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MAY 31 2016

Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM W - CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) OPERATING PERMIT APPLICATION

FOR OFFICE USE ONLY	
CHECK NUMBER: 1275	
DATE RECEIVED 5-31-16	FEE SUBMITTED $150.00 SB

Complete all applicable sections. Instructions for completing the form are located at the end of the form. Sign, date and return the form and all requested documents along with a check for the appropriate permit fee to the Missouri Department of Natural Resources. Make a copy of this completed form and keep it with your nutrient management plan.

PART 1 – PERMIT OWNERSHIP AND CONTACT INFORMATION

1.1 OPERATION NAME CJ Pork, LLC	CURRENT PERMIT NUMBER MO-	COUNTY Mercer
PHYSICAL ADDRESS NW1/4, NW1/4, Sec. 10, T64N, R25W	LEGAL DESCRIPTION Sec.: 10 Twn.: 64N Rng.: 25W	TELEPHONE NUMBER WITH AREA CODE (660) 748-8400
CITY Princeton	STATE MO	ZIP CODE 64673
1.2 OWNER (PROVIDE LEGAL NAME) CJ Pork, LLC	EMAIL ADDRESS Jacob Ellsworth (jle24950@aol.com)	
MAILING ADDRESS 28614 Hwy A		TELEPHONE NUMBER WITH AREA CODE (660) 748-8400
CITY Princeton	STATE MO	ZIP CODE 64673
1.3 CONTINUING AUTHORITY (IF DIFFERENT THAN THE OWNER) Same		
MAILING ADDRESS		TELEPHONE NUMBER WITH AREA CODE
CITY	STATE	ZIP CODE

PART 2 – PERMIT TYPE AND PERMIT ACTION

2.1 PERMIT TYPE

☐ NPDES Site Specific Permit
Request review of draft permit prior to public notice. ☐ Yes ☐ No

☐ NPDES General Permit (MOG01)

☒ State No-Discharge General Permit (MOGS1)

2.2 PERMIT ACTION*

☒ New Permit ☐ Renewal
☐ Modification ☐ Ownership Transfer

PREVIOUS OWNERS NAME

ADRESS

CITY STATE ZIP CODE

SIGNATURE DATE

*See instructions for additional requirements and documents for the request permit action.

PART 3 – DESIGN CAPACITY FOR MANURE STORAGE AND ANIMALS OF EACH CAFO FEATURE

3.1 STORAGE STRUCTURE TYPES, AMOUNT OF STORAGE, AND AMOUNT OF MANURE GENERATED PER YEAR.

List All Manure Storage Structures at each CAFO Feature		Dry Manure Handling System		Wet Manure Handling System			
CAFO Feature	Storage Structure Type(s)	Design Dry Process Waste (tons/yr.)	Days of Storage	Total Storage Capacity (gal)	Design Wastewater per Year (gal./yr.)	Days of Storage	Design Flow MGD
001	C			2,083,918	1,501,192	506	.004
002							
003							
004							
005							

3.2 LIST EACH TYPE OF ANIMAL IN CONFINEMENT AND THE NUMBER OF EACH ANIMAL TYPE.

CAFO Feature	Animal Category #1	Animal Numbers	Animal Category #2	Animal Numbers	Animal Category #3	Animal Numbers
001	5	4980				
002						
003						
004						
005						

PART 4 – OPERATIONAL INFORMATION

4.1 OPERATIONAL INFORMATION (SEE INSTRUCTIONS)
SIC Code(s) 0213 CAFO Class Size IC

4.2 Is this an export-only operation? ☑ Yes ☐ No

ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

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May 27, 2016

Greg Caldwell
Water Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176

Dear Greg,

Enclosed please find the operating permit application for CJ Pork, LLC. This is a two barn wean-to-finish operation in Mercer County with 4,980 proposed hogs.

If you have any questions or need any additional information please feel free to contact me.

Sincerely,

Jeff E. Browning, P.E.

Enclosures

AES P.O. Box 29 Bowling Green, MO 63334 573-324-6860 Phone 573-324-6818 Fax

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CJ PORK, LLC

MISSOURI CAFO OPERATING PERMIT APPLICATION
FOR
CJ PORK, LLC
28614 HWY A
PRINCETON, MO 64673
(660)748-8410

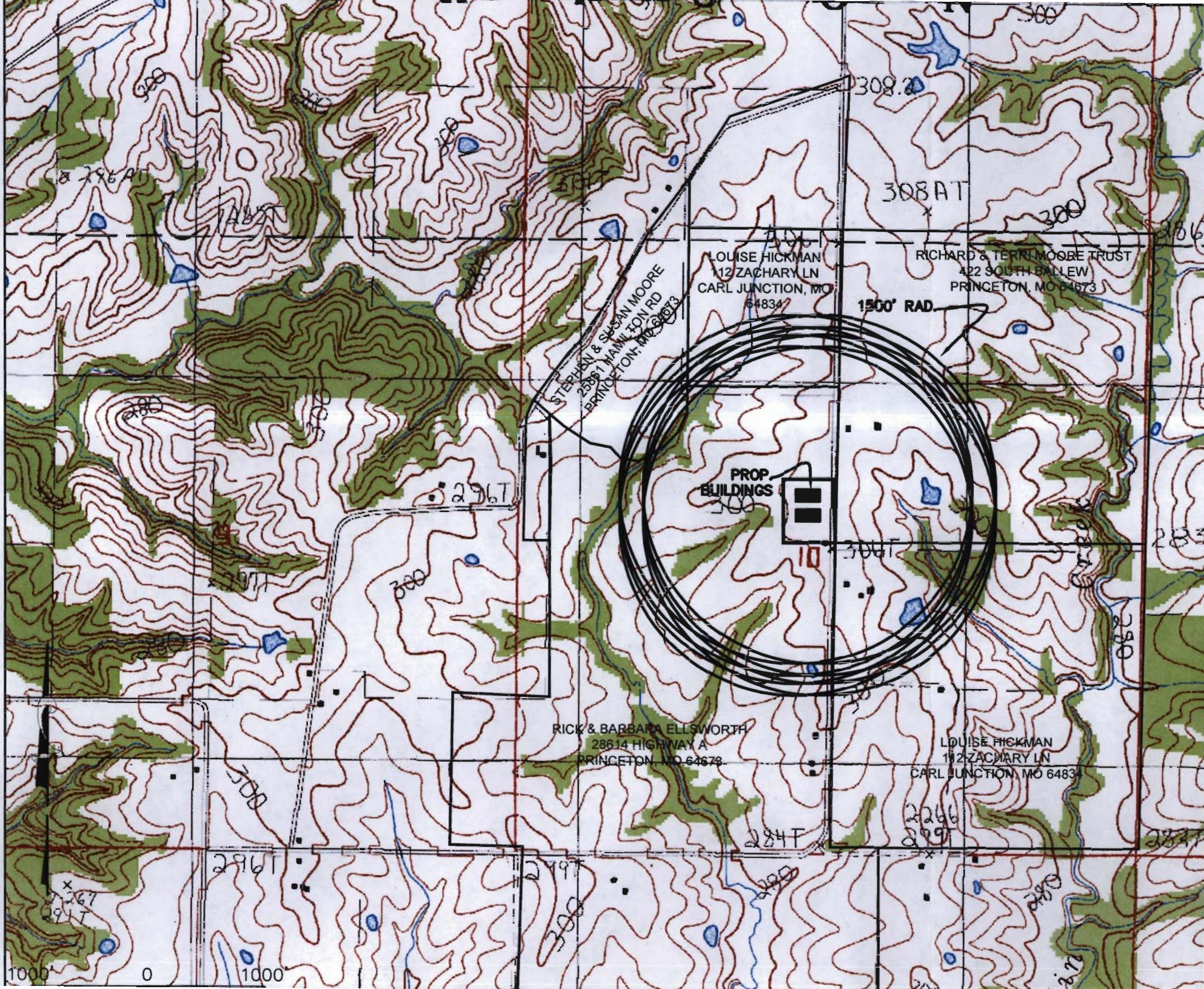
Prepared By:
ALLIED ENGINEERING SERVICES, LLC
P.O. Box 29
Bowling Green, Missouri 63334
PHONE: 573-324-6860
FAX: 573-324-6818

May 2016

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH CURRENT REGULATIONS

STATE OF MISSOURI
JEFF ERIC
BROWNING
NUMBER
E-28664
REGISTERED PROFESSIONAL ENGINEER
5-27-16


1000' RAD.
0
4000


LOUISE HICKMAN
112 ZACHARY LN
CARL JUNCTION, MO
64834
RICHARD & TERRI MOORE TRUST
422 SOUTH BALLEW
PRINCETON, MO 64673
1500' RAD.
STEPHEN & SUSAN MOORE
25991 HAMILTON RD
PRINCETON, MO 64673
PROP.
BUILDINGS
RICK & BARBARA ELLSWORTH
28614 HIGHWAY A
PRINCETON, MO 64673
LOUISE HICKMAN
112 ZACHARY LN
CARL JUNCTION, MO 64834
1000'
0
1000'

Completing PARTS 5 - 11 will meet the requirements of a Nutrient Management Plan (NMP) for an export only operation.

PART 5 – MANURE STORAGE

5.1 Do all manure storage structures have adequate storage, and operated and maintained as no discharge? ☒ Yes ☐ No

PART 6 – ANIMAL MORTALITY

6.1 PEMANENT METHOD OF DISPOSING OF ROUTINE ANIMAL MORTALITIES.

☑ Composting ☐ Rendering ☐ Send to a Landfill ☐ Incineration ☐ Other (Describe)

6.2 DESCRIBE METHOD OF MORTALITY HANDLING AND STORAGE THROUGH ALL PHASES TO FINAL DISPOSAL. (EXAMPLE: MORTALITIES ARE COMPOSTED WITHIN 24 HOURS OF DEATH AND FINISHED COMPOST PRODUCT IS STORED UNDER ROOF UNTIL LAND APPLIED). ALSO DESCRIBE THE TYPE OF COMPOST STRUCTURE USED, IF APPLICABLE.

Mortalities are composted off-site in a static pile composter and finished compost is land applied.

PART 7 – DIVERSION OF CLEAN WATER

7.1 Is clean stormwater diverted from the production area? ☑ Yes ☐ No

7.2 IF YES, DESCRIBE CONTROLS AND MEASURES USED TO DIVERT STORMWATER.

Buildings prevent storm water from entering animal production area. Site is graded to divert storm water away from buildings.

7.3 IF NO, DESCRIBE HOW CONTAMINATED STORMWATER IS CONTAINED AND INCLUDE THE STORAGE CAPACITY OF THE CONTAINMENT IF NOT PREVIOUSLY PROVIDED.

PART 8 – PREVENT DIRECT CONTACT OF ANIMALS WITH SURFACE WATERS

8.1 Do the animals have access to waters of the state within the production area? ☐ Yes ☑ No

8.2 LIST MEASURES USED TO PREVENT CONFINED ANIMAL FORM HAVING DIRECT CONTACT WITH WATERS OF THE STATE.

Animals are confined in buildings.

PART 9 – CHEMICAL HANDLING

9.1 Check the appropriate boxed below to indicate method for handling and disposal of chemicals used by the operation:

☐ Chemicals are stored, handled, and disposed of according to manufacturer labels.

☐ Chemical storage and handling areas are protected from precipitation and runoff, and any spillage is contained within these areas.

☐ Emergency procedures and equipment are in place to contain and clean up chemical spills.

☐ Equipment wash areas are designed and constructed to prevent contamination of surface waters.

☑ No chemicals are stored or handled in the production area.

PART 10 – MANURE ANALYSIS TESTING

10.1 LIST EACH TYPE OF MANURE SOURCE. (i. e. MANURE, LITTER, COMPOST, WASTE WATER.)

Manure pit wastewater; mortality compost.

10.2 DESCRIBE PROCEDURES FOR ENSURING EACH MANURE SOURCE IS TESTED ANNUALLY.

Manure is collected in bottles from several locations at each storage pit. The samples are combined in a bulk sample and tested at a lab

PART 11 – RECORD KEEPING

11.1 Are records of all inspections, manure transfers, discharges and land application maintained? ☒ Yes ☐ No

PART 12 – SIGNATURE

NAME	TITLE
Jacob Ellsworth	Owner/Operator
SIGNATURE Jacob Ellsworth	DATE 5-26-16

Part 13 - Engineer Certification

House Bill 28, which became effective Aug 28, 2013, contained provisions that changed construction permitting requirements. Construction permits are required for the construction of an earthen storage structure to hold, convey, contain, store, or treat domestic, agricultural, or industrial process wastewater. Construction of all other point source systems designed to hold, convey, contain, store, or treat domestic, agricultural, or industrial process waste must be designed by a professional engineer registered in Missouri in accordance with design regulations.

Operation Name Jacob Ellsworth Address 28614 Hwy. A City Princeton, MO 64673	Engineer Firm Allied Engineering Services LLC Address P.O. Box 29 City State Zip Code Bonnots Mill, Gasconade, MO 63334
I, Project Engineer, certify that above described systems have been designed in accordance with Missouri CAFO design regulations in 10 CSR 20-8.300 PROJECT ENGINEER SIGNATURE	ENGINEER SEAL STATE OF MISSOURI JEFF ERIC BROWNING NUMBER E-28664 REGISTERED PROFESSIONAL ENGINEER

PIT BARN CALCULATION SHEET

CJ Pork

Calculation of Available Volume in 8' Deep Pit Barn:

Effective Inside width of pit = 99'8"
Inside length of pit = 199'8"
Depth = 8'
Total Volume = 99'8" X 199'8" X 8' = 159,200 cu ft = 1,190,815 gallons
Safety Volume Depth = 1'
Volume at 7' deep = 99'8" X 199'8" X 7' = 139,299 cu ft = 1,041,959 gallons

Calculation of waste volume produced in 8' Deep Pit Barns:

head/barn = 2,490
Avg. wt. / head = 140 lbs.
Total wt. = 2,490 hd X 140 lbs/hd = 348,600 lbs
From MWPS-18, Section 1 *Manure Characteristics, table 7*;
Manure production (lbs/yr) = 2,500 lbs/yr/hd = 40.3 cu ft/yr/hd
Total Manure production = 40.3 cu ft * 2,490 hd = 100,347 cu ft/yr/Barn

Average & Maximum Annual Pumpdown = 100,347 cu ft = 750,596 gallons/Barn

CJ PORK, LLC

NARRATIVE SUMMARY OF DESIGN

This facility is located in the NW ¼, NW ¼, section 10, Township 64N, Range 25W, in Mercer County Missouri.

The proposed operation will consist of two new 2,490 head wean-finishing hog barns. This will be a class IC concentrated animal feeding operation.

The two 101'10" X 201'0" buildings will be "deep-pit" type barns. The concrete pits will be 8' deep from the bottom of the slatted floor. Hog manure falls through the slatted floor and is collected and stored in the pit. The deep pit will have approximately 506 days of storage at the 7' level.

The Missouri Department of Natural Resources "Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard" will be utilized for guidance for the Land Application of wastewater from the barn pits. Exact land requirements and total application rates will be calculated using laboratory analysis on a year-to-year basis.

Dead animals will be disposed of in accordance with the Missouri Department of Agriculture regulations. Dead animals from this site will be composted off-site. The off-site composter has a concrete floor and roof.

Clean Water Diversion

This farm will be graded to divert storm water away from buildings, animal confinement areas and manure storage areas.

A potential source of unplanned waste from animal confinement facilities is from storm water coming into contact with pollutants. The pollutants that could potentially contaminate the water are the hogs, manure, feed, diesel fuel, and oils and lubricants for farm equipment. All of these potential pollutants are kept under roof at this farm. They do not come into contact with clean rain water or add to the contaminated waste on the farm.

A common way for clean water to become contaminated is by contacting ventilated dust on the ground around the barn. To treat rainwater that becomes contaminated by this dust, the barn will be surrounded by grass. The grass acts as a filter and helps prevent erosion around the barns reducing suspended solids in the runoff.

Other operations at this farm that could potentially contribute to exposed pollutants are the loading and unloading of pigs, feed, manure, and mortality compost. When these sources are handled messes can occur. Care should be taken to not create a mess around the door of the barns, the manure pumping ports, the skirt to the composter or at the base of the feed bins. When messes occur during these operations they will be cleaned up immediately.

Prevention of Direct Contact of Confined Animals to Waters of the State

All confined animals are housed under roof in buildings with no outside access. They have no direct access to waters of the state.

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ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

May 26, 2016

Greg Caldwell
Water Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176

Dear Greg,

CJ Pork, LLC is planning construction of a new confined animal feeding operation in Section 10, Township 64N, Range 25W, in Mercer County Missouri. The farm will be constructed in the NW ¼ of the section, see enclosed topographic map at a scale of 1" = 1000'.

The farm will include the construction of two new 2,490 head wean-finish hog barns. Total proposed animal numbers are 4,980 hogs.

Both barns are slatted type buildings where hog manure generated from production falls beneath the floor into eight-foot deep concrete pits. The concrete pits store the manure laden wastewater until it can be pumped to nearby farm fields.

The proposed farm will be designed and constructed to meet the current standards of the Missouri Department of Natural Resources. The entire nutrient handling and storage structures have been designed as a no discharge system. Dead animals will be composted off-site on a nearby farm and finished compost material will be land applied.

Wastewater nutrients will be land applied according to recommended agronomic rates for the crops to be grown. The Missouri Department of Natural Resources "Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard" will be utilized for guidance for the Land Application of wastewater from the barn pits. Exact land requirements and total application rates will be calculated using laboratory analysis on a year-to-year basis.

This farm will be owned by CJ Pork, LLC, 28614 Hwy A, Princeton, MO 64673. Additional information can be obtained from Jacob Ellsworth at (660)748-8410 or at the above address.

You are hereby notified that written comments may be made to the Missouri Department of Natural Resources concerning this proposed farm for a period of 30 days, their address is: P.O. Box 176, Jefferson City, MO 65102.

Sincerely,

Jeff E. Browning, PE

Enclosures
USGS Topographic Map
General Location Map

AES P.O. Box 29 Bowling Green, MO 63334 573-324-6860 Phone 573-324-6818 Fax

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ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

May 26, 2016

Louise Hickman
112 Zachary Lane
Carl Junction, MO 64834

Dear Ms. Hickman,

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ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

May 26, 2016

Richard & Terri Moore Trust
422 South Bellew
Princeton, MO 64673

Dear Mr. & Mrs. Moore,

CJ Pork, LLC is planning construction of a new confined animal feeding operation in Section 10, Township 64N, Range 25W, in Mercer County Missouri. The farm will be constructed in the NW ¼ of the section, see enclosed topographic map at a scale of 1" = 1000'.

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Sincerely,

Jeff E. Browning, PE

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General Location Map

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Water Protection Program

ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

May 26, 2016

Rick & Barbara Ellsworth Trust
28614 Hwy A
Princeton, MO 64673

Dear Mr. & Mrs. Ellsworth,

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ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

May 26, 2016

Stephen & Susan Moore
25861 Hamilton Road
Princeton, MO 64673

Dear Mr. & Mrs. Moore,

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ALLIED ENGINEERING SERVICES, LLC

Engineering—Surveying—Construction

May 26, 2016

Mercer County Commission
802 East Main Street
Princeton, MO 64673

Dear Commissioners,

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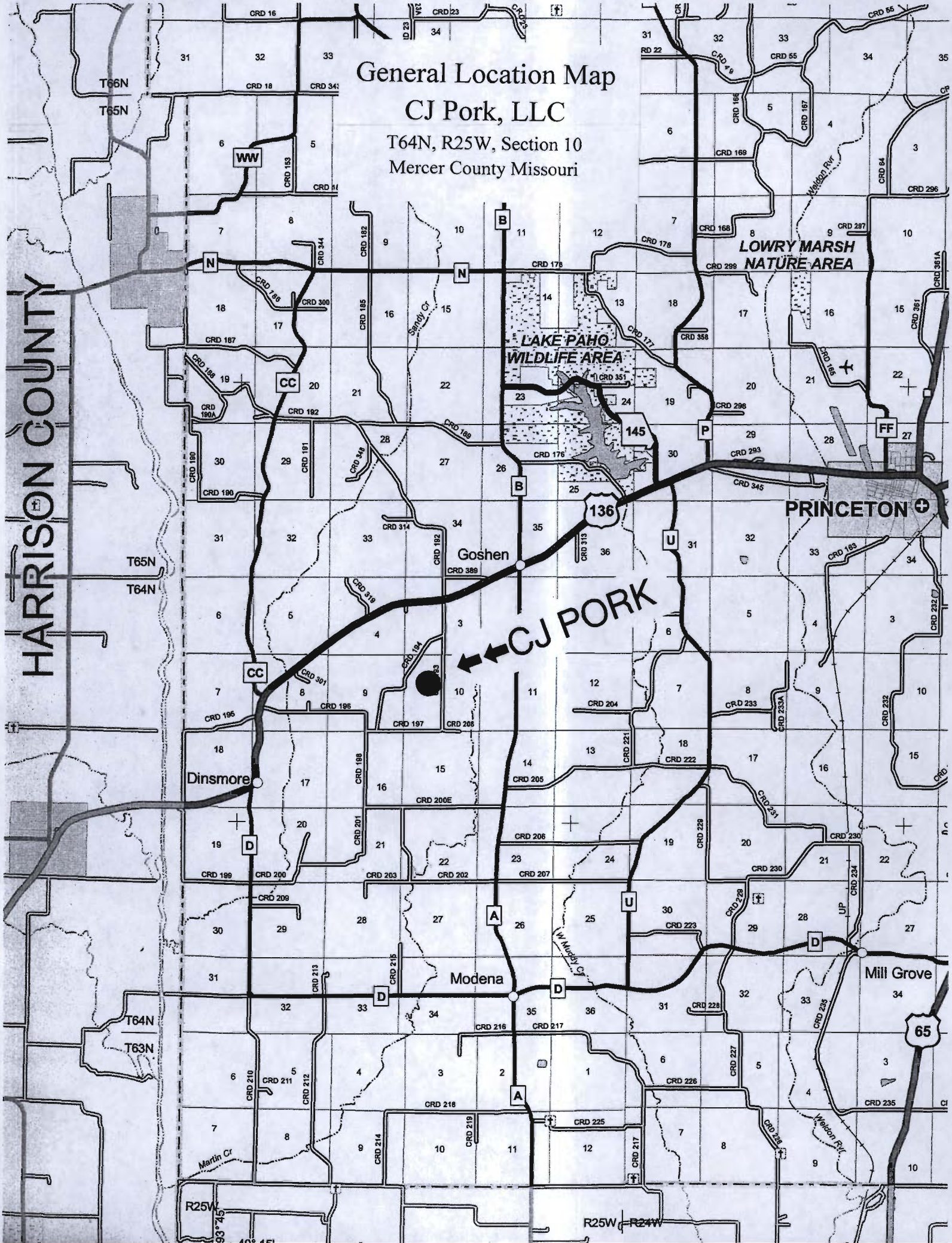
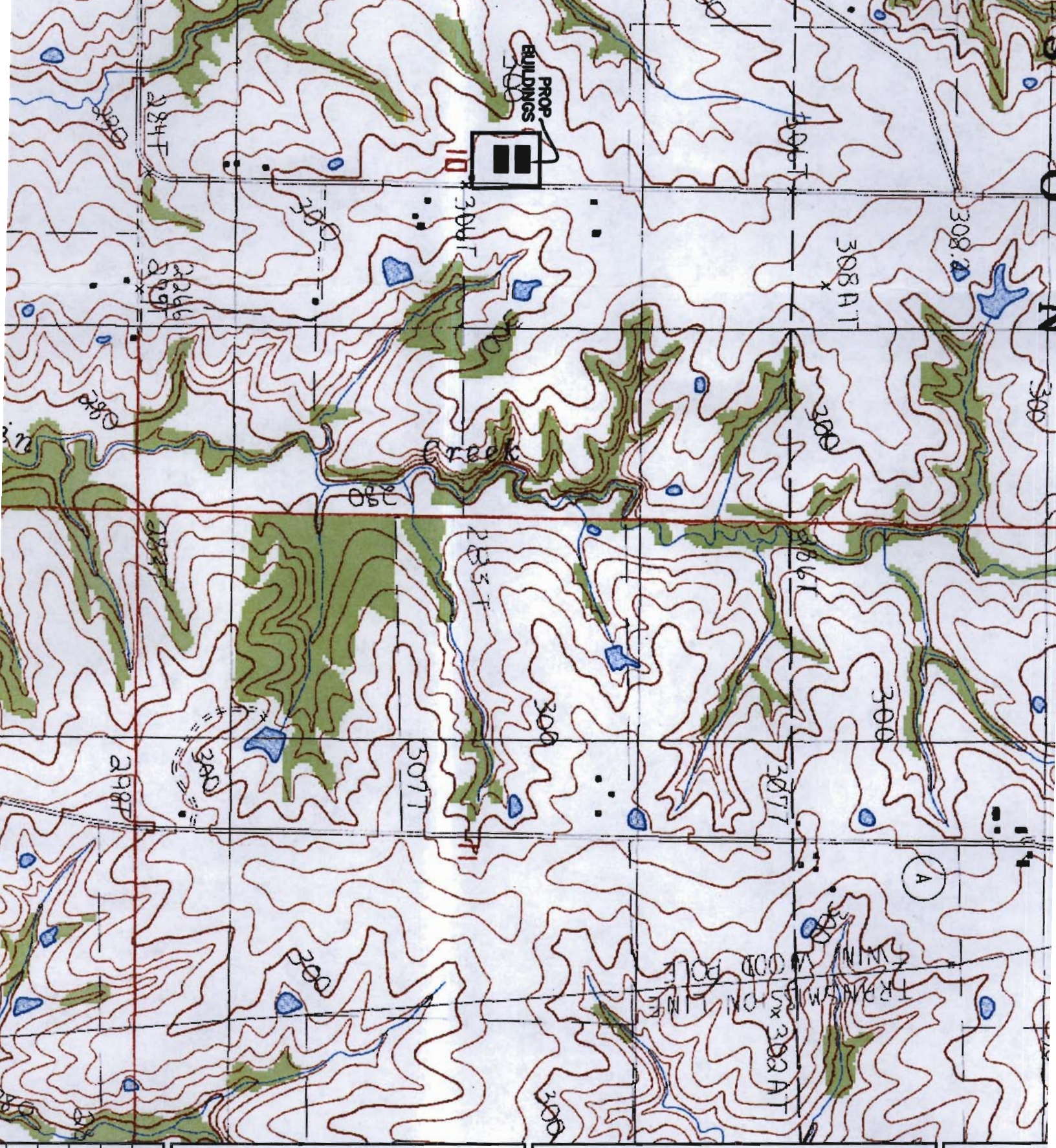
General Location Map

AES P.O. Box 29 Bowling Green, MO 63334 573-324-6860 Phone 573-324-6818 Fax

General Location Map
CJ Pork, LLC
T64N, R25W, Section 10
Mercer County Missouri





FILE NAME	15-3250
DRAWN BY	TRD
CHECKED BY	TRD
PROJECT ENGINEER	JEB
CONTACT OFFICE	BOWLING GREEN
DATE	

CJ PORK, LLC
28614 HWY A
PRINCETON, MO 64673

SHEET TITLE:
TOPOGRAPHIC MAP
T64N, R25W, SECTION 10

ALLIED ENGINEERING SERVICES, LLC

Engineering-Surveying-Construction

224 WEST MAIN
P.O. BOX 29
BOWLING GREEN, MO 63334 PHONE: (573) 324-6860

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MAY 31 2016
Water Protection Program

Missouri Nutrient Management Plan Missouri Department of Natural Resources (MDNR) Review Document

The objective of this document is to verify compliance with Missouri's state nutrient management requirements found in state regulation at 10 CSR 20-6.300 (3) (G)1. and the MDNR Concentrated Animal Feeding Operation Technical Standard. The owner or operator of a permitted CAFO is required to maintain a copy of a complete and up-to-date Nutrient Management Plan at all times.

Farm contact information: CJ Pork, LLC
Jacob Ellsworth
28614 Hwy A
Princeton, MO 64673
(660)748-8410 (mobile)

Plan Period: September 2016 - August 2021

MDNR Review Document: Index and Checklist

Completed		Page	Comments
	SECTION A - General Site Information		
√	1. Farm Contact Information: AFO operator(s) and manager(s).	6	
√	2. Technical Service Provider Contact Information.	6	
√	3. Plan Narrative: Succinct description of the operation and planned approach to manure handling and nutrient management.	6	
	SECTION B - Livestock Production System and Land Description		
√	1. Manure Storage and Animal Inventory: a. Manure Storage Descriptions. b. Animal Inventory.	8	
√	2. Manure Exports, Imports and Transfers: a. Planned manure exports off the Farm. b. Planned manure imports onto the Farm. c. Planned internal manure transfers.	9	
	3. Land Application Equipment: a. Summary of manure applicators.	10	
√	4. Mortality Handling Narrative: a. Estimated annual amount of animal mortalities.	10	
	SECTION C - Sustainability/Feasibility Evaluation		
√	1. Farm Nutrient Balances: a. Whole-farm manure nutrient balance accounting for nutrients in manure exported, imported or used for land application. b. Nutrient balance on spreadable acres accounting for plant-available nutrients applied in manure and other fertilizers and removed by crops.	11	
√	2. Projected Land Requirements for N-based Versus P-based Management: a. Crop land summary. b. Average annual land requirements for N-based versus P-based management of manure.	12	
	SECTION D - Land Application Site Information		
	1. Field Maps: a. Field delineation map showing field and sub-field ID with aerial photo background. b. Manure application sensitive feature map including manure application setbacks. Map lists field ID, sub-field ID, field size and spreadable acres for each field.	14	
	2. Other Field Information: a. Soil survey data.	14	

MDNR Review Document: Tables and Maps

Completed	Table/Map	Comments
√	Table B-1-1. Manure Storage Descriptions.	
√	Table B-1-2. Animal Inventory.	
√	Table B-2-1. Planned manure exports off the Farm.	
√	Table B-2-2. Planned manure imports onto the Farm.	
√	Table B-2-3. Planned internal manure transfers.	
√	Table B-3-1. Summary of manure applicators.	
√	Table B-4-1. Estimated annual amount of animal mortalities.	
√	Table C-1-1. Whole-farm manure nutrient balance accounting for nutrients in manure exported, imported or used for land application.	
	Table C-1-2. Nutrient balance on spreadable acres accounting for plant-available nutrients applied in manure and other fertilizers and removed by crops.	
√	Table C-2-1. Crop land summary.	
√	Table C-2-2. Average annual land requirements for N-based versus P-based management of manure.	
	Map D-1-1. Field delineation map showing field and sub-field ID with aerial photo background.	
	Map D-1-2. Manure application sensitive feature map including manure application setbacks. Map lists field ID, sub-field ID, field size and spreadable acres for each field.	
	Table D-2-1. Soil survey data.	
	Table D-2-2. Other field information.	
	Table D-3-1. Land treatment practices (conservation practices) used on a field to meet manure management objectives.	
	Table E-1-1. Soil test results used to develop the nutrient management plan.	
	Table E-2-1. Recommended fertilizer rate and crop removal rate for each crop in each rotation for each field.	
√	Table E-3-1. Manure test values used in calculating manure application rates for planning purposes.	
	Table E-4-1. Supporting information for fields assessed with the Missouri P Index – other supporting data and results.	
	Table E-4-2. Report steps that will be taken to reduce	

	phosphorus loss from fields rated high or very high by phosphorus loss assessment.	
	Table F-1-1. Manure and fertilizer applications – focus on nutrient application rate.	
	Table F-2-1. Field nutrient balance based on crop removal.	
√	Table F-3-1. Summary of projected manure collection, imports, exports and transfers and end-of-year totals.	

SECTION A
General Site Information

1. Farm Contact Information

Farm Contact Information:

Name: Jacob Ellsworth
Address: 28614 Hwy A
Princeton, MO 64673

Home Phone:
Office Phone: (660)748-8410
Email:

2. Technical Service Provider Contact Information

Nutrient Management Planner

Name: Jeff E. Browning
Title: Professional Engineer
Certification Credentials: Professional Engineer MO Number: E-28664, IL Number 062-051954
NRCS TSP 05-4871
E-mail: jeff@alliedengineering.us

3. Plan Narrative:

This facility is located in the NW ¼, NW ¼, section 10, Township 64N, Range 25W, in Mercer County Missouri.

The proposed operation will consist of two new 2,490 head wean-finishing hog barns. This will be a class IC concentrated animal feeding operation.

The two 101'10" X 201'0" buildings will be "deep-pit" type barns. The concrete pits will be 8' deep from the bottom of the slatted floor. Hog manure falls through the slatted floor and is collected and stored in the pit. The deep pit will have approximately 506 days of storage at the 7' level.

The Missouri Department of Natural Resources "Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard" will be utilized for guidance for the Land Application of wastewater from the barn pits. Exact land requirements and total application rates will be calculated using laboratory analysis on a year-to-year basis.

Dead animals will be disposed of in accordance with the Missouri Department of Agriculture regulations. Dead animals from this site will be composted off-site. The off-site composter has a concrete floor and roof.

Clean Water Diversion

This farm will be graded to divert storm water away from buildings, animal confinement areas and manure storage areas.

A potential source of unplanned waste from animal confinement facilities is from storm water coming into contact with pollutants. The pollutants that could potentially contaminate the water are the hogs, manure, feed, diesel fuel, and oils and lubricants for farm equipment. All of these potential pollutants are kept under roof at this farm. They do not come into contact with clean rain water or add to the contaminated waste on the farm.

A common way for clean water to become contaminated is by contacting ventilated dust on the ground around the barn. To treat rainwater that becomes contaminated by this dust, the barn will be surrounded by grass. The grass acts as a filter and helps prevent erosion around the barns reducing suspended solids in the runoff.

Other operations at this farm that could potentially contribute to exposed pollutants are the loading and unloading of pigs, feed, manure, and mortality compost. When these sources are handled messes can occur. Care should be taken to not create a mess around the door of the barns, the manure pumping ports, the skirt to the composter or at the base of the feed bins. When messes occur during these operations they will be cleaned up immediately.

Prevention of Direct Contact of Confined Animals to Waters of the State

All confined animals are housed under roof in buildings with no outside access. They have no direct access to waters of the state.

SECTION B
Livestock Production System and Land Description

1. Manure Storage and Animal Inventory

Table B-1-1. Manure Storage Descriptions.

Storage ID	Type of Storage	Pumpable or Spreadable Capacity	Estimated Annual Manure Collected	Units Manure Storage	Estimated Maximum Days of Storage
Barns	Underfloor liquid storage	2,083,918	1,501,192	Gal	506

Table B-1-2. Animal Inventory.

Animal Group	Type or Phase of Production	Number of Animals	Average Wt. (lbs)	Confinement Period	Manure Collected (%)	Storage ID where Manure will be Stored
Hogs	Wean-to-finish pig	4,980	140	Early Jan - Late Dec	100	Barns

(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.

2. Manure Exports, Imports and Transfers

Table B-2-1. Planned manure exports off the Farm.

Export Month	Export Year	Manure Source Storage ID	Target Export Amount	Export Units	Receiving Operation
4	2017	Barns	800,000	Gal	Off Farm
11	2017	Barns	800,000	Gal	Off Farm
4	2018	Barns	700,000	Gal	Off Farm
11	2018	Barns	800,000	Gal	Off Farm
4	2019	Barns	700,000	Gal	Off Farm
11	2019	Barns	800,000	Gal	Off Farm
4	2020	Barns	700,000	Gal	Off Farm
11	2020	Barns	800,000	Gal	Off Farm
4	2021	Barns	700,000	Gal	Off Farm

Table B-2-2. Planned manure imports onto the Farm.

Import Month	Import Year	Originating Operation	Manure Animal Type	Target Import Amount	Import Units	Receiving Storage ID
No planned manure imports onto the Farm.						

Table B-2-3. Planned internal manure transfers.

Transfer Month	Transfer Year	Manure Source Storage ID	Target Transfer Amount	Transfer Units	Receiving Storage ID
No planned internal manure transfers.					

3. Land Application Equipment

Table B-3-1. Summary of manure applicators.

Equipment ID	Spreader or Pump Capacity	Capacity Units	Effective Application Width (ft.)	Land Application Travel Speed (min-max)	Speed Units	Minimum Application Rate	Rate Units	Owned? (Y or N)
Aerway	1,000	Gal	15		mph	2,500	Gal/Acre	N
Tankwagon	4,800	Gal	20		mph	1,000	Gal/Acre	Y

4. Mortality Handling Narrative

Table B-4-1. Estimated annual amount of animal mortalities.

Animal Group	Type or Phase of Production	Number of Animals[1]	Annual Mortality (%)[2]	Total Animals per Year[3]	Estimated Average Annual Mortality (tons)
Hogs	Wean-to-finish pig	4980	3	149	10.4
Total	-	4980	-	-	10.4

[1] Number of Animals is the typical number of animals that are present in the operation during the confinement period.
[2] As a percentage of number of animals.
[3] Calculate as Number of Animals X Annual Mortality.

Mortalities from this farm will be removed off-site to a compost facility.

SECTION C
Sustainability/Feasibility Evaluation

1. Farm Nutrient Balances

Table C-1-1. Whole-farm manure nutrient balance accounting for nutrients in manure exported, imported or used for land application.

	N	P_2O_5	K_2O
	(lbs.)	(lbs.)	(lbs.)
Manure Nutrients On-Hand at Start of Plan	0	0	0
Manure Nutrients Collected	435,346	330,262	300,238
Manure Nutrients Imported	0	0	0
Manure Nutrients Exported	394,400	299,200	272,000
Manure Nutrients Applied On-Farm			
Manure Nutrients on Hand at End of Plan (calc)	40,946	31,062	28,238

Table C-1-2. Nutrient balance on spreadable acres accounting for plant-available nutrients applied in manure and other fertilizers and removed by crops.

	N	P_2O_5	K_2O
Plant-Available Manure Nutrients Applied[1] (lbs.)			
Commercial Fertilizer Nutrients Applied (lbs.)			
Available Nutrients Applied (all sources) (lbs.)	0	0	0
Nutrient Utilization Capacity of Crops[2] (lbs.)			
Nutrient Balance on Spreadable Acres[3] (lbs.)	0	0	0
Nutrient Balance on Spreadable Acres (lbs./acre)	no acres	no acres	no acres
Nutrient Balance on Spreadable Acres (lbs./acre/yr.)	0	0	0

1. Available manure nutrients applied on the farm accounting for state-specific nutrient losses due to time and method of application.
2. 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).
3. Interpretation:

   For N,
   - Non-trivial positive values indicate the plan was not developed properly;
   - Negative numbers may or may not be intentional. For example plans that have legume crops will typically not utilize the full nitrogen removal capacity resulting in negative numbers.

   For P_2O_5 and K_2O,
   - Positive numbers may indicate build up of P_2O_5 and K_2O above agronomic need and/or removal.

Negative numbers indicate applications below recommended rates or depletion of P_2O_5 and/or K_2O from the soil on some fields. This may be beneficial on fields with high or very high soil test phosphorus.

2. Projected Land Requirements for N-based Versus P-based Management

Farm Attributes:

Table C-2-1. Crop land summary.

Crop and Forage Acres	Acres Suitable for Manure Application (Spreadable Acres)
0.0	0.0

Table C-2-2. Average annual land requirements for N-based versus P-based management of manure.

Calculation Basis	N-based Management	P-based Management
	acres/year	
Projection based on total nutrients collected	455.1	1,192.3
Projection based on plant available nutrients applied	358.6	1,192.3

All estimates assume plant nutrient availability in manure and nutrient utilization by the crop is similar to how manure and crops are managed in the plan.

For these calculations:
Manure nitrogen availability was calculated to be 79%
Crop N utilization was calculated to be 191.3 lbs. N/acre/year
Crop P_2O_5 utilization was calculated to be 55.4 lbs. P_2O_5/acre/year.

CJ Pork, LLC
Mercer County

Year	Corn	Soybeans	Forage	
2012		27		
2011	119.1			
2010	102.4	42.6		
2009	125	41		
2008	114	24	2.25	
2007	131	41	1.69	
2006	148	42	1.82	
2005	108.2	39.1	2	
2004	142.1	43.5	2.39	
Average	123.7	37.5	2.0	
Avg. +10%	136.1	41.3	2.2	Crop Yield Goals

SECTION D
Land Application Site Information

1. Field Maps (Not Used)

Map D-1-1. Field delineation map showing field and sub-field ID with aerial photo background.

Map D-1-2. Manure application sensitive feature map including manure application setbacks. Map lists field ID, sub-field ID, field size and spreadable acres for each field.

2. Other Field Information (Not Used)

Table D-2-1. Soil survey data.

No fields defined for this plan.

Table D-2-2. Other field information.

No fields defined for this plan.

[1]Land Tenure: Owned = Own, Rented = Rent, Spreading Agreement = SA, Other = O.

3. Land Treatment Practices Needed to Meet Manure Management Objectives (Not Used)

Table D-3-1. Land treatment practices (conservation practices) used on a field to meet manure management objectives. List those practices required to reduce erosion and runoff as part of properly implementing the manure management plan.

No fields defined for this plan.

SECTION E:
Recurring Activities and Data Related to Land Application of Manure

1. Soil Testing Results (Not Used)

Table E-1-1. Soil test results used to develop the nutrient management plan.

No fields defined for this plan.

2. Crop Fertilizer Recommendations and Crop Removal Values (Not Used)

Table E-2-1. Recommended fertilizer rate and crop removal rate for each crop in each rotation for each field.

No fields defined for this plan.

3. Manure Test Values Used for Planning Purposes

Table E-3-1. Manure test values used in calculating manure application rates for planning purposes.

Provide justification for the selection of manure test values in Appendix 5.

Storage ID	Storage Type	DM (%)	Total N	Ammonia N	Phosphate (P_2O_5)	Potash (K_2O)	Units	Analysis Source (date)
Barns	Underfloor liquid storage		58.0	39.0	44.0	40.0	lbs/1000Gal	MWPS 18 Table 7

4. Phosphorus Loss Assessment

Table E-4-1. Supporting information for fields assessed with the Missouri P Index – other supporting data and results.

No fields defined for this plan.

Table E-4-2. Report steps that will be taken to reduce phosphorus loss from fields rated high or very high by phosphorus loss assessment.

No fields defined for this plan.

SECTION F

Field-by-Field Planned Manure and Fertilizer Applications and Projected Nutrient Balances

1. Planned Manure and Fertilizer Applications (Not Used)

Table F-1-1. Manure and fertilizer applications – focus on nutrient application rate.

Field	Sub-Field ID	App Month	App Year	Target Crop	Nutrient Source (Storage ID/ Fertilizer Product	Equipment Type/ Application Method	Rate/Acre	Total Amount Applied	Applied Units	Acres Cov.	Avail N (Lbs/A)	Avail P_2O_5 (Lbs/A)	Avail K_2O (Lbs/A)

2. Field Nutrient Balance (Not Used)

Table F-2-1. Field nutrient balance based on crop removal. Note that nitrogen crop values based on fertilizer recommendations for non-legume crops. Note that manure cannot be applied on a field with a phosphate balance greater than 500 lbs/acre.

No fields defined for this plan.

3. Annual Summary of Projected Manure Inventory

Table F-3-1. Summary of projected manure collection, imports, exports and transfers and end-of-year totals.

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
Barns	Sep '16 - Aug '17	0	1,501,192	0	0	0	800,000	0	701,192	Gal
Barns	Sep '17 - Aug '18	701,192	1,501,192	0	0	0	1,500,000	0	702,384	Gal
Barns	Sep '18 - Aug '19	702,384	1,501,192	0	0	0	1,500,000	0	703,576	Gal
Barns	Sep '19 - Aug '20	703,576	1,501,192	0	0	0	1,500,000	0	704,768	Gal
Barns	Sep '20 - Aug '21	704,768	1,501,192	0	0	0	1,500,000	0	705,960	Gal

Document Source Information

Report based on information from Manure Management Planer MMP 0.3.5.0

Plan:

File:	C:\Projects\2015\15-3250 CJ Pork\cj pork.mmp
Initialized:	3/24/2015
Last Saved:	5/26/2016 4:34:14 PM
Exported:	5/26/2016 4:34:28 PM
Title:	
Years in Plan:	5
Plan Start Year:	2016
Plan Start Month:	9

Operation:

Name: CJ Pork, LLC

Operation Contact:

Jacob Ellsworth
28614 Hwy A
Princeton MO 64673
(660)748-8410 (mobile)

Appendix 1

Narrative Summary of Design

CJ PORK, LLC

NARRATIVE SUMMARY OF DESIGN

This facility is located in the NW ¼, NW ¼, section 10, Township 64N, Range 25W, in Mercer County Missouri.

The proposed operation will consist of two new 2,490 head wean-finishing hog barns. This will be a class IC concentrated animal feeding operation.

The two 101'10" X 201'0" buildings will be "deep-pit" type barns. The concrete pits will be 8' deep from the bottom of the slatted floor. Hog manure falls through the slatted floor and is collected and stored in the pit. The deep pit will have approximately 506 days of storage at the 7' level.

The Missouri Department of Natural Resources "Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard" will be utilized for guidance for the Land Application of wastewater from the barn pits. Exact land requirements and total application rates will be calculated using laboratory analysis on a year-to-year basis.

Dead animals will be disposed of in accordance with the Missouri Department of Agriculture regulations. Dead animals from this site will be composted off-site. The off-site composter has a concrete floor and roof.

Clean Water Diversion

This farm will be graded to divert storm water away from buildings, animal confinement areas and manure storage areas.

A potential source of unplanned waste from animal confinement facilities is from storm water coming into contact with pollutants. The pollutants that could potentially contaminate the water are the hogs, manure, feed, diesel fuel, and oils and lubricants for farm equipment. All of these potential pollutants are kept under roof at this farm. They do not come into contact with clean rain water or add to the contaminated waste on the farm.

A common way for clean water to become contaminated is by contacting ventilated dust on the ground around the barn. To treat rainwater that becomes contaminated by this dust, the barn will be surrounded by grass. The grass acts as a filter and helps prevent erosion around the barns reducing suspended solids in the runoff.

Other operations at this farm that could potentially contribute to exposed pollutants are the loading and unloading of pigs, feed, manure, and mortality compost. When these sources are handled messes can occur. Care should be taken to not create a mess around the door of the barns, the manure pumping ports, the skirt to the composter or at the base of the feed bins. When messes occur during these operations they will be cleaned up immediately.

Prevention of Direct Contact of Confined Animals to Waters of the State

All confined animals are housed under roof in buildings with no outside access. They have no direct access to waters of the state.

Appendix 2

Example Record Keeping Documents

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

CAFO RECORD KEEPING FORMS CHECKLIST

INSTRUCTIONS

1. Use the checklist to determine which of the record keeping forms are required for your operation and include them in your record keeping file. Forms for all record keeping requirements of the MOG01 (NPDES) and MOGS1 (State No Discharge) operating permits are included.
2. There will be multiple copies of some pages due to the unique characteristics of each operation. The forms can be filled out on a computer or they can be printed or copied and kept in a binder.
3. Information on the forms can be used to complete the annual report, which must be submitted by Feb. 15, of each year. Only specified forms need to be submitted with the annual report
4. All records must be retained for five years along with your operating permit, and nutrient management plan.

CHECKLIST

OPERATION NAME:	**PERMIT NUMBER**: MO-	**YEAR**
MANURE STORAGE		
1A. Spills and Overflows		
1B. Liquid Manure Storage Level Readings		
1C. Transfers Off-Farm		
1D. Rainfall Records (Required only for operations with open liquid storage)		
1E. Mortality Management		
TESTING RESULTS		
2A. Manure		
2B. Soils		
INSPECTIONS		
3A. Production Area Visual Inspections		
3B. Land Application Area Visual Inspections		
3C. Problems and Repairs		
LAND APPLICATION		
4A. Operational Monitoring		
4B. Nitrogen		
4C. Phosphorus		

1A - MANURE STORAGE. Spills and Overflows (List any corrective actions taken in 3B.)

PERMIT NUMBER MO-				YEAR		
Date	**Time**	**Cause of Discharge**	**Location**	**Discharge Rate** gallons or cu. ft./Sec	**Discharge Duration**	**Estimated Volume Discharged[1]** gallons or cu. ft.

Notes

[1] Estimated volume = discharge rate in gallons per second or cubic feet per second x duration (seconds). See record keeping requirements of your MOG01 or permit, for additional guidance.

Measure discharge or release of spills from manure handling and overflows from manure storages at the property line or immediately prior to entering the receiving stream.

Any discharge of manure, litter, process wastewater, or mortality by-products to surface waters of the state or release that crosses property boundaries shall be reported to the department as soon as practicable, but no later than 24 hours after the permittee becomes aware of the discharge. MOGS1 permitees see additional reporting requirements in Non-compliance reporting requirements of your permit.

If a discharge or release occurs, submit this page with the annual report.

1B - MANURE STORAGE. Liquid Manure Storage Level Readings

MANURE SOURCE	PERMIT NUMBER	YEAR
	MO	

Week	Date	Level Reading - Feet Below Overflow
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
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46		
47		
48		
49		
50		
52		

Instructions: Record the liquid level weekly for each unique liquid manure storage structure. Use a separate sheet for each separate structure.

1C - MANURE STORAGE. Transfers (Off-farm)

PERMIT NUMBER
MO

YEAR

Source[1]	Date of Transfer	Amount Transferred (gal. or ton)	Info to Buyer (check)		Name of Buyer	Address
			Current Manure Test Results	NMTS[3]		

Notes

[1] Deep pit, lagoon, basin, tank, sludge, separated solids, litter, mortality compost.

[2] Agitated, unagitated, cake litter, with or without bedding, composted litter.

[3] The current version of the Missouri CAFO Nutrient Management Technical Standard published by the Department of Natural Resources.

1D - MANURE STORAGE. Rainfall (Required for open liquid storage only)

PERMIT NUMBER

MO

YEAR

Day	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1												
2												
3												
4												
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28												
29												
30												
31												
Monthly Total												
YTD												

Instructions: Collect rainfall data for operations with open liquid manure storages only.

1E - MANURE STORAGE. Method of Mortality Management

PERMIT NUMBER	YEAR
MO	

Composting	Rendering	Sent to Landfill	Incineration	Burial[1]	Other ____

Records[2]:

Notes

[1] In accordance with 10 CSR 20-8.300(14), Class I operations shall not use burial as a method of disposing of routine mortalities. Burial is allowed for disposal for mass mortalities.

[2] Information recorded here can include weekly/monthly mortality numbers, mortality and composting procedures, mortality by-product management, or rendering facilities information.

2A - TESTING RESULTS. Manure Test Results (Annual manure analysis is required for all CAFO's, including export only operations.)

PERMIT NUMBER

MO

YEAR

Source of Manure[1]	Type of Manure[2]	Sample Date	Moisture/Dry Matter (%) (Circle one)	Units lbs./1000 gal lbs/ton	TKN	NH_3-N	P_2O_5	K_2O	NO_3-N [3]

Notes

[1] Deep pit, lagoon, basin, litter, tank, sludge, separated solids, mortality compost.

[2] Agitated liquid pit/tank manure, unagitated lagoon/basin effluent, agitated lagoon/basin manure, poultry litter, poultry litter cake, bedded pack manure, stacked manure with or without bedding, composted litter, mortality compost or other composted manure.

[3] Report nitrate nitrogen only when applicable.

MOG01 permittees must submit a copy of the lab analysis sheets or this form with the annual report.

2B - TESTING RESULTS. Soil Test

PERMIT NUMBER

MO

YEAR

Field ID[1]	Soil Sampling Date	Units ppm or lbs/ac (circle one)	Soil Test P[2]	Soil Test P Rating	CEC (meq/100g)	Organic Matter (%)

Notes

1 Name of field as identified in nutrient management plan; only include fields under control (owned, rented, or leased) of the CAFO owner or operator.

2 Samples should be analyzed using the Bray-1 P soil extraction procedure. If another procedure is used by the soil testing lab, this must be noted on this sheet.

MOG01 permittees must submit a copy of the lab analysis sheet(s) or this form with the Annual Report if soil samples were taken during the year.

3A - INSPECTIONS. Production Area Visual Inspections (List any deficiencies and corrective actions taken in 3C.)

PERMIT NUMBER

MO

YEAR

Week	Stormwater [1] Date and Initial	Water Lines [2] Date and Initial	Manure Containment Structure [3] Date and Initial
1			
2			
3			
4			
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Notes

[1] Record the weekly inspections of all stormwater diversion devices directing clean water away from the production area and channeling contaminated water to manure storages.

[2] Record each week the daily inspections of all wastewater lines within the production area and all drinking or cooling water lines that have the potential to leak into manure, litter or process wastewater structures. Record weekly that you inspected daily.

[3] Record weekly inspections of all manure, litter and process wastewater storage structures.

3B - LAND APPLICATION. Land Application Area Visual Inspections (List any deficiencies and corrective actions taken in 3C.)

PERMIT NUMBER **MO**	YEAR

Land Application Equipment[1] Date and Initial	**Perimeter of Field**[2] Date and Initial	**Drifting of Spray**[3] Date and Initial	**Aboveground Irrigation Pipelines**[4] Date and Initial

Notes

[1] Periodically inspect land application equipment for leaks.

[2] Monitor the perimeter of application field to ensure wastewater does not run off.

[3] Monitor for drifting of spray irrigation.

[4] Hourly inspections of aboveground pipelines for leaks when in use.

3C - INSPECTIONS. Problems and Repairs

PERMIT NUMBER MO		YEAR	
Inspection Date	**Deficiencies Noted**	**Date of Repair[1]**	**Corrective Actions Taken**

Notes

[1] Deficiencies not corrected within 30 days shall have an explanation as to why corrective actions were delayed.

4A - LAND APPLICATION. Operational Monitoring

PERMIT NUMBER	YEAR	DATE LAND APPLICATION EQUIPMENT WAS CALIBRATED
MO		

Source of Manure[1]	Type of Manure[2]	Field ID[3]	Date of Application	Weather[4]	Rainfall[5]	Soil Condition[6]	Application Method[7]	Rate gal/ac or tons/ac	Basis[8] N or P	PAN[9] (lbs/ac)	P_2O_5 (lbs/ac)	Spreadable Acres	Total applied (gal or tons) Circle one

Notes

1 Deep pit, lagoon/basin, litter, tank, separated solids, compost.

2 Agitated liquid pit/tank manure, unagitated lagoon/basin effluent, agitated lagoon, basin manure, lagoon/basin sludge, separated solids, poultry litter, poultry litter cake bedded pack manure, stacked manure with or without bedding, composted litter, mortality compost, other composted manure.

3 Name of field receiving manure as identified in nutrient management plan; only include fields under control (owned, rented or leased) of the CAFO owner or operator.

4 Record the weather conditions at the time of application; insert the codes that apply: CL – clear sky, RN – rain, SN – snowing, OV - overcast, FR – temperature below 32 degrees F.

5 Record "Before" or "After" if a rainfall event occurred 24 hours prior to or after application.

6 Soil condition at time of application: Dry, saturated, muddy, snow-covered or frozen.

7 Injection, partial injection, surface application and incorporated (indicate number of days to incorporation), or surface application only.

8 Write N or P to indicate if the application rate of the field is nitrogen based or phosphorus based.

9 Plant Available Nitrogen.

4B - LAND APPLICATION MONITORING. Nitrogen Summary

PERMIT NUMBER

MO

YEAR

Field ID[1]	Spreadable Acres	Planned Crop	Projected Yield (bu. or ton/ac)	Planned N Recommendation[2] (lbs/ac)	Actual Applied N (lbs N/ac)			Actual Crop	Actual Yield (bu. or ton/ac)	Actual N Removal[4] (lbs/ac)	N Surplus (+) or Deficit (-)[4] (lbs N/ac)
					Manure PAN	Other N Sources[3]	Total PAN				

Notes

[1] Name of field receiving manure as identified in nutrient management plan; only include fields under control of the CAFO owner or operator.
[2] University of Missouri fertilizer recommendations should be used.
[3] Includes credits from previous legume crops and residual N from previous application.
[4] Crop N usage rate X actual crop yield, for legumes crop N content X crop yield.
[5] Total applied PAN minus actual N removal.

4C - LAND APPLICATION MONITORING. Phosphorus Summary

PERMIT NUMBER

MO

YEAR

Field ID[1]	MO Soil Test P Rating	P Index Rating	Planned P Removal Rate[2] (lbs P_2O_5 /ac)	Actual Applied P (lbs P_2O_5 /ac)[3]			Actual P Removal[4] (lbs P_2O_5 /ac)	*Multi-year P Applications	
				P_2O_5 From Manure	Other P_2O_5 Sources	Total P_2O_5		Previous Balance[5]	Current Balance[6]

Notes

1 Name of field as identified in nutrient management plan that is restricted to a P based application, which received manure or is utilizing a "multi-year phosphorus application;" only include fields under control of the CAFO owner or operator.

2 Crop P usage rate X crop yield goal (University of Missouri fertilizer recommendations should be used).

3 Enter amount applied for a yearly application or amount applied for a multi-year phosphorous application.

4 Crop P usage rate X actual crop yield.

5 Enter value from the current balance column from last year's form.

6 For initial year of a multi-year phosphorous application this is the "Total P_2O_5" - Planned P Removal Rate. For subsequent years it is the previous balance - Planned P Removal Rate. If the difference is a negative number enter "0".

***In accordance with 10 CSR 20-6.300(1)(B)13, fields utilizing a "Multi-year phosphorous application" cannot receive additional applications of manure, litter, or process wastewater until the applied phosphorous has been removed. The amount applied in a multi-year phosphorous application cannot exceed that year's crop N recommendation.**

Appendix 3

Operation & Maintenance Plan

Operation & Maintenance Plan

INSPECTION PROCEDURE

BARN

In order to ensure continuing DEEP-PIT integrity, the following monitoring procedures will be conducted:

FREQUENCY: Once per week.

1. Visually inspect barn for condition and concrete integrity. Concrete shall be evaluated to ensure the following:
    a. No cracks
    b. No leaning of walls
    c. The presence of rodent burrows/signs of rodent activities
    d. Signs of erosion (around building foundation)

2. On A Weekly Basis: Check pit level. Read level from the measuring marker stick by dropping the stick between the slatted floor to the pit bottom and then removing the stick to read water level. Measure the level to the nearest .1 foot above the pit floor.

MAINTENANCE

FARM FACILITIES

When problems (e.g. burrowing rodents, etc.) are noted that require follow up but are not considered emergency situations (i.e. no immediate threat to the environment), the following steps shall be taken to ensure the problem is corrected in a timely fashion:

1. Record repairs made to irrigation lines, as well as other equipment associated with land and nutrient management activities. Record the following information:
    Description of problem
    Date repair made
    Material used to complete repair
    Personnel involved
2. In the event that a maintenance problem occurs which constitutes an immediate threat to the environment, employees are instructed to follow the Emergency Response Plan immediately.

MOWING

Periodic mowing is necessary at various locations on the farm to prevent potential environmental problems, and to improve aesthetics.

Barns

A 50' area around the barn is maintained with a cool season grass cover. The primary objectives of the vegetation maintenance program is to:

1. Mow the grass as often as necessary to maintain it at 8" or less in height and to prevent the "heading out" of any grass or weed species that are present.

2. Maintain the grass at as even level as possible.

The area around the barn shall be kept free of burrowing animals so as not to jeopardize integrity of the pit.

EMERGENCY MAINTENANCE

If a problem is discovered that requires immediate attention, take the following actions:

1. If work can be completed in-house, mobilize the appropriate personnel to rectify the problem.

2. If work cannot be completed in-house, enlist any necessary outside service directly to repair the problem.

In situations posing a potential threat to the integrity of the deep-pit operation or any of the land and nutrient management program refer to the **Emergency Response Plan** for guidance in formulating appropriate follow-up actions.

NUTRIENT MANAGEMENT PLANNING

OVERVIEW

Manure is a by-product of any type of livestock operation. At The **CJ Pork Farm**, the barn pits have numerous air turnovers per hour to ensure a healthy environment for the employees and animals.

Manure components collected in the deep pit barn, namely, nitrogen, phosphorus, and potassium, (as well as trace minerals and nutrients) are beneficial to crops and can be effectively used as replacements for chemical fertilizer in normal farming activities.

Typical crops raised on the farm include but may not be limited to: corn and soybeans.

WASTEWATER NUTRIENTS

The primary nutrients found in Hog manure are nitrogen, phosphorus and potassium. Nitrate nitrogen (nitrate is NO3-N, a water soluble, negatively charged ion) in water can be harmful to humans. Excessive nutrients and decomposing organic nutrients (N, P, K, S) can be responsible for algae blooms and weed growth in water, which can reduce available oxygen for aquatic species. Along with the nutrients, manure may increase salinity on some soils. Hog manure does benefit soil quality. Along with nitrogen, phosphorus and potassium, several trace minerals are also found in manure. If properly managed, the nutrients can reduce or eliminate commercial fertilizer needs for many crops. Along with the nutrient value, Hog manure can increase microorganisms and improve soil organic matter, soil tilth, and soil structure. These improvements in soil quality can reduce erosion, improve drainage, and increase soil productivity.

Nitrogen: Nitrogen is important for all plants and animals; the nitrogen in manure is no different than the nitrogen found in synthetic fertilizers. Nitrogen comes from many sources and in many different forms. The nutrient and pollution potential of manure nitrogen depends on the form and amount in the environment. Understanding the different forms allows you to better manage this important nutrient.

The two main forms of nitrogen (N) in Hog manure are organic N (proteins, amino acids and urea, which are unavailable to plants) and inorganic N (ammonium, nitrates, ammonia). Ammonium N is the predominant component of available nitrogen in manure.

When manure is applied to soil, the organic N begins to break down to inorganic N, which is available to plants. This process is called ammonification or mineralization, and is affected by temperature, moisture, and time. Warm conditions have a higher rate of organic N conversion than cooler temperatures. Approximately 33-55% of organic N is converted to ammonium or available N each year after the manure is land applied.

When organic N is converted to available N, it starts as ammonium N. Ammonium N is available for plant uptake and is not mobile in the soil. The process of nitrification eventually converts ammonium N to nitrate N. While nitrate N is available to plants, it is also susceptible to denitrification (loss to the air) and to leaching. Ammonia N can be quickly lost by being converted to ammonium and volatilized.

Phosphorus and Potassium: Phosphorus and potassium are also important nutrient components of manure. Both nutrients are needed for proper plant and root growth. While they generally bind tightly with soil, they can move into surface waters by moving on eroded soil particles. Phosphorus may move directly into surface waters in areas with extremely high phosphorus levels. Excessive concentrations of phosphorus in water can contribute to excessive aquatic plant growth and depletion of oxygen. However, phosphorus and potassium have little potential for leaching and have no direct toxic effects on humans or wildlife. By using proper conservation techniques (such as conservation tillage, terraces, filter strips, etc.) movement of phosphorus or potassium into surface water can be reduced.

DEVELOPING A NUTRIENT MANAGEMENT PLAN

Several factors are considered in the development of a sound nutrient management plan, including: separated solids analysis, lagoon water analysis, the amount of plant available nitrogen (PAN), amount of land available, cropping program, and application procedures.

WASTEWATER ANALYSIS

Current regulations dictate that nutrient management plans be based on nitrogen and phosphorus levels, therefore land requirements to fulfill land application goals are based partially on the concentration of nitrogen in the wastewater and solid manure to be land applied. More than the other two primary nutrients in manure (phosphorus and potassium) the concentration of nitrogen in wastewater varies with water temperature and weather conditions. In order to develop the best overall estimate of total nitrogen levels in the deep-pit, it must be sampled annually.

SAMPLING PROTOCOL

It is recommended that UMC Science and Technology Guide "Collecting and Preserving Waste and Wastewater Samples for Analysis" and University Extension Water Quality publication "Laboratory Analysis of Manure" be followed.

WASTEWATER

1. Using plastic bottles, collect samples of wastewater at varying depths below surface.
2. Pour 50 ml of liquid into a second sample bottle. Discard the remainder of the first sample into the lagoon.
3. Repeat this process at at least six more spots, each time pouring approximately 50 ml into the second sample bottle so that the second bottle consist of 350 ml of lagoon liquid more or less, collected from a minimum of seven different locations.
4. Secure the lid for each sample bottle and fill out and attach the appropriate sample identification label and date each bottle.
5. Deliver samples directly to laboratory.

SAMPLE ANALYSIS

Each sample shall be analyzed by a qualified analytical laboratory for the constituents identified in the following table:

Table of Analysis Constituents

Constituent	Unit
Kjeldahl Nitrogen	mg/l
Ammonia Nitrogen as N	mg/l

Nitrate Nitrogen as N	mg/l
Total phosphorus as P	mg/l

A copy of the analysis shall be used in the preparation and modification of the annual cropping plans.

DETERMINING LAND NEEDS

Nutrient management plans using DNR recommended methodologies shall be prepared each year for each field in the operation to achieve the best program for even distribution of nutrients from the manure.

It is recommended that University Extension Water Quality Guide "Reduce Environmental Problems with Proper Land Application of Animal Waste" and "Land Application Considerations for Animal Waste" be reviewed by all Land Application personnel.

Crops

Plants have different capacities to utilize nutrients, in particular nitrogen. Current state regulations dictate that cropping plans be developed to account for nitrogen loading and uptake by crops. Several references are recommended by the DNR to determine nutrient uptake potential of different crops. They are:

Midwest Plan Service. 1993. **Livestock Waste Facilities Handbook**.

Buchholz, D. 1983, Reprinted 1989. **Soil Test Interpretations and Recommendations Handbook**. University of Missouri; College of Agriculture.

Natural Resources Conservation Service. **Soil Interpretation Manual**.

Soil Sampling

In order to correctly estimate the available nutrients in the soil, soil tests should be conducted every year.

Sampling locations should be determined based on soil type and statistically sound sampling methods. A standard soil sampling protocol (MU Guide: "How To Get A Good Soil Sample") should be followed.

Deep Pit Pumpdown Levels

Pumping operations will be initiated before the water level reaches the upper pumpdown marker on the pumdown stick. The pit shall be pumped down as close as possible to the floor each year to insure that full storage is available during the winter and spring months.

DETERMINING PLANT AVAILABLE NITROGEN

Plant Available Nitrogen (PAN) is a measurement of the amount of nitrogen in the soil which is in a form which is readily available for use by vegetation. As previously stated, nitrogen exists in many forms, however some forms are more easily accessed by plants than others. Nitrate nitrogen (NO) is the form most commonly used by plants. PAN calculations take into consideration the amount of nitrogen present in all forms-the amount of nitrogen available in the manure, nitrogen from "native/soil" sources {sRON} and from previous manure or applications {mRON} – and compares these values with the nitrogen needs of the crop to be grown. The Missouri DNR has developed a worksheet to determine PAN. This worksheet should be used in the formulation of a nutrient management plan. A copy of the worksheet is provided. A professional agronomist or engineer should be employed on an annual basis to aid in completing the calculations.

The procedure for determining PAN follows:

Procedure to Determine Plant Available Nitrogen

1. One Missouri DNR PAN worksheet shall be used for each field on each farm.
2. Fill out worksheet on a field by field basis, using the crop that is planed to be grown the following year in the calculation.
3. Use soil sample analysis to fill in Soil Residual Organic Nitrogen (sRON).
4. Use Wastewater analysis to determine Manure Plant Available Nitrogen (mPAN).
5. Use past pumping records, water use records, and rainfall data to calculate total volume of wastewater to be pumped in upcoming growing season.
6. Using DNR worksheet and crop to be grown, calculate nutrient loading for every field. In no case should nutrient loading projections exceed land use capacity. If PAN requirements exceed nutrient loading capacity of pumping acreage, modifications shall be made to the cropping plan to incorporate crops with a heavier nutrient loading capacity.
7. If modifications to cropping scenario do not alleviate nutrient loading concerns, then additional land shall be secured to apply waste on.

SCHEDULING APPLICATION ACTIVITIES

Several conditions (mostly weather-related) may require modification and adjustment of application schedules. These are described below.

Determining Number of Days Suitable for Application

Application is permitted to occur during seasons when the ground is not frozen, typically from March 1 through December 15 (approximately 285 days). If conditions remain favorable for application beyond the duration of the permitted pumping schedule, then application may continue.

Land application is not permitted during rain events, The normal occurrence of rainy days must be included in the preparation of application schedules for this time period. In order to develop an accurate estimate of the number of non-rainy days during the season, the following shall be conducted, prior to commencing the land application season every year.

1. Review the land application history for the three previous growing seasons.

2. Total up the number of days on which land application occurred during the previous three seasons.

3. Divide by three to determine the number of days available for the current growing season.

4. Include the estimated available land application days in upcoming year's nutrient management plan.

Adjusting Application Rates

The PAN procedure is recommended by DNR to estimate the nutrient loading capacity of each field. Land application procedures, as outlined in this manual detail proper procedures for application. In addition to following proper procedures, the applicator must be capable of modifying the application program to accommodate a number of variables. Methods of addressing several of these variables are detailed below:

Soil Conditions

Precipitation events will reduce soil infiltration capacity while increasing soil moisture content. Overall soil field capacity (to reach saturation) will be reduced as well. Land Application procedures must take into account precipitation events, so that wastewater is not over-applied to an already saturated field. Application rates must be reduced on fields that have received (or are about to receive) significant (0.5") amounts of rainfall. When planning land application activities, the Applicator must consider the following conditions:

Conditions Requiring Adjustment of Application Rates

1. No land application shall be conducted while it is raining.
2. If land application is being conducted and it starts to rain, immediately cease all land application activities.
3. Check the local weather forecast for current weather data every morning before commencing land application activities. If a greater than 80% chance of rainfall is forecast for the next 24 hours, limit land application activities locations which can be quickly stopped should rainfall begin.
4. If a significant chance of rain is forecast, continue checking storm patterns throughout the day to determine if an imminent threat for rain still remains.

5. Following a significant rainfall (>0.5") or prolonged rainfall events, visually inspect the field before commencing land application. Signs of ponding water or saturated soils, should be noted. If these are present, no land application shall be commenced on the field. Continue to check the field to determine when conditions are appropriate to commence land application.
6. Consider the previous long-term weather and site conditions (i.e has it been several days of rain?, are soils already saturated?, or has it been a prolonged dry spell with one large rain event?) when determining the appropriate time to commence pumping following a heavy rain storm.
7. Consider the prevailing wind, both in terms of intensity and direction. If wind is such that application on specific fields upwind of neighbors could result in unusual level of odor reaching that neighbor's property, than another field shall be selected for application, if possible

Neighbor Considerations

The following program is recommended to insure that pumping activities do not unduly impose on neighbors.

1. No pumping is conducted over Holidays/Holiday weekends unless **absolutely** necessary to meet management standards.
2. If neighbors contact the Farm to inform of a special outdoor event they are planning, then no land application will be conducted upwind of that neighbor's property on the given day.
3. Land application should be minimized on lands upwind of neighbors on those days when winds are excessively strong.

NUTRIENT APPLICATION EQUIPMENT

Aerway with Drag Hose

Tankwagons

Manure Spreader

Prior to commencing land application, equipment shall be inspected to ensure that it is in proper working order. If repairs to the equipment are needed, the applicator shall make the repair. If the repair is such that the integrity of land application operations will be jeopardized until it is completed, then no land application shall be conducted using the broken piece of equipment. If land application can be safely continued before the repair is made, then land application may commence. In any case, equipment should be repaired in a timely fashion.

START-UP PROCEDURES

The following general process shall be used every day before beginning land application operations:

LAND APPLICATION

1. Every morning, check the local weather forecast to be sure conditions are right for land application.
2. Select a field for land application, check pumping summary to be sure that the selected field has not yet reached its maximum application nutrient application rate.
3. If field is still able to receive manure, then continue with start up procedures. If field has already reached its maximum loading rate, then repeat selection process to pick another field.

STANDARD LAND APPLICATION PRACTICES

1. **The maximum application rate shall be 1.0 inches per day.**
2. Land application shall take place on the acres defined on the maps enclosed.
3. No surface application shall be conducted on land with greater that 15% slope.
4. Soil-plant filter areas shall have slopes less than 15%. When slopes are greater than 10%, application is limited to .25 inches per day.
5. The separation distances outlined in section 6.2 shall be maintained.

Manure Application Setback Distances

Feature	Setback Criteria	Setback Distance (feet)
Public or private drinking water well or other wells including un-plugged abandon wells	All application methods	300
Public or private drinking water lake or impoundment	All application methods	300
Public or private drinking water intake structure	All application methods	300
Classified waters of the state not used as a water supply as defined in 10 CSR 20-7.031(1)F	Permanently vegetated buffer1	35
	No or insufficient vegetated buffer	100
Other public and privately owned lakes and impoundments not used as a water supply including impoundments with no outlet	Permanently vegetated buffer1	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient, no or insufficient vegetated buffer	35
Other perennial streams, other intermittent streams, canals, drainage ditches and wetlands	Permanently vegetated buffer1	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient, no or insufficient vegetated buffer	35
Tile line inlet (if left un-plugged during manure application)	Up-gradient, permanently vegetated buffer1	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient	0
Losing stream	All application methods	300
Cave entrance	All application methods	300
Spring	All application methods	300

Feature	Setback Criteria	Setback Distance (feet)
Active Sinkhole	All application methods	300
Non-owned occupied residence	Spray irrigation	150
Public use area including non-owned businesses	Spray irrigation	150
Public road	All application methods	50
Property boundary	All application methods	50

1.Vegetated Buffer -A permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of effectively slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the field and reaching surface waters.

RECORDKEEPING

Careful record keeping is essential to the success of the Nutrient Management program. The following information shall be recorded with each land application event.

- Date
- Field location
- Crop Type
- Weather conditions
- Application rate
- Estimated total application

The application summaries will provide a detailed overview of application activities; specifically which fields were applied on, total manure applied per field, and a running total of manure applied per field in relation to its total projected application rate in the Land and Nutrient Management Plan developed for the crop year. The summary reports will enable the applicator to apply the proper amount of manure to fields, while properly spacing applications over an appropriate period in the growing season.

Appendix 4

Emergency Response Plan

EMERGENCY ACTION PLAN

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

Implement the following first containment steps:

1. Stop all other activities to deal with the spill. Turn off the tractor or pumps that may be running.
2. Care for any personal injuries.
3. Assess the extent of the emergency.
   -determine how much help is needed.
   -call for help.
4. Contact appropriate emergency, environmental, or county authorities if assistance is needed.
5. Use a tractor with a blade to contain the spill.
6. Pump spilled manure into the manure spreader and land-apply to an open pasture or into the second pit.
7. Pump the manure in the pit down below the point of the leak or failure. Complete the clean-up and repair the necessary components.
8. File required reports.

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

Implement the following first containment steps:

1. Stop all other activities to deal with the spill. Turn off the pumps, applicator, or transport vehicle.
2. Care for any personal injuries.
3. Assess the extent of the emergency.
   -determine how much help is needed.
   -call for help.
4. Contact appropriate emergency or traffic control authorities if assistance is needed.
5. Use a tractor with a blade to contain the spill.
6. Pump spilled manure into the tank wagon or any available storage vehicle. Complete the clean-up and repair the necessary components.
7. File required reports.

The land application equipment will be constantly monitored by the person conducting the land application of manure. In order to prevent an accident or spill during land application, Mike Ramer should complete an inspection of the land application equipment to ensure proper function prior to performing land application. In addition, weather conditions (wind speed and direction, precipitation, etc.) and field conditions (proper setbacks noted, soil moisture, etc.) should be verified prior to land application.

Table 3-1. Emergency Contacts

Department / Agency	Phone Number
Fire	911
Ambulance	911
Sheriff	(660) 748-3165

Table 3-2. Available equipment/supplies for responding to emergency

Equipment Type	Contact Person	Phone Number
Nearest excavation equipment	Donelson Construction	(660) 748-3662

Table 3-3. Contacts to be made by the owner or operator within 24 hours

Organization	Phone Number
EPA Region 7 Emergency Spill Hotline	(913) 281-0991
MO Emergency Spill Hotline	(573) 634-2436
Mercer County Health Department	(660) 748-3630
Mercer County Emergency Management	(660) 748-4500

Be prepared to provide the following information:

a. Your name and contact information.
b. Farm location and other pertinent identification information.
c. Description of the 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; i.e., employee injury, fish kill, or property damage.
g. Current status of containment efforts.

Plan for Catastrophic Death Animal Disposal

If the cause of catastrophic loss is from disease, quarantine and euthanize all sick animals.

When catastrophic mortalities do occur contact MO-DNR and the MO state veterinarian for guidance. It is planned that the carcasses will be removed by a rendering company. Keep the carcasses covered until the rendering truck arrives. Rendering trucks often leave a mess at the docking area. Clean up all messes around the dock. Also clean up any messes that spill from the truck as it enters or leaves the facility. Sterilize the barns before bringing new animals into the barn.

Appendix 5

Spreading Easement

STATE OF MISSOURI } 16-307
County of Mercer
I hereby certify that the instrument of writing was filed for record on the 27th day of May 2016 at 11 o'clock 45 minutes A.M.
And recorded in Book 290 at page 854-858
WITNESS my hand and official seal at Princeton the day and date aforesaid. Fee-$36.00

Tammy Crouse by
Tammy Crouse, Recorder of Deeds

Julie Humphreys Deputy

CIRCUIT CLK. & EX-OFFICIO RECORDER MERCER COUNTY, MO

(Space above reserved for Recorder of Deeds certification)

Title of Document: Easement

Date of Document: 5-27-16

Grantor(s) Rick Ellsworth

Grantee(s) CJ Pork LLC

Mailing Address(s): 28614 Hwy A
Princeton MO 64673

Legal Description:

Reference Book and Page(s):

(If there is not sufficient space on this page for the information required, state the page reference where it is contained within the document.)

Facility Name CJ Pork, LLC Date 5/25/2016

I Rick Ellsworth owning 88 acres, located in

T64N, R25W, Sections 26 & 27 of Mercer county do hereby give

(legal description)

CJ Pork, LLC permission to apply Swine Manure Waste

and Dead Swine Compost

to the above listed acreage as fertilizer. The acreage will be used for raising

Grass/Corn/Soybeans The application rate of

Varies will not exceed 2.0 inches in a twelve

month period. This agreement is for 10 years. This agreement shall be renewed

automatically for the same amount of time specified unless written notification of said parties

intent to not renew the agreement is received at least 60 days in advance of the expiration

of this agreement.

witness Diana Bleck owner Rick Ellsworth

(property owner)

witness Dianna Stockman owner Jared Cole

(confinement facility owner)

Judith Hamilton Date 5-27-16

Notary Public

My commission expires 2-8-19

JUDITH HAMILTON
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MERCER COUNTY
COMMISSION # 15007524
MY COMMISSION EXPIRES: 2/8/2019

Facility Name CJ Pork, LLC Date 5/25/2016

I Rick Ellsworth owning 372 acres, located in

T64N, R25W, Sections 9,10,15 of Mercer county do hereby give

(legal description)

CJ Pork, LLC permission to apply Swine Manure Waste

and Dead Swine Compost

to the above listed acreage as fertilizer. The acreage will be used for raising

Grass/Corn/Soybeans The application rate of

Varies will not exceed 2.0 inches in a twelve

month period. This agreement is for 10 years. This agreement shall be renewed

automatically for the same amount of time specified unless written notification of said parties

intent to not renew the agreement is received at least 60 days in advance of the expiration

of this agreement.

witness Diana Bluck owner Rick Ellsworth

(property owner)

witness Deanna Stockman owner Jarol Ellsworth

(confinement facility owner)

Judith Hamilton Date 5-27-16

Notary Public

My commission expires 2-8-19

JUDITH HAMILTON
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MERCER COUNTY
COMMISSION # 15007524
MY COMMISSION EXPIRES: 2/8/2019

Facility Name CJ Pork, LLC Date 5/25/2016

I Rick Ellsworth owning 350 acres, located in

T64N, R25W, Sections 34 & 35 of Mercer county do hereby give

(legal description)

CJ Pork, LLC permission to apply Swine Manure Waste

and Dead Swine Compost

to the above listed acreage as fertilizer. The acreage will be used for raising

Grass/Corn/Soybeans The application rate of

Varies will not exceed 2.0 inches in a twelve

month period. This agreement is for 10 years. This agreement shall be renewed

automatically for the same amount of time specified unless written notification of said parties

intent to not renew the agreement is received at least 60 days in advance of the expiration

of this agreement.

witness Alexia Bluck owner (property owner)

witness Marissa Stockman owner (confinement facility owner)

Judith Hamilton Date 5-27-16

Notary Public

My commission expires 2-8-19

JUDITH HAMILTON
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MERCER COUNTY
COMMISSION # 15007524
MY COMMISSION EXPIRES: 2/8/2019

Facility Name CJ Pork, LLC Date 5/25/2016

I Rick Ellsworth owning 76 acres, located in

T63N, R25W, Section 3 of Mercer county do hereby give

(legal description)

CJ Pork, LLC permission to apply Swine Manure Waste

and Dead Swine Compost

to the above listed acreage as fertilizer. The acreage will be used for raising

Grass/Corn/Soybeans The application rate of

Varies will not exceed 2.0 inches in a twelve

month period. This agreement is for 10 years. This agreement shall be renewed

automatically for the same amount of time specified unless written notification of said parties

intent to not renew the agreement is received at least 60 days in advance of the expiration

of this agreement.

witness Diana Bluck owner Rick Ellsworth

(property owner)

witness Deanna Stockman owner Jarl Ellsworth

(confinement facility owner)

Judith Hamilton Date 5-27-16

Notary Public

My commission expires 2-8-19

JUDITH HAMILTON
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MERCER COUNTY
COMMISSION # 15007524
MY COMMISSION EXPIRES: 2/8/2019