

NC A349040

State of North Carolina
Department of Environmental Quality
Division of Water Resources
Animal Feeding Operations Permit Application Form
(NPDES General Permit - Existing Animal Waste Operations)

RECEIVED/NCDEQ/DWR
JUN 21 2017
Water Quality Regional
Operations Section

1. GENERAL INFORMATION:

- 1.1 Facility name: Koopman Dairies, Inc. (Lloyd Farm)
1.2 Print Land Owner's name: Ard Koopman
1.3 Mailing address: 204 Lloyd Rd
City, State: Statesville, NC Zip: 28625
Telephone number (include area code): (704) 876 - 4909
1.4 Physical address: SAME AS ABOVE
City, State: Zip:
Telephone number (include area code): () -
1.5 County where facility is located: Iredell
1.6 Owner's email address:
1.7 Facility location (directions from nearest major highway, using SR numbers for state roads): West of I-77 on SR 1890 for .25 miles, take left on SR 1916 for 1.4 miles, take left on Lloyd Rd for .5 miles. Dairy is located at end of Lloyd Rd.
1.8 Farm Manager's name (if different from Land Owner):
1.9 Lessee's / Integrator's name (if applicable; circle which type is listed):
1.10 Facility's original start-up date: 2001 Date(s) of facility expansion(s) (if applicable): 2013

2. OPERATION INFORMATION:

2.1 Facility number: AWC490040

2.2 Operation Description:

Please enter the Design Capacity of the system. The "No. of Animals" should be the maximum number for which the waste management structures were designed.

Table with 6 columns: Type of Swine, No. of Animals, Type of Poultry, No. of Animals, Type of Cattle, No. of Animals. Rows include Wean to Feeder, Feeder to Finish, Farrow to Wean, Farrow to Feeder, Farrow to Finish, Wean to Finish, Gilts, Boar/Stud, Layer, Non-Layer, Turkey, Turkey Poults, Beef Brood Cow, Beef Feeder, Beef Stocker Calf, Dairy Calf, Dairy Heifer, Dry Cow, Milk Cow.

Other Type of Livestock on the farm:

No. of Animals: 800

2.3 Acreage cleared and available for application (excluding all required buffers and areas not covered by the application system): 296 Required Acreage (as listed in the CAWMP): 286

2.4 Number of lagoons: _____ Total Capacity (cubic feet): _____ Required Capacity (cubic feet): _____
Number of Storage Ponds: 3 Total Capacity (cubic feet): 352,919 Required Capacity (cubic feet): 349,025

2.5 Are subsurface drains present within 100' of any of the application fields? YES or NO (circle one)

2.6 Are subsurface drains present in the vicinity or under the waste management system? YES or NO (circle one)

2.7 Does this facility meet all applicable siting requirements? YES or NO (circle one)

3. REQUIRED ITEMS CHECKLIST:

Please indicate that you have included the following required items by signing your initials in the space provided next to each item.

3.1 One completed and signed original and one copy of the application for NPDES General Permit - Animal Waste Operations; Applicants Initials
AK

3.2 Two copies of a general location map indicating the location of the animal waste facilities and field locations where animal waste is land applied and a county road map with the location of the facility indicated; AK

3.3 Two copies of the entire Certified Animal Waste Management Plan (CAWMP). If the facility does not have a CAWMP, it must be completed prior to submittal of a permit application for animal waste operations. AK

The CAWMP **must** include the following components. *Some of these components may not have been required at the time the facility was certified but must be added to the CAWMP for NPDES permitting purposes:*

- 3.3.1 The Waste Utilization Plan (WUP) must include the amount of Plant Available Nitrogen (PAN) and Phosphorus produced and utilized by the facility
- 3.3.2 The method by which waste is applied to the disposal fields (e.g. irrigation, injection, etc.)
- 3.3.3 A map of every field used for land application, with setbacks to surface waters or any conduits to surface waters (including field ditches), with the exception of grassed waterways that are designed and maintained according to NRCS standards.
- 3.3.4 The soil series present on every land application field
- 3.3.5 The crops grown on every land application field
- 3.3.6 The Realistic Yield Expectation (RYE) for every crop shown in the WUP
- 3.3.7 The PAN and Phosphorus applied to every land application field
- 3.3.8 The waste application windows for every crop utilized in the WUP
- 3.3.9 The required NRCS Standard specifications
- 3.3.10 A site schematic
- 3.3.11 Emergency Action Plan
- 3.3.12 Insect Control Checklist with chosen best management practices noted
- 3.3.13 Odor Control Checklist with chosen best management practices noted
- 3.3.14 Mortality Control Checklist with the selected method noted
- 3.3.15 Lagoon/storage pond capacity documentation (design, calculations, etc.); please be sure to include any site evaluations, wetland determinations, or hazard classifications that may be applicable to your facility
- 3.3.16 Operation and Maintenance Plan
- 3.3.17 Phosphorus Loss Assessment Tool (PLAT) Results, including the data sheets for each field.

If your CAWMP includes any components not shown on this list, please include the additional components with your submittal. (Composting, waste transfers, etc.)

4. APPLICANT'S CERTIFICATION:

I, Ard Koopman (Land Owner's name listed in question 1.2), attest that this application for Koopman Dairies, Inc Facility name listed in question 1.1) has been reviewed by me and is accurate and complete to the best of my knowledge. I understand that if all required parts of this application are not completed and that if all required supporting information and attachments are not included, this application package will be returned to me as incomplete.

Signature  Date _____

5. MANAGER'S CERTIFICATION: (complete only if different from the Land Owner)

I, _____ (Manager's name listed in question 1.6), attest that this application for _____ (Facility name listed in question 1.1) has been reviewed by me and is accurate and complete to the best of my knowledge. I understand that if all required parts of this application are not completed and that if all required supporting information and attachments are not included, this application package will be returned as incomplete.

Signature _____ Date _____

THE COMPLETED APPLICATION PACKAGE, INCLUDING ALL SUPPORTING INFORMATION AND MATERIALS, SHOULD BE SENT TO THE FOLLOWING ADDRESS:

**NORTH CAROLINA DIVISION OF WATER RESOURCES
WATER QUALITY REGIONAL OPERATIONS SECTION
ANIMAL FEEDING OPERATIONS PROGRAM
1636 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1636
TELEPHONE NUMBER: (919) 807-6464
FAX NUMBER: (919) 807-6496**



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

October 1, 2014

Koopman Dairies Inc
Loyd Farm
204 Lloyd Rd
Statesville, NC 28625

Subject: Certificate of Coverage No. AWC490040
Loyd Farm
Cattle Waste Collection, Treatment,
Storage and Application System
Iredell County

Dear Koopman Dairies Inc:

In accordance with your renewal request, we are hereby forwarding to you this Certificate of Coverage (COC) issued to Koopman Dairies Inc, authorizing the operation of the subject animal waste management system in accordance with General Permit AWG200000.

This approval shall consist of the operation of this system including, but not limited to, the management and land application of animal waste as specified in the facility's Certified Animal Waste Management Plan (CAWMP) for Loyd Farm, located in Iredell County, with an animal capacity of no greater than the following annual averages:

Dairy Calf: 100 ✓
Dairy Heifer:
Milk Cow: 400 ✓

Dry Cow: 300 ✓
Beef Stocker Calf:
Beef Feeder:

Beef Brood Cow:
Other:

This COC shall be effective from the date of issuance until September 30, 2019, and shall hereby void Certificate of Coverage Number AWC490040 that was previously issued to this facility. Pursuant to this COC, you are authorized and required to operate the system in conformity with the conditions and limitations as specified in the General Permit, the facility's CAWMP, and this COC. An adequate system for collecting and maintaining the required monitoring data and operational information must be established for this facility. Any increase in waste production greater than the certified design capacity or increase in number of animals authorized by this COC (as provided above) will require a modification to the CAWMP and this COC and must be completed prior to actual increase in either wastewater flow or number of animals.

Please read this COC and the enclosed State General Permit carefully. Please pay careful attention to the record keeping and monitoring conditions in this permit. Record keeping forms are unchanged with this General Permit. Please continue to use the same record keeping forms.

If your Waste Utilization Plan (WUP) has been developed based on site-specific information, careful evaluation of future samples is necessary. Should your records show that the current WUP is inaccurate you will need to have a new WUP developed.

1636 Mail Service Center, Raleigh, North Carolina 27699-1636
Phone: 919-807-6464 \ Internet: <http://www.ncdenr.gov/>

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COC
Existing

The issuance of this COC does not excuse the Permittee from the obligation to comply with all applicable laws, rules, standards, and ordinances (local, state, and federal), nor does issuance of a COC to operate under this permit convey any property rights in either real or personal property.

Per NRCS standards a 100-foot separation shall be maintained between water supply wells and any lagoon, storage pond, or any wetted area of a spray field.

Please be advised that any violation of the terms and conditions specified in this COC, the General Permit or the CAWMP may result in the revocation of this COC, or penalties in accordance with NCGS 143-215.6A through 143-215.6C including civil penalties, criminal penalties, and injunctive relief.

If any parts, requirements, or limitations contained in this COC are unacceptable, you have the right to apply for an individual permit by contacting the Animal Feeding Operations Program for information on this process. Unless such a request is made within 30 days, this COC shall be final and binding.

In accordance with Condition II.22 of the General Permit, waste application shall cease within four (4) hours of the time that the National Weather Service issues a Hurricane Warning, Tropical Storm Warning, or a Flood Watch associated with a tropical system for the county in which the facility is located. You may find detailed watch/warning information for your county by calling the Greenville/Spartanburg, SC National Weather Service office at (864) 848-3859, or by visiting their website at: <http://www.weather.gov/gsp/>

This facility is located in a county covered by our Mooresville Regional Office. The Regional Office staff may be reached at 704-663-1699. If you need additional information concerning this COC or the General Permit, please contact the Animal Feeding Operations Program staff at (919) 807-6464.

Sincerely,



for Thomas A. Reeder
Director, Division of Water Resources

Enclosure (General Permit AWG200000)

cc: (Certificate of Coverage only for all ccs)
Mooresville Regional Office, Water Quality Regional Operations Section
Iredell County Health Department
Iredell County Soil and Water Conservation District
WQROS Central Files (Permit No. AWC490040)
AFO Notebooks


Nutrient Management Plan For Animal Waste Utilization
05-11-2013

This plan has been prepared for:

Koopman Dairies (Lloyd Farm)
Ard Koopman
204 Lloyd Road
Statesville, NC 28625
704-929-0659

This plan has been developed by:


Sam Bingham
TSP
845 Baber Road
Rutherfordton, NC 28139
828-429-6798


Developer Signature

Type of Plan: Nutrient Management with Manure Only

Owner/Manager/Producer Agreement

I (we) understand and agree to the specifications and the operation and maintenance procedures established in this nutrient management plan which includes an animal waste utilization plan for the farm named above. I have read and understand the Required Specifications concerning animal waste management that are included with this plan.



Signature (owner)

5-23-13

Date

Signature (manager or producer)

Date

This plan meets the minimum standards and specifications of the U.S. Department of Agriculture - Natural Resources Conservation Service or the standard of practices adopted by the Soil and Water Conservation Commission.

Plan Approved By:  5/21/2013
Technical Specialist Signature Date

WASTE UTILIZATION PLAN

Koopman Dairy, Lloyd Farm

Producer: Ard Koopman, Koopman Dairies, Inc.

Location: 204 Lloyd Road, Statesville, NC 28625

Type of Operation: Dairy

Number of Animals: 700 Milk Cows

100 Heifers Day Old to 200 lbs

TOTAL – 800 cattle

Solids haul, pump & haul and drag hose are used to apply waste on this farm to cropland. The waste system is designed to store waste in three waste storage ponds. The sand is removed from waste ponds for reuse in freestall barns or land disposal. Waste is pumped from pond to pond to maintain storage levels in all ponds below the 25-year storage marker.

At full design capacity, the storage period in all waste ponds is approximately 120 days.

Since waste is mixed during storage period by pumping from pond to pond, the anticipated nutrient content in each waste storage pond is anticipated to be about the same. One waste source was used in this plan based on slurry manure storage. The broadcast nutrient content of 51,394 lbs of plant available nitrogen was estimated for this farm. The estimated total volume per year is 5,370,000 gallons or approximately 9.6 lbs per 1000 gallons of plant available Nitrogen.

The 25-year storm is stored in each waste storage pond based on size of drainage area. A maximum liquid level marker is installed in each waste pond and records are kept to ensure the level in this pond does not get above the maximum liquid level.

The total acres in this plan are 307.8 acres. The useable acres are 296.7 acres. Based on the numbers of useable acres, an average of 51,394 lbs Plant available N/296.7 useable acres or 173 lbs N per acre could be applied per year. Realistically, Mr. Koopman will not apply waste to all fields each year. He plans on rotating waste fields as much as practical. The small grain silage/corn silage crop sequence was estimated to be the most intense crop sequence that will be used. This crop sequence is shown in the plan for the cropland fields. Summer annuals such as sudex or sorghum silage and soybeans may also be used occasionally. The waste system operator will adjust nutrient application based on the crop planted each year in each field.

Some waste will be taken by a third party of which all records are kept on shared responsibility agreement forms.

Realistic yield expectations are shown for corn silage and small grain silage based on soil type. The RYE and Nitrogen requirement to be used when crop system is changed to sudex or sorghum silage or soybeans is shown below.

Sudex or sorghum silage	10.5 tons/acre	105 lbs N/acre
Soybeans	40 bu/acre	140 lbs N/acre

PLAT was checked for all fields. The PLAT rating was medium for all fields. The maximum application rate planned is shown in the waste utilization table. Bottomland soils and steep cropland fields typically required significantly less animal waste to be applied.

See waste utilization table to determined nitrogen loading rates for corn silage and small grain silage. See the Manure Plant Available (PA) Nutrient Applied, lbs/A column, for the maximum N to apply to each crop per year to meet the waste utilization plan requirements for RYE and PLAT. The amount shown is the maximum to be applied. It is expected that less waste nutrients will be normally applied than shown in the table since this plan contains significantly more land than is required.

You must have the animal waste analyzed to determine the nutrient content within 60 days of application. Soil nutrients in all fields where waste is applied must be analyzed annually. Always apply waste based on the needs of the crop to be grown and the nutrient content of the waste.

Anytime you plan to add additional land to the plan for waste application or make any changes to the plan, you need to contact your technical specialist to make an amendment to the plan.

10/20/14

Waste on the following fields will be applied by drag hose. Application rates will be still be recorded in gallons/ac and all other aspects of the current WUP are still in force.

<u>Tract #</u>	<u>Field #</u>
9515	3
9517	1
9781	2,8 & 9

Nutrients applied in accordance with this plan will be supplied from the following source(s):

Commercial Fertilizer is not included in this plan.

U1	Koopman Lloyd Dairy waste generated 5,370,001 gals/year by a 700 animal Dairy (Milk Cow) Liquid Manure Slurry operation. This production facility has waste storage capacities of approximately 120 days.				
Estimated Pounds of Plant Available Nitrogen Generated per Year					
Broadcast	51394				
Incorporated	70083				
Injected	79427				
Irrigated	46722				
	Max. Avail. PAN (lbs) *	Actual PAN Applied (lbs)	PAN Surplus/Deficit (lbs)	Actual Volume Applied (Gallons)	Volume Surplus/Deficit (Gallons)
Year 1	51,394	92447	-41,053	9,659,516	-4,289,515

This plan includes a User Defined Source to determine the total pounds of PAN in lieu of NRCS Standard values. Refer to North Carolina Cooperative Extension Service publication AG-439-42 entitled "Soil Facts: Use of On-Farm Records for Modifying a Certified Animal Waste Management Plan" for guidance on using on-farm records to develop a User Defined Source.

Note: In source ID, S means standard source, U means user defined source.

* Max. Available PAN is calculated on the basis of the actual application method(s) identified in the plan for this source.

The table shown below provides a summary of the crops or rotations included in this plan for each field. Realistic Yield estimates are also provided for each crop, as well as the crop's P2O5 Removal Rate. The Leaching Index (LI) and the Phosphorous Loss Assessment Tool (PLAT) Rating are also provided for each field, where available.

If a field's PLAT Rating is High, any planned manure application is limited to the phosphorous removal rate of the harvested plant biomass for the crop rotation or multiple years in the crop sequence. Fields with a Very High PLAT Rating should receive no additional applications of manure. Regardless of the PLAT rating, starter fertilizers may be recommended in accordance with North Carolina State University guidelines or recommendations. The quantity of P2O5 applied to each crop is shown in the following table if the field's PLAT rating is High or Very High.

Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Plat Rating	LI	Soil Series	Crop Sequence	RYE	P2O5	
									Removal (lbs/acre)	Applied (lbs/acre)
314	3	4.40	4.40	Medium	15.0	Cecil	Small Grain, Silage	10.4 Tons	56	N/A
							Corn, Silage	21.9 Tons	74	N/A
314	4	29.90	29.90	Medium	15.0	Cecil	Small Grain, Silage	8.8 Tons	48	N/A
							Corn, Silage	18.4 Tons	63	N/A
314	5	13.80	13.80	Medium	15.0	Madison	Small Grain, Silage	6.3 Tons	34	N/A
							Corn, Silage	14.0 Tons	48	N/A
66	11	54.80	52.70	Medium	15.0	Cecil	Small Grain, Silage	10.1 Tons	N/A	N/A
							Corn, Silage	21.2 Tons	N/A	N/A
66	3	54.70	51.20	Medium	15.0	Cecil	Small Grain, Silage	8.8 Tons	48	N/A
							Corn, Silage	18.4 Tons	63	N/A
9515	1	11.40	10.10	Medium	15.0	Lloyd	Small Grain, Silage	9.2 Tons	50	N/A
							Corn, Silage	20.2 Tons	69	N/A
9515	2	4.00	4.00	Medium	15.0	Lloyd	Small Grain, Silage	8.0 Tons	43	N/A
							Corn, Silage	17.6 Tons	60	N/A
9515	3	11.00	11.00	Medium	15.0	Lloyd	Small Grain, Silage	9.2 Tons	50	N/A
							Corn, Silage	20.2 Tons	69	N/A
9515	4	1.00	1.00	Medium	15.0	Lloyd	Small Grain, Silage	9.5 Tons	51	N/A
							Corn, Silage	20.9 Tons	71	N/A
9516	1	4.50	3.50	Medium	15.0	Lloyd	Small Grain, Silage	8.0 Tons	43	N/A
							Corn, Silage	17.6 Tons	60	N/A
9517	1	2.80	1.90	Medium	15.0	Lloyd	Small Grain, Silage	8.7 Tons	47	N/A
							Corn, Silage	19.1 Tons	65	N/A
9781	1	7.20	5.90	Medium	15.0	Lloyd	Small Grain, Silage	9.5 Tons	51	N/A
							Corn, Silage	20.9 Tons	71	N/A
9781	10	5.10	5.10	Medium	15.0	Lloyd	Small Grain, Silage	8.0 Tons	43	N/A
							Corn, Silage	17.6 Tons	60	N/A
9781	2	46.00	45.40	Medium	15.0	Lloyd	Small Grain, Silage	9.2 Tons	50	N/A
							Corn, Silage	20.2 Tons	69	N/A

Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Plat Rating	LI	Soil Series	Crop Sequence	RYE	P2O5	
									Removal (lbs/acre)	Applied (lbs/acre)
9781	3	5.80	5.40	Medium	15.0	Lloyd	Small Grain, Silage	8.7 Tons	47	N/A
							Corn, Silage	19.1 Tons	65	N/A
9781	8	38.20	38.20	Medium	15.0	Lloyd	Small Grain, Silage	9.2 Tons	50	N/A
							Corn, Silage	20.2 Tons	69	N/A
9781	9	13.20	13.20	Medium	15.0	Lloyd	Small Grain, Silage	8.0 Tons	43	N/A
							Corn, Silage	17.6 Tons	60	N/A

PLAN TOTALS: 307.80 296.70

LI	Potential Leaching	Technical Guidance
< 2	Low potential to contribute to soluble nutrient leaching below the root zone.	None
>= 2 & <= 10	Moderate potential to contribute to soluble nutrient leaching below the root zone.	Nutrient Management (590) should be planned.
> 10	High potential to contribute to soluble nutrient leaching below the root zone.	Nutrient Management (590) should be planned. Other conservation practices that improve the soils available water holding capacity and improve nutrient use efficiency should be considered. Examples are Cover Crops (340) to scavenge nutrients, Sod-Based Rotations (328), Long-Term No-Till (778), and edge-of-field practices such as Filter Strips (393) and Riparian Forest Buffers (391).

PLAT Index	Rating	P Management Recommendation
0 - 25	Low	No adjustment needed; N based application
25 - 50	Medium	No adjustment needed; N based application
51 - 100	High	Application limited to crop P removal
> 100	Very High	Starter P application only

The Waste Utilization table shown below summarizes the waste utilization plan for this operation. This plan provides an estimate of the number of acres of cropland needed to use the nutrients being produced. The plan requires consideration of the realistic yields of the crops to be grown, their nutrient requirements, and proper timing of applications to maximize nutrient uptake.

This table provides an estimate of the amount of nitrogen required by the crop being grown and an estimate of the nitrogen amount being supplied by manure or other by-products, commercial fertilizer and residual from previous crops. An estimate of the quantity of solid and liquid waste that will be applied on each field in order to supply the indicated quantity of nitrogen from each source is also included. A balance of the total manure produced and the total manure applied is included in the table to ensure that the plan adequately provides for the utilization of the manure generated by the operation.

Waste Utilization Table

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	RYE	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)		Comm. Fert. Applied (lbs/A)		Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field)	Solid Manure Applied (Field)
									N	N	N	N							
									N	N	N	N	1000 gal/A	Tons	1000 gals	tons			
314	3	U1	Cecil	4.40	4.40	Small Grain, Silage	10.4	9/1-3/31	115	0	0	0	Broad.	115	12.02	0.00	52.87	0.00	
314	3	U1	Cecil	4.40	4.40	Corn, Silage	21.9	2/15-6/30	239	0	0	0	Broad.	239	24.97	0.00	109.88	0.00	
314	4	U1	Cecil	29.90	29.90	Small Grain, Silage	8.8 Tons	9/1-3/31	98	0	0	0	Broad.	98	10.24	0.00	306.17	0.00	
314	4	U1	Cecil	29.90	29.90	Corn, Silage	18.4	2/15-6/30	201	0	0	0	Broad.	201	21.00	0.00	627.95	0.00	
314	5	U1	Madison	13.80	13.80	Small Grain, Silage	6.3 Tons	9/1-3/31	70	0	0	0	Broad.	70	7.31	0.00	100.93	0.00	
314	5	U1	Madison	13.80	13.80	Corn, Silage	14.0	2/15-6/30	153	0	0	0	Broad.	153	15.99	0.00	220.61	0.00	
66	11	U1	Cecil	54.80	52.70	Small Grain, Silage	10.1	9/1-3/31	112	0	0	0	Broad.	112	11.70	0.00	616.72	0.00	
66	11	U1	Cecil	54.80	52.70	Corn, Silage	21.2	2/15-6/30	231	0	0	0	Broad.	231	24.14	0.00	1,271.99	0.00	
66	3	U1	Cecil	54.70	51.20	Small Grain, Silage	8.8 Tons	9/1-3/31	98	0	0	0	Broad.	98	10.24	0.00	524.27	0.00	
66	3	U1	Cecil	54.70	51.20	Corn, Silage	18.4	2/15-6/30	201	0	0	0	Broad.	201	21.00	0.00	1,075.29	0.00	
9515	1	U1	Lloyd	11.40	10.10	Small Grain, Silage	9.2 Tons	9/1-3/31	102	0	0	0	Broad.	102	10.66	0.00	107.64	0.00	
9515	1	U1	Lloyd	11.40	10.10	Corn, Silage	20.2	2/15-6/30	220	0	0	0	Broad.	220	22.99	0.00	232.17	0.00	
9515	2	U1	Lloyd	4.00	4.00	Small Grain, Silage	8.0 Tons	9/1-3/31	89	0	0	0	Broad.	89	9.30	0.00	37.20	0.00	
9515	2	U1	Lloyd	4.00	4.00	Corn, Silage	17.6	2/15-6/30	192	0	0	0	Broad.	192	20.06	0.00	80.25	0.00	
9515	3	U1	Lloyd	11.00	11.00	Small Grain, Silage	9.2 Tons	9/1-3/31	102	0	0	0	Broad.	102	10.66	0.00	117.23	0.00	
9515	3	U1	Lloyd	11.00	11.00	Corn, Silage	20.2	2/15-6/30	220	0	0	0	Broad.	220	22.99	0.00	252.86	0.00	

Waste Util on Table

Year 1

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)	Comm. Fert. Nutrient Applied (lbs/A)	Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liquid Manure Applied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field) 1000 gals	Solid Manure Applied (Field) tons
9515	4	U1	Lloyd	1.00	1.00	Small Grain, Silage	9/1-3/31	105	0	0	Broad.	105	10.97	0.00	10.97	0.00
9515	4	U1	Lloyd	1.00	1.00	Corn, Silage	2/15-6/30	228	0	0	Broad.	228	23.82	0.00	23.82	0.00
9516	1	U1	Lloyd	4.50	3.50	Small Grain, Silage	9/1-3/31	89	0	0	Broad.	89	9.30	0.00	32.55	0.00
9516	1	U1	Lloyd	4.50	3.50	Corn, Silage	2/15-6/30	192	0	0	Broad.	192	20.06	0.00	70.22	0.00
9517	1	U1	Lloyd	2.80	1.90	Small Grain, Silage	9/1-3/31	97	0	0	Broad.	97	10.14	0.00	19.26	0.00
9517	1	U1	Lloyd	2.80	1.90	Corn, Silage	2/15-6/30	208	0	0	Broad.	208	21.73	0.00	41.29	0.00
9781	1	U1	Lloyd	7.20	5.90	Small Grain, Silage	9/1-3/31	105	0	0	Broad.	105	10.97	0.00	64.73	0.00
9781	1	U1	Lloyd	7.20	5.90	Corn, Silage	2/15-6/30	228	0	0	Broad.	228	23.82	0.00	140.56	0.00
9781	10	U1	Lloyd	5.10	5.10	Small Grain, Silage	9/1-3/31	89	0	0	Broad.	89	9.30	0.00	47.43	0.00
9781	10	U1	Lloyd	5.10	5.10	Corn, Silage	2/15-6/30	192	0	0	Broad.	192	20.06	0.00	102.31	0.00
9781	2	U1	Lloyd	46.00	45.40	Small Grain, Silage	9/1-3/31	102	0	0	Broad.	102	10.66	0.00	483.86	0.00
9781	2	U1	Lloyd	46.00	45.40	Corn, Silage	2/15-6/30	220	0	0	Broad.	220	22.99	0.00	1,043.61	0.00
9781	3	U1	Lloyd	5.80	5.40	Small Grain, Silage	9/1-3/31	97	0	0	Broad.	97	10.14	0.00	54.73	0.00
9781	3	U1	Lloyd	5.80	5.40	Corn, Silage	2/15-6/30	208	0	0	Broad.	208	21.73	0.00	117.36	0.00
9781	8	U1	Lloyd	38.20	38.20	Small Grain, Silage	9/1-3/31	102	0	0	Broad.	102	10.66	0.00	407.12	0.00
9781	8	U1	Lloyd	38.20	38.20	Corn, Silage	2/15-6/30	220	0	0	Broad.	220	22.99	0.00	878.11	0.00
9781	9	U1	Lloyd	13.20	13.20	Small Grain, Silage	9/1-3/31	89	0	0	Broad.	89	9.30	0.00	122.75	0.00
9781	9	U1	Lloyd	13.20	13.20	Corn, Silage	2/15-6/30	192	0	0	Broad.	192	20.06	0.00	264.81	0.00

Waste Util on Table

/ear 1

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)	Comm. Fert. Nutrient Applied (lbs/A)	Res. (lbs/A)	Applic. Method	Manure PA Nutrient Applied (lbs/A)	Liqud ManureA Applied (acre)	Solid Manure Applied (acre)	Liqud Manure Applied (Field)	Solid Manure Applied (Field)
Total Applied, 1000 gallons																
Total Produced, 1000 gallons																
Balance, 1000 gallons																
Total Applied, tons																
Total Produced, tons																
Balance, tons																
0.00																
0.00																
0.00																

Notes: 1. In the tract column, ~ symbol means leased, otherwise, owned. 2. Symbol * means user entered data.

The Available Waste Storage Capacity table provides an estimate of the number of days of storage capacity available at the end of each month of the plan. Available storage capacity is calculated as the design storage capacity in days minus the number of days of net storage volume accumulated. The start date is a value entered by the user and is defined as the date prior to applying nutrients to the first crop in the plan at which storage volume in the lagoon or holding pond is equal to zero.

Available storage capacity should be greater than or equal to zero and less than or equal to the design storage capacity of the facility. If the available storage capacity is greater than the design storage capacity, this indicates that the plan calls for the application of nutrients that have not yet accumulated. If available storage capacity is negative, the estimated volume of accumulated waste exceeds the design storage volume of the structure. Either of these situations indicates that the planned application interval in the waste utilization plan is inconsistent with the structure's temporary storage capacity.

Available Waste Storage Capacity

Source Name	Koopman Lloyd Dairy		Design Storage Capacity (Days)
Start Date	9/1		120
Plan Year	Month	Available Storage Capacity (Days) *	
1	1	74	
1	2	120	
1	3	89	
1	4	59	
1	5	120	
1	6	120	
1	7	89	
1	8	58	
1	9	67	
1	10	87	
1	11	73	
1	12	42	

* Available Storage Capacity is calculated as of the end of each month.

Required Specifications For Animal Waste Management

1. **Animal waste shall not reach surface waters of the state by runoff, drift, manmade conveyances, direct application, or direct discharge during operation or land application. Any discharge of waste that reaches surface water is prohibited.**
2. **There must be documentation in the design folder that the producer either owns or has an agreement for use of adequate land on which to properly apply the waste. If the producer does not own adequate land to properly dispose of the waste, he/she shall provide evidence of an agreement with a landowner, who is within a reasonable proximity, allowing him/her the use of the land for waste application. It is the responsibility of the owner of the waste production facility to secure an update of the Nutrient Management Plan when there is a change in the operation, increase in the number of animals, method of application, receiving crop type, or available land.**
3. **Animal waste shall be applied to meet, but not exceed, the nitrogen needs for realistic crop yields based upon soil type, available moisture, historical data, climatic conditions, and level of management, unless there are regulations that restrict the rate of applications for other nutrients.**
4. **Animal waste shall be applied to land eroding less than 5 tons per acre per year. Waste may be applied to land eroding at more than 5 tons per acre per year but less than 10 tons per acre per year provided grass filter strips are installed where runoff leaves the field (see USDA, NRCS Field Office Technical Guide Standard 393 - Filter Strips).**
5. **Odors can be reduced by injecting the waste or by disking after waste application. Waste should not be applied when there is danger of drift from the land application field.**
6. **When animal waste is to be applied on acres subject to flooding, waste will be soil incorporated on conventionally tilled cropland. When waste is applied to conservation tilled crops or grassland, the waste may be broadcast provided the application does not occur during a season prone to flooding (see "Weather and Climate in North Carolina" for guidance).**

7. **Liquid waste shall be applied at rates not to exceed the soil infiltration rate such that runoff does not occur offsite or to surface waters and in a method which does not cause drift from the site during application. No ponding should occur in order to control odor and flies.**
8. **Animal waste shall not be applied to saturated soils, during rainfall events, or when the soil surface is frozen.**
9. **Animal waste shall be applied on actively growing crops in such a manner that the crop is not covered with waste to a depth that would inhibit growth. The potential for salt damage from animal waste should also be considered.**
10. **Nutrients from waste shall not be applied in fall or winter for spring planted crops on soils with a high potential for leaching. Waste/nutrient loading rates on these soils should be held to a minimum and a suitable winter cover crop planted to take up released nutrients. Waste shall not be applied more than 30 days prior to planting of the crop or forages breaking dormancy.**
11. **Any new swine facility sited on or after October 1, 1995 shall comply with the following: The outer perimeter of the land area onto which waste is applied from a lagoon that is a component of a swine farm shall be at least 50 feet from any residential property boundary and canal. Animal waste, other than swine waste from facilities sited on or after October 1, 1995, shall not be applied closer than 25 feet to perennial waters.**
12. **Animal waste shall not be applied closer than 100 feet to wells.**
13. **Animal waste shall not be applied closer than 200 feet of dwellings other than those owned by the landowner.**
14. **Waste shall be applied in a manner not to reach other property and public right-of-ways.**

15. **Animal waste shall not be discharged into surface waters, drainageways, or wetlands by a discharge or by over-spraying. Animal waste may be applied to prior converted cropland provided the fields have been approved as a land application site by a "technical specialist". Animal waste shall not be applied on grassed waterways that discharge directly into water courses, and on other grassed waterways, waste shall be applied at agronomic rates in a manner that causes no runoff or drift from the site.**
16. **Domestic and industrial waste from washdown facilities, showers, toilets, sinks, etc., shall not be discharged into the animal waste management system.**
17. **A protective cover of appropriate vegetation will be established on all disturbed areas (lagoon embankments, berms, pipe runs, etc.). Areas shall be fenced, as necessary, to protect the vegetation. Vegetation such as trees, shrubs, and other woody species, etc., are limited to areas where considered appropriate. Lagoon areas should be kept mowed and accessible. Berms and structures should be inspected regularly for evidence of erosion, leakage, or discharge.**
18. **If animal production at the facility is to be suspended or terminated, the owner is responsible for obtaining and implementing a "closure plan" which will eliminate the possibility of an illegal discharge, pollution, and erosion.**
19. **Waste handling structures, piping, pumps, reels, etc., should be inspected on a regular basis to prevent breakdowns, leaks, and spills. A regular maintenance checklist should be kept on site.**
20. **Animal waste can be used in a rotation that includes vegetables and other crops for direct human consumption. However, if animal waste is used on crops for direct human consumption, it should only be applied pre-plant with no further applications of animal waste during the crop season.**
21. **Highly visible markers shall be installed to mark the top and bottom elevations of the temporary storage (pumping volume) of all waste treatment lagoons. Pumping shall be managed to maintain the liquid level between the markers. A marker will be required to mark the maximum storage volume for waste storage ponds.**

- 22. Waste shall be tested within 60 days of utilization and soil shall be tested at least annually at crop sites where waste products are applied. Nitrogen shall be the rate-determining nutrient, unless other restrictions require waste to be applied based on other nutrients, resulting in a lower application rate than a nitrogen based rate. Zinc and copper levels in the soils shall be monitored and alternative crop sites shall be used when these metals approach excessive levels. pH shall be adjusted and maintained for optimum crop production. Soil and waste analysis records shall be kept for a minimum of five years. Poultry dry waste application records shall be maintained for a minimum of three years. Waste application records for all other waste shall be maintained for five (5) years.**
- 23. Dead animals will be disposed of in a manner that meets North Carolina regulations.**

Site Specific Data					
Enter animal numbers, animal size, percent collection and annual storage volume					
Animal Type	Number	Wt. of Animal	% collection	lbs Live weight	
Milk Cows	400	1400	100	560000	
Dry Cows	300	1400	90	378000	
Large Heifers				0	
calves	0	0	0	0	
				0	
Total Animals	700		Total Live Weight	938000	
Annual Storage Volume For Dairy in Gallons = See Design for Waste Storage Pond			5370000		
Annual Storage Volume per dairy animal in gal/head			7671.429		
User Defined Source data for a specific dairy waste storage facility					
	Nutrient	ppm concentration			
	DM%				
	N	2606.517			
	P	705.7706			
	K	2097.976			
	Ca	1181.441			
	Mg	551.3132			
	S	358.6861			
	Mn	20.54469			
	Cu	5.31745			
	Zn	24.28624			
	B	1.962622			
	CCE%	0			
Farm Name or Owner		Koopman Jerseys (Lloyd Farm)			
Date		5/3/2013			

Dairy Manure Slurry Data for user Defined source in nutrient management program

User Defined Source Data Modified from Standard Data By: Sam Bingham
Civil Engineer

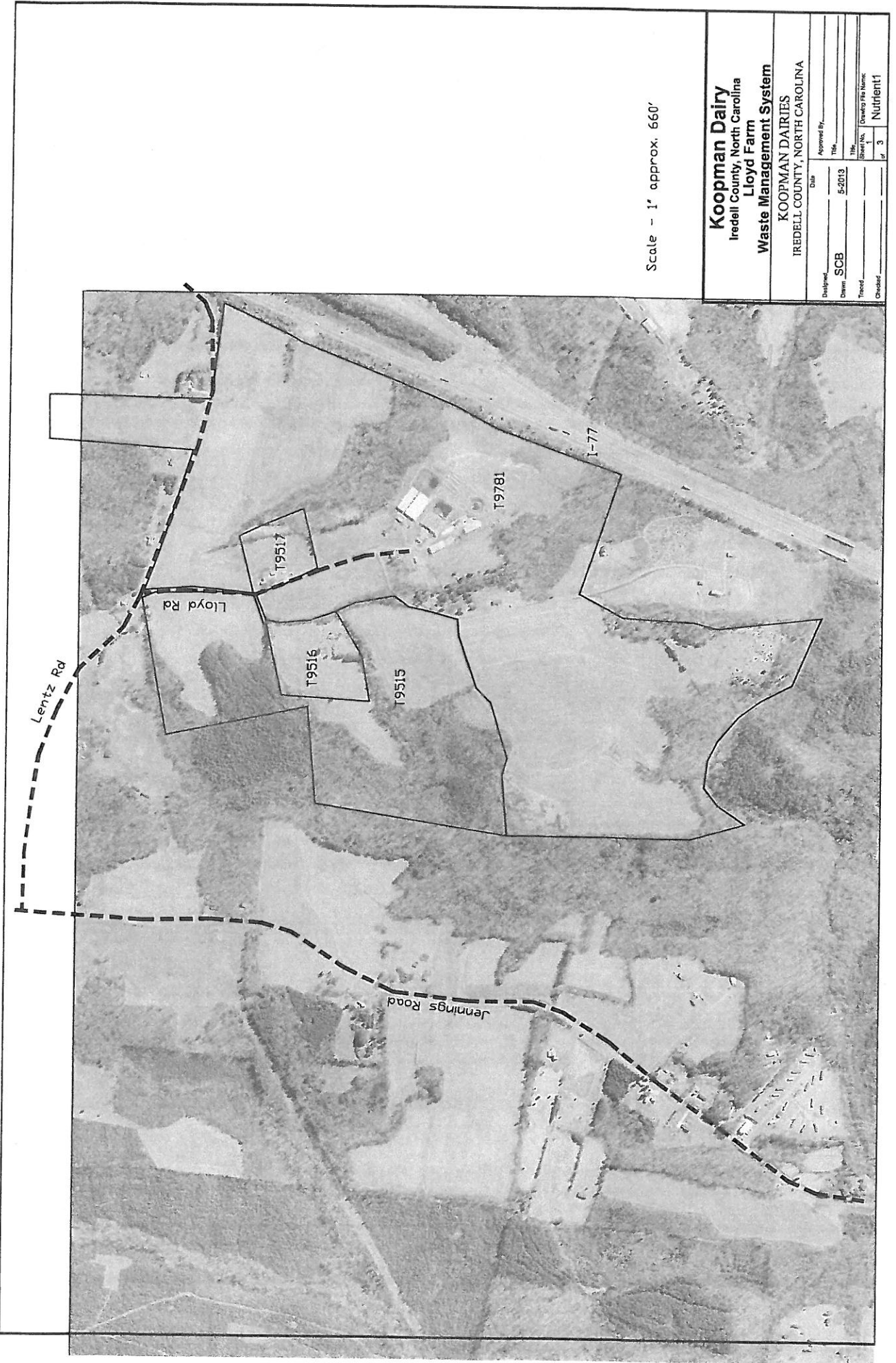
The defined manure source data for milk cows, dry cows and heifers of all sizes are based on average or assumed dilution ratio of manure and 100 percent collection of manure. This data cannot be used for one slurry waste storage facility in the state due to the variability of milking parlor wash water used on each dairy farm, the volume of runoff collected and the actual percentage of manure collected.

Until the Nutrient Management Software is modified to account for the problems described above, the data computed on this form should be input into a USER DEFINED SOURCE table.

Note: In the Nutrient Management Plan under Sources, the User Defined Source List will be used to input data into plan. The animal number entered should be the total number of animals contributing manure to waste storage facility. The size of animal does not matter since computations below will provide averages that will account for the total live weight contributing waste to the system. The computations will work for any size of dairy animal. The computations are limited to 5 dairy animal sizes and the corresponding percent collection. The Total Annual Storage Volume will be needed. This estimate should be in the design calculations completed by waste storage facility designer.

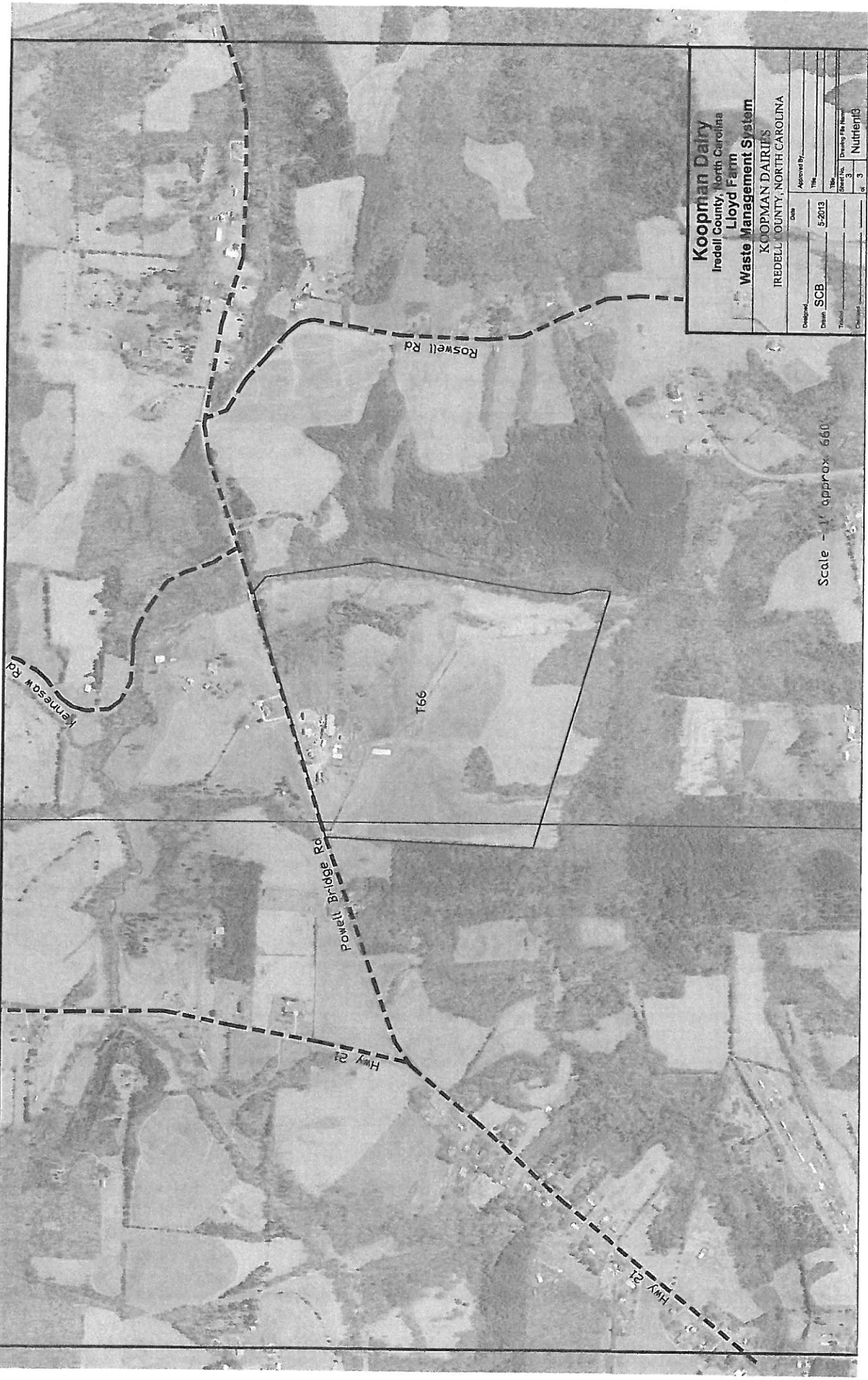
See Standard Data Base in Nutrient Management Program
Dairy (Milk Cow) Liquid Manure Slurry data for milk cows with 100% collection and annual collection volume of 7,749 gallons per head is shown below. This data can be viewed under VIEW - Standard Database Management - Source Properties.

	Annual Collection Volume, gallons/head =		7749			
Nutrient	ppm concentration					
DM%						
N	2696					
P	730					
K	2170					
Ca	1222					
Mg	570.24					
S	371					
Mn	21.25					
Cu	5.5					
Zn	25.12					
B	2.03					
CCE%	0					



Scale - 1" approx. 660'

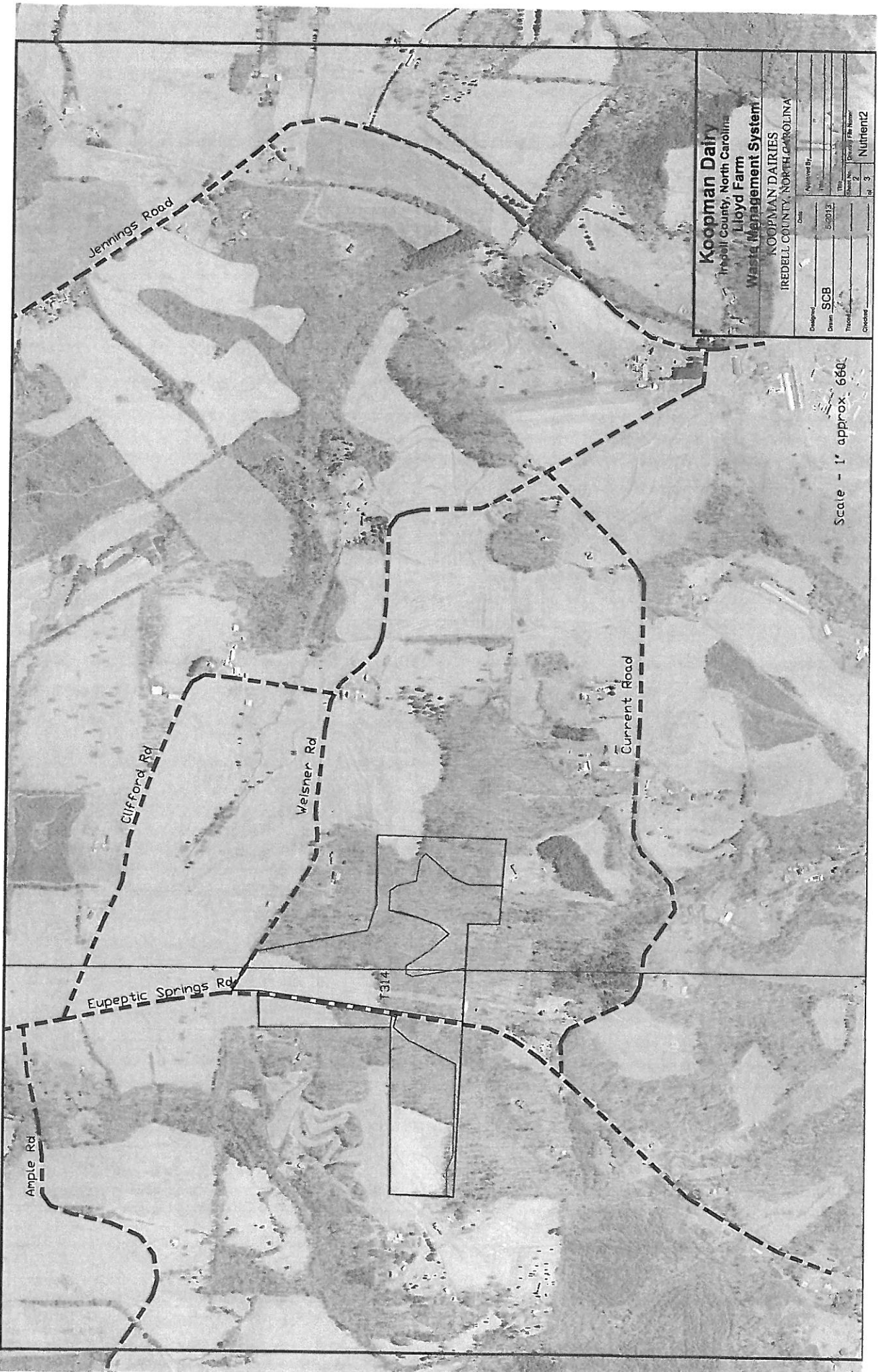
Koopman Dairy	
Iredell County, North Carolina	
Lloyd Farm	
Waste Management System	
KOOPMAN DAIRIES	
IREDELL COUNTY, NORTH CAROLINA	
Designed By:	Date:
Drawn: SCB	5-2013
Checked:	
Approved By:	Title:
	Sheet No. 3
	of 3
	Drawn's File Name: Nutrient1



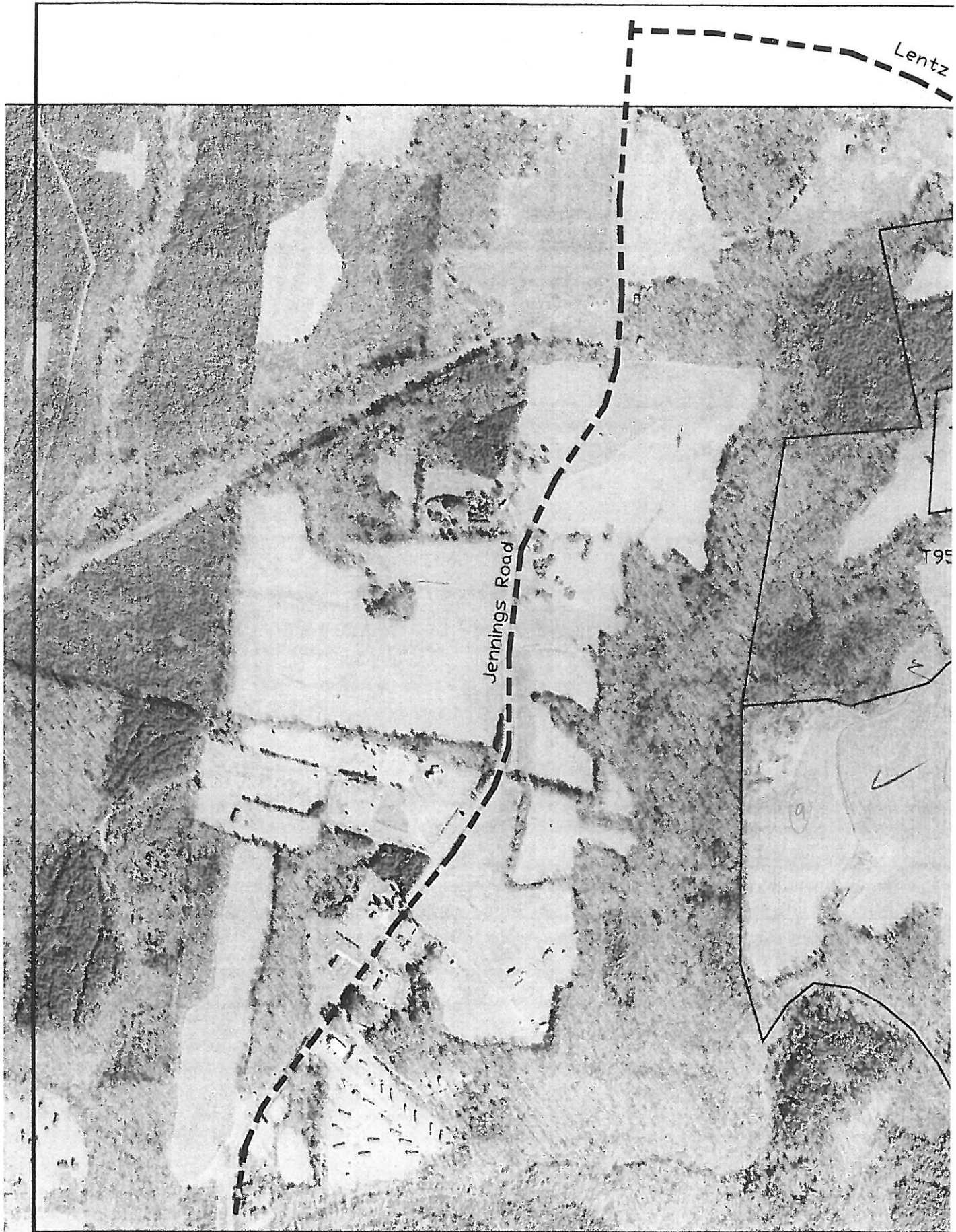
Koopman Dairy
 Iredell County, North Carolina
Lloyd Farm
Waste Management System
 KOOPMAN DAIRIES
 IREDELL COUNTY, NORTH CAROLINA

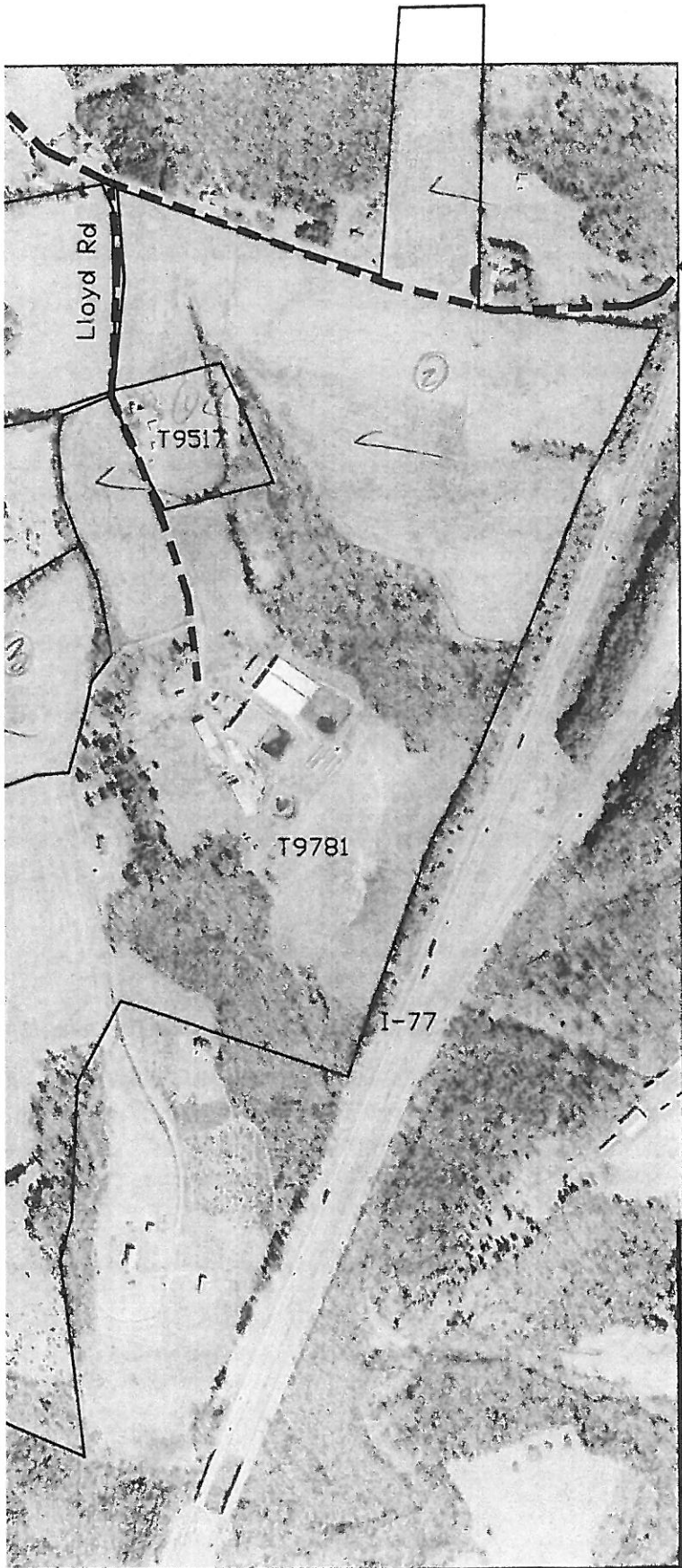
Designed By:	SCB	Date:	5-2013
Title:		Approved By:	
Sheet No.:	3	Drawn By:	
of	3	Checked:	
		Nutrient:	

Scale - 1" approx = 660'



Scale - 1" approx. 660'





Scale - 1" approx. 660'

Koopman Dairy
 Iredell County, North Carolina
Lloyd Farm
Waste Management System

KOOPMAN DAIRIES
 IREDELL COUNTY, NORTH CAROLINA

Designed _____	Date _____	Approved By _____
Drawn SCB	5-2013	Title _____
Traced _____	_____	Title _____
Checked _____	_____	Sheet No. 1
		of 3
		Drawing File Name: Nutrient1



Ample Rd

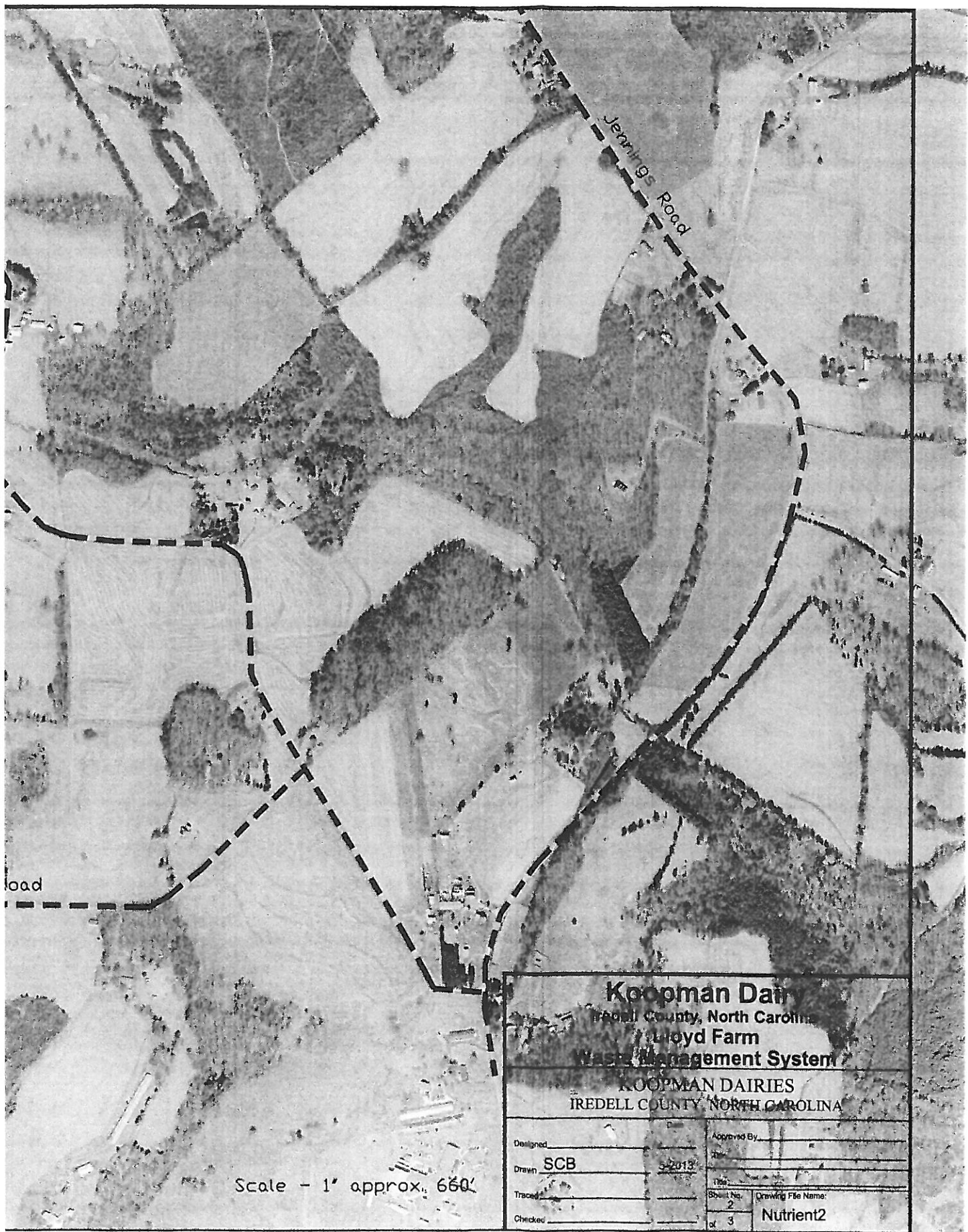
Eupetic Springs Rd

Clifford Rd

Weisner Rd

T314

Curre



Koopman Dairy
 Iredell County, North Carolina
Lloyd Farm
Waste Management System
 KOOPMAN DAIRIES
 IREDELL COUNTY, NORTH CAROLINA

Scale - 1" approx. 660'

Designed	Approved By
Drawn SCB	Date
Traced	Sheet No. 2
Checked	of 3
	Drawing File Name: Nutrient2

**Iredell County FSA
Farm 1674 Tract 66**

Wetland Determination Identifiers
 ● Restricted Use
 ○ Limited Restrictions
 ▽ Exempt from Conservation Compliance Provisions

Disclaimer: Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

Useable
Acres

Wetland Determination Identifier	Acres	HEL	CRP
1	1.07	N	N
2	3.11	N	N
3	51.2	X	X
6	25.40	N	N
6	4.41	N	N
7	6.10	N	N
11	57.8	X	X

— Waterways



Map for FSA purposes only

**Total Cropland Acres
95.0**

**Iredell County FSA
Farm 3453 Tract 314**

- Wetland Determination Identifiers
- Restricted Use
 - Limited Restrictions
 - Exempt from Conservation Compliance Provisions

Disclaimer: Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

Useable
Acres

Wetland ID	Acres	HEL	CRP
1	16.77	N	
2	25.06	N	
3	4.4	N	
4	29.9	N	
5	13.0	N	

— Buffers



Map for F&A purposes only

**Total Cropland Acres
60.0**

**Iredell County FSA
Farm 2306 Tract 9515**

- Wetland Determination Identifiers**
- Restricted Use
 - ▽ Limited Restrictions
 - Exempt from Conservation Compliance Provisions

Disclaimer: Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.



Map for FSA purposes only

Useable

Flow	Acres	HEL	CRP
1	11.43	10.1	Y
2	4.01	4.0	Y
3	11.04	11.0	Y
4	1.05	1.0	Y

O-Buffers

**Total Cropland Acres
27.5**

**Iredell County FSA
Farm 2306 Tract 9516**

Wetland Determination Identifiers
 ● Restricted Use
 ▽ Limited Restrictions
 ■ Exempt from Conservation Compliance Provisions

Disclaimer: Wetland identifiers do not represent the size, shape, or specific delineation of the area. Refer to your original determination (CPA-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

Useable

Field	ACres	HEL	CRP
1	4.50	3.5	Y



O - Buffers

**Total Cropland Acres
4.5**

Map for FSA purposes only

**Iredell County FSA
Farm 5461 Tract 9517**

Wetland Determination Identifiers
 ● Restricted Use
 ▽ Limited Restrictions
 ■ Exempt from Conservation Compliance Provisions

Disclaimer: Wetland identifiers do not represent the size, shape, or specific delineation of the area. Refer to your original determination (CPA-028 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.

1	2.83	1.9	Y
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useable
 Acres
 HEL CRP

O - Buffer



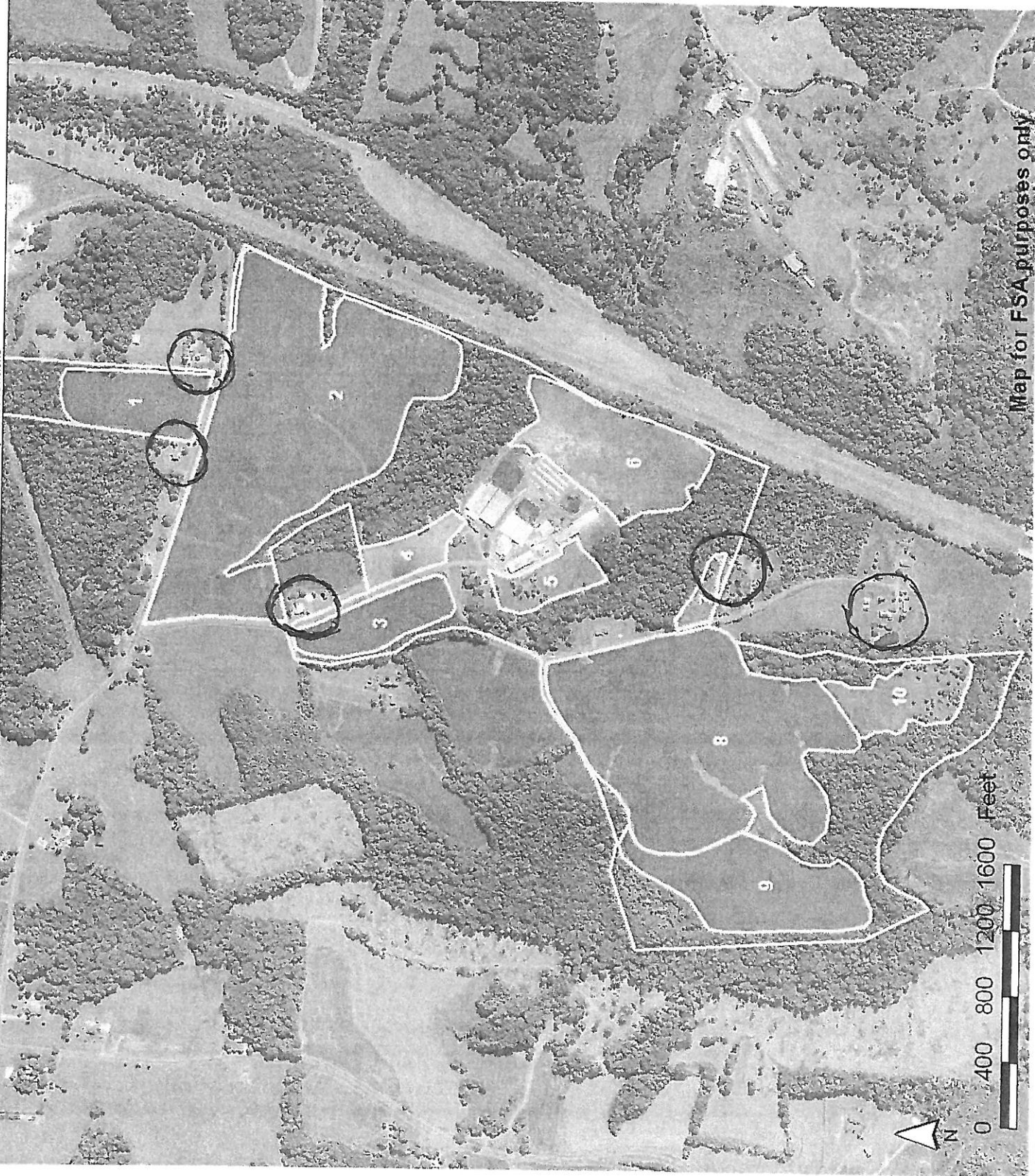
Map for FSA purposes only

**Total Cropland Acres
2.8**

**Iredell County FSA
Farm 5461 Tract 9781**

Wetland Determination Id
rs
 Restricted Use
 Limited Restrictions
 Exempt from Conservation Compliance Provisions

Disclaimer: Wetland identifiers do not represent the size, shape, or specific determination of the area. Refer to your original determination (CP A-026 and attached maps) for exact wetland boundaries and determinations, or contact NRCS.



Map for FSA purposes only

usable

Field	Acres	Crop	HEL	CRP
1	7.21	5.9	Y	
2	45.99	45.4	Y	
3	5.75	5.4	Y	
4	3.23		N	
5	3.55		N	
6	12.73		N	
7	1.36		N	
8	38.25	38.2	Y	
9	13.21	13.2	Y	
10	6.13	5.1	N	

O - Buffers

Total Cropland Acres
427.4