Properties:

1. Portion of Pin # 238700590725 (10.73 Acres Approx.) *3 Acres of Storage Area/Homestead Across Marshburn Road Excluded*
   Pin # 238700595392 (38.25 Acres Approx.) Swine Farm Facilities
   Pin # 238700680414 (12.02 Acres Approx.)
   Pin # 238700582608 (6.92 Acres Approx.)
   Approx 67.92 Acres Total

   10400 Wean to Feeder Permit AWS310007

Description: 10400 Swine Farm Wean to Feeder Permitted Swine Operation with Irrigation System

2. **FIXTURES.** _____

3. **PERSONAL PROPERTY.** The following personal property is included in the listing price:

   1. John Deere 5065E Tractor
   2. Bush Hog
   3. Side Boy Mower
   4. Finishing Mower
   5. Box Blade
   6. Plow
   7. Irrigation Reel
   8. Irrigation pump

☐ VOID ☐ CORRECTED (if checked)

PAYER'S name, street address, city or town, state or province, country, ZIP or foreign postal code, and telephone no.

MURPHY-BROWN, LLC
DBA SMITHFIELD HOG PRODUCTION
PO BOX 856
WARSAW NC 28398

OMB No. 1545-0116

2021

Form 1099-NEC

Nonemployee Compensation

PAYER'S TIN	RECIPIENT'S TIN
[redacted]	[redacted]

1 Nonemployee compensation
$ 235067.61

2 Payer made direct sales totaling $5,000 or more of consumer products to recipient for resale ☐

3

4 Federal income tax withheld
$

Copy B For Recipient

This is important tax information and is being furnished to the IRS. If you are required to file a return, a negligence penalty or other sanction may be imposed on you if this income is taxable and the IRS determines that it has not been reported.

RECIPIENT'S name, street address (including apt. no.), city or town, state or province, country, ZIP or foreign postal code

[redacted]
174 MARSHBURN RD
TEACHEY NC 28464

Account number (see instructions)
204271

5 State tax withheld	6 State/Payer's state no.	7 State income
$		$
$		$

Form 1099-NEC (keep for your records) www.irs.gov/Form1099NEC Department of the Treasury - Internal Revenue Service

☐ VOID ☐ CORRECTED (if checked)

PAYER'S name, street address, city or town, state or province, country, ZIP or foreign postal code, and telephone no.

MURPHY-BROWN, LLC
DBA SMITHFIELD HOG PRODUCTION
PO BOX 856
WARSAW NC 28398

OMB No. 1545-0116
Form 1099-NEC
(Rev. January 2022)
For calendar year
2022

Nonemployee Compensation

PAYER'S TIN	RECIPIENT'S TIN
[redacted]	[redacted]

1 Nonemployee compensation
$ 233894.13

2 Payer made direct sales totaling $5,000 or more of consumer products to recipient for resale ☐

3

4 Federal income tax withheld
$

Copy B For Recipient

This is important tax information and is being furnished to the IRS. If you are required to file a return, a negligence penalty or other sanction may be imposed on you if this income is taxable and the IRS determines that it has not been reported.

RECIPIENT'S name, street address (including apt. no.), city or town, state or province, country, ZIP or foreign postal code

[redacted]
174 MARSHBURN RD
TEACHEY NC 28464

Account number (see instructions)
204271

5 State tax withheld	6 State/Payer's state no.	7 State income
$		$
$		$

Form 1099-NEC (Rev. 1-2022) (keep for your records) www.irs.gov/Form1099NEC Department of the Treasury - Internal Revenue Service

☐ VOID ☐ CORRECTED (if checked)

et address, city or town, state or province, country, ZIP or foreign
ephone no.

BROWN LLC
THFIELD HOG PRODUCTION
856
AW NC 28398

OMB No. 1545-0116
Form 1099-NEC
(Rev. January 2022)
For calendar year
2023

Nonemployee Compensation

S TIN	RECIPIENT'S TIN
[redacted]	[redacted]

1 Nonemployee compensation
$ 219140.77

2 Payer made direct sales totaling $5,000 or more of consumer products to recipient for resale ☐

3

4 Federal income tax withheld
$

Copy B For Recipient

This is important tax information and is being furnished to the IRS. If you are required to file a return, a negligence penalty or other sanction may be imposed on you if this income is taxable and the IRS determines that it has not been reported.

ECIPIENT'S name, street address (including apt. no.), city or town, state or province, country, ZIP or foreign postal code

[redacted]
174 MARSHBURN RD
TEACHEY NC 28464

Account number (see instructions)
204271

5 State tax withheld	6 State/Payer's state no.	7 State income
$		$
$		$

Form 1099-NEC (Rev. 1-2022) (keep for your records) www.irs.gov/Form1099NEC Department of the Treasury - Internal Revenue Service

Red X Not Included IN SALE
of Real Property

Property Included Red Borden

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
LINDA CULPEPPER
Director

NORTH CAROLINA
Environmental Quality

September 23, 2019

Danny L Brown
Danny L. Brown Farm
174 Marshburn Rd
Teachey, NC 28464-9524

Subject: Certificate of Coverage No. AWS310007
Danny L. Brown Farm
Swine Waste Collection, Treatment,
Storage and Application System
Duplin County

Dear Danny L Brown:

In accordance with your renewal request, we are hereby forwarding to you this Certificate of Coverage (COC) issued to Danny L Brown, authorizing the operation of the subject animal waste management system in accordance with General Permit AWG100000. Please read this COC and the enclosed State General Permit carefully.

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 Danny L. Brown Farm, located in Duplin County, with a swine animal capacity of no greater than the following annual averages:

Wean to Finish:	Feeder to Finish:	Boar/Stud:
Wean to Feeder: **10400**	Farrow to Wean:	Gilts:
Farrow to Finish:	Farrow to Feeder:	Other:

If this is a Farrow to Wean or Farrow to Feeder operation, there may be one boar for each 15 sows. Where boars are unnecessary, they may be replaced by an equivalent number of sows. Any of the sows may be replaced by gilts at a rate of 4 gilts for every 3 sows.

This COC shall be effective from October 1, 2019 until September 30, 2024 and shall hereby void Certificate of Coverage Number AWS310007 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.

You are encouraged to update your Swine Odor Control Checklist using the enclosed form. If you do so, you must send a copy of the updated form to the Animal Feeding Operations Program at the address below.

Please pay careful attention to the record keeping and monitoring conditions in this permit. Stocking and Mortality Form (STOCK-1) has been updated; all other record keeping forms are unchanged with this General Permit. Please use the most current 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.

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 15A NCAC 02T .1304 and NRCS standards a 100-foot separation shall be maintained between water supply wells and any lagoon, storage pond, or any land application of waste.

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.23 of the General Permit, waste application shall cease within twelve (12) hours of the time that the National Weather Service issues a Hurricane Warning, Tropical Storm Warning, or a Flood Watch/Flash 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 Newport/Morehead City, NC National Weather Service office at (252) 223-5737, or by visiting their website at: www.weather.gov/mhx/

This facility is located in a county covered by our Wilmington Regional Office. The Regional Office staff may be reached at 910-796-7215. If you need additional information concerning this COC or the General Permit, please contact the Animal Feeding Operations Program staff at (919) 707-9129.

Sincerely,

for Linda Culpepper
Director, Division of Water Resources

Enclosures (General Permit AWG100000)
cc: (Certificate of Coverage only for all ccs)
Wilmington Regional Office, Water Quality Regional Operations Section
Duplin County Health Department
Duplin County Soil and Water Conservation District
Central Files (Permit No. AWS310007)
Murphy-Brown LLC

Nutrient Management Plan For Animal Waste Utilization
04-11-2024

This plan has been prepared for:

Danny L. Brown (31-7)
Tonya Brown Harris
174 Marshburn Rd.
Teachey, NC 28464
(910) 619-0544

This plan has been developed by:

Ronnie G. Kennedy Jr.
Agriment Services, Inc.
PO Box 1096
Beulaville, NC 28518
252-568-2648

Developer Signature

Type of Plan: Nitrogen Only 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) — Date: 4/11/24

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: Technical Specialist Signature — Date: 4/11/24

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

Commercial Fertilizer is not included in this plan.

S5	Swine Nursery Lagoon Liquid waste generated 1,986,400 gals/year by a 10,400 animal Swine Nursery Lagoon Liquid operation. This production facility has waste storage capacities of approximately 180 days.				
Estimated Pounds of Plant Available Nitrogen Generated per Year					
Broadcast	3581				
Incorporated	4297				
Injected	4297				
Irrigated	3581				
	Max. Avail. PAN (lbs)*	Actual PAN Applied (lbs)	PAN Surplus/ Deficit (lbs)	Actual Volume Applied (Gallons)	Volume Surplus/ Deficit (Gallons)
Year 1	3,581	7072	-3,491	3,923,399	-1,936,999

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.

Narrative

10/1/19
No changes made to irrigation system. Used wettable acres done by Hank Gay 1/6/2001. This plan udates PAN rates only.

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 in the plan. In addition, the Leaching Index for each field is shown, where available.

Planned Crops Summary

Tract	Field	Total Acres	Useable Acres	Leaching Index (LI)	Soil Series	Crop Sequence	RYE
2153	1A	2.00	2.00	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	1B	1.85	1.85	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	2	1.44	1.44	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	3A	3.87	3.87	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	3B	3.87	3.87	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	4	1.40	1.40	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	5	4.19	4.19	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	6A	2.88	2.88	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	6B	3.00	3.00	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
2153	7	1.50	1.50	N/A	Noboco	Small Grain Overseed	1.0 Tons
						Hybrid Bermudagrass Pasture	6.5 Tons
PLAN TOTALS:		26.00	26.00				

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).

NOTE: Symbol * means user entered data.

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 **Year 1**

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	RYE	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)	Comm. Fert. Nutrient Applied (lbs/A)	Res. (lbs/A)	Applic. Method	Manure PA NutrientApplied (lbs/A)	Liquid ManureApplied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field)	Solid Manure Applied (Field)
									N	N	N		N	1000 gal/A	Tons	1000 gals	tons
2153	1A	S5	Noboco	2.00	2.00	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	55.48	0.00
2153	1A	S5	Noboco	2.00	2.00	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	246.32	0.00
2153	1B	S5	Noboco	1.85	1.85	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	51.32	0.00
2153	1B	S5	Noboco	1.85	1.85	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	227.85	0.00
2153	2	S5	Noboco	1.44	1.44	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	39.94	0.00
2153	2	S5	Noboco	1.44	1.44	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	177.35	0.00
2153	3A	S5	Noboco	3.87	3.87	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	107.35	0.00
2153	3A	S5	Noboco	3.87	3.87	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	476.63	0.00
2153	3B	S5	Noboco	3.87	3.87	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	107.35	0.00
2153	3B	S5	Noboco	3.87	3.87	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	476.63	0.00
2153	4	S5	Noboco	1.40	1.40	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	38.84	0.00
2153	4	S5	Noboco	1.40	1.40	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	172.43	0.00
2153	5	S5	Noboco	4.19	4.19	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	116.23	0.00
2153	5	S5	Noboco	4.19	4.19	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	516.05	0.00
2153	6A	S5	Noboco	2.88	2.88	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	79.89	0.00
2153	6A	S5	Noboco	2.88	2.88	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	354.70	0.00

Waste Utilization Table **Year 1**

Tract	Field	Source ID	Soil Series	Total Acres	Use. Acres	Crop	RYE	Applic. Period	Nitrogen PA Nutrient Req'd (lbs/A)	Comm. Fert. Nutrient Applied (lbs/A)	Res. (lbs/A)	Applic. Method	Manure PA NutrientApplied (lbs/A)	Liquid ManureApplied (acre)	Solid Manure Applied (acre)	Liquid Manure Applied (Field)	Solid Manur Applied (Field)
									N	N	N		N	1000 gal/A	Tons	1000 gals	tons
2153	6B	S5	Noboco	3.00	3.00	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	83.22	0.00
2153	6B	S5	Noboco	3.00	3.00	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	369.48	0.00
2153	7	S5	Noboco	1.50	1.50	Small Grain Overseed	1.0 Tons	10/1-3/31	50	0	0	Irrig.	50	27.74	0.00	41.61	0.00
2153	7	S5	Noboco	1.50	1.50	Hybrid Bermudagrass Pasture	6.5 Tons	3/1-9/30	222	0	0	Irrig.	222	123.16	0.00	184.74	0.00
															Total Applied, 1000 gallons	3,923.40	
															Total Produced, 1000 gallons	1,986.40	
															Balance, 1000 gallons	-1,937.00	
															Total Applied, tons		0.00
															Total Produced, tons		0.00
															Balance, tons		0.00

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

The Irrigation Application Factors for each field in this plan are shown in the following table. Infiltration rate varies with soils. If applying waste nutrients through an irrigation system, you must apply at a rate that will not result in runoff. This table provides the maximum application rate per hour that may be applied to each field selected to receive wastewater. It also lists the maximum application amount that each field may receive in any one application event.

Irrigation Application Factors

Tract	Field	Soil Series	Application Rate (inches/hour)	Application Amount (inches)
2153	1A	Noboco	0.50	1.0
2153	1B	Noboco	0.50	1.0
2153	2	Noboco	0.50	1.0
2153	3A	Noboco	0.50	1.0
2153	3B	Noboco	0.50	1.0
2153	4	Noboco	0.50	1.0
2153	5	Noboco	0.50	1.0
2153	6A	Noboco	0.50	1.0
2153	6B	Noboco	0.50	1.0
2153	7	Noboco	0.50	1.0

NOTE: Symbol * means user entered data.

The following Lagoon Sludge Nitrogen Utilization table provides an estimate of the number of acres needed for sludge utilization for the indicated accumulation period. These estimates are based on average nitrogen concentrations for each source, the number of animals in the facility and the plant available nitrogen application rates shown in the second column.

Lagoon sludge contains nutrients and organic matter remaining after treatment and application of the effluent. At clean out, this material must be utilized for crop production and applied at agronomic rates. In most cases, the priority nutrient is nitrogen but other nutrients including phosphorous, copper and zinc can also be limiting. Since nutrient levels are generally very high, application of sludge must be carefully applied.

Sites must first be evaluated for their suitability for sludge application. Ideally, effluent spray fields should not be used for sludge application. If this is not possible, care should be taken not to load effluent application fields with high amounts of copper and zinc so that additional effluent cannot be applied. On sites vulnerable to surface water moving to streams and lakes, phosphorous is a concern. Soils containing very high phosphorous levels may also be a concern.

Lagoon Sludge Nitrogen Utilization Table

Crop	Maximum PA-N Rate lb/ac	Maximum Sludge Application Rate 1000 gal/ac	Minimum Acres 5 Years Accumulation	Minimum Acres 10 Years Accumulation	Minimum Acres 15 Years Accumulation
Swine Nursery Lagoon Sludge - Standard					
Corn 120 bu	150	14.69	23.72	47.44	71.16
Hay 6 ton R.Y.E.	300	29.38	11.86	23.72	35.58
Soybean 40 bu	160	15.67	22.24	44.47	66.71

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	Swine Nursery Lagoon Liquid	Design Storage Capacity (Days)
Start Date	9/1	180
Plan Year	Month	Available Storage Capacity (Days) *
1	1	121
1	2	113
1	3	161
1	4	180
1	5	180
1	6	180
1	7	180
1	8	180
1	9	180
1	10	169
1	11	159
1	12	155

* 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 that 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.**

Crop Notes

The following crop note applies to field(s): 1A, 1B, 2, 3A, 3B, 4, 5, 6A, 6B, 7

Small Grain: CP, Mineral Soil, medium leachable

In the Coastal Plain, oats and barley should be planted from October 15-October 30; and rye from October 15-November 20. For barley, plant 22 seed/drill row foot and increase the seeding rate by 5% for each week seeding is delayed beyond the optimum time. See the seeding rates table for applicable seeding rate modifications in the current NCSU "Small Grain Production Guide". Also, increase the initial seeding rate by at least 10% when planting no-till. Oats should be planted at 2 bushels/acre and rye at 1-1 1/2 bushels/acre. Plant all these small grains at 1-1 1/2" deep. Adequate depth control is essential. Review the NCSU Official Variety "green book" and information from private companies to select a high yielding variety with the characteristics needed for your area and conditions. Apply no more than 30 lbs/acre N at planting. Phosphorus and potash recommended by a soil test can also be applied at this time. The remaining N should be applied during the months of February-March.

The following crop note applies to field(s): 1A, 1B, 2, 3A, 3B, 4, 5, 6A, 6B, 7

Bermudagrass: CP, Mineral Soil, Moderately Well Drained.

Adaptation: Well-adapted.

In the Coastal Plain, hybrid bermudagrass sprigs can be planted Mar. 1 to Mar. 31. Cover sprigs 1" to 3" deep (1.5" optimal). Sprigs should be planted quickly after digging and not allowed to dry in sun and wind. For Coastal and Tifton 78 plant at least 10 bu/ac in 3' rows, spaced 2' to 3' in the row. Generally a rate of 30 bu/ac is satisfactory to produce full groundcover in one or two years under good growing conditions. Tifton 44 spreads slowly, so use at least 40 bu/ac in 1.5' to 2' rows spaced 1' to 1.5' in row. For broadcast/disked-in sprigs use about 60 bu/ac. Soil test for the amounts of lime, phosphorus, potassium and micronutrients to apply preplant and for annual maintenance. Apply 60 to 100 lb/ac N in the establishment year in split applications in April and July. For established stands apply 180 to 240 lb/ac N annually in split applications, usually in April and following the first and second hay cuts. Reduce N rates by 25% for grazing. Refer to NCSU Technical Bulletin 305 Production and Utilization of Pastures and Forages in North Carolina for more information or consult your regional agronomist or extension agent for assistance.

WASTE UTILIZATION PLAN

Producer: Danny Brown

Location: 174 Marshburn Rd. Teachey N.C. 28464

Telephone: 910-289-3544

Type Operation: Wean - Feeder

Number of Animals: 10,400 Design Capacity
(Design Capacity)

The waste from your animal facility must be land applied at a specified rate to prevent pollution of surface and/or groundwater. The plant nutrients in the animal waste should be used to reduce the amount of commercial fertilizer required for the crops in the fields where the waste is to be applied. This waste utilization plan uses nitrogen as the limiting nutrient. Waste should be analyzed before each application cycle. Annual soil tests are strongly encouraged so that all plant nutrients can be balanced for realistic yields of the crop to be grown.

Several factors are important in implementing your waste utilization plan in order to maximize the fertilizer value of the waste and to ensure that it is applied in an environmentally safe manner. Always apply waste based on the needs of the crop to be grown and the nutrient content of the waste. Do not apply more nitrogen than the crop can utilize. Soil types are important as they have different infiltration rates, leaching potentials, cation exchange capacities, and available water holding capacities.. Normally waste shall not be applied to land eroding at greater than 5 tons per acre per year. With special precautions, waste may be applied to land eroding at up to 10 tons per acre per year. Do not apply waste on saturated soils, when it is raining, or when the surface is frozen. Either of these conditions may result in runoff to surface waters which is not allowed under DEM regulations. Wind conditions should also be considered to avoid drift and downwind odor problems. To maximize the value of nutrients for crop production and to reduce the potential for pollution, the waste should be applied to a growing crop or applied to bare ground not more than 30 days prior to planting. Injecting the waste or disking will conserve nutrients and reduce odor problems.

The estimated acres needed to apply the animal waste is based on typical nutrient content for this type of facility. Acreage requirements should be based on the waste analysis report from your waste management facility. Attached you will find information on proper sampling techniques, preparation, and transfer of waste samples to the lab for analysis.

This waste utilization plan, if carried out, meets the requirements for compliance with 15A NCAC 2H.0217 adopted by the Environmental Management Commission

WASTE UTILIZATION PLAN

Amount of Waste Produced Per Year(gallons, ft3, tons, etc.)

10,400 animals X 48 (lbs/amt.) waste/animal/year = 5016 (lbs/amt.) waste/year.

Amount of Plant Available Nitrogen (PAN) Produced Per Year

10,400 animals X 48 lbs. PAN/animal/year = 499200 lbs. PAN/year. (PAN from N. C. Tech. Guide-Std. 633)

Applying the above amount of waste is a big job. You should plan time and have appropriate equipment to apply the waste in a timely manner.

The following acreage will be needed for waste application based on the crop to be grown and surface application:

Table 1: ACRES OWNED BY PRODUCER

Tract #	Field No.	Soil Type	Crop	Lbs. N Per Ac. *	Acres	Lbs. N Utilized	Month of Application
F-6B	F-6B	NoB	Bermuda	172.5	3.0	517.5	Mar 1-Sept 30
			Graze - Hay				
	F-6B	NoB	Rye	50.0	3.0	150.0	Sept 1-March 31
			Graze - Hay				
	F-7	NoB	Bermuda	172.5	1.5	258.75	March 1-Sept 30
			Graze - Hay				
	F-7	NoB	Rye	50.0	3.0		
			Graze - Hay		1.5	75.0	Sept 1-March 31
			Total		4.5	1001.25	

* *This N is from animal waste only. If nutrients from other sources such as commercial fertilizer are applied, they must be accounted for. N must be based on realistic yield pectation.*

** *The applicator is cautioned that P and K may be over applied while meeting the N requi[illegible]nents. Beginning in 1996 the Coastal Zone Management Act will require farmers in*

WASTE UTILIZATION PLAN

Table 1: ACRES OWNED BY PRODUCER

Tract #	Field No.	Soil Type	Crop	Lbs. N Per Ac. *	Acres	Lbs. N Utilized	Month of Application
2153	F1-A	NoB	Bermuda	172.50	2.0	[illegible]45.00	Mar 1-Sept 30
			Graze - Hay				
	F1-A	NoB	Rye	50.0	2.0	100.0	Sept 1-Mar 31
			Graze - Hay				
	F1-B	NoB	Bermuda	172.50	1.85	319.13	Mar 1-Sept 30
			Graze - Hay				
	F1-B	NoB	Rye	50.0	1.85	92.5	Sept 1-Mar 31
			Graze - Hay				
	F-2	NoB	Bermuda	172.50	1.44	248.4	Mar 1-Sept 30
			Graze - Hay				
	F-2	NoB	Rye	50.0	1.44	72.0	Sept 1-Mar 31
			Graze - Hay				
	F-3A	NoB	Bermuda	172.50	3.87	667.58	Mar 1-Sept 30
			Graze - Hay				
	F-3A	NoB	Rye	50.0	3.87	193.0	Sept 1-Mar 31
			Graze - Hay				
	F-3B	NoB	Bermuda	172.50	3.87	667.58	Mar 1-Sept 30
			Graze - Hay				
	F-3B	NoB	Bermuda	50.0	3.87	193.50	Mar 1-Sept 30
	F-4	NoB	Bermuda	172.50	1.40	241.50	Mar 1-Sept 30
			Graze - Hay				
	F-4	NoB	Rye	50.0	1.40	70.0	Sept 1-Mar 31
			Graze - Hay				
	F-5	NoB	Bermuda	172.50	4.19	722.78	Mar 1-Sept 30
			Graze - Hay				
		NoB	Rye	50.0	4.19	210.0	Sept 1-Mar 31
			Graze - Hay				
	F-6A	NoB	Bermuda	172.50	2.88	496.8	Mar 1-Sept 30
			Graze - Hay				
	F-6A	NoB	Rye	50.0	2.88	144.0	Sept 1-Mar 31
			Graze - Hay				
				Total		[illegible]	

WASTE UTILIZATION PLAN

Table 2: ACRES WITH AGREEMENT OR LONG TERM LEASE

(Agreement with adjacent landowner must be attached)
(Required only if operator does not own adequate land [see Required Specification 2])

Tract #	Field No.	Soil Type	Crop	Lbs. N Per Ac. *	Acres	Lbs. N Utilized	Month of Application
				Total			

* *See footnote for Table 1.*

Totals from above Tables

	Acres	Lbs. N Utilized
Table 1	45	1201.25
Table 2	21.50	4819.77
Total	25.00	5820.50
Amount of N Produced		4992.0
Surplus or Deficit		828.5

NOTE: The Waste Utilization Plan must contain provisions for periodic land application of sludge at agronomic rates. The sludge will be nutrient rich and will require precautionary measures to prevent over application of nutrients or other elements.

WASTE UTILIZATION PLAN

See attached map showing the fields to be used for the utilization of waste water.

Application of Waste by Irrigation

Field No.	Soil Type	Crop	Application Rate (In/Hr)	Application Amount (In.)
All	NoB	Bermuda	.5	1.0
fields		Graze - Hay		
		Rye	.5	1.0
		Graze - Hay		

THIS TABLE IS NOT NEEDED IF WASTE IS NOT BEING APPLIED BY IRRIGATION, HOWEVER A SIMILAR TABLE WILL BE NEEDED FOR DRY LITTER OR SLURRY.

Your facility is designed for 180 days of temporary storage and the temporary storage must be removed on the average of once every 9 MONTHS. In no instance should the volume of waste being stored in your structure exceed Elevation 19" per Inground gauge

Call the local Natural Resources Conservation Service *(formerly Soil Conservation Service)* or Soil and Water Conservation District office after you receive the waste analysis report for assistance in determining the amount per acre to apply and the proper application rate prior to applying the waste.

Narrative of operation: Producer plans to re-sprig approx. 22.0 acres of Coastal Bermuda by April 1st of 1999. (Field # 3, 6, & 7)

WASTE UTILIZATION PLAN

REQUIRED SPECIFICATIONS

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 which reaches surface water is prohibited. Illegal discharges are subject to the assessment of civil penalties of $10,000 per day by the Division of Environmental Management for every day the discharge continues.

2. The Field Office must have documentation in the design folder that the producer either owns or has long term access to adequate land on which to properly apply the waste. If the producer does not own adequate land to properly dispose of waste, he shall provide NRCS with a copy of a written agreement (sample enclosed) with a landowner who is within a reasonable proximity, allowing him/her the use of the land for waste application for the life expectancy of the production facility. It is the responsibility of the owner of the facility to secure an update of the Waste Utilization Plan when there is a change in the operation, increase in the number of animals, method of utilization, or available land.

3. Animal waste shall be applied to meet, but not exceed, the Nitrogen needs for realistic crop yields based on soil type, available moisture, historical data, climate conditions, and level of management, unless there are regulations that restrict the rate of application for other nutrients.

4. Animal waste may be applied to land that has a Resource Management System (RMS) or an Alternative Conservation System (ACS). If an ACS is used the soil loss shall be no greater than 10 tons per acre per year and appropriate filter strips will be used where runoff leaves the field. These filter strips will be in addition to "Buffers" required by DEM. [See FOTG Standard 393 - Filter Strips and Standard 390 (Interim) - Riparian Forest Buffers.]

5. Odors can be reduced by injecting the waste or disking after waste application. Waste should not be applied when the wind is blowing.

6. When animal waste is to be applied on acres subject to flooding, it will be soil incorporated on conventionally tilled cropland. When 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" in the Technical Reference - Environment file for guidance.)

WASTE UTILIZATION PLAN

REQUIRED SPECIFICATIONS
(continued)

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 conditions conducive to odor or flies and provide uniformity of application..

8. Animal waste shall not be applied to saturated soils, during rainfall events, or when the surface is frozen.

9. Animal waste shall be applied on actively growing crops in such a manner that no more than 20 to 25 percent of the leaf area is covered.

10. Waste nutrients 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 on bare soil.

11. Animal waste shall not be applied closer than 25 feet to surface water. This distance may be reduced for waters that are not perennial provided adequate vegetative filter strips are present. (See Standard 393 - Filter Strips)

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 wetlands provided they have been approved as a land application site by a "technical specialist". Animal waste should not be applied on grassed waterways that discharge directly into water courses, and only then at agronomic rates provided the application causes no runoff or drift from the site.

WASTE UTILIZATION PLAN

REQUIRED SPECIFICATIONS
(continued)

16. Domestic and industrial waste from washdown facilities, showers, toilets, sinks, etc., shall not be discharged into the animal waste management system.

17. Lagoons and other uncovered waste containment structures must maintain a maximum operating level to provide adequate storage for a 25-year, 24-hour storm event in addition to the one (1) foot mandatory freeboard.

18. A protective cover of appropriate vegetation will be established on all disturbed areas (lagoon embankments, berms, pipe runs, etc.). If needed, special vegetation shall be provided for these areas and 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. Lagoon berms and structures should be inspected regularly for evidence of erosion, leakage, or discharge.

19. 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.

20. 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.

T-2153
E14
10.50
T-2121
E14
3.85
T-2139
E14
T-2123
E14
T-1053
F1-S
F1-A
2.00
1.44
F-3B
3.87
F-3A
3.60
F-5
4.19
F6-A
3.00
F6-B
6.50
T-412
1.12
3.44
T-2154
E14

AuB
NoB
NoA
NoB
NoB
GoA
NoA
NoB
NoA
NoA
GoA
NoA
GoA
GoB
GoA
NoA
NoA
NoA
NoB2
NoA
NoA
AuB
NoB
NoA
NoB
NoA
NoB
NoA
GoA
NoB
NoB2
NoB
AuB
NoB
GoA
Lagoon
Sites
NoA
NoB2
NoA
McC
NoB2
NoA
GoA
Ra
NoB2
GoA
NoA
AuB
NoB

WASTE UTILIZATION PLAN

WASTE UTILIZATION PLAN AGREEMENT

Name of Farm: Danny Brown Farm

Owner/Manager Agreement

I (we) understand and will follow and implement the specification and the operation and maintenance procedures established in the approved animal waste utilization plan for the farm named above. I (we) know that any expansion to the existing design capacity of the waste treatment and storage system or construction of new facilities will require a new certification to be submitted to the Division of Environment Management (DEM) before the new animals are stocked. I (we) also understand that there must be no discharge of animal waste from this system to surface wasters of the state from a storm event less severe than the 25-year, 24-hour storm. The approved plan will be filed on-site at the farm office and at the office of the local Soil and Water Conservation District and will be available for review by DEM upon request.

Name of Facility Owner: Danny L. Brown
(Please print)

Signature Danny L. Brown Date: 12-18-18

Name of Manager(If different from owner): _____

Signature: _____ Date: _____

Name of Technical Specialist: *(Please print)* Hank Gay

Affiliation: _____

Address (Agency): _____

_____

_____

Signature: Hank Gay Date 12-18-18

WASTE UTILIZATION PLAN

ANIMAL WASTE UTILIZATION AGREEMENT

(Needed only if additional land has to be leased, etc.)

I, _____, hereby give _____ permission to apply animal waste from his Waste Utilization System on _____ acres of my land for the duration of time shown below.

I understand that this waste contains nitrogen, phosphorous, potassium, and other trace elements and when properly applied should not harm my land or crops. I also understand that the use of waste will reduce my need for commercial fertilizer.

Adjacent Landowner: _____ Date: _____

Waste Producer: _____ Date: _____

Technical Representative: _____ Date: _____

SWCD Representative: _____ Date: _____

Term of Agreement: _____, 19____ to _____, 20____

(Minimum of Ten Years on Cost Shared Items)

(See Required Specification No. 2.)

#1

erator:DANNY BROWN County: DUPLIN Date: 04/12/94

Distance to nearest residence (other than owner): 1000.0 feet

1. STEADY STATE LIVE WEIGHT

0 sows (farrow to finish)	x	1417 lbs.	=	0 lbs
0 sows (farrow to feeder)	x	522 lbs.	=	0 lbs
0 head (finishing only)	x	135 lbs.	=	0 lbs
0 sows (farrow to wean)	x	433 lbs.	=	0 lbs
5200 head (wean to feeder)	x	30 lbs.	=	156000 lbs

TOTAL STEADY STATE LIVE WEIGHT (SSLW) = 156000 lbs

2. MINIMUM REQUIRED TREATMENT VOLUME OF LAGOON

Volume = 156000 lbs. SSLW x Treatment Volume(CF)/lb. SSLW
Treatment Volume(CF)/lb. SSLW= 1 CF/lb. SSLW
Volume = 156000 cubic feet

3. STORAGE VOLUME FOR SLUDGE ACCUMULATION

Volume = 0.0 cubic feet NOT CONSIDERED AT LANDOWNER REQUEST. TO BE REMOVED AS NEEDED.

4. TOTAL DESIGN VOLUME

Inside top length 200.0 feet ; Inside top width 170.0 feet
Top of dike at elevation 54.0 feet
Freeboard 1.0 feet ; Side slopes 3.0 : 1 (Inside lagoon)
Total design lagoon liquid level at elevation 53.0 feet
Bottom of lagoon elevation 42.0 feet
Seasonal high water table elevation 47.4 feet

Total design volume using prismoidal formula

SS/END1	SS/END2	SS/SIDE1	SS/SIDE2	LENGTH	WIDTH	DEPTH
3.0	3.0	3.0	3.0	194.0	164.0	11.00

AREA OF TOP
LENGTH * WIDTH =
194.0 164.0 31816 (AREA OF TOP)

AREA OF BOTTOM
LENGTH * WIDTH =
128.0 98.0 12544 (AREA OF BOTTOM)

AREA OF MIDSECTION
LENGTH * WIDTH * 4
161.0 131.0 84364 (AREA OF MIDSECTION * 4)

CU. FT. = [AREA TOP + (4*AREA MIDSECTION) + AREA BOTTOM] * DEPTH/6
31816.0 84364.0 12544.0 1.8

VOLUME OF LAGOON AT TOTAL DESIGN LIQUID LEVEL = 235994 CU. FT.

TEMPORARY STORAGE REQUIRED

DRAINAGE AREA:
Lagoon (top of dike)
Length * Width =
200.0 170.0 34000.0 square feet

Buildings (roof and lot water)
Length * Width =
0.0 0.0 0.0 square feet

TOTAL DA 34000.0 square feet

Design temporary storage period to be 180 days.

5A. Volume of waste produced

Approximate daily production of manure in CF/LB SSLW 0.00136

Volume = 156000 Lbs. SSLW * CF of Waste/Lb./Day * 180 days
Volume = 38189 cubic feet

. Volume of wash water

This is the amount of fresh water used for washing floors or volume of fresh water used for a flush system. Flush systems that recirculate the lagoon water are accounted for in 5A.

Volume = 0.0 gallons/day * 180 days storage/7.48 gallons per CF

Volume = 0.0 cubic feet

5C. Volume of rainfall in excess of evaporation

Use period of time when rainfall exceeds evaporation by largest amount.

180 days excess rainfall = 7.0 inches

Volume = 7.0 in * DA / 12 inches per foot

Volume = 19833.3 cubic feet

5D. Volume of 25 year - 24 hour storm

Volume = 7.5 inches / 12 inches per foot * DA

Volume = 21250.0 cubic feet

TOTAL REQUIRED TEMPORARY STORAGE

5A.	38189 cubic feet
5B.	0 cubic feet
5C.	19833 cubic feet
5D.	21250 cubic feet
TOTAL	79272 cubic feet

6. SUMMARY

Total required volume 235272 cubic feet

Total design volume avail. 235994 cubic feet

Min. req. treatment volume plus sludge accumulation 156000 cubic feet

At elev. 50.3 feet ; Volume is 156373 cubic feet (end pumping)

Total design volume less 25yr-24hr storm is 214744 cubic feet

At elev. 52.3 feet ; Volume is 214245 cubic feet (start pumping)

Seasonal high water table elevation 47.4 feet

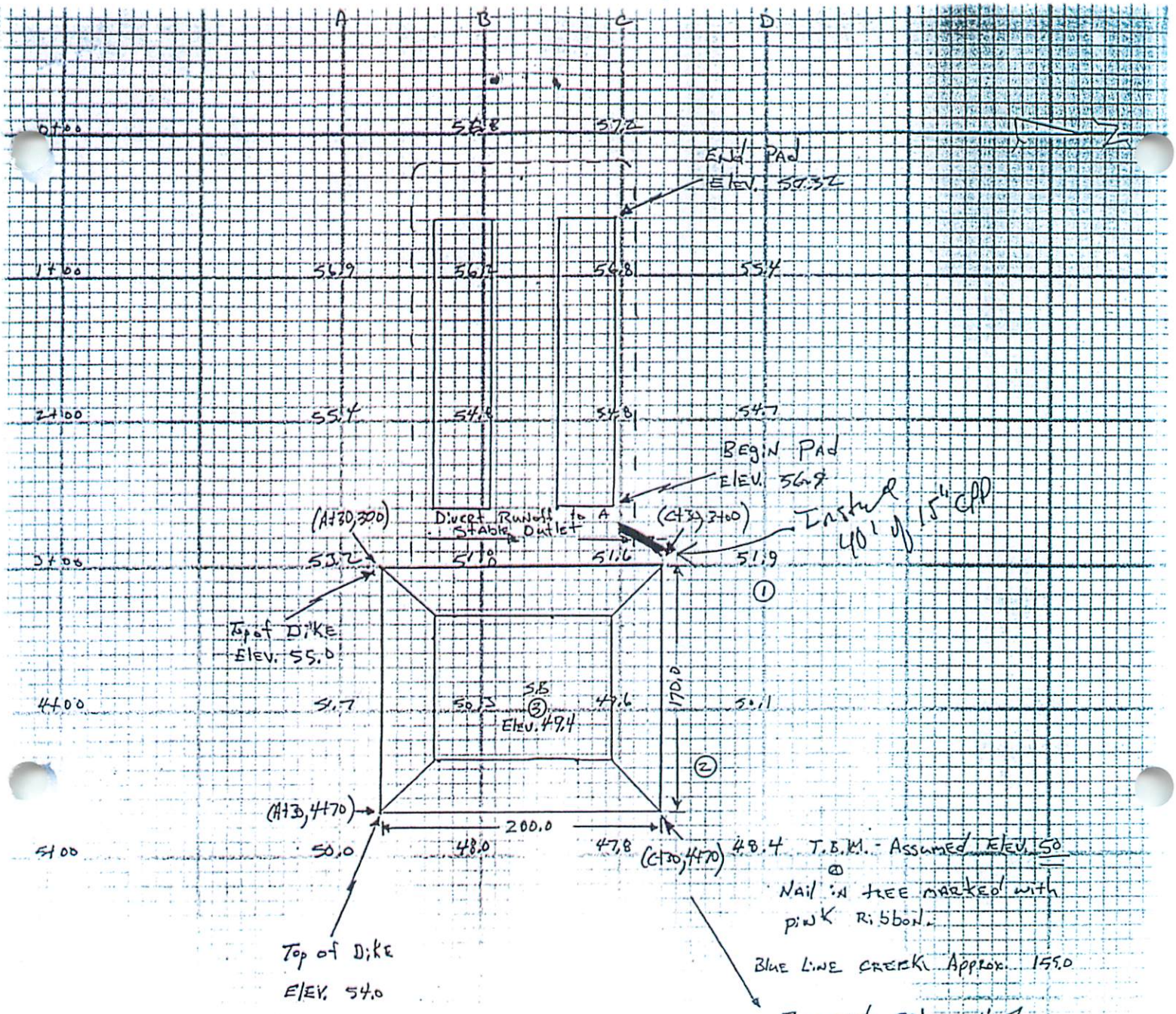
7. DESIGNED BY: HANS GAY APPROVED BY: ME Sgt, Dr

DATE: DATE: 4/28/94

NOTE: SEE ATTACHED WASTE UTILIZATION PLAN

COMMENTS:_____

SCS DOES NOT CERTIFY THAT EXCAVATION AND FILL VOLUMES ARE CORRECT



Bottom Elev. – 42.0

Side Slopes – 3.0 : 1

Proposed Site #1

Danny Brown

Topo - Survey

Duplin County

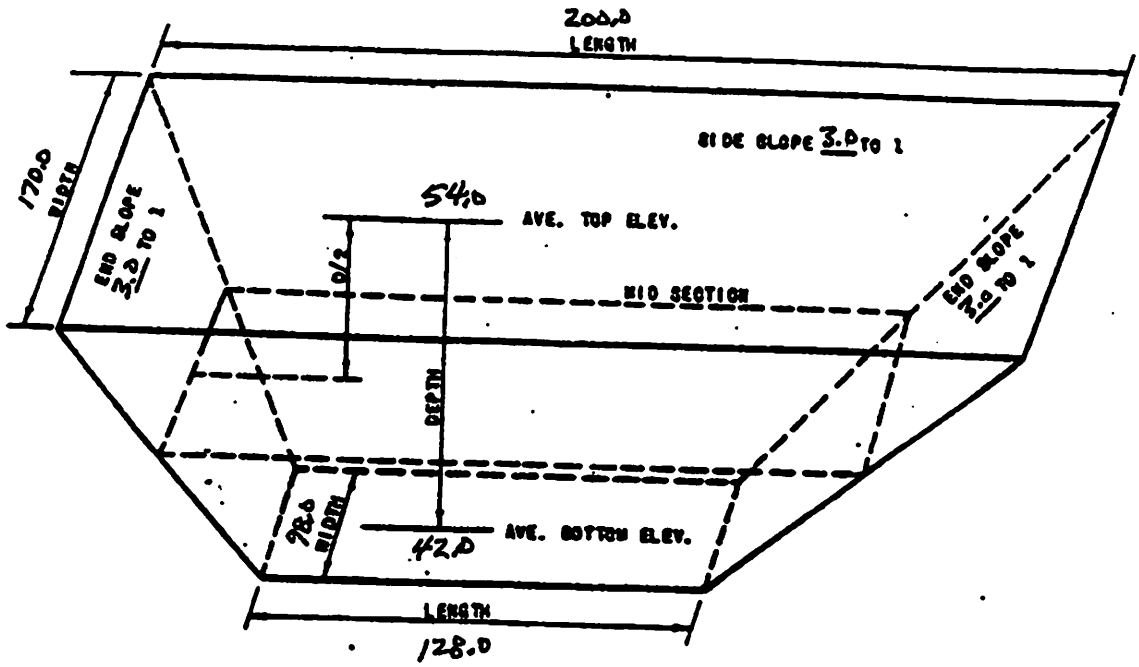
H. Gray 4-5-94

PLAN OF EXCAVATED WASTE STORAGE PIT

NAME: Danny Brown Date: _____

County: Dupin

Address: _____



(See back for volume calculations)

Use of facility: Animal Waste Lagoon

Capacity: 1,765,239 Gallons 235,994 Ft3

Soil Type: _____

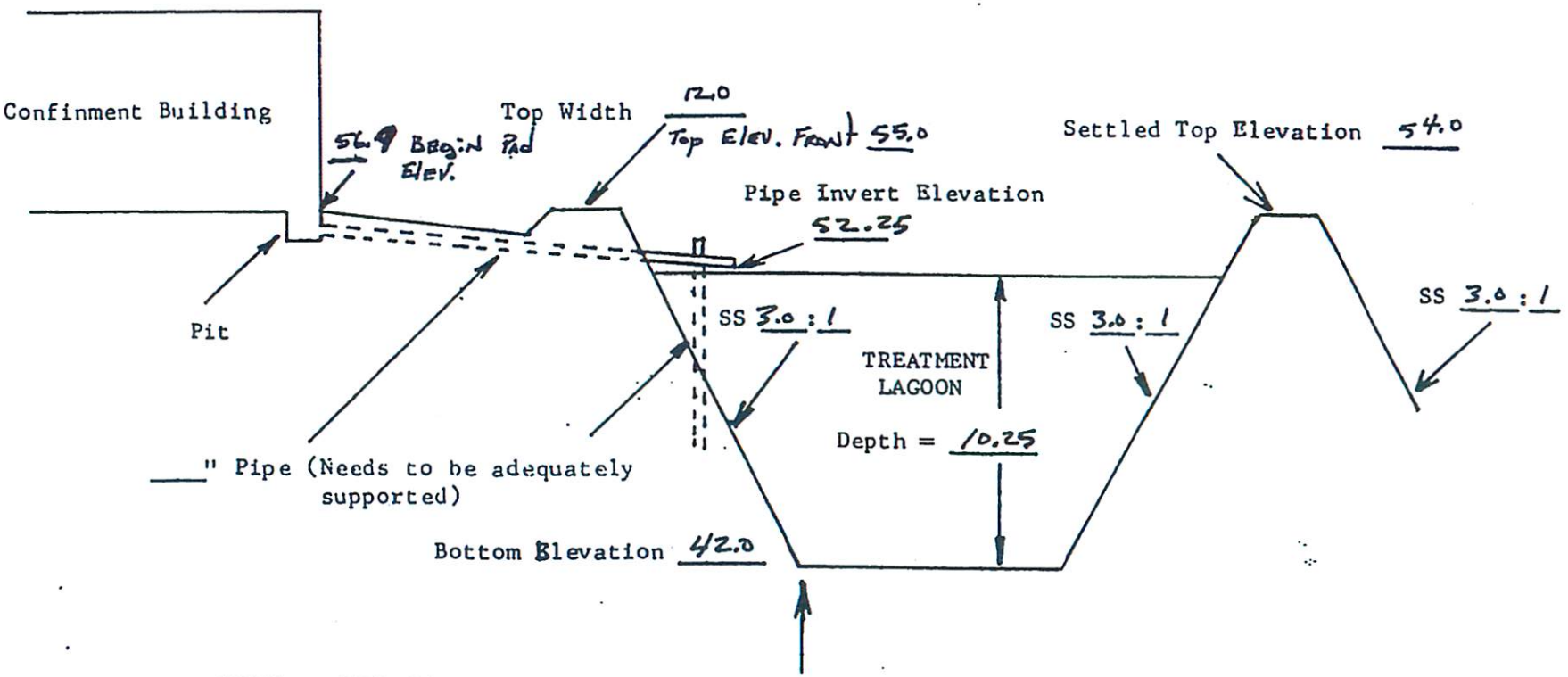
Bench Mark Description Nail in tree marked with pink ribbon

T.B.M. Assumed Elev. 50.0

SUMMARY

Bottom	Elev. 42.0	
Normal Liquid Level	Elev. _____	
Storage for normal Precip.	(+) _____	Ft.
Maximum Liquid Level	Elev. _____	
25 yr. Storm Storage	(+) .75	Ft.
Crest ESW	Elev. _____	
Max. Flow Depth	(+) _____	Ft.
Freeboard	(+) 1.0	Ft.
Top of Dam	Elev. 54.0	

TYPICAL VIEW OF A ONE-STAGE LAGOON SYSTEM



NOTE: RIP-RAP, FLEXIBLE PIPE OR OTHER SUITABLE MATERIAL WILL BE PLACED AT PIPE OUTLETS TO PREVENT EROSION OF CLAY LINER

Agriment Services, Inc.

Appendix 1. Lagoon Sludge Survey Form **Revised August 2008**

A. Farm Permitor DWQ Identification Number: → **31-7**

B. Lagoon Identification: → **Danny Brown #1**

C. Person(s) taking Measurements: → **Jonathan Miller**

D. Date of Measurements: → **11/18/2019**

E. Methods/Devices Used for Measurement of:

a. Distance from the lagoon liquid surface to the top of the sludge layer: → **Sonar Boat**

b. Distance form the lagoon liquid surface to the bottom soil of lagoon: → **Range Pole**

c. Thickness of the sludge layer if making a direct measurement with "core sampler": **n/a**

F. Lagoon Surface Area (using dimensions at inside to of bank): → **0.78**
(Draw a sketch of the lagoon on separate sheet, list dimensions and calculate surface area. **The lagoon may have been built different than designed, so measurements should be made.)**

G. Estimate number of sampling points:

a. Less than 1.33 acre, use 8 points: → **8**

b. If more than 1.33 acre, surface area acres x 6 = sampling points, with a maxium of 24: →

(Using sketch and dimensions, develop a uniform grid that has the same number of intersection as the estimated number of sampling points needed. Number the intersection points on the lagoon grid so that data recorded at each can be easily matched.)

H. Conduct sludge survey and record data on "Sludge Survey Data Sheet" (Appendix 2). **Also, at the location of the pump intake, take measurement of distance from liquid surface to top of sludge layer and record it on the Data Sheet (last row); this must be at least 2.5 ft. when irrigating.**

I. At time of sludge survey, also measure the distance from the Maximum Liquid Level to the Present Liquid Level (measure at the lagoon gage pole): → **5.22**

J. Determine distance from top of bank to the Maximum Liquid Level (use lagoon management plan or other lagoon records): → **1.70**

K. Determine distance from Maximum Liquid Level to Minimum Liquid Level (use lagoon management plan or other lagoon records): → **2.00**

L. Calculate distance from present liquid surface level to Minimum Liquid Level (**Item K - Item I**, assuming present liquid level is below Max. Liq. Level): → **-3.22**

M. Record from sludge survey data sheet the distance from the present liquid surface level to the lagoon bottom (average for all the measurement points): → **5.08**

N. Record from sludge survey data sheet the distance from the present liquid surface level to the top of the sludge layer (average for all the measurement points): → **2.72**

O. Record from sludge survey data sheet the average thickness of the Sludge Layer: → **2.36**

P. Calculate the thickness of the existing Liquid Treatment Zone (**Item N - Item L**): → **5.94**

Q. **If Item O is greater than Item P, proceed to the Worksheet for Sludge Volume and Treatment Volume. If Item O is equal to or less than Item P, you do not have to determine volumes.**

Completed by: **Ronnie G. Kennedy** (Print Name) _____ (Signature)

Agriment Services, Inc.

Appendix 2. Sludge Survey Data Sheet **Revised August 2008**

Lagoon Identification: **Danny Brown #1** Date: **11/18/2019**

Completed by: **Ronnie G. Kennedy** (Print Name) (Signature)

(A) Grid Point No.	(B) Distance from liquid surface to top of sludge	(C) Distance from liquid surface to lagoon bottom (soil)	(C) - (B) Thickness of sludge layer
	Feet (tenths)	Feet (tenths)	Feet (tenths)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
# of points with readings	**992**	**x**	**x**
Average of points	**2.72**	**5.08**	**2.36**
At pump intake	**2.50**	**x**	**x**

*All Grid Points and corresponding sludge layer thickness must be show on a sketch attached to this Sludge Survey Data Sheet.

Agriment Services, Inc.

Appendix 3. Worksheet for sludge volume and treatment volume **Revised August 2008**

The average thickness of the sludge layer and the thickness of the existing liquid (sludge-free) treatment zone (are determined from information on the Lagoon Sludge Survey Form (Item O and P, respectively). **If the lagoon has a designed sludge storage volume, see notes at end of the worksheet.** The dimensions of the lagoon as measured and the side slope are needed for calculations of sludge volume and of total treatment volume. If the lagoon is a standard geometric shape, the sludge volume and treatment volume in the lagoon can be estimated by using standard equations. For approximate volumes of rectangular lagoons with constant side slope, calculate length and width at the midpoint of the layer, and multily by layer thickness to calculate layer volume. For irregular shapes, convert the total surface area to a square or rectangular shape. For exact volumes for lagoons with constant side slope, the "Prismoidal Equations" may be used.

	Lagoon
1 Average Sludge Layer Thickness *(T)*:	**2.36 ft.**
2 Depth of lagoon from top of bank to bottom soil surface *(D)*:	**12.00 ft.**
3 Slope = horizontal/vertical side slope *(S)*:	**3.00**
4 Length at top inside bank *(L)*:	**200.00 ft.**
5 Width at top inside bank *(W)*:	**170.00 ft.**
6 Length at midpoint of sludge layer *(Lm) = L - 2 S (D - (T/2))*:	**135.09 ft.**
7 Width at midpoint of sludge layer *(Wm) = W - 2 S (D - (T/2))*:	**105.09 ft.**
8 Volume of sludge *(Vs) = Lm Wm T*:	**33,551.32 ft³**
9 Volume in gallons *Vsg = V (7.5 gal./ft³)*:	**251,634.88 gal.**
10 Thickness of existing liquid tmt. zone (Y)	**5.94 ft.**
11 Thickness of total treatment zone (Z) = T + Y	**8.30 ft.**
12 Length at midpoint of total tmt. zone Lz = L - 2(S)(D-(Z/2)	**152.90 ft.**
13 Width at midpoint of total tmt. Zone Wz = W - 2(S) (D -(Z/2)	**122.90 ft.**
14 Volume of total treatment zone (Vz) = Lz Wz Z	**155,968.70 ft³**
15 Ratio (R) of sludge layer volume to total Treatment volume R = Vs/Vz	**0.22**

If the ratio exceeds 50%, than a sludge Plan of Action may be required. Check with DWQ for information on filing the Plan of Action.

Note: If the lagoon has a designed sludge storage volume (DSSV), subtract that volume from both the volume of sludge (Vs) (Item 8) and from the volume of total treatment zone (Vz) (Item 14), and take the ratio:

16 Design sludge storage volume (DSSV)	ft³
17 Ratio (R) of sludge layer volume to treatment volume adjusted for (DSSV).	**0.22**

Lagoon Identification: **Danny Brown #1** Date: **11/18/2019**

Completed by: **Ronnie G. Kennedy** (Print Name) (Signature)

#2

Operator: DANNY BROWN County: DUPLIN Date: 04/12/94

Distance to nearest residence (other than owner): /000 feet

1. STEADY STATE LIVE WEIGHT

0	sows (farrow to finish)	x	1417 lbs.	=	0 lbs
0	sows (farrow to feeder)	x	522 lbs.	=	0 lbs
0	head (finishing only)	x	135 lbs.	=	0 lbs
0	sows (farrow to wean)	x	433 lbs.	=	0 lbs
5200	head (wean to feeder)	x	30 lbs.	=	156000 lbs

TOTAL STEADY STATE LIVE WEIGHT (SSLW) = 156000 lbs

2. MINIMUM REQUIRED TREATMENT VOLUME OF LAGOON

Volume = 156000 lbs. SSLW x Treatment Volume(CF)/lb. SSLW
Treatment Volume(CF)/lb. SSLW= 1 CF/lb. SSLW
Volume = 156000 cubic feet

3. STORAGE VOLUME FOR SLUDGE ACCUMULATION

Volume = 0.0 cubic feet NOT COMPUTED AT LANDOWNER REQUEST TO BE REMOVED AT LANDOWNER

4. TOTAL DESIGN VOLUME

Inside top length 190.0 feet ; Inside top width 180.0 feet
Top of dike at elevation 55.5 feet
Freeboard 1.0 feet ; Side slopes 3.0 : 1 (Inside lagoon)
Total design lagoon liquid level at elevation 54.5 feet
Bottom of lagoon elevation 43.5 feet
Seasonal high water table elevation feet

Total design volume using prismoidal formula

SS/END1	SS/END2	SS/SIDE1	SS/SIDE2	LENGTH	WIDTH	DEPTH
3.0	3.0	3.0	3.0	184.0	174.0	11.00

AREA OF TOP
LENGTH * WIDTH =
184.0 174.0 32016 (AREA OF TOP)

AREA OF BOTTOM
LENGTH * WIDTH =
118.0 108.0 12744 (AREA OF BOTTOM)

AREA OF MIDSECTION
LENGTH * WIDTH * 4
151.0 141.0 85164 (AREA OF MIDSECTION * 4)

CU. FT. = [AREA TOP + (4*AREA MIDSECTION) + AREA BOTTOM] * DEPTH/6
32016.0 85164.0 12744.0 1.8

VOLUME OF LAGOON AT TOTAL DESIGN LIQUID LEVEL = 238194 CU. FT.

4. TEMPORARY STORAGE REQUIRED

DRAINAGE AREA:
Lagoon (top of dike)
Length * Width =
190.0 180.0 34200.0 square feet

Buildings (roof and lot water)
Length * Width =
0.0 0.0 0.0 square feet

TOTAL DA 34200.0 square feet

Design temporary storage period to be 180 days.

5A. Volume of waste produced

Approximate daily production of manure in CF/LB SSLW 0.00136

Volume = 156000 Lbs. SSLW * CF of Waste/Lb./Day * 180 days
Volume = 38189 cubic feet

5B. Volume of wash water

This is the amount of fresh water used for washing floors or volume of fresh water used for a flush system. Flush systems that recirculate the lagoon water are accounted for in 5A.

Volume = 0.0 gallons/day * 180 days storage/7.48 gallons per CF

Volume = 0.0 cubic feet

5C. Volume of rainfall in excess of evaporation

Use period of time when rainfall exceeds evaporation by largest amount.

180 days excess rainfall = 7.0 inches

Volume = 7.0 in * DA / 12 inches per foot

Volume = 19950.0 cubic feet

5. Volume of 25 year - 24 hour storm

Volume = 7.5 inches / 12 inches per foot * DA

Volume = 21375.0 cubic feet

TOTAL REQUIRED TEMPORARY STORAGE

5A.	38189 cubic feet
5B.	0 cubic feet
5C.	19950 cubic feet
5D.	21375 cubic feet
TOTAL	79514 cubic feet

6. SUMMARY

Total required volume 235514 cubic feet

Total design volume avail. 238194 cubic feet

Min. req. treatment volume plus sludge accumulation 156000 cubic feet

At elev. 51.7 feet ; Volume is 156706 cubic feet (end pumping)

Total design volume less 25yr-24hr storm is 216819 cubic feet

At elev. 53.8 feet ; Volume is 216305 cubic feet (start pumping)

Seasonal high water table elevation 48.0 feet

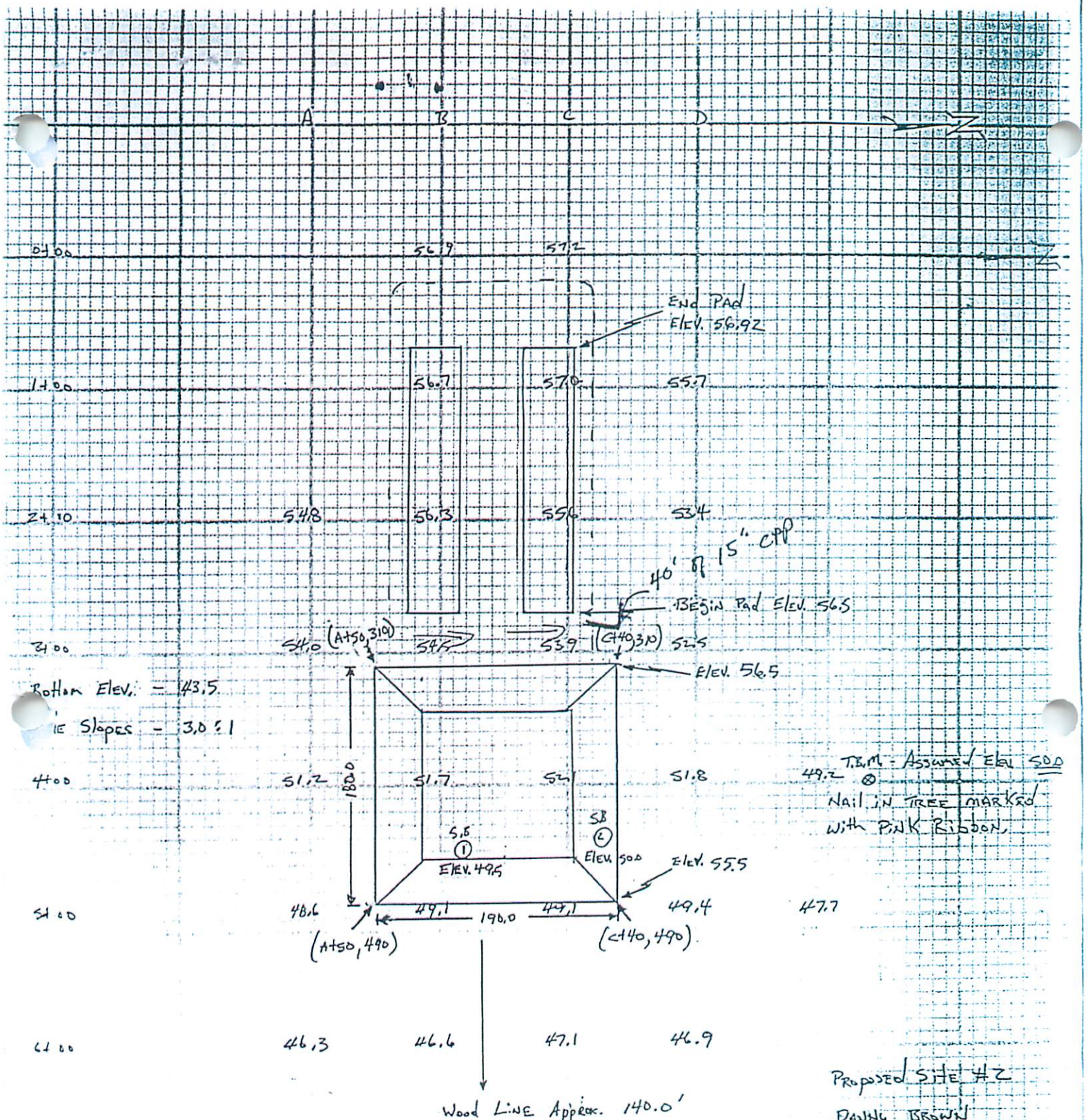
7. DESIGNED BY: HANK GAY APPROVED BY: M.E. Sugg, NC

DATE: DATE: 4/25/94

NOTE: SEE ATTACHED WASTE UTILIZATION PLAN

COMMENTS:_____

SCS DOES NOT CERTIFY THAT EXCAVATION AND FILL VOLUMES ARE CORRECT

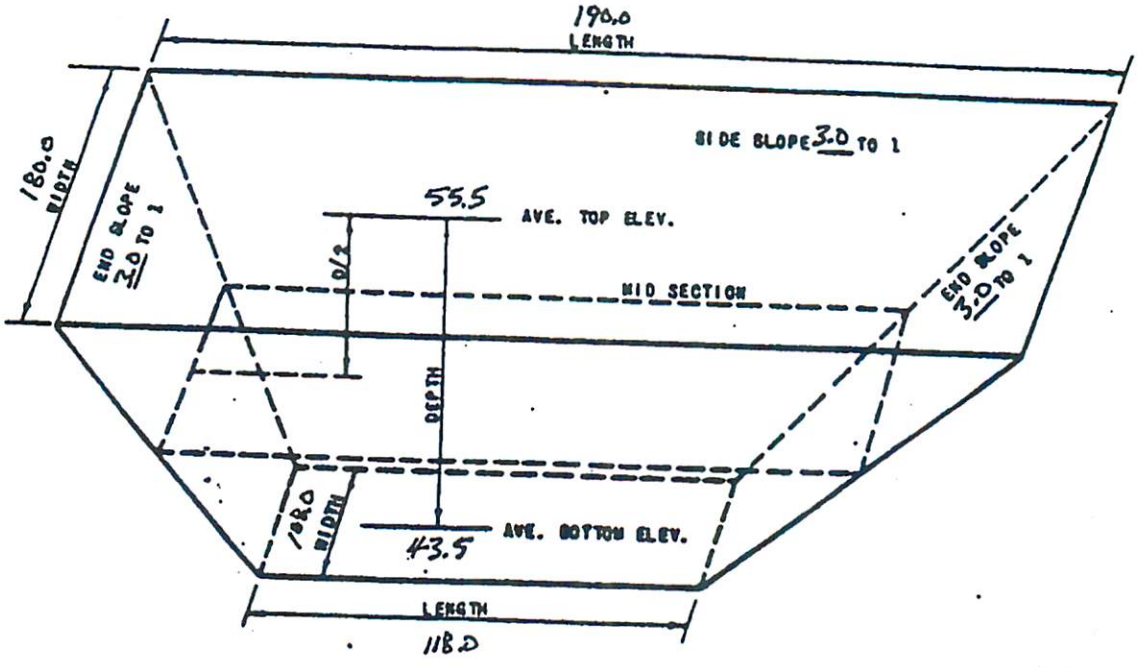

A
B
C
D
0+00
1+00
2+10
3+00
4+00
5+00
6+00
56.9
57.2
END PAD
ELEV. 56.92
56.7
57.0
55.7
54.8
56.3
55.6
53.4
40' of 15" CPP
BEGIN Pad ELEV. 56.5
54.0 (A+50, 310)
54.8
53.9
(C+40, 310) 52.5
ELEV. 56.5
Bottom Elev. = 43.5
IE Slopes = 3.0 : 1
51.2
180.0
51.7
52
51.8
49.2
T.B.M. = Assumed Elev. 500
Nail in tree marked with PINK RIBBON
S.B. ① ELEV. 49.5
S.B. ② ELEV. 500
ELEV. 55.5
48.6
49.1
190.0
44.1
49.4
47.7
(A+50, 490)
(C+40, 490)
46.3
46.6
47.1
46.9
Wood Line Approx. 140.0'
Proposed Site #2
Danny Brown
Topo - Survey
Duplin County
A. Gay 4-5-94

PLAN OF EXCAVATED WASTE STORAGE PIT

NAME: DANNY BROWN Date: 4-12-94

County: Duplin

Address: _____



(See back for volume calculations)

Use of facility: Animal Waste Lagoon

Capacity: ~~238,194~~ 1,781,691 Gallons 238,194 Ft3

Soil Type: _____

Bench Mark Description Nail in tree marked with pink Ribbon

T.B.M. - Assumed Elev. 50.0

SUMMARY

Bottom	Elev. 43.5	
Normal Liquid Level	Elev. _____	
Storage for normal Precip.	(+) _____	Ft.
Maximum Liquid Level	Elev. _____	
25 yr. Storm Storage	(+) .75	Ft.
Crest ESW	Elev. _____	
Max. Flow Depth	(+) _____	Ft.
Freeboard	(+) 1.0	Ft.
Top of Dam	Elev. 55.5	

Agriment Services, Inc.

Appendix 1. Lagoon Sludge Survey Form — **Revised August 2008**

A. Farm Permitor DWQ Identification Number: → **31-7**

B. Lagoon Identification: → **Danny Brown #2**

C. Person(s) taking Measurements: → **Jonathan Miller**

D. Date of Measurements: → **11/18/2019**

E. Methods/Devices Used for Measurement of:

a. Distance from the lagoon liquid surface to the top of the sludge layer: → **Sonar Boat**

b. Distance form the lagoon liquid surface to the bottom soil of lagoon: → **Range Pole**

c. Thickness of the sludge layer if making a direct measurement with "core sampler": **n/a**

F. Lagoon Surface Area (using dimensions at inside to of bank): → **0.79**
(Draw a sketch of the lagoon on separate sheet, list dimensions and calculate surface area. **The lagoon may have been built different than designed, so measurements should be made.)**

G. Estimate number of sampling points:

a. Less than 1.33 acre, use 8 points: → **8**

b. If more than 1.33 acre, surface area acres x 6 = sampling points, with a maxium of 24: →

(Using sketch and dimensions, develop a uniform grid that has the same number of intersection as the estimated number of sampling points needed. Number the intersection points on the lagoon grid so that data recorded at each can be easily matched.)

H. Conduct sludge survey and record data on "Sludge Survey Data Sheet" (Appendix 2). **Also, at the location of the pump intake, take measurement of distance from liquid surface to top of sludge layer and record it on the Data Sheet (last row); this must be at least 2.5 ft. when irrigating.**

I. At time of sludge survey, also measure the distance from the Maximum Liquid Level to the Present Liquid Level (measure at the lagoon gage pole): → **6.22**

J. Determine distance from top of bank to the Maximum Liquid Level (use lagoon management plan or other lagoon records): → **0.70**

K. Determine distance from Maximum Liquid Level to Minimum Liquid Level (use lagoon management plan or other lagoon records): → **2.10**

L. Calculate distance from present liquid surface level to Minimum Liquid Level (**Item K - Item I**, assuming present liquid level is below Max. Liq. Level): → **-4.12**

M. Record from sludge survey data sheet the distance from the present liquid surface level to the lagoon bottom (average for all the measurement points): → **4.08**

N. Record from sludge survey data sheet the distance from the present liquid surface level to the top of the sludge layer (average for all the measurement points): → **2.40**

O. Record from sludge survey data sheet the average thickness of the Sludge Layer: → **1.68**

P. Calculate the thickness of the existing Liquid Treatment Zone (**Item N - Item L**): → **6.52**

Q. **If Item O is greater than Item P, proceed to the Worksheet for Sludge Volume and Treatment Volume. If Item O is equal to or less than Item P, you do not have to determine volumes.**

Completed by: **Ronnie G. Kennedy** (Print Name) _____ (Signature)

Agriment Services, Inc.

Appendix 2. Sludge Survey Data Sheet **Revised August 2008**

Lagoon Identification: **Danny Brown #2** Date: **11/18/2019**

Completed by: **Ronnie G. Kennedy** (Print Name) (Signature)

(A) Grid Point No.	(B) Distance from liquid surface to top of sludge	(C) Distance from liquid surface to lagoon bottom (soil)	(C) - (B) Thickness of sludge layer
	Feet (tenths)	Feet (tenths)	Feet (tenths)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
# of points with readings	**119**	**x**	**x**
Average of points	**2.40**	**4.08**	**1.68**
At pump intake	**2.00**	**x**	**x**

*All Grid Points and corresponding sludge layer thickness must be show on a sketch attached to this Sludge Survey Data Sheet.

Agriment Services, Inc.

Appendix 3. Worksheet for sludge volume and treatment volume **Revised August 2008**

The average thickness of the sludge layer and the thickness of the existing liquid (sludge-free) treatment zone (are determined from information on the Lagoon Sludge Survey Form (Item O and P, respectively). **If the lagoon has a designed sludge storage volume, see notes at end of the worksheet.** The dimensions of the lagoon as measured and the side slope are needed for calculations of sludge volume and of total treatment volume. If the lagoon is a standard geometric shape, the sludge volume and treatment volume in the lagoon can be estimated by using standard equations. For approximate volumes of rectangular lagoons with constant side slope, calculate length and width at the midpoint of the layer, and multily by layer thickness to calculate layer volume. For irregular shapes, convert the total surface area to a square or rectangular shape. For exact volumes for lagoons with constant side slope, the "Prismoidal Equations" may be used.

	Lagoon
1 Average Sludge Layer Thickness *(T)*:	**1.68 ft.**
2 Depth of lagoon from top of bank to bottom soil surface *(D)*:	**11.00 ft.**
3 Slope = horizontal/vertical side slope *(S)*:	**3.00**
4 Length at top inside bank *(L)*:	**190.00 ft.**
5 Width at top inside bank *(W)*:	**180.00 ft.**
6 Length at midpoint of sludge layer *(Lm) = L - 2 S (D - (T/2))*:	**129.05 ft.**
7 Width at midpoint of sludge layer *(Wm) = W - 2 S (D - (T/2))*:	**119.05 ft.**
8 Volume of sludge *(Vs) = Lm Wm T*:	**25,861.73 ft³**
9 Volume in gallons *Vsg = V (7.5 gal./ft³)*:	**193,962.96 gal.**
10 Thickness of existing liquid tmt. zone (Y)	**6.52 ft.**
11 Thickness of total treatment zone (Z) = T + Y	**8.20 ft.**
12 Length at midpoint of total tmt. zone Lz = L - 2(S)(D-(Z/2)	**148.60 ft.**
13 Width at midpoint of total tmt. Zone Wz = W - 2(S) (D -(Z/2)	**138.60 ft.**
14 Volume of total treatment zone (Vz) = Lz Wz Z	**168,886.87 ft³**
15 Ratio (R) of sludge layer volume to total Treatment volume R = Vs/Vz	**0.15**

If the ratio exceeds 50%, than a sludge Plan of Action may be required. Check with DWQ for information on filing the Plan of Action.

Note: If the lagoon has a designed sludge storage volume (DSSV), subtract that volume from both the volume of sludge (Vs) (Item 8) and from the volume of total treatment zone (Vz) (Item 14), and take the ratio:

16 Design sludge storage volume (DSSV)	**ft³**
17 Ratio (R) of sludge layer volume to treatment volume adjusted for (DSSV).	**0.15**

Lagoon Identification: **Danny Brown #2** Date: **11/18/2019**

Completed by: **Ronnie G. Kennedy** (Print Name) (Signature)