ADEQ

ARKANSAS
Department of Environmental Quality

CERTIFIED MAIL: RETURN RECEIPT REQUESTED (91 7199 9991 7035 3560 8108)

Jason Henson
C & H Hog Farms, Inc.
HC 72 Box 2
Vendor, AR 72683

RE: Permit Tracking No. ARG590001; AFIN: 51-00164

Dear Permittee:

The Arkansas Department of Environmental Quality has reached the final permitting decision not to renew the statewide general permit ARG590000 for Concentrated Animal Feeding Operations (CAFO). All facilities currently operating under the conditions of this permit will be asked to request coverage under an individual permit. In accordance with Ark. Code Ann. § 8-4-203(5)(D), if the Department makes a decision to not renew a general permit, existing coverage under the general permit shall continue under the terms of the expired permit until a final decision is reached for an individual permit.

An application for a liquid animal waste management system under APC&EC Regulation 5 was received on April 7, 2016 to replace coverage under ARG590000. The application is currently in review for administrative completeness. The Notice of Intent (NOI) and Nutrient Management Plan (NMP) for recertification for coverage under ARG590000, submitted on April 20, 2016, are being returned.

If you have any questions or require additional information, please do not hesitate to contact Katherine McWilliams of my staff at (501) 682-0651 or by e-mail at mcwilliamsk@adeq.state.ar.us.

Sincerely,

Caleb J. Osborne
Associate Director, Office of Water Quality

CJO:km

Enclosures

Notification of Decision to Not Renew
NPDES General Permit Number ARG590000 Operators of Concentrated Animal Feeding Operations (CAFOs) within the State of Arkansas

This is to give notice in accordance with A.C.A § 8-4-203 that the Permits Branch of the Office of Water Quality of the Arkansas Department of Environmental Quality (ADEQ), 5301 Northshore Drive, North Little Rock, Arkansas 72118-5317 at telephone number (501) 682-0648, has made a decision to not renew the above General Permit, which is set to expire on October 31, 2016, under the National Pollutant Discharge Elimination System and the Arkansas Water and Air Pollution Control Act. The Department made the decision not to renew this General Permit after an extensive review of all comments received during the public comment period. Only one facility had received coverage during the five-year term of the General Permit. ADEQ determined such limited use was inconsistent with the intent of a general permit and, thus, did not warrant renewal.

Becky W. Keogh, Director

Date: May 4, 2016

RESPONSE TO COMMENTS
FINAL PERMITTING DECISION

Permit No.: ARG590000
Concentrated Animal Feeding Operations (CAFOs)

Prepared by: Katherine McWilliams

The following are the responses to comments concerning the Concentrated Animal Feeding Operations (CAFOs) NPDES General Permit ARG590000, in accordance with regulations promulgated at 40 C.F.R. § 124.17 and Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation No. 8, Administrative Procedures. Public notice of the Draft Permit was published by the Arkansas Department of Environmental Quality (ADEQ) on March 15, 2016 and closed on April 14, 2016 at 4:30 pm. One (1) Public Hearing was held April 14, 2016 in Jasper, AR at 6:00 pm.

This document contains a summary of the comments that the ADEQ received during the public comment period. Where there were similar issues raised throughout the comments, they are combined with one response from the ADEQ. A summary of the changes to have been made to the permit in response to the public comments is available at the end of this document. **The decision was made not to renew this general permit.**

The following people or organizations submitted comments to the ADEQ during the 30-day public comment period and the public hearing. A total of 161 comments were raised by 130 separate commenters. One individual submitted comments after close of the comment period and did not submit comments at the public hearing.

Commenter:	Number of Comments raised:
1. George Staggs	2
2. June Staggs	2
3. James McPherson	2
4. Jeanmarie Mako	1
5. Harlie Treat	1
6. Joe Golden	4
7. William Mills	1
8. Mike Quearry	1
9. Linda Lewis	1
10. Jeff Ingram	7
11. Steven Hignight	1
12. Susan Anglin	1
13. R. Ellen Corley	1
14. Ray Quick	1
15. Carolyn Quick	1
16. Jake Spuhn	1
17. Patti Kent	1
18. Ginny Masullo	2
19. Barry Haas	2
20. Janine Perlman	1
21. Julia Vollman	1
22. Caitlin Grussing	1
23. Lin Wellford	3

24. Nathan Blanton	1
25. J.A. Griffith	1
26. Kenneth Trimble	1
27. Holly Greenfield	2
28. Deanne M Mayer	1
29. Kim Smith	1
30. Mary Ellen Hill	1
31. Aaron Smith	1
32. Shawn Porter	1
33. Evelyn Mills	2
34. Karen Seller	1
35. Kathryn Tomlinson	1
36. Patricia J. Roe	1
37. Joan Reynolds	2
38. Glenda Tipton-Smith	1
39. Christopher Hankins	1
40. Rick Hammerle	1
41. Ellen McNulty	1
42. Frank Reuter	1
43. Mary Reuter	1
44. Jim Rees	1
45. Linda Eddings	1
46. Kriste Rees	1
47. Clayton Wells	1
48. Joey Pierce	1
49. Robert Chase Inselman	1
50. Laramy Ridley	1
51. Jordan Pickens	1
52. Corey Duncan	2
53. Carol Bitting	9
54. Rex Robbins	3
55. Heli Tomford	1
56. Bill Tomford	1
57. Roger Head	1
58. John Murdoch	2
59. Diane Mitchell	1
60. Evan A. Teague	1
61. Maureen R. McClung	3
62. Charles J. Bitting	2
63. Bill Hudspeth	1
64. Jennifer Hudspeth	1
65. Kenneth Carle	1
66. Cindy Franklin	3
67. Fran Alexander	2
68. Brenda L. Messling	1
69. Ross Lockhart	1
70. Mitchell McCutchen	1
71. Margaret Johnson	1
72. Dan Wright	1
73. Gordon Watkins	8
74. Robert Ginsburg	1

75. Erin Rains	1
76. Byron Eubanks	1
77. Jan Schaper	2
78. Margaret Lonadier	3
79. Patricia McKeown	1
80. Phil Milan	1
81. Ginger Milan	1
82. Judi Nail	1
83. Susan Watkins	2
84. Pamela E. Stewart	4
85. Kelli A. Martin	1
86. Travis Bitting	1
87. Krista Bitting	1
88. Michael Morris	1
89. Edd French	4
90. Sharon Anderson	1
91. Sam D. Cooke	3
92. Richard H. Mays	6
93. Anne Roberts	23
94. Brian A. Thompson	1
95. Nancy DeVries	1
96. Grant Scarsdale	1
97. Glenda Allison	1
98. Mia Waldo	1
99. Betsy Murdoch	1
100. Laura Bitting	1
101. F Prieur	1
102. Jonh Van Brahana	1
103. Colene Gaston	2
104. Charlie Anderson	47
105. National Park Service	61
106. Mark A. Smith	1
107. Merry J. Graham	1
108. Gene Pharr	2
109. Susan Gower	2
110. Ed Manor	2
111. Aletha Petty	1
112. Claire Dougan	1
113. Scott Baldassari	1
114. Nancy Harris	2
115. Dennis Larson	1
116. Fay Knox	1
117. Jerry Masters	1
118. Nancy Haller	3
119. Bob Shofner	1
120. Kent Bonar	6
121. Kathy Downs	1
122. Bill Lord	2
123. Laura Timby	1
124. Marti Olesen	4
125. Virginia Booth	2

126. Janie Traywick	1	
127. Jim Westbrook		1
128. Mary Olson		1
129. Bruce Jackson		1
130. Sierra Club		4

Comment 1: We are writing to oppose the renewal of the National Pollutant Discharge Elimination System (NPDES) General Permit (ARG590000) that was published on March 15, 2016, in the Arkansas Democrat-Gazette for eligible operators of the Concentrated Animal Feeding Operations in the State of Arkansas. This General Permit (ARG590000) streamlined the permitting for one single CAFO, one that is located in a fragile ecosystem in the highly fractured soluble limestone rock (karst) that drains via surface and groundwater directly into the tributaries of the Buffalo National River. As you know, CAFOs on karst have resulted in significant ongoing public opposition in the U.S. and Europe, with very good reason. I do not want this permit to be utilized to facilitate the permitting any other CAFO in Arkansas unless adequate sewage treatment is provided. The NPDES permitting process is supposed to take into consideration scientific knowledge about the impact of the discharge on the environment. As proven in a court of law the permit request was very inadequate in providing scientific evidence that this waste would not negatively impact the Buffalo River and it's tributaries. Arkansans are now paying $300K a year to try to justify the inadequacy of this permitting process.

Original Commenter: George Staggs
Similar comments were received from: June Staggs, James McPherson, Jeanmarie Mako, Joe Golden, William Mills, Mike Quearry, Linda Lewis, Jeff Ingram, R. Ellen Corley, Ray Quick, Carolyn Quick, Jake Spuhn, Patti Kent, Ginny Masullo, Barry Haas, Janine Perlman, Julia Vollman, Caitlin Grussing, Nathan Blanton, J.A. Griffith, Kenneth Trimble, Merry J. Graham, Holly Greenfield, Deanne M Mayer, Kim Smith, Mary Ellen Hill, Aaron Smith, Shawn Porter, Evelyn Mills, Karen Seller, Kathryn Tomlinson, Patricia J. Roe, Joan Reynolds, Glenda Tipton-Smith, Christopher Hankins, Rick Hammerle, Frank Reuter, Mary Reuter, Jim Rees, Linda Eddings, Kriste Rees, Clayton Wells, Joey Pierce, Robert Chase Inselman, Laramy Ridley, Jordan Pickens, Corey Duncan, Carol Bitting, Roger Head, John Murdoch, Diane Mitchell, Maureen R. McClung, Charles J. Bitting, Bill Hudspeth, Jennifer Hudspeth, Kenneth Carle, Cindy Franklin, Brenda L. Messling, Margaret Johnson, Robert Ginsburg, Erin Rains, Byron Eubanks, Jan Schaper, Margaret Lonadier, Patricia McKeown, Phil Milan, Ginger Milan, Judi Nail, Susan Watkins, Kelli A. Martin, Travis Bitting, Krista Bitting, Michael Morris, Edd French, Sharon Anderson, Brian A. Thompson, Nancy DeVries, Grant Scarsdale, Mia Waldo, Betsy Murdoch, Laura Bitting, F Prieur, Mark A. Smith, Sam D. Cooke, Pamela E. Stewart, Ellen McNulty, Aletha Petty, Janie Traywick

Response: A general permit is issued to cover multiple facilities that involve the same or substantially similar types of operations; discharge the same types of waste; require the same effluent limitations or operating conditions; and require the same or similar monitoring requirements. Part 1.4.5 prohibits the coverage under the general permit for new Concentrated Animal Feeding Operations (CAFOs) within the watershed of the Buffalo National River subject to Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation 6.602.

Part 5 of the general permit was revised with this renewal to include the requirements of APC&EC Reg. 6.207 outlining notification requirements for new CAFOs seeking coverage under this general permit prior to the proposed CAFO submitting a Notice of Intent (NOI) and Nutrient Management Plan (NMP) to the Department. Part 5 also requires a public notice in a newspaper of general circulation in the county where the facility and land application sites are located as well as a 30-day comment period once the Department deems a NOI and NMP complete.

The nutrient management plan of specific facilities with coverage under this general permit is not open for comment. Facilities that are currently covered under the general permit may reapply for coverage under the renewed general permit or seek coverage under a separate individual permit.

Comment 2: Over past years, the ADEQ and especially the Water Division has made great strides in protecting the waterways of Arkansas. I have seen first hand the negative impact of past dumping of salt water onto the land in Southwest Arkansas and dumping untreated sewage into our waterways all over our state. The Water Division has achieved much in proper regulation and enforcement of rules in the proper handling of salt water and sewage disposal in Arkansas. I am surprised, disappointed and concerned that the rules around the proper handling and disposal of hog waste from this CAFO have not been based on proper scientific consideration of the impact on ground water as well as surface water that ends up in the Buffalo River and tributaries. I understand that the hog farm generates as much sewage as the town of Harrison, AR. I doubt that you would permit Harrison to spray all their sewage over these same 600 acres. Should not the hog farm also have to provide a sewage treatment plant to treat this waste, just as Harrison must provide?

Original Commenter: George Staggs
Similar comments were received from: June Staggs

Response: The Department acknowledges this comment. The requirements of the general permit meet the specific procedures outlined in 40 CFR Part 122.23(h) for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6.

Comment 3: This General Permit (ARG590000) generated a permit that is highly controversial resulting in considerable litigation expenses and several hundred thousand dollars of tax payer money being allocated for "research" at this CAFO. i.e. The last "results or response form documents mailed to me in response to comments submitted "RE: AFIN; 51-00164; Permit Tracking No.; ARG590001" required $6.27 postage. That postage amount times the number of commentators listed (116) totals $727.32 just for the postage alone. In addition to the copy paper, toner, copy machine usage, personnel to prepare, package and mail probably cost over several thousand dollars of tax payer money! All this so one greedy family and a foreign corporation can pollute our national river and spoil it for the entire population of the USA! All this is the craziest wast of government resources and tax payer money imaginable. Please stop this madness and just make this one family stop this disgraceful greedy operation. As well as not make it easier for additional CAFO operations to start up. In addition to this shameful wast, this permit by-passes well established science, it is likely its shortcomings will occur again if General Permit (ARG590000) is renewed.

Original Commenter: James McPherson
Similar comments were received from: Charles J. Bitting

Response: The Department acknowledges the comment. The Department is required by the general permit and Reg. 8.211 to respond to each issue raised in public comments received during the public comment period. Once a final decision is reached, the Department is required to mail via first-class mail, notice of the final decision to the applicant or permittee and those persons who submitted public comments on record.

Comment 4: More money can be made from keeping the rivers clean through eco-tourism and recreation. Also, the whole ADEQ permitting process is an embarrassment to your organization and the citizens of our state. Our children will all likely be obese and have cancer, dementia and worse ailments because of the permitted poisoning of our environment ADEQ supports.

Original commenter: Jeff Ingram
Similar comments were received from: Barry Haas, Evelyn Mills, Cindy Franklin, Jan Schaper, Margaret Lonadier, Edd French, Pamela E. Stewart

Response: The Department acknowledges the comment. A general permit is issued to cover multiple facilities that involve the same or substantially similar types of operations; discharge the same types of waste; require the same effluent limitations or operating conditions; and require the same or similar monitoring requirements. Part 5 of the general permit was revised with this renewal to include the requirements of APC&EC Reg. 6.207 outlining notification requirements for new CAFOs seeking coverage under this general permit prior to the proposed CAFO submitting a Notice of Intent (NOI) and Nutrient Management Plan (NMP) to the Department. Part 5 also requires a public notice in a newspaper of general circulation in the county where the facility and land application sites are located as well as a 30-day comment period once the Department deems a NOI and NMP complete.

Comment 5: Land application activities at these sites should not impact the Buffalo River due to best management practices…" The application fields have significant slopes; What ADEQ considers best management practices are flawed; and they are in fact close to the Buffalo River as they are all direct tributaries.

Original commenter: Jeff Ingram

Response: The Department acknowledges this comment. The terms of a Nutrient Management Plan of a specific facility covered under this general permit is not open for comment. Part 4.2.1.7. of the general permit prohibits land application on slopes with a gradient greater than 15% unless the CAFO demonstrates that a higher slope is appropriate because implementation of alternative conservation practices or field-specific conditions that provide pollutant reduction equivalent or better than the reduction achieved by a set slope of 15%.

Comment 6: The soil and water near application fields must be monitored more than once every 1 and 5 years. Your proposed minimal analysis is not adequate and the areas should be monitored several times a year and the operation shut-down if it exceeds limits. The established phosphorus limits are also too industry friendly and inadequate.

Original commenter: Jeff Ingram

Response: The Department acknowledges this comment. Part 4.2.1.3 of the general permit require that waste be analyzed a minimum of once annually for nitrogen and phosphorus content and that soil be analyzed a minimum of once every three years for phosphorus content. The results of these analyses are used in determining the application rates for manure, litter, and other process wastewater.

The Arkansas Phosphorus Index (API) is a risk assessment tool to assess the risk of phosphorus loss in runoff from pastures and hayland. The API has been adopted by the Arkansas Natural Resources Commission (ANRC) and the USDA Natural Resources Conservation Service (NRCS) for nutrient management planning. Land application can only occur on sites that are assigned a low or medium risk value.

Comment 7: How could ADEQ be so naïve or corrupt to claim that swine fecal water discharged will not runoff to waters of the state? The fields are adjacent to direct tributaries of the river and fecal bacteria and nutrients will overload waters of the state.

Original commenter: Jeff Ingram

Response: The Department acknowledges this comment. Part 2.2.2.3. of the permit prohibits the discharge of manure, litter, or process wastewater to Waters of the State from a CAFO as a result of the land application of manure, litter or process wastewater to areas under the control of the CAFO. Part 4.2.1.5 of the permit requires a setback of 100 feet from any down-gradient surface water, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters; or a setback of 300 feet from Extraordinary Resource Waters (ERWs) or National and Scenic Waterways (NSWs) as defined by APC&EC Regulation No. 2.

Comment 8: UAEX water monitoring guidelines are inadequate – they are written by industry and agriculture interests and should be more stringent.

Original commenter: Jeff Ingram

Response: The Department acknowledges this comment; however, this comment does not address the renewal of the general permit.

Comment 9: C&H employees and equipment are not sophisticated enough to properly measure maximum application rates. They received no training, their record keeping has proven to be sloppy, and their discharge hoses do not have appropriate measurement valves to determine application rates per acre.

Original commenter: Jeff Ingram

Response: The Department acknowledges this comment; however, this comment does not address the renewal of the general permit. The coverage of a specific facility under this general permit is not open for comment during this comment period.

Comment 10: I am writing to oppose the renewal of this permit. It was wrongly permitted from the start, clearly an orchestrated attempt to by-pass the environmental protections in place, breaking ADEQ's own rules about stakeholder input and public notifications. Still, we

were assured that no harm would come to the Buffalo National River due to the land applications of millions of gallons of hog waste. Experts lined up to tell us that their studies showed that C&H would be a state of the art facility, that the spray fields would be more than adequate to safely turn the waste from 6500 hogs and piglets into harmless manure.

Original commenter: Lin Wellford
Similar comments were received from Scott Baldassari

Response: The Department acknowledges this comment; however, this comment does not address the renewal of the general permit. The coverage of a specific facility under this general permit is not open for comment during this comment period.

Comment 11: Now, less than 3 years later, ADEQ won't recognize data that is showing clear trends (from BCRET no less) toward impairment of tributaries. Those spray fields that were more than adequate have proven to be less efficient in up take of phosphorus than all those experts claimed, and now, through more well-orchestrated maneuvering, C&H wants to be allowed to move their spraying operation to other areas with new tributaries that feed the Buffalo River, exposing an additional 7 river miles to the same excess nutrients that fed algae last summer between Spring Creek and Rush (and probably other places- but that is where I documented long plumes of growth in the water and thick mats of algae drying along the shore in mid-September 2015).

Original commenter: Lin Wellford

Response: The Department acknowledges this comment; however, this comment does not address the renewal of the general permit. The coverage of a specific facility under this general permit is not open for comment during this comment period.

Comment 12: I totally get that your agency is being leaned on by agri interests. But even in Newton County, where 20% of all employment is farming or farm service based, that means that 80% of it is not. Cargill got out because they knew that growing animals this way is not sustainable. It hurts the environment, the animals, and the economy of areas that are strip-mined of resources then abandoned. Truly, in this case, the world is watching how you protect, or fail to protect a river that belongs to every citizen.

Original commenter: Lin Wellford

Response: The Department acknowledges this comment; however, this comment does not address the renewal of the general permit.

Comment 13: Arkansas enjoys calling itself "The Natural State"--that designation comes with responsibility to protect natural resources, not expose them to the sort of degradation that large animal factories create. I agree completely with the statement by the Buffalo River Alliance (copied below); we cannot allow our state's only pristine river, and the nation's first National River, to be exposed to yet more of the pollutants created by the likes of the C & H Hog Farm. E coli, agricultural pollutants and other toxins have begun showing up downstream of that operation. Renewing the permit that allowed C & H to exist would be a terrible mistake. Large-scale animal production facilities come and go, but the environments they ruin remain ruined for a very long time.

Original commenter: Holly Greenfield

Response: A general permit is issued to cover multiple facilities that involve the same or substantially similar types of operations; discharge the same types of waste; require the same effluent limitations or operating conditions; and require the same or similar monitoring requirements. Part 1.4.5 prohibits the coverage under the general permit for new CAFOs within the watershed of the Buffalo National River subject to APC&EC Regulation 6.602. The coverage of a specific facility under this general permit is not open for comment during this comment period.

Comment 14: As an Arkansan for 31 years it is very sad to know that we don't protect our natural places better. We are the "Natural State", but are planning on allowing a CAFO into our most precious ecosystem? Please do not renew the General Permit. Along with ground water contamination, there will undoubtably be an unfavorable smell. I have already been able to smell chicken farms in the Boxley Valley this year and it was nauseating. The Buffalo National River and the surrounding areas are very special and unique places. Please do everything possible to protect them and keep them natural.

Original commenter: Corey Duncan
Similar comments were received from: Joan Reynolds, Heli Tomford, Bill Tomford, Janie Traywick,

Response: The Department acknowledges the comment. The coverage of a specific facility under this general permit is not open for comment during this comment period. Part 3.1 of the permit requires that a facility with coverage under this general permit is required to develop and implement a site-specific nutrient management plan (NMP), which must be in compliance with 40 CFR 122 and 412. The NMP must be developed in accordance with the NRCS Conservation Service Practice Standard Code 590 (Nutrient Management) for Arkansas, which includes the Arkansas Phosphorus Index. The terms of the NMP is incorporated into the general permit as an enforceable permit condition. The NMP contains recommendations for minimizing odors. The Office of Water Quality does not regulate air emissions.

Comment 15: Arkansas's General Permit ARG590000 is to vague. If Arkansas wants its own general permit then it needs to stand up to provide more restrictive guidelines for Concentrated animal feeding operations (cafo) and look to other for more conservation minded permits possibly from other states.

Original commenter: Carol Bitting
Similar comments were received from: Joe Golden

Response: The Department acknowledges this comment. The general permit meets the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6.

Comment 16: No CAFO's should be allowed to be built on karst. Arkansas has shown it is not ready for a general permit such as ARG590000 due to its first, ARG590001, being placed on karst and a continual threat to the Buffalo River Watershed, wells, springs, and historical uses. ADEQ has lost sight of its goals and continues to support polluting the Buffalo River watershed by writing a permit for EC Farms, 3540-WR-7 and expanding EC total permitted waste application gallons from 478,000 gallons to 6.6 million gallons. ADEQ

shows it is not going to abide by the moratorium and Regulation 5.901 by even accepting this application though there is no facility, no operator and no hogs. This makes the appearance of preparing for C&H Hog Farms to go to a Reg 5 permit without opening the permit for public involvement. C&H will then have 2 permits to expand on in the Buffalo River watershed. Jason Henson told the Joint House & Senate Agriculture Committee in Dec 2014 he plans to expand when able. The faulty Environmental Assessment done by SBA/FSA did not include any data BCRET had collected. This data shows Big Creek was impaired by July 2014 only one year after ADEQ permitted ARG590001.

Original commenter: Carol Bitting

Response: The Department acknowledges this comment. The general permit meets the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. The rest of this comment does not address the renewal of the general permit. Please see Comment 102 regarding karst.

Comment 17: All nutrient management plans should be done by qualified nutrient management planners. These planners should be trained in the counties they are to write the permits for. The case with ARG590001 is that the nutrient management planner, Monica Hancock, Yell County, Ar does not appear to have an understanding of highly erodible soils or karst. She writes a permit for spreading waste in January at near 2000' elevations in Arkansas.

Original commenter: Carol Bitting

Response: Part 3.1 requires that a site-specific nutrient management plan (NMP) be developed and implemented. The NMP must be incompliance with 40 CFR 122 and 412 and developed in accordance with the NRCS Conservation Service Practice Standard Code 590 (Nutrient Management) for Arkansas. The practice standard requires persons who review or approve plans for nutrient management to be certified through a certification program acceptable to NRCS within the State.

Comment 18: Public notices need to be made in all county offices, each school child should take a notice home, bulletin boards though out the community, along major roads, etc. Just posting in a newspaper doesn't get the majority of the residents, such as Newton County.

Original commenter: Carol Bitting

Response: The public notice requirements listed in Part 5 of the general permit are in accordance with APC&EC Regulation 6.207, Public Notice Requirements of Notice of Intent for Concentrated Animal Feeding Operation (CAFO) General Permit, and APC&EC Regulation 8, Administrative Procedures.

Comment 19: Environmental Assessments should be made prior to permitting any general permit, especially a discharge permit. These assessments should be made from a certified agency within the state and as close to the county of origin as the permit. This assessment should include a survey of all properties and be of high quality.

Original commenter: Carol Bitting
Similar comments were received from: Pamela E. Stewart

Response: Environmental assessments are required by Federal agencies to provide sufficient evidence and analysis for determining where to prepare an environmental impact statement or a finding of no significant impact. Environmental assessments are not required as part of the permitting process for permits issued by the Office of Water Quality.

Comment 20: It is ADEQ's responsibility to assure the information that is presented to the public is accurate in every way prior to putting this documentation on the web site and approving this application.

Original commenter: Carol Bitting

Response: The Department reviews and makes available on its website documents submitted for multiple types of permits required for multiple facilities permitted by the Office of Water Quality. Received information for CAFO general permits and all individual permits are made available on the website as information is received. The Department will respond to comments received during the public comment period and, if necessary, require the CAFO operator to revise the nutrient management plan or construction information.

Comment 21: The stated slope requirement in Section 14.2.1.7 of the permit might be appropriate for dewatered solids, but is not appropriate for liquid wastes that can quickly migrate to a surface water. A slope of 7% has been applied in other land application permits and represents a maximum for this type operation. The subsection should be changed to incorporate language such as:

Wastes should not be surface applied to slopes with a gradient greater than 7%. Any proposed subsurface application must be accompanied by an analysis of soil conditions and methods of injection. The permittee must demonstrate compliance with slope requirements based on a topographic analysis (minimum 2-foot contours). Any soil grading to meet this requirement on any field greater than 1 acre must be preceded and covered by a stormwater construction permit.

Original commenter: Rex Robbins
Similar comments were received from: Anne Roberts

Response: APC&EC Regulation 5 for liquid animal waste management systems allows for liquid animal waste to be land applied on slopes of up to 15%; however, this permit is not an APC&EC Regulation 5 permit and addresses the land application of litter as well. The Arkansas Phosphorus Index includes an input for slope for assessing phosphorus runoff on a site-specific basis. Best management practices may be used to reduce the risk of runoff. A construction stormwater permit is required for any disturbance of one acre or more.

Comment 22: Although there is but one swine Concentrated Animal Feeding Operation (CAFO) in the Buffalo River Watershed, the disposal of waste from the large number of animals kept at this facility poses a threat to the water quality of a much greater area because of the karst topography of the region. Organisms that have come to depend on the relatively pristine waters of the watershed face potentially harmful levels of agricultural nutrients (nitrogen and phosphate), dissolved oxygen, trace metals, and bacteria such as E. coli, as evidenced

by recent analyses of water quality measurements conducted by Dr. Van Brahana, emeritus professor and karst hydrogeologist at the University of Arkansas.

Original commenter: Maureen R. McClung

Response: The Department acknowledges this comment; however, this comment does not address the conditions of the general permit.

Comment 23: Conservation efforts are all too often reactive. Given that the Buffalo River Watershed is, for the most part, still intact ecologically, we have the opportunity to be proactive and prevent further contamination of this resource. The Buffalo River has been threatened before, but citizens, agencies, and politicians came together to protect its waters by making it a national park in 1972. We hope that unity among concerned parties will again serve to protect this state and national treasure as it faces ecological degradation from agricultural operations like CAFOs. Thank you for considering our comments.

Original commenter: Maureen R. McClung

Response: The Department acknowledges this comment. The requirements of the general permit meet the requirements outlined in 40 CFR Part 122.23 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6. Part 1.4.5 prohibits the coverage under the general permit for new CAFOs within the watershed of the Buffalo National River subject to APC&EC Regulation 6.602.

Comment 24: The issuance of the permit to C & H Hog Farms was a mistake. Let us not compound past mistakes by risking future mistakes of this magnitude. The NPDES General Permit ARG590000 has proven to be extremely costly to Arkansas. Issuance of the C & H Hog Farms general permit has resulted in more than a half million Arkansas tax dollars needlessly spent to determine the extent of subsurface contamination of the karst formations in that area. Those funds could have been better used to educate Arkansas youth, to clean up existing contamination of Arkansas water bodies and provide other needed services to the citizens of this state.

Original commenter: Cindy Franklin
Similar comments were received from: Margaret Lonadier

Response: The Department acknowledges this comment; however, this comment does not address the conditions of the general permit.

Comment 25: "Acts of God" and/or Mother Nature have a way of making fools of humans and our arrogant ways. There is no way to over-engineer safety perimeters around waste holding ponds. If back-up levees added to front line levees are built to contain any overflow from ponds in the case of extraordinary weather, the cost will be tiny in contrast to the cost of overflow. (Ounce of prevention worth a pound of cure——think Flint, Michigan). The weather events of the last few years globally have made it clear that weather predictions are a roll of the dice, and so more boundaries around holding ponds should be erected. An accidental spill protocol of action steps and procedures should be in place for all CAFO facilities that can be initiated immediately when needed.

Original commenter: Fran Alexander

Similar comments: Kent Bonar

Response: This permit authorizes discharges from a wastewater storage lagoon only when a precipitation event meets or exceeds a 25-year, 24-hour rainfall event. Part 2.3 discusses the sampling and monitoring requirements for all discharges from retention structures.

Comment 26: Unlike other facilities typically covered by the Regulation 6 NPDES General Permitting program, such as publicly owned treatment works, wastewater treatment facilities, small construction sites, and pesticide applicators, AFOs and CAFOs, particularly swine operations, produce a significant amount of untreated animal waste, which is potentially hazardous to human health and the environment. There is the distinct risk of application of waste in excess of agronomic needs, as well as the possibility of waste discharge in a storm event, both of which could lead to runoff and/or groundwater contamination. (An example of such excess application can be found in the sole facility currently permitted under ARG590000. The most recent soil reports for this operation show that, after less than three years of waste applications, all but one of the fields sampled now have soil test phosphorus levels which are "above optimum" for the crops being produced. Further waste applications to these fields would be in excess of agronomic needs, increasing the risk of runoff and groundwater contamination.) These risks are amplified in environmentally sensitive locales such as karst areas and watersheds of Extraordinary Resource Waters. It is therefore important to undertake a thorough site-specific evaluation, including consideration of hydrogeological factors, for each individual AFO/CAFO permit application to avoid karst locations and to assure adequate protection of waters of the state and other natural resources.

Such individualized site-specific evaluation is contrary to the concept and intent of the General permitting program and is more appropriately carried out under the Regulation 6 Individual permitting program. Therefore, Regulation 6 ARG590000 should not be renewed and instead all new or renewal applications for AFOs and CAFOs should be required to seek coverage exclusively under the Regulation 6 NPDES Individual permitting program which best regulates the facility's unique location, permit conditions and limits.

Original commenter: Gordon Watkins
Similar comments were received from: Fran Alexander, Sam D. Cooke, Rex Robbins, National Park Service, Richard H. Mays, Claire Dougan, Nancy Harris, Dennis Larson, Marti Olesen, Sierra Club

Response: The Department acknowledges the comment. The EPA has requirements for a general permit for facilities that meet the definition of a discharge from a medium or large CAFO and wish to obtain coverage under a general permit. An individual permit may be obtained by any CAFO at any time as described in Part 1.6 of the general permit, if they wish to do so.

Part 1.9 of the general permit discusses the construction requirements of the general permit. The general permit also requires site specific nutrient management plans (NMPs) to be in compliance with 40 CFR Parts 122 and 412 and be developed in accordance with the NRCS Conservation Service Practice Standard Code 590 (Nutrient Management) for Arkansas. Part 3.2 of the general permit outlines the requirements of a NMP. For an

eligible operator that is granted coverage under this general permit, the terms of the NMP become an enforceable permit condition.

Part 5 of the permit discusses the public notice requirements for CAFOs. Prior to submitting a Notice of Intent (NOI) and Nutrient Management Plan (NMP) to the Department, CAFO operators are required to send form letters to individuals specified in APC&EC Regulation 6.207, public notice their intent to submit an NOI and NMP in the paper of largest circulation of the CAFO production site, post a sign that meets the requirements of APC&EC Regulation 6.207(F), and certify compliance with the requirements of Regulation 6.207. After receiving, reviewing, and deeming an application complete, the NOI and NMP are public notice and a 30-day public notice period is held. During this time, interested parties may submit written comments and request public hearings. The Department responds to the issues pertaining to the NOI and NMP after the public comment period has ended and, if necessary, require the CAFO operator to revise the NMP.

Comment 27: We strongly advocate that, as part of the Regulation 6 ARG590000 review process, ADEQ should draft a statement that allocates responsibility for compliance with the CAFO requirements by defining the individual permit holder (under whichever regulations they are covered) as an organization which owns the real property where the operation is located and can assure that "… a permanent organization exists which will serve as the continuing authority for the operation, maintenance, and modernization of the facility for which the application is made". This language is taken from our neighboring state of Missouri's CAFO permit requirements and would serve to attach responsibility of ownership to a permit holder: 10 CSR 20-6.010(3)

Original commenter: Gordon Watkins

Response: The Department acknowledges the comment. An applicant is required to provide either proof of ownership, a lease, or land use contract as part of the permitting process for any part of the operation associated with the permit. For entities that are required to register with the Arkansas Secretary of State, the Department requires that the entity be in good standing with the Arkansas Secretary of State prior to coverage being issued.

Comment 28: We oppose the draft proposal under Part 1.9 to eliminate the requirement for a separate construction permit. As stated to the Arkansas Pollution Control and Ecology Commission on October 23, 2015, “The [Buffalo River Watershed] Alliance believes the construction permitting process serves an important purpose in allowing the ADEQ to review and approve an engineer’s construction plans, provide notice to the public, and ensure that disposal systems are constructed in accordance with the plans submitted and approved. Any change which weakens the permitting process is against the public interest and is one that the Alliance would strongly oppose.” (This statement is attached below in its entirety)

The current requirements under Section 6.202(A) and (B) of Regulation 6, which require a separate construction permit in addition to the NPDES permit, should remain in effect.

The fact that ADEQ is seeking a change in the regulations such that a separate construction permit would no longer be required, confirms that ADEQ believes that ARG590000 regulations per Regulation 6.202(A) and (B) do in fact currently require a

separate construction permit. This supports our claim before the Commission (contained in the attached statement) that ADEQ did not properly enforce regulations when it failed to require a separate construction permit for ARG590001.

Original commenter: Gordon Watkins
Similar comments were received from: Carol Bitting, John Murdoch, Anne Roberts, Richard H. Mays

Response: The Department has clarified that the general permit covers construction as well as operation of CAFOs. Arkansas Code Ann. §8-4-203(m)(1)(B)(i) allows for facilities or sources to be eligible to construct and operation under a general permit. Separate coverage is not required for construction of a facility; however, the facility if disturbing one acre or more would be required to obtain coverage under a construction stormwater permit for stormwater associated with the construction. The public notice period described in Part 5.2 allows for the public to comment on all submitted information associated with new or modified waste storage systems.

Comment 29: As required by the federal anti-degradation policy at 40 CFR §131.12. ADEQ is required by 40 CFR §131.12(a) to develop and adopt a statewide antidegradation policy for point-source and non-point-source pollution and identify methods for implementing that policy. The guidance generally includes:

Processes for identifying the anti-degradation protection level (i.e., the "tier") that applies to a surface water; Procedures for determining baseline water quality (BWQ); Approaches for assessing water quality degradation; Procedures for identifying and assessing less degrading or non-degrading alternatives; Procedures for determining the importance of economic or social development to justify significant degradation of high quality surface waters; Information on intergovernmental coordination and public participation processes.

We strongly advocate as part of the Regulation 6 review process that ADEQ should draft an implementation plan and begin implementing these procedures immediately. The antidegradation review should in all cases be done PRIOR to approval of any discharge permit.

Original commenter: Gordon Watkins
Similar comments were received from: National Park Service

Response: An antidegradation review is included in the Fact Sheet of the general permit that was available for public comment. This permit prohibits the discharge from waste storage structures unless the requirements of a precipitation event meets or exceeds a 25-year, 24-hour rainfall event is met. Agricultural stormwater is not subject to this permit if land application is done in accordance with site specific nutrient management practices that ensure the appropriate utilization of the nutrients contained in the manure, litter, and process wastewater as specified in 40 CFR 122.42(e)(1)(vi)-(ix).

Comment 30: Under Section 3.2 of the ARG590000 Fact Sheet, regarding Regulation 6.602, "Buffalo River Watershed Exclusion", the Big Creek Research and Extension Team (BCRET) is the sole source of data to be used to determine if the current Buffalo River watershed moratorium on swine CAFOs will be continued or eliminated. Other data sources should be included in this analysis, including data collected by the National Park Service, USGS

and the Karst Hydrogeology of the Buffalo National River team. BCRET is studying a limited area and is generating limited data. Only by considering all reliable and relevant data, collected over a wider geographic area and larger timeframe, will ADEQ and the Commission be able to make a fully informed decision on impact to the Buffalo National River.

Original commenter: Gordon Watkins
Similar comments were received from: National Park Service

Response: The Department has clarified the fact sheet to state that the conclusions of BCRET study will be considered as will other available data from alternative sources during the rulemaking process required for APC&EC Reg.602.

Comment 31: Section 2.2.2.2, which states, "Maintain all records needed to document compliance with Part 4.5 of this permit;" is wholly inadequate. Reports should be submitted to ADEQ on a quarterly basis in order to adequately monitor compliance with the NMP and the terms of the permit. (Also see Comment 8.)

Original commenter: Gordon Watkins

Response: The Department disagrees. The condition is in compliance with 40 CFR 412. A CAFO covered under this general permit is required to maintain records in compliance with Part 4.5 on-site for a period of five years from the date that the record is created. The records must be made available to the Department for review upon request. If records are not maintained and not made available to the Department for review upon request, then the permittee is in violation of the permit.

Comment 32: Draft Section 5.1 which begins, "For new facilities, public notification requirements…" should be revised to read, "For all facilities…". This revision would be consistent with ARG500000 which states in 1.2.12.6, "NOI REVIEW and PUBLIC NOTIFICATION PROCESS: All NOIs for permit coverage under this general permit will be reviewed by ADEQ prior to undergoing a public notification process" (emphasis added).

Original commenter: Gordon Watkins
Similar comments were received from: Carol Bitting, National Park Service

Response: The Department has revised Part 5.1 to state that all facilities must follow the public notice requirements outlined in Part 5.1 of the general permit.

Comment 33: Considering the high potential for environmental damage from swine CAFOs, and taking into account the unprecedented amount of taxpayer funds, countless hours of ADEQ time, and ongoing citizen scrutiny attributable to the permitting of ARG590001, all swine CAFO operators should be required to implement a water monitoring and assessment program at their own expense. Such monitoring should include collection and analysis of water samples from all water bodies, including streams, lakes and groundwater, which are potentially impacted by the CAFOs waste disposal program, whether through runoff, infiltration or other discharge. Such monitoring should be paid for by the permittee but samples should be collected and analyzed by a qualified independent third party. Results should be submitted to ADEQ on a quarterly basis and made publically available for citizen review.

Original commenter: Gordon Watkins
Similar comments were received from: Richard H. Mays

Response: The Office of Water Quality does not require permitted facilities to implement a water monitoring and assessment program. The terms and requirements of a permit are designed to be protective of Waters of the State. This general permit has been developed in accordance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as with the requirements of APC&EC Regulation 6. Some additional conditions were adapted from APC&EC Regulation 5. Noncompliance by any facility covered under this permit may result in enforcement action, which includes corrective action, penalties, and potentially revocation of a permit.

Comment 34: The fact sheet states that facilities covered under this permit should not have frequent monitoring. To the contrary, experience has shown that even facilities proclaimed to be state-of-the-art and that are monitored do not always function properly. Liners and levees fail, and when they do, they cause significant damage. Arkansas, with its natural beauty of which we boast in our promotional advertising should be foresighted enough to anticipate failure of facilities and equipment, and require the most stringent standards for maintaining them. CAFOs should be monitored frequently, and depending on geology, should have monitoring wells downgradient of the facilities as do RCRA facilities.

Original commenter: Richard H. Mays

Response: The permit requires that the facility monitor discharges from the production area. Permitted overflows are defined in Part 2.2.1.2; however, the sampling requirements of Part 2.3 are required for any discharge whether permitted or unpermitted. The statement in the fact sheet is accurate in that a production area that is designed, constructed, operated and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour rainfall event should discharge infrequently.

Comment 35: The draft permit requires that waste storage facilities be capable of containing a 25-year, 24-hour rainfall event. A 25-year rainfall event is not an exceptional rainfall event, and is not sufficient to prevent overflow of the storage facilities under the larger rainfall events that may reasonably be anticipated to occur. Further, the ponds should be lined with an artificial liner in addition to clay, and be capable of containing a 50-year, 24-hour rainfall event. Any overflow from waste storage facilities should be orally reported immediately upon discovery and no later than 12 hours after occurrence.

The draft general permit provides that any process wastewater pollutants in overflow from the waste storage facilities may be discharged into Waters of the State. Responsibility for the facility owner-operator should not end there, however. If there is an overflow from a rain event of any size, the owner-operator of the facility should be responsible for:

(i) Anticipate potential overflow or releases based upon forecasts of severe rainstorms;
(ii) taking immediate action to prevent, stop or diminish the overflow;
(iii)sampling analyzing the effects of such overflow throughout the watershed to the furthermost reach of the pollutants;
(iv)remediation to the greatest extent possible using best available technology of the effects of the release; and

(v)payment of the costs to ADEQ, its contractors, and other public agencies of responding to such release, without regard to the rights of third parties and other agencies to recover for damages to their properties and interests.

Requiring these responsibilities would serve as incentives to the facility operator to use the utmost care in construction and maintaining the levees and liners that hold the waste liquids.

Original commenter: Richard H. Mays
Similar comments were received from: Sierra Club

Response: The Department acknowledges this comment. The general permit meet the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6. The permit is in compliance with 40 CFR Part 412, which permits an overflow from a production area meets the following requirements: designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour rainfall event; samples are collected as specified in Part 2.3 of the permit; and the production area is operated in accordance with the additional measures and records as specified in Part 4.4 of the permit. Part 2.3.4 requires that the monitoring results from any discharge to be submitted to the ADEQ Enforcement Branch of the Office of Water Quality. Discharges that do not meet this requirement are violations of the permit.

Comment 36: This permit should be banned permanently going forward. ADEQ must be held responsible for the damage done to the waters of the state in allowing the only General Permit (ARG590001) in Newton County in karst topography with no regard for the rights of the citizens of Arkansas for safe water. I have little confidence in ADEQ's willingness to do it's job after witnessing continued denial of the facts and refusing to adequately monitor the C&H Hog Factory as it pollutes and degrades our precious water. I am deeply disturbed by the ADEQ's indifference in following it's mandate to protect the waters of the state. Your lack of action with regard to C&H being allowed to degrade the waters of the state with millions of gallons of raw hog waste leaked into Big Creek and reaching the Buffalo National River demonstrates that you are so influenced by the Arkansas Farm Bureau and the Arkansas Pork Producers that the agency has ignored the public good in favor of the powerful Ag lobby. ADEQ bends the rules continually for C&H Hog Factory and refuses to look at the science. The BCRET has spent hundreds of thousands of taxpayer dollars and three years. Then does not interpret it's data. All the while C&H is leaking millions of gallons of raw, bacteria laden hog waste into our fragile water table. The National Park Service,USGS and Dr. Van Brahana have all shown ill effect to Big Creek and the Buffalo National River. There should be no renewal of the General Permit. To date the one farm, C&H Hog Factory, currently allowed this permit, has cost the taxpayers and citizens huge sums of money and untold hours of ADEQ staff time defending it and yet allows the degradation of the waters of the state. The staff repeatedly talks in circles making excuses when ask relavant questions but takes no action to protect the public. This General permit is basically flawed and puts our health, well-being and water resources at risk.

Original commenter: Susan Watkins
Similar comments were received from: Edd French, Glenda Allison, Mary Olson, Laura Timby, Kathy Downs, Susan Gower, Marti Olesen, Nancy Haller

Response: The Department acknowledges this comment. The general permit meet the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6.

Comment 37: There appears to be no consideration of geologic conditions, economic interests, schools or other public facilities, national historic sites, health of either people or wildlife, roads and infrastructure of an area. Please deny renewal of the NPDES General Permit ARG59000!

Original commenter: Pamela E. Stewart

Response: The Department acknowledges the comment. The general permit meet the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6.

Comment 38: At the ADEQ meeting here on April 11, 2016 (and at similar meetings over the last three years) ADEQ employees have repeatedly told concerned Arkansas citizens that ADEQ employees are "just following regulations" when they are questioned about the C & H CAFO and what it is permitted to do. I mention them because they are the only Hog Cafo under this permit. Citizens have offered well thought out and researched suggestions in relation to every modification of the C & H operation. None of them, to the best of my knowledge, have been implemented by the ADEQ. When ADEQ does not act on suggestions like this, made by concerned Arkansas citizens, it appears that the ADEQ is only providing a show of no substance when it comes to inviting public participation. The Buffalo River Coalition is presenting well thought out and carefully researched changes to Regulation 6. The C & H CAFO is the only facility that has been granted a General Permit under Reg. 6. Thus far the use of this General Permit has had disastrous effects for both the C&H operation and the citizens of Arkansas. Now we have the opportunity to make the changes Regulation 6 urgently needs. Will the ADEQ do what it is paid to do and listen to the people? Additional language could be added to this Regulation 6 stating that that:

All swine AFO CAFO permits- whether general or individual- will not be permitted be in the Buffalo National River watershed and other karst areas of the state. Additionally, no large scale application of swine waste to land from CAFOS over 350 head will be allowed in the Buffalo River Watershed.

Original commenter: Ginny Masullo
Similar comments were received from: Marti Olesen

Response: The Department acknowledges the comment. The general permit meet the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6. Part 1.4.7 of the permit prohibits new CAFOs in the watershed of the Buffalo National River from obtaining coverage under the general permit.

Comment 39: When there are very few facilities operating under a general NPDES permit, ADEQ has traditionally allowed the general permit to expire and required the covered facilities to obtain an individual permit if there is a discharge potential. This occurred for ARG040000 (coal mines), ARG190000 (laundromats), and ARG340000 (bulk petroleum

storage and transfer facilities). Considering that there is only one facility operating under NPDES General Permit No. ARG590000 at the present time, please discuss the reasons this general permit should be reissued by ADEQ.

Original commenter: Anne Roberts

Response: The Department acknowledges the comment. It is at the discretion of the Director to reissue or not reissue a general permit. The number of facilities covered under the general permit is only one of the factors that is considered by the Director in making the final decision.

Comment 40: Part 1.3: Part 1.3 says CAFO is defined in Part 10.9. It's in 10.10. This error is repeated in the Fact Sheet.

Original commenter: Anne Roberts

Response: The Department has corrected the reference in Part 1.3 of the permit and in the Fact Sheet.

Comment 41: Part 1.4.7: "Subject to" should be "pursuant to." To clarify the intent of this part, it should be noted that all CAFOs are currently allowed in the Buffalo River Watershed except for swine CAFOs above a certain size (as specified in Reg. 6.602(B)).

Original commenter: Anne Roberts

Response: The Department disagrees. No CAFOs located within the Buffalo River Watershed will be allowed to obtain coverage under this permit. Other CAFOs, not prohibited by Reg. 6.602, may apply for an appropriate individual permit.

Comment 42: Parts 1.5.1.2 & 3.1: The NMP should also have to comply with all existing APC&EC Regulations (i.e., Regulations No. 5 and 6).

Original commenter: Anne Roberts

Response: This is not an APC&EC Regulation 5 permit. The terms of the nutrient management plan must be in compliance with 40 CFR 122 and 412 and developed in accordance with the NRCS Conservation Service Practice Standard Code 590 (Nutrient Management) for Arkansas.

Comment 43: Part 1.8: Part 1.8 refers to a non-existent 1.5.6. This should be 1.5.2.

Original commenter: Anne Roberts

Response: The Department has corrected the reference in Part 1.8 of the permit.

Comment 44: Part 1.9.1.4: Section 51.2 of the "Recommended Standards for Wastewater Facilities" (10 States Standards) should also be followed when siting a proposed CAFO and its waste collection/treatment system.

Original commenter: Anne Roberts

Response: Part 1.9.1.4. of the permit refers to the applicable parts of 10 State Standards for constructing waste storage structures. The siting of a facility must be identified on Form 1 that a CAFO must submit when constructing a new production area or modifying an existing production area.

Comment 45: Part 1.10 in the draft permit proposes that a closure plan be submitted within sixty (60) days of the final day of operation. Other ADEQ permits requiring closure plans (e.g., mining, hazardous waste, regulated storage tanks, and non-municipal wastewater treatment plants) require some type of financial assurance or trust fund when there is a potential for environmental damage due to abandonment or neglect. There is at least one currently permitted facility (by the state permits branch as a no-discharge permit) that wants to close but is unable to do so because of a lack of funds (i.e., Permit No. 2728-WR-3, which authorizes an empty [for six years according to the application] swine farm, a concrete waste pit, and a lagoon that the owner indicates that he wants to close but cannot due to lack of funds, according to the application dated 05-15-2012 on ADEQ's website https://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/2728-WR-3_Application_20120515.pdf.) Please add financial assurance requirements to the permit or explain specifically how the environment will be protected if a permittee walks away from a pond full of animal waste or maintains the permit indefinitely without properly disposing of the waste and closing the permit.

Original commenter: Anne Roberts
Similar comments were received from: Rex Robbins, Charlie Anderson, Virginia Booth, Bill Lord, Kent Bonar

Response: The Department disagrees with the addition of requiring financial assurance for the closure of CAFOs. The closure requirements in the general permit are adapted from APC&EC Regulation 5. Financial assurance is not a requirement for the permitting of animal feeding operations or concentrated animal feeding operations in the State.

Comment 46: Part 2.3: If there is a discharge, it should be stated that a continuous discharge event lasting multiple days should be treated as a separate discharge event for each 24-hour period. Thus, a discharge lasting three days would require three separate grab samples.

Original commenter: Anne Roberts
Similar comments were received from: National Park Service

Response: The Department requires that at least one sample be collected once per discharge event. The samples must be representative of the monitored discharged. The Department has clarified that a sample should be taken immediately upon discovery of any overflow or other discharge. The first sample taken should be immediately upon discovery to have a sample representative of the concentration of constituents discharged. As the discharge continues, the concentration will decrease.

Comment 47: Part 3.2.3: The permit should only allow the transfer of manure or process wastewater to an entity having a state-issued non-discharge or NPDES permit to ensure that the permitted materials are not land applied inappropriately (e.g., too close to a Water of the State, during wet weather, etc.).

Original commenter: Anne Roberts

Response: The Department acknowledges the comment. The land application of manure and process wastewater requires that a facility be properly permitted, such as coverage with an individual APC&EC Regulation 5 permit or coverage under this general permit. Land application of dry litter is regulated by the Arkansas Natural Resources Commission for established Nutrient Surplus Areas of the State.

Comment 48: Part 4.2.1.5: The proposed setback requirements do not comply with APC&EC Regulation No. 5.406(D). The term "down-gradient" is not used in the Regulation. The exemptions proposed in 4.2.1.5.a and d are not found in Regulation No. 5.

Original commenter: Anne Roberts

Response: These setback requirements and exemptions are in compliance with 40 CFR 412.4(c)(5), 40 CFR 412.4(c)(5)(i), and 40 CFR 412.4(c)(5)(ii). This is not an APC&EC Regulation 5 permit.

Comment 49: Part 4.2.1.6: "Imminent" is not defined in Regulation No. 5 or in the proposed permit. The time period should be defined to be within the next 24-hours as required in Regulation No. 5.406(B).

Original commenter: Anne Roberts
Similar comments were received from: Charlie Anderson

Response: The Department has clarified as imminent as within 24-hours in Part 4.2.1.6.

Comment 50: Part 4.4.1.4: This part should also include 40 CFR § 412.43(a)(1) (for swine, poultry, and veal calves) which refers back to 40 CFR § 412.31(a)(2) (for cows except veal calves).

Original commenter: Anne Roberts

Response: The Department disagrees. Part 4.4.1.4. is in accordance with 40 CFR 412.37(a)(4), which only refers to 40 CFR 412.31(a)(2).

Comment 51: Part 6.2: While Regulation No. 7 limits civil penalties to $10,000 per violation per day, it should be noted here or elsewhere in the permit that federal Clean Water Act penalties can be up to $250,000 (for an individual) or $1,000,000 (for a corporation) per violation per day (for knowingly putting another person in imminent danger of death or serious bodily injury, with subsequent convictions doubled [33 U.S.C. 1319(3)]).

Original commenter: Anne Roberts
Similar comments were received from: Virginia Booth

Response: The Department acknowledges the comment. The language is standard for all permits issued by the Permits Branch of the Office of Water Quality and for enforcement actions initiated by the Department. Federal enforcement of the Clean Water Act would result in the higher penalties listed above.

Comment 52: Part 7.4.1.2: This part refers to Part 9.4. It should refer to Part 9.3.

Original commenter: Anne Roberts

Response: The Department has corrected the reference in Part 7.4.1.2.

Comment 53: Part 7.4.2.2: This part refers to 7.4.2.1.1. It should refer to 7.4.2.1.

Original commenter: Anne Roberts

Response: The Department has corrected the reference in Part 7.4.2.2.

Comment 54: Part 9.4: Says "not reported under Part and 9.3." Are the missing parts 7.4 and 7.5?

Original commenter: Anne Roberts
Similar comments were received from: Charlie Anderson

Response: The Department has corrected Part 9.4 to remove the unnecessary "and" from the sentence.

Comment 55: Part 9.10: This part refers to Part 3.2. It should refer to Part 6.2.

Original commenter: Anne Roberts

Response: The Department has corrected the reference in Part 9.10

Comment 56: Part 10.31: Given the age and limited data available in 1961, a more recent rainfall data source should be used. More recent publications show higher rainfall potentials than those predicted in the 1961 U.S. Department of Commerce publication. For instance, the latest (April 2013) U.S. Department of Commerce/National Oceanic and Atmospheric Administration/National Weather Service maps show a range of over 7 inches (10 year) to over 9 inches (25 year) to over 12 inches (100 year) in Arkansas (i.e., ftp://hdsc.nws.noaa.gov/pub/hdsc/data/se/ar10y24h.pdf, ftp://hdsc.nws.noaa.gov/pub/hdsc/data/se/ar25y24h.pdf, and ftp://hdsc.nws.noaa.gov/pub/hdsc/data/se/ar100y24h.pdf, respectively).

Original commenter: Anne Roberts

Response: The definition in the general permit is in compliance with the definition found in 40 CFR 412.2(i), which further defines *Ten (10)-year, 24-hour rainfall event, 25-year, 24-hour rainfall event,* and *100-year, 24-hour rainfall event* as equivalent regional or State rainfall probability information developed from Technical Paper No. 40, "Rainfall Frequency, Atlas of the of the United States," May, 1961. Any newer publications developed from this document may be used.

Comment 57: Given that the Arkansas Natural Resources Commission is prohibited from disclosing the size and location of poultry operations in Arkansas by Title 19 of its regulations, please describe the current method(s) for identifying and determining the size of the various AFOs in the State and note the website/list where those might be viewed so that the public will be able to determine if it is a complete list and can question whether a more detailed investigation is warranted to determine if an AFO is a potential CAFO. For

instance, an ADEQ PDS search on 4/12/2016 of active state permit branch "ag" permits in White County turns up only two: Permit No. 2498-W (which authorizes only one chicken house (with wet litter disposal)) and Permit No. 2728-WR-3 (which authorizes an empty swine farm, a concrete waste pit, and a lagoon which the owner wants to close but cannot due to lack of funds [according to the application on ADEQ's website dated 05-15-2012]). There is more than one poultry house (dozens?) in White County alone. Ideally, the AFO list should be graphical (i.e., a Google Earth layer), but at least a tabular list should be made available to the public. Please discuss the status, if any, of such a tool so that the public may assist ADEQ in locating unpermitted facilities.

Original commenter: Anne Roberts

Response: The Department acknowledges the comment. This a general permit that is applicable to discharges of pollutants to waters of the State from all CAFO operations across the State. If any type of BMPs are implemented and maintained so that there is no discharge, then no NPDES permit is required.

Comment 58: 1.3 – change language to **include**: "…two or more animal feeding operations under common ownership are considered a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes ***only*** **for the purposes of determining the number of animals at an operation**." As it reads now, there are no assurances that addition of land for waste/manure application will be subject to the public notice or comment process.

Original commenter: Charlie Anderson

Response: The Department disagrees. Parts 3.2.6.3 and 3.2.6.4. describe substantial changes and non-substantial changes to the nutrient management plan, which includes discussion on the addition of the land application sites. Substantial changes require public notice.

Comment 59: 1.4 – please add subsections to include:
1. "**Discharges directly to Outstanding Resource Waters (Regulation 2.203)**" – no exception should be given to this
2. "**Discharges upstream of an Outstanding Resource Waters (Regulation 2.203)**" – only exception should be granted if it can be proven that downstream uses and water quality will not be degraded and will ensure protection of the anitdegradation policy protecting Tier 3 waters.

Original commenter: Charlie Anderson

Response: The Department disagrees with prohibiting the permitting of CAFOs under the general permit that discharges into or upstream of an Outstanding Resource Waters. The prohibition of upstream discharges is too broad in scope. For example, all waters upstream of the Arkansas River segment listed as an Extraordinary Resource Water in Desha County would be excluded. Multiple facilities covered by both general and individual permits discharge upstream of Outstanding Resource Waters in the State. Additionally, discharges from these facilities are intermittent if the facility meets the requirements to discharge only if the waste storage structures are designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 25-year, 24hour rainfall event.

Comment 60: 1.4.5 – change language to **include**: "Dischargers to water quality impaired water (**waterbodies that appear in *either*** the latest **EPA approved** Arkansas 303(d) list ***or*** **the latest Draft Arkansas 303(d) list**) – the fact that ADEQ has not been able to get a 303(d) list approved in several years, something that seems rather unique to Arkansas, so I doubt the blame is all on EPA, should not prevent ADEQ from taking the most conservative approach to protect waters of the state.

Original commenter: Charlie Anderson

Response: The Department disagrees because the Department cannot develop enforceable conditions based on draft 303(d) lists.

Comment 61: 1.4.5.1 – add language to ensure that "any discharges" also means "agricultural stormwater discharge" as well, and that language in other parts of this permit do not provide a loophole for which that may be considered allowable. Agricultural stormwater discharge should be the only way in which there is any discharge covered under this facility, so unless specifically stated in this part, how can this be perceived as any more protective? The only way in which coverage should be granted to such facilities is if wastewater is first being treated before land application and/or storage.

Original commenter: Charlie Anderson

Response: Discharges for this general permit refer to discharges from a wastewater storage lagoon only when a precipitation event meets or exceeds a 25-year, 24-hour rainfall event. Agricultural stormwater discharge is exempt from regulation.

Comment 62: 1.4.5.3 – What kind of monitoring is required to ensure this will be the case? If known pollutants are known or expected to originate from the facility, or waste generated from, then how does this ensure that these pollutants will not be contributed during times of "agricultural stormwater discharge"? If waste is not treated and tested to provide this supporting documentation, then waste in holding ponds (or if before land application of waste) should have to be routinely (minimum of 1/month *even if somehow able to meet burden of proof beforehand*) sampled for parameter of concern to ensure *any* discharges will not be contributing to impairment. At the very least, this should be applied to parameters that are suspected of most likely entering waterbody during stormwater runoff events and that are likely to affect a designated use that may be impaired by such an excursion. For example – *E. coli* increases with rain ("storm") events, and recreational use (canoeing, kayaking, rafting, etc.) increases with rain ("storm") events, and ingestion of water is increased through these uses as compared to floating on a lounge raft during baseflow events, then it would be safe to assume that the only way to protect these recreational users would be to ensure water quality at these times meets recreational standards.

Original commenter: Charlie Anderson

Response: Total Maximum Daily Loads (TMDLs) is a calculation of the maximum amount of a constituent a waterbody can receive and meet water quality standards of that waterbody. TMDLs account for both point source and nonpoint source discharges. A TMDL allocates the calculated maximum amount of a constituent to point source discharges as a wasteload allocation and to a nonpoint sources as a load allocation.

Permit limits are based on a waterbody's TMDL. Nonpoint sources such as agricultural stormwater discharges may be managed by developing and implementing best management practices (BMPs) to reduce loadings of constituents of concern. BMPs may include but not limited to riparian buffer distances and cover crops.

Comment 63: 1.7.1 – please change language to require NMP be completed or revised before reissuance of permit. If revisions need to be made to NMP, this should be factored in be for reissuing a permit that will allow coverage for 5 years. Also, comments received by the public regarding a NMP for a facility that has already been issued a permit is really a futile exercise.

Original commenter: Charlie Anderson

Response: As stated in Part 1.7.1 of the general permit, a renewal Notice of Intent (NOI) and Nutrient Management Plan (NMP) NMP must be submitted to the Department within 90 days after the issuance date of the new permit. Part 5 of the general permit discusses the public notification process for all applications (NOI and NMP). A 30-day public comment period is provided for new, renewal, and modified applications.

Comment 64: 1.8 – please include assurances that transfer of this permit will have stipulations preventing known violators from easily obtaining coverage under this permit in that fashion. Unless violator has shown reasonable effort to ensure good standing, transfer of permits should have some sort of safeguards to prevent automatically being transferred a permit.

Original commenter: Charlie Anderson

Response: The Department has policies in place to review a permit transfer. According to Ark. Code Ann. §8-4-203(m)(2)(C) general permit coverage is transferable if the general permit provides for transfer, which Part 1.8 of the permit provides for transfer.

Comment 65: Part 2 – I realize that these subparts come from 40 CFR 412, but please reference in text of 2.1, 2.2, and wherever else applicable for ease of reference and transparency.

Original commenter: Charlie Anderson

Response: The Department acknowledges the comment. For standards or requirements identical to the applicable regulation, the source of the regulation(s) must be provided as they are in Part 10 of the Fact Sheet.

Comment 66: 2.2.1.2 – please **remove** language: "All CAFOs subject to 40 CFR 412 Subpart C **and existing sources subject to** 40 CFR 412 Subpart D…" or please provide proper rationale for why existing sources might not be subject to 40 CFR 412 Subpart D.

Original commenter: Charlie Anderson

Response: Existing sources may not be required to obtain coverage because they do not discharge or are managed with best management practices to prevent discharges to Waters of the State.

Comment 67: 2.2.1.2 – change language to **include**: "**and**" at the end of 2.2.1.2(a) and 2.2.1.2(b) so that it cannot be interpreted as "or".

Original commenter: Charlie Anderson

Response: The Department has included "and" at the end of 2.2.1.2(a) and 2.2.1.2(b).

Comment 68: 2.3.2 (or wherever you deem more appropriate, as long as it is under 2.3) – change language to **include**: "**A certified laboratory must analyze the samples**"- specific language that is mentioned in Part 7. Monitoring and Reporting Requirements of your factsheet, but that doesn't actually show up anywhere in the permit.

8.2 – same comment as noted in 2.3.2 – change language to **include**: "**A certified laboratory must analyze the samples**"- specific language that is mentioned in Part 7. Monitoring and Reporting Requirements of your factsheet, but that doesn't actually show up anywhere in the permit.

Original commenter: Charlie Anderson

Response: The Department has included language in Part 2.3.2 regarding that the samples collected from a discharge event, whether or not authorized by the permit, must be analyzed by a certified laboratory for consistency of language between the Fact Sheet and the permit. Part 8.2 is standard language for permits issued by the Permits Branch of the Office of Water Quality.

Comment 69: 2.3.4 – change language to include: "Oral 24-hour reporting is required for any by-pass or upset or any noncompliance which may endanger health or the environment." – Again, this is specific language that is mentioned in Part 7. Monitoring and Reporting Requirements of your factsheet, but that doesn't actually show up anywhere in the permit. In addition, written submission of discharge should be provided to the Department within 5 days – as is required by other ADEQ permits (e.g. ARG50000).

There is absolutely no reason why circumstances that may have negative effects to human health would not have more stringent reporting requirements. Also, as it stands now, this is not consistent with 9.3 Twenty-four Hour Reporting of this permit.

Original commenter: Charlie Anderson

Response: The Department disagrees that Part 2.3.4 and Part 9.3 of the general permit are inconsistent. Part 9.3 of the general permit requires that noncompliance be reported within 24 hours. Discharges from a wastewater storage lagoon, only when a precipitation event meets or exceeds a 25-year, 24-hour rainfall event, is authorized by this general permit. Part 2.3.4 requires monitoring results from this discharge or noncompliance to be submitted within 30 days to the ADEQ Water Enforcement Division.

Comment 70: 2.4.1.1 – please change language to **remove:** "…that prohibit **or otherwise limit** land application…"

Original commenter: Charlie Anderson

Response: The Department disagrees as Part 2.4.1.1 is in compliance with 40 CFR 412.46(a)(1)(i).

Comment 71: 2.4.1.5 – please define "characteristics".

Original commenter: Charlie Anderson

Response: The Department acknowledges the comment. Characteristics of land application sites should not be limited by a definition but would include soil type, slope, and other site specific data.

Comment 72: 2.4.1.6 – please change language to **include:** "An evaluation of the adequacy of the designed manure storage structure **and land application area**…"

Original commenter: Charlie Anderson

Response: The Department disagrees as Part 2.4.1.6. is in compliance with 40 CFR Part 412.46(a)(1)(vi).

Comment 73: 2.4.1.8 – please clarify what is meant by "effluent limitations" if the nature of the permit is one that should result in no discharge?

Original commenter: Charlie Anderson

Response: This permit authorizes discharges from a wastewater storage lagoon only when a precipitation event meets or exceeds a 25-year, 24-hour rainfall event.

Comment 74: 3.2.4 – please add to this section a requirement of the permittee to **include** in annual report **field specific rates of application**, as this is a requirement that must be included in the 3.2.5 Terms of the nutrient management plan, the only way to determine compliance is to require this be reported.

Original commenter: Charlie Anderson

Response: Part 3.2.4.8 requires the annual report to include the amount of manure, litter, and process wastewater applied to each field during the previous 12 months.

Comment 75: 3.2.5 – Please re-word to better clarify the following: "The terms must address rates of application using one of the following two approaches, unless the Director specifies that only one of these approaches may be used:" – Large and medium (<u>at the very least, large</u>) should be required to provide both linear and narrative approaches.

Original commenter: Charlie Anderson

Response: The Department disagrees. Linear and Narrative Approaches are two separate approaches that an operator may choose to use in developing rates of application. The linear approach is used by operators who do not anticipate that the terms of the NMP will not change for the period of permit coverage. The narrative approach allows for flexibility in changing the source, the rates, the methods, and the timings of

land application to better reflect the CAFO's operation without changing the terms of the NMP.

Comment 76: 3.2.5.1(a) – please clarify how "field-specific assessment of the potential for nitrogen and phosphorous transport from each field" is determined and whether or not it accounts for subsurface loss.

Original commenter: Charlie Anderson

Response: Arkansas NRCS Conservation Service Practice Standard Code 590 (Nutrient Management) discusses the management of nutrients for all lands where plant nutrients and soil amendments are applied. The Arkansas Phosphorus Index requires site specific inputs to assess the risk of phosphorus runoff. Practice Standard Code 590 that the application rate of waste must not exceed the acceptable phosphorus risk assessment criteria and the recommended nitrogen application rate during the year of application or harvest cycle. Land application of phosphorus can only occur on fields that are assigned low or medium risk values by the Arkansas Phosphorus Index.

Comment 77: 3.2.5.2(c) – please either **remove** or define what is meant by "**credits**".

Original commenter: Charlie Anderson

Response: The Department disagrees on removing credits from the general permit. Part 3.2.5.2(c) is in compliance with 40 CFR 122.42(e)(5)(ii)(C). Nitrogen credits refer to any source of nitrogen available in a field that is available for plant use. Nitrogen credits may result from leguminous plants or fertilizer. It is necessary for a nutrient management plan to identify credits to prevent over-application of nitrogen.

Comment 78: 3.2.6.1 – Please either remove altogether or rationally explain why calculations made in accordance with requirement of Parts 3.2.5.1 b and 3.2.5.2 d would not be used to more accurately creating or revising a nutrient management plan.

Original commenter: Charlie Anderson

Response: Part 3.2.6.1 is in compliance with 40 CFR Part 122.42(e)(6)(i). The result of these calculations to calculate the maximum amount of waste applied must be reported in the annual report; therefore, these changes do not require notification to the Department as long as they are within the terms of the approved NMP.

Comment 79: 4.1 – Setbacks from streams would more appropriately be calculated from floodplain elevation, rather than from the ordinary high water mark. Please revise.

Original commenter: Charlie Anderson

Response: The Department disagrees. The measurement of setback from ordinary high water mark was adapted from APC&EC Regulation 5.406(D).

Comment 80: 4.2.1.2 – change "runoff to surface waters" to "runoff to Waters of the State" to be more consistent with the rest of the document.

Original commenter: Charlie Anderson

Response: The Department disagrees as the term surface waters in Part 4.2.1.2 is consistent with the Part 4.1 of the permit as well as 40 CFR 412.

Comment 81: 4.2.1.3 – change language to **include**: "The **sample collection points, sample collection methods, date, time, and collector of samples,** and results of these analyses…" if you deem this is not an appropriate location to add that language, please specify where this information will be recorded and reported.

Original commenter: Charlie Anderson

Response: The Department disagrees adding the additional language. Part 4.5.4. requires sampling of manure and soil to be consistent with the University of Arkansas Division of Agriculture Research & Extension Cooperative Extension Service recommendations.

Comment 82: 4.2.1.5(d) – remove altogether. Setbacks should not be considered an alternative, they should be considered supplementary to other BMPs. Stormwater can readily travel 100-300 feet.

Original commenter: Charlie Anderson

Response: The Department disagrees on removing Part 4.2.1.5(d). Part 4.2.1.5(d) is in accordance with 40 CFR 412.4(c)(5)(ii), which allows for the use of alternative conservation practices or field specific conditions that provide pollutant reductions equivalent or better than the reductions that would be achieved by the setbacks.

Comment 83: 4.5 – items 4.5.1 through 4.5.10 should be submitted to the Department annually and made publically available. In addition, please add to list of requirements to be recorded and submitted – precipitation amounts 7 days prior and 24 hours post land application.

Original commenter: Charlie Anderson

Response: The Department disagrees. The requirements for record keeping for land application areas are in accordance with 40 CFR 412.37(c). Part 4.5.3 requires that the operator maintain records on weather conditions occurring at the time of application and 24 hours prior to and following applications. The records must be maintained on-site and make available to the Department for review upon request.

Comment 84: 4.5.8 – change language to **include**: "Total amount of nitrogen and phosphorous, **and amount of litter, manure, or process wastewater (in volume)**, actually applied…"

Original commenter: Charlie Anderson

Response: The Department disagrees. The amount of manure, litter, and process wastewater applied to the field is required to be submitted with the annual report in accordance with Part 3.2.4.8 of the permit. The documentation of calculations would include the amount of manure, litter, and process wastewater applied and is already required to be kept by Part 4.5.8.

Comment 85: 5.1 – change language to state that **all applicants seeking coverage under this permit** (can add caveat that it is not necessary for permit *renewal*) and either add language to **include** "…for a general permit for a proposed Concentrated Animal Feeding Operation (CAFO) **or land application permit** in Arkansas (ARG590000)…". Or remove the CAFO specific language. Either way, as it reads now, language does not allow for public notification to be required for land application coverage under this permit. This is not okay. Spreading of waste across a greater area does not necessarily mean reducing environmental impact. Depending on the topography and geology it could mean further spreading the environmental impact. (While a specific comment to this permit, this seems to be something ADEQ has a difficult time wrapping their head around. Suggestion: either hire a karst hydrogeologist, or listen to one, if this is something the department cannot understand.)

Original commenter: Charlie Anderson

Response: See Comment 32 requiring all facilities to follow Part 5.1 of the general permit. Parts 3.2.6.3. and 2.3.6.4. discuss substantial and non-substantial changes to the nutrient management plan. Substantial changes require public notice and public comment period. Part 3.2.6.3.a specifically discusses when the addition of land application sites would be a substantial change or non-substantial change.

Comment 86: 5.1.5 – rather than "in the county of the CAFO production site", this should state **in the county of the proposed permit application site**. The county of the CAFO production site does not necessarily overlap with application sites, and notifying the wrong county of the proposed activity is pointless and not transparent. Also, this should specify that notice should be given under **Legal Notices.**

Original commenter: Charlie Anderson

Response: Part 5.1.5 of the general permit is in accordance with APC&EC Regulation 6.207. If a land application site is located in a separate county, a separate permit would be required for that land application site, or the public notice would be published in a statewide newspaper.

Comment 87: 5.1.6 – change language to **include**: "…will contain the same information as that which ADEQ requires the applicant to publish in the paper, **in which "NOTICE" is printed in lettering a minimum of 6 inches tall**. The sign shall be posted…"

Original commenter: Charlie Anderson

Response: Part 5.1.6 of the general permit is in compliance with APC&EC Regulation 6.207, which specifies the requirement for posted sign.

Comment 88: 5.2.1 – please add language back to include the NMP and draft terms of nutrient management plan will be included on the website and will be public noticed in the newspaper and through appropriate ADEQ list servers, or explain why these will no longer be made available on ADEQ's website for a 30 day public review and comment period.

Original commenter: Charlie Anderson

Response: The Notice of Intent and Nutrient Management Plan will be provided on the website. The location of this information on ADEQ's website will be provided in the public notice published in the paper. Permit information for facilities covered under this permit are found at the following address: https://www.adeq.state.ar.us/home/pdssql/pds.aspx.

Comment 89: 5.2.2.4 – By "comments will only be considered if they regard a specific facility's NOI, …" I hope that means comments concerning the location of proposed facility or land application, as well as amounts, will be considered given concern for environmental or human health effects of proposed permit. Also, there should be language that would allow comments to be taken into consideration for the appropriateness of covering such facility or land application under the general permit, rather than an individual permit. If the case is made that the general permit is not appropriate for the proposed project, the Department's "go-to" response should not simply be that the comments could not be considered as they pertained to the general CAFO permit rather than a facility's coverage under this permit. It stands to reason that if the case is made that if requirements of the general permit are not sufficient, given environmental or human health concerns, for said facility coverage then that **is** pertinent information to take into consideration for said facility's coverage under an individual permit instead.

Original commenter: Charlie Anderson

Response: The terms and conditions of the general permit will not be open for comment during the comment period for a Notice of Intent and Nutrient Management Plan. Terms of the nutrient management plan that are enforceable include land application sites and, depending on either a linear approach or a narrative approach, the application rates. The Nutrient Management Plan will be open for comment or the modified portion will be open for comment, depending on circumstances of the submittal.

Comment 90: 6.3 – Please change to include all parts of 40 CFR 122.62, rather than only Part 122.62 (a)(2), or give reasonable explanation as to why all other parts of 40 CFR 122.62 were ignored.

Original commenter: Charlie Anderson

Response: The Department has revised Part 6.3 to the most recent standard language for permit actions as issued in other NPDES general permits.

Comment 91: 7.4.2.2 – Please add language to include – "In which event, sufficient monitoring will be required to ensure environmental and human health are protected and proper notifications can be made to notify and protect users of recreation and domestic water supply uses as defined by Primary Contact Recreation, Secondary Contact Recreation, and Domestic Water Supply uses in APC&EC Regulation 2.302."

Original commenter: Charlie Anderson

Response: The Department disagrees as Part 7.4.2.2. of the permit is in compliance with 40 CFR 122.41(m)(4)(ii).

Comment 92: 9.3 – please **remove** the following sentence – "**The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.**"

Original commenter: Charlie Anderson

Response: The Department disagrees as Part 9.3 of the general permit is in compliance with 40 CFR 122.41(l)(6).

Comment 93: 10.13 – Language should remain "the Administrator of the U.S. Environmental Protection Agency and/or the Director of the Arkansas Department of Environmental Quality".

Original commenter: Charlie Anderson

Response: The Department disagrees since the EPA has delegated authority to ADEQ to administer the NPDES program in the State.

Comment 94: Please adopt 40 CFR 122.23(c)(3) in regards to an on-site inspection to determine if the operation should and could be regulated under the permit program

Original commenter: Charlie Anderson

Response: This is included in Part 1.3 of permit discussing eligibility for coverage. The Director may designate an animal feeding operation as a CAFO.

Comment 95: Also, as your factsheet states under Part 12. Public Notice – "…any interested persons may submit written comments on the permit to clarify issues involved in the permitting decision". As my comments are all in regard to the general permit, which lays the guidelines for the permitting decision, I request that any and all comments that the Department does not feel are acceptable additions, considerations, deletions, etc. to this permit be responded to with specific citations and rulemakings as to why they are inappropriate. In addition, if my comments cannot be incorporated due to requirements not being specifically outlined in the federal or state regulation, I request responses as to where my particular comments would have to be added (specifically what state regulations) before they could be incorporated into this permit.

Original commenter: Charlie Anderson

Response: The Department addresses comments raised by individuals during the public comment period by providing clarification or references to the regulations that the conditions is in compliance with as written in the permit.

Comment 96: 1.2: There is no mention of the design being required to handle the accumulation of rainfall throughout the year in addition to the waste and process wastewater and 25-year, 24-hour rainfall event. The rainfall/evaporation data must be made part of the design.

Original commenter: National Park Service

Response: Part 2.2.1.2(a) of the permit discusses the requirement that a production area must be designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including runoff and direct precipitation from a 25-year, 24-hour rainfall event. Additionally, Part 2.4 discusses the requirements of design of open manure storage structures, which includes rainfall and evaporation data.

Comment 97: 1.2: There is no mention of how many days of waste accumulation, rainfall, etc. the facility waste handling system will be required to absorb. This is an important consideration in the design of such a facility.

Original commenter: National Park Service

Response: Part 2.4 and its subsets of the permit discuss design of the waste storage facilities. These requirements are in accordance with 40 CFR 412.24. Additionally, Part 1.9 of the permit list resources that must be used in designing the waste storage system. The waste storage system must be in compliance with Part 2.4. The production area must be designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including runoff and direct precipitation from a 25-year, 24-hour rainfall event.

Comment 98: 1.4.5.3(b): Replace "constitutes" with "constituents." The first paragraph is difficult to read and interpret. It needs to be broken down into discrete sentences which are easier to read and understand. There should be specified timeframe for the waterbody to attain water quality standards. Otherwise, the waterbody will never attain its standards.

Original commenter: National Park Service

Response: The term "constituents" is in the draft permit that was public noticed.

Comment 99: 1.4.8: We suggest adding a new sentence: "<u>New CAFOS, or CAFOs adding additional waste application sites within the karst areas of Arkansas must conduct extensive hydrogeological, geophysical, and other studies to ensure that effluent from these facilities will not adversely impact ground and surface waters.</u>"

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. The Agricultural Waste Management Field Handbook, one of the sources for construction of CAFOs in Part 1.9 of the permit, discusses geologic and groundwater considerations.

Comment 100: 1.4.9: Add a new section: "<u>Fault areas – New CAFOs and expansion of CAFO production areas shall not be located within two hundred (200) feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the Director that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the facility and will be protective of human health and the environment.</u>"

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. The Agricultural Waste Management Field Handbook, one of the sources for construction of CAFOs in Part 1.9 of the permit, discusses geologic and groundwater considerations.

Comment 101: 1.4.10: Add a new section: "Seismic Impact Zones – New CAFOs and expansions of CAFO production areas shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Director that all containment structures, including liners and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner or operator must place the demonstration in the operating record, and notify the Director that it has been placed in the operating record, and provide the demonstration to the Director for approval."

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. The Agricultural Waste Management Field Handbook, one of the sources for construction of CAFOs in Part 1.9 of the permit, discusses geologic and groundwater considerations.

Comment 102: 1.4.11: Add a new section: "Unstable Areas – 1.411(a) Applicability: Owners or operators of new CAFOs and expansions of CAFO production areas located in an unstable area must demonstrate that engineering measures have been incorporated into the unit's design to ensure that the integrity of the structural components of the unit will not be disrupted. The owner or operator must place the demonstration in the operating record, notify the Director that it has been placed in the operating record, and provide the demonstration to the Director for approval. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in differential settling;
(2) On-site or local geologic or geomorphologic features; and
(3) On-site or local human-made features or events (both surface and sub-surface).

1.4.11(b) For purposes of this section:

(1) Unstable area means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the CAFO structural components responsible for preventing releases from a manure storage structure. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrain.
(2) Structural components means liners, waste collection systems, pond covers, and any other component used in the construction and operation of the facility that is necessary for protection of human health and the environment.
(3) Poor foundation conditions means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a liquid animal waste collection and storage unit.
(4) Areas susceptible to mass movement means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the CAFO, because of natural or man-induced events, results in the down slope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, solifluction, block sliding, and rock fall.
(5) Karst terrain means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone,

dolomite, or other soluble rock. Characteristic physiographic features present in karst terrain include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys. These features need not be visible on a 7.5' geologic or topographic map for an area to be considered a karst terrain.

Original commenter: National Park Service
Similar comments were received from: John Van Brahana, Sam D. Cooke, Richard H. Mays, Bill Lord, Fay Knox, Kent Bonar

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. The Agricultural Waste Management Field Handbook, one of the sources for construction of CAFOs in Part 1.9 of the permit, discusses geologic and groundwater considerations.

Comment 103: 1.4.12: Add a new section: Endangered Species

(a) Prohibition Against Taking – Solid waste facilities and practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife.

(b) Destruction of Habitat – The facility or practice shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17.

Original commenter: National Park Service

Response: The Department acknowledges the comment. The permit does not allow for a facility to infringe on any Federal, State, or local laws or regulations.

Comment 104: 1.5.1: Change "continued" to "continue."

Original commenter: National Park Service

Response: The Department has changed continued to continue in Part 1.5.1 of permit.

Comment 105: 1.5.1.5 Add ", and waste handling systems" at the end of the sentence.

Original commenter: National Park Service

Response: The Department has added the suggested wording in Part 1.5.1.5. of the permit for clarification.

Comment 106: 1.6.1: Insert this sentence as the second sentence: "The Director may at any time require any facility authorized by this permit to apply for and obtain an individual NPDES permit."

Original commenter: National Park Service

Response: The Department disagrees as this sentence is redundant. Additionally, a facility may apply for a Regulation 5 permit if there is no proposal to discharge and the waste storage system is designed to prevent discharges.

Comment 107: 1.6.1: Insert this sentence as the last sentence in this section: "The Director will notify the operator, in writing, that an application for an individual permit is required and will set a time limit for submission of the application."

Original commenter: National Park Service

Response: The Department disagrees with the addition of the sentence as it is redundant with Part 1.7.4. of the permit. Most information requested by the Department has a time limit. With CAFOs, consideration must be given to the time for changes that may be required to the nutrient management plan for permitting under an individual permit.

Comment 108: 1.6.2: It does not seem likely that a Regulation 6 NPDES permit, which by definition is a "discharge permit" can be changed to a Regulation 5 permit, which according to the regulations is a "no-discharge permit" without making some substantial changes to the operation of the facility.

Original commenter: National Park Service

Response: The Department acknowledges the comment. An individual APC&EC Regulation 5 permit is issued to facilities that meet the requirements in APC&EC Regulation 5.

Comment 109: 1.7.1: Change "replacement of this" with "new" in the first sentence.

Original commenter: National Park Service

Response: The Department has replaced "replacement of this" with "new" in Part 1.7.1 of the permit for clarification.

Comment 110: 1.7.5: Why is the annual permit fee being taken out of this section?

Original commenter: National Park Service

Response: The Department does not automatically terminate coverage if a facility does not pay an annual fee. The case would be referred to Enforcement Branch of the Office of Water Quality.

Comment 111: 1.9.3: Add this section: "CAFOs shall not begin operation until authorization to operate is issued by the Department. Certification that the CAFO was built to ensure that all requirements related to karst areas, faults, landslides, or other geologic features, threats, or limitations are considered in the design, and stamped by a Professional Geologist registered in the State of Arkansas." *This will be more protective of the Waters of the State and reduce the probability of a major catastrophe.*

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5.

The Agricultural Waste Management Field Handbook, one of the sources for construction of CAFOs in Part 1.9 of the permit, discusses geologic and groundwater considerations. Any geological interpretations must be stamped by a professional geologist registered in the State of Arkansas.

Comment 112: 2.1.1.2: Need to change the first sentence to "Whenever rainfall events cause an overflow of process wastewater from a facility designed, constructed, operated, and maintained to contain all process-generated wastewaters plus the runoff from mean annual rainfall and the runoff from a 25-year, 24-hour rainfall event at the location of the point source, any process wastewater pollutants in the overflow may be discharged into Waters of the State."

Original commenter: National Park Service

Response: The Department disagrees as Part 2.1.1.2 is in compliance with 40 CFR Part 412 Subpart C and Subpart D. The production area must be designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour storm. Mean annual rainfall would be accounted for in the design of the of the production area.

Comment 113: 2.2.1.2(a): Need to change this to "The production area is designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a mean annual amount of rainfall plus the runoff and direct precipitation from a 25-year, 24-hour rainfall event;"

Original Commenter: National Park Service

Response: The Department disagrees as Part 2.1.1.2 is in compliance with 40 CFR Part 412 Subpart C and Subpart D. The production area must be designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour storm. Mean annual rainfall would be accounted for in the design of the of the production area, as described in Part 2.4 and its subparts.

Comment 114: 2.2.2.3: This section says there shall be no discharge of manure, litter, or process wastewater to a water of the State from a CAFO as a result of the application of manure, litter, or process wastewater to land areas under the control of the CAFO, except where it is an agricultural storm water discharge.

- *This ties to 40 CFR 122.42(e)(1)(viii) which requires the permit to "establish protocols to land apply manure, litter, or process wastewater in accordance with specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.*
- *In areas of karst, the soils are often thin, and may be quite porous allowing water applied to the surface to quickly flow down into the epikarst and the karst aquifers below, which by definition are Waters of the State.*
- *This can and does occur in cases which are not covered by the agricultural storm water exemption in the Clean Water Act.*
- *The NMP requirements as they are currently designed do not consider the intimate integration of suface water, soil water, and groundwater in karst terrain.*

- *Nitrates remain soluble and can quickly be mobilized through soil into epikarst and from there to groundwater.*
- *Bacterial contaminants, because of their tiny diameter, can easily pass through soil horizons to the groundwater.*
- *Soils in karst areas develop preferential flow paths to the karst features which can carry the soil waters down into the groundwater. This action confounds the retention of these nutrients in the soil profile for agronomic utilization*
- To meet the requirements of this section, it seems reasonable to do one or more of the following:
    1. Prohibit land application of raw liquid sewage on areas underlain by karst.
    2. Pre-treat the waste in order to remove, or reduce by two orders of magnitude, the levels of *E. coli* as an indicator organism and reduce nitrates similarly.
    3. Compost the waste to eliminate *E. coli* and slow the release of nitrogren and phosphorus compounds into the soil horizons.

Original commenter: National Park Service

Response: The Department disagrees. Nutrient management plans must be developed in accordance with the NRCS Conservation Practice Standard Code 590 (Nutrient Management) for Arkansas. This practice standard is applicable statewide for nutrient management. Included in this practice standard is the Arkansas Phosphorus Index, which was originally developed as a phosphorus risk assessment tool for the defined Nutrient Surplus Areas in the State. Manure, litter, or process wastewater must be applied to not exceed the acceptable phosphorus risk assessment criteria or exceed the recommended nitrogen application rate.

Comment 115: 2.3.1: It seems reasonable to require testing for <u>*E. coli* bacteria</u> as well as <u>total coliform bacteria</u> in lieu of Fecal Coliform Bacteria. It also seems reasonable to collect <u>specific conductance</u> of waste to provide some idea of the reactivity of the effluent with the underlying geology.

Original commenter: National Park Service
Similar comments were received from: Charlie Anderson

Response: The Department has changed the monitoring requirement from Fecal Coliform Bacteria to *E. coli* in Part 2.3.1 of the permit. The ambient water quality monitoring program routinely monitors for *E. coli* rather that Fecal Coliform Bacteria. Water quality standards in APC&EC Regulation provide standards for *E. coli*. The Department disagrees with adding a monitoring requirement of total coliform bacteria as water quality standards in the State are given for *E. coli* bacteria or Fecal Coliform Bacteria. The Department will not add monitoring requirements for specific conductance as there is no basis for this parameter in the water quality monitoring program.

Comment 116: 2.3.4: Change this sentence to "<u>Analytical results of</u> monitoring must be submitted to ADEQ Water Enforcement Division, within <u>fourteen (14)</u> days of the discharge event at the address listed in Part 8.4 of this permit." *Thirty days sounds too long and not protective of the environment.*

Original commenter: National Park Service

Response: The Department disagrees as the results from the sampling may not be received by the facility and submitted to the Department within 14 days, causing the facility to be in violation of the permit. The Department's standard time frame for receiving analytical results is thirty (30) days.

Comment 117: 2.4.1.1 We suggest requiring "Stabilizing emergency overflow spillways which drain into an emergency collection basin or some other storage structure." There should also be a statement about "technical standards that prohibit or otherwise limit land application to fields underlain by karst.."

Original commenter: National Park Service

Response: The Department disagrees as Part 2.4.1.1. is in compliance with 40 CFR 412.46(a)(1)(i).

Comment 118: 2.4.1.4 There should be a timeframe of design of these structures that is never for storage of less than six (6) months.

Original commenter: National Park Service

Response: The design of storage structures must be in compliance with Part 1.9 as well as Part 2.4 and its subparts.

Comment 119: Please add the following in some form or fashion to permits for New NPDES General Permits. This is designed based on Regulation 22.

2.4.1.9 Waste Collection and Storage Structures in Karst Forming Geologic Units

(a) Applicability – The following are minimum design standards for CAFO waste collection and storage structures which are located within the outcrop area of karst forming geologic units. The design phase of a project must neutralize all limitations noted in the site characterization study through engineering modification or operating methods. The design of the containment structure must meet or exceed the minimum standards listed in these regulations.

(b) Separation Requirements
- (1) A minimum separation of ten (10) feet must be maintained between the bottom of the liner system and the seasonal high water table surface.
- (2) A minimum vertical separation of ten (10) feet must be maintained between the bottom liner and the highest point of the bedrock or pinnacles.
- (3) All fill structures and operations must be above the one hundred (100) year flood elevation.

(c) Liner System
- (1) The minimum slope on the bottom liner must [e]nsure positive drainage of sludge after maximum loading and maximum expected strain.
- (2) All bottom liner systems must consist of a double composite separated by a leak detection system. Each composite liner shall consist of an upper geomembrane liner (60 mil minimum thickness) directly overlying a low permeability soil layer, as described in Reg. 22.424(b).

(d) Leak Detection System – The double composite liner system must have a leak detection system located between the upper composite and the lower composite liners. The leak detection system must conform to the following standards:

(1) The minimum thickness of the coarse grained material must be 1 foot;

(2) Leak detection system materials shall have a minimum hydraulic conductivity of $1x10^{-3}$ cm/sec.

(3) An action leakage rate must be developed for the design and approved by the Department. If leakage rates exceed the action leakage rate, fill operations must cease and the Department must be notified. A written contingency plan must be developed for the facility which outlines steps and measures to be taken if the action leakage rate is exceeded.

(4) Daily records of fluid accumulation in the leak detection system must be maintained by the owner or operator.

Original commenter: National Park Service
Similar comments were received from: Anne Roberts, Charlie Anderson,

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. The Agricultural Waste Management Field Handbook, one of the sources for construction of CAFOs in Part 1.9 of the permit, discusses geologic and groundwater considerations.

Comment 120: Add item 3.2.1.10

3.2.1.10: If any of the waste disposal sites are underlain by karst forming geologic units, specific protocols for land application of waste will be developed to ensure appropriate agricultural utilizations of the nutrients in the manure, litter, or process wastewater without allowing nitrates, bacteria, and other pollutants from reaching the groundwater.

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. Nutrient management plans must be developed in accordance with the NRCS Conservation Practice Standard Code 590 (Nutrient Management) for Arkansas. This practice standard is applicable statewide for nutrient management. The practice standard requires that manure, litter, or process wastewater must be applied to not exceed the acceptable phosphorus risk assessment criteria or exceed the recommended nitrogen application rate.

Comment 121: 3.2.4.4 Change this sentence to read "Total number of acres available for land application, <u>after all buffers, setbacks, and exclusions are subtracted</u>, covered by the nutrient management plan developed in accordance with Part 3 of the permit;"

Original commenter: National Park Service

Response: The Department disagrees as Part 3.2.4.4 of the permit is in compliance with 122.42(e)(4)(iv).

Comment 122: 3.2.4.5: Change this sentence to read "Total number of acres under direct and/or indirect control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;" *This is important as the CAFO may not have direct control of the property it uses to apply waste. The actual landowner can manage his fields as he sees fit. The land use contracts are not leases, simply a form which allows the CAFO to apply waste.*

Original commenter: National Park Service

Response: The Department disagrees as Part 3.2.4.5 is in compliance with 40 CFR 122.47(e)(4)(v). Part 6.8 discusses property rights. If a landowner no longer wishes to abide by the nutrient management plan, which includes the landowner property, the operator of a CAFO does not have the right to trespass. If field management changes or the owner no longer wishes to be included in as part of the nutrient management plan, the terms of the nutrient management plan may be revised.

Comment 123: Add 3.2.4.9 and 3.2.4.10

3.2.4.9 The daily record of fluid accumulation in the leak detection system as applicable in accordance with Part 2.4.1.9(d)(4).

3.2.4.10 Inspection of equipment used to land apply manure and process wastewater will be conducted before beginning each land application day. These inspection logs will be turned in with the annual report.

Original Commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. The requirements for annual reporting are in compliance with 40 CFR 122.42(e)(4). Part 4.5.10 of the permit require that records of the dates of manure application equipment inspections be kept onsite.

Comment 124: 3.2.6.3(d): This section seems to indicate that changing field management from hay to pasture to rotational grazing, or any combination of these would be a substantial change to the terms of an NMP as the have the potential to increase the risk of nitrogen and phosphorus transport to Waters of the State. This is particularly true when going from hay field to pasture as a much lower portion of the nutrients added to the field are removed in biomass, and the soil in the field is more impacted, resulting in a higher likelihood of runoff of soil particles. We feel this section needs to be retained, but explicitly define a major modification.

Original commenter: National Park Service

Response: The Department disagrees as the Arkansas Phosphorus Index planner, used to determine the potential for phosphorus runoff in nutrient management plans as well as ensure that the nitrogen application rates, accounts for changes in pasture usage. If a field management change or any change in operation results in an increased potential for nitrogen and phosphorus runoff, then those changes are a substantial change requiring

public notification. The narrative approach allows for projections to be included in the NMP but are not terms of the NMP.

Comment 125: 4.1: *It does not seem that C&H is authorized to conduct multi-year phosphorus applications. If they are not, why have the Soil Test Phosphorus (STP) numbers risen to levels above optimum for so many of their fields?*

Original commenter: National Park Service

Response: The Department acknowledges the comment. The nutrient management plan of specific facilities with coverage under this general permit is not open for comment.

Comment 126: 4.2: Change to "**Nutrient Management Plan.** The CAFO must develop and implement a nutrient management plan that incorporates the requirements of this section based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing to the greatest extent practicable nitrogen and phosphorus movement to ground and surface waters.

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. Part 4.2 of the permit is in compliance with 40 CFR 412.4(c)(1).

Comment 127: 4.2.1.1: Change to "Include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to ground and surface waters, and address the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, which minimizing to the greatest extent practicable nitrogen and phosphorus movement to ground and surface waters; and…"

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. Part 4.2.1.1 of the permit is in compliance with 40 CFR 412.4(c)(2)(i).

Comment 128: 4.2.2.2: Change to "Include appropriate flexibilities for any CAFO to implement nutrient management practices to comply with the technical standards, including consideration of multi-year phosphorus application on fields that do not have a high potential for phosphorus runoff to surface water or infiltration into groundwater, phased implementation of phosphorus-based nutrient management, and other components, as determined appropriate by the Director."

Original commenter: National Park Service

Response: The Department disagrees as the general permit is in compliance with 40 CFR Part 122 and 40 CFR Part 412 for CAFOs as well as requirements of APC&EC Regulation 6. Additional requirements have been adapted from APC&EC Regulation 5. Part 4.2.1.1 of the permit is in compliance with 40 CFR 412.4(c)(2)(ii).

Comment 129: 4.2.1.3: The soil sampling should occur each year rather than every 3 years. With animal manure, phosphorus can build up very quickly. Annual sampling allows the operator to modify the amount of waste applied to each field to minimize pollution of surface and groundwater with phosphorus and other contaminants.

Original commenter: National Park Service

Response: The Department disagrees. The Arkansas NRCS Conservation Service Practice Standard Code 590 (Nutrient Management) recommends soil sampling every 3 years. An operator may choose to sample soil at a frequency of less than 3 years for more intensive management practices.

Comment 130: 4.2.1.4: Change to "**Inspect land application equipment for leaks**. The operator must inspect equipment used for land application of manure, litter, or process wastewater at the beginning of each land application day. These inspections must be documented and reported in the annual report as specified in Part 3.2.4.1. Any needed repairs to said equipment will be completed prior to land application and recorded in the inspection logs."

Original commenter: National Park Service

Response: The Department disagrees as Part 4.2.1.4 is in compliance with 40 CFR 412.4(c)(4).

Comment 131: 4.1: Setbacks should include many other karst features than sinkholes. It could include fractures in the underlying rock which allows fluids to move through, but do not express themselves as sinkholes or depressions. *This is why the permit needs to have specific measures to deal with waste disposal sites underlain by karst forming geologic formations.*

4.2.1.5: Change to "**Setback requirements** Unless the CAFO exercises one of the compliance alternatives provided for in Part a or d of this section, manure, litter, and process wastewater may not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, areas underlain by karst forming carbonate rocks such as, but not limited to, the Boone and St. Joe formations, sinkholes, agricultural well heads, or other conduits to surface waters; 300 feet of Extraordinary Resource Waters (ERWs), Natural and Scenic Waterways (NSWs), or Ecologically Sensitive Waterbodies (ESWs) as defined by the APC&EC Regulations No. 2 and No. 12; 50 feet of property lines; or 500 feet of neighboring occupied buildings."

Original commenter: National Park Service
Similar comments were received from: Charlie Anderson

Response: Part 4.1 of the permit gives examples of conduits to surface waters. These examples are not limited to the given examples. A setback is required from any conduit to surface waters. The setback requirement of 100 feet is in compliance with 40

CFR 412.2(c)(5). The buffer distance of 300 feet from Extraordinary Resource Waters (ERWs) and National Scenic Waterways (NSWs) is adapted from APC&EC Regulation 5.406(D). There is not a setback requirement for Ecologically Sensitive Waters (ESWs) in state regulations.

Comment 132: 4.2.1.5(a): Remove this section. If a vegetative buffer is required, it should be 100' wide. In that case, it would likely be more protective of water quality than existing grassy buffers.

Original commenter: National Park Service

Response: The Department disagrees as Part 4.2.1.5(a) is in compliance with 40 CFR 412.4(c)(5)(i).

Comment 133: 4.4.1.2: Change this section to say "Depth marker. All open surface liquid impoundments must have a depth marker which clearly indicates the "must pump level" or the elevation which corresponds to the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event." *This change will clarify the reason for this marker.*

Original commenter: National Park Service

Response: The Department has clarified Part 4.4.1.2 for the reason why a depth marker is required by the permit.

Comment 134: 4.4.2: Change this section to say "**Record keeping requirements.** Each CAFO must maintain on-site the following records for a period of five years from the date they are created a complete copy of the information required by 40 CFR 122.21(i)(1) and 40 CFR 122.42(e)(1)(ix) and the records specified in Parts 4.4.2.1 through 4.4.2.6 of this section. The CAFO must make these records available to the Director for review upon request."

Original commenter: National Park Service

Response: The Department disagrees as Part 4.4.2 is in compliance with 40 CFR 412.37(b).

Comment 135: 5.1.1.1: Change this section to read: "Property owners adjacent to the CAFO production site, whether they live on the property or not, and all property owners which share a common boundary with the properties which contain manure spreading sites;"

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.1.1. of the permit is in compliance with APC&EC Regulation 6.207(A)(1).

Comment 136: 5.1.1.2: Change this section to read "The County Judge(s) of the county(ies) where the CAFO production site and any manure spreading site is located;"

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.1.2. of the permit is in compliance with APC&EC Regulation 6.207(A)(2).

Comment 137: 5.1.1.3: Change this section to read "The Mayor of each incorporated municipality within ten miles of the CAFO production site and any manure spreading site; and"

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.1.3. of the permit is in compliance with APC&EC Regulation 6.207(A)(3).

Comment 138: 5.1.1.4: Change this section to read "The superintendent(s) of the school district(s) that serves (serve) the CAFO production site and the property associated with any manure spreading site;"

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.1.4. of the permit is in compliance with APC&EC Regulation 6.207(A)(4).

Comment 139: 5.1.4.1: Change this section to read "Notice of the proposed CAFO, including the addresses of the production site and all manure spreading sites, and the name(s) of the applicant(s) and facility;"

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.4.1. of the permit is in compliance with APC&EC Regulation 6.207(D)(1).

Comment 140: 5.1.4.2: Change this section to read "An explanation of the thirty-day public comment period, the right to comment, and the right to ask for a public hearing."

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.4.2. of the permit is in compliance with APC&EC Regulation 6.207(D)(2).

Comment 141: 5.1.5: Change this to read "The applicant shall publish notice two times of the proposed CAFO in the paper(s) of the largest circulation in the county(ies) of the CAFO production site and any manure spreading site. ADEQ shall determine the form of that notice, and determine the proper paper(s) for publication." *The purpose of this is to allow the public living in these areas, or with properties in these areas, to be made aware of the facility and draft permit.*

Original commenter: National Park Service

Response: The Department disagrees as Part 5.1.5. of the permit is in compliance with APC&EC Regulation 6.207(E). APC&EC Regulation 6.207 also requires that the facility post a sign prior to submittal of the Notice of Intent (NOI) and remain in place until thirty (30) days following Department approval of the NOI and Nutrient Management Plan. After submittal and the Department deeming the NOI and NMP

complete, a public notice will be published and a thirty (30) day public comment period will be held.

Comment 142: 5.2.2.2: This should read "ADEQ will respond to comments received during the public comment period and, if necessary, require the CAFO operator to revise the nutrient management plan."

Original commenter: National Park Service

Response: The Department acknowledges the comment. Part 5.2.2.2. of the permit reads as suggested in the draft permit that was public noticed.

Comment 143: 5.2.2.3: Add this section "ADEQ may deny the permit if the Director feels the facility will result in unavoidable and unnecessary degradation of water and air resources of the State."

Original commenter: National Park Service

Response: The Department disagrees. Part 1.6 discusses the requiring of an individual permit. Additionally, this permit does not regulate air quality.

Comment 144: 6.1: Please reinstate NPDES as the second to last word.

Original commenter: National Park Service

Response: The Department disagrees as a facility may be covered under either an individual APC&EC Regulation 6 or APC&EC Regulation 5 permit.

Comment 145: 6.12: This entire section should be reinstated. This section provides the producer with the ability to continue to operate should the general permit expire before it is renewed.

Original commenter: National Park Service

Response: The Department disagrees as Part 6.12 of the previous permit was removed because it repeats Part 1.7 of the permit.

Comment 146: 8.2: Monitoring procedures: Please change this paragraph as follows: "Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been identified in the permit. The permittee shall calibrate and perform maintenance procedures on all monitoring analytical instrumentation at intervals frequent enough to [e]nsure accuracy of measurements and shall [e]nsure that both calibration and maintenance activities will be conducted. <u>All monitoring and calibration will be documented and these records will be made available to the Director upon request.</u> An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to [e]nsure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory."

Requiring documentation of calibration and maintenance of analytical equipment is standard practice and should be required.

Original commenter: National Park Service

Response: The Department has revised Part 8.2 to require documentation on any analytical equipment used at the facility for purposes of compliance with the requirements of this permit.

Comment 147: 9.6: Duty to Reapply: This section should be retained in its entirety. *The permits under this general permitting program should not be made perpetual. This allows the public and agency staff to regularly review the operation of the facilities in light of changes in population density and demographics as well as improvements in scientific understanding of the issues associated with CAFOs.*

Original commenter: National Park Service
Similar comments were received from: Charlie Anderson

Response: The Department disagrees as Part 9.6 of the previous permit was removed because it repeats Part 1.7 of the permit. Additionally, as noted on the cover page, the permit expires five years from the effective date of the permit. Part 1.7 discusses the continuation of coverage for facilities under this general permit.

Comment 148: 10.10 Table of Regulatory Definitions of Large CAFOs, Medium CAFOs, and Small CAFOS: The description of a Medium CAFO does not seem to meet the description in 40 CFR §122.23(b)(6)(ii). This citation should be used verbatim from the CFR.

Original commenter: National Park Service
Similar comments received from: Anne Roberts, Charlie Anderson

Response: The Department has copied all parts verbatim from 40 CFR 122.23(b)(6), which the exception of the number of animals in the table for ease of comparison between numbers of animals that define a large and medium CAFO. These numbers match the requirements of 40 CFR 122.23.

Comment 149: BWD requests that the set-back requirements for land application include a three hundred (300) foot setback from any down-gradient surface waters within the watershed of existing, public drinking water supplies.

Original commenter: Colene Gaston

Response: Part 4.2.1.5. of the general permit prohibits the application of waste in areas where land application of waste is prohibited by Arkansas Department of Health regulations for the protection of public water supplies.

Comment 150: BWD requests that this provision that public notification be sent by certified mail, return receipt requested to certain categories of people also require that such notice be sent to the manager of existing, public drinking water supplies whose source water is in the watershed in which the CAFO is or will be located.

Original commenter: Colene Gaston
Similar were received from: National Park Service

Response: Part 5.1 and its subparts of the permit is in compliance with APC&EC Regulation 6.207. Part 4.2.1.5. of the general permit prohibits the application of waste in areas where land application of waste is prohibited by Arkansas Department of Health regulations for the protection of public water supplies.

Comment 151: Now you have the duty and responsibility to correct the problem and ensure that every watershed in Arkansas is protected from multi-national CAFO operators whose operations will harm the State of Arkansas and its residents. If ADEQ does not correct this problem it will be setting the stage for property values to decline and job losses where the air and water quality make living and working undesirable.

Original commenter: Joe Golden
Similar comments were received from: Edd French, Nancy Haller

Response: The Department acknowledges the comment. The Department does not regulate property values. The Office of Water Quality does not regulate air emissions. This is permit issued by the Office of Water Quality. The general permit meets the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6.

Comment 152: Re: Mike Masterson's. They site (sic) regulation after regulation in regard to their pursuit of proper procedure, yet when there is hard data from USGS delivered to them by the National Park Service with a recommendation to find three tributaries as impaired, polluted, they decide that those rules need not be followed. These three tributaries contribute about one-third of the flow of the Buffalo National River. We must change the regulations – our water is precious.

Original commenter: Susan Gower
Similar comments were received from: Nancy Harris, Marti Olesen, Jim Westbrook

Response: This comment period is for the conditions and requirements of the general permit.

Comment 153: If and when the CAFO permit regs. may change – would existing CAFO permitted facilities be grandfathered as long as they continued to operate per the permit conditions?

Original commenter: Ed Manor

Response: Operational activities must comply with any changes to regulations.

Comment 154: We are concerned that the system of holding public meetings at the end of the comment period is a problem as this is too late for many people to make comments. The public does not have adequate opportunity to address their concerns to ADEQ under the current system.

Original commenter: National Park Service

Response: The public notice process the permit is in accordance with APC&EC Regulation 8. The draft permit and fact sheet were public noticed in the statewide paper and made available for the 30 day public comment period for interested parties to comment on the terms of the draft permit and fact shette.

Comment 155: I feel like those of us here tonight have to speak for all the people of the state since they can't be here, which is a pretty big burden. I am opposed to CAFOs in general. Not just CAFOs in Newton County, but CAFOs. You know, when you think about a little boy growing up and saying, I want to be a farmer, I can't think that this was what he had in mind to do. I can't think that this is the ideal of farming that we all have. The appreciation for the farmer providing our food supply, providing nutritious, wholesome food. This ain't it folks. And I was wondering do these farmers feel good taking their kids to work with them? And say look at what daddy does. Don't you want to grow up and be like daddy? I can't imagine.

Original commenter: Nancy Haller
Similar comments were received from: Kent Bonar

Response: The Department acknowledges the comment. The general permit meet the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6.

Comment 156: Methane flares are a threat to wildlife wherever they occur. C&H in a direct line north of Holla Bend National Wildlife Refuge is a particular threat to migrating birds and bats as well as resident wildlife, but migration impacts would occur almost anywhere. On foggy nights, bright lights reflect and refract light into diffuse ambient glow which blurs images and causes night-blindness in diurnal birds. Drivers in fog realize that bright beams blur more than low beams. As an ornithology instructor at the University of Missouri-Columbia, I've had to skin and inject with formaldehyde pickup loads of dead birds from one nights' radio-tower kill. (with cold light; flare damage would be even more.) Some species have narrow timing on migration waves; so a single kill could greatly reduce or eliminate one or more species in that flyway. Species confined to the Mississippi flyway (largest in N. America) could face extinction. Birds blinded by glare start circling in to where they can still see until too close to the light source. Anyone driving through southern Illinois in the mid-sixties noticed the ongoing smell of hog feedlots; many of which were effectively open-air CAFOs. Flaring off methane creates more heat than the atmospheric heat resulting from methane release and concentrates impacts that time would reduce.

Original commenter: Kent Bonar

Response: The Department acknowledges the commenter: The specific coverage of a facility is not open for comment.

Comment 157: CAFOs demand water equavilant to a large city; putting a strain on regional water supplies. The community of Lead Hill objected to paying for water they weren't using and have faced lawsuits and criminal charges for their elected officials. A major user of this regional water is the CAFO. Bleeding remote communities to reduce costs to CAFOs is a social injustice as well as an eventual threat to everyones' water when an overloaded regional water system fails. Agency apologys (if forthcoming) and excuses won't repair the short-term damage or long-range problems. Corporate shuffling, bankruptcy or mergers avoid responsibility, and put the burden of cleanup and restoration on the public.

Original commenter: Kent Bonar

Response: The Department acknowledges the comment. The general permit meet the requirements outlined in 40 CFR Part 122 and 40 CFR Part 412 for CAFOs seeking coverage under a general permit as well as requirements of APC&EC Regulation 6.

Comment 158: I do not agree with the decision that was made not to permit any new facilities in the Buffalo watershed. A general state wide permit is needed to enable family farms who wish to grow animals who fall under the requirements.

Original commenter: Gene Pharr

Response: The Department acknowledges the comment. A facility that is not prohibit by APC&EC Regulation 5.901 may obtain an APC&EC Regulation 5 permit if the facility is operating liquid animal waste management system that does not discharge or an individual APC&EC Regulation 6 permit if the facility does discharge or is proposing to discharge.

Comment 159: In the case of the C&H hog farm, specific circumstances regarding that location clearly require individualized attention. A well-researched, recently published scientific study by Kosič et al. thoroughly documents this need. That study indicates that the wisest choice is to address swine CAFOs one by one, considering their particular geological and local circumstances, through individual permits. Unless ADEQ rejects, on solid scientific grounds, the conclusions of that study, ADEQ would be abusing its discretion and violating the law in failing to require an individual permit for the C&H operation. Particular points from the Kosič study requiring ADEQ's attention include the following:

- Groundwater contamination from CAFOs can occur from various sources, including leaking waste lagoons, breaches in piping or barn infrastructure, and land application of liquid or solid wastes.[5]
- "CAFO manure lagoons are typically excavated into the soil and lined with clay; even when properly constructed, such lagoons tend to leak."[6]
- Many studies of CAFOs have demonstrated that both waste lagoons and fields on which manure is sprayed pose "significant environmental threats to karst terrains and underlying groundwater."[7]
- A dye tracer test reported by Kosič et al. found that of 140 monitoring points in springs, wells and caves in the vicinity of the C&H operation, 59 positive detections occurred, including 14 in springs and caves managed by the National Park Service in or near the Buffalo National River.[8]
- This result indicates the likelihood of contamination of the Buffalo River when the C&H waste lagoon leaks or its manure spray fields suffer runoff during a major storm.
- Liners for waste lagoons "should be chosen based on the geological, hydrological and soil characteristics of the site. Stronger, thicker, or multiple liners should be required for vulnerable areas, e.g. karst, in order to assure that no leakage will occur."[9]
- "Buffer distances from karst features, e.g. caves, sinkholes, swallow holes, [and] sinking streams, should be determined on a site-specific basis."[10]

Other researchers have likewise pointed to the environmental hazards of waste lagoon failures. For example, hydrogeologist Tom Aley noted that "manure storage ponds pose a significant risk of creating offsite water quality problems due to leakage into groundwater supplies. They are also at risk of catastrophic sinkhole collapses that could introduce large amounts of manure into the underlying karst groundwater system. . . . Sinkholes in karst areas triggered by human activities, including the construction of sewage lagoons, waste storage ponds, and other impoundments, are unfortunately common events."[11]
It is evident from these well-documented scientific findings and well-reasoned conclusions that consideration of site-specific local features is necessary to ensure that only minimal adverse environmental effects are likely to result from operation of the C&H hog farm. Consideration of site-specific local features requires an individual permit, not merely a general permit.

Original commenter: Sierra Club

Response: The Department acknowledges the comment. The nutrient management plan of specific facilities with coverage under this general permit is not open for comment. Facilities that are currently covered under the general permit may reapply for coverage under the renewed general permit or seek coverage under a separate individual permit. See Comment 26 regarding requiring individual permits for CAFOs.

Comment 160: Request for times of public hearings, copies of permit, additional public hearings, and extension of public hearing.

The following people commented on this issue: Joe Golden, National Park Service, Lin Wellford, Sierra Club

Response: The Department thanks the commenters for their comments. The public notice of the permit and public hearing was in accordance with APC&EC Regulation 8. Therefore, no additional public hearings will be held, and the comment period will not be extended.

Comment 161: Citizens in favor of the renewal of general permit ARG590000.

The following people commented on this issue: Harlie Treat, Steven Hignight, Susan Anglin, Evan A. Teague, Ross Lockhart, Mitchell McCutchen, Dan Wright, Gene Pharr, Jerry Masters, Bob Shofner, Ed Manor, Bruce Jackson

Response: The Department thanks the commenters for their comments.

Summary of Changes to the Permit			
Part	Draft Permit	Final Permit	Comment #
Part 3.2 Fact Sheet	The conclusions of this study will be considered during the rulemaking process required for Reg. 6.602.	The conclusions of this study will be considered *as will available data from alternative sources* during the rulemaking process required for Reg. 6.602.	30
Part 5.1 Permit	For ~~new~~ facilities, public notification requirements for any notice of intent filed with the Department for a general permit for a proposed Concentrated Animal Feeding Operation (CAFO) in Arkansas (ARG59000) are as follows:	For *all* facilities, public notification requirements for any notice of intent filed with the Department for a general permit for a proposed Concentrated Animal Feeding Operation (CAFO) in Arkansas (ARG59000) are as follows:	32
Part 1.3 Permit	As defined in Part 10.~~9~~ of this general permit, a CAFO is any one of the following:	As defined in Part 10.*10* of this general permit, a CAFO is any one of the following:	40
Part 3 Fact Sheet	This permit covers any operation that meets the definition of a CAFO under Part 10.~~9~~ of the permit and discharges pollutants to Waters of the State.	This permit covers any operation that meets the definition of a CAFO under Part 10.*10* of the permit and discharges pollutants to Waters of the State.	40
Part 1.8 Permit	If a change in the ownership of a facility whose discharge is authorized under this permit occurs, a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees must be submitted to ADEQ at the address specified in Part 1.5.~~6~~.	If a change in the ownership of a facility whose discharge is authorized under this permit occurs, a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees must be submitted to ADEQ at the address specified in Part 1.5.*2*.	43
Part 2.3.2 Permit	The sample shall be collected and analyzed in accordance with EPA approved methods for water analysis listed in 40 CFR 136. Samples collected shall be representative of the monitored discharge.	The sample shall be collected *immediately upon discovery of any overflow or other discharge* and analyzed *by a certified laboratory* in accordance with EPA approved methods for water analysis listed in 40 CFR 136. Samples collected shall be representative of the monitored discharge.	46 & 68

Summary of Changes to the Permit			
Part	Draft Permit	Final Permit	Comment #
Part 2.3.3 Permit	If conditions are not safe for sampling, the permittee must provide documentation of why samples could not be collected and analyzed. For example, the permittee may be unable to collect samples during dangerous weather conditions (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.). However, once dangerous conditions have passed, the permittee shall collect a sample from the retention structure (pond or lagoon) from which the discharge occurred.	If conditions are not safe for sampling, the permittee must provide documentation of why samples could not be collected and analyzed. For example, the permittee may be unable to collect samples during dangerous weather conditions (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.). However, once dangerous conditions have passed, the permittee shall collect a sample *immediately* from the retention structure (pond or lagoon) from which the discharge occurred.	68
Part 4.2.1.6 Permit	**Precipitation Event**. Wastes shall not be land applied to soils that are saturated, frozen, covered with snow, during rain, or when precipitation is imminent (>50% chance of rain).	**Precipitation Event**. Wastes shall not be land applied to soils that are saturated, frozen, covered with snow, during rain, or when precipitation is imminent (>50% chance of rain *within 24 hours*).	49
Part 7.4.1.2 Permit	Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part 9.~~4~~ (24-hour notice).	Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Part 9.*3* (24-hour notice).	52
Part 7.4.2.2. Permit	The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in 7.4.2.~~1~~.1.	The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in 7.4.2.*2*.1.	53
Part 9.4 Permit	The permittee shall report all instances of noncompliance not reported under Part ~~and~~ 9.3 at the time monitoring reports are submitted.	The permittee shall report all instances of noncompliance not reported under Part 9.3 at the time monitoring reports are submitted.	54

Summary of Changes to the Permit			
Part	Draft Permit	Final Permit	Comment #
Part 9.10 Permit	The Arkansas Water and Air Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under this permit shall be subject to civil and/or criminal penalties specified in Part ~~3~~.2. under the authority of the Arkansas Water and Air Pollution Control Act.	The Arkansas Water and Air Pollution Control Act provides that any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under this permit shall be subject to civil and/or criminal penalties specified in Part *6*.2. under the authority of the Arkansas Water and Air Pollution Control Act.	55
Part 2.2.1.2(a) Permit	Develop and implement the Best Management Practices (BMP) specified in Parts 4.1 and 4.2 of this permit;	Develop and implement the Best Management Practices (BMP) specified in Parts 4.1 and 4.2 of this permit; *and*	67
Part 2.2.1.2(b) Permit	2.2.2.1.Maintain all records needed to document compliance with Part 4.5 of this permit;	Maintain all records needed to document compliance with Part 4.5 of this permit; *and*	67

Summary of Changes to the Permit			
Part	Draft Permit	Final Permit	Comment #
Part 6.3 Permit	~~In accordance with 40 CFR Parts 122.62 (a)(2) and 124.5, this permit may be reopened for modification or revocation and/or reissuance to require additional monitoring and/or effluent limitations when new information is received that actual or potential exceedance of State water quality criteria and/or narrative criteria are determined to be the result of the permittee's discharge(s) to a relevant water body or a Total Maximum Daily Load (TMDL) is established or revised for the water body that was not available at the time of the permit issuance that would have justified the application of different permit conditions at the time of permit issuance.~~ ~~Coverage under this permit may be modified, revoked and reissued, or terminated for cause including, but not limited to the following:~~ ~~a. Violation of any terms or conditions of this permit; or~~ ~~b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or~~ ~~c. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.~~ ~~d. Failure of the permittee to comply with the provisions of Reg. 9 (Permit fees) as required by Part II.A.8. herein.~~ ~~The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.~~	*This general permit may be modified, revoked and reissued, or terminated for cause in accordance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit Program Regulations at 40 CFR Parts 122 and 124, as adopted by reference in Reg. 6. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.*	90

Summary of Changes to the Permit			
Part	Draft Permit	Final Permit	Comment #
Part 2.3.1 Permit	~~Fecal Coliform bacteria (FCB)~~	*E. coli bacteria*	115
Part 7 Fact Sheet	Samples must, at a minimum, be analyzed for the following parameters: total nitrogen, nitrate nitrogen, ammonia nitrogen, total phosphorus, ~~fecal coliform bacteria~~, five-day biochemical oxygen demand (BOD5), total suspended solids, and pH.	Samples must, at a minimum, be analyzed for the following parameters: total nitrogen, nitrate nitrogen, ammonia nitrogen, total phosphorus, *E. coli bacteria*, five-day biochemical oxygen demand (BOD5), total suspended solids, and pH.	115
Part 1.5.1 Permit	Operators of CAFOs seeking to be covered or ~~continued~~ coverage by this permit must:	Operators of CAFOs seeking to be covered or *continue* coverage by this permit must:	104
Part 1.5.1.5 Permit	Submit an ADEQ Form 1 and plans and specifications that are stamped by a Professional Engineer registered in Arkansas for construction of new or revised pond(s).	Submit an ADEQ Form 1 and plans and specifications that are stamped by a Professional Engineer registered in Arkansas for construction of new or revised pond(s) *and waste handling systems*.	105
Part 1.7.1 Permit	Coverage being authorized under a reissued permit or a ~~replacement of this~~ permit following the submittal of a complete renewal NOI and NMP within 90 days after the issuance date of the new permit; or	Coverage being authorized under a reissued permit or a *new* permit following the submittal of a complete renewal NOI and NMP within 90 days after the issuance date of the new permit; or	109
Part 4.4.2 Permit	**Depth marker.** All open surface liquid impoundments must have a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event.	**Depth marker.** All open surface liquid impoundments must have a depth marker which clearly indicates *"must pump level" or the elevation which corresponds to the* the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event.	134

Summary of Changes to the Permit			
Part	Draft Permit	Final Permit	Comment #
Part 8.2 Permit	Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. The permittee shall calibrate and perform maintenance procedures on all monitoring analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted. An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.	Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit. The permittee shall calibrate and perform maintenance procedures on all monitoring analytical instrumentation at intervals frequent enough to insure accuracy of measurements and shall insure that both calibration and maintenance activities will be conducted. *All monitoring and calibration will be documented and these records will be made available to the Director upon request.* An adequate analytical quality control program, including the analysis of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.	147
Part 10.10 Permit	A **Medium CAFO** ~~falls within the size range in the table below and either: has a manmade ditch or pipe that carries manure or wastewater to surface water; or the animals come into contact with surface water that passes through the area where they're confined.~~	A **Medium CAFO** *includes any AFO with the type and number of animals that fall within any of the ranges listed table below, which has been defined or designated as a CAFO if: pollutants are discharged into Waters of the State through a man-made ditch, flushing system, or other similar man-made device; or pollutants are discharged directly into Waters of the State which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.*	148

NPDES Notice of Intent (NOI)
Concentrated Animal Feeding Operations(CAFO)
ARG590000

I. GENERAL INFORMATION

A. TYPE OF BUSINESS	B. CONTACT INFORMATION	C. FACILITY OPERATION STATUS
Concentrated Animal Feeding Operation	Owner/or Operator Name Jason Henson Address (No-POBOX) HC 72 Box 2 Telephone: 870-434-5004 Email_____ City Vendor State: AR Zip Code 72683	☒ 1. Existing Facility ☐ 2. Proposed Facility

D. FACILITY INFORMATION

Name: C & H Hog Farms, Inc. Telephone: 870-434-5004

Address: HC 72 Box 2

City: Vendor State: AR Zip Code: 72683

County: Newton Latitude: 35° 55' 30.47" N Longitude: 93° 4' 18.42" W

If contract operation: Name of Integrator: JBS Pork

Address of Integrator: 1770 Promontory Circle, Greenley, CO 80634

II CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS

A. TYPE AND NUMBER OF ANIMALS

1. TYPE	2. ANIMALS	
	NO. IN OPEN CONFINEMENT	NO. HOUSED UNDER ROOF
☐ Mature Dairy Cows		
☐ Dairy Heifers		
☐ Veal Calves		
☐ Cattle (not dairy or veal calves)		
☒ Swine (55 lbs. or over)		2,678
☒ Swine (under 55 lbs.)		1,500
☐ Horses		

B. Manure, Litter, and/or Wastewater Production and Use

1. How much manure, litter, and wastewater is generated annually by the facility? .....tons 2,623,740 gallons
2. If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater? 630.0 acres
3. How many tons of manure or litter, or gallons of waste-water produced by the CAFO will be transferred annually to other persons? 0 to 2,623,740 tons/(gallons) (*circle one*)

☐ Sheep or Lambs			
☐ Turkeys			
☐ Chickens (Broilers)			
☐ Chickens (Layers)			
☐ Ducks			
☐ Other Specify.....			
3. TOTAL ANIMALS		4,178	

C. ☒ TOPOGRAPHIC MAP

D. TYPE OF CONTAINMENT, STORAGE AND CAPACITY

1. Type of Containment	Total Capacity (in gallons)	
☐ Lagoon		
☒ Holding Pond	2,722,095	
☐ Evaporation Pond		
☒ Other: Specify In-Barn Pull Plug Pits	768,145	

2. Report the total number of acres contributing drainage: 0 acres

3. Type of Storage	Total Number of Days	Total Capacity (gallons/tons)	
☐ Anaerobic Lagoon			
☐ Storage Lagoon			
☐ Evaporation Pond			
☐ Aboveground Storage Tanks			
☐ Belowground Storage Tanks			
☐ Roofed Storage Shed			
☐ Concrete Pad			
☐ Impervious Soil Pad			
☐ Other: Specify _____			

E. NUTRIENT MANAGEMENT PLAN

Note: A permit application is not complete until a nutrient management plan (NMP) is submitted with NOI.

1. Please indicate whether a nutrient management plan has been included with this permit application. ☒ Yes ☐ No (STOP)

2. Is a nutrient management plan being implemented for the facility? ☒Yes ☐ No

3. The date of the last review or revision of the nutrient management plan. Date: 4/3/16

4. If not land applying, describe alternative use(s) of manure, litter, and or wastewater:

F. LAND APPLICATION BEST MANAGEMENT PRACTICES

Please check any of the following best management practices that are being implemented at the facility to control runoff and protect water quality:

☒Buffers ☒Setbacks ☐ Conservation tillage ☐ Constructed wetlands ☐ Infiltration field ☒Grass filter ☐ Terrace

III. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. Name and Official Title (*print or type*)	B. Phone No. (870) 434-5004
Jason Henson, President	
C. Signature Jason Henson	D. Date Signed 4/20/16

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
DISCLOSURE STATEMENT

Instructions for the Completion of this Document:

A. Individuals, firms or other legal entities with no changes to an ADEQ Disclosure Statement, complete items 1 through 5 and 18.

B. Individuals who never submitted an ADEQ Disclosure Statement, complete items 1 through 4, 6, 7, and 16 through 18.

C. Firms or other legal entities who never submitted an ADEQ Disclosure Statement, complete 1 through 4, and 6 through 18.

If Not Submitting by ePortal, Mail Original to:
ADEQ
DISCLOSURE STATEMENT
[*List Proper Division(s)*]
5301 Northshore Drive
North Little Rock, AR 72118-5317

1. APPLICANT: (Full Name) C + H Hog Farms, Inc.
2. MAILING ADDRESS (Number and Street, P.O.Box Or Rural Route) : HC 72 Box 2
3. CITY, STATE, AND ZIPCODE: Vendor, AR 72683

4a. Applicant Type:
☐ Individual ☑ Corporate or Other Entity

4b. Reason for Submission:
☐ Permit ☐ License ☐ Certification ☐ Operational Authority
☐ New Application ☐ Modification ☑ Renewal Application (If no changes from previous disclosure statement, complete number 5 and 18.)

4c. Division:
☐ Air ☑ Water ☐ Hazardous Waste ☐ Regulated Storage Tank ☐ Mining ☐ Solid Waste

5. Declaration of No Changes:
The violation history, experience and credentials, involvement in current or pending environmental lawsuits, civil and criminal, have not changed since the last Disclosure Statement that was filed with ADEQ on 6-5-12

6. Describe the experience and credentials of the Applicant, including the receipt of any past or present permits, licenses, certifications or operational authorization relating to environmental regulation. (Attach additional pages, if necessary.)

7. List and explain all civil or criminal legal actions by government agencies involving environmental protection laws or regulations against the Applicant * in the last ten (10) years including:

1. **Administrative enforcement actions resulting in the imposition of sanctions;**
2. **Permit or license revocations or denials issued by any state or federal authority;**
3. **Actions that have resulted in a finding or a settlement of a violation; and**
4. **Pending actions.**

(Attach additional pages, if necessary.)

*** Firms or other legal entities shall also include this information for all persons and legal entities identified in sections 8-16 of this Disclosure Statement.**

8. List all officers of the Applicant. (Add additional pages, if necessary.)

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

9. List all directors of the Applicant. (Add additional pages, if necessary.)

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

10. List all partners of the Applicant. (Add additional pages, if necessary.)

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

11. List all persons employed by the Applicant in a supervisory capacity or with authority over operations of the facility subject to this application.

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

12. List all persons or legal entities, who own or control more than five percent (5%) of the Applicant's debt or equity.

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

13. List all legal entities, in which the Applicant holds a debt or equity interest of more than five percent (5%).

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

NAME: _____ TITLE: _____
STREET: _____
CITY, STATE, ZIP: _____

14. List any parent company of the Applicant. Describe the parent company's ongoing organizational relationship with the Applicant.

NAME: _____
STREET: _____
CITY, STATE, ZIP: _____

Organizational Relationship:

15. List any subsidiary of the Applicant. Describe the subsidiary's ongoing organizational relationship with the Applicant.

NAME: _____
STREET: _____
CITY, STATE, ZIP: _____

Organizational Relationship:

16. List any person who is not now in compliance or has a history of noncompliance with the environmental laws or regulations of this state or any other jurisdiction and who through relationship by blood or marriage or through any other relationship could be reasonably expected to significantly influence the Applicant in a manner which could adversely affect the environment.

NAME: _____ **TITLE:** _____

STREET: _____

CITY, STATE, ZIP: _____

NAME: _____ **TITLE:** _____

STREET: _____

CITY, STATE, ZIP: _____

17. List all federal environmental agencies and any other environmental agencies outside this state that have or have had regulatory responsibility over the Applicant.

18. VERIFICATION AND ACKNOWLEDGEMENT

The Applicant agrees to provide any other information the director of the Arkansas Department of Environmental Quality may require at any time to comply with the provisions of the Disclosure Law and any regulations promulgated thereto. The Applicant further agrees to provide the Arkansas Department of Environmental Quality with any changes, modifications, deletions, additions or amendments to any part of this Disclosure Statement as they occur by filing an amended Disclosure Statement.

DELIBERATE FALSIFICATION OR OMISSION OF RELEVANT INFORMATION FROM DISCLOSURE STATEMENTS SHALL BE GROUNDS FOR CIVIL OR CRIMINAL ENFORCEMENT ACTION OR ADMINISTRATIVE DENIAL OF A PERMIT, LICENSE, CERTIFICATION OR OPERATIONAL AUTHORIZATION.

COMPLETE THIS SECTION ONLY IF SUBMITTING OTHER THAN BY EPORTAL:

I, Jason Henson **, certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violation.**

APPLICANT SIGNATURE: Jason Henson

TITLE: President

DATE: 4-20-16

ADEQ
ARKANSAS
Department of Environmental Quality

ARG590000 CAFO General Permit – Public Notification Certification Document

Arkansas Pollution Control and Ecology Commission (APC&EC) Regulation 6.207 requires the permittee proposing an operation that will apply for coverage under ARG590000 to follow certain public notification requirements prior to submitting a Notice of Intent (NOI) to ADEQ. A certification that these requirements have been followed is required to be submitted to ADEQ with the NOI in accordance with APC&EC Reg. 6.207(G).

A copy of APC&EC Reg. 6.207 is attached to this certification document. Please read over the public notification requirements. If you have followed the requirements, sign the certification statement below and submit this certification with your ARG590000 NOI.

	Yes	No
1. Written Notification by certified mail with return receipt to the following:		
Adjacent Property Owners	☑	☐
County Judge	☑	☐
Mayor	☑	☐
Superintendent of School District	☑	☐
2. Public Notice	☑	☐
3. Posted Sign	☑	☐

Certification Statement:

"In accordance with APC&EC Reg. 6.207(G), I certify compliance with the public notification requirements in subsections (A) – (F) of APC&EC Reg. 6.207."

Jason Henson
Responsible Official Name

Jason Henson 4-20-16
Signature and Date

Nutrient Management Plan

for

C & H Hog Farms, Inc.

Owners/Operators: Jason Henson
Richard Campbell
Philip Campbell

Address: HC 72 Box 2

City: Vendor, AR **Zip:** 72683

Telephone: (870) 434-5004

Location(s): Section 26, Township 15 North, Range 20 West

Latitude: 35º 55’ 30.47”N **Longitude:** 93º 4’ 18.42”W

Newton County, Arkansas

Regulation 6

Nutrient Management Plan
C & H HOG FARMS, INC.
Newton County, Arkansas

TABLE OF CONTENTS

SECTION 6 RECORD KEEPING FORMS

Example Table for Recordkeeping

Copy of ADEQ's Annual Report Form

Section 1

Farm Overview

Title Page

Signature Page

Location and Contact Information

Operation and Maintenance

Section 1

Nutrient Management Plan

For:

C & H Hog Farms, Inc.
HC 72 Box 2
Vendor, AR 72683
Phone: (870) 434-5004

Purpose of Plan – The goal of nutrient management is to effectively and efficiently use the nutrient resources to adequately supply soils and plants with the proper amount of nutrients to produce food, forage, fiber, and cover while minimizing the transport of nutrients to ground and surface water and environmental degradation. This plan will comply with Arkansas ADEQ Regulation 6.

The owners of C&H Hog Farms, Inc. are respectfully making an application for a narrative rate approach Regulation 6 permit.

Section 1

NMP Signature Page

The following individuals have assisted in the development of this Nutrient Management Plan and certify their elements meet the nutrient management planning requirements for the State of Arkansas.

Nutrient Management Planner:

Name: Monica Hancock Certification No.: 10591004-0056

Title: Water Quality Technician- Land Resource Specialist

Signature: Monica Hancock Date: 3-2-16

Engineering Plans and Review:

Name: Pat Bass Certification No: 4185

Title: P.E.

Signature: Date: 4-3-2016

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER P. T. BASS

Name: Dennis Carman Certification No: 7670

Title: P.E.

Signature: Date: 4-3-2016

Decision Maker:

As the decision maker for the operation associated with this Nutrient Management Plan, I certify that I have been involved in the planning process and agree with the practices herein. I understand that I am responsible for keeping all necessary records associated with this Nutrient Management Plan.

Signature: Jason Henson Date: 4-6-16

Jason Henson

Section 1

Farm Location and Contact Information

For:

C & H Hog Farms, Inc.
Owners/Managers: Jason Henson
Richard Campbell
Philip Campbell
HC 72 Box 2
Vendor, AR 72683
Phone: (870) 434-5004

Directions to Farm: Facility is located approximately 1.6 miles west of Mt. Judea, Arkansas on County Road 41.

Entrance into the Farm: Entrance is located at: Latitude 35° 55' 30.47" N; Longitude 93° 4' 18.42" W; in the center of Section 26, Township 15 North, Range 20 West, in the Mt. Judea Quad.

Field Locations: Fields contained within this plan are located in: Sections 22, 23, 25, 26, 34, 35 and 36, Township 15 North, Range 20 West and Sections 2 and 3, Township 14 North, Range 20 West.

Watershed: All fields are contained within the Headwaters Big Creek – Buffalo River Watershed (110100050302) and the Left Fork Creek Watershed (110100050301). These watersheds are not in a designated nutrient surplus area.

Operation and Maintenance

Animal Mortality

Normal animal mortality is managed daily by collection of the dead animals and disposal of the carcasses in an incinerator. Other acceptable options for disposal of mortality include composting, freezing, and hauling to a rendering plant.

In case of catastrophic loss, the Arkansas Livestock and Poultry Commission may authorize hauling the carcasses to a rendering plant unless the mortality was caused by disease. When hauling is not feasible, or if disease caused the loss, the Livestock and Poultry Commission may require burial in designated locations with specific guidelines. In such situations, C & H Hog Farms, Inc will contact the Livestock and Poultry Commission by phone **(501-907-2400)** to determine the proper disposal plan.

Land Application

C & H Hog Farms, Inc. is requesting that manure and wastewater from either storage pond (Pond 1 or Pond 2) be transported via liquid tanker trucks or an irrigation system and applied to all fields included in this plan. Regardless of conveyance method, all application rates will be the same. Recognizing that Pond 1 will have a higher fertilizer content than Pond 2, field application recommendations are given from both sources for each field.

Spreader Calibration

Proper calibration of spreader equipment is essential to ensure the amount of swine fertilizer applied is within the required guidelines to protect water quality. The two methods of calibration that are generally used are 1) calibration based on equipment settings and operational conditions and 2) calibration based on gallons per load and number of loads applied.

Soil and Swine Fertilizer Sampling

Several soil cores have been taken from each field and composited into one sub-sample for each individual field. The fields were delineated by land management and natural or manmade borders, regardless of acreage. As the acreage increased, more soil cores were taken.

Soils samples are to be taken once every five years or when the nutrient management plan is revised. It is required that a manure sample be analyzed each year and the results sent to ADEQ with the farm's annual report.

Operation and Maintenance

Nutrient Utilization

- Swine fertilizer/wash water shall be evenly distributed over application sites at the rates specified in this nutrient management plan by means of liquid tanker trucks and/or irrigation system. Application rates will be the same, regardless of conveyance method.
- Land application of swine fertilizer/wash water shall not be undertaken when soil is saturated, frozen, covered with ice or snow, or when significant precipitation is reasonably anticipated in the next twenty-four hours (greater than 50% chance).
- Swine fertilizer/wash water shall not be applied on slopes with a grade of more than fifteen percent (15%) or in any manner that will allow nutrients to enter the waters of the state. These non-application buffer areas are marked on the field maps.
- Application of swine fertilizer/wash water shall not be made within 100 feet of streams including intermittent streams, ponds, lakes, springs, sinkholes, rock outcrops, wells and water supplies; or 300 feet of extraordinary resource waters as defined by the Arkansas Pollution Control and Ecology Commission Regulation No. 2. Buffer distances from streams, ponds and lakes shall be measured from the ordinary high water mark. These non-application buffer areas are marked on the field maps.
- Application of swine fertilizer/wash water shall not be made within 50 feet of property lines or 500 feet of neighboring occupied buildings existing as of the date of the permit. The restrictions regarding property lines or neighboring occupied buildings shall not apply if the adjoining property is also approved as a land application site under a permit issued by the department or if the adjoining property owner consents in writing (see setback waivers in Section 3). These non-application buffer areas are marked on the field maps.
- Application of swine fertilizer/wash water shall not be made in areas where the land application of swine fertilizer/wash water is prohibited by Arkansas Department of Health regulations for the protection of public water supplies.
- ADEQ has developed a standard form entitled “Animal Waste Application Records” for use in logging nutrient applications. This form is located in Section 6 under “Recordkeeping”.

Odor Management

Although it may not be practical or feasible to eliminate all odor emissions from the operation, it is possible to manage or mitigate the odor. The odor reduction practices listed below may be utilized by the operation in an effort to reduce odor emissions:

- Animal Cleanliness – Clean, dry, and healthy animals are less odorous.
- Minimize Dust – Dust particles may absorb and concentrate odorous compounds. Proper cleaning techniques within the facility can minimize dust and, therefore, reduce odor.
- Waste Storage Facility Maintenance – Proper maintenance of pits and waste storage ponds can reduce odor. Frequently flushing manure is an effective method to reduce odor emissions from the pits.

- Proper Disposal of Mortality – Normal mortality for the animal feeding operation must be properly handled for both odor control and biological security purposes. Composting, freezing, incineration, and rendering are acceptable methods for mortality disposal.
- Natural Barriers – Trees and shrubs existing or planted around the facility can act as biofilters for odorous compounds.
- Land Application Practices – To the extent possible, consider weather conditions when making land applications. Sunny, low humidity days reduce odors; turbulent breezes will dilute and dissipate odors.

Section 2

C & H Hog Farms, Inc. Application

for Regulation 6 Permit

Engineering Plans and Review

September 1, 2015

Prepared by: T. P. Bass, P.E.

Reviewed by: Dennis K. Carman, P.E.

Manure Storage Volume Availability and Minimal Requirements

Table of Contents

BACKGROUND

The C & H HOG Farm is located near Mount Judea in Newton County, Arkansas. This facility has an existing Permit for operation issued by the Arkansas Department of Environmental Quality and Ecology and approved August 03, 2012. Details of this permit can be viewed at adeq.state.ar.us for Permit Number ARG590001.

Facility Location: Near Mount Judea, Newton County, Arkansas

Latitude Deg/Min/Sec:	35° 55' 30.47"
Longitude Deg/Min/Sec:	-93° 4' 18.42"

Permitting History

Original Permitting - ADEQ Letter dated August 03, 2012. Re: Concentrated Animal Feeding Operations General Permit (Tracking Number ARG590001 - AFIN 51-00164)

"The Notice of Intent (NOI) package for coverage under the General Permit No. ARG590000, for a concentrated animal feeding operation, was received on 6/25/2012. In accordance with Department policy, the NOI has been reviewed and has been determined to be complete. Coverage under this

general permit will be effective the date of this letter. A copy of the General Permit ARG590000 is available from the Department".

Permit Modification to allow Tanker Methods for field application. ADEQ Letter dated June 5, 2014. Re: Concentrated Animal Feeding Operations General Permit (Tracking Number ARG590001- AFIN 51-00164)

"The Notice of Intent (NOI) package for a substantial change of coverage under the General Permit No. ARG590000, for a concentrated animal feeding operation, was received on 2/11/2014. In accordance with Department policy, the NOI has been reviewed and has been determined to be complete. The substantial change will be effective the date of this letter. A copy of the General Permit ARG590000 is available from the Department".

Engineering Plans and Reports: Engineering plans and reports dated June 1, 2012 have been prepared, submitted and approved by ADEQ. Engineering plans were prepared by DeHaan, Grabs & Associates LLC, consulting engineers in accordance with ADEQ rules and regulations and can be viewed at the website listed below.

Engineering Plan Sheets
http://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/ARG590001_Maps_20120613.pdf

As Built Engineering Plan Sheets
http://www.adeq.state.ar.us/downloads/WebDatabases/PermitsOnline/NPDES/PermitInformation/ARG590001_As%20Built%20Engineering%20Plan%20Sheets_20130412.pdf

Existing Facility Field Review

Field Applications Areas: Areas viewed were pasture and hayland that were either not subject to flooding or only subject to occasional flooding. Slopes, after buffering, are within specified limits of 15% or less. The Owner clearly understood buffers and was following those buffer limitations to the letter. Vegetative cover was excellent with superior vegetative cover in those areas receiving nutrients from manure application.

Permit Application – Liner Addition: A permit change application is currently being processed with the intent to permit the owner to add a liner to the bottom of ponds 1 and 2 and a cover on pond 1 to flame the methane generated. Although this addition is not required, the owner continues to demonstrate willingness to add features above and beyond the regulatory requirements for operating this facility in an environmentally safe and acceptable manner.

Existing Facility Design Review

This facility has been previously reviewed by and approved by ADEQ and a permit for operation has been issued. The facility has been in operation since 2012. Several follow-up visits have been made, by

ADEQ, EPA, Big Creek Research & Extension Team (BCRET) and others, as the facility operations and permit application changes have been challenged by groups and individuals with environmental concerns. The Design and As-Built plans, prepared by DeHaan, Grabs & Associates LLC, were reviewed as a part of this permit application.

Key components of this review are as follows:

The facility was constructed as planned and designed. No exceptions, issues or concerns were identified. This facility was clearly well designed and constructed and continues to be operated and maintained in a safe manner. Specific key details are noted as follows:

Side slopes: All side slopes for pond 1 and 2 meet or exceed the Regulation 6 referenced requirements as shown on the Engineering Plans.

Top width: Top widths of pond 1 and 2 meet or exceed the Regulation 6 referenced requirements as shown on the Engineering Plans. The levees have a gravelly top for stability and accessibility during wet periods as required by the reference standards and normal operation procedures. The referenced standard requires that the facility be access**i**ble under all climatic conditions for inspections and normal operations.

Liner: This facility has an 18" constructed clay liner that exceeds the Regulation 6 referenced requirements and shown in the Engineering Plans, checked during construction and certified for operation by the department. As previously noted, the owner is proposing to add a synthetic liner to the ponds 1 and 2, that while not technically required, will further reduce potential seepage. In my professional opinion, this liner is not necessary but will provide added security that concerns others. (*Dennis K. Carman, P.E. AR, P.E. 7670*)

Vegetative cover: The vegetative cover on the back slopes of pond 1 and 2 were in excellent condition and has been well maintained. No signs of erosion or other embankment issues were observed. A specific review of the back slopes of the embankment was made during the field visit to identify any signs of seepage that could be coming from the facility. None were present as would be expected from a facility designed with this level of environmental protection by the embankment construction methods and liner requirements.

Manure transfer appurtenances: Adequate and operating properly

Staff Gage: In place and functioning

Sizing of the Facility and Manure Volume Calculations

Animal Population Description

The farm is a farrowing farm. Currently pigs are weaned each day with the weaned pigs being placed and maintained in nursery pens. On a weekly basis the weaned pigs are shipped off farm. While the

number and size of the shipped pigs vary, the weekly shipment should average 1500 pigs or less with an average weight of about 14 lbs. As the population of the nursery pens will vary from zero after shipment to 1500 or less prior to shipment the average nursery pig population is estimated as 750 animals.

Due to pen space and herd movement constrains the maximum number adult breeding and replacement animals are classified into the following groups: 6, 450 lb. Boars; 2252, 425 lb. Gestating Sows; and 420, 400 lb. Lactating Sows and 750, 14 lb. nursery pigs. In practice the normal operation populations will vary below these maximums resulting in actual manure production and volume requirements likely to be less than calculated.

Barn and Water Information

The animals are maintained in pens within the barns. The pen's slatted floors allow manure to be deposited in the pull plug pits located below the pens. The pits are pre-charged with water from an exterior manure storage pond. Periodically the pits are drained to transfer the pre-charged water with additional accumulated manure to the external manure storage ponds.

The farm uses "wet/dry" feeders extensively so that any animal drinking water spillage will fall into the feed troughs and be consumed with the feed. As a result, there will be effectively little spilled drinking water adding to the manure volume in the pits.

In addition to the manure deposited directly into the pits, the pressure washer system used to clean the pens, add approximately 929 gallons of wash water to the pits on a daily basis. See the Appendix Section *Barn Wash-Water Volume Determination* for details.

Precipitation Additions to Manure

The Barn pits drain into Pond 1, the first (southernmost) holding pond. There is an open concrete spillway that allows manure to flow from the first holding pond 1 into the second holding pond. Normally the barn pits are recharged from the second pond. However, at times water management needs may necessitate recharging the barn pits from the first pond.

As the ponds are exposed to the weather, precipitation will be added to the manure in the ponds. The amount of precipitation is determined by the area that drains into the ponds and the amount of precipitation minus evaporation. A topographic survey confirms that the top inside of the ponds and spillway embankments serve as the boundary for precipitation drainage into the ponds. Precipitation outside this boundary drains away from the ponds and does not become added to the manure. To simplify calculations, it is assumed that all the precipitation that falls within this 59,457 ft^2 area is added to the manure. This likely provides a slight over estimate of added volume since a portion of the precipitation will fall on soil and be absorbed and or evaporated without being added to the manure volume in the ponds.

Figure 1. Yellow outer boundary denotes the drainage area (59,457 ft^2) into the holding ponds. The red inner boundary denotes area of the top of the free board for holding Pond 1 (16,999 ft^2) and Pond 2 (34,618 ft^2).

Storage Volume Availability

In-Barn Pull Plug Pit Volumes

The pits provide a maximum of 768,145 gallons of in barn manure storage. Of this total, the Gestation Barn Pits have a maximum capacity of 563,710 gallons. The remaining capacity of 204,436 gallons is in the Farrowing Barn Pits. Refer to the Appendix Section *Barn Pull Plug Pit Volume Calculation* for determination of these volumes. Normally this maximum capacity is not fully utilized as the pits function primarily for manure collection and short term storage.

Topographic Elevation Survey of Existing Holding Ponds

To quantify potential precipitation additions to the manure volume, a topographic elevation survey of the catchments for the holding ponds was conducted utilizing total station survey equipment. This survey measured the elevation at various locations around the holding ponds, as well as points on the interior slopes and bottoms of the ponds. The survey was followed by a second survey utilizing a traditional transit and "Philadelphia Rod," which measured elevation at various points on the outside of the ponds to document drainage patterns away from the ponds. In addition, visual inspections and photographs were made to provide additional inputs. All this information was provided by BCRET and utilized to build a Graphical Information System (GIS) surface model that provides both precipitation

capture area of the holding ponds and storage volumes of holding ponds (Table 1 and Figures 1&2). This pond information and historical rainfall information are being used to estimate potential precipitation additions to manure slurry volume.

Table 1. Summary information for the topographic survey surface modeling area and volume.

Pond	Area	Total volume [3]	Available storage [4]
	ft^2	gallon	gallon
Pond 1	16,999 [1]	743,352	615,946
Pond 2	34,618 [1]	1,978,743	1,721,128
Sum of Pond 1 & 2	51,617[1]	2,722,095	2,337,074
Drainage area into ponds [4]	59,457[2]	Not applicable	Not applicable

[1] Area of the top of the pond's 1 ft. deep freeboard zone.

[2] Area in which water would drain into the ponds during a precipitation event.

[3] Total volume from the bottom of the pond to the top of the freeboard.

[4] Available storage is the total volume minus a 6 inch bottom layer, assumed as unpumpable, and the top 1 ft. freeboard layer.

Figure2. Holding Pond Contours (Survey by Big Creek Research & Extension Team)

Storage Volume Required

Design Requirements for 180 days of storage during wettest consecutive months which for Arkansas tend to be October to March. (Average precipitation less evaporation)

Manure Production

NRCS AWFH Production Estimates

Animal type		Boar	Gestating Sow	Lactating Sow	Nursery Pig	Grow-Finish (Replacement Gilts)
Weight range	lb				10 to 50	50 to 265
Design Weight	lb	440	440	423	27.5	154
Cycle Length	d	365	365	365	36	120
Weight	lb/d/au	19	25	59	88	65
Volume	ft^3/d/au	0.30	0.41	0.97	1.40	1.10
Moisture	%	90%	90%	90%	90%	90%
N	lb/d/au	0.14	0.16	0.45	0.92	0.54
P	lb/d/au	0.05	0.05	0.13	0.15	0.09
P205	lb/d/au	0.11	0.11	0.30	0.34	0.21
K	lb/d/au	0.09	0.11	0.28	0.35	0.24
K2O	lb/d/au	0.11	0.13	0.34	0.42	0.29

Farm Animal Population Information

Animal type		Boar	Gestating Sow	Lactating Sow	Nursery Pig	Grow-Finish (Replacement Gilts)	Totals
Number Animals		6	2252	420	750		3,428
Animal weight	lb	450	425	400	14		1,289
AU	1000 lb	2.70	957.10	168.00	10.50		1,138
Time Period	days	180	180	180	180		180

As Excreted Farm Totals Prior to Losses and Water Additions

Weight	lb	9,234	4,306,950	1,784,160	166,320		6,266,664
	ft^3	146	70,634	29,333	2,646		102,759
Volume	gal	1,091	528,342	219,409	19,792		768,634
Moisture	%	0.90	0.90	0.90	0.90		0.90
N	lb	68	27,564	13,608	1,739		42,979
P	lb	24	8,614	3,931	284		12,853
P2O5	lb	56	19,726	9,002	649		29,433
K	lb	44	18,951	8,467	662		28,123
K2O	lb	52	22,741	10,161	794		33,748

Wash Water

Additional Non-Precipitation Water to Manure

Type of Addition	Daily (gal)	Total for time (gal)	Per Animal gal/hd/day	% of Manure Vol %
Add'l Flush Water	0	0	0.00	0.0%
Wash Water	929	167,220	0.27	21.8%
Total from barn	929	167,220	0.27	21.8%

Climatic Data for Newton County Arkansas

Precipitation Information (in)

Month	Precipitation	Evaporation	P-E	P-E >=0	P-E used	
Jan	2.06	0.72	1.34	1.34	1.34	
Feb	2.75	1.08	1.67	1.67	1.67	
Mar	4.58	2.52	2.06	2.06	2.06	
Apr	3.97	3.60	0.37	0.37		
May	5.06	4.68	0.38	0.38		
Jun	3.27	4.68	-1.41	0.00		
Jul	2.94	5.40	-2.46	0.00		
Aug	2.74	5.04	-2.30	0.00		
Sep	4.15	3.24	0.91	0.91		
Oct	3.47	2.88	0.59	0.59	0.59	
Nov	3.88	1.44	2.44	2.44	2.44	
Dec	3.55	0.72	2.83	2.83	2.83	
Totals	42.42	36.00	6.42	12.59	10.93	in
					0.91	ft

25-yr, 24-Hr Storm	7	in
	0.58	ft
Rain Catch Area	59,457	ft^2
	1.36	ac

Precipitation Accumulation for Time Period
Accumulation (in/12) X Rain Catch Area (ft^2)

	ft^3	gal
Precipitation	54,155	405,083
25-yr, 24-Hr Storm	34,683	259,431
Total	88,839	664,513

Summary of Required Storage for 180 day cycle (wet months)

Storm Storage = 259,431 gals. (To remain empty and available at all times for Storm Events)
Manure Production = 768,634 gals. (4,270 gals/day)
Wash Water = 167,220 gals. (929 gals/day)
Precipitation= 405,083 gals. (2,250 gals/day)
Total Required Storage = 1,600,368 gals.

Sum of Pond 1 and 2 available storage = 2,337,074 gals.

Conclusion: Total available storage in ponds 1 and 2 exceeds requirements by 736,706 gals.

System Evaluation of Ponds 1 & 2

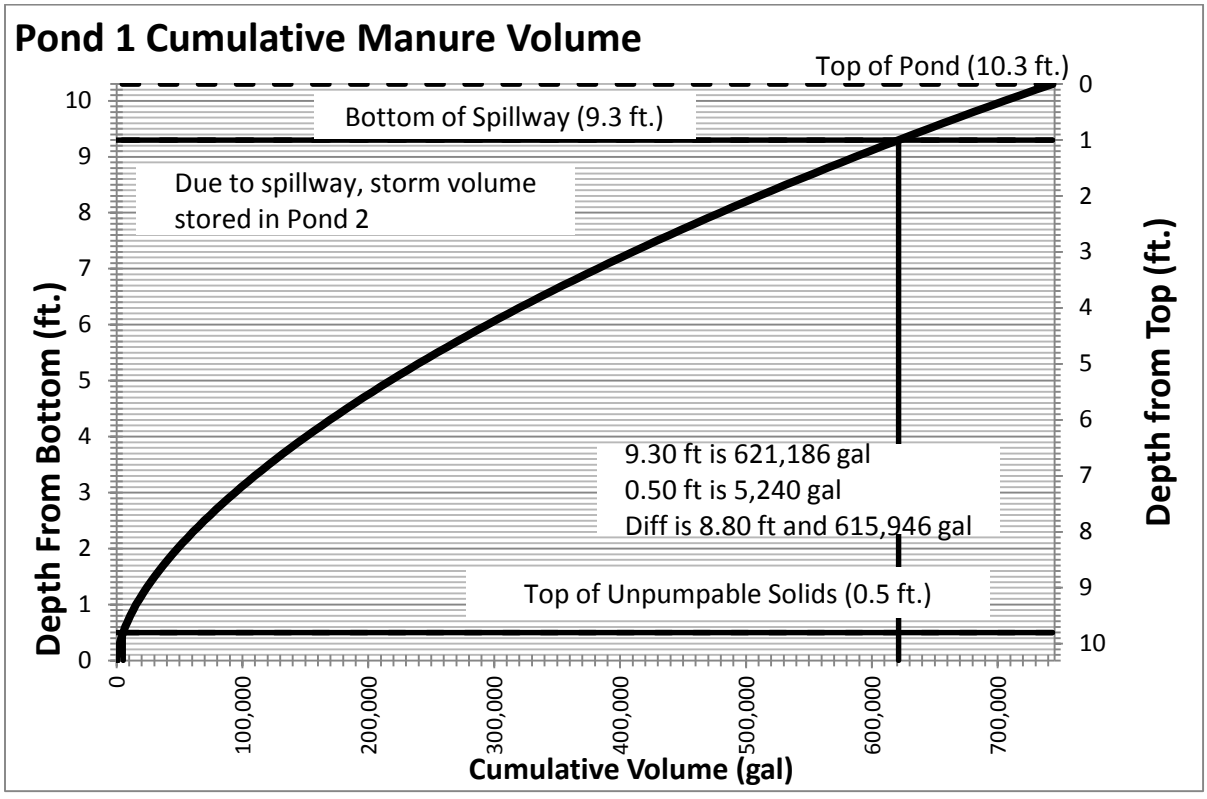
The manure and wash water collection operation consist of an intermittent flow through system from the housing structures to pond 1 then into pond 2. Each pond will maintain a 1.0 foot freeboard. All outside runoff from the surrounding area plus direct rainfall into the ponds along with a volume equal to a 24 hour 25 year storm event will be stored in pond 2. Staff gage located in pond 2 will be used to indicate the maximum accumulation of effluent before removal by pumping is required. The under house collection pits are periodically recharged by recycling water from pond 2. Occasionally due to pond 2 water management needs pond 1 may supply recycle water to the pits.

Water level management and nutrient application pumping may occur from either Pond 1 or Pond 2 to manage water levels and properly utilize available nutrients and maximize environmental protection provided by matching available storage with the Nutrient Management Plan. Both ponds will be pumped directly into land application equipment such as tankers, irrigation equipment, or other commonly accepted manure transfer and application equipment. As needed, to maintain available volumes, both ponds will be agitated during pumping to remove settled solids.

As built drawings and final designs of both ponds were completed in April 2013 by DeHaan; Grabs & Associates. The only change since the initial construction has been the addition of a junction box at the intersection of the discharge pipes from each of the housing facilities for cleanout purposes. An additional well has also been added to furnish potable water for the showers and is not a part of the swine production and manure management facility.

Pond 1

Based on the pond configuration shown in Figure 1 the stage-storage curve for Pond 1 is as follows



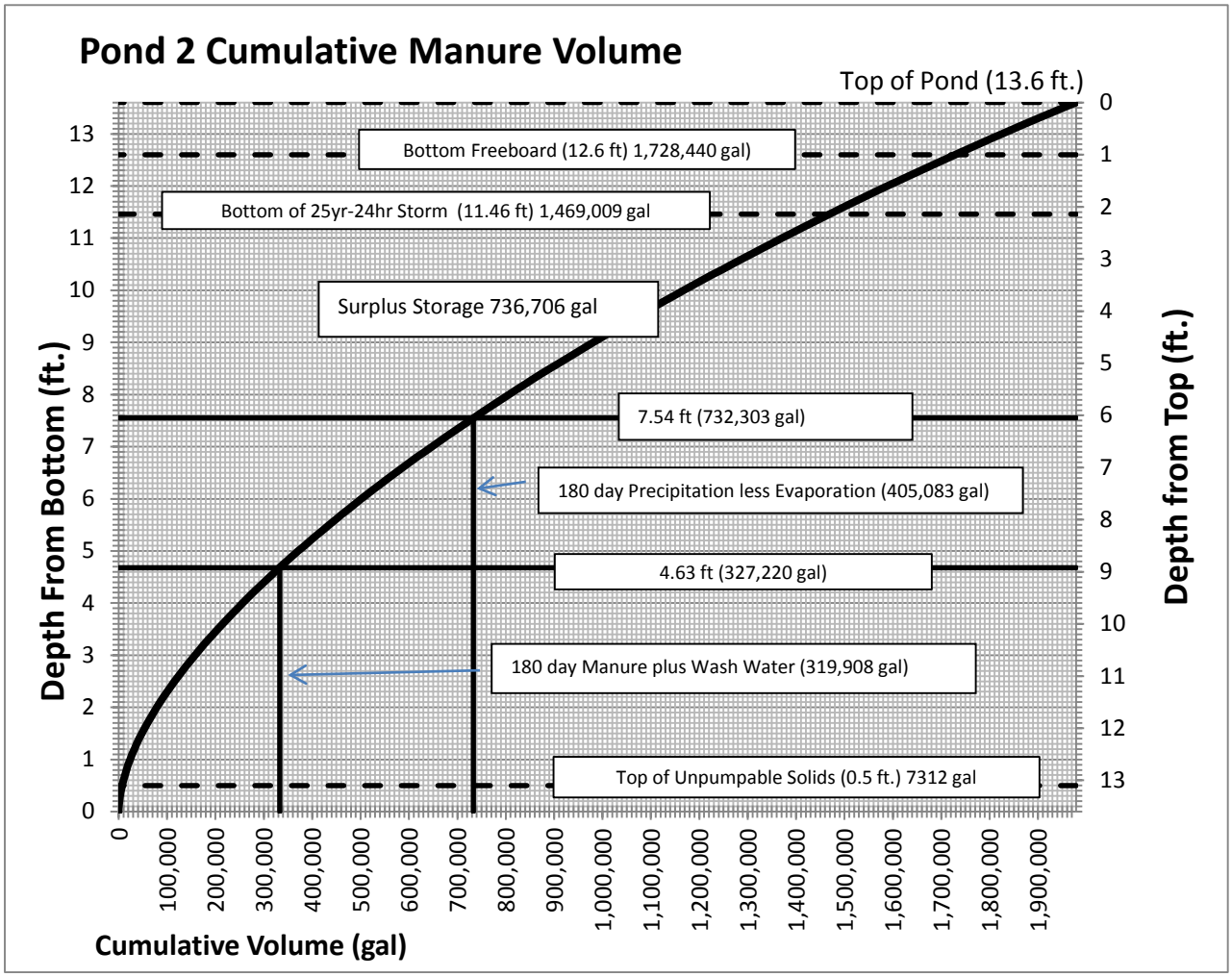
Pond 1 serves as the primary receiving area for all discharges of manure slurry which will allow most of the solids to settle before effluent flows into Pond 2. The concrete spillway from Pond 1 to Pond 2 ensures the 1 foot freeboard of Pond 1 will be maintained.

Pond 2

Pond 2 will store the remaining manure slurry produced plus all of the runoff volume that can be expected for the wettest 180 day period. The one foot freeboard and one half foot of unpumpable liquid will be deducted as unavailable from the pond's available storage. Calculations are as follows:

Manure = 768,634 gals (180 days) = 4,270 gal/day.
Wash water = 167,220 gals (180 days) = 929 gal/day
Subtotal Manure Slurry = 935,854 gals (180 days) = 5,199 gal/day
Manure Slurry flow into pond 2 = Total Manure Slurry - Pond 1 Available Storage = 935,854 - 615,946 = 319,908 gals (180 days) = 1,777 gal/day
Total Runoff for 180 wet months precipitation less evaporation = 405,083 gals = 2,250 gal/day
Storm Storage = 259,431 gals. (To maintain empty and available at all times for storm events)
Total Available Volume Required for Pond 2= 319,908 + 405,083 + 259,431 = 984,422 gals
Total Available in Pond 2 as modeled = 1,721,128 gals
Conclusion: Available Storage Volume in ponds 2 exceeds requirements by 736,706 gals.

Based on the pond configuration shown in Figure 1 the stage-storage curve for Pond 2 is as follows:



A staff gage will be used as a management tool as well as a means to indicate the maximum liquid level permissible before pumping.

The level of liquid accumulation in pond 2 should be monitored and maintained so that the storm volume is only encroached during a 25 year 24 hour storm event. The freeboard volume should never be encroached. The additional storage capacity will facilitate proper water level management. In addition it also helps with providing flexibility in matching nutrients and nutrient application timing more easily with the nutrient management plan. It also provides house pit recycle water reserve to help manage in house and ventilation discharge odors.

Number of Days Storage

The actual maximum days of storage of manure slurry is based on pond storage capacity and normal runoff and storm water accumulations.

Total Pond Storage Available = 2,337,074 gals (Total Volume in both ponds less the volumes occupied by freeboard, 25 yr. storm runoff and an unpumpable 0.5 ft bottom layer)

Average manure production= 4,270 gals/day

Wash water = 929 gals/day

Runoff of 9 months (270 days) precipitation less evaporation (where rainfall exceeds evaporation [September through May]) = 12.59 ins. = 1.05 ft.

Drainage Area = 59,457 ft^2

The 270 day daily runoff= 59,457 ft^2 x 1.05 ft. x7.48 gal/ft^3. / 270 days = 1728 gal/day

Volume Accumulation for Sept through May = (4270+929+1728) x 270 = 1,870,290 gals.

Remaining Volume in Ponds 1 & 2 after 9 months accumulation (September - May) = 2,337,074 gals available storage – 1,870,290 gals accumulation – 259,431 gals storm water = 207,353 gals.

Remaining 3 months (June – August) where evaporation exceeds rainfall, the only accumulation is manure slurry = 4,270 + 929 = 5,199 gals/day.

Additional days of storage above the 270 days = 207,353 gals / 5199 gals / day = 40 days

Maximum Days of Storage = 270 + 40 = 310 days

Appendix

Barn Wash-Water Volume Determination

Discussions with C&H management revealed that the farm used "wet/dry" feeders so that any animal drinking water spillage would fall into the feed troughs and consumed with the feed. As a result, there will be effectively no spilled drinking water adding to manure slurry volume. Estimates for pen wash down water were provided in the form of the number of pressure washers, the flow rates in gallons per minute, and the average time spent washing each day. As a more direct determination of pen wash water additions to the manure was desired, two standard water meters were purchased and installed to measure all the water used by two pressure washers used in the barns (Figure 9).

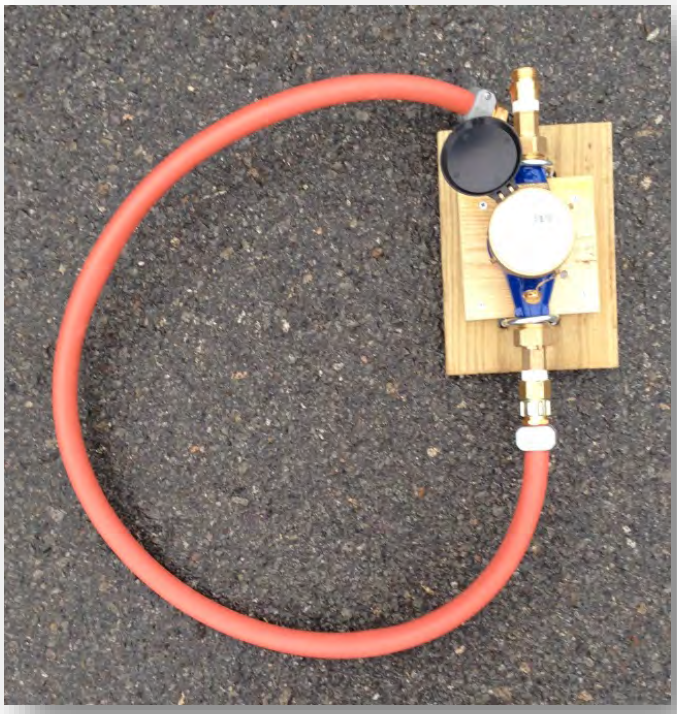


Figure 1. Standard water meter with hose adapters and mounting base installed to measure water use during pressure washing to clean animal pens.

Periodically, pictures of the meters were submitted providing readings and the date of the readings to document cumulative and daily wash-water volumes added to the manure slurry volume. From March 20, 2014 to September 9, 2014 a total of 161,722 gallons of water was used to wash the pens with the water then draining into the manure pits. The average daily water use over these 174 days was 929 gallons/day. (Table 8 and Figures 10 and 11).

Table 1. Pen wash-water meter readings and water volumes in gallons.

Date	Days	Meter 1			Meter 2			Total	
		Reading	Cumulative	Daily average	Reading	Cumulative	Daily average	Cumulative	Daily average
		---------- Gallons ----------							
3/20/2014		126.5			80.2				
9/10/2014	174	96,610	96,483	554	65,319	65,239	375	161,722	929

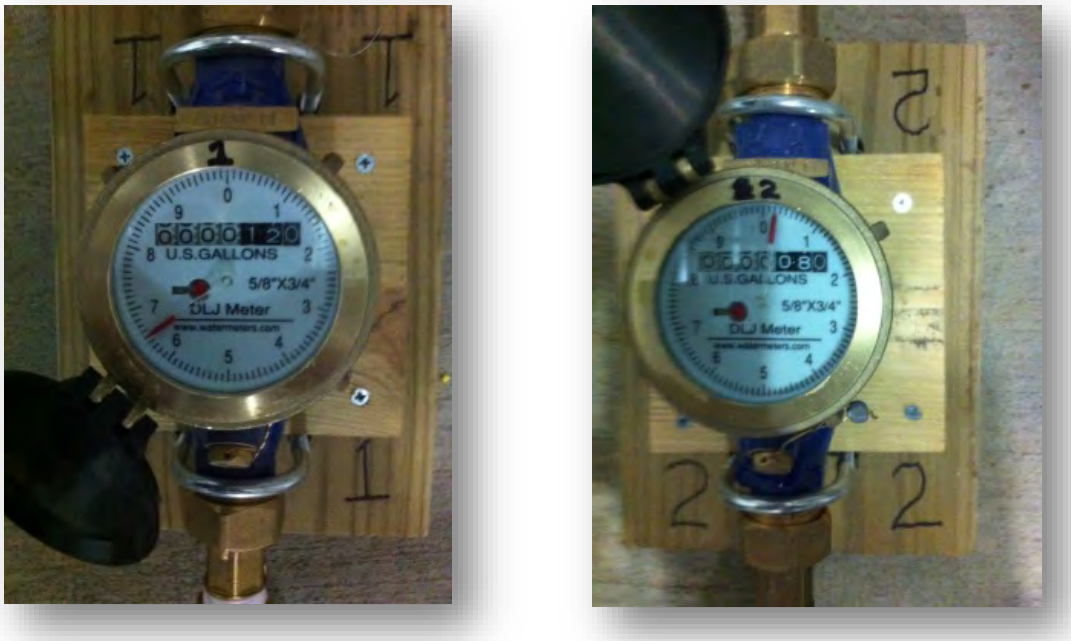


Figure 2. Two water meters purchased and installed on March 20th, 2014 to measure pen wash down water additions to manure volume. Initial meters readings were 126.6 and 80.2 gallons for meter 1 and 2.

Figure 3. Two water meters purchased and installed on March 20th, 2014 to measure pen wash down water additions to manure volume. Meters readings were 96,609.6 and 65,319.3 gallons for meter 1 and 2 on September 10th, 2014.

Miscellaneous

Barn Pull Plug Pit Volume Calculations
Based on Spread Sheet File Pull Pit Volumes 5_28_15.xlsx (Separate Document) by: Big Creek Research & Extension Team (BCRET)

Pond Volume Calculations
Based on Spread Sheet File Calc Chart Ponds Elev Model As built Volumes 5-19-2015.xlsx (Separate Document) by: Big Creek Research & Extension Team (BCRET)

Section 3

Land Application Site Information

Land Application Site Table including Latitude and Longitude for each field

Setback Distance Table (BMP Buffers)

Land Use Contracts

Letters of Consent with Neighboring Landowners

Land Application Sites								
Field	Landowner	New/Existing	Section	Township	Range	Spreadable Acreage	Longitude	Latitude
1	Jason Henson	Existing	25	15N	20W	8.4	93°3'32.372"W	35°55'1.349"N
2	Jason Henson	Existing	25	15N	20W	6.0	93°3'43.637"W	35°54'55.793"N
3	Charles Campbell	Existing	25/26	15N	20W	15.2	93°3'53.07"W	35°54'59.383"N
4	Jason Henson	Existing	36	15N	20W	7.2	93°3'39.78"W	35°54'49.65"N
*5	Louetta/Glen Ricketts	New	23	15N	20W	9.7	93°4'30.114"W	35°55'53.941"N
*6	Louetta/Glen Ricketts	New	26	15N	20W	5.6	93°4'49.381"W	35°55'48.19"N
*6A	Shawn Ricketts	New	26	15N	20W	7.9	93°4'27.597"W	35°55'42.631"N
7	E.G. Campbell	Existing	26	15N	20W	64.3	93°4'12.854"W	35°55'24.9"N
*7A	E.G. Campbell	New	26	15N	20W	28.3	93°4'14.499"W	35°55'27.002"N
8	Charles Campbell	Existing	26/35	15N	20W	7.2	93°4'7.519"W	35°54'56.821"N
8A	Charles Campbell	Existing	35	15N	20W	1.4	93°4'17.42"W	35°54'45.295"N
9	Charles Campbell	Existing	35	15N	20W	25.2	93°4'18.724"W	35°54'43.111"N
9A	Charles Campbell	Existing	26/35	15N	20W	10.3	93°4'2.05"W	35°54'56.223"N
10	Fayma Dickey	Existing	35	15N	20W	14.1	93°4'18.767"W	35°54'42.431"N
10A	Billy F. Cheatham	Existing	35	15N	20W	16.4	93°4'10.843"W	35°54'30.331"N
11	Fayma Dickey	Existing	35	15N	20W	14.2	93°4'22.582"W	35°54'33.004"N
12	Robert Flud	Existing	35	15N	20W	11.4	93°4'15.143"W	35°54'13.541"N
13	Charles Campbell	Existing	2	14N	20W	11.6	93°4'21.856"W	35°53'56.972"N
13A	Charles Campbell	Existing	35/2	15N/14N	20W	30.7	93°4'35.599"W	35°53'59.62"N
13B	Charles Campbell	Existing	35	15N	20W	8.6	93°4'20.307"W	35°54'3.407"N
14	Charles Campbell	Existing	35	15N	20W	8.1	93°4'38.516"W	35°54'22.791"N
15	Clayel Criner	Existing	2	14N	20W	22.5	93°5'2.342"W	35°53'43.551"N
*15A	Clayel Criner	New	2	14N	20W	10.4	93°4'54.416"W	35°53'52.182"N
15B	Clayel Criner	Existing	2	14N	20W	15.0	93°5'2.42"W	35°53'43.458"N
16	Barbara Hefley	Existing	2	14N	20W	15.2	93°4'38.587"W	35°53'35.201"N

Land Application Sites (Continued)								
Field	Landowner	New/Existing	Section	Township	Range	Spreadable Acreage	Longitude	Latitude
17	Jason Criner	Existing	34/35 2/3	15N 14N	20W 20W	31.9	93°5'3.665"W	35°53'55.374"N
*18	Murl Bryant	New	25	15N	20W	22.6	93°3'27.778"W	35°55'32.715"N
*19	Murl Bryant	New	25	15N	20W	10.3	93°3'34.212"W	35°55'37.349"N
*20	Rondal Campbell	New	35	15N	20W	21.6	93°4'17.971"W	35°54'45.772"N
*21	Rondal Campbell	New	35	15N	20W	20.3	93°4'59.439"W	35°54'35.005"N
*21A	Rondal Campbell	New	34	15N	20W	15.6	93°5'10.85"W	35°54'44.478"N
*21B	Rondal Campbell	New	35	15N	20W	6.0	93°4'54.343"W	35°54'48.234"N
*22	Kelis Campbell	New	26	15N	20W	35.5	93°4'50.239"W	35°55'9.687"N
*23	Greg Grice	New	22	15N	20W	28.1	93°5'43.327"W	35°56'27.709"N
*24	Donald Haddock	New	23	15N	20W	8.0	93°4'35.322"W	35°55'59.004"N
*32	Howard Criner	New	22	15N	20W	10.0	93°5'22.606"W	35°56'26.454"N
*33	Howard Criner	New	22	15N	20W	4.0	93°5'16.715"W	35°56'32.636"N
*34	Rondal Campbell	New	26	15N	20W	13.5	93°4'42.775"W	35°55'2.033"N
*35	C & H Hog Farms, Inc.	New	25	15N	20W	18.4	93°3'14.369"W	35°55'10.6"N
*36	C & H Hog Farms, Inc.	New	25	15N	20W	9.3	93°3'1.819"W	35°55'19.23"N

***Indicates new land that has not been previously permitted.** All other land was included in the original NPDES permit. To better reflect land management, some fields were further divided into subsets (A or A & B) due to cross fencing or natural field barriers. ArcGIS software utilized to calculate longitude, latitude, PLSS and acreage.

Manure Application Setback Distance Table (BMP's)

Field	Land Owner	Open Acres	50 ft. Buffer	100 ft. Buffer	500 ft. Buffer	Steep Slope Buffer	Spreadable Acres	Land Use	Grass Type
1	Jason Henson	17.7	0	0.5+0.1	6.5	2.2	8.4	Rotational	Mixed
2	Jason Henson	8.8	0	0	0	0.3+1.7+0.1+0.7	6.0	Rotational	Mixed
3	Charles Campbell	16.7	0.9	0.6	0	0	15.2	Rotational	Mixed
4	Jason Henson	10.9	0	0.6+0.3+0.6+0.7	0	1.5	7.2	Rotational	Mixed
5*	Louetta/Glen Ricketts	13.3	0.6	2.3+0.7	0	0	9.7	Rotational	Mixed
6*	Louetta/Glen Ricketts	9.1	0	0	0	1.4+0.6+1.5	5.6	Rotational	Mixed
6A*	Shawn Ricketts	17.5	0.8	0.6	0	8.2	7.9	Rotational	Mixed
7	E.G. Campbell	72.9	2.2	0.1+0.5+0.7+3.9+0.5+0.7	0	0	64.3	Rotational	Mixed
7A*	E.G. Campbell	35.1	2.7	3.8+0.1+0.2	0	0	28.3	Rotational	Mixed
8	Charles Campbell	10.7	0.4+0.7+0.1	1.5+0.8	0	0	7.2	Rotational	Mixed
8A	Charles Campbell	2.9	0.5	0.5+0.5	0	0	1.4	Rotational	Mixed
9	Charles Campbell	29.6	0.1	1.8+0.4+2.1	0	0	25.2	Rotational	Mixed
9A	Charles Campbell	11.6	0	0.9+0.3+0.1	0	0	10.3	Rotational	Mixed
10	Fayma Dickey	14.7	0.1	0.1+0.4	0	0	14.1	Rotational	Mixed
10A	Billy F. Cheatham	17.7	0	0.6+0.4+0.3	0	0	16.4	Rotational	Mixed
11	Fayma Dickey	19.2	0.3	0.4	0	1.1+2.3+0.7+0.1+0.1	14.2	Rotational	Mixed
12	Robert Flud	13.1	0.6 + 0.4	0.5 + 0.2	0	0	11.4	Rotational	Mixed
13	Charles Campbell	13.0	0.3	0.3	0	0.8	11.6	Rotational	Mixed
13A	Charles Campbell	36.9	1.0	0.5	0	1.7+2.4+0.6	30.7	Rotational	Mixed
13B	Charles Campbell	15.5	0.9	0.2+0.2+0.4	0	2.0+3.2	8.6	Rotational	Mixed
14	Charles Campbell	15.1	1.3	0.4	0	5.3	8.1	Rotational	Mixed
15	Clayel Criner	28.2	0.1+0.4	0.3	0	4.7+0.2	22.5	Rotational	Mixed
15A	Clayel Criner	14.2	0.7	0	0	3.1	10.4	Rotational	Mixed
15B	Clayel Criner	21.0	0	0.2+0.1	0	4.1+1.6	15.0	Rotational	Mixed
16	Barbara Hefley	21.3	0.5	2.0+0.8+2.8	0	0	15.2	Rotational	Mixed
17	Jason Criner	36.1	0.9+1.3	0.6+1.4	0	0	31.9	Rotational	Mixed
18*	Murl Bryant	29.6	1.3+0.1+0.7	0.5	4.4	0	22.6	Rotational	Mixed
19*	Murl Bryant	13.3	1.0	2.0	0	0	10.3	Rotational	Mixed

Manure Application Setback Distance Table (BMP's) continued

Field	Land Owner	Open Acres	50 ft. Buffer	100 ft. Buffer	500 ft. Buffer	Steep Slope Buffer	Spreadable Acres	Land Use	Grass Type
20*	Rondal Campbell	24.8	0.1	1.0+1.1+0.8	0	0.2	21.6	Rotational	Mixed
21*	Rondal Campbell	49.8	0	2.9+1.7+0.5+0.5+0.3+1.8	0	10.1+11.4+0.3	20.3	Rotational	Mixed
21A*	Rondal Campbell	19.8	0	0.2	0	4.0	15.6	Rotational	Mixed
21B*	Rondal Campbell	7.1	0	0	0	0.7+0.4	6.0	Rotational	Mixed
22*	Kelis Campbell	46.4	0	0.4		1.6+0.2+8.7	35.5	Rotational	Mixed
23*	Greg Grice	33.8	1.0+2.0	0.6+0.4+0.5+0.4+0.6+0.2	0	0	28.1	Rotational	Mixed
24*	Donald Haddock	11.6	0	3.1+0.5	0	0	8.0	Rotational	Mixed
32*	Howard Criner	11.9	0.8	1.1	0	0	10.0	Rotational	Mixed
33*	Howard Criner	5.9	0.4	1.2+0.3	0	0	4.0	Rotational	Mixed
34*	Rondal Campbell	16.5	0.5	0.4	0	1.1+0.1+0.6+0.3	13.5	Rotational	Mixed
35*	C & H Hog Farms Inc	26.3	1.7+0.5	0.5	0	5.2	18.4	Rotational	Mixed
36*	C & H Hog Farms Inc	12.1	0	0.5+0.3	0	0.8+0.5+0.7	9.3	Rotational	Mixed
	Total Open Acres:	**831.2**				**Total Spreadable Acres:**	**630.0**		

***Indicates new land that has not been previously permitted.** All other land was included in the original NPDES permit. To better reflect land management, some fields were further divided into subsets (A or A & B) due to cross fencing or natural field barriers. ArcGIS software utilized to calculate all acreage and buffers.

LAND USE CONTRACT

I, Jason Henson (Name of Landowner), agree to allow C&H Hog Farms, Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 21.6 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
1	SW	25	15N	20W	8.4
2	SW	25	15N	20W	6.0
4	NW	36	15N	20W	7.2

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Philip Campbell — Permittee's Signature — 2-19-16 — Date

Jason Henson — Landowner Signature — 2-19-16 — Date

LAND USE CONTRACT

I, Lovetta Ricketts (Name of Landowner), agree to allow C+H Hog farms Inc. (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 15.3 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
5	SW/SE	23	15N	20W	9.7
6	NW	26	15N	20W	5.6

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-18-15 — Date

Lovetta Ricketts — Landowner Signature — 10-25-15 — Date

LAND USE CONTRACT

I, Shawn Ricketts (Name of Landowner), agree to allow C+H Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 7.9 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
6A	NW	26	15N	20W	7.9

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-16-15 — Date

Shawn Ricketts — Landowner Signature — 10-25-15 — Date

LAND USE CONTRACT

I, E.G. Campbell (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 92.6 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
7	NE/SE	26	15 N	20 W	64.3
7A	NE	26	15N	20 W	28.3

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

E.G. Campbell — Landowner Signature — 11-10-15 — Date

LAND USE CONTRACT

I, Charles Campbell (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 59.3 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
3	SW SE	25 26	15N	20W	15.2
8+8A	SE NE	26 35	15N	20W	8.6
9+9A	NE	26 35	15N	20W	35.5

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-11-15 — Date

Charles Campbell — Landowner Signature — 10-23-15 — Date

LAND USE CONTRACT

I, Fayma Dickey (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 28.3 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
10	NE	35	15N	20W	14.1
11	NW/NE	35	15N	20W	14.2

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature
11-10-15 — Date
Fayma Dickey — Landowner Signature
10-28-15 — Date

LAND USE CONTRACT

I, Billy F. Cheatham (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 16.4 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
10A	NE/SE	35	15N	20W	16.4

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

Billy F. Cheatham — Landowner Signature — 10-27-15 — Date

LAND USE CONTRACT

I, Robert Flud (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 11.4 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
12	SE	35	15N	20W	11.4

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

Robert Flud — Landowner Signature — 10-27-15 — Date

LAND USE CONTRACT

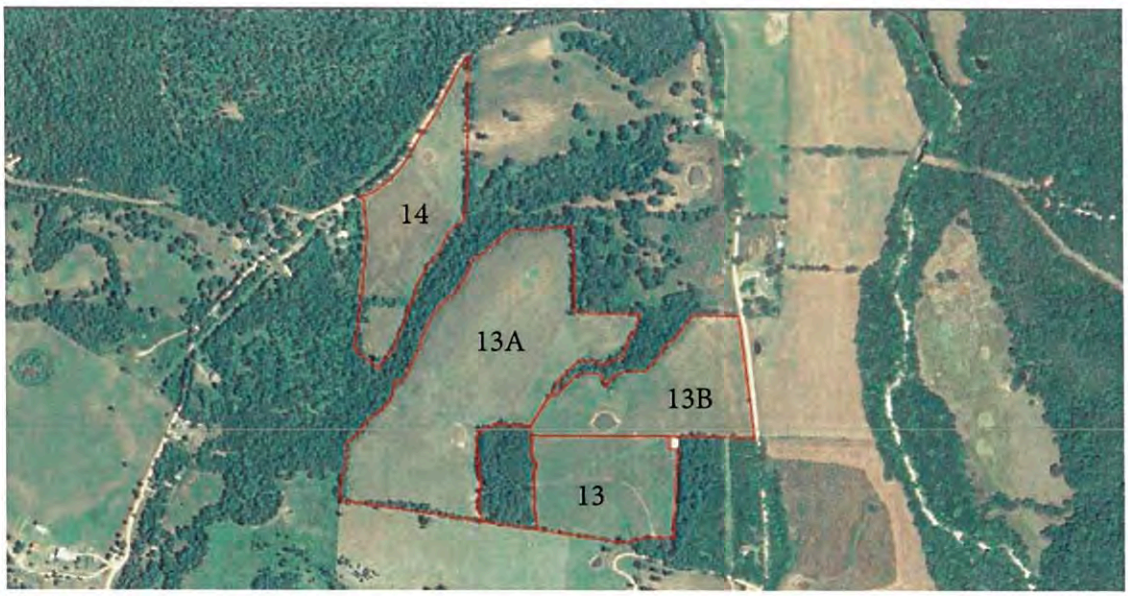
I, Charles Campbell (Name of Landowner), agree to allow C + H Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 59.0 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
13	NE	2	14N	20W	11.6
13A	SW NW	35 2	15N 14N	20W	30.7
13B	SE	35	15N	20W	8.6
14	SW	35	15N	20W	8.1

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.



Jason Henson — Permittee's Signature — 11-10-15 — Date

Charles Campbell — Landowner Signature — 10-23-15 — Date

LAND USE CONTRACT

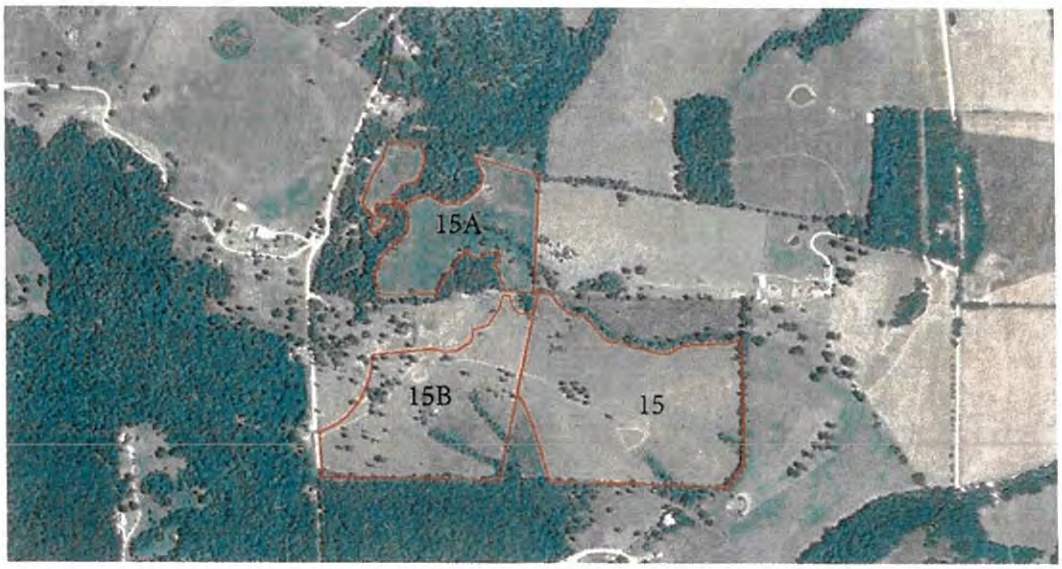
I, Clayel Criner (Name of Landowner), agree to allow C+H Hog farms Inc. (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 47.9 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
15	NW	2	14N	20W	22.5
15A	NW	2	14N	20W	10.4
15B	NW	2	14N	20W	15.0

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.



Jason Henson — Permittee's Signature
11-10-15 — Date
C. Clayel Criner — Landowner Signature
11-10-15 — Date

LAND USE CONTRACT

I, Barbara Hefley (Name of Landowner), agree to allow C+H Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 15.2 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
16	SW	2	14N	20W	15.2

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature
11-10-15 — Date
Barbara Hefley — Landowner Signature
11/9/15 — Date

LAND USE CONTRACT

I, Jason Criner (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 31.9 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
17	SE/SW	34/35	15N	20W	31.9
	NW/NE	2/3	14N	20W	

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

Jason Criner — Landowner Signature — 11-10-15 — Date

LAND USE CONTRACT

I, Murl Bryant (Name of Landowner), agree to allow CHH Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 32.9 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
18	NW/NE	25	15N	20W	22.6
19	NW	25	15N	20W	10.3

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 Date

Murl Bryant — Landowner Signature — 10-23-15 Date

LAND USE CONTRACT

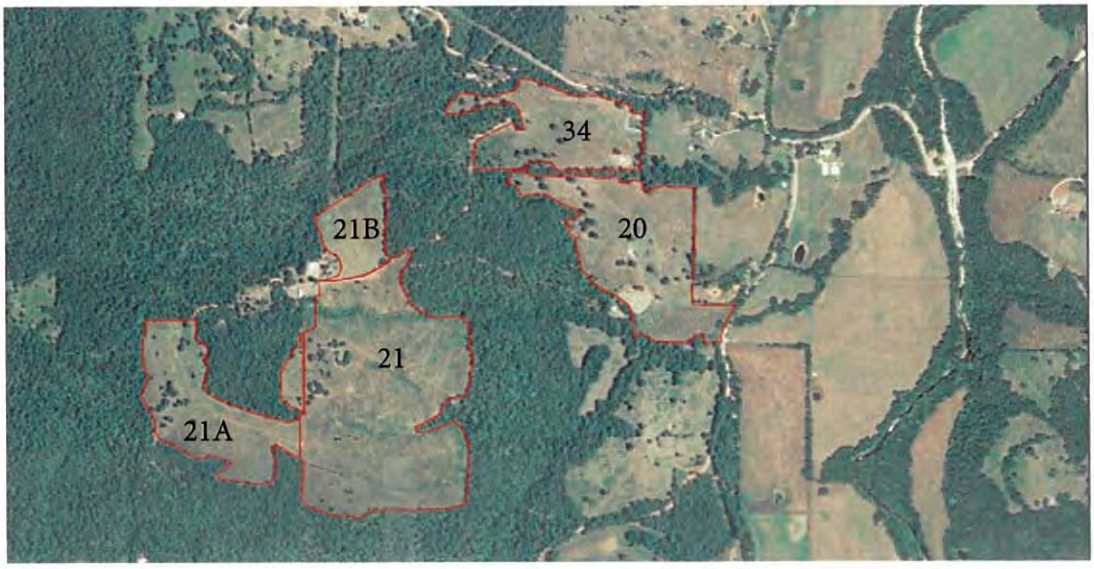
I, Rondal Campbell (Name of Landowner), agree to allow C+H Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 77.0 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
20	NW/NE	35	15N	20W	21.6
21	NW	35	15N	20W	20.3
21A+B	NE NW	34 35	15N	20W	21.6
34	SW	26	15N	20W	13.5

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.



Jason Henson — Permittee's Signature — 11-10-15 Date

Rondal Campbell — Landowner Signature — 10-12-15 Date

LAND USE CONTRACT

I, Kelis Campbell (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 35.5 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
22	NW/SW	26	15N	20W	35.5

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

Kelis Campbell — Landowner Signature — 11-10-15 — Date

LAND USE CONTRACT

I, Greg Grice (Name of Landowner), agree to allow C+H Hog farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 28.1 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
23	NW	22	15N	20W	28.1

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

Landowner Signature — 11-10-15 — Date

LAND USE CONTRACT

I, Donald Haddock (Name of Landowner), agree to allow C+H Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 8.0 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
24	SW	23	15N	20W	8.0

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 10-10-15 — Date

Donald Haddock — Landowner Signature — 11-10-15 — Date

LAND USE CONTRACT

I, Howard Criner (Name of Landowner), agree to allow C+H Hog Farms Inc (Name of Permittee) to land apply Swine (Type of Waste) waste from his/her operation located in the Newton (County of Operation) County to 14.0 (Total Acreage Available) acres of my property located in Newton (County of Application Site) County.

A description of the areas to be used as waste application sites are as follows:

Site No.	¼ Section	Section	Township	Range	Available Acreage*
32	NE	22	15N	20W	10.0
33	NE	22	15N	20W	4.0

*Available acreage is the total acreage minus buffer zone areas.

I am also aware that the land applicator or the owner of the operation is to apply waste according to the management plan developed and submitted by the Natural Resource Conservation Service or a registered professional engineer or an Arkansas Natural Resources District Water Quality Technician and as per guidelines and conditions set forth by the Arkansas Department of Environmental Quality.

Jason Henson — Permittee's Signature — 11-10-15 — Date

Howard Criner — Landowner Signature — 10-23-15 — Date

Setback Requirement Waiver

I, Zelmer Campbell, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater and manure adjacent to my property line and neighboring occupied buildings. I understand this allows C & H Hog Farms to apply wastewater and manure within 50 feet of my property line and within 500 feet of neighboring occupied buildings.

Zelmer Campbell — 2-18-16

Landowner Signature — Date

Jason Henson — 2-18-16

C & H Hog Farms, Inc. Representative — Date

Setback Requirement Waiver

I, Darlene Kent, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater and manure adjacent to my property line and neighboring occupied buildings. I understand this allows C & H Hog Farms to apply wastewater and manure within 50 feet of my property line and within 500 feet of neighboring occupied buildings.

Darlene Kent — 2/18/16

Landowner Signature — Date

Jason Henson — 2-18-16

C & H Hog Farms, Inc. Representative — Date

Setback Requirement Waiver

I, James C. Campbell, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater next to my property line.

James C. Campbell
Landowner Signature

7-21-14
Date

Jason Henson
C & H Hog Farms, Inc. Representative

7-21-14
Date

012261

Field 14

Setback Requirement Waiver

I, Bob Freeman, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater and manure adjacent to my property line and neighboring occupied buildings. I understand this allows C & H Hog Farms to apply wastewater and manure within 50 feet of my property line and within 500 feet of neighboring occupied buildings.

Bob Freeman
Landowner Signature

3-22-14
Date

Jason Henson
C & H Hog Farms, Inc. Representative

3-22-14
Date

Setback Requirement Waiver

I, Jason Baethke, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater and manure adjacent to my property line and neighboring occupied buildings. I understand this allows C & H Hog Farms to apply wastewater and manure within 50 feet of my property line and within 500 feet of neighboring occupied buildings.

Landowner Signature — Date: 5-4-15

Jason Henson — Date: 5-4-15

C & H Hog Farms, Inc. Representative

Setback Requirement Waiver

I, Don T. Rockwell, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater and manure adjacent to my property line and neighboring occupied buildings. I understand this allows C & H Hog Farms to apply wastewater and manure within 50 feet of my property line and within 500 feet of neighboring occupied buildings.

Landowner Signature

3-26-14
Date

Jason Henson
C & H Hog Farms, Inc. Representative

3-26-14
Date

Setback Requirement Waiver

I, Brad Anderson, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater next to my property line.

Brad Anderson
Landowner Signature

1-24-15
Date

Richard Tenpenny
C & H Hog Farms, Inc. Representative

1-24-15
Date

Setback Requirement Waiver

I, J.C. Freeman, do hereby give consent to C & H Hog Farms, Inc. to apply wastewater and manure adjacent to my property line and neighboring occupied buildings. I understand this allows C & H Hog Farms to apply wastewater and manure within 50 feet of my property line and within 500 feet of neighboring occupied buildings.

J.C. Freeman — 2-18-16

Landowner Signature — Date

Jason Henson — 2-18-16

C & H Hog Farms, Inc. Representative — Date

Section 4

Collected Information:

County Road Map Overview

Aerial Overview Map of Land Application Sites

Aerial Maps of Individual Fields with BMP Buffers

Soils Maps

Topographical Map

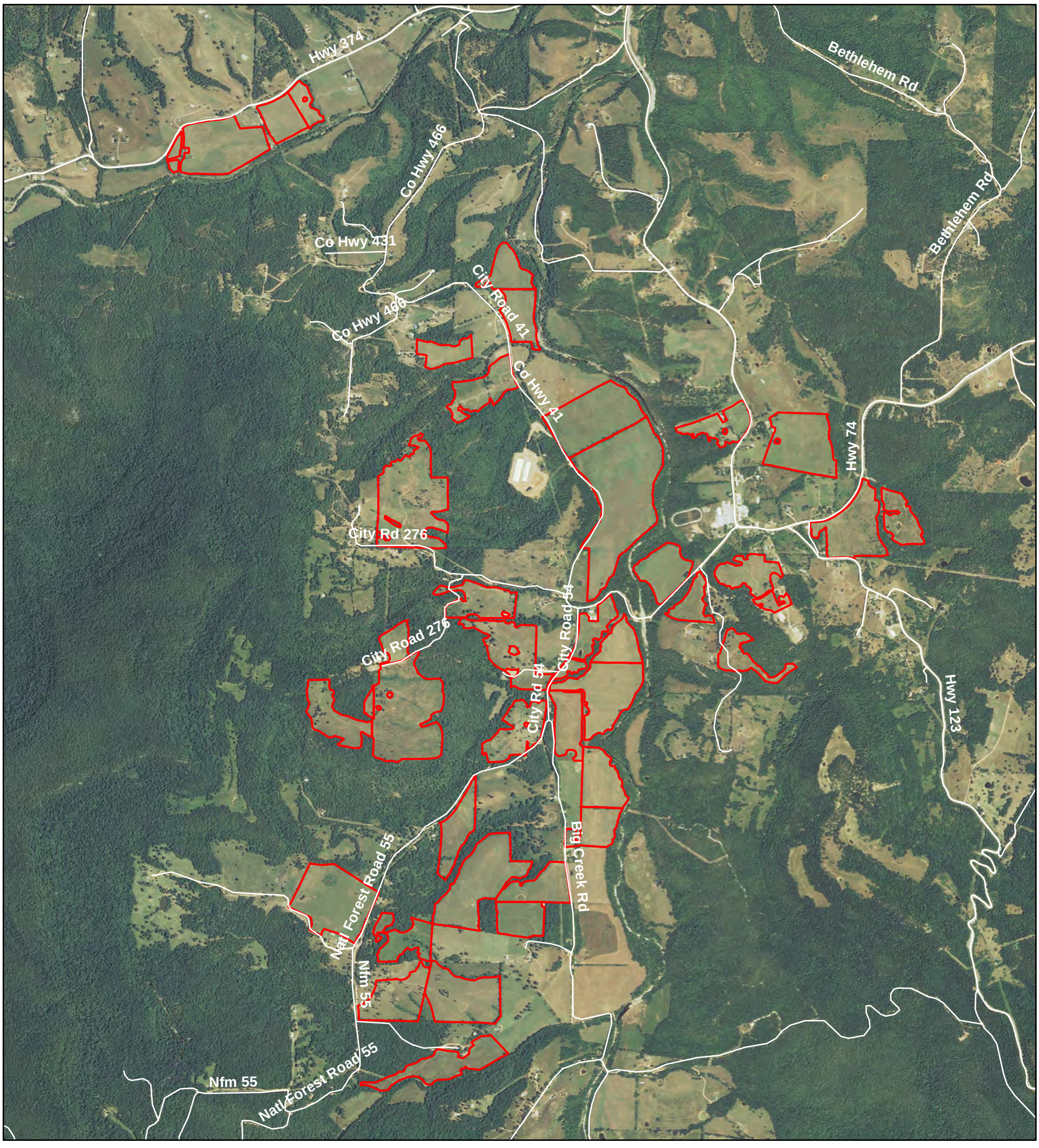
Section, Township, Range Overview Map

Watershed Overview Map (12 digit HUC)

Soil Test Results

Manure Analysis

County Road Map Overview



Legend

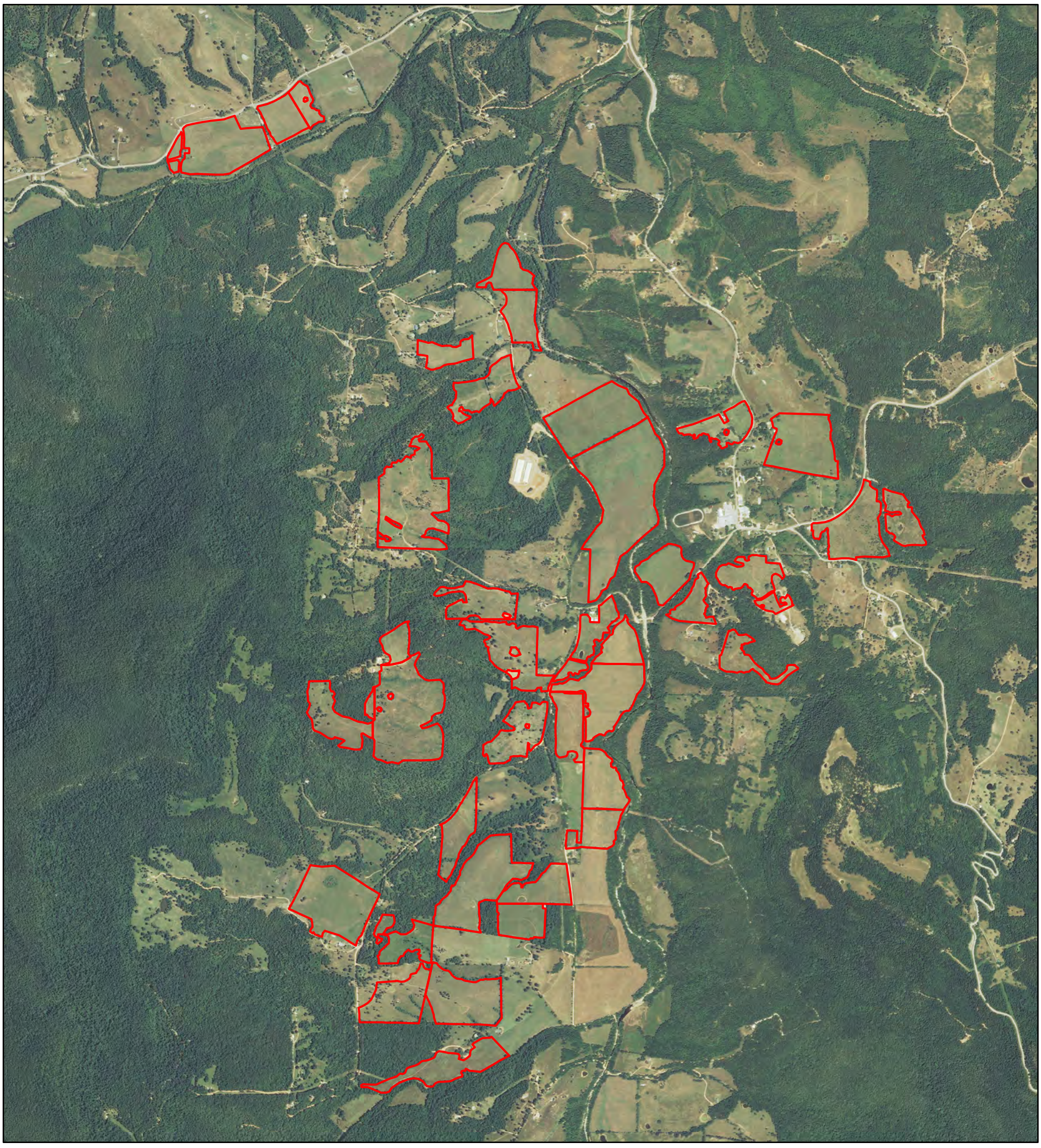
road_tanw_l_ar101

Correct Field Boundaries

1,800 0 1,800 3,600 5,400 7,200 Feet

N

Correct Field Boundaries



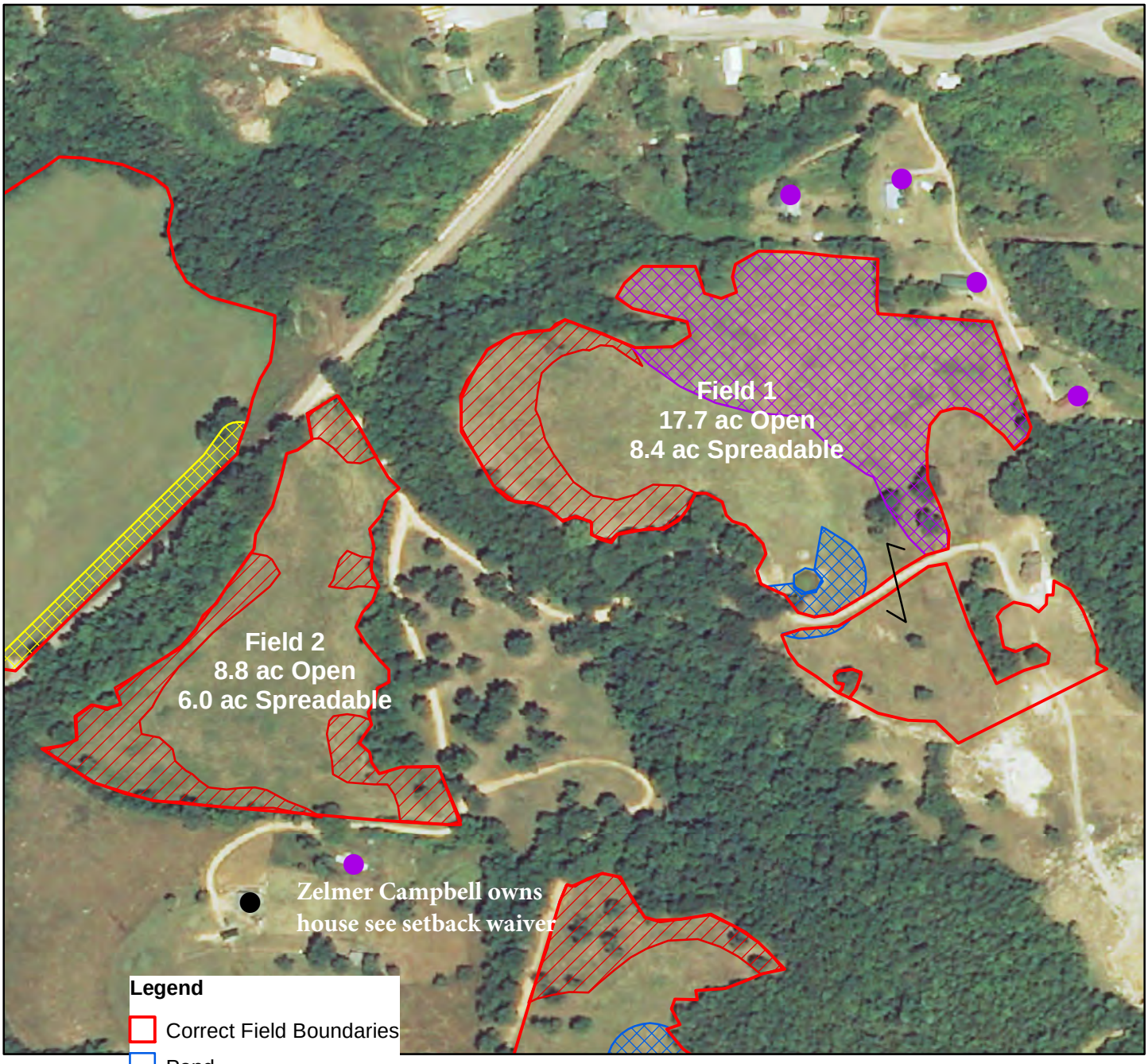
Legend

Correct Field Boundaries

1,800 0 1,800 3,600 5,400 7,200 Feet

N

Buffered Field Map
Fields 1 and 2
Jason Henson
T15N, R20W, S25
Mt. Judea Quad



Buffered Field Map
Field 4
Jason Henson
T15N, R20W, S36
Mt. Judea Quad

Legend

- Correct Field Boundaries
- Pond
- Occupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer

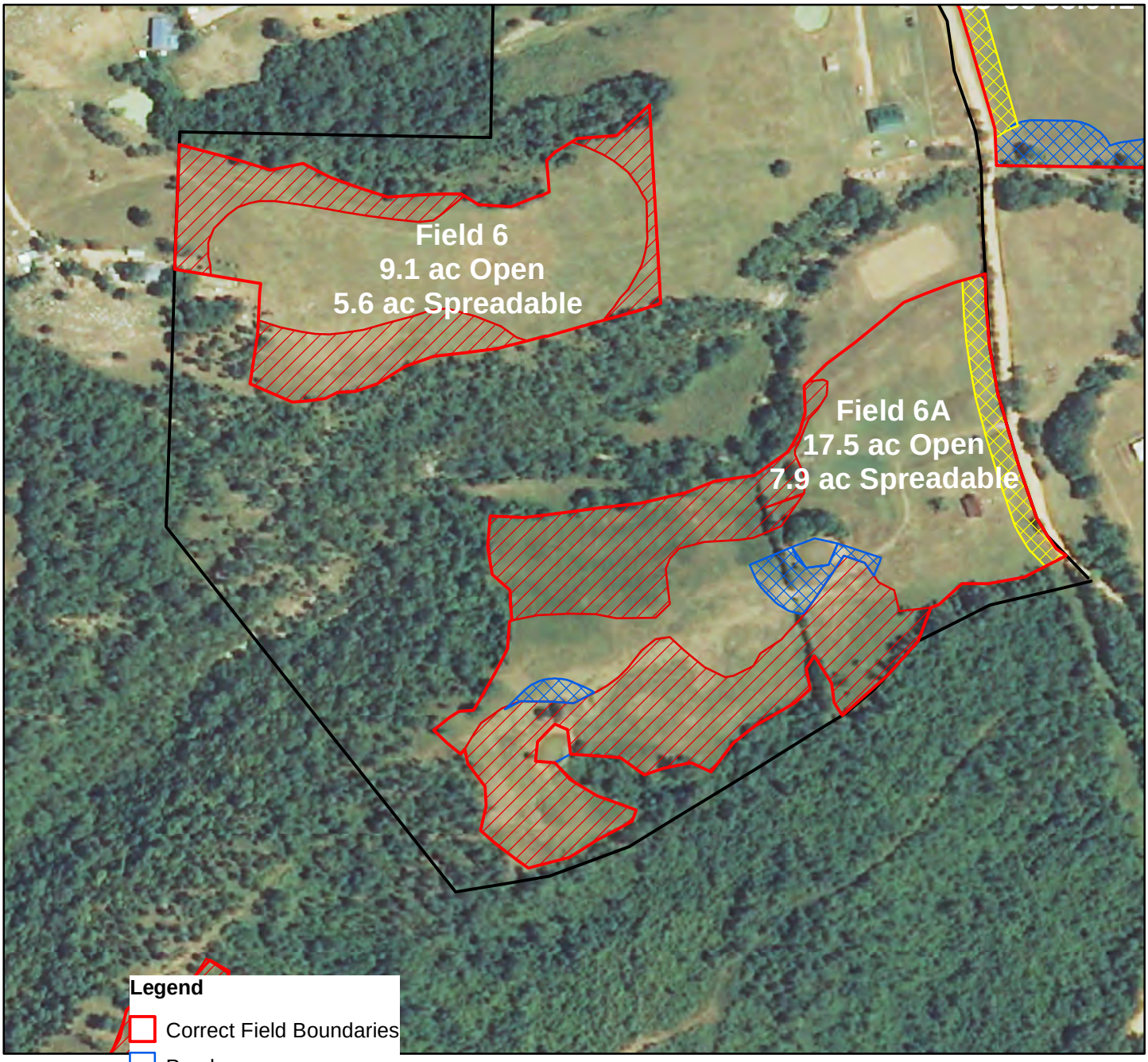
140 0 140 280 420 560 Feet

5

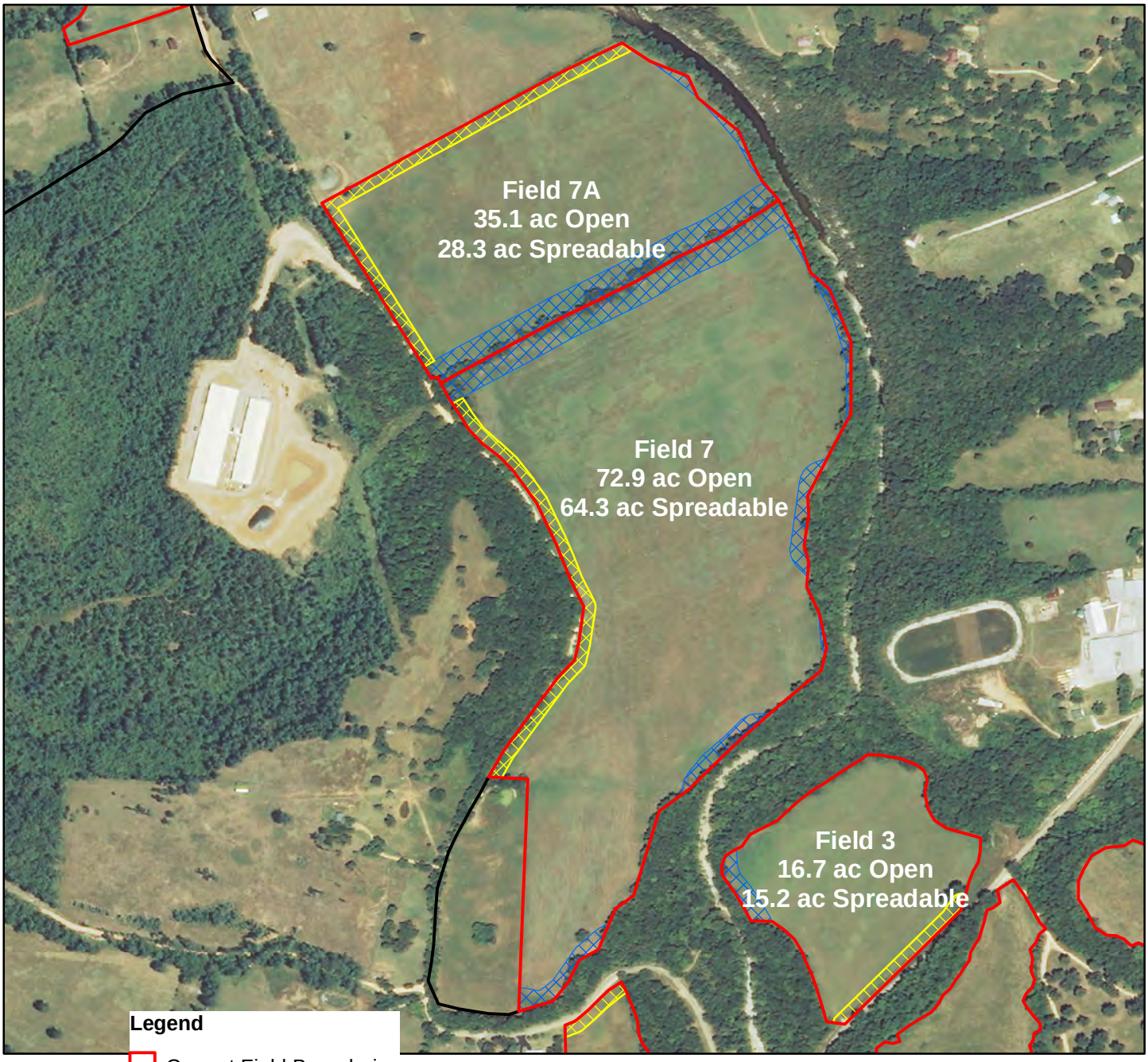
N

Buffered Field Map
Field 5
Louetta/Glen Ricketts
T15N, R20W, S23
Mt. Judea Quad

Buffered Field Map
Field 6 Louetta/Glen Ricketts
Field 6A Shawn Ricketts
T15N, R20W, S26
Mt. Judea Quad



Buffered Field Map
Fields 7 and 7A
E. G. Campbell
Field 3 Charles Campbell
T15N, R20W, S25 and 26
Mt. Judea Quad



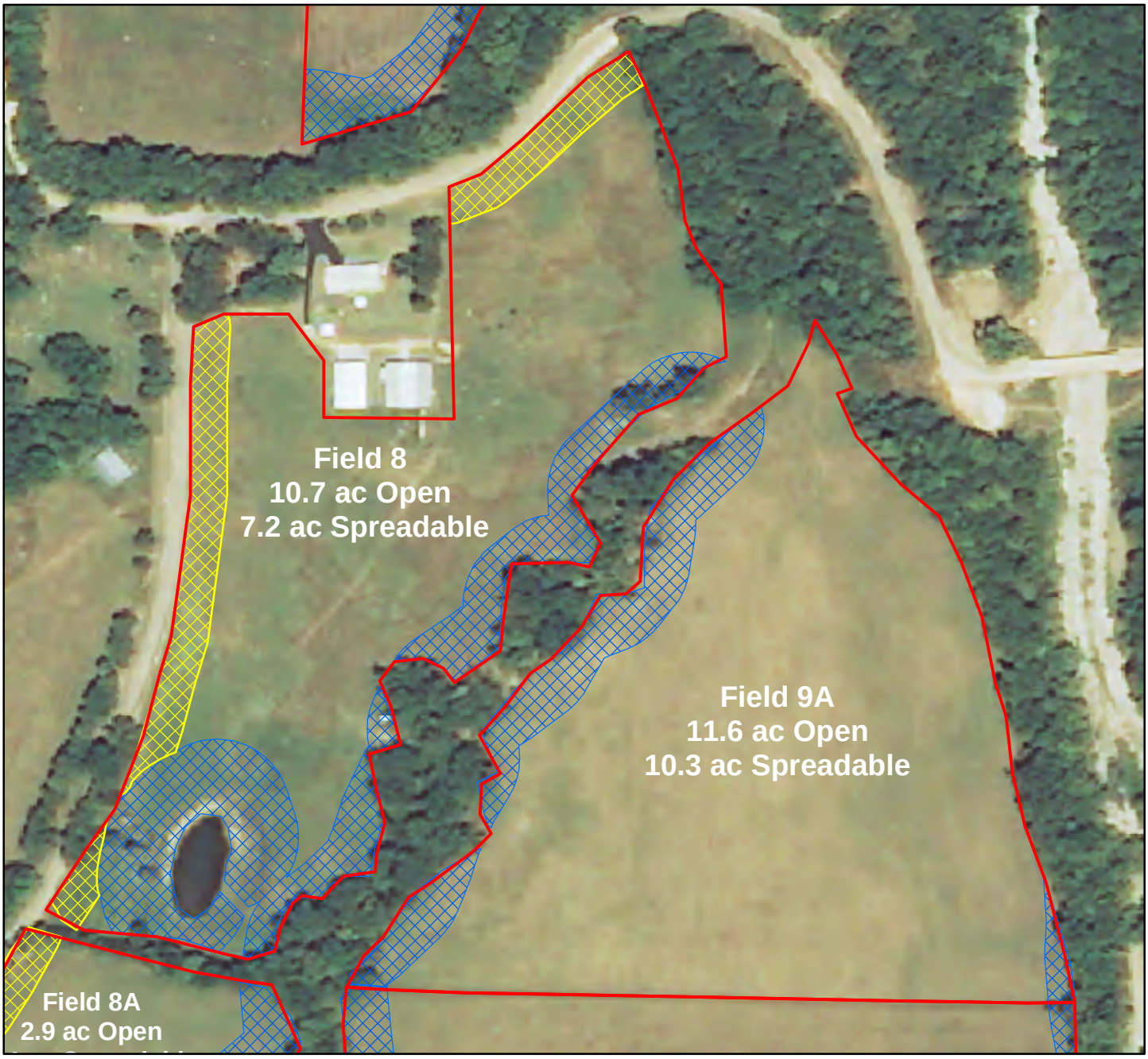
Legend

- Correct Field Boundaries
- Occupied House
- property_line
- Pond
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer

390 0 390 780 1,170 1,560 Feet

N

Buffered Field Map
Charles Campbell
Fields 8 and 9A
T15N, R20W, S26 & S35
Mt. Judea Quad



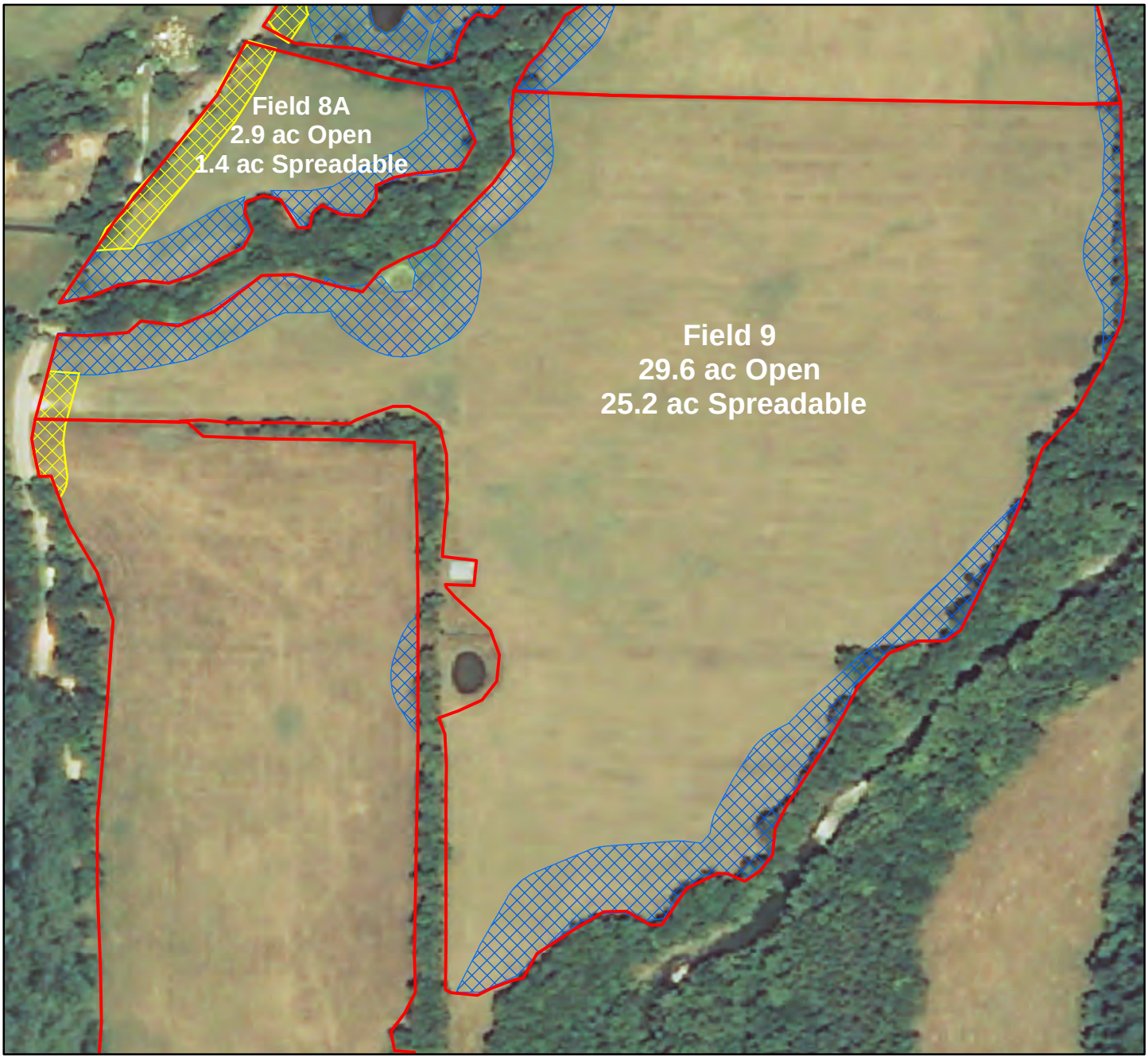
Legend

- Correct Field Boundaries
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope buffer

120 0 120 240 360 480 Feet

N

Buffered Field Map
Charles Campbell
Fields 8A and 9
T15N, R20W, S35
Mt. Judea Quad



Legend

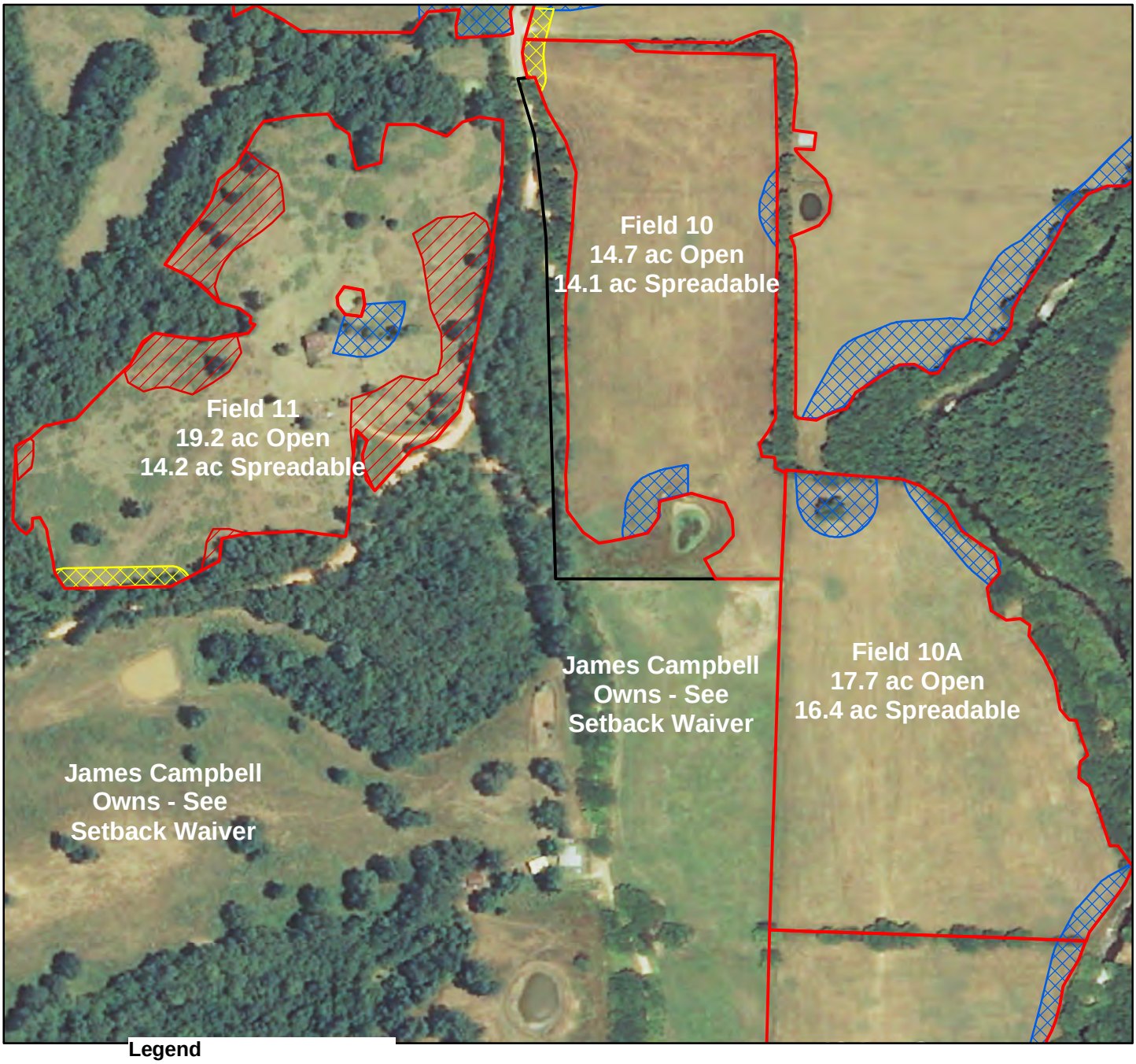
- Correct Field Boundaries
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope buffer

140 0 140 280 420 560 Feet

10

N

Buffered Field Map
Fields 10 and 11 Fayma Dickey
Field 10A Billy F. Cheatham
T15N, R20W, S35
Mt. Judea Quad



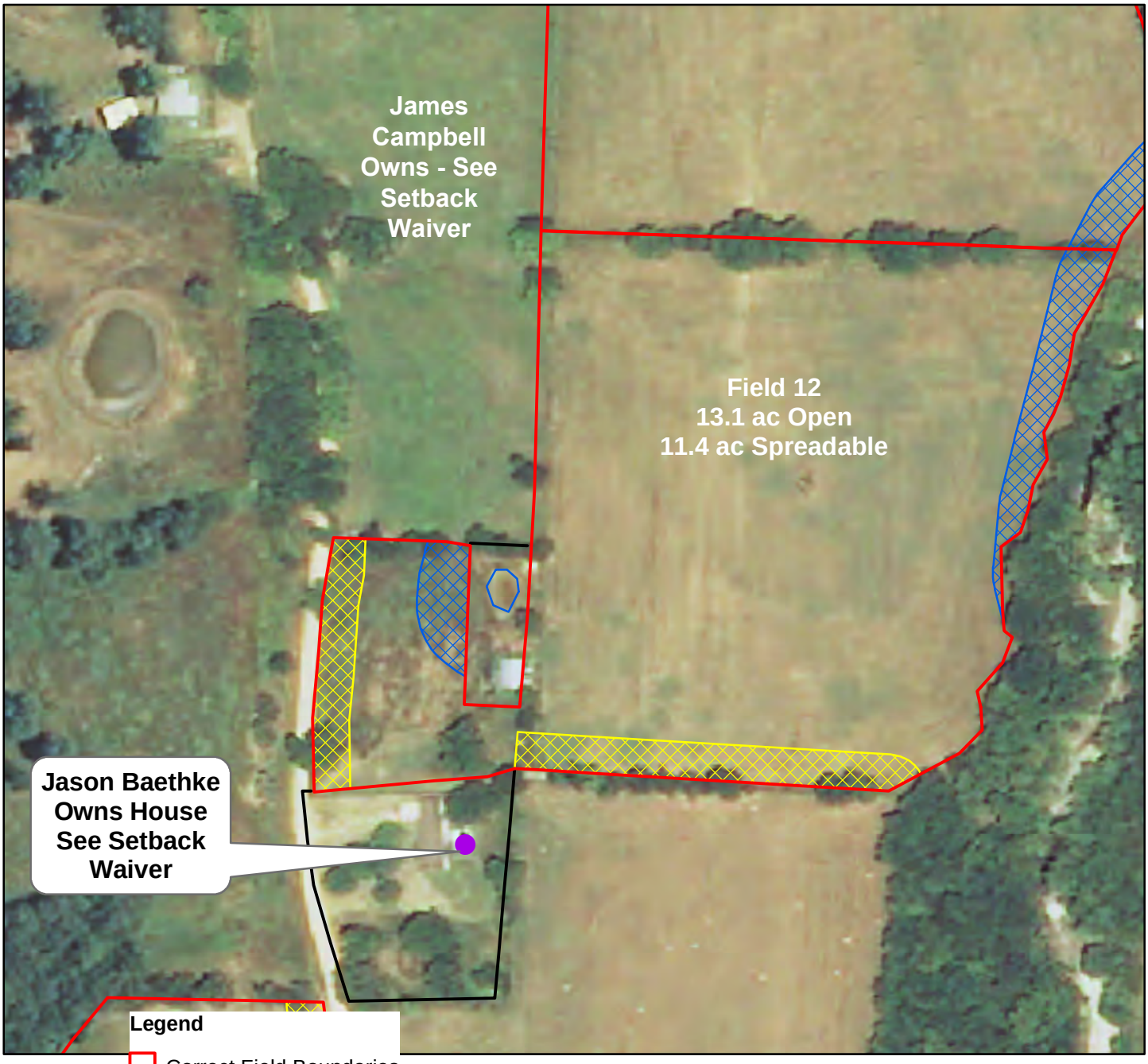
Legend

- Correct Field Boundaries
- Property Line
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer

220 0 220 440 660 880 Feet

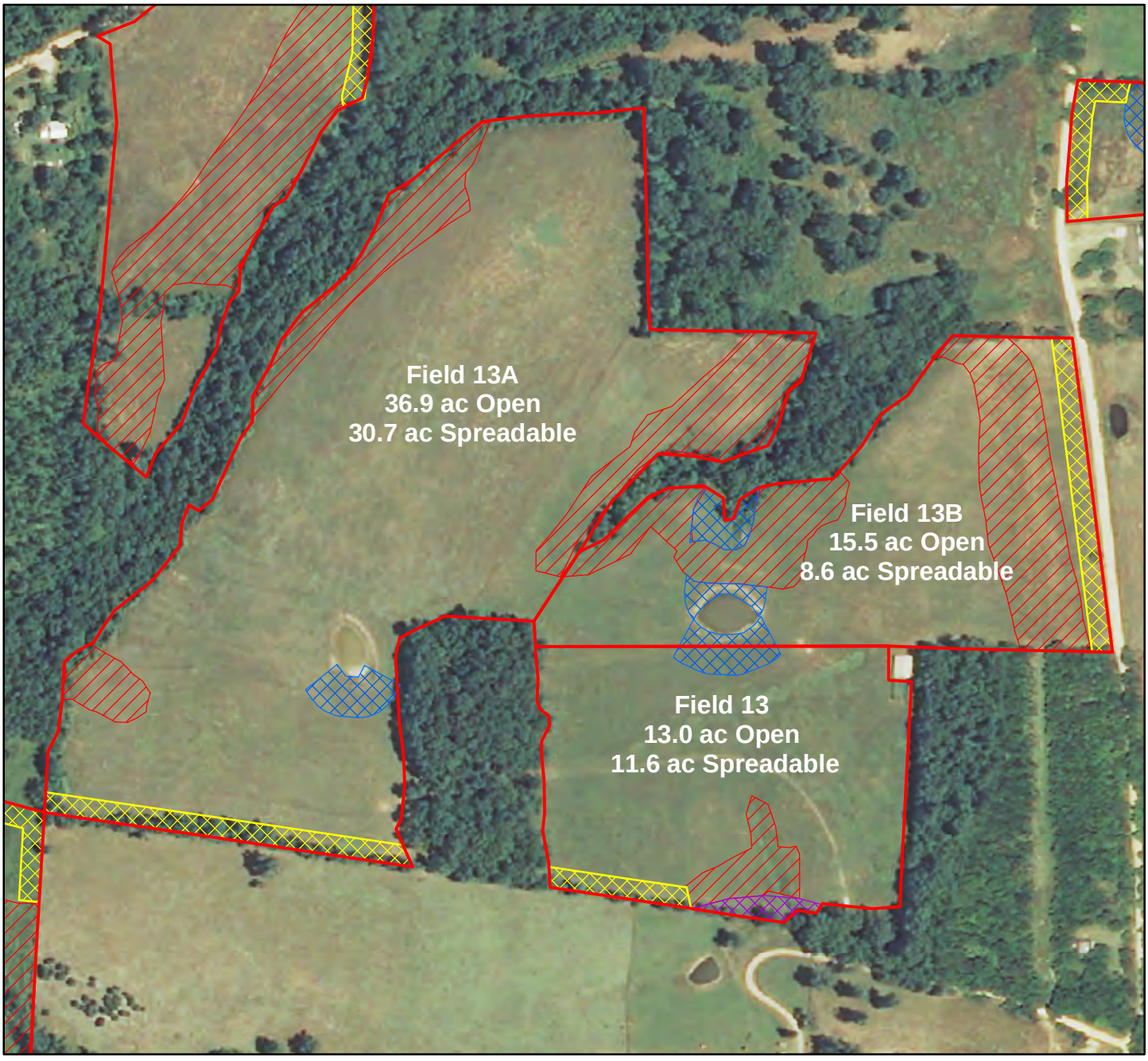
N

Buffered Field Map
Robert Flud
Field 12
T15N, R20W, S35
Mt. Judea Quad



12

Buffered Field Map
Fields 13, 13A, 13B
Charles Campbell
T15N, R20W, S35
T14N, R20W, S2
Mt. Judea Quad



Legend

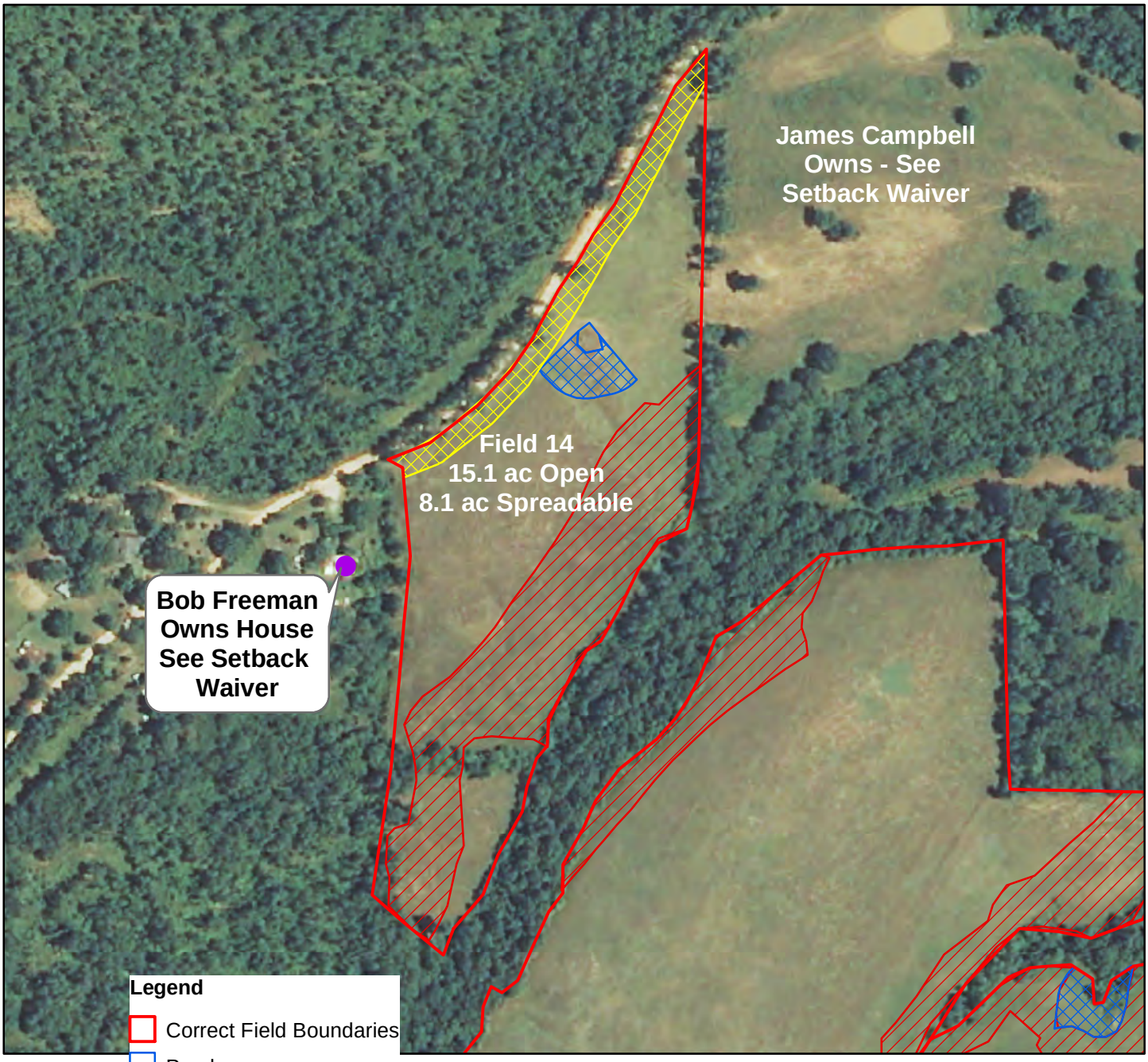
- Correct Field Boundaries
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope buffer

225 0 225 450 675 900 Feet

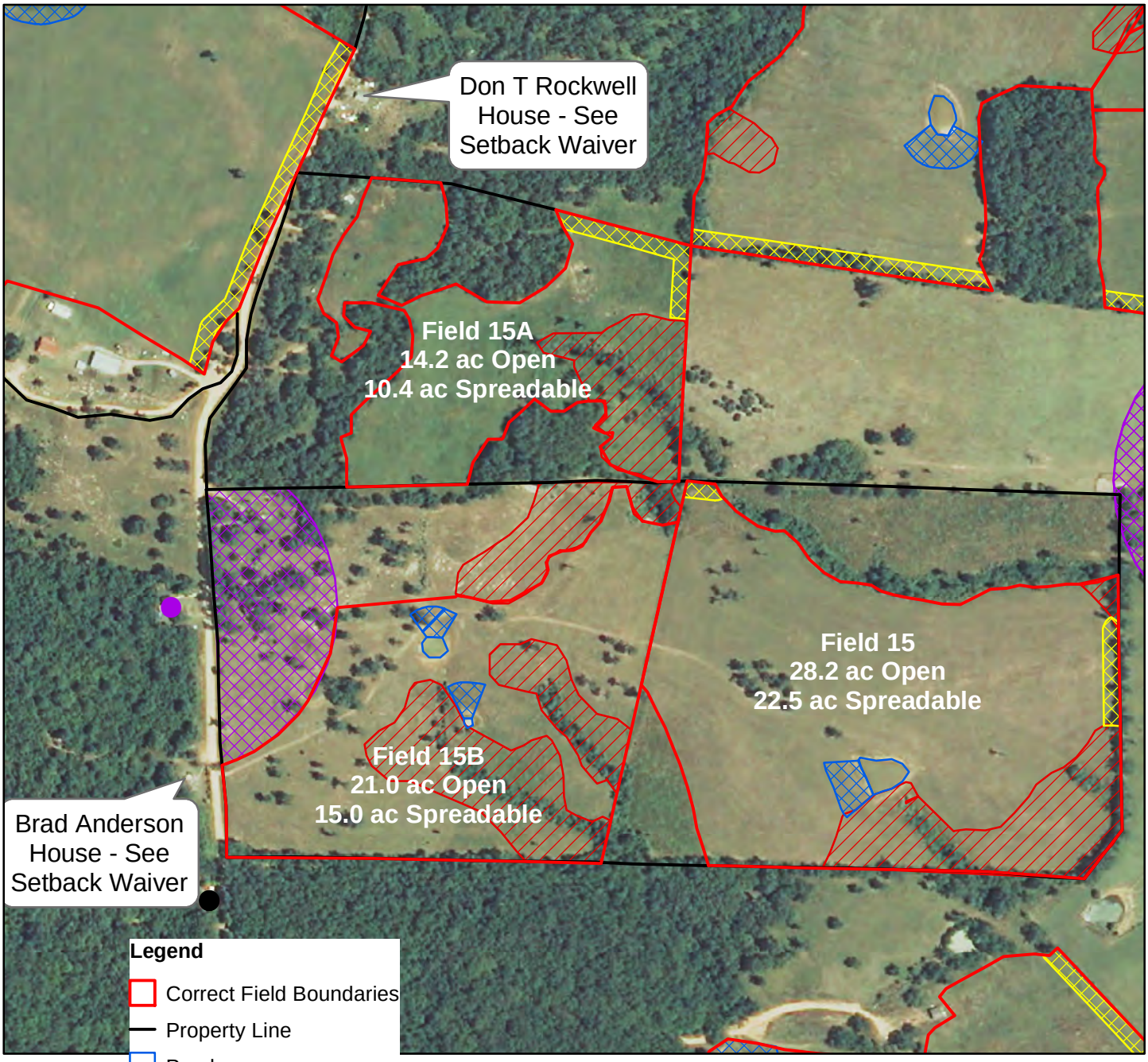
N

13

Buffered Field Map
Field 14
Charles Campbell
T15N, R20W, S35
Mt. Judea Quad

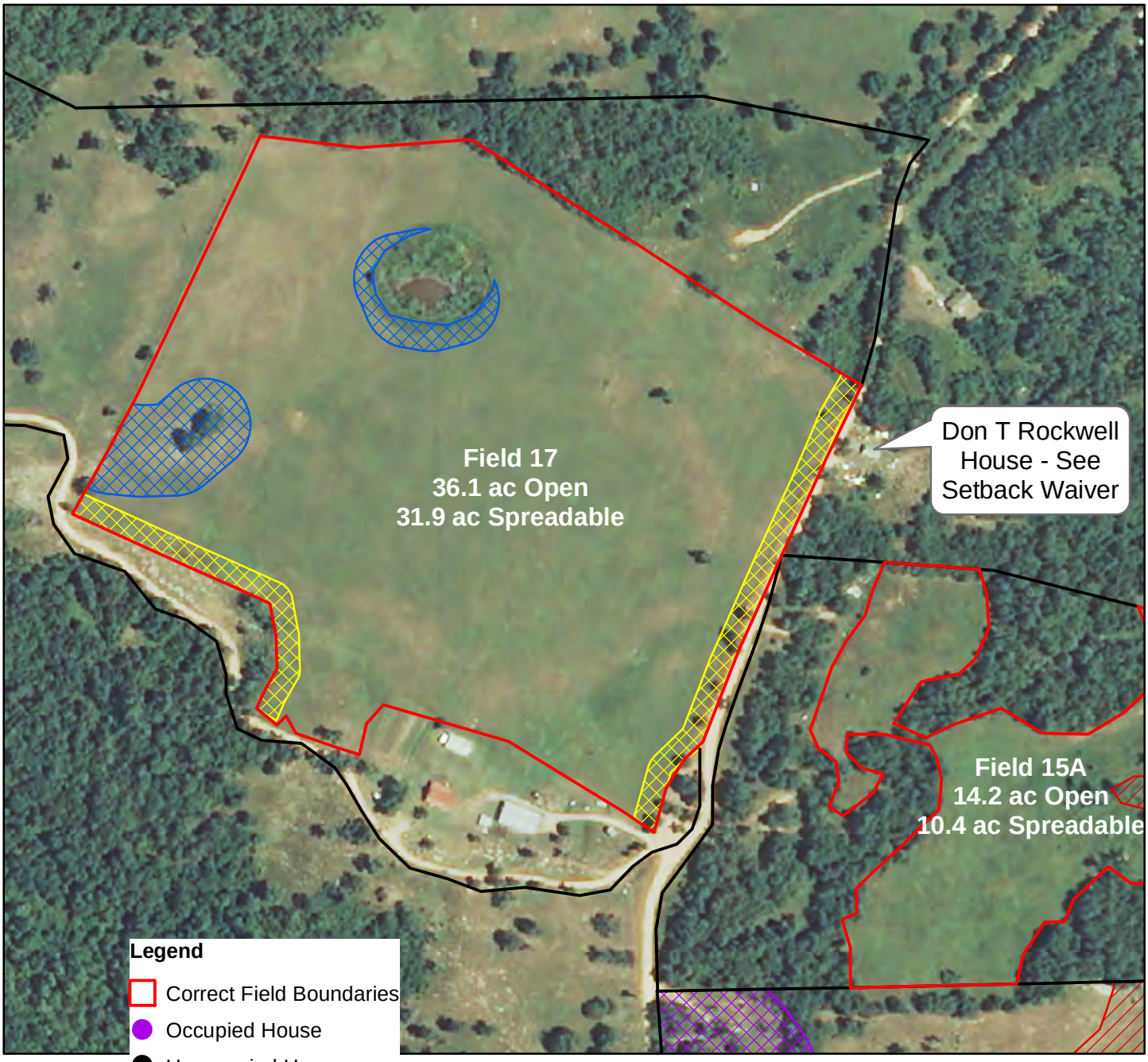


Buffered Field Map
Fields 15, 15A, 15B
Clayel Criner
T14N, R20W, S2
Mt. Judea Quad

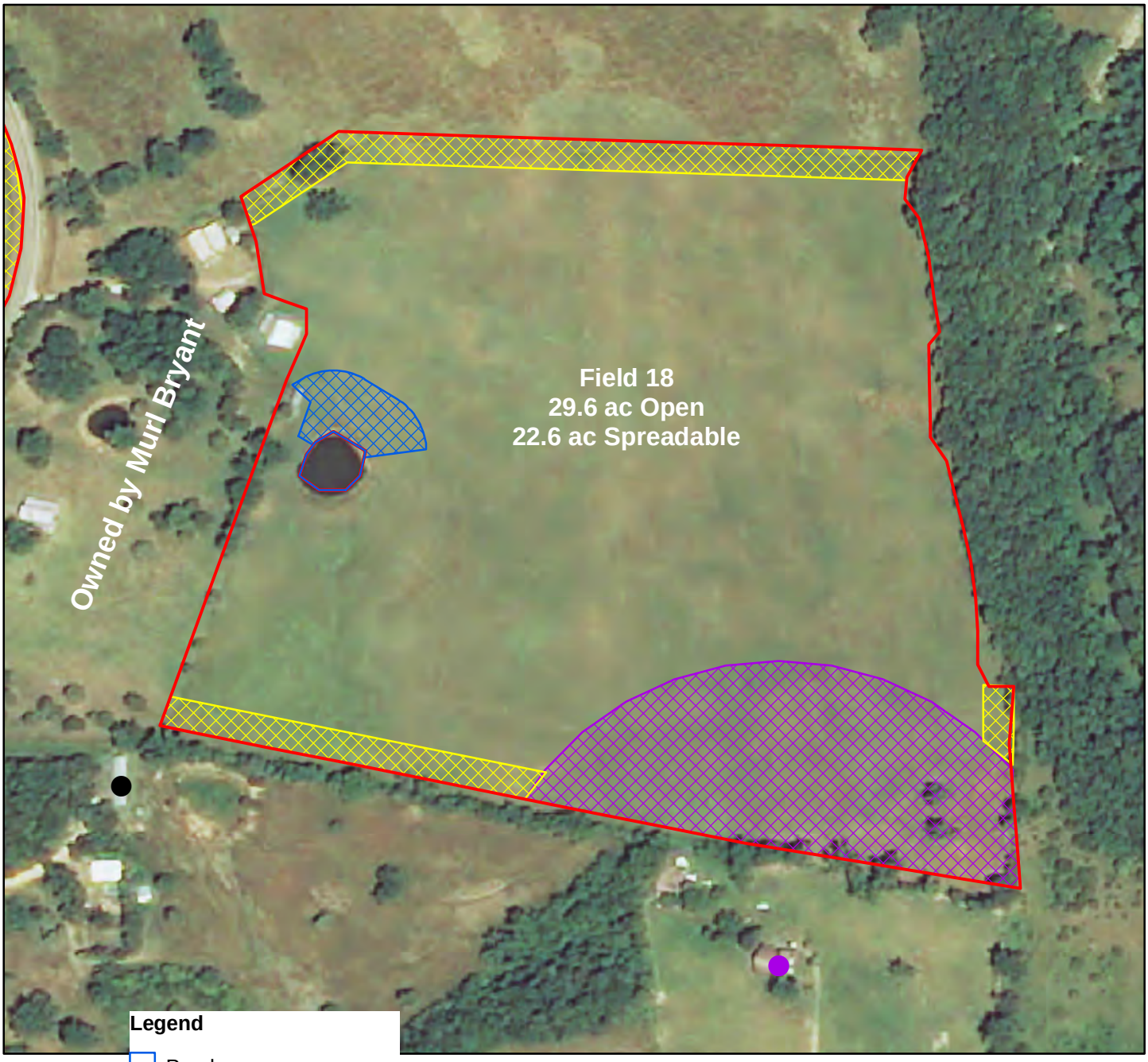


Buffered Field Map
Field 16
Barbara Hefley
T14N, R20W, S2
Mt. Judea Quad

Buffered Field Map
Field 17
Jason Criner
T15N, R20W, S34 & 35
T14N, R20W, S2&3
Mt. Judea Quad



Buffered Field Map
Field 18
Murl Bryant
T15N, R20W, S25
Mt. Judea Quad



18

Buffered Field Map
Field 19
Murl Bryant
T15N, R20W, S25
Mt. Judea Quad

Legend

- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer

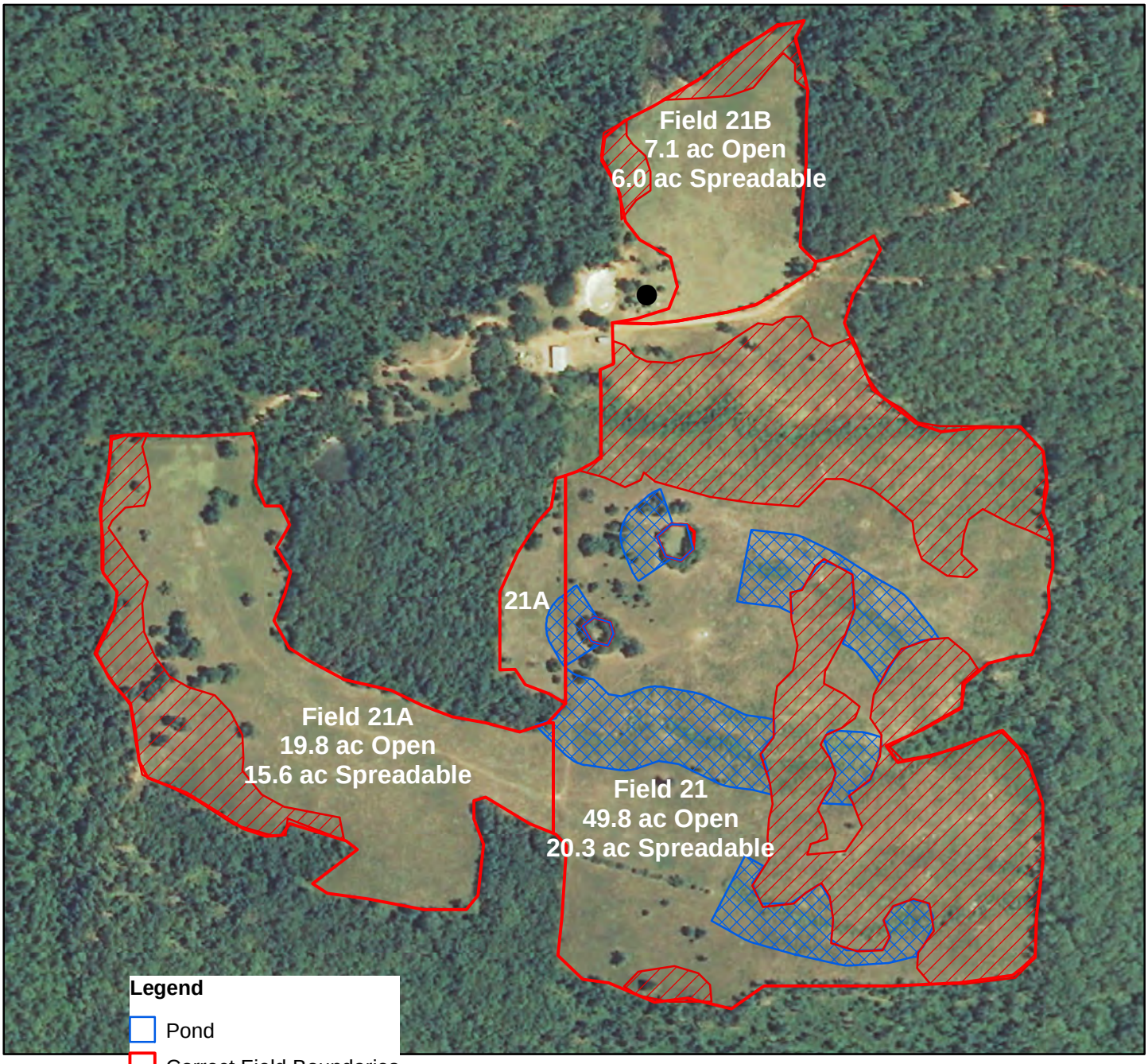
150 0 150 300 450 600 Feet

N

19

Buffered Field Map
Field 20
Rondal Campbell
T15N, R20W, S35
Mt. Judea Quad

Buffered Field Map
Fields 21, 21A, 21B
Rondal Campbell
T15N, R20W, S34 and S35
Mt. Judea Quad



Legend

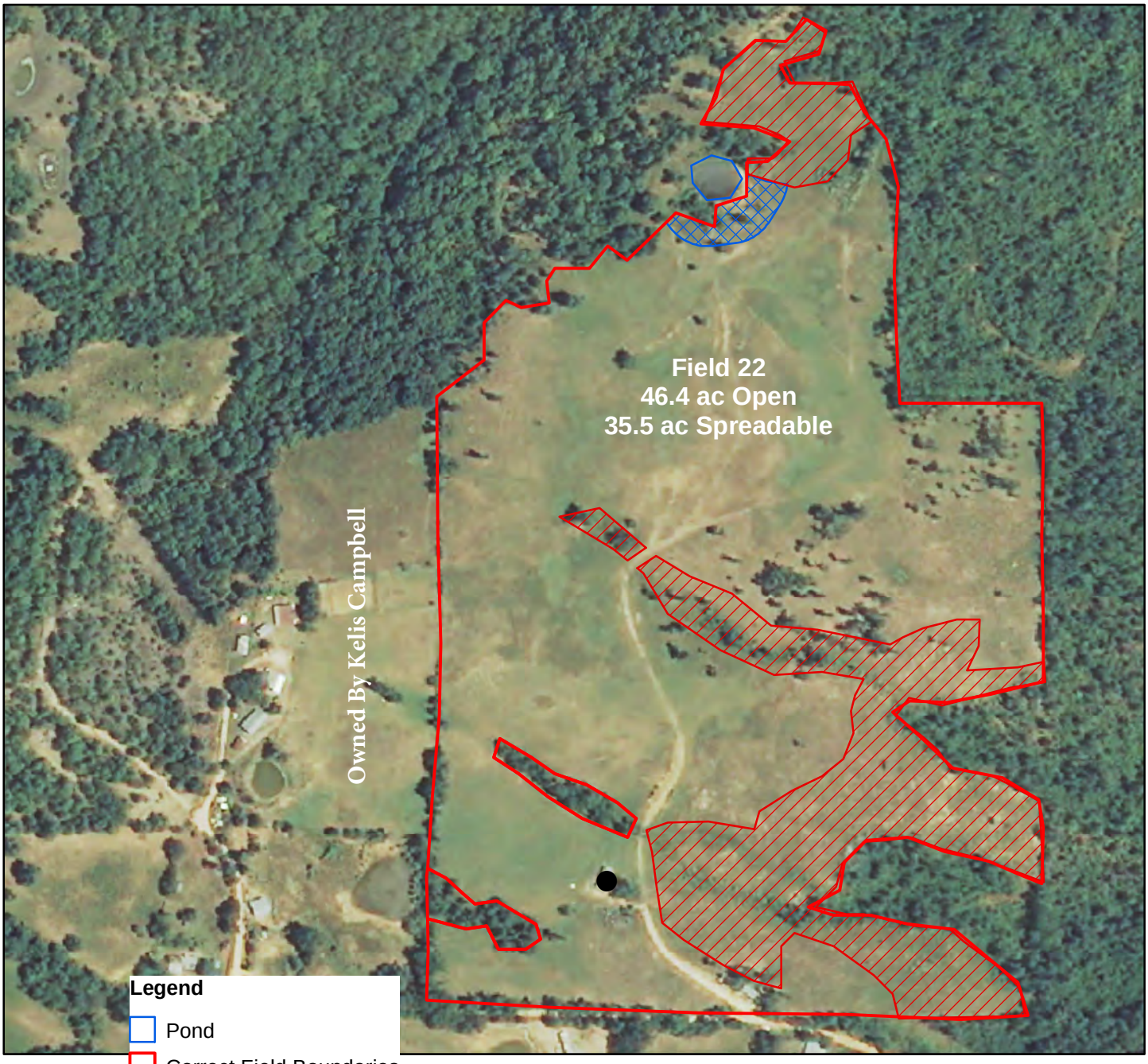
- Pond
- Correct Field Boundaries
- Occupied House
- Unoccupied House
- Steep Slope Buffer
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer

250 0 250 500 750 1,000 Feet

N

21

Buffered Field Map
Field 22
Kelis Campbell
T15N, R20W, S26
Mt. Judea Quad



Buffered Field Map
Greg Grice
Field 23
T15N, R20W, S22
Mt. Judea Quad

Buffered Field Map
Field 24
Donald Haddock
T15N, R20W, S23
Mt. Judea Quad

Legend

- Correct Field Boundaries
- Unoccupied House
- 50 Ft Buffer
- 100 Ft Buffer
- 500 Ft Buffer
- Steep Slope Buffer

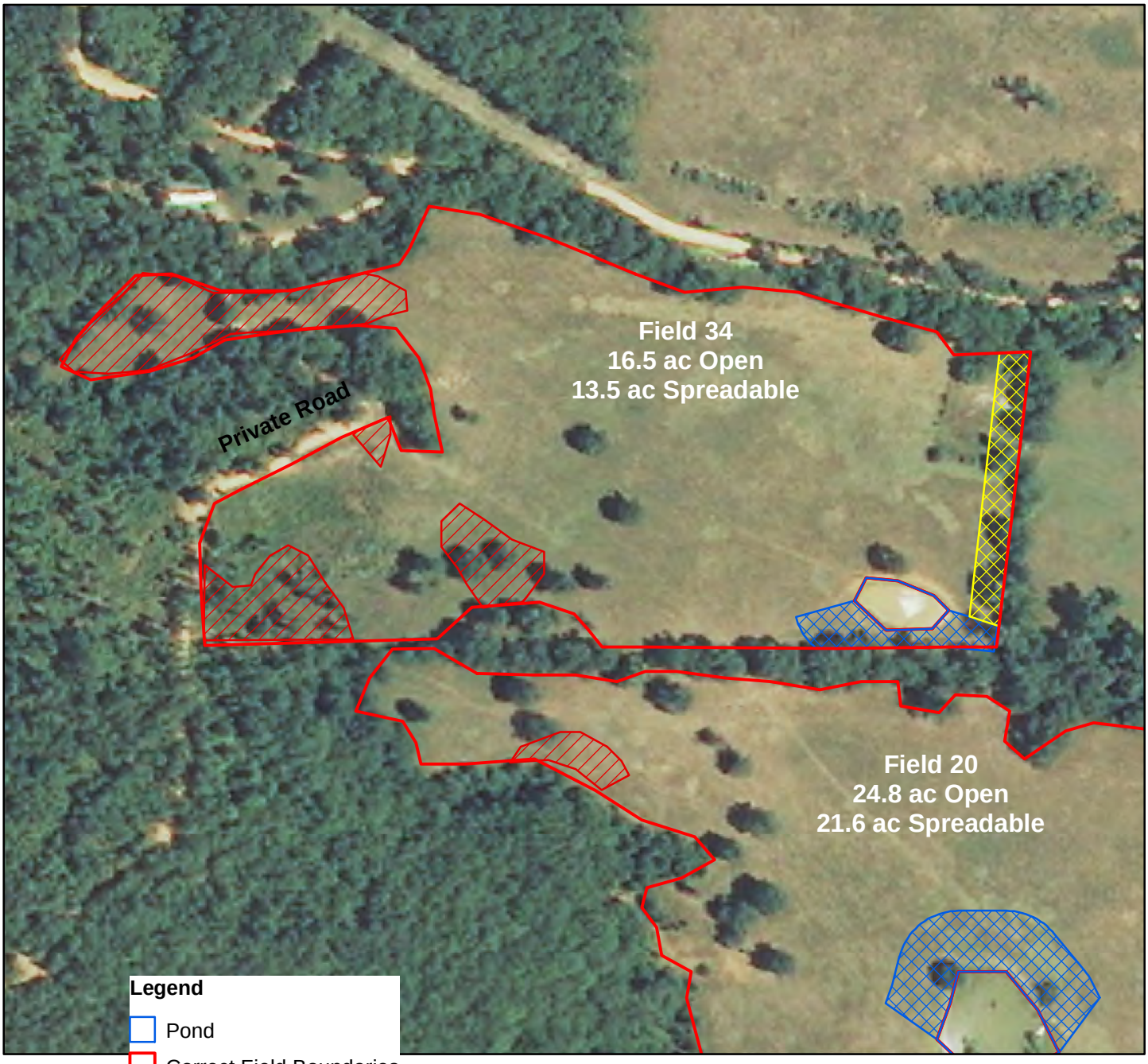
90 0 90 180 270 360 Feet

24

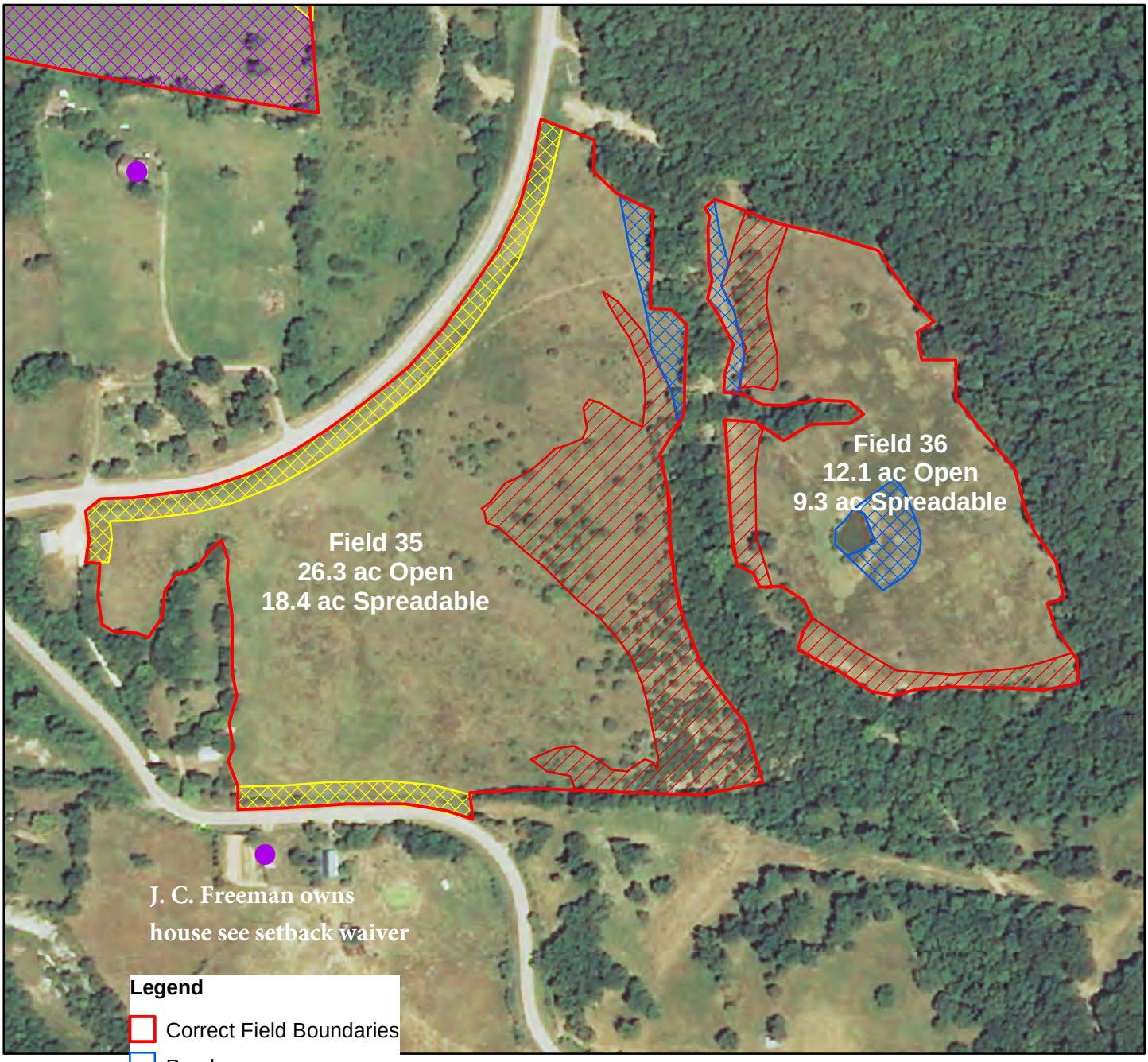
N

Buffered Field Map
Field 32 & 33
Howard Criner
T15N, R20W, S22
Mt. Judea Quad

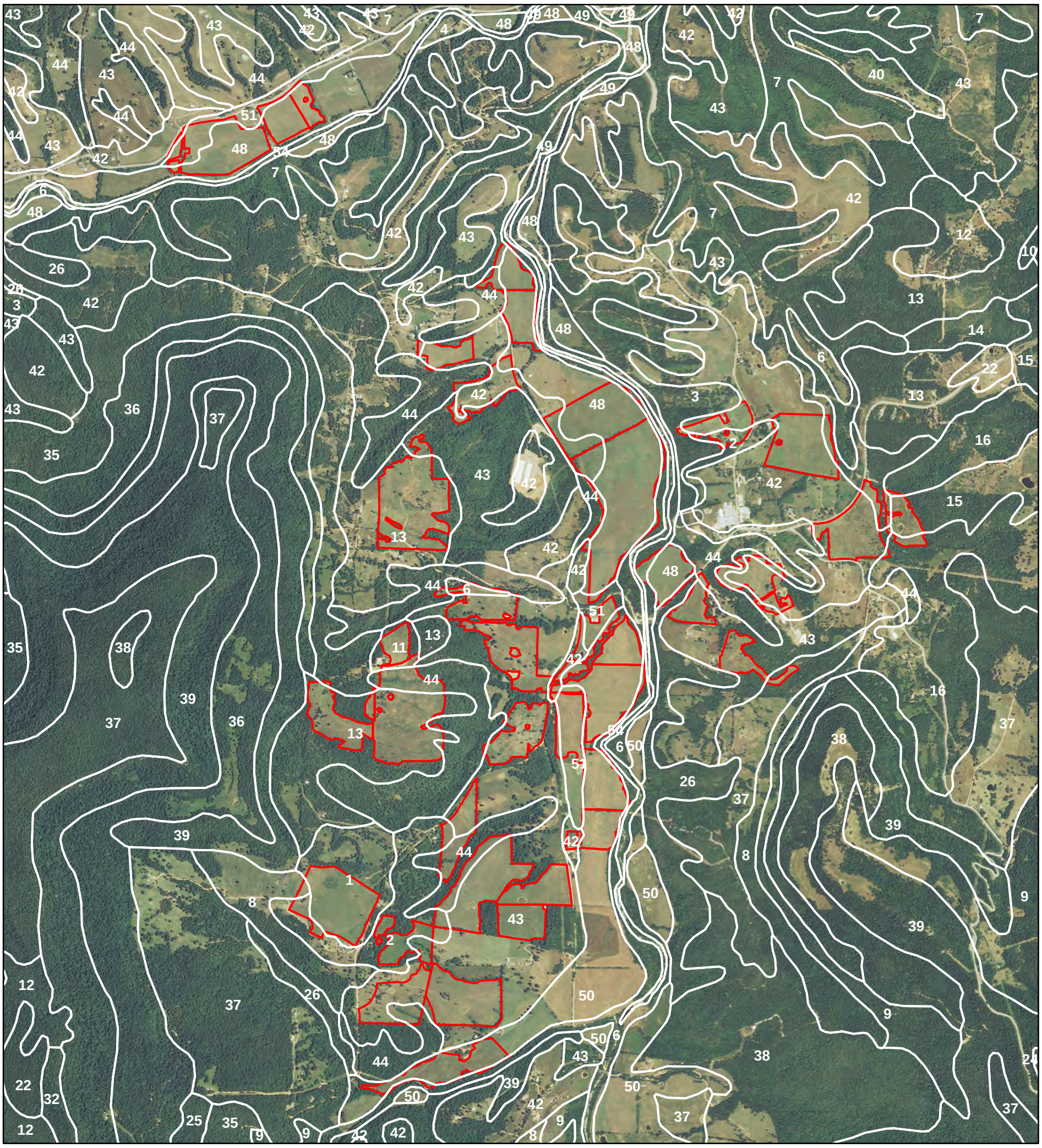
Buffered Field Map
Rondal Campbell
Field 34
T15N, R20W, S26
Mt. Judea Quad



Buffered Field Map
Fields 35 and 36
C & H Hog Farms, Inc.
T15N, R20W, S25
Mt. Judea Quad



Soils Map Overview



Legend

Team_1_soils

Correct Field Boundaries

1,800 0 1,800 3,600 5,400 7,200

Feet

N

SOIL LEGEND

The legend is numeric. Soils without a slope designation in the name are those on level to nearly level landscapes of occasionally or frequently flooded bottomlands. The soil name followed by the superscript 1/ is a mapping unit that was designed primarily for woodland management. Fewer soil examinations were made in these units and included areas are generally larger.

SYMBOL	NAME
1	Arkana very cherty silt loam, 3 to 8 percent slopes
2	Arkana-Moko complex, 8 to 20 percent slopes 1/
3	Arkana-Moko complex, 20 to 40 percent slopes 1/
4	Britwater gravelly silt loam, 3 to 8 percent slopes
5	Ceda cobbly loam, frequently flooded
6	Ceda-Kenn complex, frequently flooded
7	Clarksville very cherty silt loam, 20 to 50 percent slopes
8	Eden-Newnata complex, 8 to 20 percent slopes 1/
9	Eden-Newnata complex, 20 to 40 percent slopes 1/
10	Eden-Newnata-Rock outcrop complex, 40 to 60 percent slopes 1/
11	Enders gravelly loam, 3 to 8 percent slopes
12	Enders gravelly loam, 8 to 20 percent slopes
13	Enders stony loam, 3 to 20 percent slopes
14	Enders stony loam, 20 to 40 percent slopes
15	Enders-Leesburg stony loams, 8 to 20 percent slopes 1/
16	Enders-Leesburg stony loams, 20 to 40 percent slopes 1/
17	Estate-Lily-Portia complex, 8 to 20 percent slopes 1/
18	Estate-Lily-Portia complex, 20 to 40 percent slopes 1/
19	Leadvale silt loam, 3 to 8 percent slopes
20	Lily-Udorthents-Rock outcrop complex, 8 to 20 percent slopes 1/
21	Lily-Udorthents-Rock outcrop complex, 20 to 40 percent slopes 1/
22	Linker loam, 3 to 8 percent slopes
23	Linker gravelly loam, 3 to 8 percent slopes
24	Linker-Mountainburg complex, 3 to 8 percent slopes
25	Linker-Mountainburg complex, 8 to 20 percent slopes
26	Moko-Rock outcrop complex, 15 to 50 percent slopes 1/
27	Mountainburg gravelly fine sandy loam, 3 to 8 percent slopes
28	Mountainburg very stony fine sandy loam, 3 to 8 percent slopes
29	Mountainburg very stony fine sandy loam, 8 to 20 percent slopes
30	Mountainburg very stony fine sandy loam, 20 to 40 percent slopes
31	Nella gravelly loam, 3 to 12 percent slopes
32	Nella gravelly loam, 12 to 20 percent slopes
33	Nella stony loam, 8 to 20 percent slopes
34	Nella stony loam, 20 to 40 percent slopes
35	Nella-Enders stony loams, 8 to 20 percent slopes 1/
36	Nella-Enders stony loams, 20 to 40 percent slopes 1/
37	Nella-Steprock complex, 8 to 20 percent slopes 1/
38	Nella-Steprock-Mountainburg very stony loams, 20 to 40 percent slopes 1/
39	Nella-Steprock-Mountainburg very stony loams, 40 to 60 percent slopes 1/
40	Nixa very cherty silt loam, 3 to 8 percent slopes
41	Nixa very cherty silt loam, 8 to 12 percent slopes
42	Noark very cherty silt loam, 3 to 8 percent slopes
43	Noark very cherty silt loam, 8 to 20 percent slopes
44	Noark very cherty silt loam, 20 to 40 percent slopes
45	Peridge silt loam, 3 to 8 percent slopes
46	Portia sandy loam, 3 to 8 percent slopes
47	Portia sandy loam, 8 to 12 percent slopes
48	Razort loam, occasionally flooded
49	Riverwash, frequently flooded
50	Spadra loam, occasionally flooded
51	Spadra loam, 2 to 5 percent slopes
52	Steprock gravelly loam, 3 to 8 percent slopes
53	Wideman loamy fine sand, frequently flooded

Soils Map

Legend

Team_1_soils

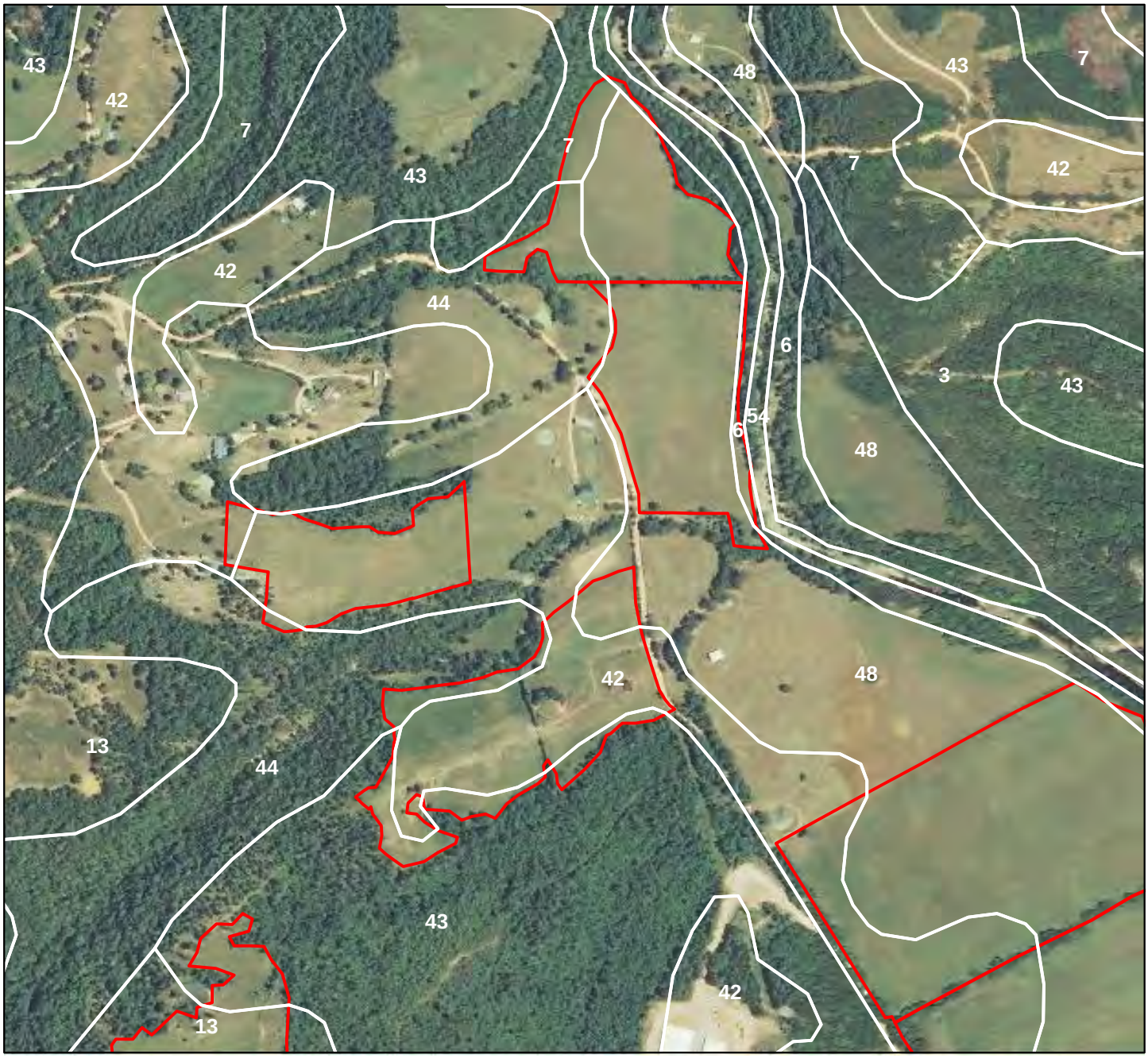
Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

30

N

Soils Map



Legend

Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Soils Map

Legend

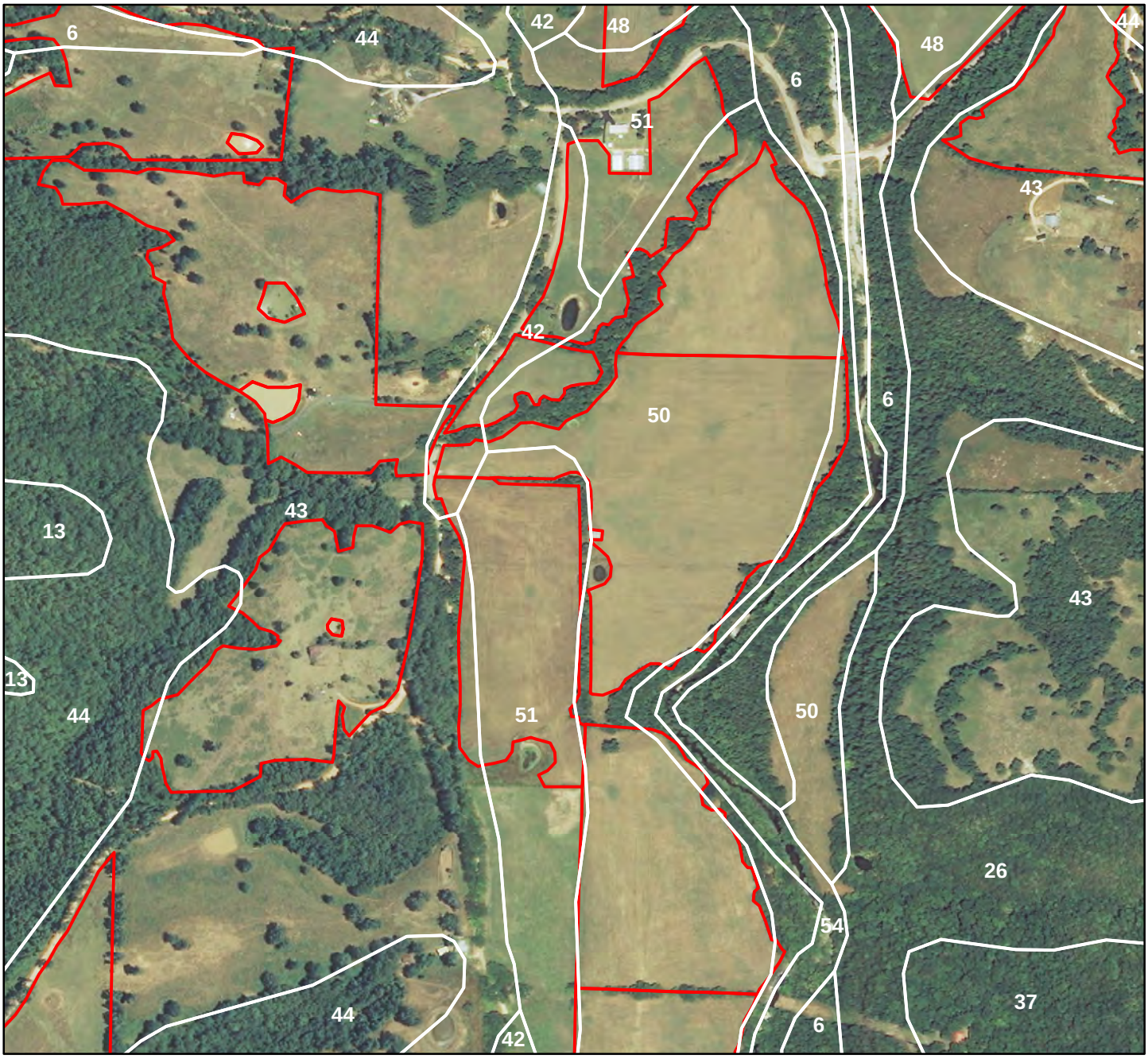
Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Soils Map



Legend

Team_1_soils

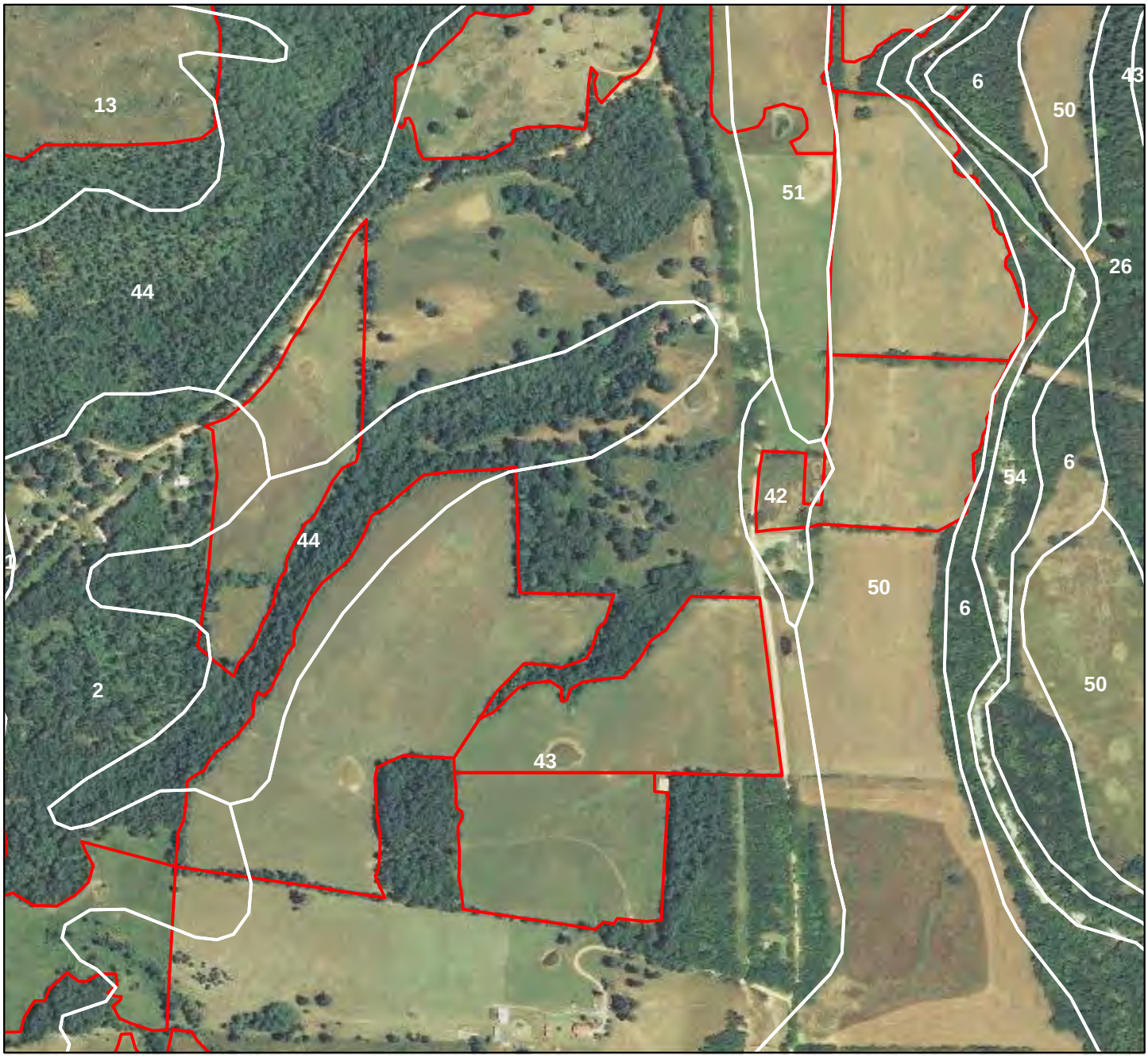
Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

33

N

Soils Map



Legend

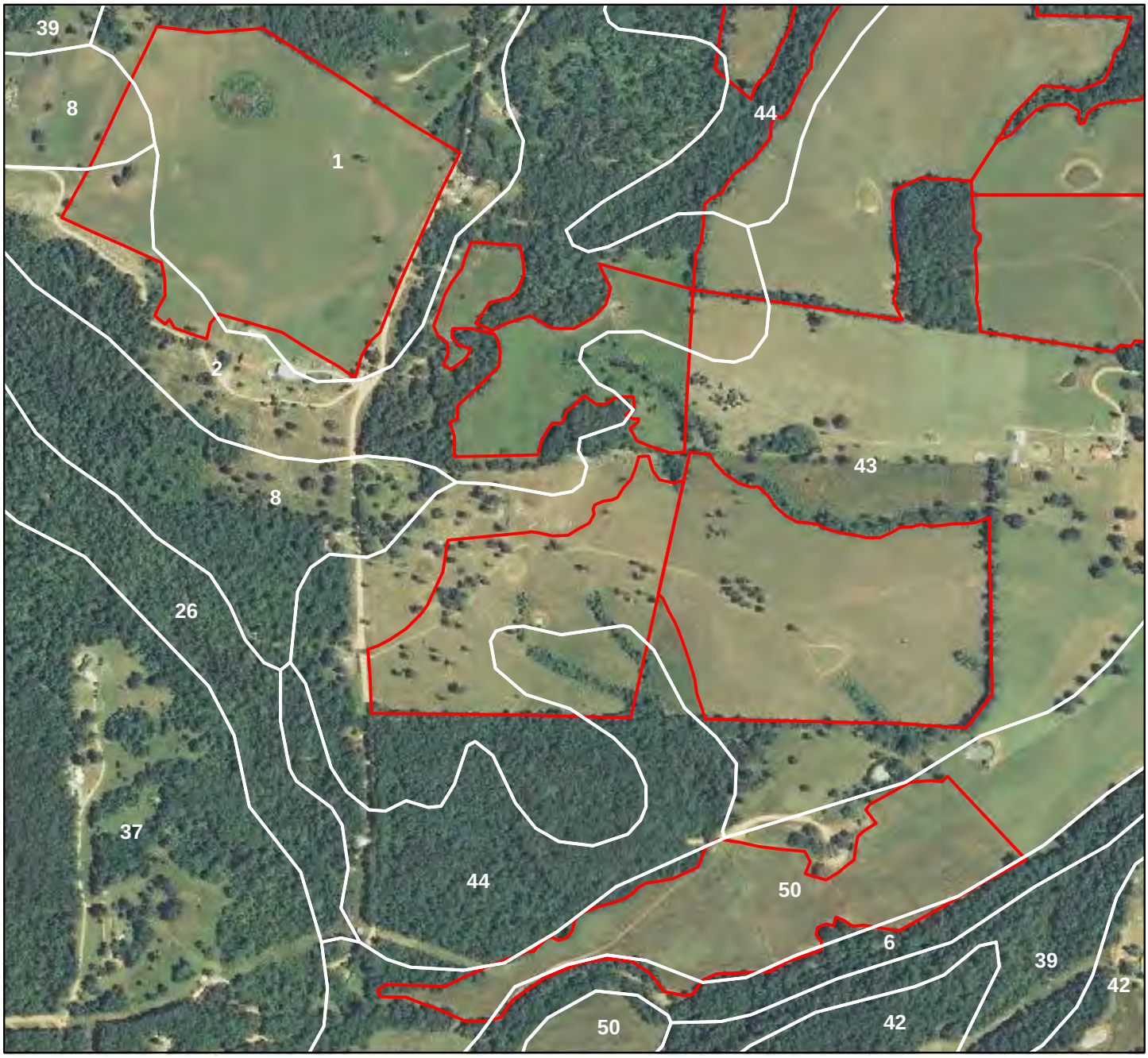
Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Soils Map



Legend

Team_1_soils

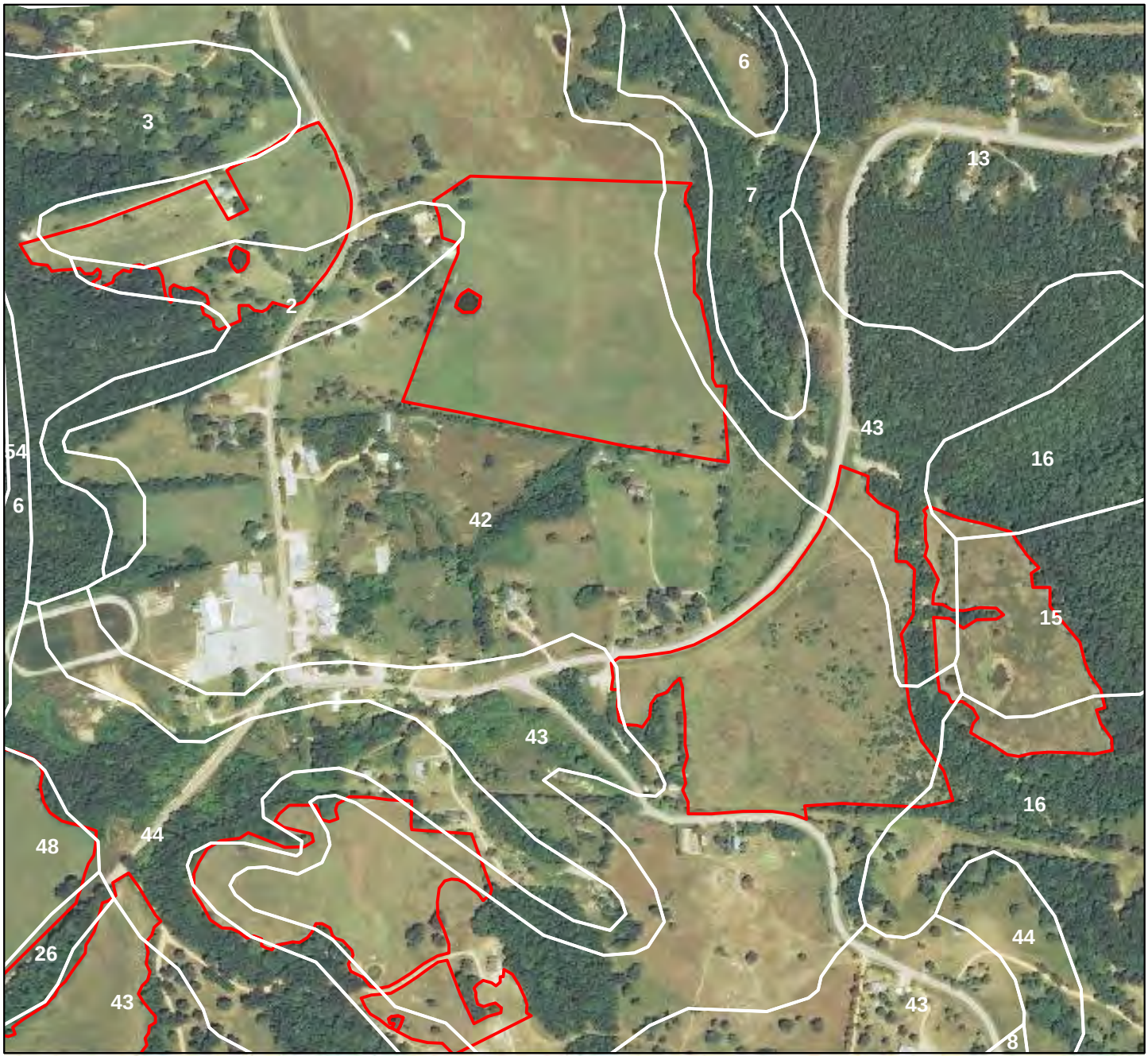
Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

35

N

Soils Map



Legend

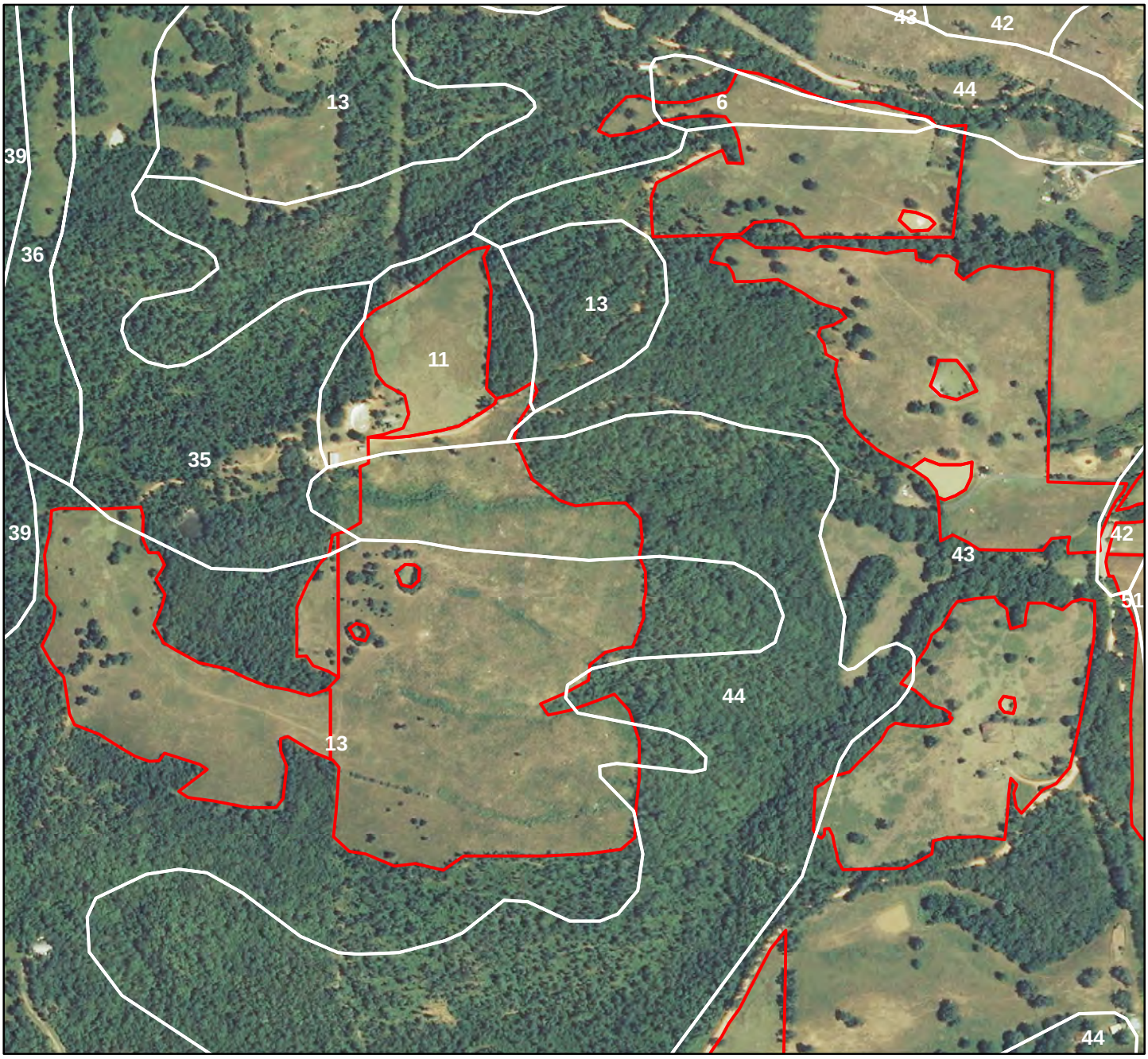
Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Soils Map



Legend

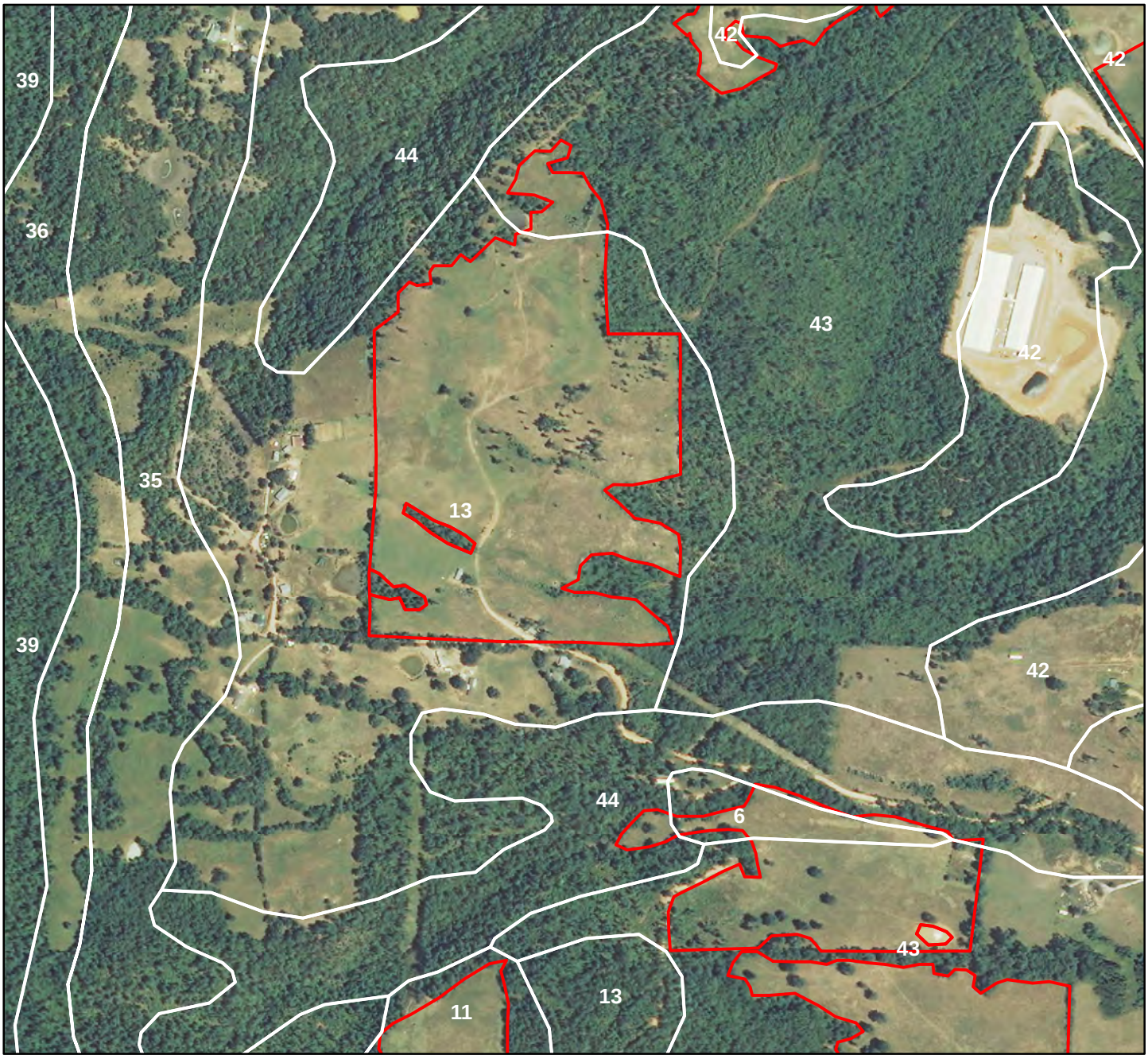
Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Soils Map



Legend

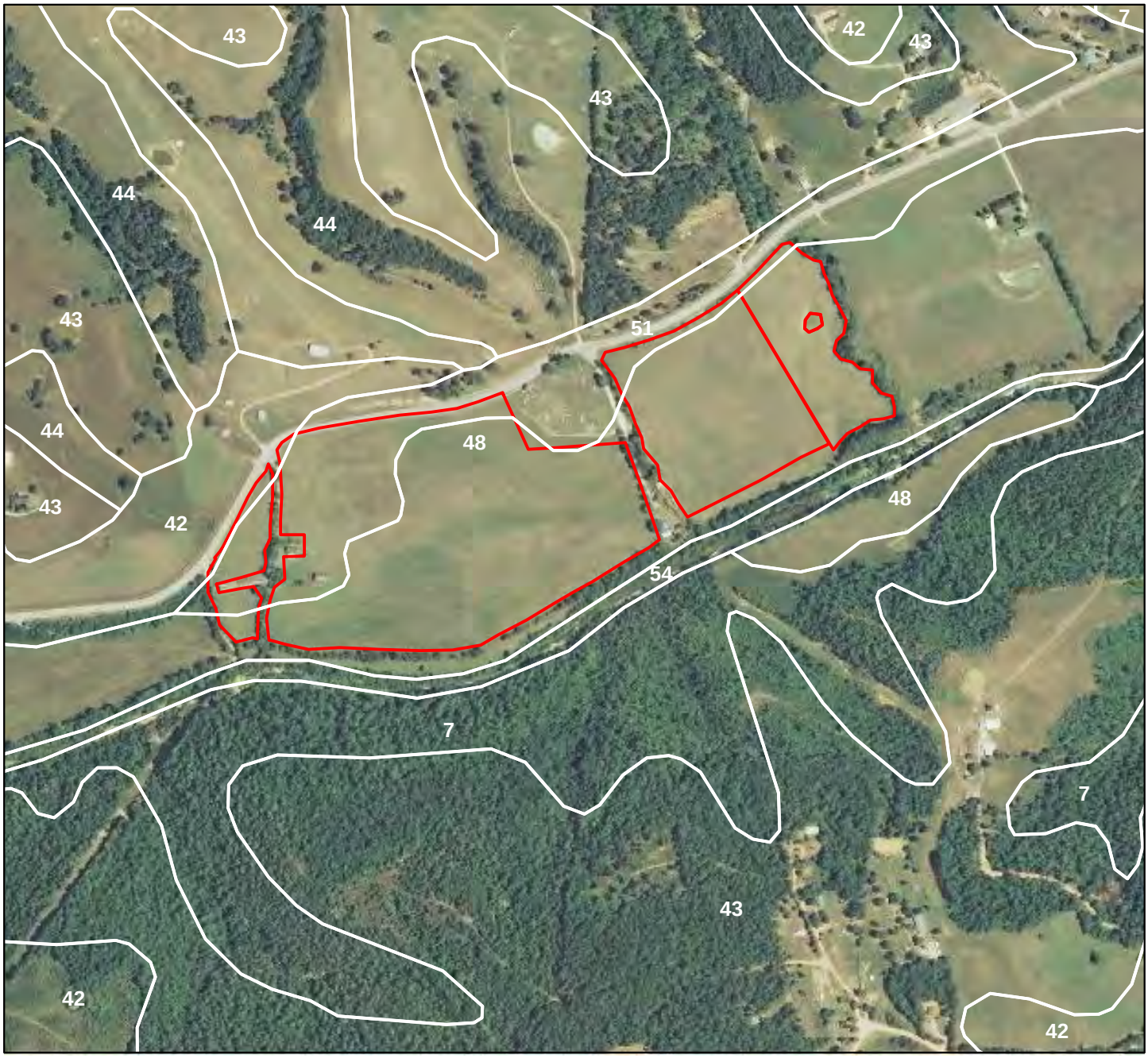
Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Soils Map



Legend

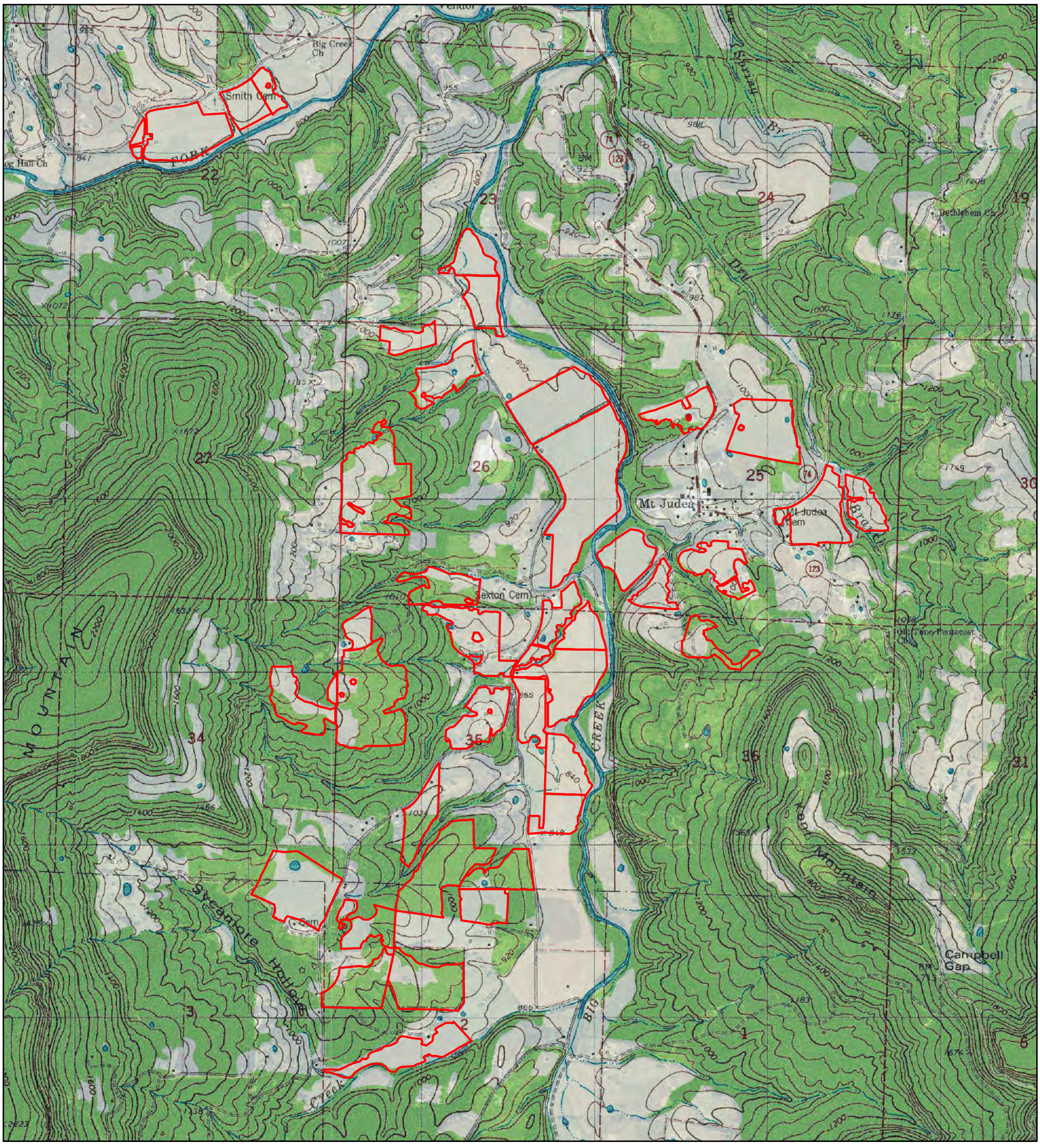
Team_1_soils

Correct Field Boundaries

380 0 380 760 1,140 1,520 Feet

N

Topo



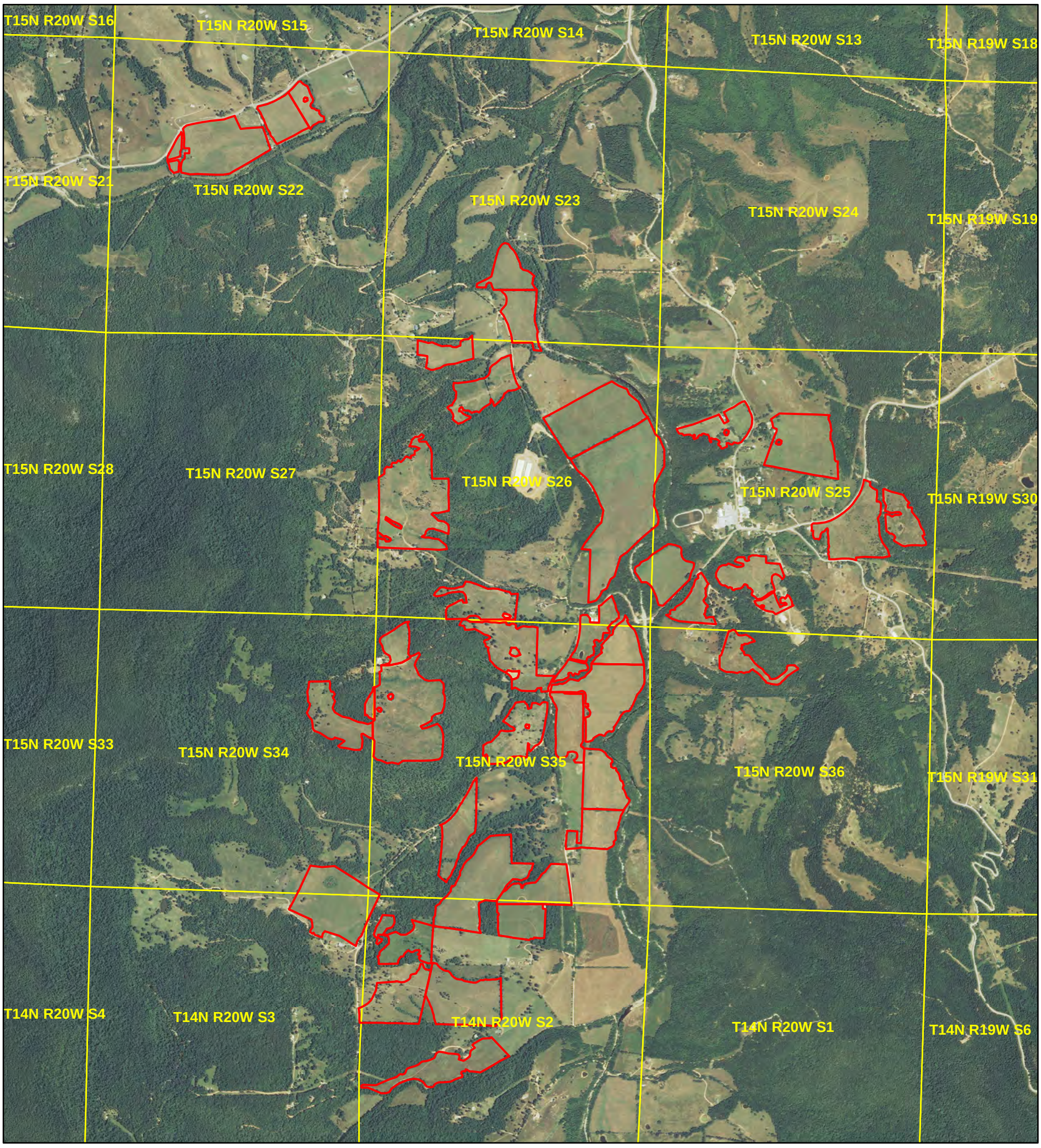
Legend

Correct Field Boundaries

1,800 0 1,800 3,600 5,400 7,200 Feet

N

Section, Township, Range Overview Map



Legend

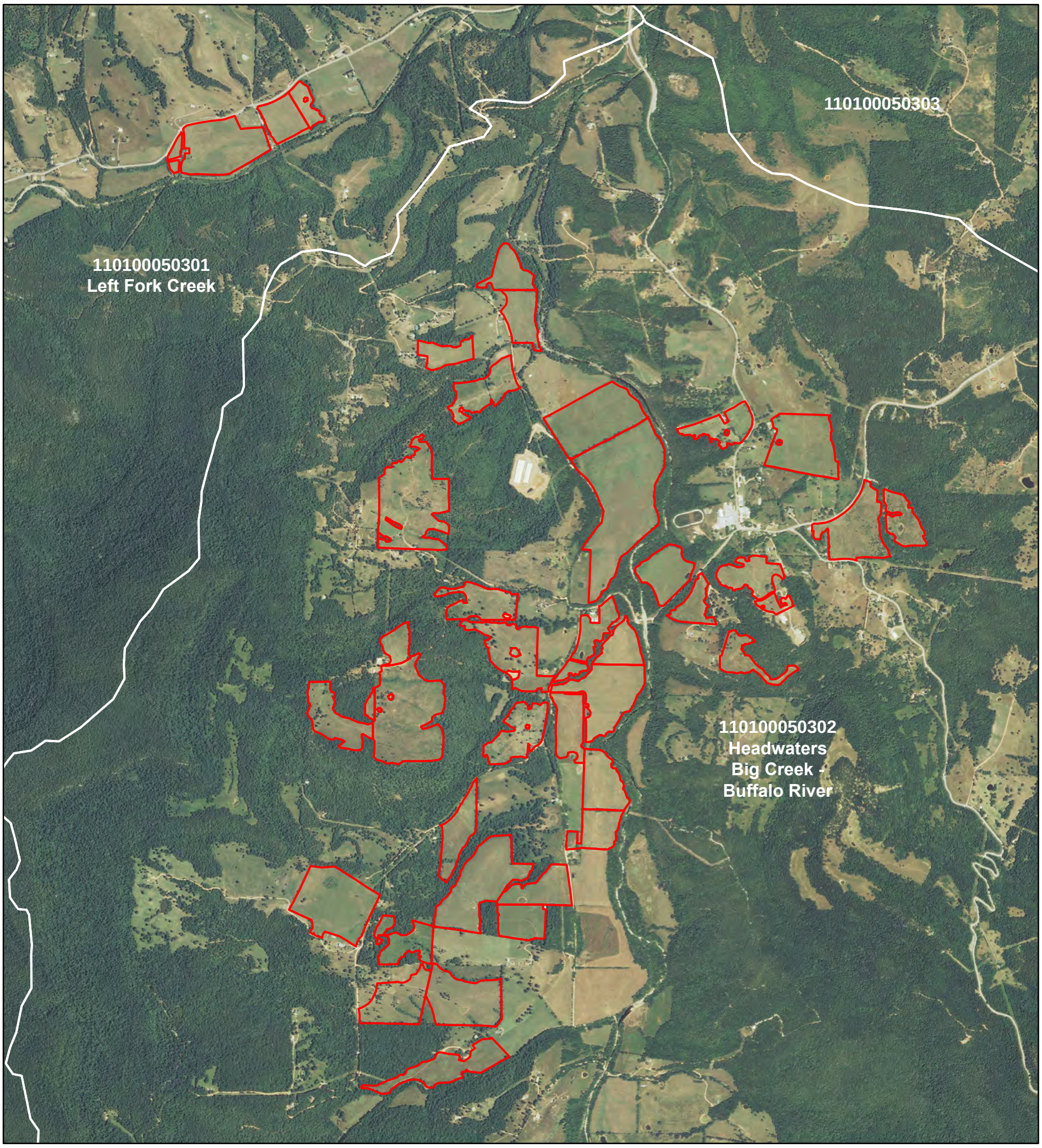
Correct Field Boundaries

plss_a_ar_utm15

1,800 0 1,800 3,600 5,400 7,200 Feet

N

Watershed Overview Map



Legend

Correct Field Boundaries

wbdhu12_a_ar

1,800 0 1,800 3,600 5,400 7,200 Feet

N

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Marianna, AR 72360
http://soiltest.uark.edu

JASON HENSON	**Client ID:** 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	JH 1
Acres:	18
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154610
Sample Number:	3466528

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	95	190	Above Optimum
K	443	886	Above Optimum
Ca	4722	9444	--
Mg	169	338	--
SO4-S	19	38	--
Zn	7.9	15.8	--
Fe	106	212	--
Mn	261	522	--
Cu	1	2	--
B	0.6	1.2	--
NO3-N	85	170	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	7.1	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	28.25	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Clay	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
92.92	83.58	4.99	4.02	0.34

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	0	0	0	0	0	0
Crop 3	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

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JASON HENSON	**Client ID:** 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	JH 2
Acres:	9
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154611
Sample Number:	3466529

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	108	216	Above Optimum
K	283	566	Above Optimum
Ca	1621	3242	--
Mg	124	248	--
SO4-S	19	38	--
Zn	5.3	10.6	--
Fe	137	274	--
Mn	326	652	--
Cu	0.8	1.6	--
B	0.4	0.8	--
NO3-N	52	104	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.2	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	13.42	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
73.91	60.41	7.70	5.41	0.39

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	0	0	0	0	0	0
Crop 3	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

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JASON HENSON		**Client ID:**	8706881318
HC 72 BOX 10			
MT JUDEA	AR	72655	

Date Processed:	12/4/2015
Field ID:	CC 3
Acres:	17
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154612
Sample Number:	3466530

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	89	178	Above Optimum
K	89	178	Low
Ca	1994	3988	--
Mg	71	142	--
SO4-S	11	22	--
Zn	3.8	7.6	--
Fe	186	372	--
Mn	253	506	--
Cu	1.6	3.2	--
B	0.4	0.8	--
NO3-N	26	52	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.7	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	13.86	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
78.35	71.96	4.27	1.65	0.47

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	lb/acre						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	220	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	300	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	100	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MT JUDEA		AR	72655

Date Processed:	12/4/2015
Field ID:	JH 4
Acres:	11
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154613
Sample Number:	3466531

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	75	150	Above Optimum
K	220	440	Above Optimum
Ca	1718	3436	--
Mg	166	332	--
SO4-S	19	38	--
Zn	7.5	15	--
Fe	255	510	--
Mn	96	192	--
Cu	0.9	1.8	--
B	0.4	0.8	--
NO3-N	32	64	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.6	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	15.64	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
68.03	54.92	8.84	3.61	0.67

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	lb/acre						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	5000
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	0	0	0	0	0	5000
Crop 3	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	5000

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

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Marianna, AR 72360
http://www.uark.edu/depts/soiltest

JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	GR 5
Acres	24
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38459
Sample Number:	2045423

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	63	126	Above Optimum
K	123	246	Medium
Ca	2331	4662	--
Mg	104	208	--
SO4-S	9	18	--
Zn	5.4	10.8	--
Fe	141	282	--
Mn	86	172	--
Cu	1.6	3.2	--
B	0.5	1.0	--
NO3-N	16	32	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.5	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	16	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
81.1	73.4	5.5	2.0	0.3

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	60	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	40	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	SR 6
Acres	5
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38460
Sample Number:	2045424

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	116	232	Above Optimum
K	216	432	Above Optimum
Ca	698	1396	--
Mg	70	140	--
SO4-S	12	24	--
Zn	3.4	6.8	--
Fe	120	240	--
Mn	181	362	--
Cu	0.4	0.8	--
B	0.3	0.6	--
NO3-N	13	26	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.9	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	8	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
60.8	45.5	7.6	7.2	0.5

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	0	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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Marianna, AR 72360
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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	GR 6A
Acres	9
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38461
Sample Number:	2045425

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	111	222	Above Optimum
K	238	476	Above Optimum
Ca	1133	2266	--
Mg	117	234	--
SO4-S	16	32	--
Zn	4.8	9.6	--
Fe	130	260	--
Mn	244	488	--
Cu	0.9	1.8	--
B	0.4	0.8	--
NO3-N	29	58	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.8	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	12	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
61.9	48.0	8.3	5.2	0.5

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	0	0	0	0	0	0
Crop 3	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	EGC 7
Acres:	73
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154614
Sample Number:	3466532

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	89	178	Above Optimum
K	88	176	Low
Ca	889	1778	--
Mg	116	232	--
SO4-S	15	30	--
Zn	6.4	12.8	--
Fe	182	364	--
Mn	205	410	--
Cu	1.6	3.2	--
B	0.2	0.4	--
NO3-N	20	40	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.4	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	10.24	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
56.04	43.42	9.44	2.20	0.98

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Hay (144)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	220	0	0	0	5000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	300	0	0	0	5000
Crop 3								

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

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Marianna, AR 72360
http://www.uark.edu/depts/soiltest

JASON HENSON	Client ID:	8706881318
HC 72 BOX 10		
MTN JUDEA	AR	72655
Date Processed:	4/1/2014	
Field ID:	EGC 7A	
Acres	34	
Lime Applied in the last 4 years:	No	
Leveled in past 4 years:	No	
Irrigation:	Unknown	
County:	Pope	
Lab Number:	38463	
Sample Number:	2045427	

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	38	76	Optimum
K	55	110	Very Low
Ca	751	1502	--
Mg	75	150	--
SO4-S	12	24	--
Zn	3.5	7.0	--
Fe	131	262	--
Mn	172	344	--
Cu	1.5	3.0	--
B	0.3	0.6	--
NO3-N	13	26	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.5	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	9	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
50.5	41.3	6.9	1.6	0.7

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Hay (134)	---------- lb/acre ----------						
Crop 1	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	45	350	0	0	0	4000
Crop 2	Warm-Season Grasses (MNT) (207)	60	0	160	0	0	0	4000
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	120	0	0	0	4000

4. Crop 1 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	CC 8
Acres:	11
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154615
Sample Number:	3466533

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	82	164	Above Optimum
K	111	222	Medium
Ca	2083	4166	--
Mg	95	190	--
SO4-S	12	24	--
Zn	4.4	8.8	--
Fe	155	310	--
Mn	224	448	--
Cu	0.9	1.8	--
B	0.4	0.8	--
NO3-N	30	60	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.5	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	14.57	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
79.41	71.48	5.43	1.95	0.54

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	180	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	60	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MT JUDEA		AR	72655

Date Processed:	12/4/2015
Field ID:	CC 8A
Acres:	3
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154616
Sample Number:	3466534

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	72	144	Above Optimum
K	79	158	Low
Ca	1606	3212	--
Mg	80	160	--
SO4-S	13	26	--
Zn	3	6	--
Fe	168	336	--
Mn	194	388	--
Cu	0.8	1.6	--
B	0.3	0.6	--
NO3-N	20	40	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.2	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	12.45	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
71.89	64.49	5.35	1.63	0.42

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	220	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	300	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	100	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	CC 9
Acres:	30
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154617
Sample Number:	3466535

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	82	164	Above Optimum
K	87	174	Low
Ca	3027	6054	--
Mg	96	192	--
SO4-S	11	22	--
Zn	5.2	10.4	--
Fe	198	396	--
Mn	140	280	--
Cu	2	4	--
B	0.5	1	--
NO3-N	32	64	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.9	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	18.75	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Clay	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
86.66	80.74	4.27	1.19	0.46

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	220	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	300	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	100	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	CC 9A
Acres:	12
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154618
Sample Number:	3466536

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	67	134	Above Optimum
K	93	186	Medium
Ca	2433	4866	--
Mg	77	154	--
SO4-S	11	22	--
Zn	2.5	5	--
Fe	156	312	--
Mn	169	338	--
Cu	1.5	3	--
B	0.3	0.6	--
NO3-N	23	46	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.6	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	16.13	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
81.40	75.41	3.98	1.48	0.54

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	180	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	60	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	FD 10
Acres:	15
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154619
Sample Number:	3466537

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	72	144	Above Optimum
K	109	218	Medium
Ca	1462	2924	--
Mg	144	288	--
SO4-S	17	34	--
Zn	5.5	11	--
Fe	294	588	--
Mn	199	398	--
Cu	2	4	--
B	0.3	0.6	--
NO3-N	72	144	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.3	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	14.45	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
61.93	50.60	8.31	1.93	1.08

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	180	0	0	0	5000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	5000
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	60	0	0	0	5000

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	BC 10A
Acres:	18
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154620
Sample Number:	3466538

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	100	200	Above Optimum
K	125	250	Medium
Ca	1380	2760	--
Mg	127	254	--
SO4-S	15	30	--
Zn	6.4	12.8	--
Fe	204	408	--
Mn	206	412	--
Cu	1.8	3.6	--
B	0.4	0.8	--
NO3-N	32	64	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.7	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	12.91	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
65.14	53.45	8.20	2.48	1.01

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	180	0	0	0	4000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	4000
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	60	0	0	0	4000

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	FD 11
Acres:	19
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154622
Sample Number:	3466539

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	62	124	Above Optimum
K	150	300	Optimum
Ca	875	1750	--
Mg	157	314	--
SO4-S	20	40	--
Zn	4.7	9.4	--
Fe	157	314	--
Mn	281	562	--
Cu	0.9	1.8	--
B	0.3	0.6	--
NO3-N	23	46	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.4	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	10.64	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
57.70	41.13	12.30	3.62	0.65

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	40	0	0	0	5000
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	0	0	0	0	0	5000
Crop 3	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	5000

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	RF 12
Acres:	13
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154623
Sample Number:	3466540

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	88	176	Above Optimum
K	128	256	Medium
Ca	1247	2494	--
Mg	101	202	--
SO4-S	14	28	--
Zn	3.9	7.8	--
Fe	185	370	--
Mn	206	412	--
Cu	1.5	3	--
B	0.4	0.8	--
NO3-N	21	42	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.8	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	12.00	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
62.50	51.96	7.01	2.73	0.80

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	180	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	60	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	CC 13
Acres:	13
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154624
Sample Number:	3466541

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	86	172	Above Optimum
K	176	352	Above Optimum
Ca	1670	3340	--
Mg	131	262	--
SO4-S	18	36	--
Zn	7.6	15.2	--
Fe	122	244	--
Mn	510	1020	--
Cu	1.2	2.4	--
B	0.5	1	--
NO3-N	45	90	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.4	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	13.49	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
74.06	61.88	8.09	3.34	0.74

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	lb/acre						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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University of Arkansas System

Cooperative Extension Service
Soil Testing And Research Laboratory
Marianna, AR 72360
http://soiltest.uark.edu

JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	CC 13A
Acres:	37
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154625
Sample Number:	3466542

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	75	150	Above Optimum
K	233	466	Above Optimum
Ca	1805	3610	--
Mg	144	288	--
SO4-S	18	36	--
Zn	7.9	15.8	--
Fe	110	220	--
Mn	483	966	--
Cu	1.1	2.2	--
B	0.6	1.2	--
NO3-N	46	92	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.3	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	14.41	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
75.70	62.65	8.33	4.15	0.57

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	lb/acre						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MT JUDEA	AR	72655	

Date Processed:	12/4/2015
Field ID:	CC 13B
Acres:	16
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154626
Sample Number:	3466543

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	61	122	Above Optimum
K	227	454	Above Optimum
Ca	1730	3460	--
Mg	121	242	--
SO4-S	15	30	--
Zn	4.8	9.6	--
Fe	93	186	--
Mn	477	954	--
Cu	1	2	--
B	0.5	1	--
NO3-N	40	80	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.6	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	13.31	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
77.46	64.99	7.58	4.37	0.52

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	CC 14
Acres:	15
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154627
Sample Number:	3466544

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	75	150	Above Optimum
K	149	298	Optimum
Ca	894	1788	--
Mg	145	290	--
SO4-S	19	38	--
Zn	8.3	16.6	--
Fe	141	282	--
Mn	446	892	--
Cu	1.1	2.2	--
B	0.3	0.6	--
NO3-N	48	96	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.8	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	10.14	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
60.55	44.09	11.92	3.77	0.77

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	150	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	200	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	40	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	C1C 15
Acres:	28
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154628
Sample Number:	3466545

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	72	144	Above Optimum
K	144	288	Optimum
Ca	908	1816	--
Mg	155	310	--
SO4-S	18	36	--
Zn	6.9	13.8	--
Fe	131	262	--
Mn	498	996	--
Cu	1.5	3	--
B	0.4	0.8	--
NO3-N	45	90	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.7	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	10.28	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
61.10	44.15	12.56	3.59	0.80

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	lb/acre						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	150	0	0	0	4000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	200	0	0	0	4000
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	40	0	0	0	4000

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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Soil Analysis Report
Soil Testing And Research Laboratory
Marianna, AR 72360
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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	C1C 15A
Acres	10
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38485
Sample Number:	2045502

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	18	36	Low
K	98	196	Medium
Ca	1165	2330	--
Mg	81	162	--
SO4-S	11	22	--
Zn	2.5	5.0	--
Fe	91	182	--
Mn	133	266	--
Cu	0.6	1.2	--
B	0.3	0.6	--
NO3-N	27	54	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.6	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	11	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
60.2	51.5	6.0	2.2	0.5

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	80	60	0	0	0	4000
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	70	50	0	0	0	4000
Crop 3	Warm-Season Grasses (MNT) (207)	60	70	60	0	0	0	4000

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	C1C 15B
Acres:	21
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154630
Sample Number:	3466547

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	66	132	Above Optimum
K	238	476	Above Optimum
Ca	1600	3200	--
Mg	201	402	--
SO4-S	25	50	--
Zn	9.1	18.2	--
Fe	139	278	--
Mn	699	1398	--
Cu	1.7	3.4	--
B	0.5	1	--
NO3-N	64	128	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.9	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	13.86	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
74.75	57.71	12.08	4.40	0.56

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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Soil Testing And Research Laboratory
Marianna, AR 72360
http://soiltest.uark.edu

JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	BH 16
Acres:	21
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154631
Sample Number:	3466548

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	68	136	Above Optimum
K	183	366	Above Optimum
Ca	1145	2290	--
Mg	138	276	--
SO4-S	17	34	--
Zn	4.9	9.8	--
Fe	190	380	--
Mn	236	472	--
Cu	1.4	2.8	--
B	0.3	0.6	--
NO3-N	47	94	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.5	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	12.91	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
57.41	44.33	8.91	3.63	0.54

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	0	0	0	0	4000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	4000
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	0	0	0	0	4000

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655

Date Processed:	12/4/2015
Field ID:	JC 17
Acres:	36
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154632
Sample Number:	3466549

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	86	172	Above Optimum
K	93	186	Medium
Ca	2539	5078	--
Mg	106	212	--
SO4-S	17	34	--
Zn	7.1	14.2	--
Fe	158	316	--
Mn	207	414	--
Cu	1.9	3.8	--
B	0.4	0.8	--
NO3-N	38	76	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.5	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	17.00	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
82.35	74.68	5.20	1.40	1.07

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	0	180	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	0
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	0	60	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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Cooperative Extension Service
Soil Analysis Report
Soil Testing And Research Laboratory
Marianna, AR 72360
http://www.uark.edu/depts/soiltest

JASON HENSON	Client ID:	8706881318
HC 72 BOX 10		
MTN JUDEA	AR	72655
Date Processed:	4/1/2014	
Field ID:	MB 18	
Acres	37	
Lime Applied in the last 4 years:	No	
Leveled in past 4 years:	No	
Irrigation:	Unknown	
County:	Pope	
Lab Number:	38472	
Sample Number:	2045507	

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	42	84	Optimum
K	54	108	Very Low
Ca	1683	3366	--
Mg	71	142	--
SO4-S	13	26	--
Zn	3.7	7.4	--
Fe	86	172	--
Mn	339	678	--
Cu	1.0	2.0	--
B	0.4	0.8	--
NO3-N	29	58	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.5	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	12	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
75.4	68.9	4.8	1.1	0.6

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	160	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	45	350	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	120	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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Cooperative Extension Service
Soil Analysis Report
Soil Testing And Research Laboratory
Marianna, AR 72360
http://www.uark.edu/depts/soiltest

JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	MB 19
Acres	10
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38473
Sample Number:	2045508

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	66	132	Above Optimum
K	221	442	Above Optimum
Ca	1982	3964	--
Mg	100	200	--
SO4-S	13	26	--
Zn	5.0	10.0	--
Fe	92	184	--
Mn	352	704	--
Cu	1.1	2.2	--
B	0.6	1.2	--
NO3-N	35	70	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.8	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	14	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
82.0	71.5	6.0	4.1	0.4

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	0	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	0	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	RC 20
Acres	30
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38474
Sample Number:	2045509

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	63	126	Above Optimum
K	168	336	Optimum
Ca	1612	3224	--
Mg	103	206	--
SO4-S	11	22	--
Zn	3.6	7.2	--
Fe	104	208	--
Mn	234	468	--
Cu	0.9	1.8	--
B	0.6	1.2	--
NO3-N	21	42	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.5	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	12	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam - Silty Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
75.8	65.0	6.9	3.5	0.4

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	200	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	0	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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Soil Testing And Research Laboratory
Marianna, AR 72360
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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	RC 21
Acres	7
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38475
Sample Number:	2045510

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	12	24	Very Low
K	142	284	Optimum
Ca	635	1270	--
Mg	72	144	--
SO4-S	9	18	--
Zn	1.5	3.0	--
Fe	85	170	--
Mn	174	348	--
Cu	0.3	0.6	--
B	0.3	0.6	--
NO3-N	13	26	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.2	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	7	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
62.6	47.5	9.0	5.4	0.7

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	120	40	0	0	0	0
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	100	0	0	0	0	0
Crop 3	Warm-Season Grasses (MNT) (207)	60	100	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

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Soil Testing And Research Laboratory
Marianna, AR 72360
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JASON HENSON	Client ID:	8706881318
HC 72 BOX 10		
MTN JUDEA	AR	72655
Date Processed:	4/1/2014	
Field ID:	RC21A	
Acres	24	
Lime Applied in the last 4 years:	No	
Leveled in past 4 years:	No	
Irrigation:	Unknown	
County:	Pope	
Lab Number:	38505	
Sample Number:	2045465	

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	21	42	Low
K	181	362	Above Optimum
Ca	865	1730	--
Mg	78	156	--
SO4-S	11	22	--
Zn	2.4	4.8	--
Fe	72	144	--
Mn	280	560	--
Cu	0.7	1.4	--
B	0.3	0.6	--
NO3-N	27	54	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.3	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	8	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
68.7	54.1	8.1	5.8	0.7

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	80	0	0	0	0	0
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	70	0	0	0	0	0
Crop 3	Warm-Season Grasses (MNT) (207)	60	70	0	0	0	0	0

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	RC 21B
Acres	5
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38490
Sample Number:	2045451

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	38	76	Optimum
K	162	324	Optimum
Ca	910	1820	--
Mg	66	132	--
SO4-S	12	24	--
Zn	2.3	4.6	--
Fe	117	234	--
Mn	119	238	--
Cu	0.5	1.0	--
B	0.4	0.8	--
NO3-N	18	36	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.3	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	8	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
69.0	56.4	6.8	5.1	0.7

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	45	200	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	0	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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Soil Testing And Research Laboratory
Marianna, AR 72360
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JASON HENSON	Client ID:	8706881318
HC 72 BOX 10		
MTN JUDEA	AR	72655
Date Processed:	4/1/2014	
Field ID:	KC 22	
Acres	49	
Lime Applied in the last 4 years:	No	
Leveled in past 4 years:	No	
Irrigation:	Unknown	
County:	Pope	
Lab Number:	38491	
Sample Number:	2045452	

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	38	76	Optimum
K	126	252	Medium
Ca	405	810	--
Mg	60	120	--
SO4-S	13	26	--
Zn	1.4	2.8	--
Fe	109	218	--
Mn	156	312	--
Cu	0.3	0.6	--
B	0.2	0.4	--
NO3-N	15	30	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.6	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	7	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Sandy Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
42.0	29.3	7.2	4.7	0.8

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	30	60	0	0	0	3000
Crop 2	Pasture - Cool-Season Grasses (MNT) (203)	60	0	50	0	0	0	3000
Crop 3	Warm-Season Grasses (MNT) (207)	60	0	60	0	0	0	3000

4. Crop 1 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

5. Crop 2 Notes:

Apply the recommended rate of N, P, and K in late winter. For higher production apply an additional 50 lb N/Acre after every 4 to 6 weeks of grazing. For fall/winter grazing, apply 50 lbs N/Acre in late summer.

6. Crop 3 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

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Soil Testing And Research Laboratory
Marianna, AR 72360
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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	GN 23
Acres	32
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38492
Sample Number:	2045453

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	56	112	Above Optimum
K	35	70	Very Low
Ca	734	1468	--
Mg	25	50	--
SO4-S	11	22	--
Zn	1.5	3.0	--
Fe	95	190	--
Mn	189	378	--
Cu	0.5	1.0	--
B	0.2	0.4	--
NO3-N	8	16	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.8	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	8	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
50.2	45.7	2.6	1.1	0.8

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Hay (134)	---------- lb/acre ----------						
Crop 1	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	350	0	0	0	0
Crop 2	Warm-Season Grasses (MNT) (207)	60	0	160	0	0	0	0
Crop 3								

4. Crop 1 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	DH 24
Acres	12
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38493
Sample Number:	2045454

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	45	90	Optimum
K	68	136	Low
Ca	922	1844	--
Mg	58	116	--
SO4-S	14	28	--
Zn	1.9	3.8	--
Fe	126	252	--
Mn	162	324	--
Cu	1.0	2.0	--
B	0.2	0.4	--
NO3-N	11	22	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.4	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	10	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
54.2	46.9	4.9	1.8	0.6

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	110	0	0	0	5000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	45	300	0	0	0	5000
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	80	0	0	0	5000

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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Soil Testing And Research Laboratory
Marianna, AR 72360
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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	HC 32
Acres	15
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38503
Sample Number:	2045463

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	57	114	Above Optimum
K	101	202	Medium
Ca	707	1414	--
Mg	48	96	--
SO4-S	12	24	--
Zn	1.9	3.8	--
Fe	99	198	--
Mn	260	520	--
Cu	0.6	1.2	--
B	0.2	0.4	--
NO3-N	15	30	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.9	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	7	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
58.6	48.7	5.5	3.6	0.8

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	60	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	250	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	40	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.
If S deficiency has occurred previously on this field apply 20 lb SO4-S/Acre.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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Cooperative Extension Service
Soil Analysis Report
Soil Testing And Research Laboratory
Marianna, AR 72360
http://www.uark.edu/depts/soiltest

JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	HC 33
Acres	5
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38504
Sample Number:	2045464

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	52	104	Above Optimum
K	165	330	Optimum
Ca	1766	3532	--
Mg	88	176	--
SO4-S	14	28	--
Zn	3.6	7.2	--
Fe	115	230	--
Mn	156	312	--
Cu	1.1	2.2	--
B	0.3	0.6	--
NO3-N	12	24	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	6.0	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	14	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silty Clay Loam - Clay Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
74.1	65.2	5.4	3.1	0.4

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Winter Annuals (EST/MNT) (210)	90	0	0	0	0	0	0
Crop 3								

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

5. Crop 2 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

6. Crop 3 Notes:

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JASON HENSON		Client ID:	8706881318
HC 72 BOX 10			
MTN JUDEA	AR		72655

Date Processed:	4/1/2014
Field ID:	RC 34
Acres	10
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	38506
Sample Number:	2045466

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	56	112	Above Optimum
K	134	268	Optimum
Ca	638	1276	--
Mg	93	186	--
SO4-S	13	26	--
Zn	2.8	5.6	--
Fe	108	216	--
Mn	195	390	--
Cu	1.1	2.2	--
B	0.5	1.0	--
NO3-N	18	36	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.9	---
Soil EC (1:2 soil-water)		umhos/cm
Soil ECEC	7	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
59.3	43.3	10.5	4.7	0.9

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4S	Zn	B	Lime
Last Crop	Pasture (207)	---------- lb/acre ----------						
Crop 1	Warm-Season Grasses (MNT) (207)	60	0	0	0	0	0	0
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	0	200	0	0	0	0
Crop 3	Winter Annuals (EST/MNT) (210)	90	0	0	0	0	0	0

4. Crop 1 Notes:

Apply the recommended rates of N, P, and K, in spring when night temperatures are > 60 degrees F for 1 week. For higher production, topdress an additional 60 lb N/Acre after every 4 to 6 weeks of grazing. For fall grazing apply 50 lb N/Acre in early August. Do not apply N after September 1.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

Apply the recommended P and K fertilizer rates and one-third of the total N rate immediately before or after stand is successfully established. Apply the remaining N(60 lb N/Acre/application) during mid February. For higher production, apply an additional 50 lb N/Acre in mid March.

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RESEARCH & EXTENSION
University of Arkansas System

Cooperative Extension Service
Soil Testing And Research Laboratory
Marianna, AR 72360
http://soiltest.uark.edu

JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	CH 35
Acres:	26
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154664
Sample Number:	3466550

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	40	80	Optimum
K	92	184	Medium
Ca	681	1362	--
Mg	89	178	--
SO4-S	19	38	--
Zn	2.6	5.2	--
Fe	111	222	--
Mn	506	1012	--
Cu	0.7	1.4	--
B	0.2	0.4	--
NO3-N	36	72	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.6	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	8.43	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Silt Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
52.55	40.39	8.80	2.80	0.57

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	40	180	0	0	0	4000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	45	250	0	0	0	4000
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	30	60	0	0	0	4000

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

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Soil Testing And Research Laboratory
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JASON HENSON	Client ID: 8706881318
HC 72 BOX 10	
MT JUDEA	AR 72655
Date Processed:	12/4/2015
Field ID:	CH 36
Acres:	12
Lime Applied in the last 4 years:	No
Leveled in past 4 years:	No
Irrigation:	Unknown
County:	Pope
Lab Number:	154665
Sample Number:	3466551

1. Nutrient Availability Index

Nutrient	Concentration		Soil Test Level (Mehlich 3)
	ppm	lb/acre	
P	20	40	Low
K	183	366	Above Optimum
Ca	427	854	--
Mg	77	154	--
SO4-S	16	32	--
Zn	1.2	2.4	--
Fe	105	210	--
Mn	420	840	--
Cu	0.3	0.6	--
B	0.1	0.2	--
NO3-N	41	82	--

2. Soil Properties

Property	Value	Units
Soil pH (1:2 soil-water)	5.4	--
Soil EC (1:2 soil-water)		umhos/cm
Soil Estimated CEC	7.78	cmolc/kg
Organic Matter (Loss on Ignition)		%
Estimated Soil Texture	Sandy Loam	

Estimated Base Saturation (%)				
Total	Ca	Mg	K	Na
42.13	27.46	8.25	6.03	0.39

3. Recommendations

(Notice: State and/or federal nutrient management regulations may supersede these agronomic recommendations.)

Crop		N	P2O5	K2O	SO4-S	Zn	B	Lime
Last Crop	Pasture (212)	---------- lb/acre ----------						
Crop 1	Mixed Cool and Warm Season Grasses 4 ton (144)	160	100	0	0	0	0	4000
Crop 2	Hay - Warm-Season Grasses (MNT) - 6 ton/acre (134)	300	110	0	0	0	0	4000
Crop 3	Mixed Cool and Warm-Season Grasses for Pasture (212)	60	80	0	0	0	0	4000

4. Crop 1 Notes:

To favor cool-season grasses, apply fertilizer in split applications in late winter and after spring hay harvest. To favor warm-season grasses, do not apply N until May 1. Split apply the recommended fertilizer rates after each subsequent hay harvest.

5. Crop 2 Notes:

For optimum fertilizer efficiency, divide the recommended N, P, and K rates by the estimated number of harvests/year. Make the first fertilizer application in spring when night temperatures are > 60 degrees F for one week. Make subsequent applications following each harvest. Do not apply N after Sept. 1.

6. Crop 3 Notes:

To favor cool-season grasses, apply N in late winter. To favor warm-season grasses, do not apply N until May 1. For higher production, topdress 50 lb N/Acre after every 4-6 weeks of grazing or as needed.

AGRICULTURAL DIAGNOSTIC SERVICE LABORATORY
1366 W. Altheimer Dr., Fayetteville, AR 72704
(479)575-3908 agrilab@uark.edu
University of Arkansas, Dept. of Crops, Soils, and Environmental Science

LIQUID MANURE FOR FERTILIZER ANALYSIS (report for AGRI-429)

Name:	KARL VanDEVENDER / ANDREW SHARPLE	***Received in lab:***	***4/17/2015***
Address:		***Mailed:***	***4/24/2015***
City:		State,Zip:	AR
County:		Phone #:	
E-Mail:	kvan@uaex.edu, sharpley@uark.edu	Check #:	Big Creek Research Project

Lab. No.	M50518	M50519				
Sample I.D.	C&HP1P	C&HP2P				
Animal type	swine	swine				
age / lbs	no info	no info				
Bedding type	none	none				
Manure type	pond liquid	pond liquid				
Sample date	4/16/2015	4/16/2015				
Age of manure	no info	no info				
pH	7.6	8.0				
EC(µmhos/cm)	13580	8710				
% Solids	3.37	2.42				
		-mg/l on as-is basis-				
Total N	2410	1820				
Total P	253	417				
Total K	1358	1044				
Total Ca	102	378				
NH4-N	1291	636				
Water Extractable P	169	89				
		-lbs/1000 gal on as-is basis-				
Total N	20.1	15.2				
TOTAL P AS "P2O5"	4.8	7.9				
TOTAL K AS "K20"	13.6	10.4				
Total Ca	0.9	3.1				
NH4-N	10.8	5.3				
Water Extractable P	1.4	0.7				

*lbs/1000gal P2O5 = mg/l Total P on "as-is" basis multiplied by 2.29*0.00833
*lbs/1000gal K2O = mg/l Total K on "as-is" basis multiplied by 1.2*0.00833
*Water Extractable P: **1:100 solids to H2O ratio**, I hr shake, centrifuged, filtered, acidified, analysis by ICP

Section 5

Nutrient Management

Determining Acceptable Manure Application Rates
Example Phosphorous Index Calculations

Methodology for Determining Acceptable Manure Application Rates

Determination of acceptable application rates will be done using the Arkansas Phosphorous Index. This index classifies evaluated potential field phosphorous runoff risk as Low, Medium, High, or Very High. Only conditions and management decisions that result in risk values in the Low or Medium ranges will allow for applications. The most variable inputs to the evaluation process are: application rate; manure total and soluble phosphorous concentrations; application timing; application method; soil test phosphorous concentrations and land use. Section 5 of this plan shows an example of typical initial conditions for each field of this operation. As these conditions change, the phosphorous runoff risk should be re-evaluated as necessary to insure applications are made only when the associated risk is in the Low or Medium range. As a result, inputs such as application rates will vary over time, however the phosphorous runoff risk will remain in the low to medium range. In addition, no application should be made that exceeds nitrogen recommendations. As demonstrated by the example calculations, this farm has sufficient land to manage pond volume levels.

Interpreting P Index Values with the ARNMP Phosphorous Index:

Range Class	Interpretation
Low (<33)	Low potential for P movement from site. Apply nutrients based on crop needs, normally nitrogen. However, if P is applied above crop needs, P build up will take place over time.
Medium (33 to 66)	Medium potential for P movement from site. Evaluate the index and determine any areas that could cause long-term concerns. Consider adding conservation practices or reduced P application to maintain the risk at 66 or less. Apply nutrients based on crop needs, normally nitrogen. If P is applied above crop requirements, soil P levels will accumulate over time.
High (67 to 100)	High potential for P movement from site. Evaluate the index and determine elevation cause. Add appropriate conservation practices and/or reduce soluble P application. The immediate planning target is a PI value of 66 or less. If this cannot be achieved with realistic conservation practices and/or reduced P rates in the short term, then a progressive plan needs to be developed with a long term goal of a PI less than 66. Apply nutrients to meet crop phosphorus needs according to NRCS Nutrient Management Standard (590).
Very High (>100)	Very high potential for P movement from site. Add conservation practices to decrease this value below 100 in the short term and develop a progressive conservation plan that would reduce the PI to a lower risk category, with a long term goal of a PI of less than 66.

Arkansas Nutrient Managemnt Planner with 2009 PI (Beta draft ver 09162015)

Planner:	Monica Hancock
Plan Description:	C & H Hog Farms, Inc

Date:	1/14/2016

Beta Test Version for Use by Select Planners working with Author. This worksheet is intended to assist in the writing of Nutrient Management Plans for the application of manure to pasture and hay land. To do this, the worksheet estimates the litter production for the farm, estimates the P Index risk value for the defined conditions of each field, assists with the allocation of nutrients to the various receiving fields, and estimates the amount of litter available for off farm use. This worksheet is the result of an effort to develop a reliable training/planning tool faithful to the 2009 Arkansas P Index developed by a multi-agency effort. However, no guarantees are made, and any observed problems or suggestions for improvement should be directed to Karl VanDevender at kvan@uaex.edu.

Nutrient Source and Description Information

Manure Source	Source Type	Amount Available		N Concentration		P2O5 Concentration		K2O Concentration		Water Extractable P		Alum
Pond 1 M50518	Liquid Manure	2,624	1000 gal	20.1	lb/1000 gal	4.8	lb/1000 gal	13.6	lb/1000 gal	1.4	lb/1000 gal	No
Pond 2 M50519	Liquid Manure	2,624	1000 gal	15.2	lb/1000 gal	7.9	lb/1000 gal	10.4	lb/1000 gal	0.7	lb/1000 gal	No

Nutrient Loss and Mineralization Factors

Manure Source	N		P2O5		K2O	
	Storage Losses (%)	Appl. Losses (%)	Storage Losses (%)	Appl. Losses (%)	Storage Losses (%)	Appl. Losses (%)
Pond 1 M50518		25%				
Pond 2 M50519		25%				
0						
0						
0						

2,624 is the 365 day amount available and was calculated from the engineering section.

Estimated Plant Available Nutrients

Manure Source	N			P2O5			K2O			Water Extractable P		
	Concentration		Total (lb)	Concentration		Total (lb)	Concentration		Total (lb)	Concentration		Total (lb)
Pond 1 M50518	15.08	lb/1000 gal	39,557	4.80	lb/1000 gal	12,595	13.60	lb/1000 gal	35,686	1.40	lb/1000 gal	3673.6
Pond 2 M50519	11.40	lb/1000 gal	29,914	7.90	lb/1000 gal	20,730	10.40	lb/1000 gal	27,290	0.70	lb/1000 gal	1836.8
0												
0												
0												
			69,470			33,325			62,976			5,510

Arkansas Nutrient Managemnt Planner with 2009 PI (Beta draft ver 02252106)

Planner:	Monica Hancock
Plan Description:	C & H Hog Farms, Inc

Beta Test Version for Use by Select Planners working with Author. This worksheet is intended to assist in the writing of Nutrient Management Plans for the application of manure to pasture and hay land. To do this, the worksheet estimates the litter production for the farm, estimates the P Index risk value for the defined conditions of each field, assists with the allocation of nutrients to the various receiving fields, and estimates the amount of litter available for off farm use. This

Fields Shown	Total Annual Summary				- - - General Field Information - - - - -						Slope Gradient (%)				Slope Length (ft)				Flooding Frequency				
50	PI	Nutrient Balance (+/-)			County	Field Area (ac)	Buffer Length (ft)	Buffer Width (ft)	Appl Area (ac)	Soil Map Unit	Min	Max	Rep	Used	Min	Max	Rep	Used	Data Base Default	Used	Predominate Vegetation	Percent Ground Cover	Conservation Support Practices (P)
Field	Value	N	P2O5	K2O																			
Field 1	20	-5	+79	+141	Newton	8.40			8.40	42	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 2	22	-5	+79	+141	Newton	6.00			6.00	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 3	57	-3	+152	-30	Newton	15.20			15.20	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 4	20	-5	+79	+141	Newton	7.20			7.20	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 5	54	-3	+152	+20	Newton	9.70			9.70	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 6	21	-5	+79	+141	Newton	5.60			5.60	42	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 6A	21	-5	+79	+141	Newton	7.90			7.90	42	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 7	57	-3	+152	-30	Newton	64.30			64.30	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 7A	50	-3	+107	-80	Newton	28.30			28.30	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 8	29	-3	+152	+20	Newton	7.20			7.20	51	2	5	2.5	2.5	15	75	45	45	None	None	Grass	95-100	None
Field 8A	55	-3	+152	-30	Newton	1.40			1.40	50	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 9	56	-3	+152	-30	Newton	25.20			25.20	50	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 9A	54	-3	+152	+20	Newton	10.30			10.30	50	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 10	29	-3	+152	+20	Newton	14.10			14.10	51	2	5	2.5	2.5	15	75	45	45	None	None	Grass	95-100	None
Field 10A	59	-3	+152	+20	Newton	16.40			16.40	50	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 11	18	-5	+79	+101	Newton	14.20			14.20	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field12	57	-3	+152	+20	Newton	11.40			11.40	50	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field13	32	-3	+152	+270	Newton	11.60			11.60	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 13A	31	-3	+152	+270	Newton	30.70			30.70	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 13B	30	-3	+152	+270	Newton	8.60			8.60	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 14	31	-3	+152	+70	Newton	8.10			8.10	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 15	31	-3	+152	+70	Newton	22.50			22.50	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 15A	35	-5	-1	+81	Newton	10.40			10.40	2	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 15B	31	-3	+152	+270	Newton	15.00			15.00	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 16	54	-3	+152	+270	Newton	15.20			15.20	50	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 17	32	-3	+152	+20	Newton	31.90			31.90	1	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 18	26	-3	+107	-80	Newton	22.60			22.60	42	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 19	28	-3	+152	+270	Newton	10.30			10.30	42	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 20	30	-3	+152	+70	Newton	21.60			21.60	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 21	21	-5	-41	+101	Newton	20.30			20.30	13	3	20	12	12	15	30	20	20	None	None	Grass	95-100	None
Field 21A	22	-5	-1	+141	Newton	15.60			15.60	13	3	20	12	12	15	30	20	20	None	None	Grass	95-100	None
Field 21B	28	-3	+107	+70	Newton	6.00			6.00	11	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 22	25	-5	+49	+81	Newton	35.50			35.50	13	3	20	12	12	15	30	20	20	None	None	Grass	95-100	None
Field 23	53	-3	+152	-80	Newton	28.10			28.10	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 24	51	-3	+107	-30	Newton	8.00			8.00	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 32	53	-3	+152	+20	Newton	10.00			10.00	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 33	31	-5	+79	+141	Newton	4.00			4.00	48	0	3	2	2	15	75	45	45	Occasional	Occasional	Grass	95-100	None
Field 34	30	-3	+152	+70	Newton	13.50			13.50	43	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Field 35	26	-3	+107	+20	Newton	18.40			18.40	42	3	8	5	5	15	75	45	45	None	None	Grass	95-100	None
Field 36	63	-3	+42	+270	Newton	9.30			9.30	15	8	20	14	14	15	30	20	20	None	None	Grass	95-100	None
Farm Totals						630.00			630.00														
Available																							
Surpluses/Deficits (+/-)																							

Arkansas Nutrient Managemnt Plann

Planner:	Monica Hancock
Plan Description:	C & H Hog Farms, Inc

Beta Test Version for Use by Select Planners working wit

Nutrient Management Plans for the application of manure to litter production for the farm, estimates the P Index risk value allocation of nutrients to the various receiving fields, and esti

Fields Shown	Total Annual Summary				General Field Information			Nutrient Application Information									Nutrient Application Information			
								Application Group 1									Application Group 2			
50	PI	Nutrient Balance (+/-)			Pasture Use	RUSLE 1 (ton/ac)	RUSLE 2 (ton/ac)	Timing	Appl Method	Nutrient Source	Bulk Rate	Units	N (lb/ac)	P2O5 (lb/ac)	K2O (lb/ac)	Group Sub PI	Group Sub PI Range	Timing	Appl Method	Nutrient Source	Bulk Rate
Field	Value	N	P2O5	K2O																	
Field 1	20	-5	+79	+141	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	7	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 2	22	-5	+79	+141	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	8	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 3	57	-3	+152	-30	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 4	20	-5	+79	+141	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	8	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 5	54	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 6	21	-5	+79	+141	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	7	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 6A	21	-5	+79	+141	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	7	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 7	57	-3	+152	-30	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 7A	50	-3	+107	-80	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 8	29	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	14	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 8A	55	-3	+152	-30	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 9	56	-3	+152	-30	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 9A	54	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 10	29	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	14	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 10A	59	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 11	18	-5	+79	+101	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	8	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field12	57	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field13	32	-3	+152	+270	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 13A	31	-3	+152	+270	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 13B	30	-3	+152	+270	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 14	31	-3	+152	+70	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 15	31	-3	+152	+70	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 15A	35	-5	-1	+81	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	18	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 15B	31	-3	+152	+270	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 16	54	-3	+152	+270	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 17	32	-3	+152	+20	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 18	26	-3	+107	-80	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	14	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 19	28	-3	+152	+270	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	14	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 20	30	-3	+152	+70	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 21	21	-5	-41	+101	Rotational Grazing	0.17	0.17	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	12	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 21A	22	-5	-1	+141	Rotational Grazing	0.17	0.17	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	12	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 21B	28	-3	+107	+70	Rotational Grazing	0.09	0.09	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 22	25	-5	+49	+81	Rotational Grazing	0.17	0.17	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	12	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 23	53	-3	+152	-80	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 24	51	-3	+107	-30	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 32	53	-3	+152	+20	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	26	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 33	31	-5	+79	+141	Rotational Grazing	0.05	0.05	March-June	Surface	Pond 1 M50518	5.00	1000 gal/ac	75	24	68	14	Low	July-Oct	Surface	Pond 2 M50519	7.00
Field 34	30	-3	+152	+70	Rotational Grazing	0.28	0.28	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	15	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 35	26	-3	+107	+20	Rotational Grazing	0.12	0.12	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	14	Low	July-Oct	Surface	Pond 2 M50519	13.50
Field 36	63	-3	+42	+270	Rotational Grazing	0.21	0.21	March-June	Surface	Pond 1 M50518	9.50	1000 gal/ac	143	46	129	34	Medium	July-Oct	Surface	Pond 2 M50519	13.50

Farm Totals

Available

Surpluses/Deficits (+/-)

Arkansas Nutrient Managemnt Plann

Planner:	Monica Hancock
Plan Description:	C & H Hog Farms, Inc

Beta Test Version for Use by Select Planners working wit

Nutrient Management Plans for the application of manure to litter production for the farm, estimates the P Index risk value allocation of nutrients to the various receiving fields, and esti

Fields Shown	Total Annual Summary				Nutrient Application Information - - - Application Group 2 - - -						Nutrient Application Information - - - Application Group 3 - - -										Soil Test P and Soil Sub Pl				
50	Pl	Nutrient Balance (+/-)			Units	N	P2O5	K2O	Group Sub Pl	Group Sub Pl Range	Timing	Appl Method	Nutrient Source	Bulk Rate	Units	N	P2O5	K2O	Group Sub Pl	Group Sub Pl Range	Highest Risk Timing	ppm	lb/ac	Soil Sub Pl	Soil Sub Range
Field	Value	N	P2O5	K2O		(lb/ac)	(lb/ac)	(lb/ac)								(lb/ac)	(lb/ac)	(lb/ac)							
Field 1	20	-5	+79	+141	1000 gal/ac	80	55	73	5	Low											March-June	95	126	8	Low
Field 2	22	-5	+79	+141	1000 gal/ac	80	55	73	5	Low											March-June	108	144	9	Low
Field 3	57	-3	+152	-30	1000 gal/ac	154	107	140	18	Low											March-June	89	118	13	Low
Field 4	20	-5	+79	+141	1000 gal/ac	80	55	73	5	Low											March-June	75	100	6	Low
Field 5	54	-3	+152	+20	1000 gal/ac	154	107	140	18	Low											March-June	63	84	9	Low
Field 6	21	-5	+79	+141	1000 gal/ac	80	55	73	5	Low											March-June	116	154	9	Low
Field 6A	21	-5	+79	+141	1000 gal/ac	80	55	73	5	Low											March-June	111	148	9	Low
Field 7	57	-3	+152	-30	1000 gal/ac	154	107	140	18	Low											March-June	89	118	13	Low
Field 7A	50	-3	+107	-80	1000 gal/ac	154	107	140	18	Low											March-June	38	51	6	Low
Field 8	29	-3	+152	+20	1000 gal/ac	154	107	140	9	Low											March-June	82	109	7	Low
Field 8A	55	-3	+152	-30	1000 gal/ac	154	107	140	18	Low											March-June	72	96	11	Low
Field 9	56	-3	+152	-30	1000 gal/ac	154	107	140	18	Low											March-June	82	109	12	Low
Field 9A	54	-3	+152	+20	1000 gal/ac	154	107	140	18	Low											March-June	67	89	10	Low
Field 10	29	-3	+152	+20	1000 gal/ac	154	107	140	9	Low											March-June	72	96	6	Low
Field 10A	59	-3	+152	+20	1000 gal/ac	154	107	140	18	Low											March-June	100	133	15	Low
Field 11	18	-5	+79	+101	1000 gal/ac	80	55	73	5	Low											March-June	62	82	5	Low
Field12	57	-3	+152	+20	1000 gal/ac	154	107	140	18	Low											March-June	88	117	13	Low
Field13	32	-3	+152	+270	1000 gal/ac	154	107	140	10	Low											March-June	86	114	7	Low
Field 13A	31	-3	+152	+270	1000 gal/ac	154	107	140	10	Low											March-June	75	100	6	Low
Field 13B	30	-3	+152	+270	1000 gal/ac	154	107	140	10	Low											March-June	61	81	5	Low
Field 14	31	-3	+152	+70	1000 gal/ac	154	107	140	10	Low											March-June	75	100	6	Low
Field 15	31	-3	+152	+70	1000 gal/ac	154	107	140	10	Low											March-June	72	96	6	Low
Field 15A	35	-5	-1	+81	1000 gal/ac	80	55	73	13	Low											March-June	18	24	3	Low
Field 15B	31	-3	+152	+270	1000 gal/ac	154	107	140	10	Low											March-June	66	88	6	Low
Field 16	54	-3	+152	+270	1000 gal/ac	154	107	140	18	Low											March-June	68	90	10	Low
Field 17	32	-3	+152	+20	1000 gal/ac	154	107	140	10	Low											March-June	86	114	7	Low
Field 18	26	-3	+107	-80	1000 gal/ac	154	107	140	9	Low											March-June	42	56	3	Low
Field 19	28	-3	+152	+270	1000 gal/ac	154	107	140	9	Low											March-June	66	88	5	Low
Field 20	30	-3	+152	+70	1000 gal/ac	154	107	140	10	Low											March-June	63	84	5	Low
Field 21	21	-5	-41	+101	1000 gal/ac	80	55	73	8	Low											March-June	12	16	2	Low
Field 21A	22	-5	-1	+141	1000 gal/ac	80	55	73	8	Low											March-June	21	28	3	Low
Field 21B	28	-3	+107	+70	1000 gal/ac	154	107	140	10	Low											March-June	38	51	3	Low
Field 22	25	-5	+49	+81	1000 gal/ac	80	55	73	8	Low											March-June	38	51	5	Low
Field 23	53	-3	+152	-80	1000 gal/ac	154	107	140	18	Low											March-June	56	74	8	Low
Field 24	51	-3	+107	-30	1000 gal/ac	154	107	140	18	Low											March-June	45	60	7	Low
Field 32	53	-3	+152	+20	1000 gal/ac	154	107	140	18	Low											March-June	57	76	8	Low
Field 33	31	-5	+79	+141	1000 gal/ac	80	55	73	10	Low											March-June	52	69	8	Low
Field 34	30	-3	+152	+70	1000 gal/ac	154	107	140	10	Low											March-June	56	74	5	Low
Field 35	26	-3	+107	+20	1000 gal/ac	154	107	140	9	Low											March-June	40	53	3	Low
Field 36	63	-3	+42	+270	1000 gal/ac	154	107	140	25	Low											March-June	20	27	4	Low

Farm Totals

Available

Surpluses/Deficits (+/-)

Arkansas Nutrient Managemnt Plann

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Plan Description:	C & H Hog Farms, Inc

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Nutrient Management Plans for the application of manure to
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Fields Shown	Total Annual Summary				Application Totals				Total = Soil + Applications		Per Acre Nutrient BudgetPer Acre Nutrient BudgetPer Acre Nutrient BudgetPer Acre Nutrient BudgetPer Acre Nutrient Budget									- - - Per Field N
											Application Rate Totals			Nutrient Recommendation			Surpluses / Deficits (+/-)			Apr
50	PI	Nutrient Balance (+/-)			WEP rate (lb/ac)	TP rate (lb/ac)	App Sub PIs Sum	App Sub PIs Range	Total PI Value	PI Range	N (lb/ac)	P2O5 (lb/ac)	K2O (lb/ac)	N (lb/ac)	P2O5 (lb/ac)	K2O (lb/ac)	N (lb/ac)	P2O5 (lb/ac)	K2O (lb/ac)	N (lb/field)
Field	Value	N	P2O5	K2O																
Field 1	20	-5	+79	+141	12	35	12	Low	20	Low	155	79	141	160	0	0	-5	79	141	1,303
Field 2	22	-5	+79	+141	12	35	13	Low	22	Low	155	79	141	160	0	0	-5	79	141	931
Field 3	57	-3	+152	-30	23	66	44	Medium	57	Medium	297	152	270	300	0	300	-3	152	-30	4,516
Field 4	20	-5	+79	+141	12	35	13	Low	20	Low	155	79	141	160	0	0	-5	79	141	1,117
Field 5	54	-3	+152	+20	23	66	44	Medium	54	Medium	297	152	270	300	0	250	-3	152	20	2,882
Field 6	21	-5	+79	+141	12	35	12	Low	21	Low	155	79	141	160	0	0	-5	79	141	869
Field 6A	21	-5	+79	+141	12	35	12	Low	21	Low	155	79	141	160	0	0	-5	79	141	1,226
Field 7	57	-3	+152	-30	23	66	44	Medium	57	Medium	297	152	270	300	0	300	-3	152	-30	19,104
Field 7A	50	-3	+107	-80	23	66	44	Medium	50	Medium	297	152	270	300	45	350	-3	107	-80	8,408
Field 8	29	-3	+152	+20	23	66	23	Low	29	Low	297	152	270	300	0	250	-3	152	20	2,139
Field 8A	55	-3	+152	-30	23	66	44	Medium	55	Medium	297	152	270	300	0	300	-3	152	-30	416
Field 9	56	-3	+152	-30	23	66	44	Medium	56	Medium	297	152	270	300	0	300	-3	152	-30	7,487
Field 9A	54	-3	+152	+20	23	66	44	Medium	54	Medium	297	152	270	300	0	250	-3	152	20	3,060
Field 10	29	-3	+152	+20	23	66	23	Low	29	Low	297	152	270	300	0	250	-3	152	20	4,189
Field 10A	59	-3	+152	+20	23	66	44	Medium	59	Medium	297	152	270	300	0	250	-3	152	20	4,873
Field 11	18	-5	+79	+101	12	35	13	Low	18	Low	155	79	141	160	0	40	-5	79	101	2,203
Field12	57	-3	+152	+20	23	66	44	Medium	57	Medium	297	152	270	300	0	250	-3	152	20	3,387
Field13	32	-3	+152	+270	23	66	25	Low	32	Low	297	152	270	300	0	0	-3	152	270	3,447
Field 13A	31	-3	+152	+270	23	66	25	Low	31	Low	297	152	270	300	0	0	-3	152	270	9,121
Field 13B	30	-3	+152	+270	23	66	25	Low	30	Low	297	152	270	300	0	0	-3	152	270	2,555
Field 14	31	-3	+152	+70	23	66	25	Low	31	Low	297	152	270	300	0	200	-3	152	70	2,407
Field 15	31	-3	+152	+70	23	66	25	Low	31	Low	297	152	270	300	0	200	-3	152	70	6,685
Field 15A	35	-5	-1	+81	12	35	31	Low	35	Medium	155	79	141	160	80	60	-5	-1	81	1,614
Field 15B	31	-3	+152	+270	23	66	25	Low	31	Low	297	152	270	300	0	0	-3	152	270	4,457
Field 16	54	-3	+152	+270	23	66	44	Medium	54	Medium	297	152	270	300	0	0	-3	152	270	4,516
Field 17	32	-3	+152	+20	23	66	25	Low	32	Low	297	152	270	300	0	250	-3	152	20	9,478
Field 18	26	-3	+107	-80	23	66	23	Low	26	Low	297	152	270	300	45	350	-3	107	-80	6,715
Field 19	28	-3	+152	+270	23	66	23	Low	28	Low	297	152	270	300	0	0	-3	152	270	3,060
Field 20	30	-3	+152	+70	23	66	25	Low	30	Low	297	152	270	300	0	200	-3	152	70	6,418
Field 21	21	-5	-41	+101	12	35	20	Low	21	Low	155	79	141	160	120	40	-5	-41	101	3,150
Field 21A	22	-5	-1	+141	12	35	20	Low	22	Low	155	79	141	160	80	0	-5	-1	141	2,421
Field 21B	28	-3	+107	+70	23	66	25	Low	28	Low	297	152	270	300	45	200	-3	107	70	1,783
Field 22	25	-5	+49	+81	12	35	20	Low	25	Low	155	79	141	160	30	60	-5	49	81	5,509
Field 23	53	-3	+152	-80	23	66	44	Medium	53	Medium	297	152	270	300	0	350	-3	152	-80	8,349
Field 24	51	-3	+107	-30	23	66	44	Medium	51	Medium	297	152	270	300	45	300	-3	107	-30	2,377
Field 32	53	-3	+152	+20	23	66	44	Medium	53	Medium	297	152	270	300	0	250	-3	152	20	2,971
Field 33	31	-5	+79	+141	12	35	23	Low	31	Low	155	79	141	160	0	0	-5	79	141	621
Field 34	30	-3	+152	+70	23	66	25	Low	30	Low	297	152	270	300	0	200	-3	152	70	4,011
Field 35	26	-3	+107	+20	23	66	23	Low	26	Low	297	152	270	300	45	250	-3	107	20	5,467
Field 36	63	-3	+42	+270	23	66	59	Medium	63	Medium	297	152	270	300	110	0	-3	42	270	2,763
Farm Totals																				168,005
Available																				69,470
Surpluses/Deficits (+/-)																				-98,535

Arkansas Nutrient Managemnt Plann

Planner:	Monica Hancock
Plan Description:	C & H Hog Farms, Inc

Beta Test Version for Use by Select Planners working wit

Nutrient Management Plans for the application of manure to litter production for the farm, estimates the P Index risk value allocation of nutrients to the various receiving fields, and esti

Fields Shown	Total Annual Summary				Nutrient Budget - - - - - - Per Field Nutrient Budget - - - - - - Per Field Nutrient Budget - - - - - - Per Field Nutrient Budget - - -								- - - Manure Distribution Summary, Units Applied by Field and Source - - - - - - Manure Distribut					
					lication Rate Totals		Nutrient Recommendation (lb/field)			Surpluses / Deficits (+/-)			SourcesSourcesSourcesSourcesSourcesSourcesSourcesSourcesSourcesSourcesSou					
													Pond 1 M50518					
50	PI	Nutrient Balance (+/-)			P2O5 (lb/field)	K2O (lb/field)	N (lb/field)	P2O5 (lb/field)	K2O (lb/field)	N (lb/field)	P2O5 (lb/field)	K2O (lb/field)	1000 gal					
													Nov-Feb		March-June		July-Oct	
Field	Value	N	P2O5	K2O									Per Acre	Per Field	Per Acre	Per Field	Per Acre	Per Field
Field 1	20	-5	+79	+141	666	1,183	1,344	0	0	-41	666	1,183	0.0	0.0	5.0	42.0	0.0	0.0
Field 2	22	-5	+79	+141	476	845	960	0	0	-29	476	845	0.0	0.0	5.0	30.0	0.0	0.0
Field 3	57	-3	+152	-30	2,314	4,098	4,560	0	4,560	-44	2,314	-462	0.0	0.0	9.5	144.4	0.0	0.0
Field 4	20	-5	+79	+141	571	1,014	1,152	0	0	-35	571	1,014	0.0	0.0	5.0	36.0	0.0	0.0
Field 5	54	-3	+152	+20	1,477	2,615	2,910	0	2,425	-28	1,477	190	0.0	0.0	9.5	92.2	0.0	0.0
Field 6	21	-5	+79	+141	444	788	896	0	0	-27	444	788	0.0	0.0	5.0	28.0	0.0	0.0
Field 6A	21	-5	+79	+141	626	1,112	1,264	0	0	-38	626	1,112	0.0	0.0	5.0	39.5	0.0	0.0
Field 7	57	-3	+152	-30	9,790	17,335	19,290	0	19,290	-186	9,790	-1,955	0.0	0.0	9.5	610.9	0.0	0.0
Field 7A	50	-3	+107	-80	4,309	7,630	8,490	1,274	9,905	-82	3,035	-2,275	0.0	0.0	9.5	268.9	0.0	0.0
Field 8	29	-3	+152	+20	1,096	1,941	2,160	0	1,800	-21	1,096	141	0.0	0.0	9.5	68.4	0.0	0.0
Field 8A	55	-3	+152	-30	213	377	420	0	420	-4	213	-43	0.0	0.0	9.5	13.3	0.0	0.0
Field 9	56	-3	+152	-30	3,837	6,794	7,560	0	7,560	-73	3,837	-766	0.0	0.0	9.5	239.4	0.0	0.0
Field 9A	54	-3	+152	+20	1,568	2,777	3,090	0	2,575	-30	1,568	202	0.0	0.0	9.5	97.9	0.0	0.0
Field 10	29	-3	+152	+20	2,147	3,801	4,230	0	3,525	-41	2,147	276	0.0	0.0	9.5	134.0	0.0	0.0
Field 10A	59	-3	+152	+20	2,497	4,421	4,920	0	4,100	-47	2,497	321	0.0	0.0	9.5	155.8	0.0	0.0
Field 11	18	-5	+79	+101	1,126	1,999	2,272	0	568	-69	1,126	1,431	0.0	0.0	5.0	71.0	0.0	0.0
Field12	57	-3	+152	+20	1,736	3,073	3,420	0	2,850	-33	1,736	223	0.0	0.0	9.5	108.3	0.0	0.0
Field13	32	-3	+152	+270	1,766	3,127	3,480	0	0	-33	1,766	3,127	0.0	0.0	9.5	110.2	0.0	0.0
Field 13A	31	-3	+152	+270	4,674	8,277	9,210	0	0	-89	4,674	8,277	0.0	0.0	9.5	291.7	0.0	0.0
Field 13B	30	-3	+152	+270	1,309	2,319	2,580	0	0	-25	1,309	2,319	0.0	0.0	9.5	81.7	0.0	0.0
Field 14	31	-3	+152	+70	1,233	2,184	2,430	0	1,620	-23	1,233	564	0.0	0.0	9.5	77.0	0.0	0.0
Field 15	31	-3	+152	+70	3,426	6,066	6,750	0	4,500	-65	3,426	1,566	0.0	0.0	9.5	213.8	0.0	0.0
Field 15A	35	-5	-1	+81	825	1,464	1,664	832	624	-50	-7	840	0.0	0.0	5.0	52.0	0.0	0.0
Field 15B	31	-3	+152	+270	2,284	4,044	4,500	0	0	-43	2,284	4,044	0.0	0.0	9.5	142.5	0.0	0.0
Field 16	54	-3	+152	+270	2,314	4,098	4,560	0	0	-44	2,314	4,098	0.0	0.0	9.5	144.4	0.0	0.0
Field 17	32	-3	+152	+20	4,857	8,600	9,570	0	7,975	-92	4,857	625	0.0	0.0	9.5	303.1	0.0	0.0
Field 18	26	-3	+107	-80	3,441	6,093	6,780	1,017	7,910	-65	2,424	-1,817	0.0	0.0	9.5	214.7	0.0	0.0
Field 19	28	-3	+152	+270	1,568	2,777	3,090	0	0	-30	1,568	2,777	0.0	0.0	9.5	97.9	0.0	0.0
Field 20	30	-3	+152	+70	3,289	5,823	6,480	0	4,320	-62	3,289	1,503	0.0	0.0	9.5	205.2	0.0	0.0
Field 21	21	-5	-41	+101	1,610	2,858	3,248	2,436	812	-98	-826	2,046	0.0	0.0	5.0	101.5	0.0	0.0
Field 21A	22	-5	-1	+141	1,237	2,196	2,496	1,248	0	-75	-11	2,196	0.0	0.0	5.0	78.0	0.0	0.0
Field 21B	28	-3	+107	+70	914	1,618	1,800	270	1,200	-17	644	418	0.0	0.0	9.5	57.0	0.0	0.0
Field 22	25	-5	+49	+81	2,815	4,998	5,680	1,065	2,130	-171	1,750	2,868	0.0	0.0	5.0	177.5	0.0	0.0
Field 23	53	-3	+152	-80	4,278	7,576	8,430	0	9,835	-81	4,278	-2,259	0.0	0.0	9.5	267.0	0.0	0.0
Field 24	51	-3	+107	-30	1,218	2,157	2,400	360	2,400	-23	858	-243	0.0	0.0	9.5	76.0	0.0	0.0
Field 32	53	-3	+152	+20	1,523	2,696	3,000	0	2,500	-29	1,523	196	0.0	0.0	9.5	95.0	0.0	0.0
Field 33	31	-5	+79	+141	317	563	640	0	0	-19	317	563	0.0	0.0	5.0	20.0	0.0	0.0
Field 34	30	-3	+152	+70	2,055	3,640	4,050	0	2,700	-39	2,055	940	0.0	0.0	9.5	128.3	0.0	0.0
Field 35	26	-3	+107	+20	2,801	4,961	5,520	828	4,600	-53	1,973	361	0.0	0.0	9.5	174.8	0.0	0.0
Field 36	63	-3	+42	+270	1,416	2,507	2,790	1,023	0	-27	393	2,507	0.0	0.0	9.5	88.4	0.0	0.0
Farm Totals					86,062	152,447	170,086	10,353	112,704	-2,081	75,709	39,743						
Available					33,325	62,976												
Surpluses/Deficits (+/-)					-52,737	-89,471												

Arkansas Nutrient Managemnt Plann

Planner:	Monica Hancock
Plan Description:	C & H Hog Farms, Inc

Beta Test Version for Use by Select Planners working wit

Nutrient Management Plans for the application of manure to
litter production for the farm, estimates the P Index risk value
allocation of nutrients to the various receiving fields, and esti

ion Summary, Units Applied by Field and Source - - - - - - Manure Distribution Summary, Units Applied by Field and Source - - - - - - Manure Distribution Summary, Units Applied by Field and Source - - -

ircesSources

Fields Shown	Total Annual Summary				Pond 2 M50519 1000 gal										Dry ton		Liquid 1000 gal	
					Annual		Nov-Feb		March-June		July-Oct		Annual		Annual		Annual	
50	PI	Nutrient Balance (+/-)			Per Acre	Per Field	Per Acre	Per Field	Per Acre	Per Field	Per Acre	Per Field	Per Acre	Per Field	Per Acre	Per Field	Per Acre	Per Field
Field	Value	N	P2O5	K2O														
Field 1	20	-5	+79	+141	5.0	42.0	0	0	0	0	7	59	7	59	0.0	0.0	12.0	100.8
Field 2	22	-5	+79	+141	5.0	30.0	0	0	0	0	7	42	7	42	0.0	0.0	12.0	72.0
Field 3	57	-3	+152	-30	9.5	144.4	0	0	0	0	14	205	14	205	0.0	0.0	23.0	349.6
Field 4	20	-5	+79	+141	5.0	36.0	0	0	0	0	7	50	7	50	0.0	0.0	12.0	86.4
Field 5	54	-3	+152	+20	9.5	92.2	0	0	0	0	14	131	14	131	0.0	0.0	23.0	223.1
Field 6	21	-5	+79	+141	5.0	28.0	0	0	0	0	7	39	7	39	0.0	0.0	12.0	67.2
Field 6A	21	-5	+79	+141	5.0	39.5	0	0	0	0	7	55	7	55	0.0	0.0	12.0	94.8
Field 7	57	-3	+152	-30	9.5	610.9	0	0	0	0	14	868	14	868	0.0	0.0	23.0	1478.9
Field 7A	50	-3	+107	-80	9.5	268.9	0	0	0	0	14	382	14	382	0.0	0.0	23.0	650.9
Field 8	29	-3	+152	+20	9.5	68.4	0	0	0	0	14	97	14	97	0.0	0.0	23.0	165.6
Field 8A	55	-3	+152	-30	9.5	13.3	0	0	0	0	14	19	14	19	0.0	0.0	23.0	32.2
Field 9	56	-3	+152	-30	9.5	239.4	0	0	0	0	14	340	14	340	0.0	0.0	23.0	579.6
Field 9A	54	-3	+152	+20	9.5	97.9	0	0	0	0	14	139	14	139	0.0	0.0	23.0	236.9
Field 10	29	-3	+152	+20	9.5	134.0	0	0	0	0	14	190	14	190	0.0	0.0	23.0	324.3
Field 10A	59	-3	+152	+20	9.5	155.8	0	0	0	0	14	221	14	221	0.0	0.0	23.0	377.2
Field 11	18	-5	+79	+101	5.0	71.0	0	0	0	0	7	99	7	99	0.0	0.0	12.0	170.4
Field12	57	-3	+152	+20	9.5	108.3	0	0	0	0	14	154	14	154	0.0	0.0	23.0	262.2
Field13	32	-3	+152	+270	9.5	110.2	0	0	0	0	14	157	14	157	0.0	0.0	23.0	266.8
Field 13A	31	-3	+152	+270	9.5	291.7	0	0	0	0	14	414	14	414	0.0	0.0	23.0	706.1
Field 13B	30	-3	+152	+270	9.5	81.7	0	0	0	0	14	116	14	116	0.0	0.0	23.0	197.8
Field 14	31	-3	+152	+70	9.5	77.0	0	0	0	0	14	109	14	109	0.0	0.0	23.0	186.3
Field 15	31	-3	+152	+70	9.5	213.8	0	0	0	0	14	304	14	304	0.0	0.0	23.0	517.5
Field 15A	35	-5	-1	+81	5.0	52.0	0	0	0	0	7	73	7	73	0.0	0.0	12.0	124.8
Field 15B	31	-3	+152	+270	9.5	142.5	0	0	0	0	14	203	14	203	0.0	0.0	23.0	345.0
Field 16	54	-3	+152	+270	9.5	144.4	0	0	0	0	14	205	14	205	0.0	0.0	23.0	349.6
Field 17	32	-3	+152	+20	9.5	303.1	0	0	0	0	14	431	14	431	0.0	0.0	23.0	733.7
Field 18	26	-3	+107	-80	9.5	214.7	0	0	0	0	14	305	14	305	0.0	0.0	23.0	519.8
Field 19	28	-3	+152	+270	9.5	97.9	0	0	0	0	14	139	14	139	0.0	0.0	23.0	236.9
Field 20	30	-3	+152	+70	9.5	205.2	0	0	0	0	14	292	14	292	0.0	0.0	23.0	496.8
Field 21	21	-5	-41	+101	5.0	101.5	0	0	0	0	7	142	7	142	0.0	0.0	12.0	243.6
Field 21A	22	-5	-1	+141	5.0	78.0	0	0	0	0	7	109	7	109	0.0	0.0	12.0	187.2
Field 21B	28	-3	+107	+70	9.5	57.0	0	0	0	0	14	81	14	81	0.0	0.0	23.0	138.0
Field 22	25	-5	+49	+81	5.0	177.5	0	0	0	0	7	249	7	249	0.0	0.0	12.0	426.0
Field 23	53	-3	+152	-80	9.5	267.0	0	0	0	0	14	379	14	379	0.0	0.0	23.0	646.3
Field 24	51	-3	+107	-30	9.5	76.0	0	0	0	0	14	108	14	108	0.0	0.0	23.0	184.0
Field 32	53	-3	+152	+20	9.5	95.0	0	0	0	0	14	135	14	135	0.0	0.0	23.0	230.0
Field 33	31	-5	+79	+141	5.0	20.0	0	0	0	0	7	28	7	28	0.0	0.0	12.0	48.0
Field 34	30	-3	+152	+70	9.5	128.3	0	0	0	0	14	182	14	182	0.0	0.0	23.0	310.5
Field 35	26	-3	+107	+20	9.5	174.8	0	0	0	0	14	248	14	248	0.0	0.0	23.0	423.2
Field 36	63	-3	+42	+270	9.5	88.4	0	0	0	0	14	126	14	126	0.0	0.0	23.0	213.9
Farm Totals						5,377						7,627		7,627				13,004
Available						2,624								2,624				2,624
Surpluses/Deficits (+/-)						-2,753								-5,003				

Section 6

Record Keeping Forms

Example Table for Recordkeeping

Copy of ADEQ's Annual Report Form

ARKANSAS RECORD KEEPING REQUIREMENTS

The Arkansas Department of Environmental Quality (ADEQ) requires that the following test results and records be submitted to them annually by January 31th from any person operating a liquid waste management and disposal system under Regulation 6. All manure sampling and analysis shall be in accordance with the University of Arkansas Cooperative Extension Service guidelines. Reports must be submitted on forms provided by ADEQ and a blank copy of the form is included in this section.

1. Records shall be kept on all waste/wastewater applications. A log shall be kept at the facility showing dates, volumes or weights, destinations and acreage over which the wastes are applied.
2. A representative sample of the waste/wastewater shall be collected once per year and analyzed for the following parameters: pH, total nitrogen, ammonia nitrogen, potassium, phosphorous, water extractable phosphorous (WEP), and percent solids. The results shall be included in the final yearly report.
3. The soils of each field where liquid animal waste has been land applied shall be sampled and analyzed at least once every five (5) years for the following parameters: pH, Potassium, Phosphorous and Nitrates. A field shall be delineated by its land management and natural or manmade borders, regardless of acreage. As acreage increases, more soil cores will need to be taken and composited into one sub-sample for each individual field.mpling of fields will be based on land management units and not total acres in the field.

It should be noted that these are ADEQ requirements and any failure to produce or obtain the reports shall be deemed a violation of Regulation No. 6 and the permit.

The following table is provided as a convenience and may be used for record keeping. If the owner/operator has a reliable record keeping system in place that meets the Arkansas Record Keeping requirements, then that method shall be used.

Record of Nutrients Applied to Permitted Land*

Date	Field	Temp	Wind/Dir	Hours	Gal	Crop	Method	Total Acres	Condition Of Field	Equip Condition	Pond Liner	Source

*This table is provided as a convenience and may be used for record keeping. If the owner/operator has a reliable record keeping system in place, then that method shall be used.

ANIMAL WASTE LAND APPLICATION RECORD
FOR PERMITTED CONFINED ANIMAL FACILITIES

PERMITTEE:_____ PERMIT NUMBER:_____

APPLICATION METHOD:_____

Field Name or/and Number	Date Applied	Crop Type	Area Applied (acres)	Volume Applied (gallons)

NOTE: Facility record; **DO NOT MAIL THIS**; Keep this record at the facility.
Make additional copies of this table as needed.

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Annual Report Form For CAFO Operations Permitted Under NPDES General Permit ARG590000

Reporting Period: _____ through _____

Permittee: _____ Permit Tracking Number: ARG59_____

Number & type of animals**:**_____

(beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other**.)**

Estimated amount of total manure, process water & litter in previous 12 months: _____

(Express in tons or gallons)

Estimated amount of total manure, littler and process wastewater transferred to other person by the CAFO in the previous 12 months: _____

(express in tons or gallons, units consistent with previous answer**)**

Total number of acres available for land application in accordance with NMP**:** _____

Total number of acres used for land application of manure, litter and process wastewater in previous 12 months: _____

Summary of all manure, litter or process wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume. Please list in chronological order. Add additional pages if necessary.

	Date	Time	Approximate Volume (gallons)
Discharge 1			
Discharge 2			
Discharge 3			
Discharge 4			

Has the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner?

Yes____

No_____ Signature_____ Date _____

The actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, the results of calculations conducted in accordance with paragraphs 3.2.5.1.b and 3.2.5.2.d of this section, and the amount of manure, litter, and process wastewater applied to each field during the previous 12 months; and, for any CAFO that implements a nutrient management plan that addresses rates of application in accordance with paragraph 3.2.5.2 of this section, the results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months, the data used in calculations conducted in accordance with paragraph 3.2.5.2.4 of this section, and the amount of any supplemental fertilizer applied during the previous 12 months.

Field ID or Name (same as in NMP)	**Crop Planted**	**Crop Yield (lbs., bu., or ton/acre)**	**Nitrogen Content of waste (lbs/1000 gal or lbs/ton)**	**Phosphorus Content of waste (lbs/1000 gal or lbs/ton)**	**Amount of waste applied in previous 12 months (gal or tons/acre)**	**Results of soil testing for Nitrogen, if required. Include data for calculations (mg/kg)**	**Results of soil testing for Phosphorus, if required. Include data used for calculations (mg/kg)**	**Amount of supplemental fertilizer, if any, used in previous 12 months. Express lbs/acre in 0-0-0 format**

WASTEWATER SAMPLE LOCATION: _____

You must submit a copy of the wastewater analysis for each sample provided to cooperative extension service or a private lab. The wastewater analysis must include pH (s.u.), total nitrogen, ammonia nitrogen, total potassium, total phosphorus, and percent solid.

In addition you must submit a copy of the soil analysis for each field with this form. The soil analysis must include pH (su), potassium (lbs/ac), phosphorus (lbs/ac), and nitrates (lbs/ac). At least one soil analysis should be done for each 10 acre track.

Please complete the table on the back for land application report. You must sign and date this report and submit it to the department prior to may 30th of each year. Please keep a copy of this report, the soil analysis, and the wastewater analysis for your record at the facility.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____	_____	_____
OPERATOR (Please Print)	SIGNATURE	DATE

Mail complete annual report form and annual application report to:
Arkansas Department of Environmental Quality
Permits Branch, 5301 Northshore Drive, North Little Rock, AR 72118
Or email to:

Water-permit@adeq.state.ar.us

From:	C H Hog Farms Inc
To:	Water Permit Application
Subject:	Regulation 6 Permit Renewal Application for C & H Hog Farms, Inc.
Date:	Wednesday, April 20, 2016 2:33:31 PM
Attachments:	Signed NOI for Reg 6 Permit Renewal Application 4-20-16.pdf Disclosure Statement for Reg 6 Permit Renewal Application 4-20-16.pdf Certification Document for Reg 6 Permit Renewal Application 4-20-16.pdf

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To Whom It May Concern:

C & H Hog Farms, Inc. is seeking renewal of its Regulation 6 permit. Attached are the application documents. Due to file size restrictions, the Nutrient Management Plan will be sent in a separate email.

Please contact us if there are any questions concerning this submittal.

Thank you,
Jason Henson
C & H Hog Farms, Inc.

From: C H Hog Farms Inc
To: Water Permit Application
Subject: Regulation 6 Permit Renewal Application for C & H Hog Farms, Inc.
Date: Wednesday, April 20, 2016 2:43:03 PM
Attachments: Reg 6 NMP 4_13_16_compressed.zip

To Whom It May Concern:

C & H Hog Farms, Inc. is seeking renewal of its Regulation 6 permit. Attached is the Nutrient Management Plan. Additional application documents were submitted in a prior email.

Please contact us if there are any questions concerning this submittal.

Thank you,
Jason Henson
C & H Hog Farms, Inc.