

LAND APPLICATION OF BIOSOLIDS  
DENNIS M. REED

LO35 (FIELDS 01 - 09)  
LOUISA COUNTY, VIRGINIA  
APRIL 2014





April 24, 2014

Mr. Ed Stuart  
Dept of Environmental Quality  
Northern Virginia Regional Office  
13901 Crown Court  
Woodbridge, VA 22193

Dear Mr. Stuart:

Transmitted herein for your consideration is land application site for Dennis Reed (designated as LO 35, fields 1 - 9), located in Louisa County, Virginia. This submission contains strictly site specific information. Please refer to the operations and maintenance manual submitted under separate cover for all non-site specific information.

Do not hesitate to contact me at (804) 443-2170 should you have any questions or require additional information.

Sincerely,

Steve McMahon  
Technical Services Director

KML/cmw

# SYNAGRO

## FIELD SUMMARY SHEET

Dennis M. Reed      LO35

SYNAGRO FIELD #	GROSS ACRES	NET ACRES	FSA TRACT #	FSA FIELD #	TOPO QUAD	OWNER
35-1	41.8	40.2			Dabneys South Anna	Reed, Dennis M
35-2	14.9	14.7			South Anna	Reed, Dennis M
35-3	20.0	18.4			South Anna	Reed, Dennis M
35-4	34.9	26.8			South Anna	Reed, Dennis M
35-5	5.9	5.9			South Anna	Reed, Dennis M
35-6	22.0	21.8			South Anna	Reed, Dennis M
35-7	20.6	20.4			Dabneys	Reed, Dennis M
35-8	14.2	14.2			South Anna	Reed, Dennis M
35-9	38.7	38.7			South Anna	Reed, Dennis M
<b>TOTALS:</b>	213.0	201.1				

VIRGINIA POLLUTION ABATEMENT APPLICATION  
FORM D: MUNICIPAL EFFLUENT AND BIOSOLIDS

PART D-VI: LAND APPLICATION AGREEMENT - BIOSOLIDS AND INDUSTRIAL RESIDUALS

A. This biosolids/industrial residuals land application agreement is made on 1/6/12 between Dennis Reed referred to here as "Landowner", and Synagro referred to here as the "Permittee". This agreement remains in effect until it is terminated in writing by either party or until ownership of all parcels changes. If ownership of individual parcels identified in this agreement changes, those parcels for which ownership has changed will no longer be authorized to receive biosolids or industrial residuals under this agreement.

**Landowner:**

I am the registered owner of real property known as LO 35, located in Louisa Virginia, which includes the agricultural sites identified below in Table 1 and identified on the tax map(s) attached as Exhibit A.

Table 1.: Parcels authorized to receive biosolids, water treatment residuals or other industrial sludges			
Tax Parcel ID	Tax Parcel ID	Tax Parcel ID	Tax Parcel ID
<u>90-84</u>	<u>91-24-C</u>	<u>90-1-3</u>	
<u>90-85A</u>	<u>90-1-1</u>	<u>90-1-4</u>	
<u>90-86</u>	<u>90-1-2</u>		

Additional parcels containing Land Application Sites are identified on Supplement A. (check if applicable)

Check one:

- I am the sole owner of the properties identified herein.  
 I am one of multiple owners of the properties identified herein.

In the event that I, the landowner, sell or transfer all or part of the property to which biosolids have been applied within 38 months of the latest date of biosolids application, I shall:

1. Notify the purchaser of the applicable public access and crop management restrictions no later than the closing date; and
2. Notify the permit holder of the sale within two weeks following closing.

I have no other agreements for land application on the fields identified herein. I will notify the permittee immediately if conditions change such that the fields are no longer available to the permittee for application or any part of this agreement becomes invalid.

I hereby grant permission to the Permittee to land apply residuals as specified below, on the agricultural sites identified above and in Exhibit A. I also grant permission for DEQ staff to conduct inspections on my land identified above, before, during or after land application of permitted residuals for the purpose of determining compliance.

Class B biosolids  Yes  No    Water treatment residuals  Yes  No    Food processing waste  Yes  No    Other industrial sludges  Yes  No

DENNIS REED Landowner - Printed Name      Dennis Reed Signature      1171 PARKS BLVD SU 319 PM Mailing Address  
2302

**Permittee:**

Synagro, the permittee, agrees to apply biosolids and/or industrial residuals on the landowner's land in the manner authorized by the VPA Permit Regulation and in amounts not to exceed the rates identified in the nutrient management plan prepared for each land application field by a person certified in accordance with §10.1-104.2 of the Code of Virginia. Permittee will provide a copy of the NMP to the landowner within 30 days after land application has commenced. If the plan requires modification to reflect the actual application rates or farming practices at the site, a revised plan will be provided within 2 weeks of the modification.

Permittee agrees to notify landowner or landowner designee of the proposed schedule for land application and specifically prior to any particular application to landowner's land. Notice shall include the source of residuals to be applied.

Loel Ross Permittee - Authorized Representative Printed Name      Loel Ross Signature      10647 Tidewater Trail Mailing Address  
Champlain VA 22413

VIRGINIA POLLUTION ABATEMENT APPLICATION  
PART D-VI LAND APPLICATION AGREEMENT

Page 2 of 2

Permittee: Synagro

Permit # or County: Louisiana

Landowner: DENNIS M. REED

Farm name or address: Walnut Hill Farm

**Landowner Site Management Requirements:**

I, the landowner, I have received a DEQ Biosolids Fact Sheet that includes information regarding regulations governing the land application of biosolids, the components of biosolids and proper handling and land application of biosolids.

I have also been expressly advised by the Permittee that the site management requirements and site access restrictions identified below must be complied with after biosolids have been applied on my property in order to protect public health, and that I am responsible for the implementation of these practices.

I agree to implement the following site management practices at each site under my ownership following the land application of biosolids at the site:

1. Notification Signs: I will not remove any signs posted by the Permittee for the purpose of identifying my field as a biosolids land application site, unless requested by the Permittee, at least 30 days after land application at that site was completed.
2. Public Access
  - a. Public access to land with a high potential for public exposure shall be restricted for at least one year following any application of biosolids.
  - b. Public access to land with a low potential for public exposure shall be restricted for at least 30 days following any application of biosolids. No biosolids amended soil shall be excavated or removed from the site during this same period of time unless adequate provisions are made to prevent public exposure to soil, dusts or aerosols;
  - c. Turf grown on land where biosolids are applied shall not be harvested for one year after application of biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority
3. Crop Restrictions:
  - a. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after the application of biosolids.
  - b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after the application of biosolids when the biosolids remain on the land surface for a time period of four (4) or more months prior to incorporation into the soil,
  - c. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months when the biosolids remain on the land surface for a time period of less than four (4) months prior to incorporation.
  - d. Other food crops and fiber crops shall not be harvested for 30 days after the application of biosolids;
  - e. Feed crops shall not be harvested for 30 days after the application of biosolids (60 days if fed to lactating dairy).
4. Livestock Access Restrictions:

Following biosolids application to pasture or hayland sites:

  - a. Meat producing livestock shall not be grazed for 30 days,
  - b. Lactating dairy animals shall not be grazed for a minimum of 60 days.
  - c. Other animals shall be restricted from grazing for 30 days;
5. Supplemental commercial fertilizer or manure applications will be coordinated with the biosolids and industrial residuals applications such that the total crop needs for nutrients are not exceeded as identified in the nutrient management plan developed by a person certified in accordance with §10.1-104.2 of the Code of Virginia;
6. Tobacco, because it has been shown to accumulate cadmium, should not be grown on landowner's land for three years following the application of biosolids or industrial residuals borne cadmium equal to or exceeding 0.45 pounds/acre (0.5 kilograms/hectare).

Dennis M. Reed  
Landowner's Signature

1-6-12  
Date

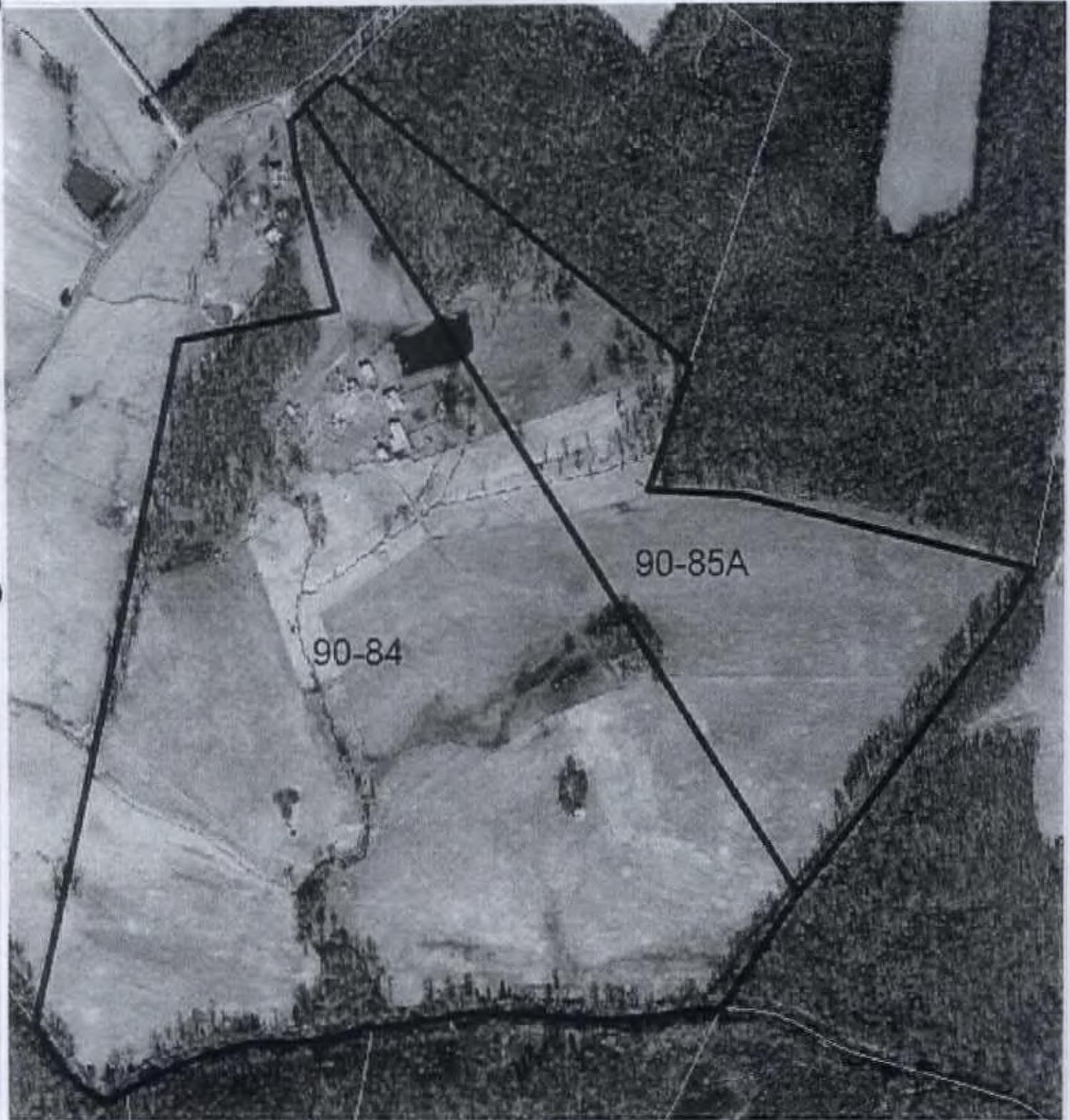
## Tax ID Landowner Identification Sheet

<u>Landowner</u>	<u>Field #</u>	<u>Tax ID</u>
REED, DENNIS M	35-1	90 - 84, 85A
REED, DENNIS M	35-2	90 - 84
REED, DENNIS M	35-3	90 - 84
REED, DENNIS M	35-4	90 - 84, 85A
REED, DENNIS M	35-5	90 - 84
REED, DENNIS M	35-6	90 - 84, 85A
REED, DENNIS M	35-7	91 - 24 - C
REED, DENNIS M	35-8	90 - 86
REED, DENNIS M	35-9	90-1- (1-4)

<u>Field #</u>	<u>Latitude (north)</u>	<u>Longitude (west)</u>
35-1	37 <sup>0</sup> 50' 16.72"	77 <sup>0</sup> 52' 45.59"
35-2	37 <sup>0</sup> 50' 14.06"	77 <sup>0</sup> 53' 04.45"
35-3	37 <sup>0</sup> 50' 06.99"	77 <sup>0</sup> 53' 07.68"
35-4	37 <sup>0</sup> 50' 20.64"	77 <sup>0</sup> 52' 51.79"
35-5	37 <sup>0</sup> 50' 05.66"	77 <sup>0</sup> 52' 49.01"
35-6	37 <sup>0</sup> 50' 10.04"	77 <sup>0</sup> 52' 48.92"
35-7	37 <sup>0</sup> 52' 09.00"	77 <sup>0</sup> 51' 08.44"
35-8	37 <sup>0</sup> 50' 39.48"	77 <sup>0</sup> 52' 34.09"
35-9	37 <sup>0</sup> 50' 18.77"	77 <sup>0</sup> 53' 15.13"



Tax Map ID 90-84, 85A



Scale: 1:9027.977411

Date: 05/07/2012

Printed By:

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Tax Map ID 91-24C



Scale: 1:18055.954822

Date: 05/07/2012

Printed By:

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Tax Map ID 90-86



Scale: 1:9027.977411

Date: 06/04/2012

Printed By: Carolanne Whiteside

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Tax Map ID 90-1-(1-4)



Scale: 1:9027.977411

Date: 12/12/2013

Printed By: Carolanne Whiteside

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## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AIB	Altavista fine sandy loam, 2 to 7 percent slopes	1.7	4.1%
CcC2	Cecil sandy loam, 7 to 15 percent slopes, eroded	6.0	14.3%
CfC3	Cecil-Pacolet clay loams, 7 to 15 percent slopes, severely eroded	2.7	6.5%
FrB	Fork fine sandy loam, 0 to 5 percent slopes	3.7	8.8%
MsB2	Massada fine sandy loam, 2 to 7 percent slopes, eroded	15.6	37.1%
MsC2	Masada fine sandy loam, 7 to 15 percent slopes, eroded	3.7	8.8%
TuB	Turbeville fine sandy loam, 2 to 12 percent slopes	7.0	16.6%
WH	Wehadkee-Chewada complex	1.6	3.9%
<b>Totals for Area of Interest</b>		<b>42.0</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AIB	Altavista fine sandy loam, 2 to 7 percent slopes	12.2	84.1%
Cn	Congaree silt loam	0.9	6.2%
FrB	Fork fine sandy loam, 0 to 5 percent slopes	1.2	8.3%
WH	Wehadkee-Chewacla complex	0.2	1.3%
<b>Totals for Area of Interest</b>		<b>14.6</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ch	Chewacla silt loam	0.3	2.0%
Cn	Congaree silt loam	5.6	39.2%
Ts	Toccoa fine sandy loam	8.3	58.8%
<b>Totals for Area of Interest</b>		<b>14.2</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AIB	Altavista fine sandy loam, 2 to 7 percent slopes	0.3	1.0%
Fo	Forestdale silt loam	10.2	38.0%
FrB	Fork fine sandy loam, 0 to 5 percent slopes	11.7	43.7%
W	Water	0.0	0.0%
WH	Wehadkee-Chewacla complex	4.6	17.3%
<b>Totals for Area of Interest</b>		<b>26.8</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ch	Chowada silt loam	3.1	99.4%
W	Water	0.0	0.6%
<b>Totals for Area of Interest</b>		<b>3.1</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CcC2	Cecil sandy loam, 7 to 15 percent slopes, eroded	2.0	8.3%
CfC3	Cecil-Pacolet clay loams, 7 to 15 percent slopes, severely eroded	0.7	2.7%
Ch	Chewacla silt loam	3.0	12.4%
FrB	Fork fine sandy loam, 0 to 5 percent slopes	17.1	70.4%
MsB2	Massada fine sandy loam, 2 to 7 percent slopes, eroded	0.5	1.9%
WH	Wehadkee-Chewacla complex	1.0	4.3%
<b>Totals for Area of Interest</b>		<b>24.2</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AnB2	Appling sandy loam, 2 to 7 percent slopes, eroded	6.1	28.1%
AnC2	Appling sandy loam, 7 to 15 percent slopes, eroded	0.7	3.1%
ArC3	Appling-Wedowee sandy clay loams, 7 to 15 percent slopes, severely eroded	5.8	26.5%
CcB2	Cecil sandy loam, 2 to 7 percent slopes, eroded	0.2	0.7%
CfC3	Cecil-Pacolet clay loams, 7 to 15 percent slopes, severely eroded	6.2	28.6%
DuB	Durham fine sandy loam, 2 to 5 percent slopes	2.1	9.8%
WH	Wehadkee-Chewacla complex	0.2	0.7%
WoB	Worsham fine sandy loam, 2 to 7 percent slopes	0.5	2.5%
<b>Totals for Area of Interest</b>		<b>21.7</b>	<b>100.0%</b>

## Map Unit Legend

Louisa County, Virginia (VA109)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
A1B	Altavista fine sandy loam, 2 to 7 percent slopes	2.7	20.9%
CcC2	Cecil sandy loam, 7 to 15 percent slopes, eroded	1.1	8.8%
MsB2	Masada fine sandy loam, 2 to 7 percent slopes, eroded	8.5	65.4%
MsC2	Masada fine sandy loam, 7 to 15 percent slopes, eroded	0.6	4.9%
Totals for Area of Interest		13.1	100.0%

LO 35

Field	Map Unit	Acres	Percentage	Soil Series	High Water	Flood
35-1	MsB2	14.7	38			
35-1	TuB	7.2	18			
35-1	FrB	5.0	13	Fork	Oct - May	Oct - May
35-1	MsC2	3.9	10			
35-1	CfC3	3.4	9			
35-1	AIB	2.5	6			
35-1	WH	2.3	6	Wehadkee-Chew	Nov-May	Nov-June
35-2	AIB	11.7	89			
35-2	FrB	1.4	11	Fork	Oct - May	Oct - May
35-3	Ts	8.2	47	Tocca		Jan - Dec
35-3	Cn	7.8	44			
35-3	Ch	1.6	9	Chewacla	Nov - April	Nov - April
35-4	FrB	10.0	52	Fork	Oct - May	Oct - May
35-4	Fo	6.7	35	Forestdale	Jan - April	Jan - April
35-4	WH	2.6	13	Wehadkee-Chew	Nov-May	Nov-June
35-5	Ch	3.3	55	Chewacla	Nov - April	Nov - April
35-5	FrB	2.7	45	Fork	Oct - May	Oct - May
35-6	FrB	13.0	62	Fork	Oct - May	Oct - May
35-6	CcC2	6.6	32			
35-6	MsB2	1.2	6			
35-7	CfC3	6.9	37			
35-7	AnB2	6.0	32			
35-7	ArC3	3.7	20			
35-7	DuB	2.1	11			
35-8	MsB2	8.9	63			
35-8	AIB	2.2	15			
35-8	CcC2	1.7	12			
35-8	MsC2	1.4	10			
		14.2	100			
35-9	FrB	19.0	50	Fork	Oct - May	Oct - May
35-9	Ts	8.5	23	Tocca		Jan - Dec
35-9	Fo	7.4	20	Forestdale	Jan - April	Jan - April
35-9	Cn	2.7	7			
		37.6	100			

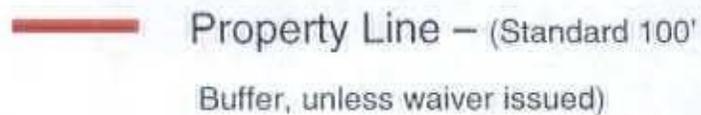
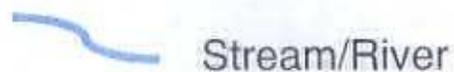
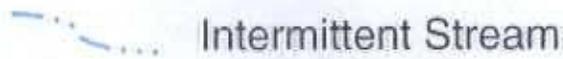
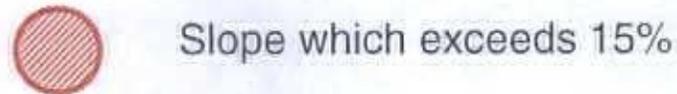
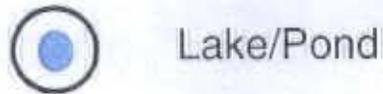
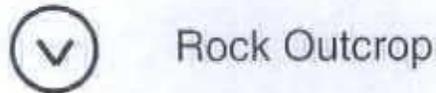
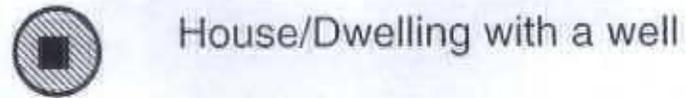
## Environmentally Sensitive Areas

Field	Reason for Sensitive Area
35-1	High Water Table (Map Units FrB, WH – 19%) Flooded Soils (Map Unit FrB, WH – 19%)
35-2	High Water Table (Map Unit FrB – 11%) Flooded Soils (Map Unit FrB – 11%)
35-3	High Water Table (Map Unit Ch – 9%) Flooded Soils (Map Units Ch, Ts – 56%)
35-4	High Water Table (Map Units Fo, FrB, WH – 100%) Flooded Soils (Map Unit Fo, FrB, WH – 100%)
35-5	High Water Table (Map Unit Ch, FrB – 100%) Flooded Soils (Map Unit Ch, FrB – 100%)
35-6	High Water Table (Map Unit FrB – 62%) Flooded Soils (Map Unit FrB – 62%)
35-7	None
35-8	None
35-9	High Water Table (Map Units Fo, FrB – 70%) Flooded Soils (Map Units Fo, FrB Ts – 93%)

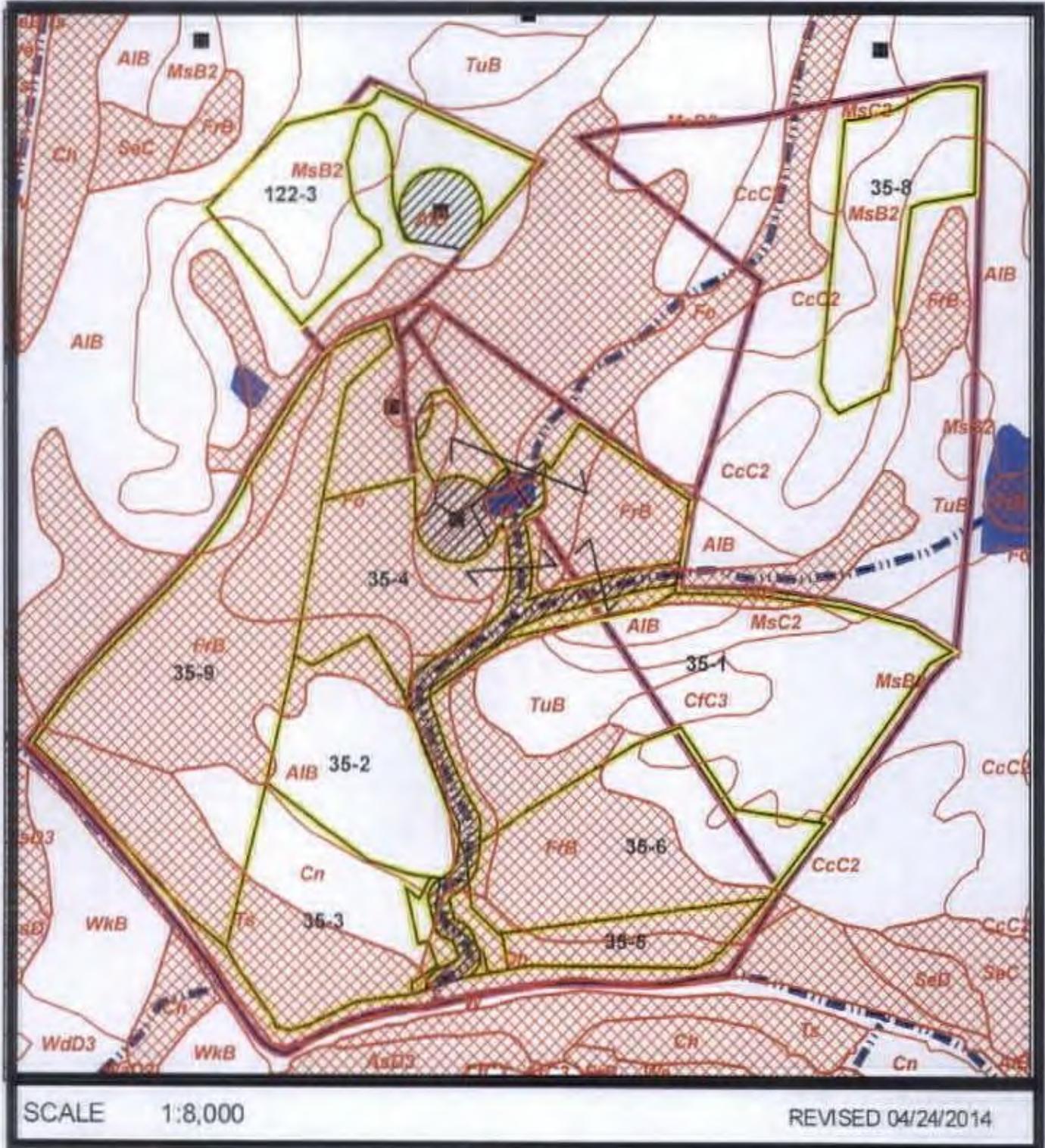
### Louisa County Soils that are Environmentally Sensitive

Soil Map Unit	Series Name	Time of year		Environmental
		High Water	Flooded	
AsB, AsC, AsD	Ashlar			Leaching
AsC3, AsD3	Ashlar			Leaching
AV	Ashlar			Leaching
Ch	Chewacla	Nov – April	Nov – April	
CIB	Colfax	Nov – June		
Eb	Elbert	Nov – May		
FN	Fluvaquents	Nov – April	Nov – April	
Fo	Forestdale	Jan – April	Jan – April	
FrB	Fork	Oct – May	Oct – May	
IdB	Iredell	Dec – April		
IdB2, IdC2	Iredell	Dec – April		
IrA, IrB	Iredell	Dec – April		
Iv	Iredell	Dec – April		
LgB	Lignum	Dec – May		
MnB, MnC, MnD	Madison			Shallow
MoC, MoD	Madison			Shallow
SeB, SeC, SeD	Sekil			Leaching
SeC3	Sekil			Leaching
SP	Sekil			Leaching
To	Tocca		Jan – Dec	
Ts	Tocca		Jan – Dec	
We	Wehadkee	Nov – May	Nov – June	
WH	Wehadkee-Chewacla	Nov – May	Nov – June	
WoB	Worsham	Nov – May		

# MAP LEGEND

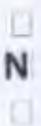


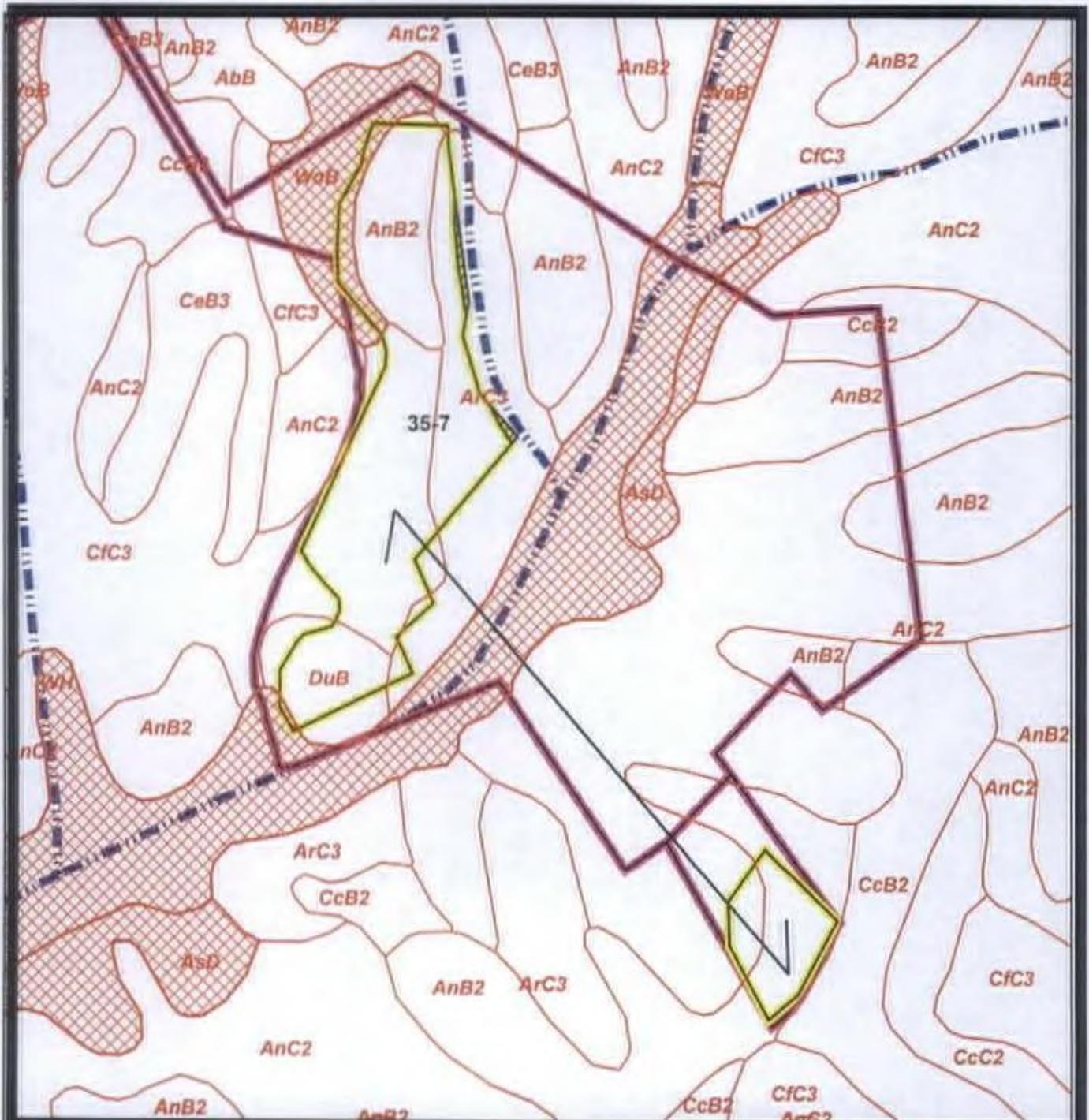
Revised: Jan. 13, '14



## SOIL MAP

 Environmentally Sensitive Soil





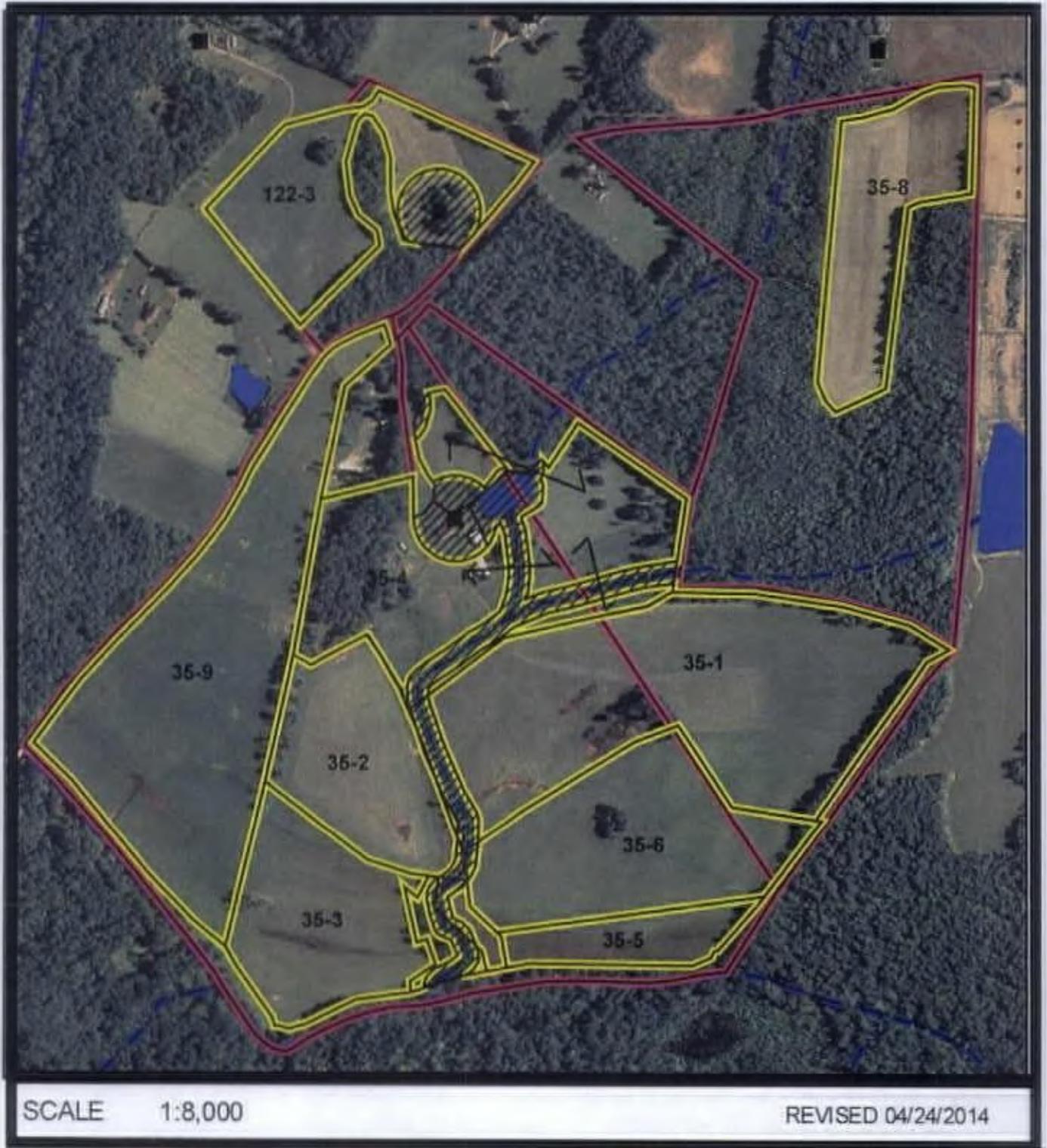
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REVISED 04/24/2014

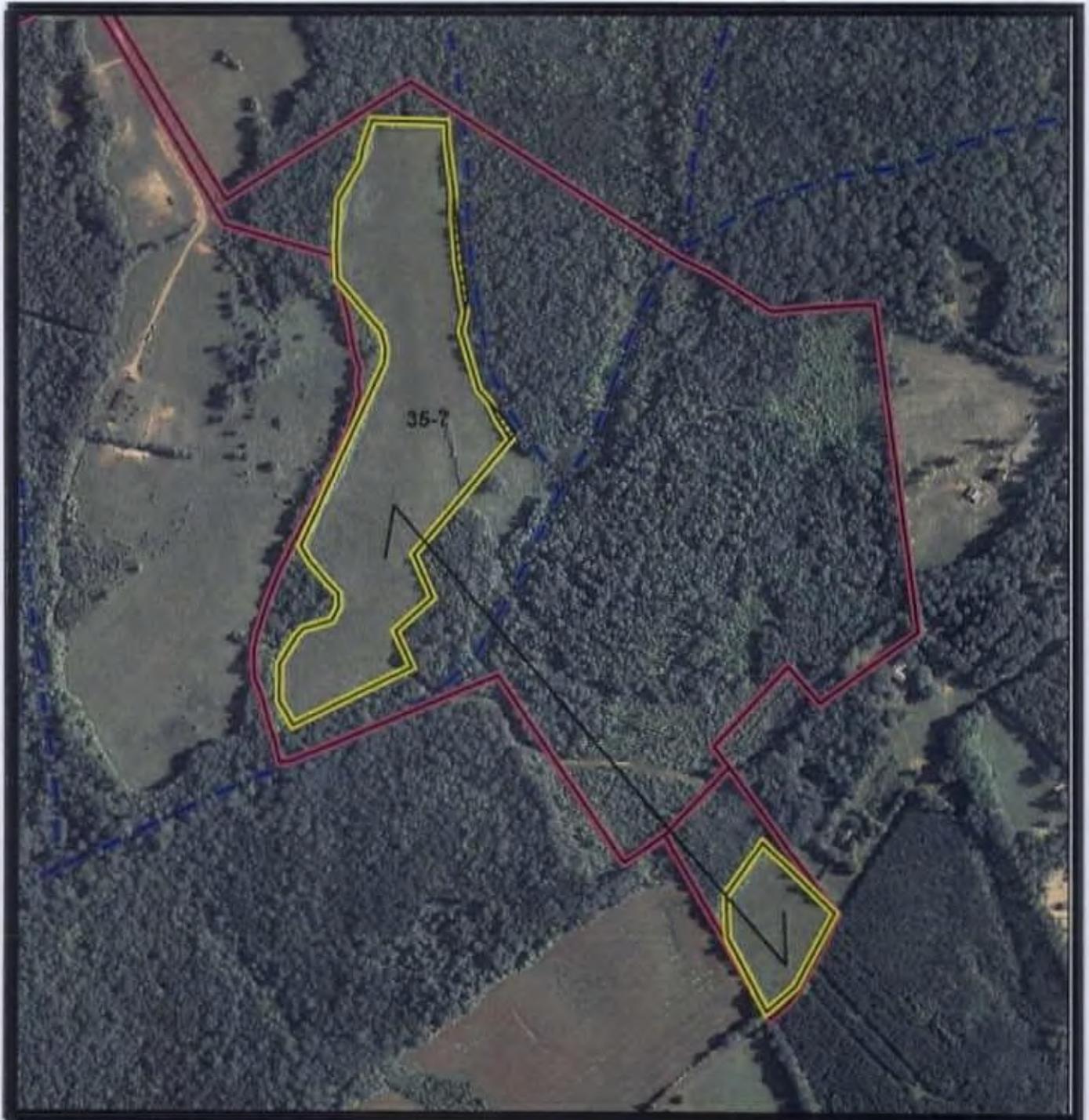
## SOIL MAP

 Environmentally Sensitive Soil





AERIAL MAP



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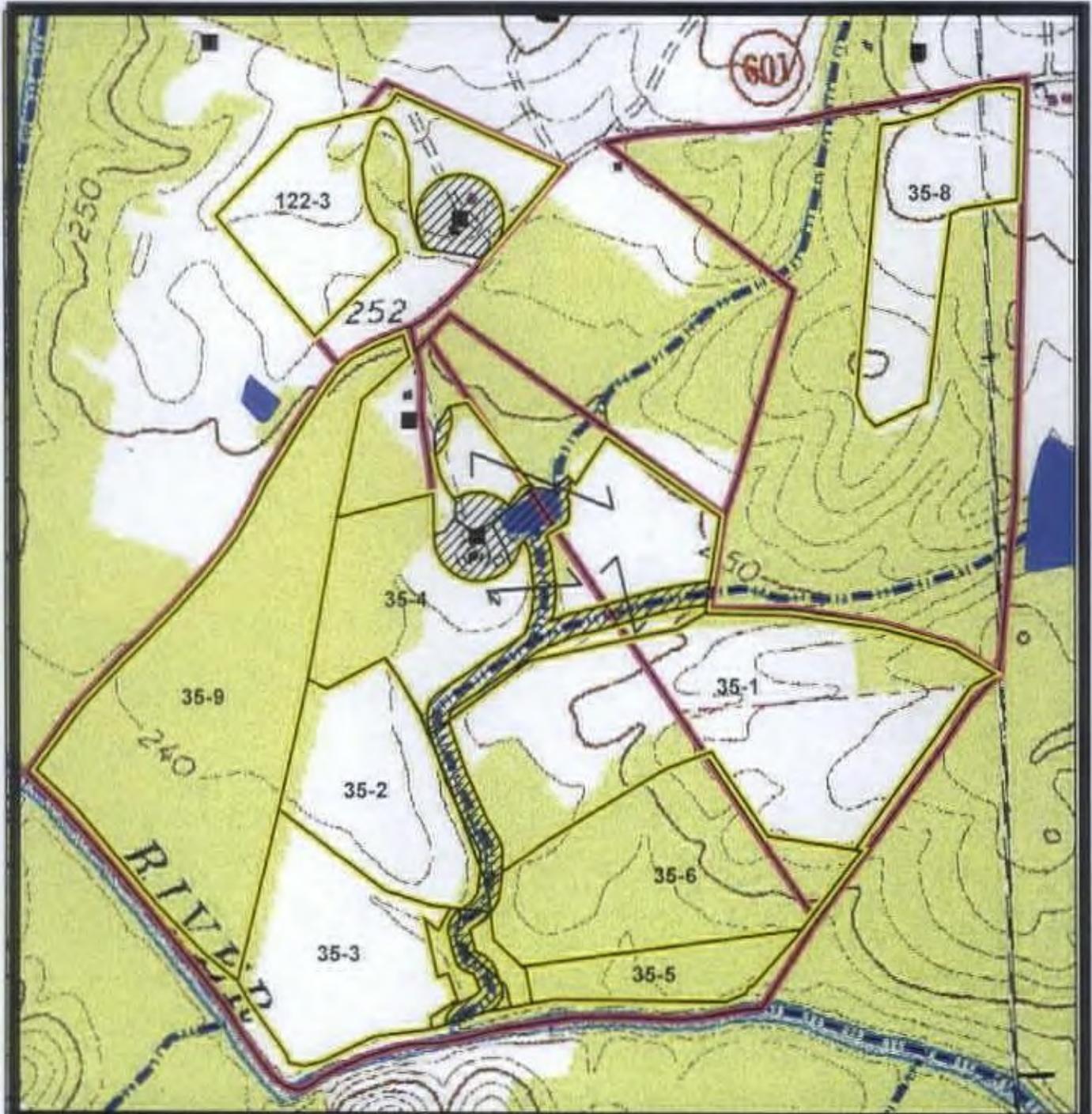
REVISED 04/24/2014

AERIAL MAP

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N  
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# SYNAGRO

Dennis M Reed  
LO35  
Fields 1 - 6, 8, 9



SCALE 1:8,000

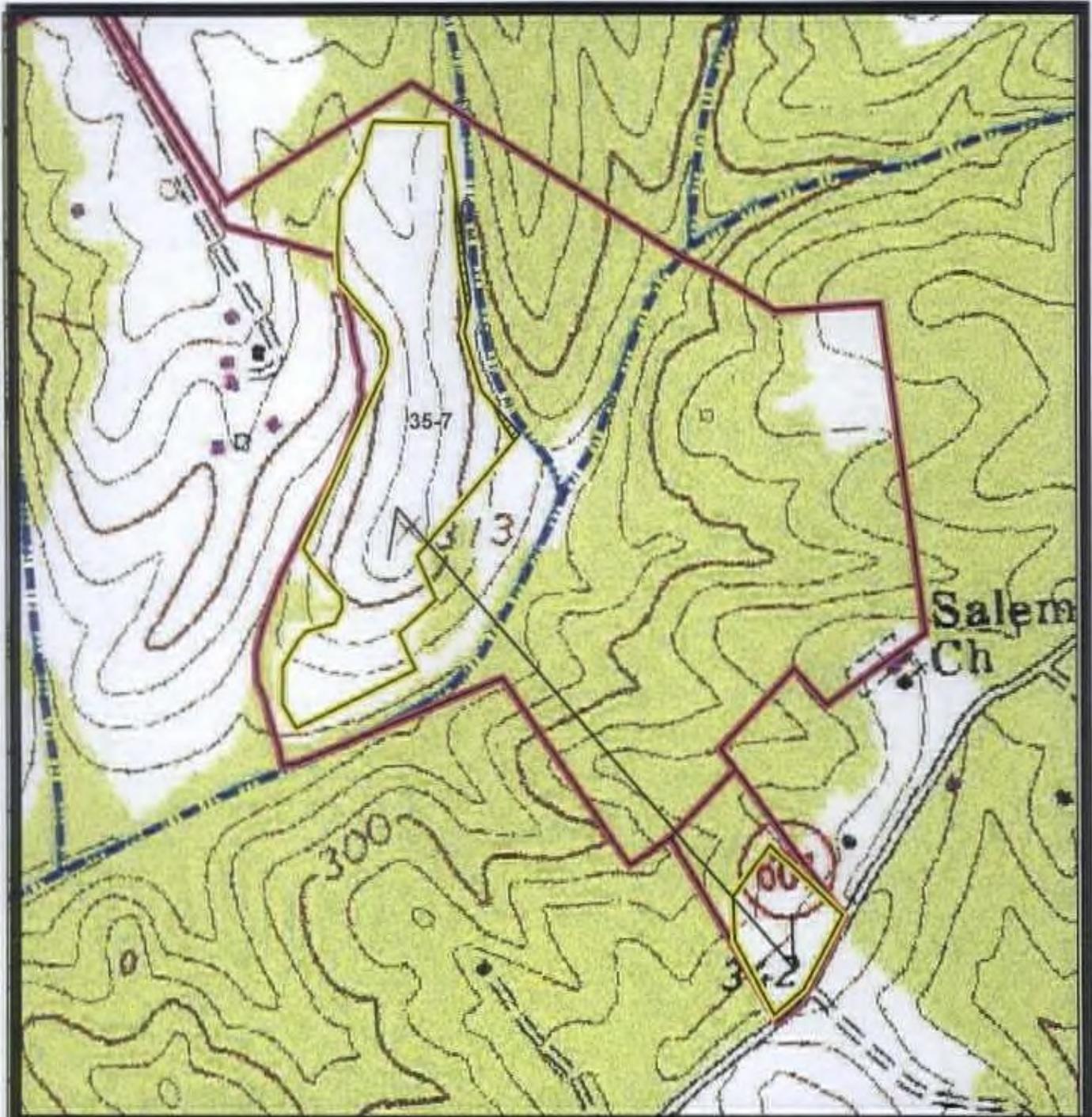
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TOPO MAP

N

# SYNAGRO

Dennis M Reed  
LO35  
Field 7



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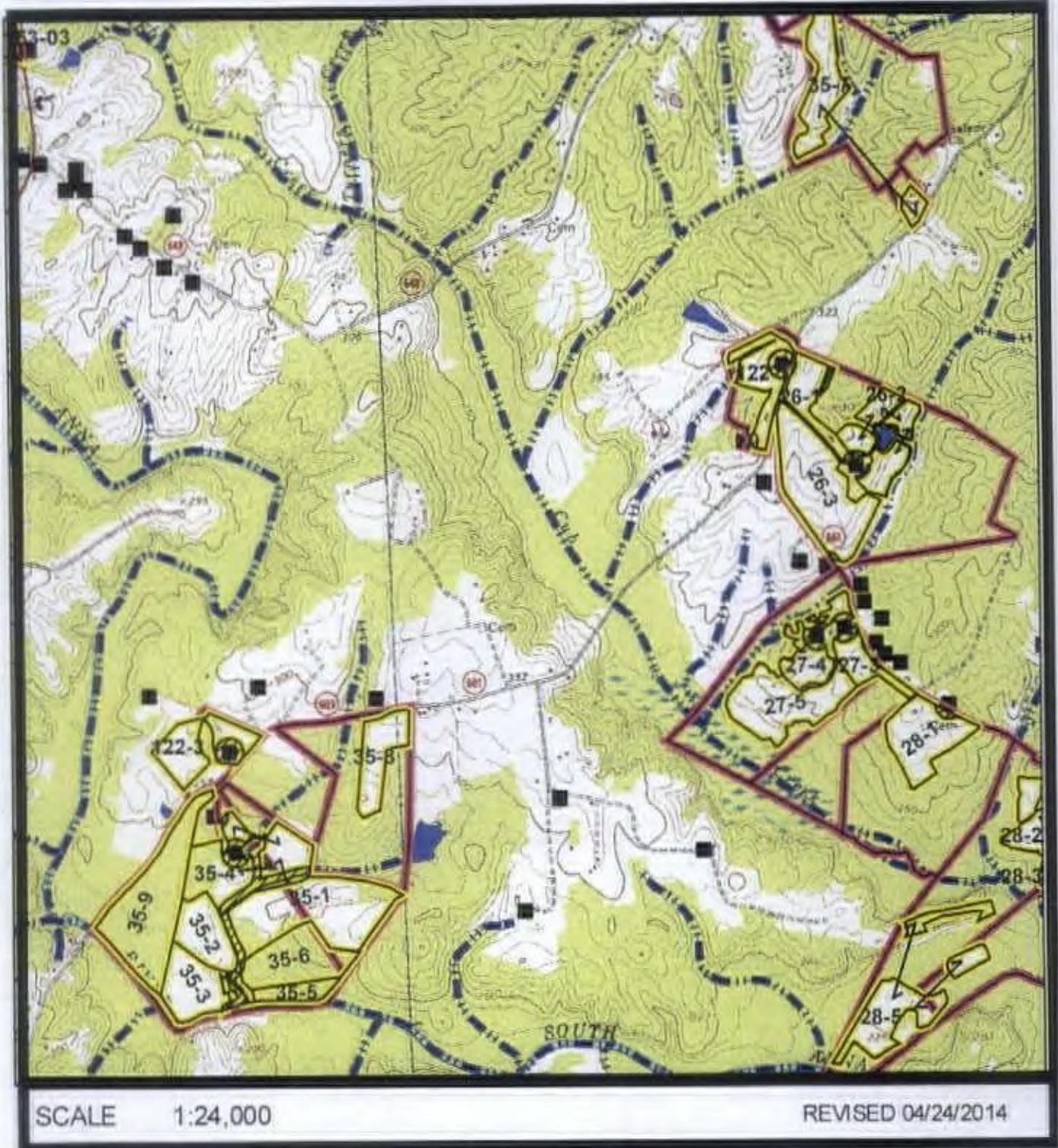
REVISED 04/24/2014

TOPO MAP

□  
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□

# SYNAGRO

Dennis M Reed  
LO35  
Fields 1 - 9

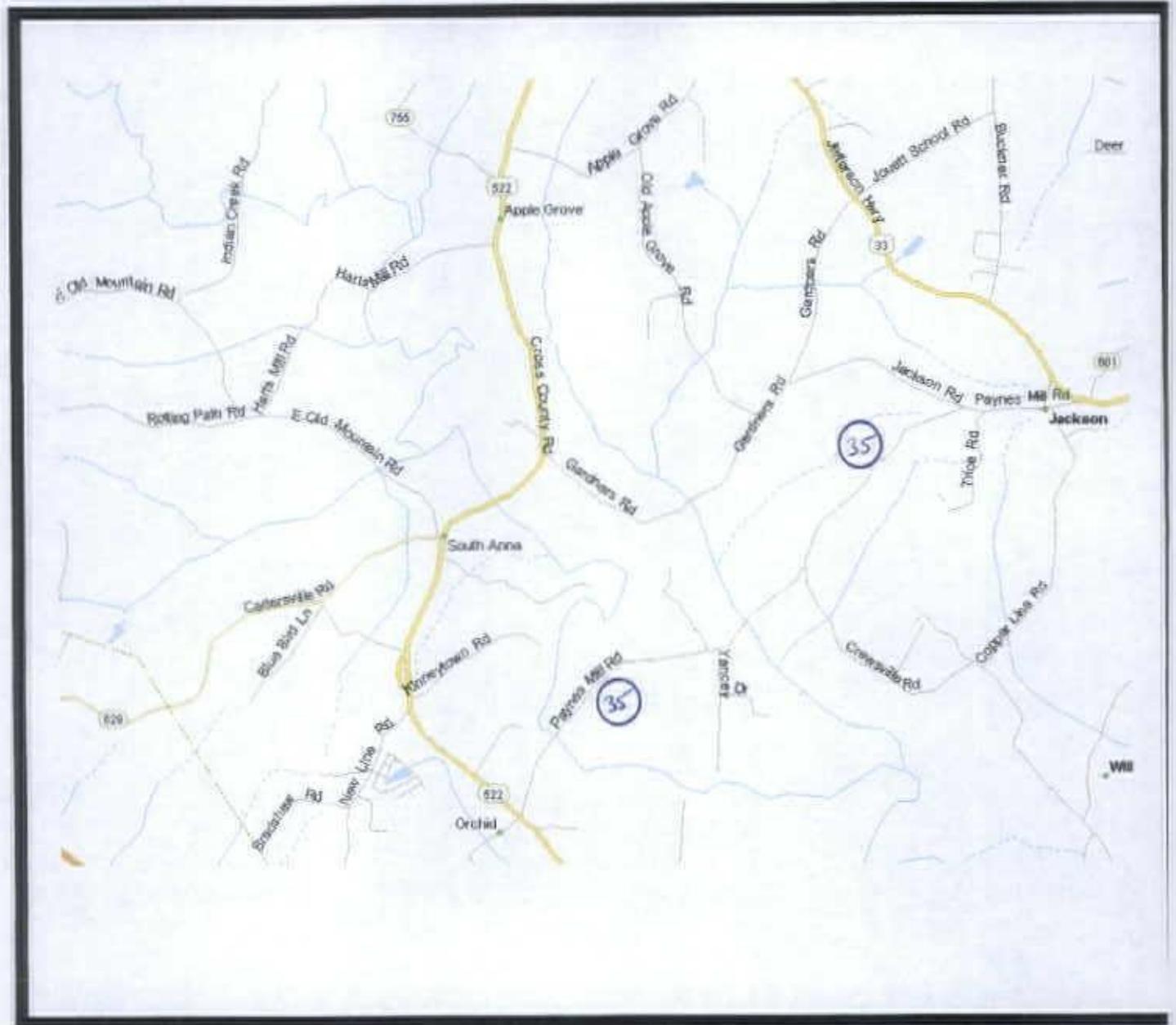


SCALE 1:24,000

REVISED 04/24/2014

TOPO MAP

N



LOCATION MAP

