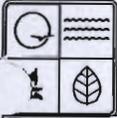


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MAY 03 2016

MOGS10516

AP 23578



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM
**FORM W - CONCENTRATED ANIMAL FEEDING OPERATION
 (CAFO) OPERATING PERMIT APPLICATION**

FOR OFFICE USE ONLY

CHECK NUMBER: 42536

DATE RECEIVED: 5-3-16 FEE SUBMITTED: \$150.00

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 Delta Gilts RE, LLC	CURRENT PERMIT NUMBER MO-	COUNTY Scott
PHYSICAL ADDRESS Hwy 91	LEGAL DESCRIPTION Sec.: 3 Twn.: 27N Rng.: 13E	TELEPHONE NUMBER WITH AREA CODE (319) 330-3455
CITY Morley	STATE MO	ZIP CODE 63767
1.2 OWNER (PROVIDE LEGAL NAME) Delta Gilts RE, LLC	EMAIL ADDRESS	
MAILING ADDRESS 712 West 3rd St	TELEPHONE NUMBER WITH AREA CODE (319) 330-3455	
CITY Kalona	STATE IA	ZIP CODE 52247
1.3 CONTINUING AUTHORITY (IF DIFFERENT THAN THE OWNER)		
MAILING ADDRESS		TELEPHONE NUMBER WITH AREA CODE
CITY	STATE	ZIP CODE

PART 2 - PERMIT TYPE AND PERMIT ACTION

<p>2.1 PERMIT TYPE</p> <p><input type="checkbox"/> NPDES Site Specific Permit Request review of draft permit prior to public notice. <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> NPDES General Permit (MOG01)</p> <p><input checked="" type="checkbox"/> State No-Discharge General Permit (MOGS1)</p>	<p>2.2 PERMIT ACTION*</p> <p><input checked="" type="checkbox"/> New Permit <input type="checkbox"/> Renewal</p> <p><input type="checkbox"/> Modification <input type="checkbox"/> Ownership Transfer</p> <p>PREVIOUS OWNERS NAME _____</p> <p>ADDRESS _____</p> <p>CITY STATE ZIP CODE _____</p> <p>SIGNATURE _____ DATE _____</p> <p><small>*See instructions for additional requirements and documents for the request permit action.</small></p>
---	--

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.

CAFO Feature	List All Manure Storage Structures at each CAFO Feature Storage Structure Type(s)	Dry Manure Handling System		Wet Manure Handling System			
		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 - Farrowing Barn, drains into Gestation Barn				1,349,485	365+	
002	C - Gestation Barn			4,740,726	2,457,350	365+	
003	C - Gilt Development Unit			1,098,319	929,828	365+	
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 - Farrowing Barn	1020				
002	5 - Gestation Barn	4496				
003	5 - GDU	1650	4 - GDU	330		
004						
005						

PART 4 - OPERATIONAL INFORMATION

4.1 OPERATIONAL INFORMATION (SEE INSTRUCTIONS)
 SIC Code(s) 0123 CAFO Class Size 1C

4.2 Is this an export-only operation? Yes No

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? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PART 6 – ANIMAL MORTALITY	
6.1 PERMANENT METHOD OF DISPOSING OF ROUTINE ANIMAL MORTALITIES. <input checked="" type="checkbox"/> Composting <input type="checkbox"/> Rendering <input type="checkbox"/> Send to a Landfill <input type="checkbox"/> Incineration <input type="checkbox"/> 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 will be composted within 24 hours of death. Compost will be land applied to fields in nutrient management plan.	
PART 7 – DIVERSION OF CLEAN WATER	
7.1 Is clean stormwater diverted from the production area? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
7.2 IF YES, DESCRIBE CONTROLS AND MEASURES USED TO DIVERT STORMWATER. Production area is under roof, site is graded to direct stormwater away from structures.	
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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8.2 LIST MEASURES USED TO PREVENT CONFINED ANIMAL FROM HAVING DIRECT CONTACT WITH WATERS OF THE STATE. Animals are confined to 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: <input checked="" type="checkbox"/> Chemicals are stored, handled, and disposed of according to manufacturer labels. <input checked="" type="checkbox"/> Chemical storage and handling areas are protected from precipitation and runoff, and any spillage is contained within these areas. <input type="checkbox"/> Emergency procedures and equipment are in place to contain and clean up chemical spills. <input type="checkbox"/> Equipment wash areas are designed and constructed to prevent contamination of surface waters. <input type="checkbox"/> 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, compost, waste water	
10.2 DESCRIBE PROCEDURES FOR ENSURING EACH MANURE SOURCE IS TESTED ANNUALLY. Manure will be sampled annually and sent to a laboratory for analysis.	
PART 11 – RECORD KEEPING	
11.1 Are records of all inspections, manure transfers, discharges and land application maintained? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
PART 12 – SIGNATURE	
NAME <i>Adam Grin</i>	TITLE <i>owner</i>
SIGNATURE <i>Adam Grin</i>	DATE <i>4-27-2016</i>
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 Address City	Engineer Firm Address City State Zip Code ENGINEER SEAL
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	

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MAY 03 2016

Water Protection Program



620 Country Club Road Iowa Falls, Iowa 50126 Office: (641) 648-7300

Fax: (641) 648-7310

www.pinnacleiowa.com

April 20, 2016

Dear Landowners,

I am writing you on behalf of our client, Delta Gilts, LLC, who has hired Pinnacle to help prepare a permit application that has been submitted to the Missouri Department of Natural Resources. Delta Gilts, LLC would like to inform you of its intentions to build and operate a sow complex in Scott County.

The site will consist of three buildings, all of which will have below building manure storage pits. The site's total capacity will be approximately 5540 sows and 1200 swine over 55 pounds, housed in buildings located on about 13 acres. A site map is enclosed showing the approximate location of the barns. Delta Gilts, LLC will have a nutrient management plan filed with the Missouri Department of Natural Resources. Nutrients from the pits below the barns will be land applied on approximately 1142 acres of crop land in Scott County at an application rate based on a manure sample pulled from the pits yearly, and the nutrient uptake of the crops.

If you have any questions or comments contact the Water Protection Program at the Missouri Department of Natural Resources. The Department of Natural Resources will accept comments 30 days from the date of this letter. The Department of Natural Resources contact information is:

Water Protection Program
Missouri Department of Natural Resources
1101 Riverside Drive
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-1300

The site will be located in the Southeast Quarter of Section 3, Township 27-N, Range 13-E, Scott County, Missouri.

The CAFO site owner's contact information is:

Delta Gilts, LLC
712 West 3rd St.
Kalona, IA 52247
(319) 330-3455

Page 2 of 2

If you require additional information please contact The Pinnacle Group at:

The Pinnacle Group
620 Country Club Road
Iowa Falls, IA 50126

Thank you,

The Pinnacle Group

John Everly

Enclosure - map

cc: Mo. Dept. of Natural Resources, Water Protection Program (w/encl.)
Scott County Commission (w/encl.)

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Certified Mail Restricted Delivery \$

Adult Signature Required \$

Adult Signature Restricted Delivery \$

Postage \$.47

Total Postage and Fees \$ 6.47

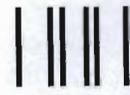
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Pavilion Towers and Walter P. Sandler
Street and Apt. No., or PO Box No.
3153 W Hwy 60
City, State, ZIP+4®
Sikeston MO 63801

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PS Form 3800, April 2015 PSN 7530-02-000-9047

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Total Postage and Fees \$ 6.47

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PS Form 3800, April 2015 PSN 7530-02-000-9047

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Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

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Adult Signature Restricted Delivery \$

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Jennifer Shively
P.O. Box 516
Benton, MO 63736

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PS Form 3800, April 2015 PSN 7530-02-000-9047

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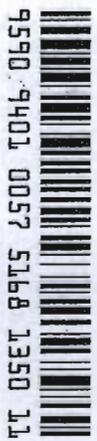


9590 9401 0057 5168 1350 66

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Scott County Commissioners
 P.O. Box 188
 Benton, MO 63736



2. Article Number (Transfer from service label)

7015 0640 0004 7609 8009

PS Form 3811, April 2015 PSN 7530-02-000-9053

A. Signature

Thomas Albritton Agent
 Addressee

B. Received by (Printed Name)

Lorice S. Reschke 4/25/16

C. Date of Delivery

D. Is delivery address different from item 1? If YES, enter delivery address below:

Yes No

3. Service Type

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- Adult Signature Restricted Delivery
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For delivery information, visit our website at www.usps.com

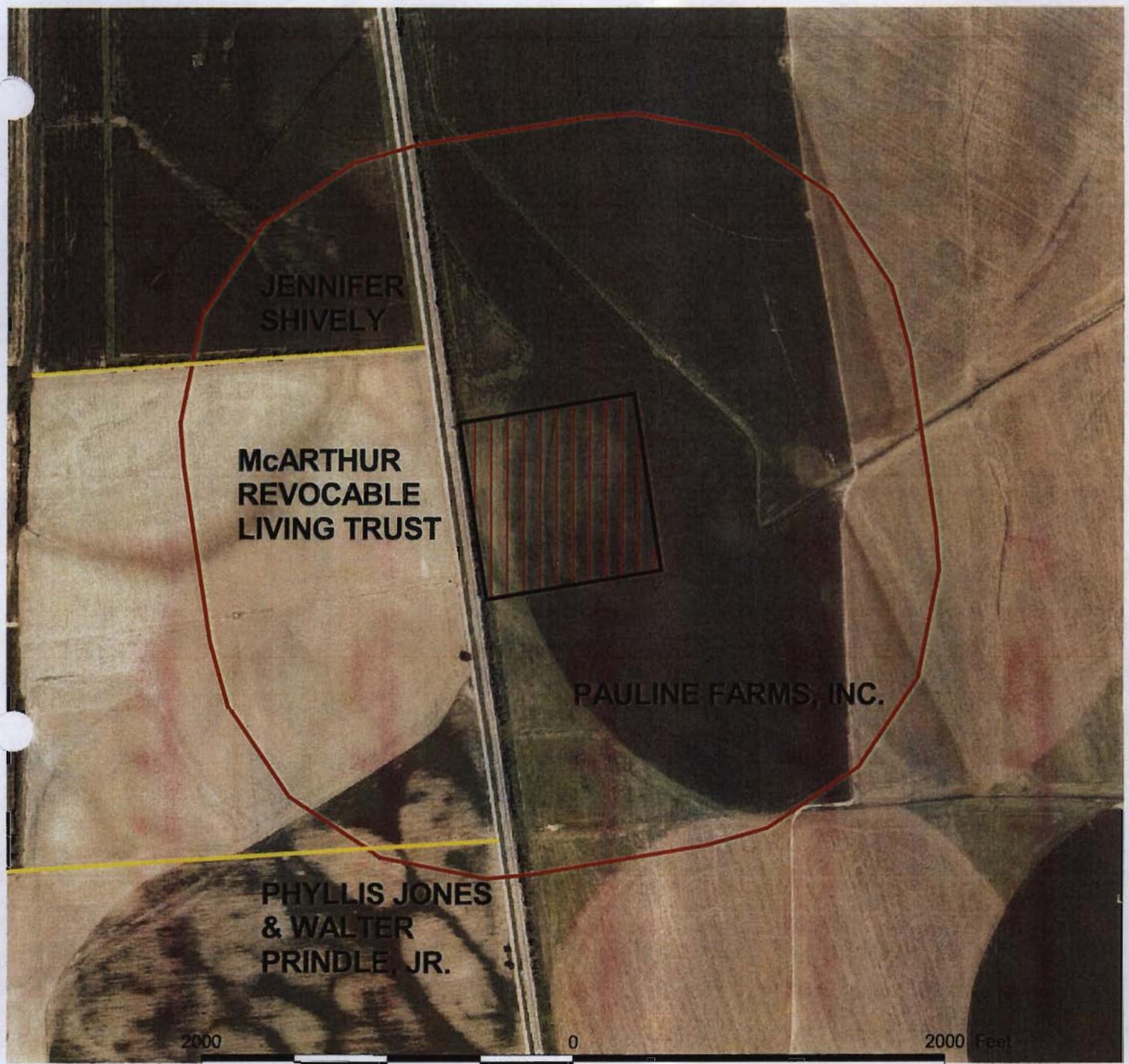
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Certified Mail Fee	\$ 3.80
Extra Services & Fees (check box, add fee as appropriate)	
<input checked="" type="checkbox"/> Return Receipt (hardcopy)	\$ 2.70
<input type="checkbox"/> Return Receipt (electronic)	\$
<input type="checkbox"/> Certified Mail Restricted Delivery	\$
<input type="checkbox"/> Adult Signature Required	\$
<input type="checkbox"/> Adult Signature Restricted Delivery	\$
Postage	\$.47
Total Postage and Fees	\$ 6.47
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City, State, ZIP+4®	Benton, MO 63736

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 APR 26 2016
 3 30 DWA FAL 4

5009 6092 4000 0490 5102

Site Area; 16 (20.81 ac.)



LANDOWNER NOTIFICATION

Jennifer Shively
McArthur Revocable Living Trust
Phyllis Jones & Walter Prindle, Jr.
Pauline Farms, Inc.

Date: Apr 25, 2016
Field Name: Site Area; 16
Location: Montgomery Co., Kansas, U.S.
Farm Name: Delta Gilts
Client Name: P-Index
Total Acres: 20.81
Field Boundary Start Location:
Latitude: 37.02752530
Longitude: -95.64291684



 1500 ft Neighbor Notification Zone
 (20.8ac.) Field Boundary

DELTA GILTS RE, LLC NARRATIVE PROJECT SUMMARY

Delta Gilts RE, LLC proposes to construct a three building swine facility in Scott County, Section 3, Township 27 North, Range 13 East. The site will consist of a gestation barn housing 4496 sows, a farrowing barn housing 1020 sows and a gilt development unit for 1650 swine over 55 pounds and 330 swine under 55 pounds. A composter will also be built on the site. The facility will have an animal unit capacity of 2899.4, making it a Class 1C Confined Animal Feeding Operation.

Manure will be stored in formed concrete pits below the gestation barn and GDU. Manure from the farrowing barn will drain into the gestation barn pit, which will be designed with ample capacity for both barns. Manure storage capacities exceed 365 days for all structures. Refer to the Engineering Report in this permit application for manure production and storage calculations.

Manure from Delta Gilts RE, LLC will be land applied at agronomic rates based on the crop removal of manure nutrients. Manure will analyzed annually for nitrogen and phosphorus content and application rates adjusted accordingly. Manure will be injected, not surface applied. Mortalities will be composted within 24 hours of death and the compost material land applied.

Delta Gilts RE, LLC
SWINE FACILITY
HWY 91, Morley, MO

GESTATION FACILITY MANURE
PRODUCTIONS & STORAGE CALCULATIONS

FARROWING FACILITY MANURE
PRODUCTION & STORAGE CALCULATIONS

GILT DEVELOPMENT FACILITY MANURE
PRODUCTION & STORAGE CALCULATIONS

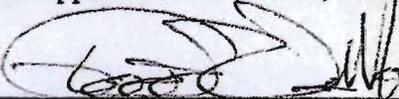
Prepared by



STOCKWELL

215 Walnut ST, Yankton, SD 57078
April 25, 2016

I hereby certify that I am a licensed professional in the State of Missouri. To the best of my knowledge, information and belief, the manure management and containment system is designed in general conformance with applicable laws, codes, and regulations as of the date of signing.


Todd Van Maanen, P.E.
Missouri Licensed Civil Engineer
License No. PE-29685



**AWMS Computations For
Deep Pit Swine Production Operations - Farrowing Barn**

Producer: Delta Gilts RE, LLC	County: Scott County, MO
Address: HWY 91 Morley, MO 63767	Location: Section 3, T27N, R213E
Phone: 641-682-0222	
E/A Project No. 16117	Date: 25-Apr-16

Manure Production For Animal Operations

Manure Characteristics, MWPS-18, Section 1, Second Edition
Table 6

<u>Animal Type</u>	<u>Size, lb</u>	<u>Manure Production ft³ / day</u>	<u>No. of Animals</u>	<u>Waste Volume ft³ / day</u>
Nursery Pig	25	0.04	0	0
Nursery Pig	40	0.05	0	0
Finishing	150	0.12	0	0
Finishing	200	0.16	0	0
Gestating	300	0.11	0	0
Gestating	300	0.15	0	0
Lactating	375	0.28	0	0
Lactating**	450	0.334	1,020	341
Lactating	500	0.37	0	0
Boar	300	0.10	0	0
Boar	400	0.13	0	0

**Production Data Interpolated from Table Values

Total Number of Swine	1,020
Total Animal Waste Volume	341 ft ³ / day
Desired Storage Period for AWMS Facility	365 days
Total Waste Storage Volume Required	124,400 ft³

Washwater Volume Requirements

Washwater Usage : gal. / animal /day	0.75	Factor of Safety	1.5
Washwater Volume per day		1,148 gallons	
Washwater as percent of Waste Volume		45 percent	
Washwater storage required		56,000 ft ³	

Total Waste and Washwater Storage Volume Required: 180,400 ft³

**AWMS Computations For
Deep Pit Swine Production Operations - Gestation Barn**

Producer: Delta Gilts RE, LLC	County: Scott County, MO
Address: HWY 91 Morley, MO 63767	Location: Section 3, T27N, R213E
Phone: 641-682-0222	
E/A Project No. 16117	Date: 25-Apr-16

Manure Production For Animal Operations

Manure Characteristics, MWPS-18, Section 1, Second Edition
Table 6

<u>Animal Type</u>	<u>Size, lb</u>	<u>Manure Production ft³ / day</u>	<u>No. of Animals</u>	<u>Waste Volume ft³ / day</u>
Nursery Pig	25	0.04	0	0
Nursery Pig	40	0.05	0	0
Finishing	150	0.12	0	0
Finishing	200	0.16	0	0
Gestating	400	0.15	4,496	674
Gestating**	450	0.165	0	0
Gestating	500	0.18	0	0
Lactating	375	0.28	0	0
Lactating	500	0.37	0	0
Boar	300	0.10	0	0
Boar	400	0.13	0	0

**Production Data Interpolated from Table Values

Total Number of Swine	4,496
Total Animal Waste Volume	674 ft ³ / day
Desired Storage Period for AWMS Facility	365 days
Total Waste Storage Volume Required	246,200 ft³

Washwater Volume Requirements

Washwater Usage : gal. / animal /day	0.25	Factor of Safety	1.5
Washwater Volume per day		1,686 gallons	
Washwater as percent of Waste Volume		33 percent	
Washwater storage required		82,300 ft ³	

Total Waste and Washwater Production (Farrowing):	180,400	ft ³
Total Waste and Washwater Production (Gestation):	328,500	ft ³
Total Waste & Washwater Storage Required:	508,900	
Total Waste & Washwater Storage Available:	633,743	ft³

Producer: Delta Gilts RE, LLC Address: HWY 91 Morley, MO 63767		County: Scott County, MO Location: Section 3, T27N, R213E Gestation Barn	
E/A Project No: Y12129		Date: 26-Jun-12	
Deep Pit Volumes			
Total Interior Length		570.33 ft.	
Total Interior Width		160.00 ft.	
Total Wall Height		8.00 ft.	
Top of Wall to Bottom of Vent Opening		0.00 ft.	
Freeboard		1.00 ft.	
Total Air Circulation Space		1.00 ft.	
Max. Depth of Waste		7.00 ft.	
		638,770 ft ³	
Column Volumes			
Number		406	
Rectangular	Length	0.00 ft.	
	Width	0.00 ft.	
Circular	Diameter	1.00 ft.	
Base Volume		0.00 ft ³	
Max. Depth of Waste		7.00 ft.	
Volume per Column at Max. Depth		5.50 ft ³	
		2,232 ft ³	
Pumpout Pits			
Number		2	
Interior Length		8.50 ft.	
Interior Width		8.50 ft.	
Maximum Depth of Waste		7.00 ft.	
		1,012 c.f.	
Openings			
Width		8.50 ft.	
Thickness		0.83 ft.	
Max. Depth of Waste		7.00 ft.	
		98.77 ft ³	
Divider Wall			
Total Interior Length		570.33 ft.	
Width		1.00 ft.	
Openings	Length	4.00 ft.	
	Height	2.00 ft.	
	Number	11	
Max. Depth of Waste		7.00 ft.	
Volume at Max. Depth		3,904.31 ft ³	
Total Volume / Pit		633,743 ft ³	
Total Number of Buildings		1	
Total Capacity		633,743 ft³	

AWMS Computations For GDU Barn

Producer: Delta Gilts RE, LLC
 Address: HWY 91
 Morley, MO 63767
 Phone: 641-682-0222

County: Scott County, MO
 Location: Section 3, T27N, R213E

E/A Project No.

16117

Date: April 25, 2016

Manure Production For Animal Operations

Manure Characteristics, MWPS-18, Section 1, Second Edition
 Table 6

<u>Animal Type</u>	<u>Size, lb</u>	<u>Manure Production ft³ / day</u>	<u>No. of Animals</u>	<u>Waste Volume ft³ / day</u>
Nursery Pig	25	0.04	0	0
Nursery Pig	40	0.05	330	17
Finishing	150	0.12	0	0
Finishing**	170	0.1360	1,650	224
Finishing	200	0.16	0	0
Gestating	400	0.15	0	0
Gestating	500	0.18	0	0
Lactating	500	0.37	0	0
Lactating	600	0.45	0	0
Boar	300	0.10	0	0
Boar	400	0.13	0	0

**Production Data Interpolated from Table Values

Total Number of Swine	1,980
Total Animal Waste Volume	241 ft ³ / day
Desired Storage Period for AWMS Facility	365 days
Total Waste Storage Volume Required	88,000 ft³

Washwater Volume Requirements

Washwater Usage : gal. / animal / day	0.25	Factor of Safety	1.5
Washwater Volume per day		743 gallons	
Washwater as percent of Waste Volume		41 percent	
Washwater storage required		36,300 ft ³	

Total Waste and Washwater Storage Volume Required: 124,300 ft³

Producer: Delta Gilts RE, LLC
 Address: HWY 91
 Morley, MO 63767

County: Scott County, MO
 Location: Section 3, T27N, R213E
 GDU Barn

E/A Project No: 16117

Date: 25-Apr-16

Approximate Deep Pit Volumes

Total Interior Length	233.50 ft.
Total Interior Width	91.33 ft.
Total Wall Height	8.00 ft.
	0.00 ft.
Top of Wall to Bottom of Vent Opening	0.00 ft.
Freeboard	1.00 ft.
Total Air Circulation Space	1.00 ft.
Max. Depth of Waste	7.00 ft.
	148,279 ft ³

Column Volumes

Number	200
Rectangular	Length 0.00 ft. Width 0.00 ft.
Circular	Diameter 1.00 ft.
Base Volume	0.00 ft ³
Max. Depth of Waste	7.00 ft.
Volume per Column at Max. Depth	5.50 ft ³
	1,100 ft ⁴

Pumpout Pits

Number	6
Interior Length	6.00 ft.
Interior Width	6.00 ft.
Maximum Depth of Waste	7.00 ft.
	1,512 c.f.

Openings

Width	6.00 ft.
Thickness	0.83 ft.
Max. Depth of Waste	7.00 ft.
	209.16 ft ⁴

Divider Walls

Number of Walls	5
Length	91.33 ft.
Wall Thickness	1.00 ft.
Height of Wall	8.00 ft.
Max. Depth of Waste	7.00 ft.
	3,196.55 ft ³

Openings (per wall)

	Number	3
Rectangular	Width	4.00 ft.
	Height	2.00 ft.
Round	Diameter	0.00 ft.
	Thickness	1.00 ft.
		24.00 ft ⁴

Total Volume / Building 146,824 ft³

Total Number of Buildings 1

Total Capacity 146,824 ft³



April 26, 2016

Attn: Greg Caldwell
Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102

RE: Delta Gilts RE, LLC, Scott County, Missouri
E/A Project No. 16117

Dear Mr. Caldwell:

Enclosed are the plans, specifications and other required submittal information for the Delta Gilts RE, LLC Composting Facility. This information is being submitted to your office for the review and approval of the plans and specifications for a composting project to be utilized by the aforementioned facility. The submittal package has been assembled utilizing the requirements as set forth in the Missouri Department of Natural Resources' regulations. For your ease of review, these requirements have been paraphrased and answered in the following order.

- 1) Responsible Party for entire project: Delta Gilts RE, LLC, Dr. Barry Kerkaert, 1300 S HWY 75, PO Box 188, Pipestone, MN 56164
- Legal Description: Section 3, T27N, R13E, Grundy County, Missouri
- Site Information: 7,166 >55 lbs & 330 <55 lbs head Swine Production Operation. The compost facility will be located southwest portion of the swine site.
See the Site Map for the Delta Gilts RE, LLC facility.
- 2) Site Preparation: The composter should be built on an impervious weight-bearing pad that is large enough to allow equipment to maneuver, covered with a roof to prevent excessive moisture on composting material and built of rot resistant material that is strong enough to with stand the force exerted by equipment. Included are a Site Layout Map of the facility and the Compost Building Details.
- 3) Type of Carcass: Swine
- 4) Disposition of Finished Compost: The compost will be utilized for land application in conjunction with their Missouri Department of Natural Resources approved Nutrient Management Plan or recycled back into the composting facility as a bulking agent.

- 5) Estimated Quantity: The average daily death loss is calculated at 766 pounds per day, which can also be translated as total death loss per year at 279,590 pounds. Please refer to the Compost Bin Sizing Spreadsheet that illustrates this data. Note the formula has determined that 7 bins are required, but as a safety factor 9 bins will be constructed.
- 6) Type of Composting Materials: The bulking agents that will be utilized are wood chips, sawdust, and/or shredded cornstalks. An estimated 1,036 cubic yards (424,563 pounds, assuming sawdust bulk density) of bulking material will be required annually. Please refer to the Compost Bin Sizing Spreadsheet for this data.
- 7) Composting Procedure: **As taken from Composting Animal Mortalities, Minnesota Department of Agriculture, May 2009.*
- Place at least 12 inches of bulking agent on the floor of the composting bin. This layer will insulate the composting material from the outside environment, provide carbon to fuel the composting process, and absorb liquids.
 - Place the carcasses in a single layer on top of the bulking agent one foot from the wall of the bin and at least six inches apart. This allows air to circulate around the carcasses and insulates them from the environment. Depending on the size of the bin and of the loader, one may not want to build a whole single layer first, because the loader may not be able to reach the back of the bin when more carcasses are added later. This can be avoided by building the pile from the back, building it up and forward simultaneously.
 - Cover the carcasses with about 12 inches of bulking agent. Add water as needed to maintain the proper moisture level. Because it is difficult to add water evenly, consider adding it to the bulking agent before it goes on the pile. *Caution*: If the pile dries out (25% to 45% moisture) and if piles are too large, spontaneous combustion can occur, just as with hay or silage. Attention to moisture, temperature, and pile size is the best protection. An accessible water supply is a good safety precaution. If manure will be used, add it either beneath the bulking agent or incorporated with the bulking agent. The pile is now ready for the next layer.
 - Record the species, class, and weight of the carcasses, and the amount and type of bulking agent and into the compost log.
 - Place additional carcasses as they become available on the pile in layers following these same steps, allowing 6 to 12 inches of bulking agent between layers. More than one species can be composted in the same bin (if applicable). It may be necessary to use the loader bucket to dig a depression to hold the fresh carcass in place before covering it with bulking agent, especially if it is a large animal. Continue adding carcasses until the pile is close to the top of the bin. Cover the top of the pile with 12 inches of bulking agent to reduce odor and protect against pests. SD Animal Industry Board regulations require that flies, rodents, and vermin

be controlled so as not to be a health hazard to human or animal populations.

- After the bin is full, start a second bin following these same steps. Leave the first bin to compost. This first bin has carcasses at various stages of decomposition from largely decomposed (first one in) to just beginning (last one in).
- Monitor the pile daily to make sure that all carcass parts stay completely covered by bulking agent. The pile will settle, so you may need to add additional bulking agent over the top.
- Check the temperature daily and record it in the compost log. The temperature should be taken at multiple locations in the pile, especially near the last animal that was added. Temperatures should be increasing and should soon be between 130° and 150° F.
- If it seems that the pile is not composting correctly because of the temperature or because there are odors, some troubleshooting will need to be done and make adjustments accordingly.
- Once the pile reaches at least 130°F, it should stay above that temperature for at least one week. Do not start counting the days until the area that was added to the pile last reaches this temperature. When the temperature drops, the pile is ready to be turned.
- The typical primary composting time is approximately 45 days for carcasses weighing from 25 to 300 lbs. See the table of estimates for primary composting times by carcass weight.

Primary Composting Times	
<i>Primary</i>	<i>Estimated</i>
<i>Carcass Size (lb)</i>	<i>Composting Days</i>
0-10	15
10-25	22
25-300	45

8) Plan for Turning the Pile and Finishing the Compost: **As taken from Composting Animal Mortalities. Minnesota Department of Agriculture, May 2009.*

- Layer the bottom of an empty bin with 12 inches of bulking agent.
- Use a front-end or skid loader to move the material from the primary bin to the secondary bin, one bucket at a time. This aerates the pile. Minimal flesh or soft bones should be present, but long bones, skulls, teeth, and pelvis, and some hide, feathers, and fleece may remain. There may be some odor while turning due to disturbance of the anaerobic zones. Look to see whether water needs to be added. If so, add it to the existing pile as needed before or while it is being turned, so that it gets evenly incorporated.

- Cover the fresh pile with another 12 inches of bulking agent to prevent odor and visits by scavenging animals.
 - Record the date turned and bulking agent type and volume used in the compost log.
 - Monitor and record the temperature of the turned pile daily. Since the composting materials are more consistent now, one doesn't need to be as careful about taking the temperature in multiple locations.
 - Once the pile maintains a temperature in excess of 130° F for seven days and then drops, the compost may be finished.
 - Secondary composting times will be similar to the number of days in the primary cycle.
 - Inspect the pile. If flesh is no longer visible, the compost can be termed "finished." It should be dark, humus-like material with very little odor. At this stage, any bones should be so brittle that they can be easily crushed. It is required that the finished product contain no visible pieces of soft tissue. If there is still some flesh visible, you need to turn the pile again and let it go through another heat cycle. With larger animals such as cattle and sheep, more time is needed to completely compost their larger and denser bones. If the compost is finished other than the bones, remove them and place in a new pile for further decomposition.
- 9) Plan for Monitoring Temperature: A probe-type thermometer with a minimum 36-inch stainless steel stem will be used to monitor the temperature of the pile.
- 10) Plan for Moisture Testing and Monitoring: For optimum performance, the moisture content should be between 40% and 60%. Proper moisture judgment can be made by simply feeling the compost. The compost should be moist and leave the hand feeling moist, but should not be able to squeeze water out of it. A water hydrant or other water source will be installed next to the composting facility in the event that water needs to be added to the compost.
- 11) Plan for Monitoring and Inspection for Complete Decomposition Prior to Distribution: The finished product should be a dark, humus-like material with minimal odor. Any bones should be brittle and easily crushed. If the compost is finished other than the bones, they shall be removed and placed in a new pile for further decomposition. The finished compost should not contain any visible pieces of soft tissue. If soft tissue is present, the pile should be turned and allowed to go through another heat cycle.
- 12) Frequency of Activities: A logbook will be kept to record dates and weights of carcasses placed in the composter, temperature readings, moisture content, amounts of bulking agents used, dates when compost is turned and dates and amounts of finished compost.
- 13) Seasonal or Year Round: Year Round

14) Distance from Natural Surface Water, Wells, and Property Lines:

-Natural Surface water: An unnamed tributary of the Otter Slough Ditch is approximately 1,600 feet south of the proposed location of the compost building.

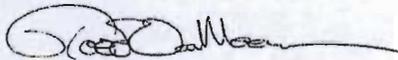
-Well: The compost building will be located at least 300 feet from any on site wells.

15) Records for Review Upon Request: Records for review will be available upon request at the swine operation main office.

It is our belief that all of the required information for your review of the Delta Gilts RE, LLC Composting Proposal has been provided. This facility is taking the necessary steps to protect the environment and continue to provide needed livestock production in Grundy County and the State of Missouri.

We welcome your favorable review of the information. If you have any questions or need any additional information, please do not hesitate to contact us. Thank you.

Sincerely,
Stockwell Engineers, Inc.



Todd Van Maanen, PE
Project Engineer

AWMS Computations for Composting

Producer: Delta Gilts RE, LLC

County: Scott County, MO

Location: Section 3, T27N, R13E

E/A Project No. 16117

Date: 26-Apr-16

Daily Mortalities

Carcass Size (lb)	Multiplier for Death Loss*	Loss per Day (lb)
0-10	3 ft ³ /day	321
10-25	5 ft ³ /day	0
25-300	10 ft ³ /day	0
300-750	14 ft ³ /day	445
750-1400	20 ft ³ /day	0

Total Death Loss per Day: 766 lbs

Primary bin volume required: 7193 ft³

*Information taken from Minnesota Department of Agriculture, *Composting Animal Mortalities*, pg. 19

Bins Required

Bin Sizes	Height	8 ft
	Width	16 ft
	Depth	24 ft

Number of Bins Required** 7 Bins Required

**Assuming equal number of primary and secondary bins, plus one storage bin

Composting Material Required

Total Death Loss per Day (lb)	766 lb
Total Death Loss per Year (lb)	279,590 lb

Total Composting Material Required*** 1,036 yd³/yr
424,563 lb/yr

***Assuming 100 ft³ of sawdust of equivalent compost material per 1,000 lb of mortality & 410 lb/yd³ of sawdust



C 101

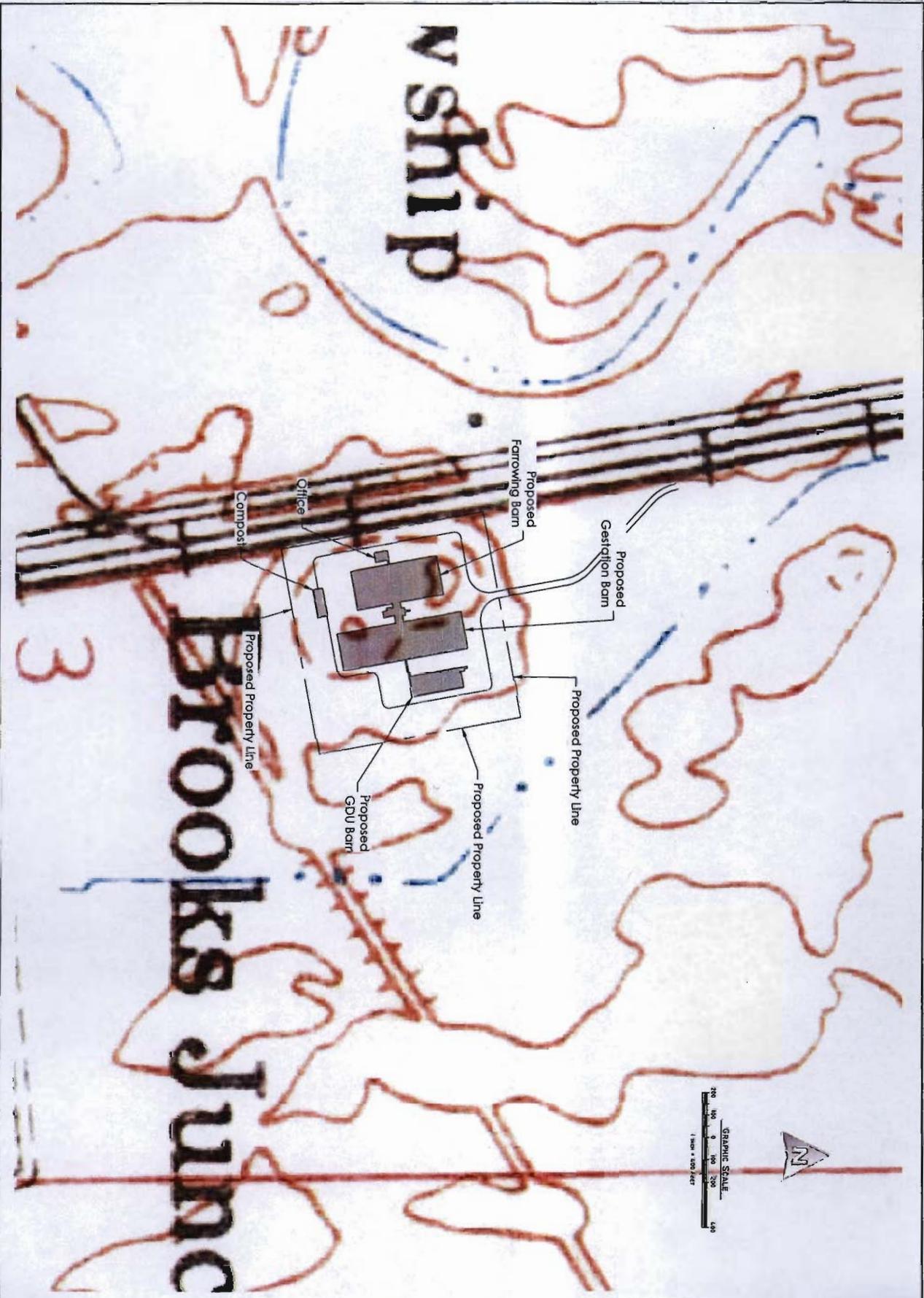
Site Plan /
Aerial Map

PROJECT #	11117
DATE	
SCALE	
DRAWN BY	
CHECKED BY	
APPROVED BY	

Delta Gilts RE, LLC
Project Site Plan
 Section 3, T27N, R13E, Scott County, Missouri

STOCKWELL

STOCKWELL ENGINEERING, INC.
 2711 WASHINGTON
 ST. LOUIS, MO 63103
 TEL: 314.433.8800
 FAX: 314.433.8803



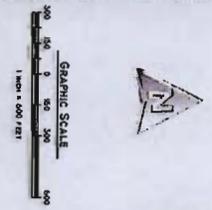
C 102

Site Plan /
Topo Quad.

DATE	
BY	
CHECKED	
DESIGNED	
PROJECT #	1117

Delta Gills RE, LLC
 Project Site Plan
 Section 3, T27N, R13E, Scott County, Missouri

STOCKWELL
 Surveying & Mapping, Inc.
 2100 West 15th Street
 Lawrence, KS 66044
 Phone: 785-842-2222
 Fax: 785-842-2223
 www.stockwell.com



C 104

Residential
Setback Map

38760421 5/14/17

REVISIONS

NO.	DATE	DESCRIPTION

Delta Gilts RE, LLC
Project Site Plan
 Section 3, T27N, R13E, Scott County, Missouri

STOCKWELL

Stockwell Engineering, Inc.
 215 W. Main St.
 P.O. Box 1000
 Lake Park, Georgia 30526



C 103

Waterway
Setback Map

PROJECT # 14117

DATE

DATE

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DATE

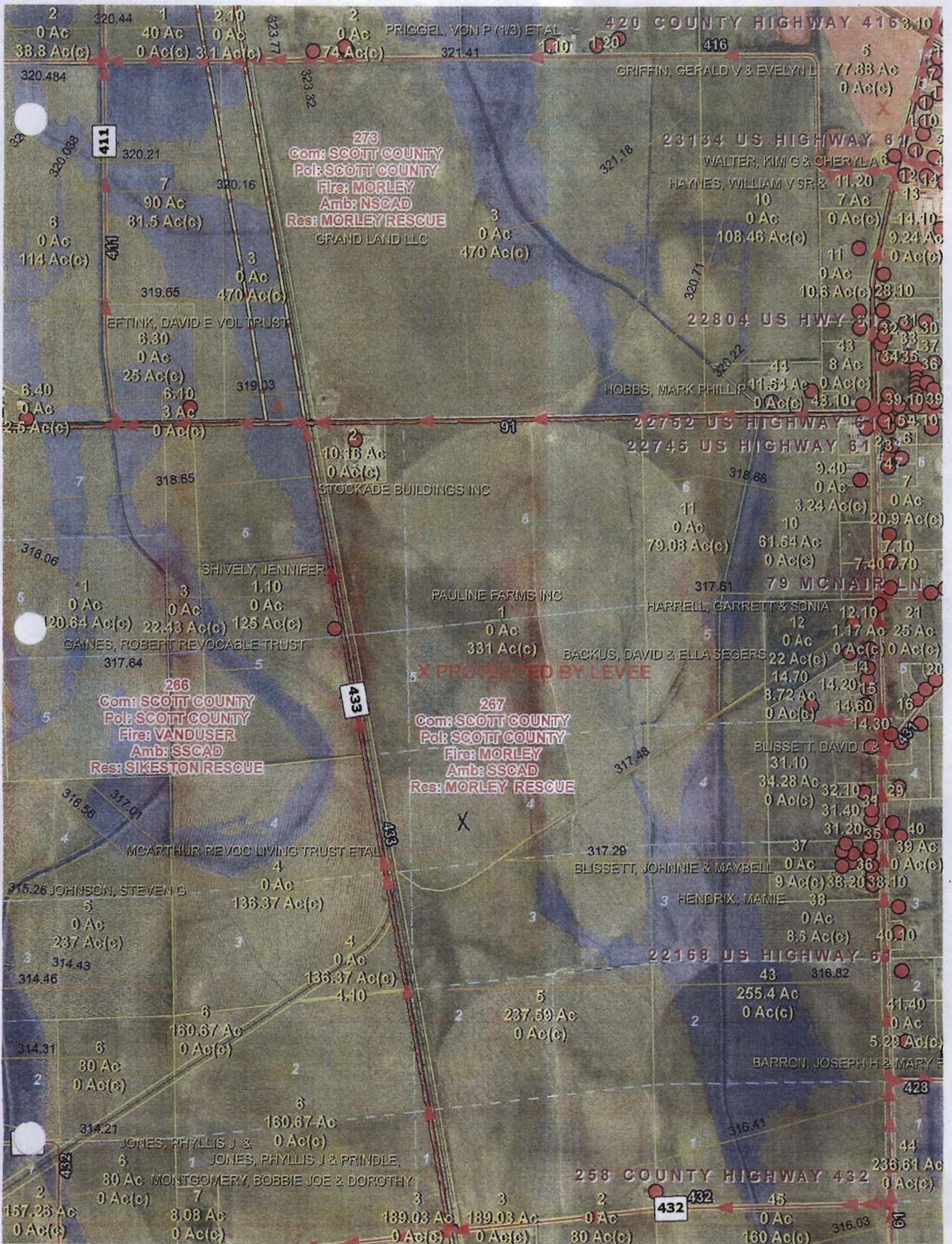
Delta Gills RE, LLC

Project Site Plan

Section 3, T27N, R13E, Scott County, Missouri

STOCKWELL

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 215 W. MARKET ST.
 ST. LOUIS, MISSOURI 63102
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 FAX: (314) 436-1001



273
Com: SCOTT COUNTY
Pol: SCOTT COUNTY
Fire: MORLEY
Amb: NSCAD
Res: MORLEY RESCUE
GRAND LAND LLC

266
Com: SCOTT COUNTY
Pol: SCOTT COUNTY
Fire: VANDUSER
Amb: SSCAD
Res: SIKESTON RESCUE

267
Com: SCOTT COUNTY
Pol: SCOTT COUNTY
Fire: MORLEY
Amb: SSCAD
Res: MORLEY RESCUE

X PROTECTED BY LEVEE

X

420 COUNTY HIGHWAY 4163 10

23134 US HIGHWAY 61

22752 US HIGHWAY 61

22745 US HIGHWAY 61

79 MCNAIR LN

22168 US HIGHWAY 61

258 COUNTY HIGHWAY 432

411

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432

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