Tennessee Department of Environment and Conservation,
Division of Water Pollution Control
401 Church Street, 6th Floor L & C Annex, Nashville, TN 37243
(615) 532-0625

CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)
STATE OPERATING PERMIT (SOP)
NOTICE OF INTENT (NOI)

Type of permit you are requesting: ☐ SOPCD0000 (designed to discharge) ☒ SOPC00000 (no discharge) ☐ Unknown, please advise

Application type: ☒ New Permit ☐ Permit Reissuance ☐ Permit Modification

If this NOI is submitted for Permit Modification or Reissuance provide the existing permit tracking number: ____

OPERATION IDENTIFICATION

Operation Name:	**Jeremy Walters Farm**	County:	**Henry**
Operation Location/ Physical Address:	**North Fork Road, Puryear Tn 38251**	Latitude:	**36.489490**
		Longitude:	**-88.470728**

Name and distance to nearest receiving water(s): **300 feet to tributary of Terrapin Drainage**

If any other State or Federal Water/Wastewater Permits have been obtained for this site, list those permit numbers:

Animal Type: ☐ Poultry ☒ Swine ☐ Dairy ☐ Beef ☐ Other ____

Number of Animals: 5,200 | Number of Barns: 2 | Name of Integrator: Tosh Pork

Type of Animal Waste Management: (check all that apply)
☐ Dry
☐ Liquid
☒ Liquid, Closed System (i.e. covered tank, under barn pit, etc.)

Attach the NMP ☒ NMP Attached | Attach the closure plan ☒ Closure Plan Attached | Attach a topographic map ☒ Map Attached

PERMITTEE IDENTIFICATION

Official Contact (applicant): **Jeremy Walters**	Title or Position: **Owner**			
Mailing Address: **1183 Powell Lane Rd**	City: Cottage Grove	State: **Tn**	Zip: **38278**	☐ Correspondence ☐ Invoice
Phone number(s): **731-693-8136**	E-mail: **jwalters@toshfarms.net**			
Optional Contact:	Title or Position:			
Address:	City:	State:	Zip:	☐ Correspondence ☐ Invoice
Phone number(s):	E-mail:			

APPLICATION CERTIFICATION AND SIGNATURE (must be signed in accordance with the requirements of Rule 1200-4-5-.05)

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.

Name and title; print or type	Signature	Date
Jeremy Walters	X Jeremy Walters	3-3-16

STATE USE ONLY

Received Date	Reviewer	EFO	T & E Aquatic Fauna	Tracking No.
	Impaired Receiving Stream	High Quality Water		NOC Date

NRCS Natural Resources Conservation Service

Comprehensive Nutrient Management Plan (CNMP)
(Version 2, 9/14/2011 Format)

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system (CMS) for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation and maintenance for the animal feeding operation. It includes background information and provides guidance, reference information and Web-based sites where up-to-date information can be obtained. Refer to the Producer Activity Document (PAD) for information about day-to-day management activities and recordkeeping. Both this CNMP document and the PAD document shall remain in the possession of the producer/landowner.

Farm/Facility: Jeremy Walters Farm
North Fork Road
Puryear, TN
731-693-8136

Owner/Operator: Jeremy Walters
Farm Headquarters Latitude/Longitude: 36.489490, -88.470728

Plan Period: Jan 2015 - Dec 2019

Certified Conservation Planner

As a Certified Conservation Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Activity Document* for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: J.T. Workman IV Date: 1-23-15
Name: J.T. Workman IV
Title: Workman Consulting LLC Certification Credentials: TSP 10-6884

Conservation District

As a Soil and Water Conservation District employee, I have reviewed both the *Comprehensive Nutrient Management Plan* and *Producer Activity Document* and concur that the plan meets the District's conservation goals.

Signature: _____ Date: _____
Name:
Title:

Owner/Operator

As the owner/operator of this CNMP, I, as the decision maker, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: X Jeremy Walters Date: 3-3-16
Name:

Section 2. Manure and Wastewater Handling and Storage

Signature: J.T. Workman IV Date: 1-23-16
Name: J.T. Workman IV
Title: Workman Consulting LLC Certification Credentials: TSP 10-6884

Sections 4. Land Treatment

Signature: J.T. Workman IV Date: 1-23-16
Name: J.T. Workman IV
Title: Workman Consulting LLC Certification Credentials: TSP 10-6884

Section 6. Nutrient Management

The Nutrient Management component of this plan meets the Tennessee Nutrient Management 590 and Waste Utilization 633 Conservation Practice Standards.

Signature: J.T. Workman IV Date: 1-23-16
Name: J.T. Workman IV
Title: Workman Consulting LLC Certification Credentials: TSP 10-6884

Section 7. Feed Management (if applicable)

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Section 8. Other Utilization Options (if applicable)

Signature: _____ Date: _____
Name:
Title: Certification Credentials:

Table of Contents

Section 1. Background and Site Information

1.1. General Description of Operation

Jeremy Walters is buying 50 acres and then will be building 2 2,600 head deep pit hog barns to be contracted by Tosh Pork of Henry, Tn. Tosh Pork will provide pigs and feed management. These buildings are planned to be constructed spring of 2016. All manure will be exported to Tosh Farms. The closest non-owned house is 1,600 feet away and the closest blue line stream is also about 300 feet away. This stream will eventually run into Terrapin Drainage which is not impaired.

The barns will have an eight foot concrete pits underneath the floor. They meet NRCS Standard 313.

1.2. Sampling, Calibration and Other Statements

- Manure sampling frequency
  Manure test will be taken each time manure is sold.
- Soil testing frequency
  No soil testing is required
- Equipment calibration method and frequency
  No calibration required manure is sold.
- Clean water diversion
  No clean water will enter pit. It is sealed off from outside water.
- Measures to prevent direct contact of animals with water
  All animals will remain inside above the under floor pit.

1.3. Natural Resource Concerns

If checked, the indicated resource concerns have been identified and have been addressed in this plan.

Soil Quality Concerns

	Soil Quality Concern	*Activities to Address Concern*
	Ephemeral Gully Erosion	
	Gully Erosion	
X	Sheet and Rill Erosion	Around buildings will be seeded once construction is complete. See Critical Area Planting Code on page 9.
	Stream/Ditchbank Erosion	
	Wind Erosion	

Water Quality Concerns

	Water Quality Concern	*Activities to Address Concern*
	Facility Wastewater Runoff	
	Manure Runoff (Field Application)	
X	Manure Runoff (From Facilities)	All manure is in pit with a roof.
	Nutrients in Groundwater	
	Nutrients in Surface Water	
	Silage Leachate	
	Excessive Soil Test Phosphorus	
	Tile-Drained Fields	

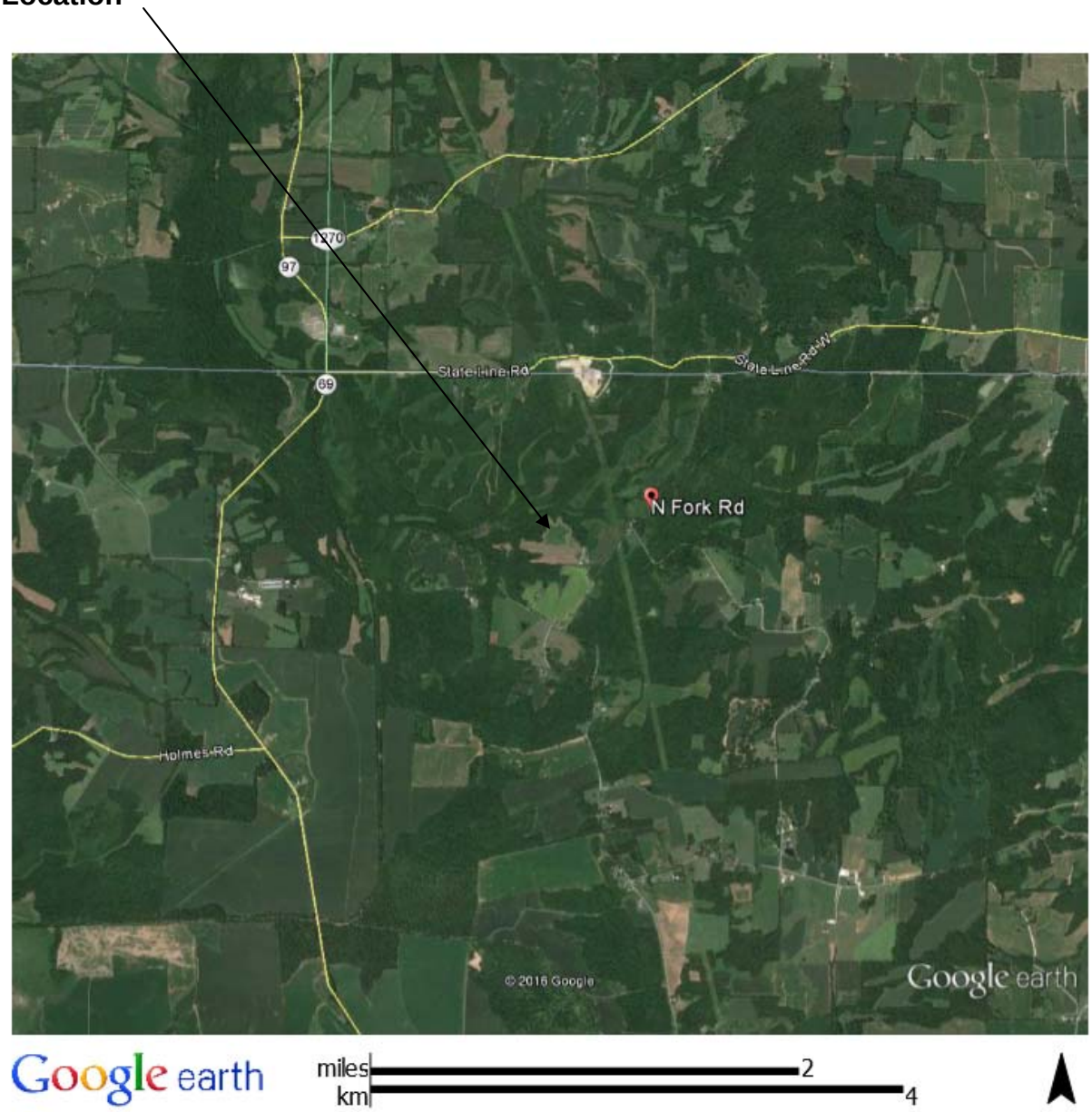
Other Concerns Addressed

	Other Concern	*Activities to Address Concern*
X	Acres Available for Manure Application	Manure Sold.
	Aesthetics	
	Maximize Nutrient Utilization	
	Minimize Nutrient Costs	
X	Neighbor Relations	Closest Neighbor 1,600 feet away.
	Profitability	
	Regulations	
	Soil Compaction	
X	Time Available for Manure Application	Manure Sold
	Odors	
X	Air Quality	This facility shouldn't affect air quality
X	Biosecurity	Plan in place.

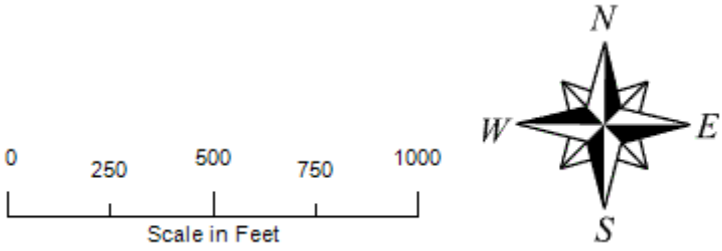
Section 2. Manure and Wastewater Handling and Storage

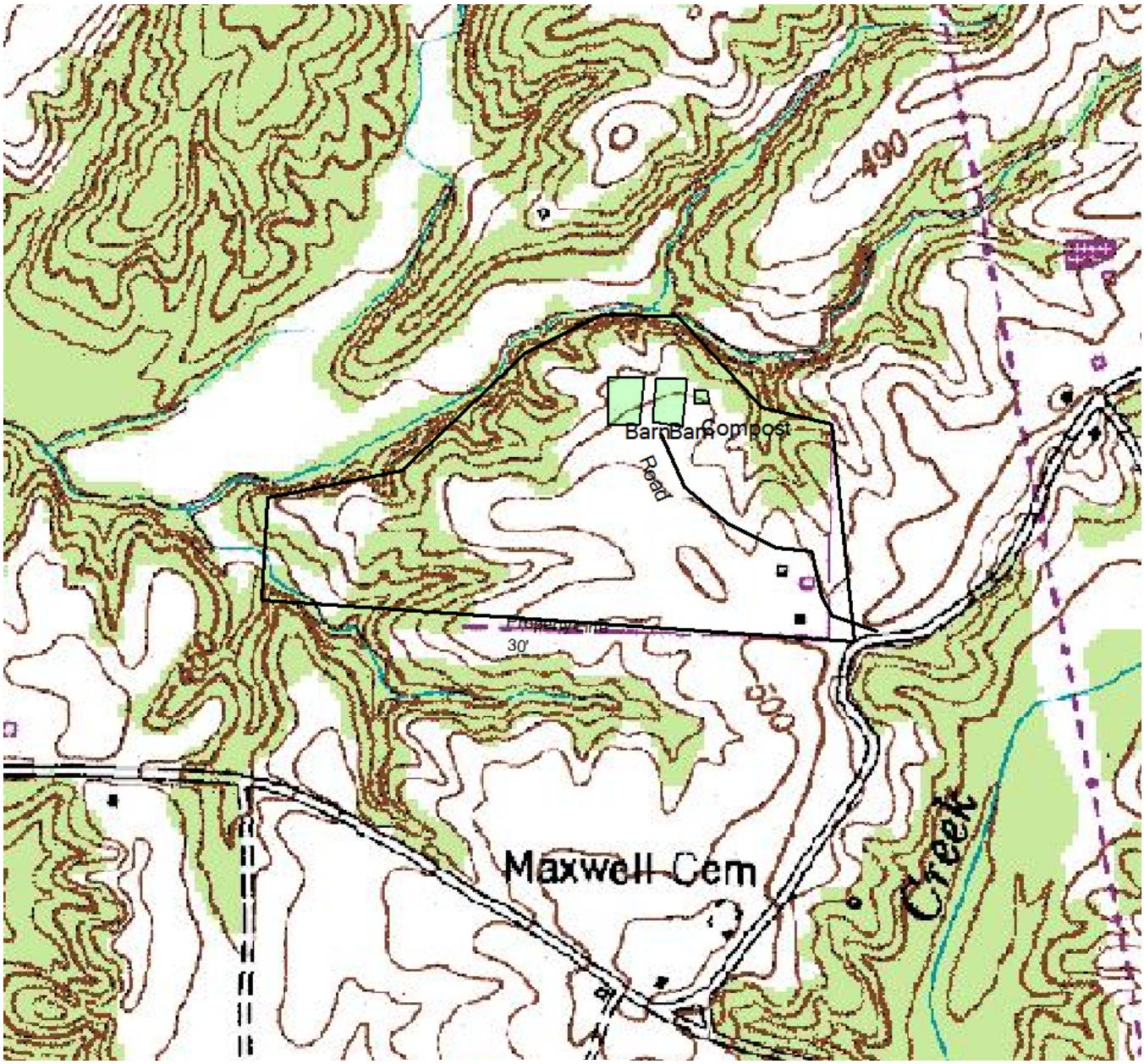
2.1. Map(s) of Production Area

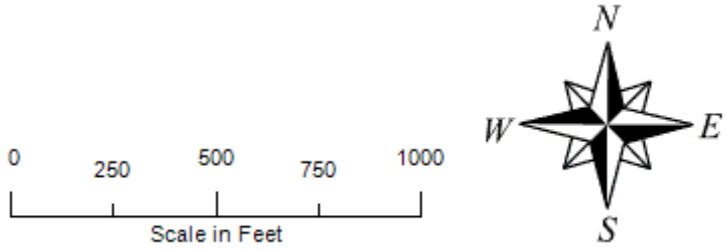
Site Location




Barn
Barn
Compost
Road
Property Line
30'


N
W
E
S
0
250
500
750
1000
Scale in Feet


490
Barn
Barn
Compost
Road
30'
500
Maxwell Cem
Creek


N
W
E
S
0
250
500
750
1000
Scale in Feet

2.2. Production Area Conservation Practices

This facility will consist of 2 buildings with deep pits underneath and a compost building.

Critical Area Planting (342)

Barn(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1.0	8	2016		
2	1.0	8	2016		
Composter	1	8	2016		
Total	3.0				

Critical area planting will be done to stabilize the soil, reduce damage from sediment and runoff to downstream areas, and improve wildlife habitat and visual resources. Adapted vegetation such as trees, shrubs, vines, grasses, or legumes will be established to limit severe erosion or sediment damage. See additional narrative for specific recommendations on seeding rates, dates, fertility requirements, and construction shaping required.
Or
Maintain areas around buildings and composter to ensure clean water is diverted from production areas and erosion is limited.

Heavy Use Area Protection (561)

Barn(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1.0	8	2016		
2	1.0	8	2016		
Composter	1	8	2016		
Total	3.0				

Protect heavily used areas by providing soil protection with vegetation, surfacing material or mechanical structures.

Access Road (560)

Road(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1300 feet	8	2016		
Total	1.0				

A travel lane will be constructed according to NRCS plans and specifications to provide access for proper operation, maintenance, and management of this farm. Maintenance: This practice will be maintained for the 10 year life span of the practice.

Composting Facility (317)

Create composting facility to properly dispose of dead hogs. Compost will need to be tested for nutrient levels. See Practice Standard 317.

Field(s)	Planned amount (No.)	Month	Year	Amount Applied	Date
1	1.0	8	2016		
Total	1.0				

All dead pigs must be immediately put in the compost facility and covered with a carbon matter. Suggested carbon matter is sawdust.

All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications.

UT Extension
W255

Disposing of Large Animal Mortalities in Tennessee

Forbes Walker, Associate Professor, and Shawn Hawkins, Assistant Professor
Biosystems Engineering and Soil Science

Animal deaths are a regrettable but sometimes unavoidable part of livestock production. Once an animal dies, it is important to handle and dispose of the carcass in a way that reduces the potential for impacting the health of humans and other livestock and minimizes the impact to the environment, such as pollution of groundwater or surface water. It is recommended that dead animals be disposed of within 48 hours of discovery in a way that follows state guidelines.

In May 2009, the Tennessee Department of Agriculture released its guidelines on handling mortalities in a short policy document entitled "Policy Concerning the Disposal of Dead Farm Animals and The Disposal Offal from Custom Slaughter Facilities." This document can be viewed at the Tennessee Department of Agriculture's website at: http://tn.gov/agriculture/publications/regulatory/animaldisposal.pdf

In Tennessee, dead animal carcasses are defined as a "solid waste," so are regulated by the Tennessee Department of the Environment and Conservation (TDEC), Division of Solid Waste. The disposal of dead animals falls under the solid waste regulations outlined by TDEC at its website: http://www.tennessee.gov/sos/rules/1200/1200-01/1200-01-07.20081126.pdf

The methods that livestock producers in Tennessee can choose to dispose of their dead animals include:

- On-farm burial
- Composting
- Landfilling
- Burning
- Incineration
- Rendering

the center of this base material with the extremities at least 2 feet away from the edge of the base material. Finally, the carcass should be covered with 2 feet of amendment that is mounded to divert rather than capture rainfall. The process will be complete in 3-9 months (only bones are left) and the material can then be land-applied.

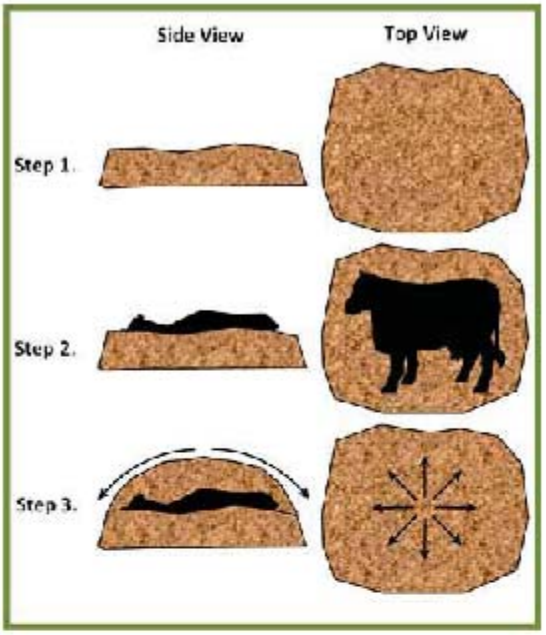


Figure 1. Top and side view schematics illustrating static pile composting of a large animal mortality. Rainfall drainage is illustrated in Step 3.

THE UNIVERSITY of TENNESSEE
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W-251 2/11 11-0123

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development.
University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating.
UT Extension provides equal opportunities in programs and employment.

2.3. Manure Storage

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Annual Manure Collected	Maximum Days of Storage
Barn 1	In-house storage pit	1,092,596 Gal	607,750 Gal	656
Barn 2	In-house storage pit	1,092,596 Gal	607,750 Gal	656

Manure production comes from a Jeremy Walters other site of identical size and number of animals with the same integrator. Production from this site shows plenty of space to hold one year's worth of manure. It is also suggested that 2 foot freeboard is maintained in pit. These pits will have dimensions of 195.58' L x 99.58' W x 8' D 0.5 Freeboard (In Feet). The 6 inch freeboard is maximum it is suggested that at two feet of freeboard remaining that Mr. Walters contact Mr. Tosh to start pumping.

2.4. Animal Inventory

Animal Group	Type or Production Phase	Number of Animals	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Storage Where Manure Will Be Stored
Pigs 1	Wean-to-finish pig	2,600	140	Jan Early - Dec Late	100	Barn 1
Pigs 2	Wean-to-finish pig	2,600	140	Jan Early - Dec Late	100	Barn 2

(1) Number of Animals is the average number of animals that are present in the production facility at any one time.
(2) If Manure Collected is less than 100%, this indicates that the animals spend a portion of the day outside of the production facility or that the production facility is unoccupied one or more times during the confinement period.

Average weight comes from top weight 270 + beginning weight of 10 = 280 / 2= 140. This facility will have approximately 2 turns a year.

2.5. Normal Animal Mortality Management

To decrease non-point source pollution of surface and ground water resources, reduce the impact of odors that result from improperly handled animal mortality, and decrease the likelihood of the spread of disease or other pathogens, approved handling and utilization methods shall be implemented in the handling of normal mortality losses. If on-farm storage or handling of animal mortality is done, NRCS Standard 316, Animal Mortality Facility, will be followed for proper management of dead animals.

Plan for Proper Animal Mortality Management

The following narrative describes how normal animal mortality will be managed in a manner that protects surface and ground water quality.

Walters Farms will build a concrete compost building. The farm will use a carbon matter such as sawdust to cover dead pigs. The farm will provide some form of a fence to keep animals out. The composter will be turned bi-annually or more often if necessary. If compost is land applied a sample will be taken sent to an accredited lab and then applied according to NRCS Code 590 and shown in records. However, this facility is not expected to generate enough dead animals to need to land apply because death should stay below 3%. Other facilities with Tosh Farms have built composters of the same size and they have not needed to land apply during the first permit period.

2.6. Planned Manure Exports off the Farm

Month-Year	Manure Source	Amount	Receiving Operation	Location
Oct 2015	Barn 1	506,000 Gal	Tosh Farms	Henry Tn
Oct 2015	Barn 2	506,000 Gal	Tosh Farms	Henry Tn
Oct 2016	Barn 1	607,200 Gal	Tosh Farms	Henry Tn
Oct 2016	Barn 2	607,200 Gal	Tosh Farms	Henry Tn
Oct 2017	Barn 1	607,200 Gal	Tosh Farms	Henry Tn
Oct 2017	Barn 2	607,200 Gal	Tosh Farms	Henry Tn
Oct 2018	Barn 1	607,200 Gal	Tosh Farms	Henry Tn
Oct 2018	Barn 2	607,200 Gal	Tosh Farms	Henry Tn
Oct 2019	Barn 1	607,200 Gal	Tosh Farms	Henry Tn
Oct 2019	Barn 2	607,200 Gal	Tosh Farms	Henry Tn

Tosh Farms
1796 Atlantic Ave
Henry Tn
731-243-4863

2.7. Planned Manure Imports onto the Farm

Month-Year	Manure's Animal Type	Amount	Originating Operation	Location

(None)

2.8. Planned Internal Transfers of Manure

Month-Year	Manure Source	Amount	Manure Destination

(None)

Section 3. Farmstead Safety and Security

3.1. Emergency Response Plan

In Case of an Emergency Storage Facility Spill, Leak or Failure

Implement the following first containment steps:

a. Stop all other activities to address the spill.
b. Stop the flow. For example, use skid loader or tractor with blade to contain or divert spill or leak.
c. Call for help and excavator if needed.
d. Complete the clean-up and repair the necessary components.
e. Assess the extent of the emergency and request additional help if needed.

In Case of an Emergency Spill, Leak or Failure during Transport or Land Application

Implement the following first containment steps:

a. Stop all other activities to address the spill and stop the flow.
b. Call for help if needed.
c. If the spill posed a hazard to local traffic, call for local traffic control assistance and clear the road and roadside of spilled material.
d. Contain the spill or runoff from entering surface waters using straw bales, saw dust, soil or other appropriate materials.
e. If flow is coming from a tile, plug the tile with a tile plug immediately.
f. Assess the extent of the emergency and request additional help if needed.

Emergency Contacts

Department / Agency	Phone Number
Fire	731-642-1413
Rescue services	731-642-5581
State veterinarian	615-837-5183
Sheriff or local police	731-642-1672

Nearest available excavation equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Trackhoe	Jamie Tosh	731-694-8792

Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
EPA Emergency Spill Hotline	1-800-424-8802
County Health Department	731-642-4025
Other State Emergency Agency	1-888-891-8332 TDEC's Water Pollution Control

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location (driving directions) and other pertinent information.
c. Description of emergency.
d. Estimate of the amounts, area covered, and distance traveled.
e. Whether manure has reached surface waters or major field drains.
f. Whether there is any obvious damage: employee injury, fish kill, or property damage.
g. Current status of containment efforts.

3.2. Biosecurity Measures

Biosecurity is critical to protecting livestock and poultry operations. Visitors must contact and check in with the producer before visiting the operation or entering any production or storage facility.

The following narrative describes how animal veterinary wastes (including medical equipment, empty containers, sharps and expired medications) will be managed at the operation.

Medicine will be disposed to as directed on label. Needles and other sharps will be put in to a sharps container. If any medicine is left it shall remain in the control rooms or in a building that is protected from outside environment and stored according to label.

3.3. Catastrophic Animal Mortality Management

Refer to NRCS standards, or state guidance, regarding appropriate catastrophic animal mortality handling methods.

Plan for Catastrophic Animal Mortality Management

The following narrative describes how catastrophic animal mortality will be managed in a manner that protects surface and ground water quality. All national, state and local laws, regulations and guidelines that protect soil, water, air, plants, animals and human health must be followed.

Burial Location

Warning: Soil Ratings Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:12,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Tables — Catastrophic Mortality, Large Animal Disposal, Pit — Summary By Map Unit

mmary by Map Unit — Henry County, Tennessee (TN079)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
FeB2	Feliciana silt loam, 2 to 5 percent slopes, eroded	Somewhat limited	Feliciana (92%)	Dusty (0.05) Unstable excavation walls (0.01)	13.7	28.3%
LeC2	Lexington silt loam, 5 to 8 percent slopes, eroded	Somewhat limited	Lexington (95%)	Seepage (0.52) Dusty (0.05) Slope (0.04) Unstable excavation walls (0.01)	15.7	32.5%
LnC3	Lexington silty clay loam, 5 to 8 percent slopes, severely eroded	Somewhat limited	Lexington (95%)	Seepage (0.52) Slope (0.16) Dusty (0.05) Unstable excavation walls (0.01)	0.0	0.0%
LnD3	Lexington silty clay loam, 8 to 12	Somewhat	Lexington (97%)	Slope (0.84)	1.1	2.2%

mmary by Map Unit — Henry County, Tennessee (TN079)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
	percent slopes, severely eroded	limited		Seepage (0.52)		
				Dusty (0.05)		
				Unstable excavation walls (0.01)		
SeE2	Smithdale loam, 12 to 25 percent slopes, eroded	Very limited	Smithdale (100%)	Slope (1.00)	3.0	6.2%
				Seepage (0.52)		
				Adsorption (0.08)		
				Dusty (0.03)		
				Unstable excavation walls (0.01)		
SgE3	Smithdale-Lexington complex, 12 to 25 percent slopes, severely eroded	Very limited	Smithdale (67%)	Slope (1.00)	12.5	25.7%
				Seepage (0.52)		
				Adsorption (0.08)		
				Dusty (0.02)		
				Unstable excavation walls (0.01)		
			Lexington (33%)	Slope (1.00)		
				Seepage (0.52)		
				Dusty (0.05)		
				Unstable excavation walls (0.01)		
SRF	Smithdale, Remlik, and Luverne soils, 25 to 60 percent slopes	Very limited	Smithdale (64%)	Slope (1.00)	2.4	5.0%
				Seepage (0.52)		
				Adsorption (0.08)		
				Dusty (0.03)		
				Unstable excavation walls (0.01)		
			Remlik (20%)	Slope (1.00)		
				Seepage (1.00)		
				Sand content (0.38)		
				Unstable excavation walls (0.01)		
			Luverne (15%)	Slope (1.00)		
				Dusty (0.02)		
				Unstable excavation walls (0.01)		
			Arundel (1%)	Slope (1.00)		
				Unstable excavation walls (1.00)		
				Dusty (0.05)		
Totals for Area of Interest					**48.5**	**100.0%**

Table — Catastrophic Mortality, Large Animal Disposal, Pit — Summary by Rating Value

mmary by Rating Value

Rating	Acres in AOI	Percent of AOI
Somewhat limited	30.6	63.0%
Very limited	17.9	37.0%
Totals for Area of Interest	**48.5**	**100.0%**

Description — Catastrophic Mortality, Large Animal Disposal, Pit

"Catastrophic mortality, large animal disposal, pit," is a method of disposing of dead animals by placing the carcasses in successive layers in an excavated pit. The carcasses are spread, compacted, and covered daily with a thin layer of soil that is excavated from the pit. When the pit is full, a final cover of soil material at least 2 feet thick is placed over the burial pit.

The interpretation is applicable to both heavily populated and sparsely populated areas. While some general observations may be made, onsite evaluation is required before the final site is selected. Improper site selection, design, or installation may cause contamination of ground water, seepage, and contamination of stream systems from surface drainage or floodwater. The risk of contamination can be reduced or eliminated by installing systems designed to eliminate or reduce the adverse effects of limiting soil properties. Ratings are for soils in their present condition. The present land use is not considered in the ratings.

Ratings are based on properties and qualities to the depth normally observed during soil mapping (approximately 6 or 7 feet). However, because pits may be as deep as 15 feet or more, geologic investigations are needed to determine the potential for pollution of ground water and to determine the design needed. These investigations, which are generally arranged by the pit developer, include examination of stratification, rock formations, and geologic conditions that might lead to the conducting of leachates to aquifers, wells, watercourses, and other water sources. The presence of hard, nonrippable bedrock, bedrock crevices, or highly permeable strata at or directly below the proposed pit bottom is undesirable because of the difficulty in excavation and the potential pollution of underground water.

Properties that influence the risk of pollution, ease of excavation, trafficability, and revegetation are major considerations. Soils that are flooded or have a water table within the depth of excavation present a potential pollution hazard and are difficult to excavate. Slope is an important consideration because it affects the work involved in road construction, the performance of the roads, and the control of surface water around the pit. It may also cause difficulty in constructing pits in which the pit bottom must be kept level and oriented to follow the contour of the land.

The ease with which the pit is dug and with which a soil can be used as daily and final cover is based largely on soil texture and consistence, which determine workability when the soil is dry and when it is wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and difficult to place as a uniformly thick cover over a layer of carcasses. The uppermost part of the final cover should be soil material that favors the growth of plants. It should not contain excess sodium or salts and should not be too acid. In comparison with other horizons, the surface layer in most soils has the best workability and the highest content of organic matter. Thus, it may be desirable to stockpile the surface layer for use in the final blanketing of the filled pit area.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected of a properly designed and installed system. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of the individual limitations. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which

the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Bury in yellow area preferably in the block box. Second option transfer to landfill that accepts catastrophic losses.

Important! In the event of catastrophic animal mortality, contact the following authority before beginning carcass disposal:

Authority name State Vet
Contact name Charles Hatcher
Phone number 615-837-5183

3.4. Chemical Handling

If checked, the indicated measures will be taken to prevent chemicals and other contaminants from contaminating process waste water or storm water storage and treatment systems.

	This is not a regulatory-agency permitted facility. This section does not apply.

	Measure
X	All chemicals are stored in proper containers. Expired chemicals and empty containers are properly disposed of in accordance with state and federal regulations. Pesticides and associated refuse are disposed of in accordance with the FIFRA label.
X	Chemical storage areas are self-contained with no drains or other pathways that will allow spilled chemicals to exit the storage area.
X	Chemical storage areas are covered to prevent chemical contact with rain or snow.
X	Emergency procedures and equipment are in place to contain and clean up chemical spills.
X	Chemical handling and equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.
X	All chemicals are custom applied and no chemicals are stored at the operation. Equipment wash areas are designed and constructed to prevent contamination of surface waters and waste water and storm water storage and treatment systems.

Section 4. Land Treatment

4.1. Map(s) of Fields and Conservation Practices
4.2. Land Treatment Conservation Practices

All NRCS conservation practices shall be installed, operated and maintained according to NRCS conservation practice standards and associated technical specifications.

Section 5. Soil and Risk Assessment Analyses

5.1. Soil Information

Field	Soil Survey	Map Unit	Soil Component Name	Surface Texture	Slope Range (%)	OM Range (%)	Bedrock Depth (in.)	Hydro-logic Group

Henry County, Tennessee

Map Unit: FeB2—Feliciana silt loam, 2 to 5 percent slopes, eroded

Component: Feliciana (92%)

The Feliciana component makes up 92 percent of the map unit. Slopes are 2 to 5 percent. This component is on divides on silty uplands. The parent material consists of loess. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is very high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 2e. This soil does not meet hydric criteria.

Component: Loring (8%)

Generated brief soil descriptions are created for major components. The Loring soil is a minor component.

Map Unit: LeC2—Lexington silt loam, 5 to 8 percent slopes, eroded

Component: Lexington (95%)

The Lexington component makes up 95 percent of the map unit. Slopes are 5 to 8 percent. This component is on divides on silty uplands. The parent material consists of loess over marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 3e. This soil does not meet hydric criteria.

Component: Providence (5%)

Generated brief soil descriptions are created for major components. The Providence soil is a minor component.

Map Unit: LnC3—Lexington silty clay loam, 5 to 8 percent slopes, severely eroded

Component: Lexington (95%)

The Lexington component makes up 95 percent of the map unit. Slopes are 5 to 8 percent. This component is on divides on silty uplands. The parent material consists of loess over marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage

class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria.

Component: Providence (5%)

Generated brief soil descriptions are created for major components. The Providence soil is a minor component.

Map Unit: LnD3—Lexington silty clay loam, 8 to 12 percent slopes, severely eroded

Component: Lexington (97%)

The Lexington component makes up 97 percent of the map unit. Slopes are 8 to 12 percent. This component is on divides on silty uplands. The parent material consists of loess over marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Component: Providence (3%)

Generated brief soil descriptions are created for major components. The Providence soil is a minor component.

Map Unit: SeE2—Smithdale loam, 12 to 25 percent slopes, eroded

Component: Smithdale (100%)

The Smithdale component makes up 100 percent of the map unit. Slopes are 12 to 25 percent. This component is on hills on uplands. The parent material consists of loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map Unit: SgE3—Smithdale-Lexington complex, 12 to 25 percent slopes, severely eroded

Component: Smithdale (67%)

The Smithdale component makes up 67 percent of the map unit. Slopes are 12 to 25 percent. This component is on hills on uplands. The parent material consists of loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Lexington (33%)

The Lexington component makes up 33 percent of the map unit. Slopes are 12 to 25 percent. This component is on hills on silty uplands. The parent material consists of loess over marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Map Unit: SRF—Smithdale, Remlik, and Luverne soils, 25 to 60 percent slopes

Component: Smithdale (64%)

The Smithdale component makes up 64 percent of the map unit. Slopes are 25 to 60 percent. This component is on hills on uplands. The parent material consists of loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is high. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Remlik (20%)

The Remlik component makes up 20 percent of the map unit. Slopes are 25 to 60 percent. This component is on hills on uplands. The parent material consists of sandy marine deposits over loamy marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Luverne (15%)

The Luverne component makes up 15 percent of the map unit. Slopes are 25 to 60 percent. This component is on hills on uplands. The parent material consists of clayey marine deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is moderate. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Arundel (1%)

Generated brief soil descriptions are created for major components. The Arundel soil is a minor component.

6.2. Manure Application Setback Distances

Setback Requirements: Class I CAFO

Feature	Setback Criteria	Setback Distance (Feet)
(None)		

Source: TN DEQ Rule 1200-4-5-.14(17)(d) (http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf)

Setback Requirements: NRCS Standard

Feature	Setback Criteria	Setback Distance (Feet)
(None)		

Source: Nutrient Management Standard 590 (http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc)

6.3. Soil Test Data

Field	Test Year	OM (%)	P Test Used	P	K	Mg	Ca	Units	Soil pH	Buffer pH	CEC (meq/ 100g)

6.4. Manure Nutrient Analyses

Manure Source	Dry Matter (%)	Total N	NH_4-N	Total P_2O_5	Total K_2O	Avail. P_2O_5	Avail. K_2O	Units	Analysis Source and Date
Barn 1		38.4		10.7	22.7	10.7	22.7	Lb/1000Gal	Walters 1-7-16
Barn 2		41.7		9.7	21.6	9.7	21.6	Lb/1000Gal	Walters 1-7-16

(1) Entered analysis may be the average of several individual analyses.
(2) Tennessee assumes that 100% of manure phosphorus and 100% of manure potassium is crop available. First-year per-acre nitrogen availability for individual manure applications is given in the Planned Nutrient Applications table. For more information about nitrogen availability in Tennessee, see "Manure Application Management," Tables 3 and 4, Tennessee Extension, PB1510, 2/94 (http://wastemgmt.ag.utk.edu/Pubs/PB1510.pdf).

6.5. Planned Crops and Fertilizer Recommendations

Field	Crop Year	Planned Crop	Yield Goal (per Acre)	N Rec (Lbs/A)	P_2O_5 Rec (Lbs/A)	K_2O Rec (Lbs/A)	N Removed (Lbs/A)	P_2O_5 Removed (Lbs/A)	K_2O Removed (Lbs/A)	Custom Fert. Rec. Source

* Unharvested cover crop or first crop in double-crop system.
[a] Custom fertilizer recommendation.

6.6. Manure Application Planning Calendar – January 2015 through December 2015

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2015 Crop (Prev. Primary Crop)	Jan '15	Feb '15	Mar '15	Apr '15	May '15	Jun '15	Jul '15	Aug '15	Sep '15	Oct '15	Nov '15	Dec '15
Total	*0.0*	*0.0*														

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – January 2016 through December 2016

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2016 Crop (Prev. Primary Crop)	Jan '16	Feb '16	Mar '16	Apr '16	May '16	Jun '16	Jul '16	Aug '16	Sep '16	Oct '16	Nov '16	Dec '16
Total	*0.0*	*0.0*														

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – January 2017 through December 2017

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2017 Crop (Prev. Primary Crop)	Jan '17	Feb '17	Mar '17	Apr '17	May '17	Jun '17	Jul '17	Aug '17	Sep '17	Oct '17	Nov '17	Dec '17
Total	*0.0*	*0.0*														

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – January 2018 through December 2018

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2018 Crop (Prev. Primary Crop)	Jan '18	Feb '18	Mar '18	Apr '18	May '18	Jun '18	Jul '18	Aug '18	Sep '18	Oct '18	Nov '18	Dec '18
Total	*0.0*	*0.0*														

Crop in field	No. indicates total loads "X" indicates other manure apps

Manure Application Planning Calendar – January 2019 through December 2019

Field	Total Acres	Spread. Acres	Predominant Soil Type	Primary 2019 Crop (Prev. Primary Crop)	Jan '19	Feb '19	Mar '19	Apr '19	May '19	Jun '19	Jul '19	Aug '19	Sep '19	Oct '19	Nov '19	Dec '19
Total	*0.0*	*0.0*														

Crop in field	No. indicates total loads "X" indicates other manure apps

6.8. Field Nutrient Balance

Year	Field	Size	Crop	Yield Goal	Fertilizer Recs[1]			Nutrients Applied[2]			Balance After Recs[3]			Balance After Removal[4]	
		Acres		/Acre	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	N Lb/A	P_2O_5 Lb/A	K_2O Lb/A	P_2O_5 Lb/A	K_2O Lb/A

[1] Fertilizer Recs are the crop fertilizer recommendations. The N rec accounts for any N credit from previous legume crop.

[2] Nutrients Applied are the nutrients expected to be available to the crop from that year's manure applications plus nutrients from that year's commercial fertilizer applications and nitrates from irrigation water. With a double-crop year, the total nutrients applied for both crops and the year's balances are listed on the second crop's line.

[3] For N, Nutrients Applied minus Fertilizer Recs for indicated crop year. Also includes amount of residual N expected to become available that year from prior years' manure applications. For P_2O_5 and K_2O, Nutrients Applied minus Fertilizer Recs *through* the indicated crop year, with positive balances carried forward to subsequent years. Negative values indicate a potential need to apply additional nutrients.

[4] Nutrients Applied minus amount removed by harvested portion of crop through the indicated year. Positive balances are carried forward to subsequent years.

[p] Indicates a custom fertilizer recommendation in the Fertilizer Recs column.

[a] Indicates in the Balance After Recs N column that the legume crop is assumed to utilize some or all of the supplied N.

[†] Indicates in the Balance After Recs N column that the value includes residual N expected to become available that year from prior years' manure applications.

6.9. Manure Inventory Annual Summary

Manure Source	Plan Period	On Hand at Start of Period	Total Generated	Total Imported	Total Trans-ferred In	Total Applied	Total Exported	Total Trans-ferred Out	On Hand at End of Period	Units
Barn 1	Jan '15 - Dec '15	0	607,750	0	0	0	506,000	0	101,750	Gal
Barn 2	Jan '15 - Dec '15	0	607,750	0	0	0	506,000	0	101,750	Gal
All Sources	**Jan '15 - Dec '15**	**0**	**1,215,500**	**0**	**0**	**0**	**1,012,000**	**0**	**203,500**	**Gal**
Barn 1	Jan '16 - Dec '16	101,750	607,750	0	0	0	607,200	0	102,300	Gal
Barn 2	Jan '16 - Dec '16	101,750	607,750	0	0	0	607,200	0	102,300	Gal
All Sources	**Jan '16 - Dec '16**	**203,500**	**1,215,500**	**0**	**0**	**0**	**1,214,400**	**0**	**204,600**	**Gal**
Barn 1	Jan '17 - Dec '17	102,300	607,750	0	0	0	607,200	0	102,850	Gal
Barn 2	Jan '17 - Dec '17	102,300	607,750	0	0	0	607,200	0	102,850	Gal
All Sources	**Jan '17 - Dec '17**	**204,600**	**1,215,500**	**0**	**0**	**0**	**1,214,400**	**0**	**205,700**	**Gal**
Barn 1	Jan '18 - Dec '18	102,850	607,750	0	0	0	607,200	0	103,400	Gal
Barn 2	Jan '18 - Dec '18	102,850	607,750	0	0	0	607,200	0	103,400	Gal
All Sources	**Jan '18 - Dec '18**	**205,700**	**1,215,500**	**0**	**0**	**0**	**1,214,400**	**0**	**206,800**	**Gal**
Barn 1	Jan '19 - Dec '19	103,400	607,750	0	0	0	607,200	0	103,950	Gal
Barn 2	Jan '19 - Dec '19	103,400	607,750	0	0	0	607,200	0	103,950	Gal
All Sources	**Jan '19 - Dec '19**	**206,800**	**1,215,500**	**0**	**0**	**0**	**1,214,400**	**0**	**207,900**	**Gal**

6.10. Fertilizer Material Annual Summary

Product Analysis	Plan Period	Product Needed Jan - Aug	Product Needed Sep - Dec	Total Product Needed	Units

6.11. Plan Nutrient Balance

	N (Lbs)	P_2O_5 (Lbs)	K_2O (Lbs)
Total Manure Nutrients on Hand at Start of Plan[1]	0	0	0
Total Manure Nutrients Collected[2]	243,404	61,990	134,617
Total Manure Nutrients Imported[3]	0	0	0
Total Manure Nutrients Exported[4]	235,077	59,870	130,012
Total Manure Nutrients Gained/Lost in Transfer[5]	0	0	0
Total Manure Nutrients on Hand at End of Plan[6]	8,326	2,121	4,605
Total Manure Nutrients Applied[7]	0	0	0
Available Manure Nutrients Applied (Utilized by plan's crops)[8]	0	0	0
Available Manure Nutrients Applied (Not utilized by plan's crops)[9]	0	0	0
Commercial Fertilizer Nutrients Applied (Utilized by plan's crops)[10]	0	0	0
Commercial Fertilizer Nutrients Applied (Not utilized by plan's crops)[11]	0	0	0
Available Nutrients Applied (Manure and fertilizer; utilized by plan's crops)[12]	0	0	0
Nutrient Utilization Potential[13]	0	0	0
Nutrient Balance of Spreadable Acres[14*]	0	0	0
Average Nutrient Balance per Spreadable Acre per Year[15*]	0	0	0

1. Values indicate total manure nutrients present in storage(s) at the beginning of the plan.
2. Values indicate total manure nutrients collected on the farm.
3. Values indicate total manure nutrients imported onto the farm.
4. Values indicate total manure nutrients exported from the farm to an external operation.
5. Values indicate changes in total manure nutrients due to internal transfers between storage units with differing analyses.
6. Values indicate total manure nutrients present in storage(s) at the end of plan.
7. Values indicate total nutrients present in land-applied manure. Losses due to rate, timing and method of application are not included in these values.
8. Values indicate available manure nutrients applied on the farm based on rate, time and method of application. These values are based on the total manure nutrients applied (row 7) after accounting for state-specific nutrient losses due to rate, time and method of application. Nutrients which will not be utilized by crops in the plan (row 9) are excluded from these values.
9. Values indicate manure nutrients applied that will be utilized by crops outside the plan.
10. Values indicate nutrients applied as commercial fertilizers and nitrates contained in irrigation water. Nutrients that will not be utilized by crops in the plan (row 11) are excluded from these values.
11. Values indicate nutrients applied as commercial fertilizer which will be utilized by crops outside the plan.
12. Values are the sum of available manure nutrients applied (row 8) and commercial fertilizer nutrients applied (row 10).
13. Values indicate nutrient utilization potential of crops grown. For N the value generally is based on crop N recommendation for non-legume crops and crop N uptake or other state-imposed limit for N application rates for legumes. P_2O_5 and K_2O values generally are based on fertilizer recommendations or crop removal (whichever is greatest).
14. Values indicate available nutrients applied (row 12) minus crop nutrient utilization potential (row 13). Negative values indicate additional nutrient utilization potential and positive values indicate over-application.
15. Values indicate average per acre nutrient balance. Values are calculated by dividing nutrient balance of spreadable acres (row 14) by the number of spreadable acres in plan and by the length of the plan in years. Negative values indicate additional average per acre nutrient utilization potential and positive values indicate average per acre over-application.

* Non-trivial, positive values for N indicate that the plan was not properly developed. Negative values for N indicate additional nutrient utilization potential which may or may not be intentional. For example, plans that include legume crops often will not utilize the full N utilization potential for legume crops if manure can be applied to non-legume crops that require N for optimum yield. Positive values for P_2O_5 and/or K_2O do not necessarily indicate that the plan was not developed properly. For example, producers may be allowed to apply N-based application rates of manure to fields with low soil test P values or fields with a low potential P-loss risk based on the risk assessment tool used by the state. Negative values for P_2O_5 and K_2O indicate that planned applications to some fields are less than crop removal rates.

Section 7. Feed Management

Tosh Pork provides feed management and delivery.

Record Keeping

This section includes a list of key records that Walters Farms will keep in order to document and verify implementation of the procedures in this CNMP. Records shall be kept for a minimum of 5 years, or for the length of the contract, rotation, or permit, whichever is longer, for each field where manure is applied.

These general records include but are not limited to:
Since Manure is export highlighted records have to be keep. The other records have to be keep if manure is applied on acres the Russell Farms maintain.

1. Soil Test Results

2. Weather and soil conditions 24 hours prior to, during and 24 hours application of manure, chemicals and pesticides.

3. Type, quantities, and sources of all nutrients generated and collected

4. Type, quantities, and sources of all nutrients applied to each field

5. Dates of manure applications

6. Inspection Reports

7. Operation and Maintenance records of conservation practices and equipment

8. Restricted pesticides used to meet label requirements

9. Equipment Calibration records

10. Crops planted, tillage method and dates planted

11. Crop harvest dates and yield

12. Adjustments to nutrient management plan based on records and changes in farming operations as appropriate

13. Weekly check of volume in pit

14. Annual visual inspection of retention structure (pits), animal holding areas, if applicable and land application areas

15. Records of mortalities and how managed

Operation and Maintenance

Jeremy Walters is responsible for safe operation and maintenance of the nutrient management plan including all equipment. Operation and maintenance includes the following items:

1. periodic plan review to determine if adjustments or modifications to the plan are needed. As minimum, plans will be reviewed/revised with each soil test cycle.
2. weekly there will be a visual inspection of pits
3. calibration of application equipment to ensure uniform distribution of material at planned rates.
4. documentation of the actual rate at which nutrients were applied. When the actual rates used differ from or exceed the recommended and planned rates, records will indicate the reasons for the differences.
5. Maintaining records to document plan implementation. As applicable, records include
    a. Soil test results and recommendations for nutrient application
    b. Quantities, analysis and sources of nutrients applied
    c. Dates and method of nutrient applications
    d. Crops planted, planting and harvest dates, yields, and residues removed
    e. Results of water, plant and organic byproduct analysis
    f. Dates of review and person performing the review and recommendations
    g. Conservation practices being applied and Maintenance.

Access Road

An operation and maintenance plan will be developed and carried out for the life of the practice as follows: Inspect culverts, roadside ditches, waterbars, and outlets after each major runoff event and restore flow capacity as needed. Maintain vegetated areas in adequate cover. Reseed and mow as needed. Fill low areas in travel treads and re-grade, as needed, to maintain road cross-section. Inspect roads with waterbars periodically to ensure proper cross-section is available and outlets are stable.

Critical Area Planting

Use of the area shall be managed as long as necessary to stabilize the site and achieve the intended purpose. Inspections, reseeding, or replanting, fertilization, and pest control may be needed to ensure that this practice functions as intended throughout its expected life. Replanting should be done where needed within one year after original planting. Mulching may also be needed after initial planting, if serious erosion persists. If rills or small gullies developed during establishment, but surrounding vegetation is well established, disk edge of the gully so sod falls in the gully and walk the sod in with tires. Hand placement of sod prior to walking it in is beneficial. Control or exclude pests that will interfere with the timely establishment of vegetation. Comply with all applicable federal, state, and local laws and regulations.

Heavy Use Area Protection

The Operation and Maintenance (O&M) plan shall specify that the treatment areas and associated practices will be inspected annually and after significant storm events to identify repair and maintenance needs. The O&M plan shall contain the operational requirements for managing the heavy use area. Planned scraping intervals, replacement of fine material, storage, treatment, and/or utilization methods will also be described. Provisions for re-establishment of vegetated areas will be included. The O&M plan shall detail the level of repairs needed to maintain the effectiveness and useful life of the practice. If using a front-end loader, recommend back dragging the manure/hay to conserve removal of gravel from the surface. Consider using fabricated large equipment tire for scraping surface. The O&M plan shall be provided to, and discussed with, the operator. The O&M plan must complement the Comprehensive Nutrient Management Plan, as necessary.

Composting Facility

An operation and maintenance (O&M) plan shall be developed consistent with the purposes of this standard, its intended life, safety requirements, and the criteria for its design. The O&M plan shall include recipe ingredients and sequence that they are layered and mixed, maximum and minimum temperature for operation, land application rates, moisture level, management of odors, testing, etc. Make adjustments throughout the composting period to ensure proper composting processes. The compost facility should be inspected regularly when the facility is empty. Replace deteriorated wooden materials or hardware. Patch concrete floors and curbs as necessary to assure water tightness. Roof structures should be examined for structural integrity and repaired as needed. Exposed metal components should be inspected for corrosion. Corroded metal should be wire brushed and painted as necessary. Closely monitor temperatures above 165^{o}F. Take action immediately to cool piles that have reached temperatures above 185^{o}F. The operation and maintenance plan shall state that composting is a biological process. It requires a combination of art and science for success. Hence, the operation may need to undergo some trial and error in the start-up of a new composting facility.

Records will be maintained for five years or for a period longer than five years if required by other Federal, state, or local ordinances or program or contract requirements.

The disposal of material generated by the cleaning nutrient application equipment accomplished properly. Excess material should be collected and stored or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff and leaching.

The disposal/recycling of nutrient containers should be according to state and local guidelines or regulations.

Pesticides, toxic chemicals, and petroleum products will not be used in areas where leakage could enter the manure storage facility.

Section 10. References

10.1. Publications

Manure Application Setback Features/Distances

Nutrient Management Standard 590
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

TN DEQ Rule 1200-4-5-.14(17)(d)
http://www.state.tn.us/sos/rules/1200/1200-04/1200-04-05.pdf

Phosphorus Assessment

"Tennessee Phosphorus Index," Tennessee NRCS, Nov. 2001

Practice Standards

Tennessee NRCS Nutrient Management Standard (590), Jan. 2003
http://efotg.nrcs.usda.gov/references/public/TN/Nutrient_Management_(590)_Standard.doc

THE UNIVERSITY of TENNESSEE Extension
W093

Livestock Waste Management and Conservation

Procedures for Manure and Litter Sampling

(Class I & II – Large and Medium CAFOs)

Tennessee CAFO Factsheet #14

Kristy M. Hill, Extension Dairy Specialist
Animal Science Department

Nutrient composition of manure varies with a number of factors, including animal type, bedding, ration, storage and handling, environmental conditions, field application method, age of manure, timing of sampling and sampling technique. This variability makes book values (or averages) an unreliable source for determining application rates of nitrogen, phosphorus and potassium. Each livestock production operation and manure management system is unique, and an individual farm's manure analysis can vary from average values by 50 percent or more. Testing manure may better indicate how animal management and other factors actually affect nutrient contents and will allow for more accurate calculation of application rates.

The results of a manure analysis are only as reliable as the sample taken. A representative sample is needed to accurately reflect the nutrient content. However, obtaining a representative sample can be a challenge as manure nutrient content is not uniform within storage structures. Mixing and sampling strategies can insure that samples more accurately reflect the type of manure that will be applied.

When to Sample

The ideal time to sample manure is prior to application to ensure that results of the analysis are received in time to adjust nutrient application rates.

However, do not allow long periods of time to pass before application begins, because there can be storage and handling losses over time. Sampling several days to a week prior to application is best. However, a complication of the timing of the sampling is that semi-solid (or slurry) manure should be well agitated before sampling, and in many situations, such as contracting waste application to a third party, agitators or other necessary equipment are not available until application begins. In cases such as this, "pre-sampling" (dipping samples off the top of the storage structure for N and K concentrations) can be used to estimate application rates (See page 4 for more info on pre-sampling).

Building a "bank" of manure analysis over time can be quite useful in the future as long as animal management practices, feed rations or manure storage and handling methods do not drastically change from present methods. If samples do not vary greatly from year to year or are consistent during spring or fall applications, the "bank" averages will help estimate application rates if an analysis cannot be performed prior to application.

Safety Precautions

It is more dangerous and more difficult to sample from liquid storage facilities than dry-manure systems. Proper precautions should be taken to prevent

accidents, such as falling into the storage facility or being overcome by manure gases.

1. Have two people present at all times;
2. Never enter confined manure-storage spaces without appropriate safety gear, such as a self-contained breathing apparatus;
3. When agitating a storage pit below a building, be sure to provide adequate ventilation for both humans and animals; and
4. When agitating outdoor pits, monitor activities closely to prevent erosion of berms or destruction of pit liners.

Sample Preparations

1. Check with the laboratory performing the analysis, as most of these labs have plastic bottles available for liquid sample collection or sealable plastic bags for dry samples (freezer bags work well). Additionally, they may have specific sample collection procedures, including holding times, refrigeration and shipping requirements.
2. Do not use glass containers, as expansion of the gases in the sample can cause the container to break.
3. Never use galvanized containers for collection or mixing due to the risk of contamination from metals like zinc in the container.
4. When taking liquid samples from facilities spreading both effluent and solids, the manure should be agitated for two to four hours before taking the sample.
5. Liquid samples can be taken during agitation (after two to four hours have passed) because most agitation equipment is effective 75 to 100 feet away from the equipment.
6. Take multiple samples from the storage facility and mix them together thoroughly in a larger bucket to obtain a representative sample. For liquid or semi-solid samples, use a stirring rod to get the solids spinning in suspension and collect the representative sample while the liquid is still spinning.
7. When taking liquid samples, fill the plastic bottle three-fourths full and leave at least 1 inch of air space to allow for gas expansion.
8. When taking dry samples, squeeze all of the excess air from the sealable plastic bag to allow for gas expansion and place the first bag into a second sealable plastic bag to prevent leaks.
9. Label the plastic bags or bottles prior to sampling with your name, date and sample identification number. Use a waterproof pen.
10. After sampling, place the container(s) in the refrigerator or freezer (preferred) until mailed to the lab. Cooling the samples will reduce microbial activity, chemical reactions and reduce odors.
11. Ship samples early in the week (Monday–Wednesday) using an overnight service. Avoid holidays and weekends.

Sampling Semi-Solid and Liquid Manure from Storage Facilities

Manure with 10 to 20 percent solids is classified as semi-solid manure and can usually be handled as a liquid. Semi-solid manure usually requires the use of chopper pumps to provide thorough agitation before pumping. Liquid manure is manure with less than 10 percent solids and is handled with pumps, pipes, tank wagons or irrigation equipment (if less than 5 percent solids).

If all contents of the entire semi-solid or liquid storage facility will be applied, complete agitation (2-4 hours minimum) is required to accurately sample the manure because in liquid and semi-solid systems, settled solids can contain more than 90 percent of the phosphorus. However, if solids will be purposefully left on the bottom when the storage structure is pumped out, as is sometimes the case with lagoons, then complete agitation during sampling will generate artificially high nutrient values. In this case, agitation of the solids or sludge at the bottom of the lagoon is not needed for nutrient analysis, and premixing the surface liquid in the lagoon is not needed.

Methods of Sampling:

Several different methods may be used to sample liquid or semi-solid manure from storage facilities:

1. Use a plastic sampling cup with a 10- to 12-foot handle to obtain surface water samples (see Figure 1). Collect about a pint of sample from several locations (six to eight) around the perimeter of the storage unit about 6 feet from the bank and 12 inches below the surface. Avoid floating debris or scum. Pour each of the samples into a clean plastic bucket and mix well. Pour representative sample in plastic container for shipping. *(Chastain, 2003)*
2. Throw a small plastic bucket tied to a long rope out towards the middle of the storage unit while holding onto the rope. Begin pulling the bucket back to the bank as soon as it strikes the surface. Make sure the bucket is raised above the surface before it strikes the bank. Pour each sample into a larger plastic bucket, and repeat this procedure at four to six locations evenly spaced around the perimeter of the storage unit. Mix all samples well and pour representative sample into a plastic container for shipping. *(Chastain, 2003)*
3. Samples may also be taken using a probe or a tube. They can be constructed out of a 1½-inch diameter PVC pipe. Cut the PVC pipe a foot longer than the depth of the pit. Run a ¼-inch rod or string through the length of the pipe and attach a plug such as a rubber stopper or rubber ball (see Figure 2). The rod or the string must be longer than the pipe. If using a rod, bend the top over to prevent it from falling out of the pipe. The probe should be slowly inserted into the pit or lagoon with the stopper open, to the full depth of the pit. Pull the string or rod to close the bottom of the pipe and pull the probe out of the pit, being careful not to tip the pipe and dump the sample. Release the sample into a large plastic bucket and repeat the process at least three times around the pit. Mix all samples well and pour a representative sample into a plastic container for shipping. *(Rieck-Hinz, 2003)*

Figure 1.

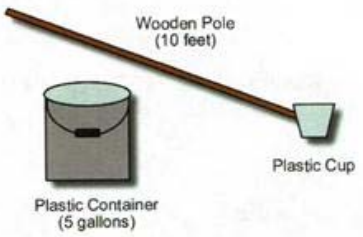
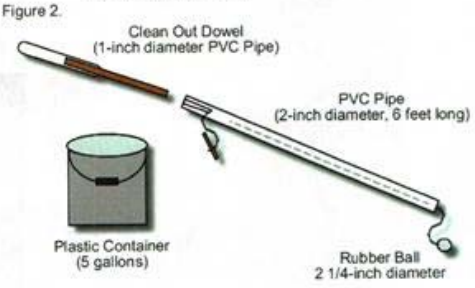


Figure 2.



Sampling Semi-Solid and Liquid Manure during Land Application with Tank Wagons

Settling begins as soon as agitation stops, so samples should be collected as soon as possible after the manure tank wagon is filled, unless the tanker has an agitator. Be sure the port or opening does not have a solids accumulation from prior loads. Collect samples in a plastic bucket from the loading or unloading port or the opening near the bottom of the tank. Stir the sample in the bucket to get the solids in suspension. Remove a ladle full while the liquid is still spinning and pour into the sample bottle. Repeat these steps until the sample bottle is three quarters full.

Sampling Liquid Manure during Land Application with Irrigation Systems

Place plastic buckets randomly at different distances from the sprinkler head in the field to collect the liquid manure that is being applied by an irrigation system. Immediately after manure has been applied, collect manure from the buckets and combine them into one container. Stir the collective sample, remove a ladle full while the liquid is still spinning and pour into the sample bottle.

Pre-Sampling Nitrogen and Potassium from Liquid Manure Systems

If liquid systems cannot be agitated prior to application and a sample is needed to estimate application rates, manure samples can be dipped off the top of the stored liquid manure to analyze for N and K concentrations. Research indicates that the top-dipped liquid represents approximately 90 percent of the N concentration measured in mixed, field-collected samples. Multiply the results of the N concentration from top-dipped samples by 1.1 for a better estimate of N. Dipping a sample from the surface of a liquid storage pit does NOT provide a good estimate of P concentrations in the pit, so use of the P analysis from top-dipped samples is not recommended. Therefore, if application is limited to a P-based application rate, pre-sampling is not recommended. Producers who take these types of samples should remember to take additional samples during application to calculate the actual amount of nutrients applied and use to adjust commercial fertilizer application. *(Rieck-Hinz, 2003)*

Sampling Dry or Solid Manure

Solid manure systems will include fecal matter, urine, bedding and feed. They can vary from one location to another within the same production operation and from season to season. Sampling of dry or solid manure is best done in the field during application, because it will take into account losses that occur during handling and application. Manure is better mixed during application than during storage. Results will not be available in time to adjust application rates; however, sampling will allow producers to adjust any future commercial fertilizer rates and manure application in subsequent years. If a sample must be taken prior to application to estimate application rates, be sure to take samples from various places in the manure pile, stack or litter to obtain a representative sample for analysis. It may even be beneficial to take samples several times during the year because of the variation in bedding content.

Methods of Sampling:

As with liquid or semi-solid systems, many different methods can be used to obtain a representative sample. The method chosen will depend on the type of solid system used on the farm. Sub-samples can be taken with a shovel, pitchfork or soil probe. Regardless of the method of sampling, a composite

sample will need to be taken from all of the samples to ensure it represents the entire manure used for application. To obtain a composite sample, place all sub-samples (the more sub-samples, the more accurate the results) in a pile and mix with a shovel by continuously scooping from the outside of the pile to the center of the pile until well mixed. Fill a one-gallon plastic Zip-lock® freezer bag (or the bag provided by the laboratory) one-half full with the composite sample by turning the bag inside out over one hand. With the covered hand, grab representative handfuls of manure and turn the freezer bag right side out over the sample with the free hand. Squeeze out the excess air, close, seal and store sample in another plastic sealable bag in the freezer until mailed. *(Rieck-Hinz, 2003)*

1. *Sampling poultry litter in-house:* Collect 10 to 15 sub-samples from throughout the house to the depth the litter will be removed. Cake litter samples should be taken at the depth of cake removal. The number of samples taken near feeders or waterers should be proportionate to their space occupied in the whole house. *(LPES)*
2. *Sampling stockpiled manure, litter or compost:* Ideally, stockpiled material should be stored under cover on an impervious surface. The exterior of uncovered waste may not accurately represent the majority of the material because rainfall moves water-soluble nutrients down into the pile. If an uncovered stockpile is used over an extended period of time, it should be sampled before each application. Take 10 sub-samples from different locations around the pile at least 18 inches below the surface. *(LPES)*
3. *Sampling from a bedded pack:* It is recommended that samples from a bedded pack be taken during loading. Take at least five sub-samples while loading several spreader loads. *(Peters, 2003)*
4. *Sampling daily hauls:* Place a five-gallon pail under the barn cleaner 4 to 5 times while loading a spreader. *(Peters, 2003)*
5. *Sampling scrape-and-haul feedlots:* Facilities where manure accumulates on paved feedlots and is scraped and hauled to the field daily or several times during the week are referred to as scrape-and-haul feedlots. Sub-samples can be collected by scraping a shovel across approximately 25 feet of the paved feedlot. This process should be repeated 10 or more times, taking care to sample in a direction that slices through the variations of moisture, bedding, depth, age, etc. Avoid excessively wet areas and areas with large amounts of hay or feed. Several composite samples may be needed for this type of facility. *(Rieck-Hinz, 2003)*
6. *Sampling during spreading or land application:* Spread a sheet of plastic or a tarp in the field and drive the tractor and spreader over the top of the plastic to catch the manure from one pass of the spreader. Samples should be collected to represent the first, middle and last part of the storage facility or loads applied and should be correlated as to which loads are applied on each field to track changes in nutrient content throughout the storage facility. *(Rieck-Hinz, 2003)*

References

Peters, John. (ed.) 2003. **Recommended Methods of Manure Analysis**. University of Wisconsin Extension. A3769.

Rieck-Hinz, A., J. Lorimor, T. Richard, and K. Kohl. 2003. **How to Sample Manure for Nutrient Analysis**. Iowa State University Extension. PM1558.

Chastain, J.P. 2003. **Manure Sampling Procedures.** South Carolina Confined Animal Manure Managers Certification Program. Clemson Extension.

Livestock and Poultry Environmental Stewardship (LPES) Curriculum. Manure Sampling. Module D, Land Application and Nutrient Management.

(Rule 1200-04-05-.14, continued)

Appendix A

Agreement for the Removal of Litter, Manure and/or Process Wastewater from an AFO

The conditions listed below help to protect water quality. These conditions apply to litter, manure and/or process wastewater removed from an AFO. The material covered by this agreement was removed on _____ from the facility owned by _____ located at _____.

A. The litter, manure and/or process wastewater must be managed to ensure there is no discharge of litter, manure and/or process wastewater to surface or groundwater.

B. When removed from the facility, litter, manure and/or process wastewater should be applied directly to the field or stockpiled and covered with plastic or stored in a building.

C. Litter, manure and/or process wastewater must not be stockpiled near streams, sinkholes, wetlands or wells.

D. Fields receiving litter, manure and/or process wastewater should be soil tested at least every two or three years.

E. A litter, manure and/or process wastewater nutrient analysis should be used to determine application rates for various crops.

F. Calibrate spreading equipment and apply litter, manure and/or process wastewater uniformly.

G. Apply no more nitrogen or phosphorus than can be used by the crop (i.e., agronomic rates).

H. A buffer zone is recommended between the application sites and adjacent streams, lakes, ponds, sinkholes and wells.

I. Do not apply litter, manure and/or process wastewater when the ground is frozen or on steep slopes subject to flooding, erosion or rapid runoff.

J. Cover vehicles hauling litter, manure and/or process wastewater on public roads.

K. Keep records of locations where litter, manure and/or process wastewater will be used as a fertilizer.

I, _____ am the person receiving litter and do understand the
(name)
conditions listed above.

_____ _____
(signature) (date)

_____ _____
(address) (phone)

(Rule 1200-04-05-.14, continued)

Appendix B

Names of Persons and/or Firms That Remove Litter, Manure and/or Process Wastewater from an AFO

_____

(name of AFO)

Name: _____
Address: _____
_____
Phone No.: _____
Tons Removed: _____
Date: _____

Name: _____
Address: _____
_____
Phone No.: _____
Tons Removed: _____
Date: _____

Name: _____
Address: _____
_____
Phone No.: _____
Tons Removed: _____
Date: _____

Name: _____
Address: _____
_____
Phone No.: _____
Tons Removed: _____
Date: _____

Name: _____
Address: _____
_____
Phone No.: _____
Tons Removed: _____
Date: _____

Name: _____
Address: _____
_____
Phone No.: _____
Tons Removed: _____
Date: _____

Name: _____
Address: _____
_____
Phone No.: _____

Name: _____
Address: _____
_____
Phone No.: _____

(Rule 1200-04-05-.14, continued)

Tons Removed:	Tons Removed:
Date:	Date:
Name:	Name:
Address:	Address:
Phone No.:	Phone No.:
Tons Removed:	Tons Removed:
Date:	Date:

Authority: *T.C.A. §§ 4-5-201 et seq. and 69-3-101 et seq.* ***Administrative History:*** *Original rule filed November 25, 1977; effective December 26, 1977. Amendment filed May 7, 2004; effective July 21, 2004. Amendment filed May 22, 2007; effective August 5, 2007. Repeal and new rule filed March 2, 2011; effective May 31, 2011.*

Closure Plan

In the event that Swine production at this location ceases, the following will be done within 360 days:

- All manure in all animal use areas will be removed and spread on the farm or spread elsewhere according to my current Nutrient Management Plan.
- The most current manure analysis will be provided to anyone removing manure from the farm.
- Any dead pigs on the farm will be disposed of at the time of closure according to methods outlined in my current Nutrient Management Plan and or allowable by Tennessee Law.
- Any manure which is land applied will be done so according to the rates discussed in my most recent Nutrient Management Plan.

The following will be completed within a reasonable period as allowable by law using Tennessee Natural Resources Conservation Service (NRCS) Standard Code 360- Closure of Waste Impoundments:

- Any manure storage facility (pits) located on the swine farm will be properly decommissioned.
- Any manure currently in storage at the time of closure will be removed and spread on the farm or spread elsewhere according to my current Nutrient Management Plan.
- The lagoon will be breached and backfilled and or converted to freshwater storage according to NRCS standards.

Jeremy Walters

Date: 3-3-16

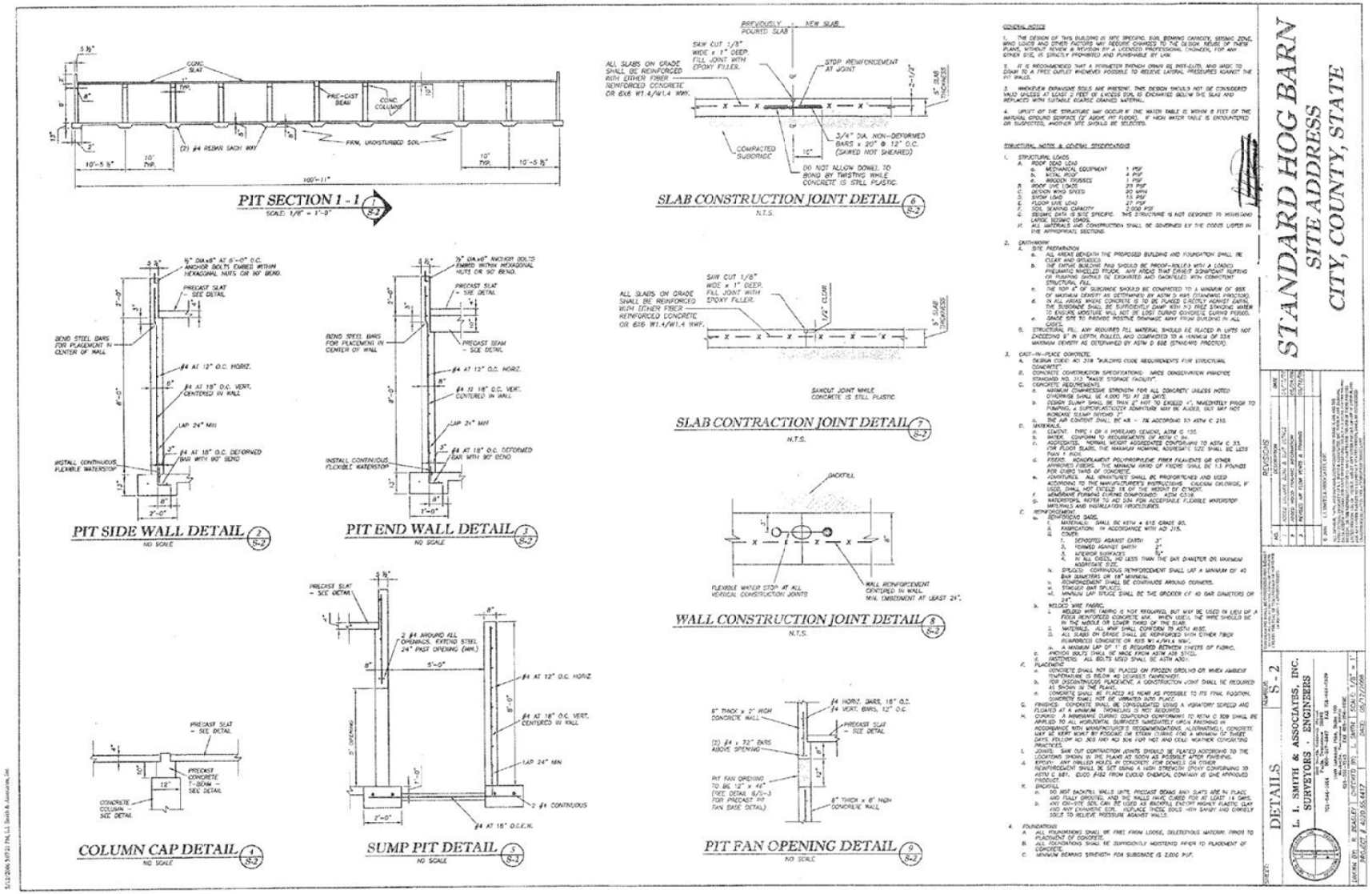
Declarations to Nutrient Management Plan:

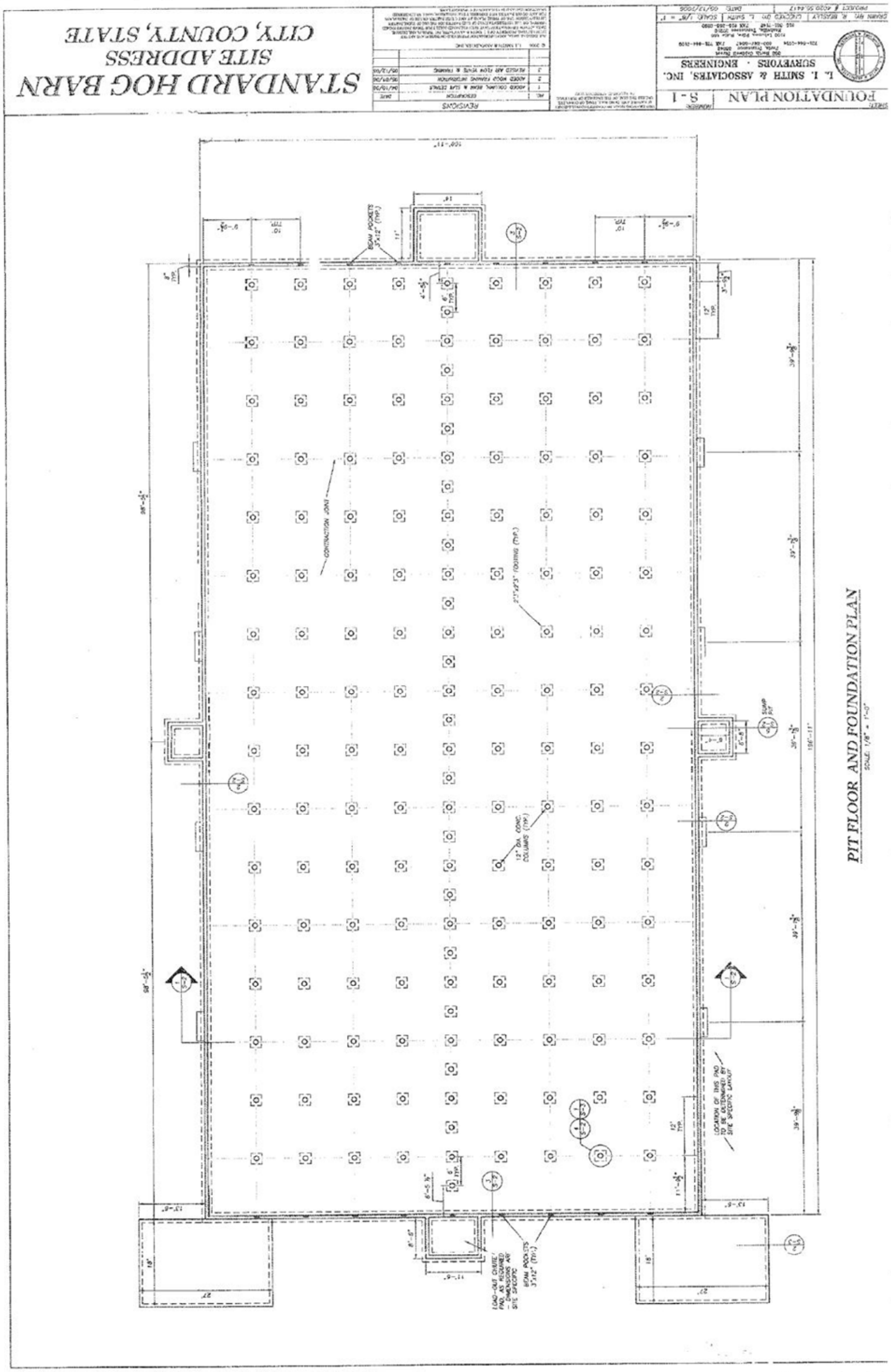
By my signature below, I affirm that I have read, understand, and will comply with the following stipulations from Tennessee's CAFO regulations that apply to my CAFO operation:

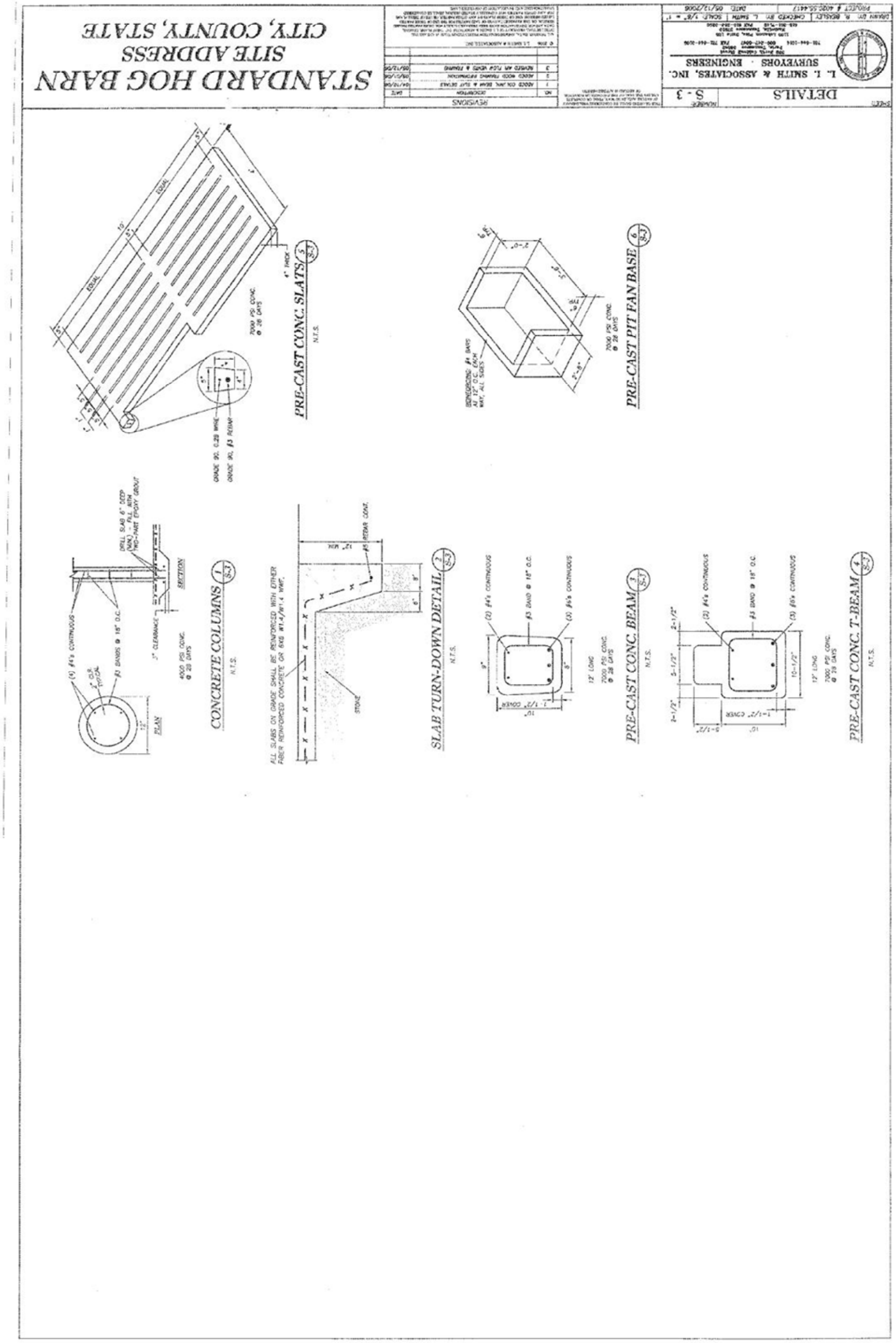
1) All animals in confinement are prevented from coming in direct contact with waters of the state.
2) All chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
3) Pesticide-contaminated waters will be prevented from discharging into waste retention structures. Waste from pest control and from facilities used to manage potentially hazardous or toxic chemicals shall be handled and disposed of in a manner that will prevent pollutants from entering waste retention structures or waters of the state.
4) Chemicals, manure/litter, and process wastewater will be managed to prevent spills. Spill clean-up plans will be developed and any equipment needed for spill clean-up will be available to facility personnel.
5) All sampling of soil and manure/litter is conducted according to protocols developed by UT Extension.
6) All records outlined in the permit that I am applying for will be maintained and available on-site.
7) Any confinement buildings, waste/wastewater handling or treatment systems, lagoons, holding ponds, and any other agricultural waste containment/treatment structures constructed or modified after April 13, 2006, are or will be located in accordance with NRCS Conservation Practice Standard 313.
8) A copy of the most recent Nutrient Management Plan will be kept as part of the farm records and will be maintained and implemented as written.
9) If applicable, all waste directed to under floor pits shall be composed entirely of wastewater (i.e. washwater and animal waste).
10) The Tennessee Department of Environment and Conservation Division of Water Resources will be notified of any significant wildlife mortalities near retention ponds or following any land application of animal wastes to fields.
11) All employees involved in work activities that relate to permit compliance will receive regular training on proper operation and maintenance (O&M) of the facility and waste disposal. Training shall include appropriate topics, such as land application of wastes, good housekeeping and material management practices, proper O&M of the facility, record keeping, and spill response and clean up. The periodic scheduled dates for such training shall be identified in the current Nutrient Management Plan.
12) There shall be no land application of nutrients within 24 hours of a precipitation event that may cause runoff. The operator shall not land apply nutrients to frozen, flooded, or saturated soils.

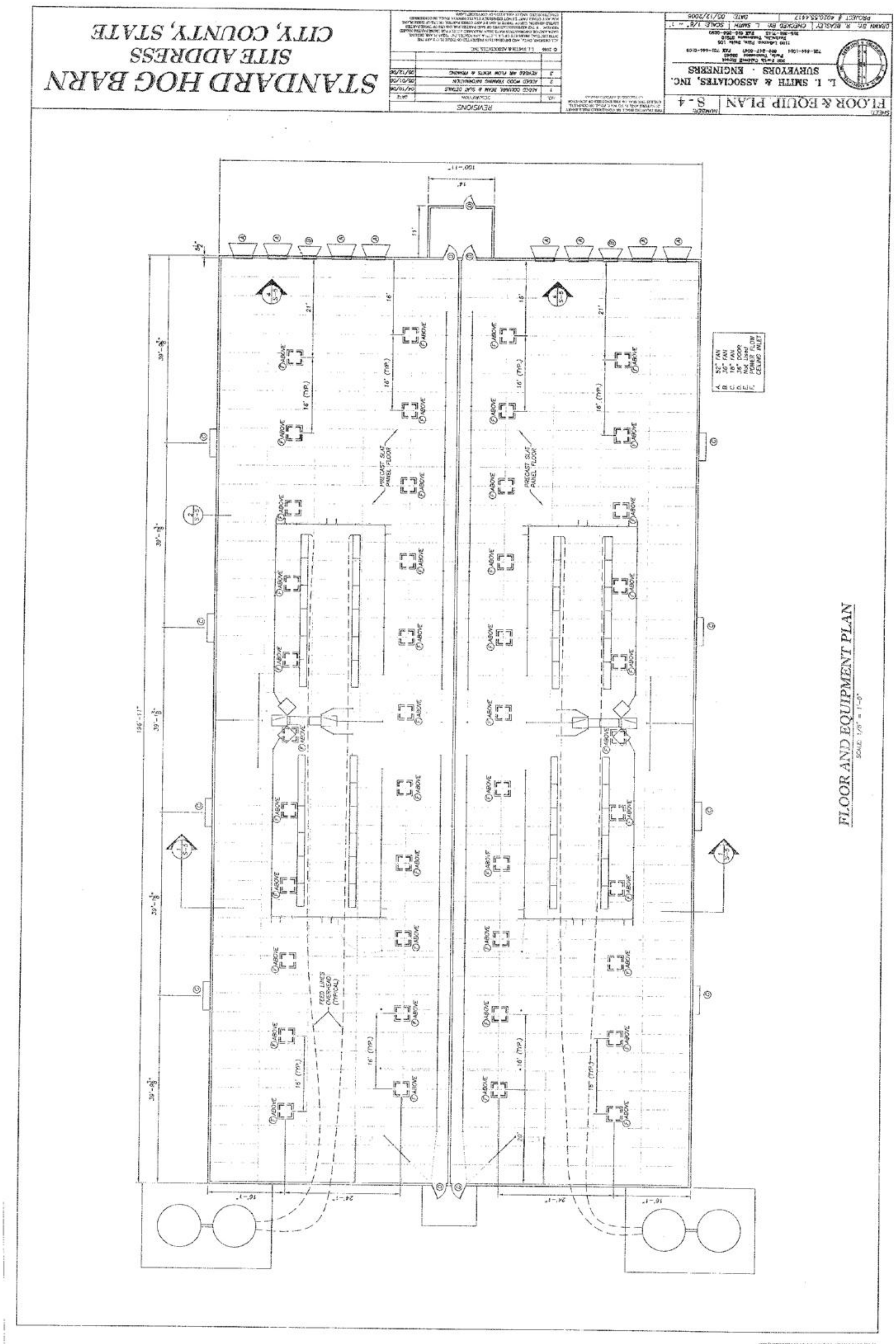
Jeremy Walters — Signature of CAFO Owner/Operator

3-3-16 — Date


PIT SECTION 1 - 1
SCALE: 1/8" = 1'-0"
SLAB CONSTRUCTION JOINT DETAIL
N.T.S.
PIT SIDE WALL DETAIL
NO SCALE
PIT END WALL DETAIL
NO SCALE
SLAB CONTRACTION JOINT DETAIL
N.T.S.
WALL CONSTRUCTION JOINT DETAIL
N.T.S.
COLUMN CAP DETAIL
NO SCALE
SUMP PIT DETAIL
NO SCALE
PIT FAN OPENING DETAIL
NO SCALE
GENERAL NOTES
STRUCTURAL NOTES & DESIGN SPECIFICATIONS
STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
L. L. SMITH & ASSOCIATES, INC.
SURVEYORS - ENGINEERS
DETAILS
S - 2


STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
FOUNDATION PLAN
S-1
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
PIT FLOOR AND FOUNDATION PLAN


STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
DETAILS
S-3
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
REVISIONS
PRE-CAST CONC. SLATS
PRE-CAST PIT FAN BASE
CONCRETE COLUMNS
SLAB TURN-DOWN DETAIL
PRE-CAST CONC. BEAM
PRE-CAST CONC. T-BEAM


STANDARD HOG BARN
SITE ADDRESS
CITY, COUNTY, STATE
REVISIONS
L. I. SMITH & ASSOCIATES, INC.
SURVEYORS · ENGINEERS
FLOOR & EQUIP PLAN
S-4
FLOOR AND EQUIPMENT PLAN
PRECAST SLAT PANEL FLOOR
FEED LINES OVERHEAD (TYPICAL)

UT Extension
W252

Land-filling Large Animal Mortalities in Tennessee

Shawn Hawkins, Assistant Professor, and Forbes Walker, Associate Professor
Biosystems Engineering and Soil Science

Land-filling can be an inexpensive (≈ $35/ton) and sometimes convenient disposal option for large animal mortalities, particularly if on-farm burial is not feasible. However, an accommodating landfill must be nearby. Most beef and dairy producers and horse owners don't know which landfills accept dead livestock. This publication provides a map (Figure 1) and phone numbers (Table 1) for Tennessee's Class 1 landfills that are allowed to accept dead animals. University of Tennessee Extension faculty contacted these landfills in fall 2010; the symbols in Figure 1 indicate which landfills will likely accept deadstock (many refuse to accept large animal carcasses, probably because of placement and covering regulations or odor concerns). The shaded counties in Figure 1 currently participate in a pickup and landfill disposal service with Appertain Corporation (931-363-8284). Otherwise, the landfills generally don't provide on-farm pickup, so you'll probably have to make arrangements to transport the carcass to the landfill. Call ahead to verify acceptance and follow these simple guidelines:

1. Transport the dead animal to the landfill as soon as possible, preferably within 48 hours.
2. Make sure the animal is completely and securely covered with a tarp during transport.
3. Schedule the carcass delivery early in the morning for discreet offloading.
4. Have a disposable but sturdy rope tied to the carcass for quick offloading.

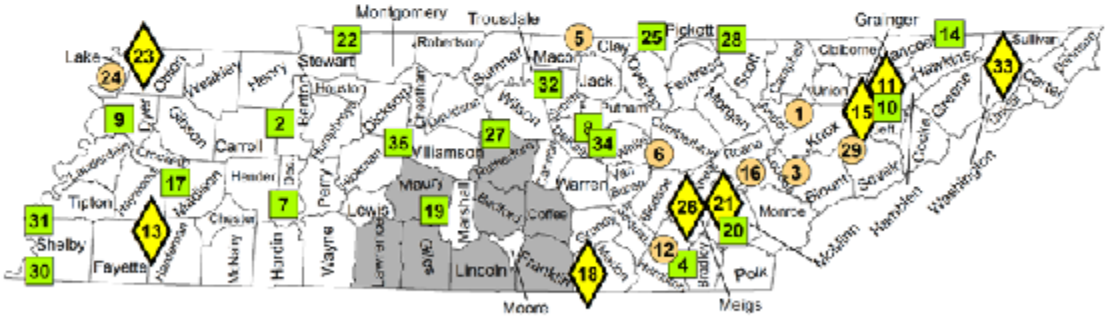


Figure 1. Tennessee's Class I landfills.

Squares, diamonds and circles denote landfills that will readily accept deadstock, those with restrictions (for example, only accepting from in-county farms) and those unlikely to accept deadstock, respectively. The shaded counties participate in a pickup and landfill disposal service with Appertain Corporation. For more detailed information on mortality disposal options, go to: http://wastemgmt.ag.utk.edu/.

Table 1. Contact information for Tennessee's Class 1 landfills

No.	County	Name	Phone Number
1	Anderson	Chestnut Ridge Landfill And Recycling Center	865-457-7810
2	Benton	West Camden Sanitary Landfill	731-584-7734
3	Blount	Alcoa /Maryville/ Blount Co. Class I Landfill	865-995-2892
4	Bradley	Bradley County Class I Landfill	423-476-8118
5	Clay	Upper Cumberland Landfill	931-258-3954
6	Cumberland	Cumberland County Landfill	931-788-6127
7	Decatur	Decatur Landfill	731-549-3567
8	DeKalb	Dekalb County Landfill	931-761-5588
9	Dyer	Dyersburg City Landfill	731-286-0450
10	Hamblen	Morristown Balefill Landfill	423-585-4805
11	Hamblen	Lakeway Sanitation And Recycling, Inc. Landfill	423-581-5655
12	Hamilton	City Of Chattanooga Landfill	423-344-9737
13	Hardeman	Bolivar-Hardeman County Landfill	731-658-6138
14	Hawkins	Carter Valley Landfill	423-357-6777
15	Jefferson	Jefferson County Landfill	865-397-3544
16	Loudon	Loudon County Landfill	865-458-2651
17	Madison	Madison County Development, LLC	901-872-7258
18	Marion	Marion County Landfill	423-942-8011
19	Marshall	Cedar Ridge Landfill, Inc.	931-270-0950
20	McMinn	Mcminn County Landfill	423-745-3244
21	McMinn	Meadow Branch Landfill Inc	423-745-6396
22	Montgomery	Bi-County Snl Balefill	931-648-5751
23	Obion	Northwest Tennessee Disposal Company	731-885-1941
24	Obion	Alan's Industrial Services Inc	731-264-5316
25	Pickett	Pickett County Landfill	931-864-3158
26	Rhea	Rhea County Class I Landfill	423-570-8920
27	Rutherford	BFI Middle Point Landfill	615-896-2075
28	Scott	Volunteer Regional Landfill	423-569-5702
29	Sevier	Sevier Solid Waste Inc.	865-453-5676
30	Shelby	BFI South Shelby Landfill	901-794-8071
31	Shelby	BFI North Shelby Landfill	901-794-3800
32	Smith	Smith County Landfill	615-735-1941
33	Washington	Iris Glen Environmental Center	423-926-8375
34	White	White County Landfill	931-761-7441
35	Williamson	Williamson County Landfill	615-790-0742

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W-252 2/11 11-0122

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development.
University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating.
UT Extension provides equal opportunities in programs and employment.

10.2. Software and Data Sources

MMP Version	MMP 0.3.4.0
MMP Plan File	Jeremy Walters Farms.mmp 1/23/2016 11:29:02 AM
MMP Initialization File for Tennessee	11/8/2011
MMP Soils File for Tennessee	7/8/2014
Phosphorus Assessment Tool	2009.02.20
NRCS Conservation Plan(s)	n/a
RUSLE2 Library	n/a
RUSLE2 Database	n/a

Waters Agricultural Laboratories, Inc.

Manure/Sludge Analysis and Application Report

*P.O. Box 382 * 257 Newton Highway * Camilla, Georgia 31730-0382 * phone: (229) 336-7216*

Ship To:
TOSH FARMS
P.O. BOX 308
HENRY, TN 38231-

Grower: **WALTERS**

SampleNumber: **BARN 1**
Lab Number: **61364MS**
Type: **LAGOON**

Date Submitted: **01/07/2016**
Report Date: **01/11/2016**

	Parts per million (ppm)	Pounds per 1000 gallons
Nitrogen - Total	4600	38.364
P2O5 - Total	1282.7	10.698
K2O - Total	2722.8	22.708

Results Reported On: L=LIQUID BASIS

Remarks Suggest the use of PLANT and SOIL analysis to monitor the need for additional and/or build up of some elements.

Waters Agricultural Laboratories, Inc.

Manure/Sludge Analysis and Application Report

*P.O. Box 382 * 257 Newton Highway * Camilla, Georgia 31730-0382 * phone: (229) 336-7216*

Ship To:
TOSH FARMS
P.O. BOX 308
HENRY, TN 38231-

Grower: **WALTERS**

SampleNumber: **BARN 1**
Lab Number: **61364MS**
Type: **LAGOON**

Date Submitted: **01/07/2016**
Report Date: **01/11/2016**

	Parts per million (ppm)	Pounds per 1000 gallons
Nitrogen - Total	4600	38.364
P2O5 - Total	1282.7	10.698
K2O - Total	2722.8	22.708

Results Reported On: L=LIQUID BASIS

Remarks Suggest the use of PLANT and SOIL analysis to monitor the need for additional and/or build up of some elements.