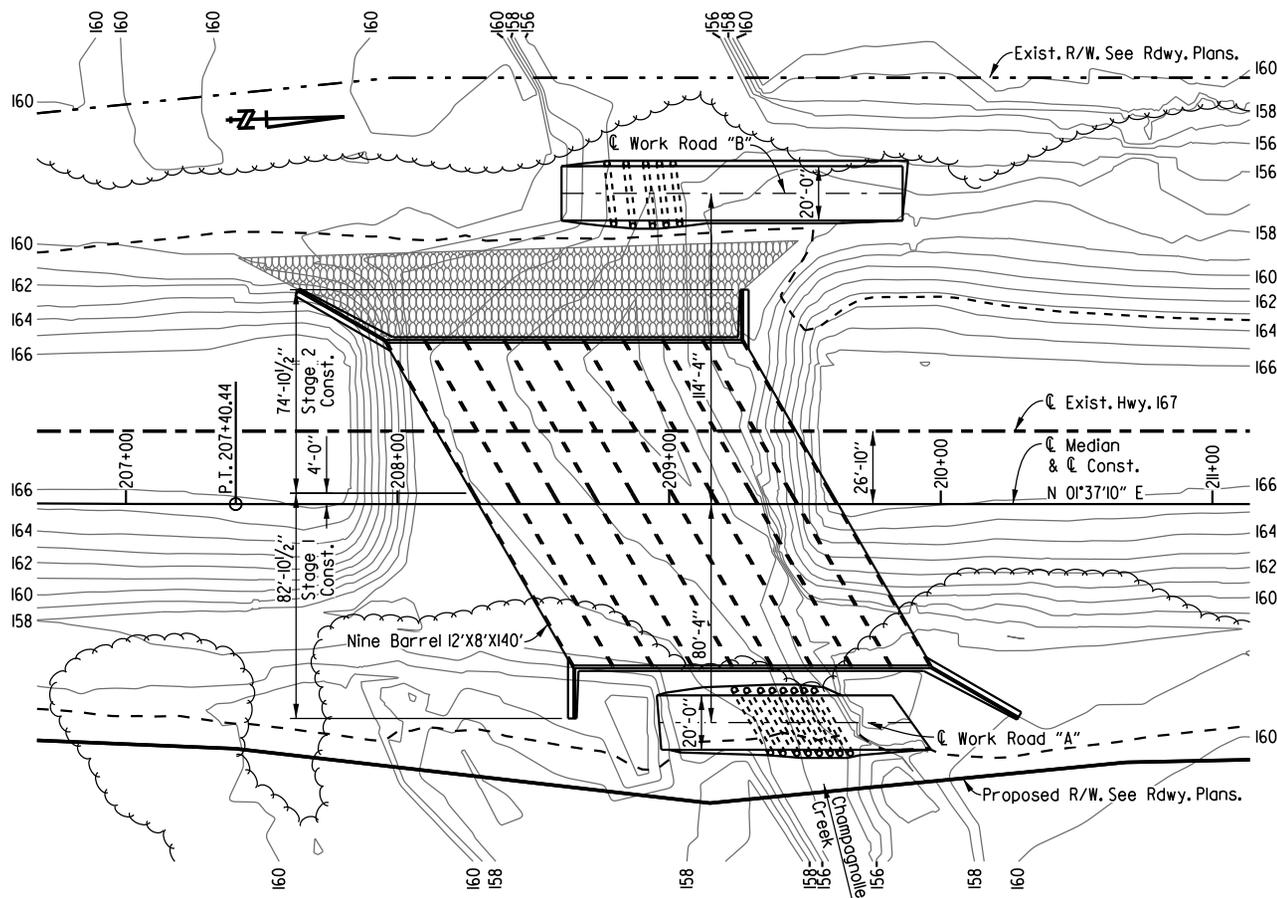
**Jurisdictional Waters Map**

Sheet 4 of 7	Date: 11/9/2016
<p>0 90 180 360 Feet</p>	
1 in = 297 feet	

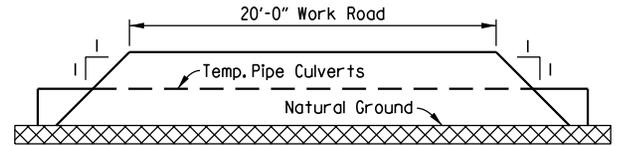
**ARKANSAS STATE HIGHWAY AND  
 TRANSPORTATION DEPARTMENT**

**CONNECTING ARKANSAS PROGRAM  
 HWY. 274 - HAMPTON (WIDENING) (S)  
 HWY. 167 in  
 CALHOUN COUNTY, ARKANSAS**

**JOB CA0702**



PLAN  
No Scale



SECTION THRU WORK ROAD  
No Scale

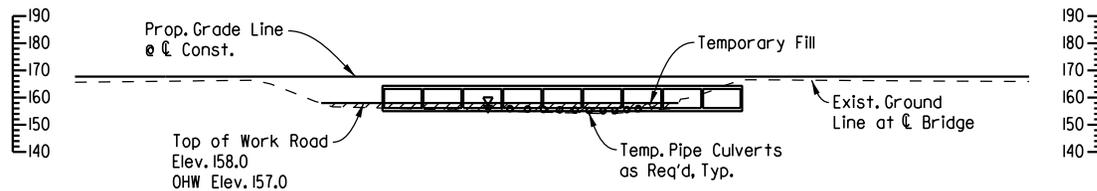
	Approximate Quantities	
	Below OHW	Total
Work Road A Fill Area	1693 sq. ft.	2227 sq. ft.
Work Road B Fill Area	1750 sq. ft.	2934 sq. ft.
Work Road A Fill Volume	38 cu. yd.	79 cu. yd.
Work Road B Fill Volume	36 cu. yd.	108 cu. yd.

Note: OHW is Ordinary High Water

Notes: The temporary fill to construct the work road(s) shown has been permitted to facilitate construction of the project. The Contractor shall determine and provide temporary culverts of a size and number that will be sufficient to maintain low stream flows and assist passage of aquatic wildlife.

The Contractor may submit an alternative work road plan for approval by the Engineer showing details of and describing the proposed modifications. The primary objective of any proposed modifications should be to minimize the reduction of the waterway opening in the floodplain. The top of the alternative work road(s) shall not exceed the elevation shown. A determination will be made by the Engineer within ten (10) days concerning the necessity or practicability of the request. A modification of the Section 404 Permit and additional review time by the Corps of Engineers may be required if the alternative work road(s) increases the volume of temporary fill that has been permitted for the project. The contract time will not be extended for the time required to consider or approve any alternative work road(s) submittal.

The Contractor is responsible for maintenance of the work road(s) during the contract period. See SP Job CA0702 "Construction in Special Flood Hazard Areas" and Section 110.06(c) in the Standard Specifications for additional information.



ELEVATION  
No Scale

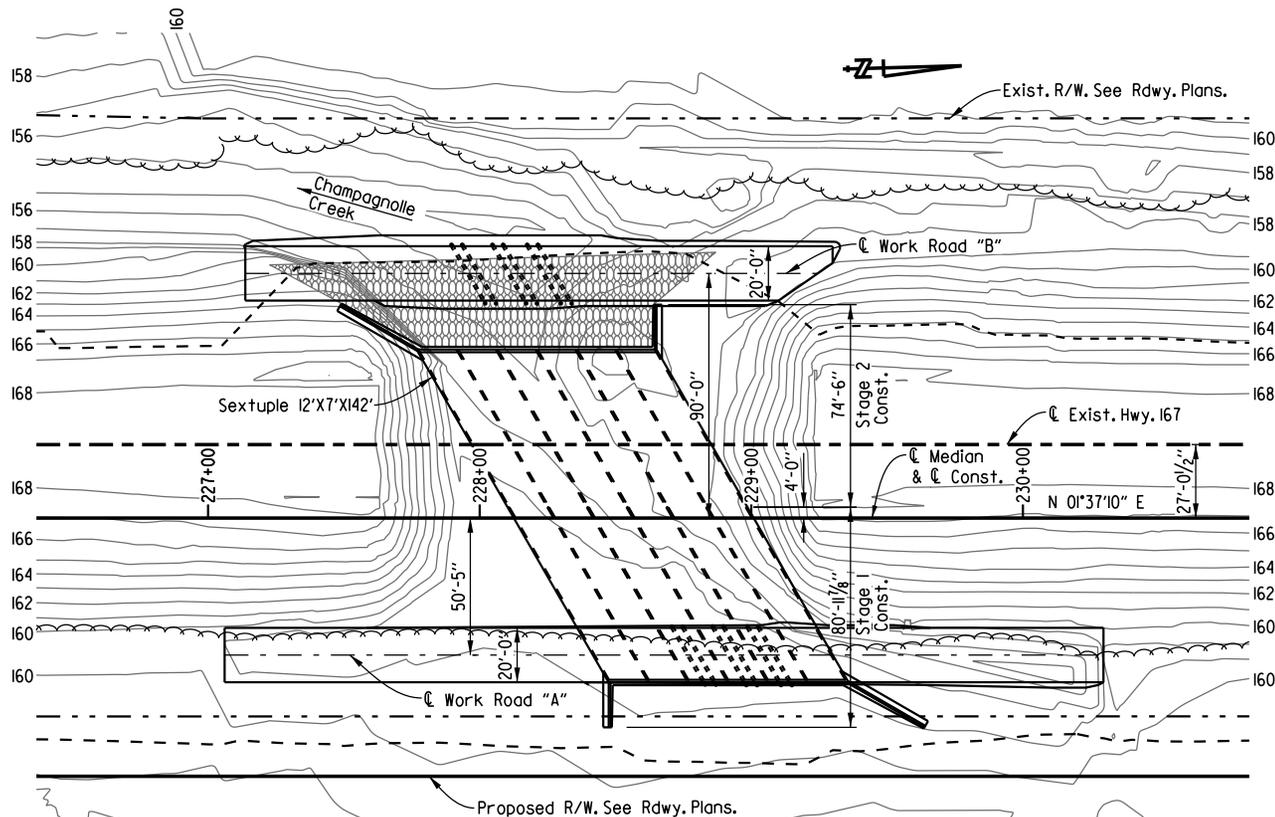
CONCEPTUAL WORK PLAN  
FOR TEMPORARY FILL  
HAMPTON - HWY. 274  
(WIDENING) (S)  
CALHOUN COUNTY

ROUTE 167 SEC. 4

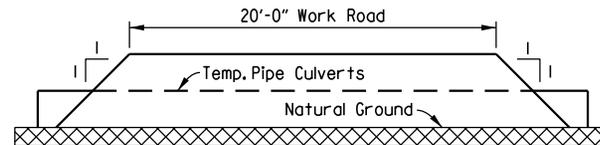
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 10-13-16 FILENAME: rCA0702\_al.wrkrd.dgn



PLAN  
No Scale



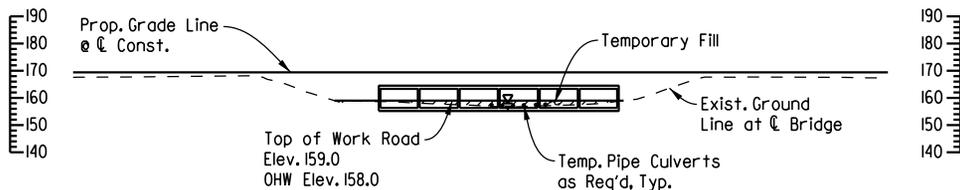
	Approximate Quantities	
	Below OHW	Total
Work Road A Fill Area	1657 sq. ft.	6779 sq. ft.
Work Road B Fill Area	2107 sq. ft.	4187 sq. ft.
Work Road A Fill Volume	131 cu. yd.	500 cu. yd.
Work Road B Fill Volume	528 cu. yd.	805 cu. yd.

Note: OHW is Ordinary High Water

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ELEVATION  
No Scale

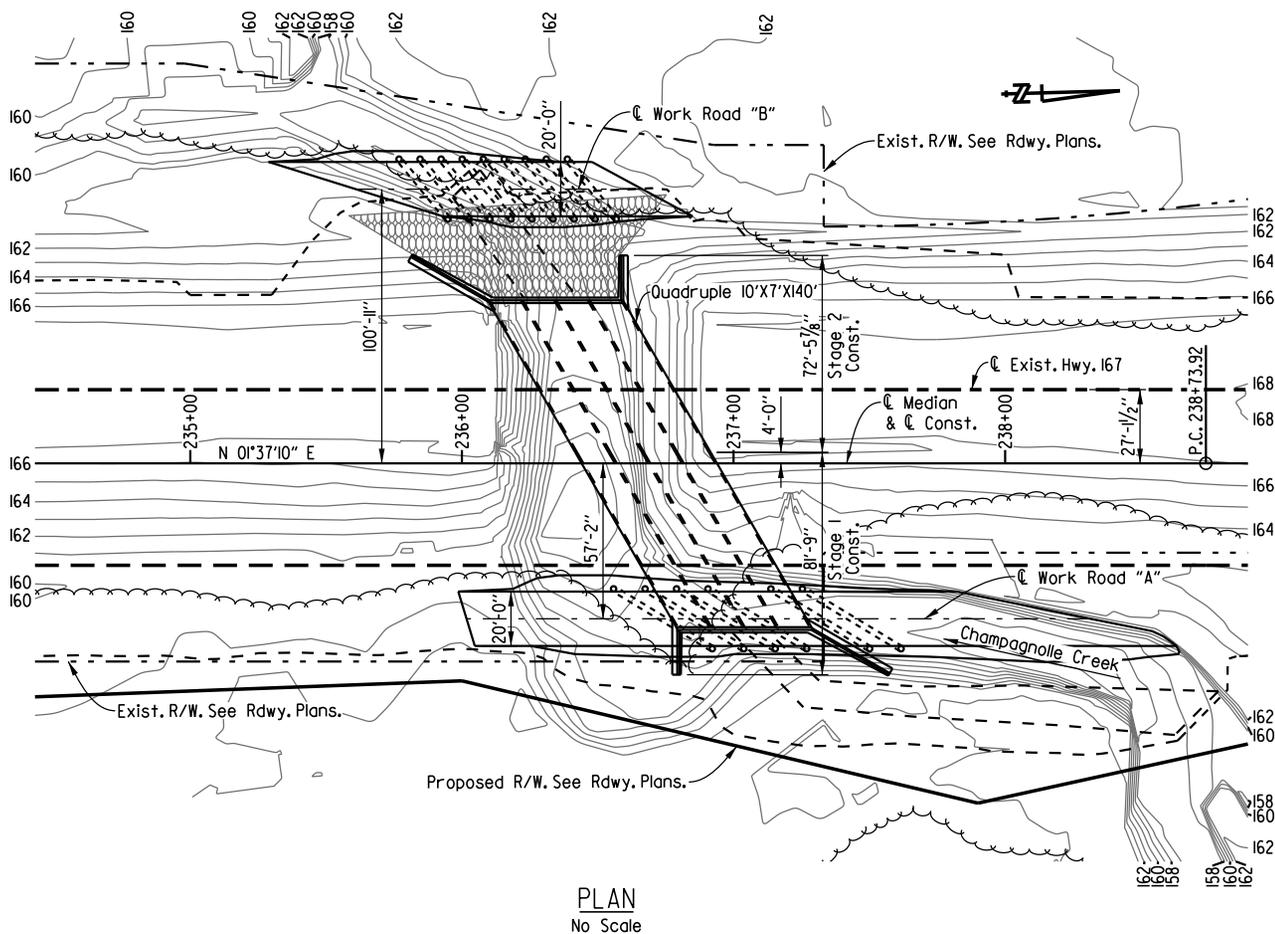
**CONCEPTUAL WORK PLAN  
FOR TEMPORARY FILL  
HAMPTON - HWY. 274  
(WIDENING) (S)  
CALHOUN COUNTY**

ROUTE 167 SEC. 4

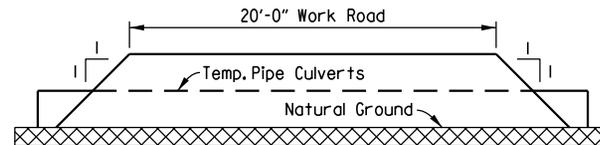
**ARKANSAS STATE HIGHWAY COMMISSION**

LITTLE ROCK, ARK.

DRAWN BY: BWC DATE: 10-13-16 FILENAME: rCA0702\_g2\_wrkrd.dgn



PLAN  
No Scale



SECTION THRU WORK ROAD  
No Scale

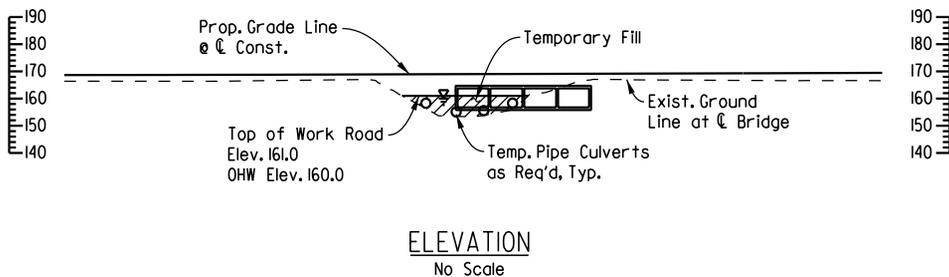
	Approximate Quantities	
	Below OHW	Total
Work Road A Fill Area	5455 sq. ft.	6019 sq. ft.
Work Road B Fill Area	1861 sq. ft.	2583 sq. ft.
Work Road A Fill Volume	184 cu. yd.	273 cu. yd.
Work Road B Fill Volume	66 cu. yd.	126 cu. yd.

Note: OHW is Ordinary High Water

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ELEVATION  
No Scale

**CONCEPTUAL WORK PLAN  
FOR TEMPORARY FILL  
HAMPTON - HWY. 274  
(WIDENING) (S)  
CALHOUN COUNTY**

ROUTE 167 SEC. 4

**ARKANSAS STATE HIGHWAY COMMISSION**

LITTLE ROCK, ARK.