

## ITEM 10

### COUNTY VERIFICATION RECEIPT OF DNR CONSTRUCTION PERMIT APPLICATION

This form provides proof that the County Board of Supervisors has been provided with a complete copy of the construction permit application documents (everything except the fees) for the confinement feeding operation or a complete MMP has been provided to the County because manure will be applied in that county:

Applicant: Korey Krieg Telephone: 712-541-5018

Name of operation: Creasey

Location: SW SW 11 T89N R44W Arlington Woodbury  
(¼ ¼) (¼) (Section) (Tier & Range) (Name of Township) (County)

Documents being submitted to the county:

- ☒ Construction permit application form: submit items 1 to 9 (see Submittal Checklist No. 1 or 2)
- ☒ Attachment 1 - Aerial photos: Must clearly show the location of the proposed confinement feeding operation structure<sup>1</sup> and that all the separation distances are met, including those claimed for points in the master matrix (if applicable).
- ☒ Attachment 2 - Statement of design certification, submit any of the following (see Checklist No. 1 or 2):
- ☒ Construction Design Statement form
  - ☐ Professional Engineer (PE) Design Certification form
  - ☐ Engineering report, construction plans and technical specifications
  - ☐ In addition, if proposing an unformed manure storage structure<sup>3</sup> or an egg washwater storage structure submit documentation required in Addendum "A" of this construction application form.
- ☒ Attachment 3 - Manure management plan (MMP).
- ☒ Attachment 4 - Master Matrix (if required). You must include supporting documents (see Checklist No. 1 or 2)

Revised Documents: ☐ Application ☐ CDS ☐ Matrix ☐ MMP ☐ Other \_\_\_\_\_

### THIS SECTION IS RESERVED FOR THE COUNTY

As soon as DNR receives a construction permit application, the DNR will fax your County Auditor a "Courtesy reminder letter" explaining what actions your County Board of Supervisors must complete and the deadlines.

Public Notice is required for **all** construction permit applications, including those applications not required to be evaluated with the master matrix and applications in counties not participating in the Master matrix.

Counties participating in the master matrix: the county's master matrix evaluation and county's recommendation is required for the following cases:

- A new confinement feeding operation that is applying for a construction permit
- An existing confinement feeding operation that was first constructed on or after April 1, 2002 that is applying for a construction permit.
- An existing confinement feeding operation that was first constructed prior to April 1, 2002 that is applying for a construction permit with an animal unit capacity (AUC) is 1,667 animal units (AU) or more.

I have read and acknowledge the county's duty with this construction permit application, as specified in 567 IAC 65.10 and Iowa Code 459.304. On behalf of the Board of Supervisors for:

COUNTY: Woodbury

NAME: [Signature]

TITLE: Executive Secretary

(Member of the County Board of Supervisors or its designated official/employee)

Date: February 27, 20 2023.

If you do not receive the courtesy reminder letter within a reasonable time, or if you have any questions, please contact the animal feeding operations (AFO) Program at (712) 262-4177 or visit [www.iowaDNR.gov](http://www.iowaDNR.gov)



## Construction Permit Application Form

### Confinement Feeding Operations

**INSTRUCTIONS:**

Prior to constructing, installing, modifying or expanding a confinement feeding operation structure<sup>1</sup>, answer questions 1-8 on Item 3, Section A (page 2), to determine if a construction permit is required. To calculate the animal unit capacity (AUC) of the operation, complete Table 1 (page 4). If a construction permit is required, complete the rest of the form, have the applicant(s) sign it on pages 5 and 6. Mail to the DNR (see address on page 5) this application form, documents and fees requested in Checklist No. 1 or 2 (pages 10-15). See item 5 (page 5), to determine which checklist to use.

If a construction permit is not needed, some pre-construction requirements may still apply prior to the construction of a formed manure storage structure<sup>2</sup>. See page 5 for additional DNR contact information.

**THIS APPLICATION IS FOR:**

1. ☐ A new confinement feeding operation
2. ☒ An existing confinement feeding operation (*answer all of the following questions*):
  - a) Facility ID No. (5 digit number): 68606
  - b) Date when the operation was first constructed: 2015 Separation distance table used: Table 6
  - c) Date when the last construction, expansion or modification was completed: 2015

(Not needed if the confinement operation has previously received a construction permit from DNR.)

- d) Is this also an ownership change? ☐ Yes ☒ No If yes box is checked additional fees apply. See page 8

**ITEM 1 – LOCATION AND CONTACT INFORMATION** (*See page 17 for instructions and an example*):

A) Name of operation: Creasey

Location:	<u>SW</u> <small>(¼ ¼)</small>	<u>SW</u> <small>(¼)</small>	<u>11</u> <small>(Section)</small>	<u>T89N R44W</u> <small>(Tier &amp; Range)</small>	<u>Arlington</u> <small>(Name of Township)</small>	<u>Woodbury</u> <small>(County)</small>
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## B) Applicant information:

Name: Korey Krieg Title: Owner

Address: 40235 270th St Kingsley, IA 51028

Telephone: 712-541-5018 Fax: \_\_\_\_\_ Email: koreykrieg@gmail.com

## C) Person to contact with questions about this application (if different than applicant):

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

- ☒ Enclose aerial photo or engineering drawing showing the proposed location of the confinement feeding operation structure<sup>1</sup> and all applicable separation distances, as requested in Attachment 1 (pages 11-12 or 14-15). See example of aerial photo on pages 18 to 19, at the end of this form.

- ☐ I manage or have a 10% or more ownership interest in another confinement feeding operation located within 2,500 feet of the proposed site. Please contact the DNR AFO Program staff at (712) 262-4177 to verify site adjacency requirements.

<sup>1</sup> Confinement feeding operation structure = animal feeding operation structure (confinement building, manure storage structure or egg washwater storage structure) that is part of a confinement feeding operation. Manure storage structures include formed and unformed manure storage structures.

<sup>2</sup> Formed manure storage structure = covered or uncovered concrete or steel tanks, and concrete pits below the building.



## ITEM 2 – SITING INFORMATION:

A) **Karst Determination:** Go to DNR AFO Siting Atlas at <http://programs.iowadnr.gov/maps/afo/>. Search for your site by either scrolling into your location or entering an address or legal description in the bottom search bar. Left click on the location of your proposed structure. Make sure the karst layer box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact the AFO Engineer at (712) 262-4177. Check one of the following:

- ☒ The site is not in karst or potential karst. Print and enclose the map with the name and location of the site clearly marked.
- ☐ The site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)"c" must be used. Refer to "Applicant's submittal checklist" on page 10 for karst documentation.
- ☐ The site is within 1,000 feet of a known sinkhole, Secondary Containment Barrier is required in accordance with 567 IAC 65.15(17).

B) **Alluvial Soils Determination:** Go to the AFO Siting Atlas as described above. Make sure the alluvial layer box is checked on the map legend. If you cannot access the map, or if you have questions about this issue, contact DNR Flood Plain at (866) 849-0321. Check one of the following:

- ☒ The site is not in alluvial soils. Print and enclose the map with the name and location of the site clearly marked.
- ☐ The site is in alluvial soils. You will need to submit a request for a flood plain determination from DNR Flood Plain (866) 849-0321. After receiving determination submit one of the following:
- ☐ Not in 100-year floodplain or does not require a flood plain permit. Include correspondence from the DNR Flood Plain Section.
- ☐ Requires flood plain permit. Include flood plain permit.
- ☐ Documentation has been submitted to determine site is not in alluvial soils. Refer to "Applicant's Submittal Checklist" on page 10 for alluvial soils documentation.

## ITEM 3 – OPERATION INFORMATION:

A) A construction permit is required prior to any of the following:

1. ☐ Constructing or modifying any unformed manure storage structure<sup>3</sup>, constructing or modifying a confinement building that uses an unformed manure storage structure<sup>3</sup>, or increasing animal units in a confinement building that uses an unformed manure storage structure.
2. ☒ Constructing, installing or modifying a confinement building or a formed manure storage structure<sup>2</sup> at a confinement feeding operation if, after construction, installation or expansion, the AUC of the operation is 1,000 animal units (AU) or more. This also applies to confinement feeding operations that store manure exclusively in a dry form.
3. ☐ Initiating a change that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in any unformed manure storage structure<sup>3</sup>, even if no construction or physical alteration is necessary. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
4. ☐ Initiating a change, even if no construction or physical alteration is necessary, that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in a formed manure storage structure<sup>2</sup> if, after the change, the AUC of the operation is 1,000 AU or more. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
5. ☐ Constructing or modifying any egg washwater storage structure or a confinement building at a confinement feeding operation that includes an egg washwater storage structure.
6. ☐ Initiating a change that would result in an increase in the volume of egg washwater or a modification in the manner in which egg washwater is stored, even if no construction or physical alteration is necessary. Increases in the volume of egg washwater due to an increase in animal capacity, animal weight capacity or AUC up to the limits specified in a previously issued construction permit do not require a new construction permit.
7. ☐ Repopulating a confinement feeding operation if it was closed for 24 months or more and if any of the following apply:
  1. ☐ The confinement feeding operation uses an unformed manure storage structure<sup>3</sup> or egg washwater storage structure;
  2. ☐ The confinement feeding operation includes only confinement buildings and formed manure storage structures<sup>2</sup> and has an AUC of 1,000 AU or more.
8. ☐ Installing a permanent manure transfer piping system, unless the department determines that a construction permit is not required.

<sup>3</sup> Unformed manure storage structure = covered or uncovered anaerobic lagoon, earthen manure storage basin, aerobic earthen structure.



**B) In your own words, describe in detail, the proposed construction, expansion, installation, modification or repair being proposed in this project. (Must be completed) Attach additional pages if necessary:**

contruction of 1- 193'-0" long x 102'-10" wide x 8'-0" deep below ground, covered, concrete pit with slats & building above.

total capacity of site will be 4800 swine finishers

**C) Master Matrix (must check one).** If any of boxes 1 to 3 are checked, the operation is required to be evaluated with the master matrix if the county, where the confinement feeding operation structure<sup>1</sup> is or would be located, has adopted a 'Construction Evaluation Resolution' (CER). Select the one that best describes your confinement feeding operation:

1. ☐ A new confinement feeding operation proposed in a county that has adopted a CER.
2. ☒ An existing operation constructed on or after April 1, 2002, in a county that has adopted a CER.
3. ☐ An existing operation constructed prior to April 1, 2002, with a current or proposed AUC of 1,667 AU or more, in a county that has adopted a CER.
4. ☐ None of the above. Therefore, the master matrix evaluation is not required.

**D) Qualified Operation (must check one).** If any of boxes 1 to 4 are checked, the operation is also a 'qualified operation'. A qualified operation is required to use a manure storage structure that employs bacterial action which is maintained by the utilization of air or oxygen, and which shall include aeration equipment. However, this requirement does not apply if box 5 is checked. Select the one that best describes your confinement feeding operation:

1. ☐ A swine farrowing and gestating operation with an AUC of 2,500 AU or more. If the replacement breeding swine are raised and used at the operation, the animal units for those replacement animals do not count in the operations total AUC for the purpose of determining a qualified operation.
2. ☐ A swine farrow-to-finish operation with an AUC of 5,400 AU or more.
3. ☐ A cattle confinement feeding operation (including dairies) with an AUC of 8,500 AU or more.
4. ☐ Other confinement feeding operations with an AUC of 5,333 AU or more.
5. ☒ This is not a qualified operation because:
  - a. ☒ It is below the limits shown on boxes 1 to 4.
  - b. ☐ It includes a confinement feeding operation structure<sup>1</sup> constructed prior to May 31, 1995.
  - c. ☐ It handles manure exclusively in a dry form (poultry).

**ITEM 4 -- ANIMAL UNIT CAPACITY (AUC) and, if applicable, ANIMAL WEIGHT CAPACITY (AWC):**

**A) Calculating AUC – Required for all operations**

For each animal species, multiply the maximum number of animals that you would ever confine at one time by the appropriate factor, then add all AU together on Table 1 (page 4). Use the maximum market weight for the appropriate animal species to select the AU factor.

You must complete all applicable columns in Table 1. Use column a) to calculate the existing AUC, before permit for existing operations only. Use column b) to calculate the 'Total proposed AUC' (after a permit is issued) including new operations. The number obtained in column b) is the AUC of the operation and must be used to determine permit requirements. Use column c) to calculate the 'New AU' to be added to an existing operation. To calculate the indemnity fee (see page 7), also use column c), however, if the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in the "New AU" (column c).

In calculating the AUC of a confinement feeding operation, you must include the AUC of all confinement buildings which are part of the confinement feeding operation, unless a confinement building has been abandoned. A confinement feeding operation structure<sup>1</sup> is abandoned if the confinement feeding operation structure<sup>1</sup> has been razed, removed from the site of a confinement feeding operation, filled in with earth, or converted to uses other than a confinement feeding operation structure<sup>1</sup> so that it cannot be used as a confinement feeding operation structure<sup>1</sup> without significant reconstruction. Therefore, in Table 1, enter the animal unit capacity of all the confinement buildings, including those that are from an "adjacent" operation located within 2,500 feet. For more information, contact the AFO Program at (712) 262-4177.



**Table 1. Animal Unit Capacity (AUC):** (No. HEAD) x (FACTOR) = AUC

Animal Species	a) Existing AUC (Before permit)			b) Total AUC (After permit)		
	(No. Head)	x (Factor)	= AUC	(No. Head)	x (Factor)	= AUC
Slaughter or feeder cattle		1.0			1.0	
Immature dairy cattle		1.0			1.0	
Mature dairy cattle		1.4			1.4	
Gestating sows		0.4			0.4	
Farrowing sows & litter		0.4			0.4	
Boars		0.4			0.4	
Gilts		0.4			0.4	
Finished (Market) hogs	2400	0.4	960	4800	0.4	1920
Nursery pigs 15 lbs to 55 lbs		0.1			0.1	
Sheep and lambs		0.1			0.1	
Goats		0.1			0.1	
Horses		2.0			2.0	
Turkeys 7 lbs or more		0.018			0.018	
Turkeys less than 7 lbs		0.0085			0.0085	
Broiler/Layer chickens 3 lbs or more		0.01			0.01	
Broiler/Layer chickens less than 3 lbs		0.0025			0.0025	
Ducks		0.04			0.04	
Fish 25 grams or more		0.001			0.001	
Fish less than 25 grams		0.00006			0.00006	
<b>TOTALS:</b>		<b>a) Existing AUC:</b>	<b>960</b>	<b>b) Total proposed AUC:</b>	<b>1920</b>	

Note: If the "Existing AUC" (column a) is 500 AU or less, enter the "Total proposed AUC" (column b) in the "New AU" (column c)

c) New AU = b) - a):

960

(This is the AUC of the operation)

**B) Calculating AWC - Only for operations first constructed prior to March 1, 2003**

The AWC is needed for an operation that was first constructed prior to March 1, 2003, to determine some of the minimum separation distance requirements for construction or expansion.

The AWC is the product of multiplying the maximum number of animals that you would ever confine at any one time by their average weight (lbs) during the production cycle. Then add the AWC if more than one animal species is present (examples on how to determine the AWC are provided in 567 IAC 65.1(455B).)

If the operation was first constructed prior to March 1, 2003, you must complete all applicable columns in Table 2:

**Table 2. Animal Weight Capacity (AWC):** (No. head) \* (Avg. weight, lbs) = AWC, lbs

Animal Species	a) Existing AWC (Before Permit)			b) Proposed AWC (After permit)		
	(No. head) x	avg weight	= AWC	(No. head) x	avg weight	= AWC
Slaughter or feeder cattle						
Immature dairy cattle						
Mature dairy cattle						
Gestating sows						
Farrowing sows & litter						
Boars						
Gilts						
Finished (Market) hogs						
Nursery pigs 15 lbs to 55 lbs						
Sheep and lambs						
Goats						
Horses						
Turkeys 7lbs or more						
Turkeys less than 7 lbs						
Broiler/Layer chickens 3 lbs or more						
Broiler/Layer chickens less than 3 lbs						
Ducks						
Fish 25 grams or more						
Fish less than 25 grams						
<b>TOTALS:</b>		<b>a) Existing AWC:</b>		<b>b) Total proposed AWC:</b>		

c) New AWC = b) - a):

(This is the AWC of the operation)





**ITEM 5 – SUBMITTAL REQUIREMENTS** Checklists No. 1 or 2 (pages 10-15) describe the submittal requirements, which are based on the type of confinement feeding operation structure<sup>1</sup> and AUC proposed. To determine which checklist to use, choose the option that best describes your confinement feeding operation:

- A) ☒ **Formed manure storage structures<sup>2</sup>:** The proposed confinement feeding operation structure<sup>1</sup> will be or will use a formed manure storage structure<sup>2</sup>. Check one of the following boxes:
1. ☐ A swine farrowing and gestating operation with an AUC of 1,250 AU or more. Use Submittal Checklist No. 2 (page 13).
  2. ☐ A swine farrow-to-finish operation with an AUC of 2,750 AU or more. Use Submittal Checklist No. 2 (page 13).
  3. ☐ A cattle confinement feeding operation (including dairies) with an AUC of 4,000 AU or more. Use Submittal Checklist No. 2 (page 13).
  4. ☐ Other confinement feeding operations with an AUC of 3,000 AU or more. Use Submittal Checklist No. 2 (page 13).
  5. ☒ None of the above. Use Submittal Checklist No. 1 (page 10).

If any of boxes 1 to 4 are checked, the operation meets the threshold requirements for an engineer<sup>4</sup> and a Professional Engineer (PE), licensed in Iowa, is required. For these cases, use Submittal Checklist No. 2 (page 13).

If you checked box 5, your operation is below threshold requirements for an engineer<sup>4</sup> and a Professional Engineer (PE) is not required. Use Submittal Checklist No. 1 (page 10).

- B) ☐ **Unformed manure storage structure<sup>3</sup>:** The proposed confinement feeding operation structure<sup>1</sup>, will be or will use an unformed manure storage structure<sup>3</sup> or an egg washwater storage structure. A Professional Engineer (PE) licensed in Iowa must design and sign the engineering documents for any size of operation. Use Submittal Checklist No. 2 (page 13) and Addendum "A" (page 16).

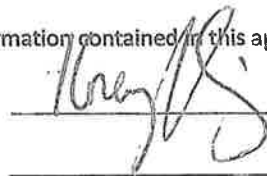
**ITEM 6- UTILIZING RURAL WATER SYSTEM FOR WATER SUPPLY**

- ☐ The proposed facility will utilize rural water and the providing rural water system has been notified and is aware of the proposed increase in water use.

**ITEM 7 – SIGNATURE:**

I hereby certify that the information contained in this application is complete and accurate.

Signature of Applicant(s):



Date:

2-13-23

**MAILING INSTRUCTIONS:**

To expedite the application process, follow the submittal requirements explained in Checklist No. 1 or 2 (pages 10 to 16), whichever applies. Page 1 of this form should be the first page of the package. Mail all documents and fees to:

**Iowa DNR  
AFO Program  
1900 N Grand Ave  
Gateway North, Ste E17  
Spencer, IA 51301**

*(Note: Incomplete applications will be returned to the sender.)*

**Questions**

Questions about construction permit requirements or regarding this form should be directed to an engineer of the animal feeding operations (AFO) Program at (712) 262-4177. To contact the appropriate DNR Field Office, go to <http://www.iowadnr.gov/fieldoffice>.

<sup>4</sup> Threshold requirements for an engineer apply to the construction of a formed manure storage structure<sup>2</sup>. Operations that meet or exceed the threshold requirements for an engineer are required to submit engineering documents signed by a professional engineer licensed in the state of Iowa. Please refer to Checklist No. 2 (pages 13-15).



**Interested Parties Form  
Confinement Feeding Operation**

**Interest** means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly or indirectly through a spouse or dependent child, or both.

**INSTRUCTIONS:**

Please list all persons (including corporations, partnerships, etc.) who have an interest in any part of the confinement feeding operation covered by this permit application.

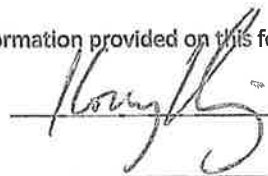
Full Name	Address	City/State	Zip
Korey Krieg	40235 270th St	Kingsley/Iowa	51028

For each name above, please list below all other confinement feeding operations in Iowa in which that person has an interest. Check box "None", below, if there are no other confinement feeding operations in Iowa in which the above listed person(s) has or have an interest.

Operation Name	Location (¼ ¼, ¼, Section, Tier, Range, Township, County)	City
<input type="checkbox"/> None [There are no other confinements in Iowa in which the above listed person(s) has or have an interest].		
Pittman Finisher	SW1/4 of the SE1/4 of Section 29, T91N R43W Henry Township Plymouth County	Kingsley

I hereby certify that the information provided on this form is complete and accurate.

Signature of Applicant(s):



Date:

2-13-23



**AFO Siting**

**Iowa DNR - AFO Siting**

**Map Layers Legend**

- ☒ Active, Livestock Truck Wash
- ☒ Active, AFO Disjecter
- ☐ Inactive
- ☐ Public Drainage Infrastructure
- ☐ Drainage Districts
- ☒ High Qty Wtr Resource (Rivers)
- ☒ High Qty Wtr Resource (Waterbody)
- ☐ Major Water Source (Rivers)
- ☐ Surface Water
- ☐ Public Land
- ☐ Public Land Survey (PLSS)
- ☐ Political Townships
- ☒ Designated Wetland Buffer
- ☐ Percent Slope
- ☐ Major Water Source Floodplain 2022 (Raster)
- ☐ Major Water Source Floodplain 2023 (refined - Slow loss)
- ☒ Alluvial Soils
- ☒ Alluvial Aquifer
- ☒ Alluvial Soils
- ☐ DNR Field Office
- ☒ HIUC
- ☒ Animal Feeding Operations
- ☐ Major Water Source Floodplain

**Drawing Tools**

**Measure** **Basemap** **Bookmarks** **Map Info**

**Location** **-96.015414** **42.533500**

**Address** **N0**

**Karst Features** **Not in potential karst area**

**Percent Slope** **4 %**

**Estimated Distances**

Ag Drainage Well	> one mile
Well	131 ft
Surface Water	1,546 ft
Major Water Source (River)	> one mile
Source (River)	3,772 ft
Major Water Source (Lake)	> one mile
HCHOR Water	> 2,500 ft
Designated Wetland	4,047 ft
Public Land	4,047 ft
Watersheds	Watershed of HUC12

**Search #00:** **61630** **Go** **Search Township Name:** **Click Here** **Go**

**U.S. Zone 15 NAD83** **WGS84** **32N26S.9P.** **4712965.4AS** **-96.012689,** **42.539657**

**Scale:** **600ft**

**502 E. 9th St., Des Moines, IA 50315** **Q** **1954NP45V02** **WCSDA**

**Separation Distance...pdf** **S421420.pdf** **Master Mapline 23.pdf** **5429043.pdf** **2023 Construction...pdf** **Show all**

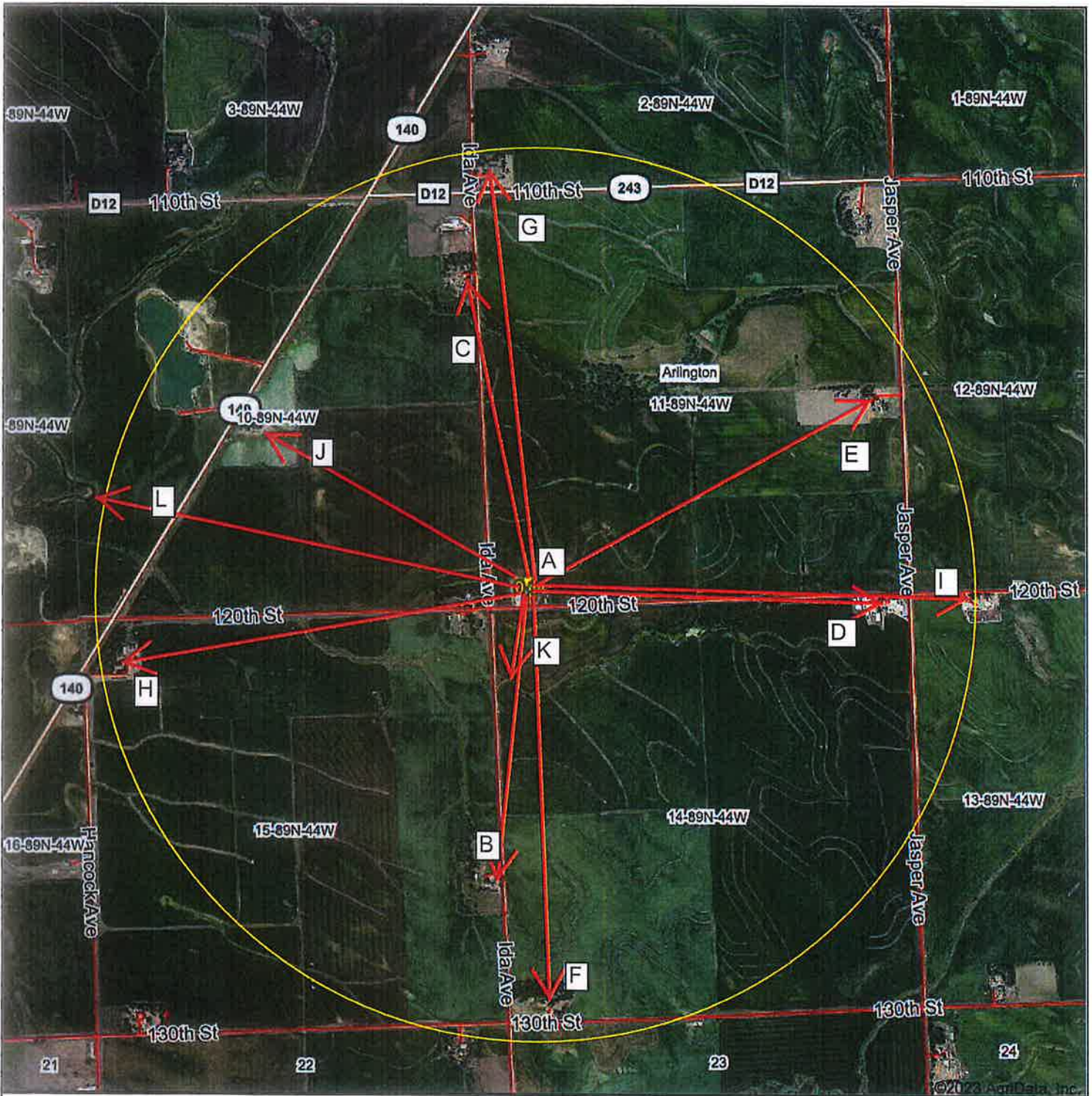
**Type here to search**

**12:23 PM** **13°F Sunny** **5/22/2021**





# Aerial Map



**Tucker Consulting, Inc.**



630 Ontario Street  
Storm Lake, IA 50588  
(712) 732-3030

Maps Provided By:



**surety**  
CUSTOMIZED ONLINE MAPPING

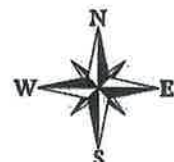
© AgriData, Inc. 2021

[www.AgrIDataInc.com](http://www.AgrIDataInc.com)

Map Center: 42.534875, -96.014856

**11-89N-44W**  
**Woodbury County**  
**Iowa**

0ft 1976ft 3951ft

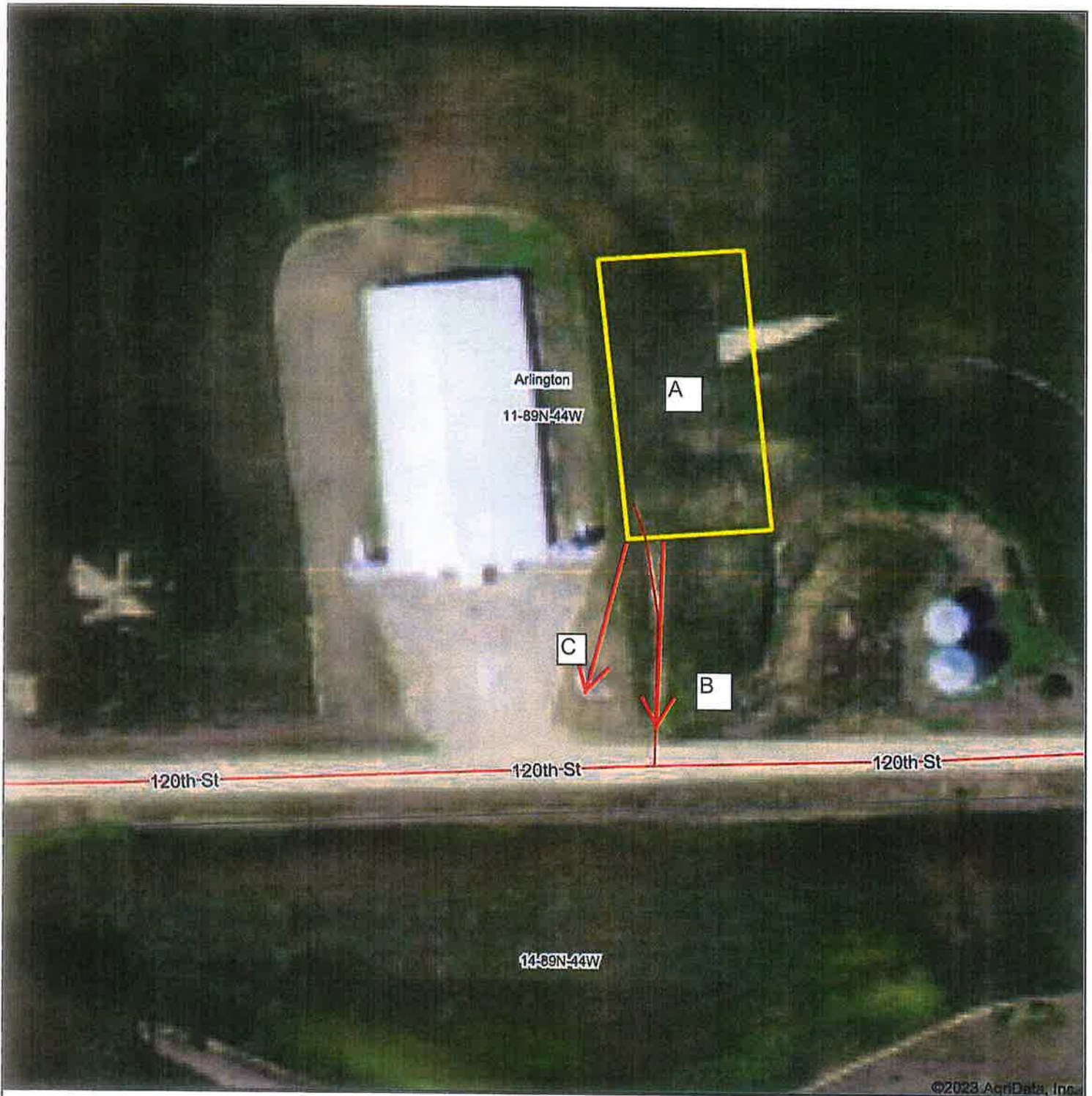


2/2/2023





# Aerial Map



©2023 AgriData, Inc.

**Tucker Consulting, Inc.**



630 Ontario Street  
Storm Lake, IA 50588  
(712) 732-3030

Maps Provided By:



**surety**  
CUSTOMER ONLINE MAPPER

© AgriData, Inc. 2021

[www.AgriDataInc.com](http://www.AgriDataInc.com)

Map Center: 42.533271, -96.016006

**11-89N-44W**  
**Woodbury County**  
**Iowa**

0ft 106ft 212ft



2/2/2023



Key for aerial photo 1

Item	Separation distance requirement*
A Proposed Livestock Site	
B Neighboring residence 3715 feet	
C Neighboring residence 4045 feet	1875 feet
D Neighboring residence 4390 feet	
E Neighboring residence 4925 feet	
F Neighboring residence 5150 feet	
G Neighboring residence 5220 feet	
H Neighboring residence 5260 feet	
I Neighboring residence 5570 feet	
J Public Use: Midway County Park 3240 feet	
K Nearest Water Source 1095 Feet	
L Nearest Major Water Source: West Fork Little Sioux River 5615 Feet	

(No business, school or church within one mile)

There are no ag drainage wells, surface intakes of ag drainage wells, or designated wetlands within one mile.

Key for aerial photo 2

Item	Separation distance requirement*
A Proposed Livestock Site	
B Right of Way approximately >100 feet	100 Feet
C Well >100 feet	100 Feet

\*Separation distances based on Table 6 from DNR document Minimum Separation Distances for Construction or Expansion of Confinement Feeding Operation Structures.

## 567 IAC 65.11(455B), Table 6

**Minimum separation distances for a new confinement feeding operation or expansion of an operation constructed on or after March 1, 2003**

Type of Structure (liquid, semi-liquid and dry manure storage)	Total Animal Unit Capacity (AUC) (AU)	Residences, Businesses, Churches, Schools	Public use areas	
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,875 feet	1,875 feet	1,875 feet
	501 AU to < 1,000	1,875 feet	1,875 feet	1,875 feet
	1,000 AU to < 3,000	2,500 feet	2,500 feet	2,500 feet
	3,000 AU or more	3,000 feet	3,000 feet	3,000 feet
Covered earthen manure storage basins	500 AU or less	1,250 feet	1,875 feet	1,875 feet
	501 AU to < 1,000	1,250 feet	1,875 feet	1,875 feet
	1,000 AU to < 3,000	1,875 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,375 feet	3,000 feet	3,000 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	501 AU to < 1,000	1,500 feet	1,875 feet	1,875 feet
	1,000 AU to < 3,000	2,000 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,500 feet	3,000 feet	3,000 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	501 AU to < 1,000	1,250 feet	1,875 feet	1,875 feet
	1,000 AU to < 3,000	1,875 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,375 feet	3,000 feet	3,000 feet
Eggwasher Storage Structures	500 AU or less	None	None	None
	501 AU to < 1,000	1,000 feet	1,875 feet	1,875 feet
	1,000 AU to < 3,000	1,500 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,000 feet	3,000 feet	3,000 feet

## Distances to Wells

Applies to all Animal Feeding Operations, regardless of the size of operation, including operations with 500 AU or less	Public well		Private well	
	Shallow	Deep	Shallow	Deep
Aerobic structure, anaerobic lagoon, earthen manure storage basin, egg washwater storage structure and open feedlot runoff control basin	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure, confinement building, open feedlot solids settling facility and open feedlot	200 feet	100 feet	200 feet	100 feet
<b>Applies to all Confinement Feeding Operations, regardless of animal unit capacity, including operations with 500 AU or less, unless stated otherwise</b>				
Major water sources, wellhead, cistern of an agricultural drainage well or known sinkhole (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet			
Water sources other than major water sources, surface intakes of an agricultural drainage well (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet			
Designated wetlands (owned and managed by the Federal government or the Iowa DNR)	2,500 feet			
Right-of-way of a public thoroughfare (road, street or bridge) constructed or maintained by the state or a political subdivision (excluding operations with 500 AU or less)	100 feet			

## Other Distances



# Construction Design Statement (CDS)

## Instructions:

1. This form is for new or expanding confinement feeding operations with an AUC<sup>1</sup> of more than 500 AU, not required to have a professional engineer (PE)<sup>2</sup>, that are proposing to construct a formed manure storage structure<sup>3</sup>.
2. Complete and submit Sections 1, 2 and 3 (pages 1 to 6).
3. Complete and submit Section 4 (page 6) only if you are applying for a construction permit and are constructing three or more confinement feeding operation structures<sup>4</sup>.
4. Mail only pages 1 to 6, as instructed on page 6 and 7. Do not mail the remainder of this form.
5. If the site-specific design is sealed by a PE<sup>2</sup>, do not use this CDS instead use DNR Form 542-8122.

## Section 1 - Information about the proposed formed manure storage structure<sup>3(s)</sup>

### A) Information about the operation:

Name of operation: Creasey Facility ID No.: 68606

Location: SW SW 11 T89N R44W Arlington Woodbury

(¼ ¼) (¼) (Section) (Tier & Range) (Name of Township) (County)

Provide latitude and longitude coordinates of the facility driveway at the right of way (ROW) line. Go to the DNR Siting Atlas and left click (to place a teardrop) at that location. The latitude and longitude coordinates appear in the info box. Print off this page, with the info box open (as shown on sample map on Page 7) and submit with CDS.

Latitude: 42.532970 Longitude (negative value) -96.016208

- B) Description of the proposed formed manure storage structure<sup>3</sup>. Include dimensions (length, width, or diameter, depth). Indicate if it is aboveground or belowground; covered or uncovered, made of concrete or steel, address location of pit fans, if applicable, and address water line entry into buildings. If necessary attach more pages:

Pit 16 173 x 102 x 8 Concrete covered

### C) Utilizing Rural Water System and Domestic Sewage Disposal

- ☐ The proposed facility will utilize rural water and the providing rural water system has been notified and is aware of the proposed increase in water use.
- ☐ I understand that no domestic wastewater (toilets, showers, or sinks) or laundry facilities can be discharged to the manure storage structure.

- D) Aerial photos: Aerial photos must be submitted that clearly show the location of all existing and proposed confinement feeding operation structures and show at least a one-mile radius around the structures. The photos must either show roads on the north and south or east and west sides of a section (so that a mile distance is apparent), or include a distance scale.

The photo(s) must show that the proposed structures comply with all statutory minimum required separation distances to the objects listed below:

- Residences (not owned by the permit applicant), churches, businesses, schools, public use areas
- Water wells (depends on type)
- Major water sources, wellhead or cistern of an agricultural drainage well or known sinkholes
- Water sources (other than major water sources) and surface intakes of an agricultural drainage well
- Designated wetlands
- Road right-of-way

The separation distance to each of the above objects must be noted with a straight line between the proposed structure(s) and the object. If any of the above objects is not located within one mile from the proposed structures, note the fact on the photo(s) or use additional pages. (Example: "No agricultural drainage wells within one mile.")

<sup>1</sup> To determine the AUC see the 'Manure Storage Indemnity Fee' (Form 542-4021) or the 'Construction Permit Application' (Form 542-1428), or visit <http://www.iowadnr.gov>

<sup>2</sup> PE is a professional engineer licensed in the state of Iowa or a NRCS-Engineer working for the USDA-Natural Resources Conservation Service (NRCS).

<sup>3</sup> Formed manure storage structure means a covered or uncovered concrete or steel tank, including concrete pits below the floor.

<sup>4</sup> Confinement feeding operation structure = A confinement building, a formed or unformed manure storage structure, or an egg washwater storage structure.

All separation distances that are not clearly in excess of the required minimum separation distance must be measured according to 567 IAC 65.11(9) using standard survey methods. Go to the [DNR Fact Sheet Page](#) on our website and select DNR fact sheet "Distance Requirements for Construction" to find the required separation distances. Or, go directly to the [Minimum Separation Distances for Construction or Expansion of Confinement Feeding Operation Structures Form](#). An [example aerial photo](#) can be found on pages 18 to 19 of the AFO Construction Permit Application (DNR Form 542-1428), or at the previously listed link.

**Note:** If a master matrix is required, the photos must also show that the additional separation distances required for any points claimed in matrix criteria one through ten will be met for the objects listed above. Note the additional separation distance by drawing a straight line between the proposed structures and the matrix item.

E) **Karst Determination:** Go to DNR AFO Siting Atlas at <http://programs.iowadnr.gov/maps/afo/>. Search for your site by either scrolling into your location or entering an address or legal description in the bottom search bar. Left click on the location of your proposed structure. Make sure the karst layer box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact the AFO Engineer at 712-262-4177. Check one of the following:

- ☒ The site is not in karst or potential karst. Print and enclose the map with the name and location of the site clearly marked.  
☐ The Siting Atlas has indicated that the site is in karst. The upgraded concrete standards of 567 IAC 65.15(14)"c" must be used. Complete and sign Section 3.H (page 5).

F) **Alluvial Soils Determination:** Go to the AFO Siting Atlas as described above. Make sure the alluvial box is checked on the map layers. If you cannot access the map, or if you have questions about this issue, contact DNR Flood Plain at 866-849-0321. Check one of the following:

- ☒ The site is not in alluvial soils. Print and enclose the map with the name and location of the site clearly marked.  
☐ If the site is in alluvial soils contact DNR Flood Plain at 866-849-0321. You will be required to submit a petition for a declaratory order if less than 1000 AU or request a flood plain determination if 1000 AU or greater. After receiving Flood Plain determination, submit one of the following:  
☐ Include correspondence from the DNR showing the site is not in 100-year flood plain or does not require a Flood Plain permit.  
☐ Include copy of the Flood Plain permit if a Flood Plain permit is required.

NOTE: You may not be in a flood plain per DNR, however in a County Flood Hazard Area and need a county permit.

**Section 2 - Manure management plan:**

☒ An original manure management plan (MMP) is enclosed with this form, even if a MMP was previously filed.

Korey Krieg

Owner's Name (print)

Owner's Signature

Date

2-13-23

**Section 3 - Construction design standards:** The person responsible for constructing the formed manure storage structure(s)<sup>3</sup> must complete Section 3.

A) **Liquid and semi-liquid manure:** The proposed formed manure storage structure<sup>3</sup> will be (check one):

- A.1 ☒ A non-circular concrete tank, belowground, with walls laterally braced or below the building concrete pit designed according to 567 IAC Chapter 65, Appendix D.  
A.2 ☐ A non-circular concrete tank, belowground, walls designed according to MidWest Plan Service (MWPS), publication MWPS-36. Include design calculations.  
A.3 ☐ A circular concrete tank, walls designed according to MidWest Plan Service (MWPS), publication MWPS TR-9. Include design calculations.  
A.4 ☐ Will be made of steel, constructed aboveground according to the manufacturer's recommendations.

B) **Dry manure:** The proposed formed manure storage structure<sup>3</sup> will be (check one):

- B.1 ☐ An aboveground concrete tank, with walls designed according to MWPS-36. Include design calculations.  
B.2 ☐ Will be made of steel, constructed aboveground according to the manufacturer's recommendations.  
B.3 ☒ Will be a belowground or partially belowground concrete tank, with walls laterally braced designed according to 567 IAC Chapter 65, Appendix D or MWPS-36. Include design calculations.



- C) **Details of the proposed design:** Submit an additional completed copy of this page 3 for each formed manure storage structure<sup>3</sup> that have different dimensions. Complete all of the following information:

Number of buildings: 1 Building name: Cressey

Dimensions of proposed formed manure storage structure<sup>3</sup>

	Length	Width	Height or depth	Wall thickness	Diameter (circular tanks only)
Feet	193'	102'	8'	8"	
Inches					

To determine the appropriate vertical steel in walls, first check one of the following boxes (must check one):

- a. ☐ To use Tables D-1 and D-2 (on page 9), backfilling of walls shall be performed with gravel, sand, silt, and clay mixtures (less than 50 percent fines), with coarse sand with silt or clay (less than 50 percent fines), or cleaner granular material (see page 9 for the unified soils classification). You will need to submit a copy of a USDA soil survey map with the proposed location of the formed manure storage structures<sup>3</sup> clearly marked showing the unified soil classification; or a statement signed by a qualified organization or NRCS staff.
- b. ☒ Use Tables D-3 and D-4 (on page 10) if backfilling of walls will be performed with soils that are unknown or with low plasticity silts and clays with some sand or gravel (50 percent or more fines); or fine sands with silt or clay (less than 50 percent fines); or low to medium plasticity silts and clays with little sand or gravel (50 percent or more fines); or high plasticity silts and clays (see page 10 for unified soils classification). You must use Tables D-3 and D-4 if you do not submit the soils information requested in box "a", above.

Maximum spacing of steel, in inches

Description of reinforcing steel in walls	Proposed vertical steel in walls [see boxes "a" and "b", above]				Proposed horizontal steel in walls (use Table D-5)
	Walls where vehicles are <u>not</u> allowed within 5 feet (use Table D-1) <sup>a</sup>	All walls with pumpout ports and walls where vehicles are allowed within 5 feet (use Table D-2) <sup>a</sup>	Walls where vehicles are <u>not</u> allowed within 5 feet (use Table D-3) <sup>b</sup>	All walls with pumpout ports and walls where vehicles are allowed within 5 feet (use Table D-4) <sup>b</sup>	
Grade 40, No. 4					
Grade 40, No. 5					
Grade 60, No. 4	9.5"	6.5"	10"	9"	12"
Grade 60, No. 5					

- D) **Aboveground tanks or partially aboveground tanks:** Liquid and semi-liquid manure (check the following box):
- ☐ If the proposed tank is to be constructed aboveground or partially aboveground and will have an external outlet or inlet below the liquid level, the tank will also be constructed according to the 567 IAC 65.15(20).

- E) **Steel Tanks:** Certification that the tank will be constructed according to the tank manufacturer's specifications:

Name of tank manufacturer company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

- F) **Additional construction design standards:**

To determine the additional requirements set forth in 567 IAC 65.15(14) that would apply to the proposed formed manure storage structure<sup>3</sup>, check any of the following 3 boxes based on the information entered on Sections 3.A or 3.B (page 2):

- ☒ If you checked boxes A.1, A.2, A.3 or B.3 (on page 2) all of the following 15 additional requirements apply. Complete the numbered items 1 to 15 (below).
- ☐ If you checked box B.1 (on page 2), only the requirements of numbered items 1, 3, 4, 5, 6, 8 and 12 apply and need to check those boxes (below).
- ☐ If you checked boxes A.4 or B.2 (on page 2) and the steel tank will have a concrete floor, only the requirements of numbered items 1, 2, 3, 4, 5, 8, 9, 12, apply and need to check those boxes (below).

**Additional Requirements that will be followed during construction of the formed manure storage structure(s)<sup>3</sup>:**

1. Site preparation (check the following box):
  - ☒ The finished subgrade of a formed manure storage structure shall be graded and compacted to provide a uniform and level base and shall be free of vegetation, manure and debris. For the purpose of this subrule, "uniform" means a finished subgrade with similar soils.
2. Groundwater separation requirements (check one of the following boxes):
  - ☒ When the groundwater table, as determined in 65.15(7)"c," is above the bottom of the formed structure, a drain tile shall be installed along the footings to artificially lower the groundwater table pursuant to 65.15(7)"b" (2). The drain tile shall be placed within 3 feet of the footings as indicated in Appendix D, Figure D-1, at the end of this chapter and shall be covered with a minimum of 2 inches of gravel, granular material, fabric or a combination of these materials to prevent plugging the drain tile. A device to allow monitoring of the water in the drainage tile lines installed to lower the groundwater table and a device to allow shutoff of the drainage tile lines shall be installed if the drainage tile lines do not have a surface outlet accessible on the property where the formed manure storage structure is located. Perimeter tiles must be tied into existing tile, day light, or have an operating sump pump installed in tile riser. Perimeter tiles CANNOT dead end at riser or monitoring port.
  - ☒ In lieu of the drain tile, a certification signed by a PE<sup>2</sup>, a groundwater professional certified pursuant to 567 Chapter 134, or a qualified staff from NRCS, is being submitted indicating that the groundwater elevation, according to 65.15(7)"c", is below the bottom of the formed structure.
3. Minimum as-placed concrete compressive strength (check the following box):
  - ☒ All concrete shall have the following minimum as-placed compressive strengths and shall meet American Society for Testing and Materials (ASTM) standard ASTM C 94: 4,000 pounds per square inch (psi) for walls, floors, beams, columns and pumpouts and 3,000 psi for the footings. The average concrete strength by testing shall not be below design strength. No single test result shall be more than 500 psi less than the minimum compressive strength.
4. Cement and aggregates specifications (check the following box):
  - ☒ Cementitious materials shall consist of Portland cement conforming to ASTM C 150. Aggregates shall conform to ASTM C 33. Blended cements in conformance with ASTM C 595 are allowed only for concrete placed between March 15 and October 15. Portland-pozzolan cement or Portland blast furnace slag blended cements shall contain at least 75 percent, by mass, of Portland cement.
5. Concrete consolidation and vibration requirements (check the following box):
  - ☒ All concrete placed for walls shall be consolidated or vibrated, by manual or mechanical means, or a combination, in a manner which meets ACI 309.
6. Minimum rebar specifications: (check the following box):
  - ☒ All rebar used shall be a minimum of grade 40 steel. All rebar, with the exception of rebar dowels connecting the walls to the floor or footings, shall be secured and tied in place prior to the placing of concrete.
7. Wall reinforcement placement specifications (check the following box):
  - ☒ All wall reinforcement shall be placed so as to have a rebar cover of 2 inches from the inside face of the wall for a belowground manure storage structure. Vertical wall reinforcement should be placed closest to the inside face. Rebar placement shall not exceed tolerances specified in ACI 318.
8. Minimum floor specifications. Complete part a) and b):
  - a) Floor thickness requirements (check the following box):
    - ☒ The floor slab shall be a minimum of 5 inches thick. Nondestructive methods to verify the floor slab thickness may be required by the department. The results shall indicate that at least 95 percent of the floor slab area meets the minimum required thickness. In no case shall the floor slab thickness be less than 4½ inches.
  - b) The floor slab reinforcement shall be located in the middle of the thickness of the floor slab (check one of the following boxes):
    - ☒ Formed manure storage structures with a depth of 4 feet or more shall have primary reinforcement consisting of a minimum of #4 rebar placed a maximum of 18 inches on center in each direction placed in a single mat.
    - ☒ Formed manure storage structure with a depth less than 4 feet shall have shrinkage reinforcement consisting of a minimum of 6 × 6-W1.4 × W1.4 welded wire fabric.

9. Minimum footing specifications (check the following box):

- ☒ The footing or the area where the floor comes in contact with the walls and columns shall have a thickness equal to the wall thickness, but in no case be less than 8 inches, and the width shall be at least twice the thickness of the footing. All exterior walls shall have footings below the frostline. Tolerances shall not exceed  $-\frac{1}{2}$  inch of the minimum footing dimensions.

10. Requirement to connect walls to footings (check one of the following boxes):

- ☒ The vertical steel of all walls shall be extended into the footing, and be bent at 90°, OR  
☒ A separate dowel shall be installed as a #4 rebar that is bent at 90° with at least 20 inches of rebar in the wall and extended into the footing within 3 inches of the bottom of the footing and extended at least 3 inches horizontally, as indicated in Appendix D, Figure D-1 (page 12). Dowel spacing (bend or extended) shall be the same as the spacing for the vertical rebar.  
☒ As an alternative to the 90° bend, the dowel may be extended at least 12 inches into the footing, with a minimum concrete cover of 3 inches at the bottom, as indicated in Appendix D, Figure D-1 (page 12). Dowel spacing (bend or extended) shall be the same as the spacing for the vertical rebar.  
☒ In lieu of dowels, mechanical means or alternate methods may be used as anchorage of interior walls to footings. Please submit structural calculations and details of this proposal.

11. Concrete forms specifications (check the following box):

- ☒ All walls shall be formed with rigid forming systems and shall not be earth-formed. Form ties shall be non-removable.

12. Curing of concrete requirements (check the following box):

- ☒ All concrete shall be cured for at least seven days after placing, in a manner which meets ACI 308, by maintaining adequate moisture or preventing evaporation. Proper curing shall be done by ponding, spraying or fogging water; or by using a curing compound that meets ASTM C 309; or by using wet burlap, plastic sheets or similar materials.

13. Construction joints and waterstops specifications (check the following box):

- ☒ All construction joints in exterior walls shall be constructed to prevent discontinuity of steel and have properly spliced rebar placed through the joint. Waterstops shall be installed in all areas where fresh concrete will meet hardened concrete as indicated in Appendix D, Figures D-1 and D-2, at the end of this chapter. The waterstops shall be made of plastic, rolled bentonite or similar materials approved by the department.

14. Backfilling of walls specifications (check the following box):

- ☒ Backfilling of the walls shall not start until the floor slats or permanent bracing have been installed. Backfilling shall be performed with material free of vegetation, large rocks or debris.

15. Additional design requirements (check the following box, if applicable):

- ☒ A formed manure storage structure with a depth greater than 12 feet shall be designed by a PE or an NRCS engineer.

G) **Construction Certification:** The person responsible for constructing the formed manure storage structure<sup>3</sup> must sign this page. Any change(s) to the specifications of the formed manure storage structure must be first approved by DNR:

"I hereby certify that I have read and understand the minimum design and construction standards of Iowa Code chapter 459, Subchapter III, and the 567 Iowa Administrative Code (IAC) 65.15(14) "Minimum concrete standards" or 567 IAC 65 (if other than concrete)." The proposed formed manure storage structure(s)<sup>3</sup> at the operation:

Name of operation: Creasey County: Woodbury

Owner's name: Karen Krey  
will be constructed in accordance with these minimum requirements. Included with this certification are:

- ☒ Page 1-3, for each formed manure storage structure<sup>3</sup> that have different dimensions  
☒ Pages 4 to 6 (applicable sections)  
☐ Other documents (specify): ce

Chris DeRocher  
(Print name)  
CD Services LLC  
(Company)

[Signature]  
(Signature)  
33109 2100 St Lehigh IA 51031  
(Address)

02/9/23  
(Date)  
712-540-6236  
(Phone No.)

(See page 7 for mailing instructions)

# Manure Management Plan Form

## Animal Feeding Operation Information

Page 1

**Instructions:** Complete this form for your animal feeding operation. Footnotes are provided on page 4.

The information within this form, and the attachments, describes my animal feeding operation, my manure storage and handling system, and my planned manure management system. I (we) will manage the manure, and the nutrients it contains, as described within this manure management plan (MMP) and any revisions of the plan, individual field information, and field summary sheet, and in accordance with current rules and regulations. Deviations permitted by Iowa law will be documented and maintained in my records.

Signed: \_\_\_\_\_

(Signature)

(Print name)

Date: 2-13-23

Name of the Operation: Cressey

Facility ID No: 68606

Location of the Operation: 3009 120th Street

Kingsley

(Town)

IOWA

(State)

51028

(Zip)

SW

(1/4 1/4)

1/4 of the

SW

(1/4)

1/4 of sec

11

(Section)

T

89N

(Tier & Range)

R

44W

Arlington

(Township Name)

Woodbury

(County)

### Owner and Contacts of the Animal Feeding Operation:

Owner: KK Swine LLC

Phone Number: \_\_\_\_\_

Address: 40235 270th St

(Street)

Kingsley

(City)

IOWA

(State)

51028

(Zip)

Email Address (Optional): koreykrieg@gmail.com

Cell Phone (Optional): 712-541-5018

Contact Name: (If Different than owner): Korey Krieg

Phone: \_\_\_\_\_

Address: 40235 270th St

(Street)

Kingsley

(City)

IOWA

(State)

51028

(Zip)

Email Address (Optional): koreykrieg@gmail.com

Cell Phone (Optional): 712-541-5018

Contract Company (if applicable): \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

**This Manure Management Plan is for:** (check one)

☐ Existing Operation, Not Expanding

☒ Existing Operation, Expanding

☐ Existing Operation, New Owner

☐ New Operation

Construction and Expansion Dates: 2015

Date of Initial Construction

2023

and All Expansions

1	2	3	4	5	6	7	8
Animal Type/ Production Phase*	Max# of Animals Confined	Manure Storage structure *	N*	P2O5*	gal/space/day* OR tons/space/yr	Days/yr Facility Occupied	Annual Manure Produced*
Swine : Wean/finish (wet/dry)	4,800	Deep Pit	63.40	28.70	0.70	365	1,226,400

Total Gallons: 1,226,400

Estimated Annual Animal Production: 9,600 animals/year

Total Tons: \_\_\_\_\_

Source of Manure Nutrient Content Data (standard tables, manure analysis, other) :

Midwest Laboratories #162779243 Oct 2016

Date created: 02/13/2023

**Manure Management Plan Form**  
**Determining Maximum Allowable Manure Application Rates**

Page 2

Instructions: Complete worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Footnotes are given on pages 4, 5 and 6.

Management Identification ID : CC (Corn/Corn) Plymouth

Method used to determine optimum yield <sup>h</sup> : USDA Iowa Ag Statistics County yields Timing of Application : Fall or Spring

Method of Application <sup>i</sup> : Knifed in or soil injection of liquid manure Application Loss Factor <sup>i</sup> : 0.98

If spray irrigation is used, identify method <sup>j</sup> : \_\_\_\_\_

Table 2. Manure Nutrient Concentration

Manure Nutrient Content (lbs/1000gal or lbs/ton)					
Manure Storage Structure(s) <sup>k</sup>		Deep Pit			
Total N <sup>l</sup>	63.40	Total P <sup>l</sup>		28.70	
Available % N <sup>l</sup>	90	% 2nd year	0	% 3rd year	0
Available N <sup>m</sup>	55.92	2nd year <sup>n</sup>	0.00	3rd year <sup>o</sup>	0.00

Table 3. Crop Usage Rates : <sup>p</sup>

lb/bu or lb/ton	N	P
Corn-zone2	1.10	0.32
Corn-zone2	1.10	0.32

Table 4. Calculations for rate based on nitrogen (always required).

1 Applying Manure For (crop to be grown)		Corn-zone2	Corn-zone2		
2 Optimum crop yield <sup>h</sup>	bu or ton/acre	218	218		
3 P2O5 removed from crop harvest <sup>r</sup>	lb/acre	69.8	69.8		
4 Crop N utilization <sup>s</sup>	lb/acre	240	240	0	0
5a Legume N credit <sup>t</sup>	lb/acre	0	0	0	0
5b Commerical N planned <sup>u</sup>	lb/acre	0	0	0	0
5c Manure N carryover credit <sup>v</sup>	lb/acre	0	0		
5d Add'l Manure N (from other sites)	lb/acre	0	0	0	0
6 Remaining Crop N need <sup>w</sup>	lb/acre	240	240		
7 Manure rate to supply remaining N <sup>x</sup>	lb/acre	4292	4292		
8 P2O5 applied with N-based rate <sup>y</sup>	lb/acre	123	123		

Table 5. Calculations for rate based on phosphorous (fill out only if P-based rates are planned).

9 Commerical P2O5 planned <sup>z</sup>	lb/acre	0	0		
10 Manure rate to supply P removal <sup>aa</sup>	gal/acre or ton/acre	2432	2432		
11 Manure rate for P-based plan <sup>bb</sup>	gal/acre or ton/acre	0	0		
12 Manure N applied with P-base plan <sup>cc</sup>	lb/acre	0	0		

Table 6. Application rates that will be carried over to page 3.

13 Planned Manure Application Rate <sup>dd</sup>	4290	4290		
--	------	------	--	--

When applicable, manure application rates must be based on the P index value as follows:

(0-2): N-based manure management.

(>2-5): N-based manure management but, P application rates cannot exceed two times the P removal rate of the crop schedule.

(>5-15): No manure application until practices are adopted to reduce P index to 5 or below.

(>15): No manure application.



**Manure Management Plan Form**  
**Determining Maximum Allowable Manure Application Rates**

Page 2

Instructions: Complete worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Footnotes are given on pages 4, 5 and 6.

Management Identification ID : CC (Corn/Corn) Woodbury

Method used to determine optimum yield : USDA Iowa Ag Statistics County yields Timing of Application : Fall or Spring

Method of Application : Knifed in or soil injection of liquid manure Application Loss Factor : 0.98

If spray irrigation is used, identify method : \_\_\_\_\_

Table 2. Manure Nutrient Concentration

Manure Nutrient Content (lbs/1000gal or lbs/ton)					
Manure Storage Structure(s) <sup>k</sup>		Deep Pit			
Total N <sup>l</sup>	63.40	Total P <sup>l</sup>		28.70	
Available % N <sup>l</sup>	90	% 2nd year	0	% 3rd year	0
Available N <sup>m</sup>	55.92	2nd year <sup>n</sup>	0.00	3rd year <sup>o</sup>	0.00

Table 3. Crop Usage Rates : <sup>p</sup>

lb/bu or lb/ton	N	P
Corn-zone2	1.10	0.32
Corn-zone2	1.10	0.32

Table 4. Calculations for rate based on nitrogen (always required).

1 Applying Manure For (crop to be grown)		Corn-zone2	Corn-zone2		
2 Optimum crop yield <sup>h</sup>	bu or ton/acre	228	228		
3 P <sub>2</sub> O <sub>5</sub> removed from crop harvest <sup>r</sup>	lb/acre	73	73		
4 Crop N utilization <sup>s</sup>	lb/acre	251	251	0	0
5a Legume N credit <sup>t</sup>	lb/acre	0	0	0	0
5b Commerical N planned <sup>u</sup>	lb/acre	0	0	0	0
5c Manure N carryover credit <sup>v</sup>	lb/acre	0	0		
5d Add'l Manure N (from other sites)	lb/acre	0	0	0	0
6 Remaining Crop N need <sup>w</sup>	lb/acre	251	251		
7 Manure rate to supply remaining N <sup>x</sup>	lb/acre	4489	4489		
8 P <sub>2</sub> O <sub>5</sub> applied with N-based rate <sup>y</sup>	lb/acre	129	129		

Table 5. Calculations for rate based on phosphorous (fill out only if P-based rates are planned).

9 Commerical P <sub>2</sub> O <sub>5</sub> planned <sup>z</sup>	lb/acre	0	0		
10 Manure rate to supply P removal <sup>aa</sup>	gal/acre or ton/acre	2544	2544		
11 Manure rate for P-based plan <sup>bb</sup>	gal/acre or ton/acre	0	0		
12 Manure N applied with P-base plan <sup>cc</sup>	lb/acre	0	0		

Table 6. Application rates that will be carried over to page 3.

13 Planned Manure Application Rate <sup>dd</sup>	4485	4485		
--	------	------	--	--

When applicable, manure application rates must be based on the P index value as follows:

(0-2): N-based manure management.

(>2-5): N-based manure management but, P application rates cannot exceed two times the P removal rate of the crop schedule.

(>5-15): No manure application until practices are adopted to reduce P index to 5 or below.

(>15): No manure application.

**Manure Management Plan Form**  
**Determining Maximum Allowable Manure Application Rates**

Page 2

Instructions: Complete worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Footnotes are given on pages 4, 5 and 6.

Management Identification ID : CB (Corn/Soybean) Woodbury

Method used to determine optimum yield <sup>h</sup> : USDA Iowa Ag Statistics County yields      Timing of Application : Fall or Spring

Method of Application <sup>i</sup> : Knifed in or soil injection of liquid manure      Application Loss Factor <sup>i</sup> : 0.98

If spray irrigation is used, identify method <sup>j</sup> : \_\_\_\_\_

Table 2. Manure Nutrient Concentration

Manure Nutrient Content (lbs/1000gal or lbs/ton)					
Manure Storage Structure(s) <sup>k</sup>		Deep Pit			
Total N <sup>l</sup>	63.40	Total P <sup>l</sup>		28.70	
Available % N <sup>l</sup>	90	% 2nd year	0	% 3rd year	0
Available N <sup>m</sup>	55.92	2nd year <sup>n</sup>	0.00	3rd year <sup>o</sup>	

Table 3. Crop Usage Rates : <sup>p</sup>

lb/bu or lb/ton	N	P
Corn-zone2	1.10	0.32
Soybean	3.80	0.72

Table 4. Calculations for rate based on nitrogen (always required).

		Corn-zone2	Soybean		
1 Applying Manure For (crop to be grown)					
2 Optimum crop yield <sup>h</sup>	bu or ton/acre	228	64		
3 P2O5 removed from crop harvest <sup>r</sup>	lb/acre	73	46.1		
4 Crop N utilization <sup>s</sup>	lb/acre	251	100	0	0
5a Legume N credit <sup>t</sup>	lb/acre	50	0	0	0
5b Commerical N planned <sup>u</sup>	lb/acre	0	0	0	0
5c Manure N carryover credit <sup>v</sup>	lb/acre	0	0		
5d Add'l Manure N (from other sites)	lb/acre	0	0	0	0
6 Remaining Crop N need <sup>w</sup>	lb/acre	201	100		
7 Manure rate to supply remaining N <sup>x</sup>	lb/acre	3594	1788		
8 P2O5 applied with N-based rate <sup>y</sup>	lb/acre	103	51		

Table 5. Calculations for rate based on phosphorous (fill out only if P-based rates are planned).

9 Commerical P2O5 planned <sup>z</sup>	lb/acre	0	0		
10 Manure rate to supply P removal <sup>aa</sup>	gal/acre or ton/acre	2544	1606		
11 Manure rate for P-based plan <sup>bb</sup>	gal/acre or ton/acre	0	0		
12 Manure N applied with P-base plan <sup>cc</sup>	lb/acre	0	0		

Table 6. Application rates that will be carried over to page 3.

13 Planned Manure Application Rate <sup>dd</sup>	3590	0		
--	------	---	--	--

When applicable, manure application rates must be based on the P index value as follows:

(0-2): N-based manure management.

(>2-5): N-based manure management but, P application rates cannot exceed two times the P removal rate of the crop schedule.

(>5-15): No manure application until practices are adopted to reduce P index to 5 or below.

(>15): No manure application.

**Manure Management Plan Form**  
**Determining Maximum Allowable Manure Application Rates**

Page 2

Instructions: Complete worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Footnotes are given on pages 4, 5 and 6.

Management Identification ID : CB (Corn/Soybean) Plymouth

Method used to determine optimum yield <sup>h</sup> : USDA Iowa Ag Statistics County yields Timing of Application : Fall or Spring

Method of Application <sup>i</sup> : Knifed in or soil injection of liquid manure Application Loss Factor <sup>l</sup> : 0.98

If spray irrigation is used, identify method <sup>j</sup> : \_\_\_\_\_

Table 2. Manure Nutrient Concentration

Manure Nutrient Content (lbs/1000gal or lbs/ton)					
Manure Storage Structure(s) <sup>k</sup>		Deep Pit			
Total N <sup>1</sup>	63.40	Total P <sup>1</sup>		28.70	
Available % N <sup>1</sup>	90	% 2nd year	0	% 3rd year	0
Available N <sup>m</sup>	55.92	2nd year <sup>n</sup>	0.00	3rd year <sup>o</sup>	0.00

Table 3. Crop Usage Rates : <sup>p</sup>

lb/bu or lb/ton	N	P
Corn-zone2	1.10	0.32
Soybean	3.80	0.72

Table 4. Calculations for rate based on nitrogen (always required).

1 Applying Manure For (crop to be grown)		Corn-zone2	Soybean		
2 Optimum crop yield <sup>h</sup>	bu or ton/acre	218	65		
3 P <sub>2</sub> O <sub>5</sub> removed from crop harvest <sup>r</sup>	lb/acre	69.8	46.8		
4 Crop N utilization <sup>s</sup>	lb/acre	240	100	0	0
5a Legume N credit <sup>t</sup>	lb/acre	50	0	0	0
5b Commercial N planned <sup>u</sup>	lb/acre	0	0	0	0
5c Manure N carryover credit <sup>v</sup>	lb/acre	0	0		
5d Add'l Manure N (from other sites)	lb/acre	0	0	0	0
6 Remaining Crop N need <sup>w</sup>	lb/acre	190	100		
7 Manure rate to supply remaining N <sup>x</sup>	lb/acre	3398	1788		
8 P <sub>2</sub> O <sub>5</sub> applied with N-based rate <sup>y</sup>	lb/acre	98	51		

Table 5. Calculations for rate based on phosphorous (fill out only if P-based rates are planned).

9 Commercial P <sub>2</sub> O <sub>5</sub> planned <sup>z</sup>	lb/acre	0	0		
10 Manure rate to supply P removal <sup>aa</sup>	gal/acre or ton/acre	2432	1631		
11 Manure rate for P-based plan <sup>bb</sup>	gal/acre or ton/acre	0	0		
12 Manure N applied with P-base plan <sup>cc</sup>	lb/acre	0	0		

Table 6. Application rates that will be carried over to page 3.

13 Planned Manure Application Rate <sup>dd</sup>	3395	0		
--	------	---	--	--

When applicable, manure application rates must be based on the P index value as follows:

(0-2): N-based manure management.

(>2-5): N-based manure management but, P application rates cannot exceed two times the P removal rate of the crop schedule.

(>5-15): No manure application until practices are adopted to reduce P index to 5 or below.

(>15): No manure application.



**Manure Management Plan Form**  
**Year by Year Manure Management Plan Summary**

**Instructions:** Complete this form for each of the next four growing seasons, to demonstrate sufficient land base to apply manure over multiple crop years. If this page is identical for multiple years (e.g., every other year), submit only once for the identical years, and indicate which years the form represents. Footnotes are given on page 6.

**Crop years : Odd Years**

Field name; Acres	Field Location 1/4 of the 1/4 Sec T R Township Name, County Name	Mgmt Id	Planned Crop	Acres receiving Manure		Own, rent, agreement (include length of agreement)	P Index (Y/N)	Planned Application				Correct Soil Test for P (Y/N)
				Liquid	Solid			gal/ acre	gal/ field	ton/ acre	ton/ field	
U35 Krieg Pittmann S80; 79.40 ac.	W 1/2 of the NE 1/4 Sec 35 T 91N R 44W, Union, Plymouth	CB Plymouth	Corn-zone2	79.40		Rent	1.14	3395	269,563			Yes
H29 Krieg Pittmann; 160.40 ac.	SE 1/4 and the SW 1/2 of the E 1/2 of the NE 1/4 Sec 29 T 91N R 43W, Henry, Plymouth	CB Plymouth	Corn-zone2	160.40		Rent	0.89	3395	544,558			Yes
H29 Krieg Pittmann N; 59.00 ac.	NE 1/2 of the E 1/2 of the NE 1/4 Sec 29 T 91N R 43W, Henry, Plymouth	CB Plymouth	Corn-zone2	59.00		Rent	0.73	3395	200,305			Yes
H29 Krieg Pittmann S; 6.30 ac.	SW fr. of SE 1/4 Sec 29 T 91N R 43W, Henry, Plymouth	CB Plymouth	Corn-zone2	6.30		Rent	1.95	3395	21,389			Yes
G32 Krieg SW; 136.50 ac.	SW 1/4 Sec 32 T 90N R 43W, Garfield, Plymouth	CB Plymouth	Corn-zone2	60.00		Rent	0.24	3395	203,700			Yes
G32 Krieg SW-se; 7.40 ac.	SE fr. of the SW 1/4 Sec 32 T 90N R 43W, Garfield, Plymouth	CB Plymouth	Corn-zone2	0.00		Rent	1.21					Yes
<b>Total acres available for manure application:</b>				<b>365.10</b>		<b>Total amount of manure that could be applied:</b>			<b>1,239,515 gallons</b>			<b>tons</b>

**Manure Management Plan Form**  
**Year by Year Manure Management Plan Summary**

**Instructions:** Complete this form for each of the next four growing seasons, to demonstrate sufficient land base to apply manure over multiple crop years. If this page is identical for multiple years (e.g., every other year), submit only once for the identical years, and indicate which years the form represents. Footnotes are given on page 6.

**Crop years : Even Years**

Field name; Acres	Field Location 1/4 of the _____ 1/4 Sec _____ T _____ R _____ Township Name _____ County _____ Name _____	Mgmt Id	Planned Crop	Acres receiving Manure		Own, rent, agreement (include length of agreement)	P Index (Y/N)	HEL (Y/N)	Planned Application			Correct Soil Test for P (Y/N)
				Liquid	Solid				gal/ acre	gal/ field	ton/ acre	
Arlington 11 Krieg; 149.30 ac.	SW 1/4 Sec 11 T 89N R 44W, Arlington, Woodbury	CB Woodbur v	Corn-zone2	149.30		Own	2.09	Yes	3590	535,987		Yes
U26 Krieg Pittmann SW; 149.00 ac.	SW 1/4 Sec 26 T 91N R 44W, Union, Plymouth	CB Plymouth	Corn-zone2	0.00		Rent	0.23	Yes				Yes
U26 Krieg Pittmann SE-W;	W 1/2 of the SE 1/4 Sec 26 T 91N R 44W, Union, Plymouth	CC Plymouth	Corn-zone2	0.00		Rent	1.21	Yes				Yes
U26 Krieg Pittmann SE-E;	E 1/2 of the E 1/2 of the SE 1/4 Sec 26 T 91N R 44W, Union, Plymouth	CB Plymouth	Corn-zone2	10.00		Rent	2.35	Yes	3395	33,950		Yes
E35 Krieg Pittmann E; 28.50 ac.	NE 1/4 of the SE 1/4 Sec 35 T 90N R 44W, Elkhorn, Plymouth	CB Plymouth	Corn-zone2	28.50		Rent	0.87	No	3395	96,758		Yes
E35 Krieg Pittmann N; 73.50 ac.	E 1/2 of the NE 1/4 Sec 35 T 90N R 44W, Elkhorn, Plymouth	CB Plymouth	Corn-zone2	73.50		Rent	1.38	No	3395	249,533		Yes
E35 Krieg Pittmann S; 87.60 ac.	S 1/2 of the SE 1/4 Sec 35 T 90N R 44W, Elkhorn, Plymouth	CB Plymouth	Corn-zone2	87.60		Rent	0.24	No	3395	297,402		Yes
E35 Krieg Pittmann W; 10.20 ac.	SW 1/4 of the NW 1/4 of the SE 1/4 Sec 35 T 90N R 44W, Elkhorn, Plymouth	CB Plymouth	Corn-zone2	10.20		Rent	1.83	No	3395	34,629		Yes
<b>Total acres available for manure application:</b>				<b>359.10</b>		<b>Total amount of manure that could be applied:</b>			<b>1,248,258 gallons</b>		<b>tons</b>	

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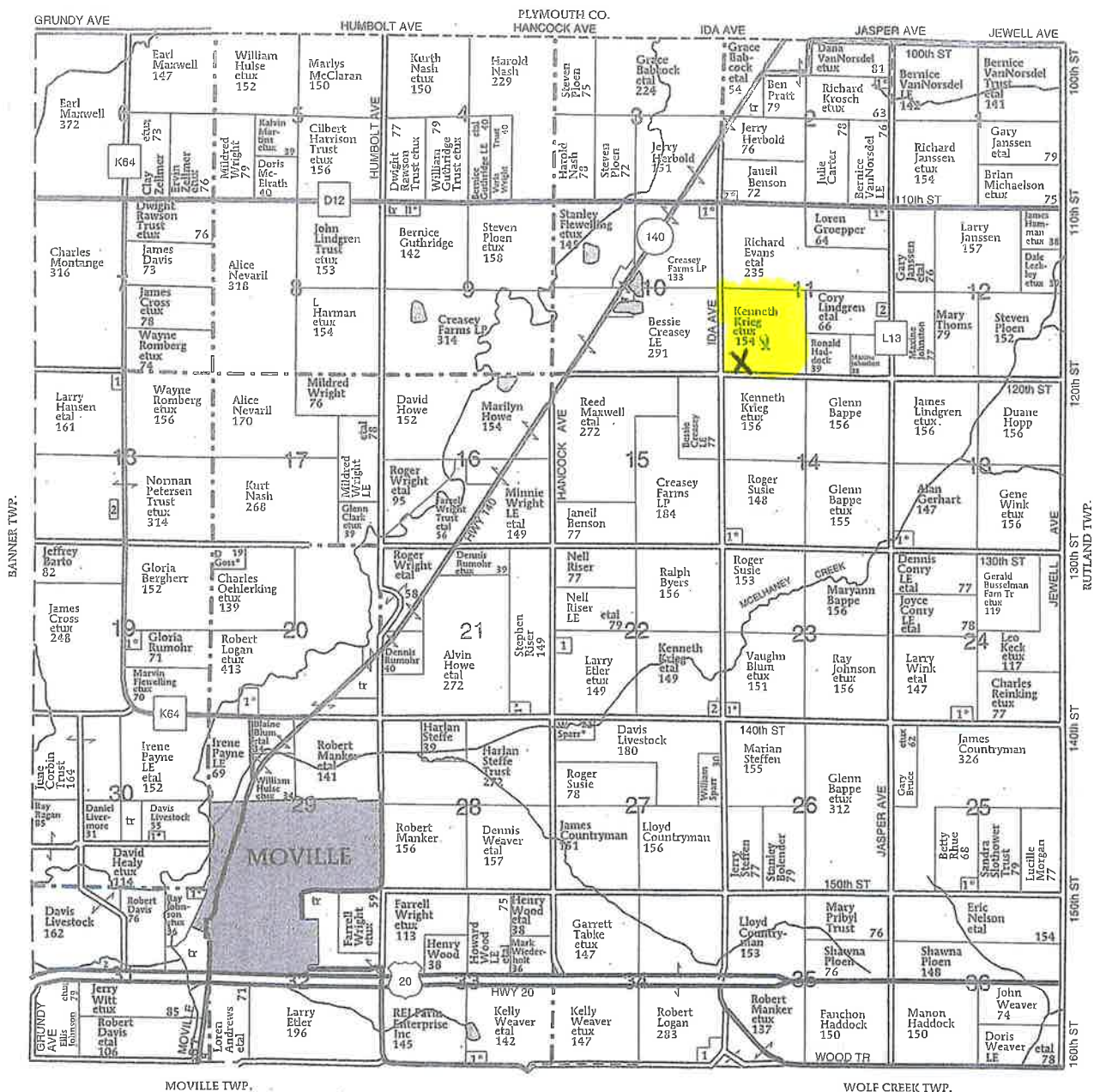
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T-89-N

ARLINGTON PLAT

R-44-W



**ARLINGTON TOWNSHIP**  
**SECTION 2**  
1. Turner, Doyle  
2. Wynn, Richard  
**SECTION 9**  
1. Guthridge, Donald

**SECTION 10**  
1. Bleil, James  
**SECTION 11**  
1. Krosch, Richard  
2. Ferdig, Nancy  
**SECTION 13**  
1. Webb, Jayme

**SECTION 14**  
1. Shea, Timon  
**SECTION 18**  
1. Vondrak, Jesse  
2. Ferdig, Nancy  
**SECTION 19**  
1. Rumohr, Dennis

**SECTION 20**  
1. Swanger, Wayne  
**SECTION 21**  
1. Tomlinson, Max  
**SECTION 22**  
1. Cook, Cynthia  
2. Swanger, Dennis

**SECTION 23**  
1. Kunkel, Mark  
**SECTION 24**  
1. Teut, Brian  
**SECTION 25**  
1. Weaver, Patrick  
**SECTION 30**  
1. Miller, Charles

**SECTION 31**  
1. Healy, David  
2. Davis Trust  
**SECTION 33**  
1. Steffen, Steven  
**SECTION 34**  
1. Mahlberg, Linda



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**Iowa**

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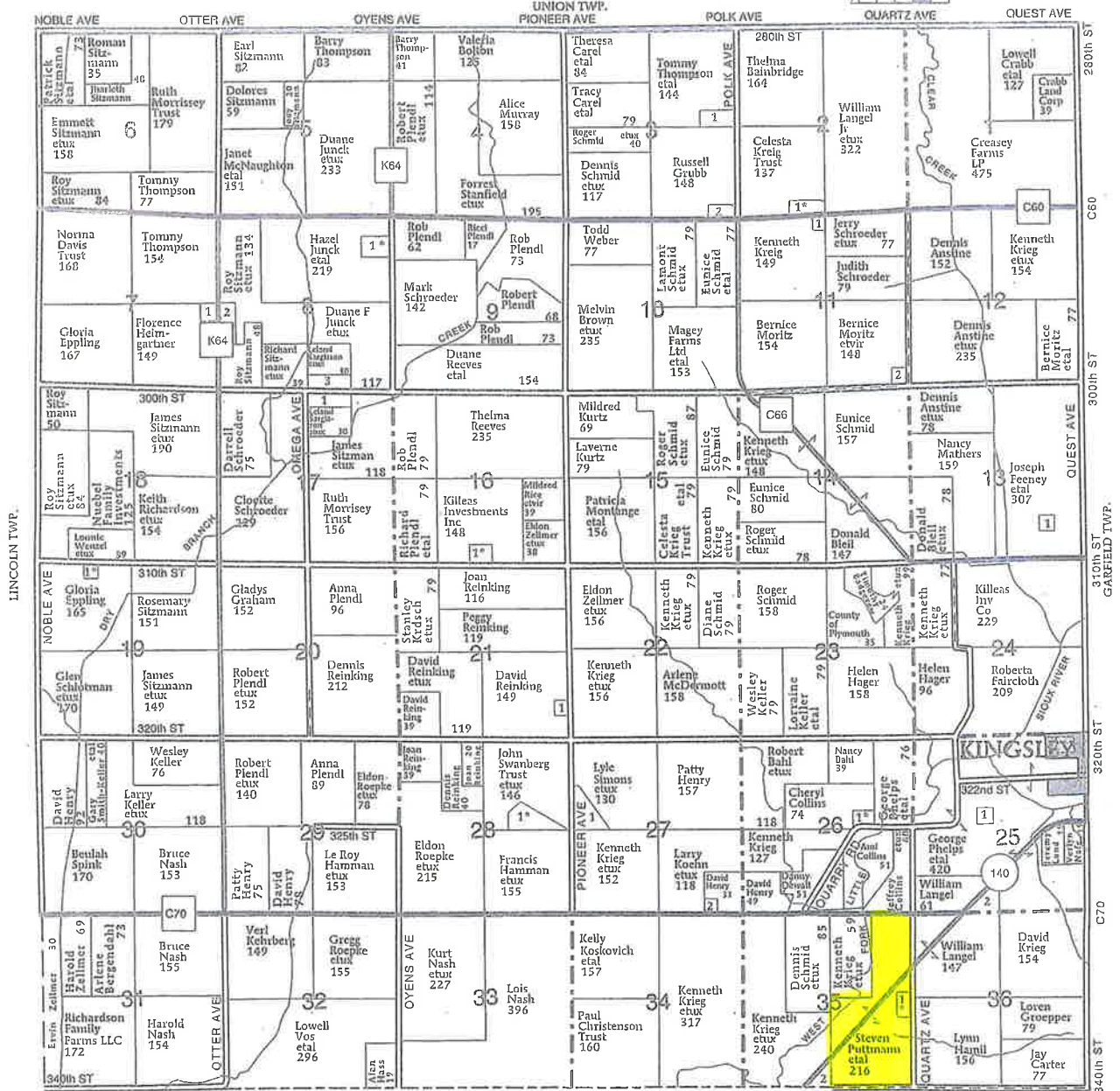
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T-90-N

ELKHORN PLAT

R-44-W



## ELKHORN TOWNSHIP

### SECTION 2

1. Krieg, Kenneth 11

### SECTION 3

1. Union Farms Inc 19

2. Sitzmann, Cletus 7

### SECTION 7

1. Wiener, Leland 6

## SECTION 8

1. Braddy, Randle 12  
2. Sitzmann Jr, Roy 9

3. Rand, Roger 9

### SECTION 11

1. Krieg Farms Inc 5

2. Murray, Dale 8

## SECTION 13

1. Feeny, Linda 5

### SECTION 16

1. Ryan, Douglas 10

### SECTION 17

1. Rand, Roger 9

### SECTION 19

1. Sharp, Craig 5

## WOODBURY CO.

### SECTION 21

1. Reinking, Adam 6

### SECTION 25

1. Chateaubeaureigh

Orchard Gardens Inc 12

2. Kingsley-Pierson

Comm School 11

## SECTION 26

1. Carver, Calvin 6

### SECTION 27

1. Heeren, Harold 26

2. Kabisch, Robert 6

### SECTION 28

1. Carlson, Bruce 10

## SECTION 35

1. Puitmann, Steven 6  
2. Pratt, Ben 8



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Iowa**

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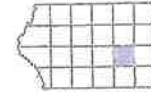


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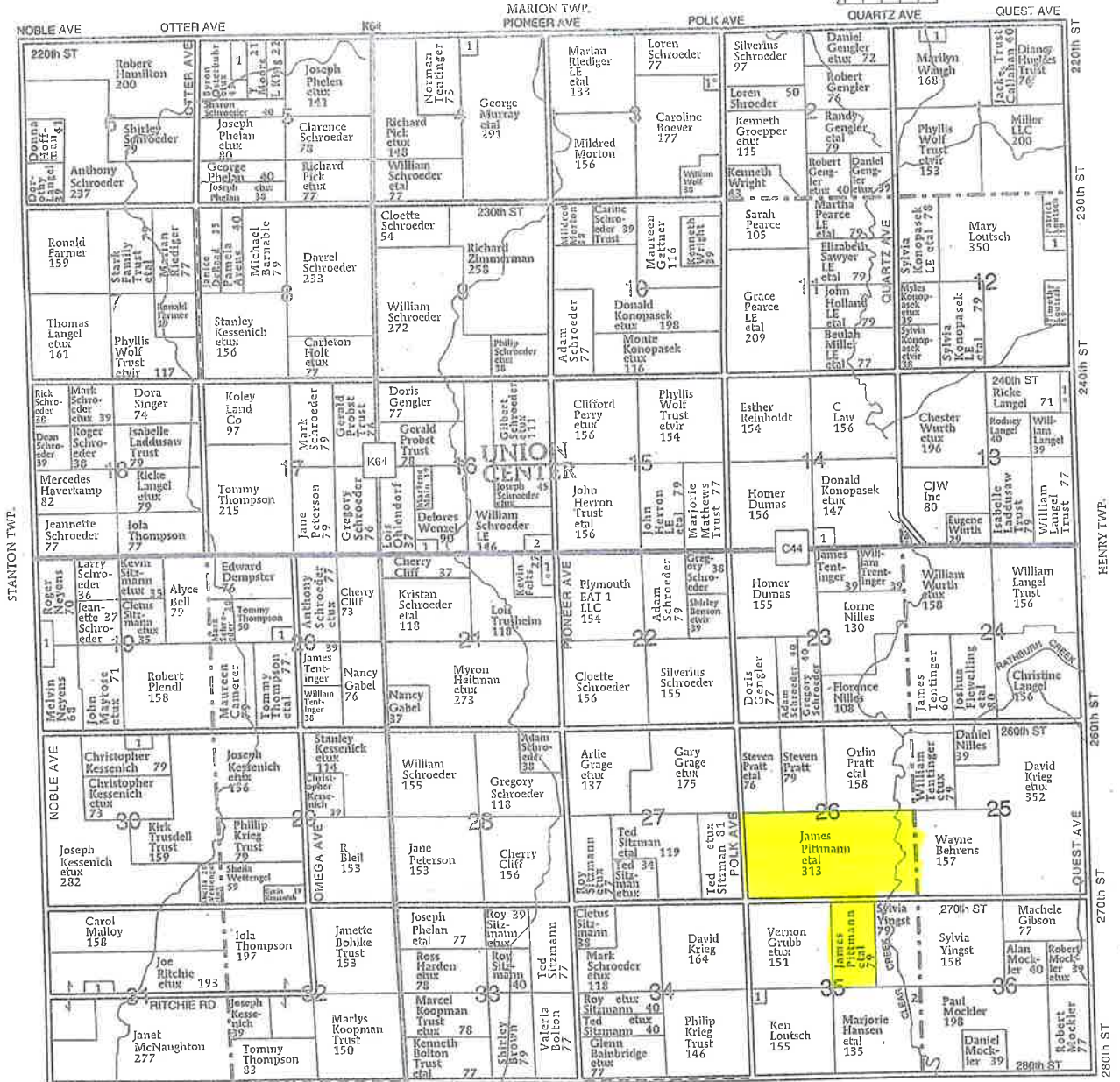
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T-91-N

UNION PLAT  
(Landowners)



R-44-W



## UNION TOWNSHIP

### SECTION 1

1. Raveling, Bryce 10

### SECTION 3

1. Boever, Caroline 8

### SECTION 4

1. Konz, Robert 8

### SECTION 5

1. Osterbuh, Byron 12

## SECTION 12

1. Loutsch, Kenneth 6

### SECTION 13

1. Bottjen, Craig 6

2. Konopasek, Donald 6

### SECTION 14

1. Konopasek, Monte 10

### SECTION 16

1. Wenzel, Justin 7

## SECTION 19

2. Union School 6

### SECTION 20

1. Plendl, Norman 9

1. Thompson, Dallas 10

### SECTION 21

1. Felts, Rick 8

### SECTION 30

1. Cronin, Chris 6

## SECTION 31

1. Otto, Jolene 7

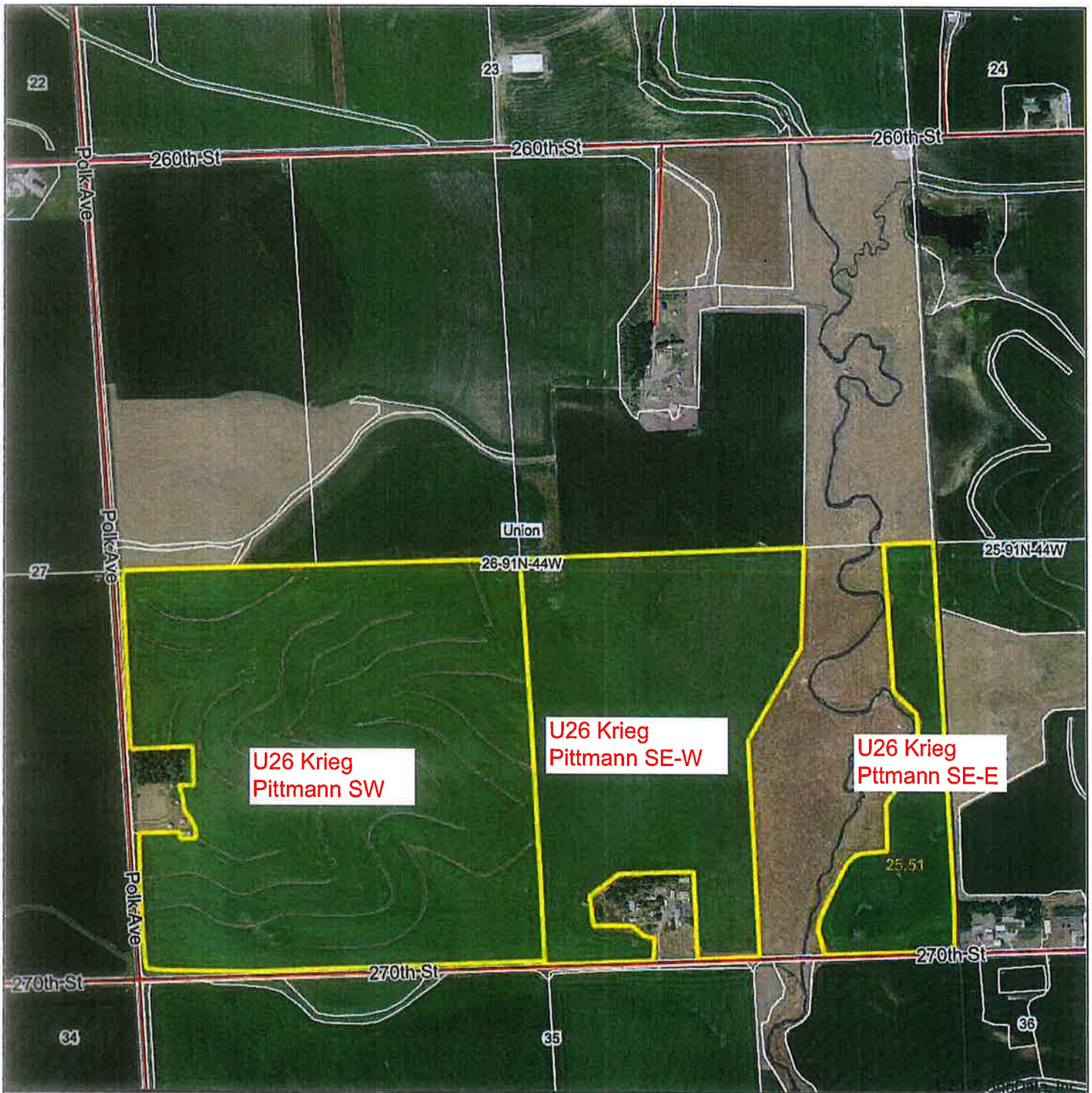
### SECTION 35

1. Krieg, David 9

2. Moekler, Daniel 14



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**Iowa**

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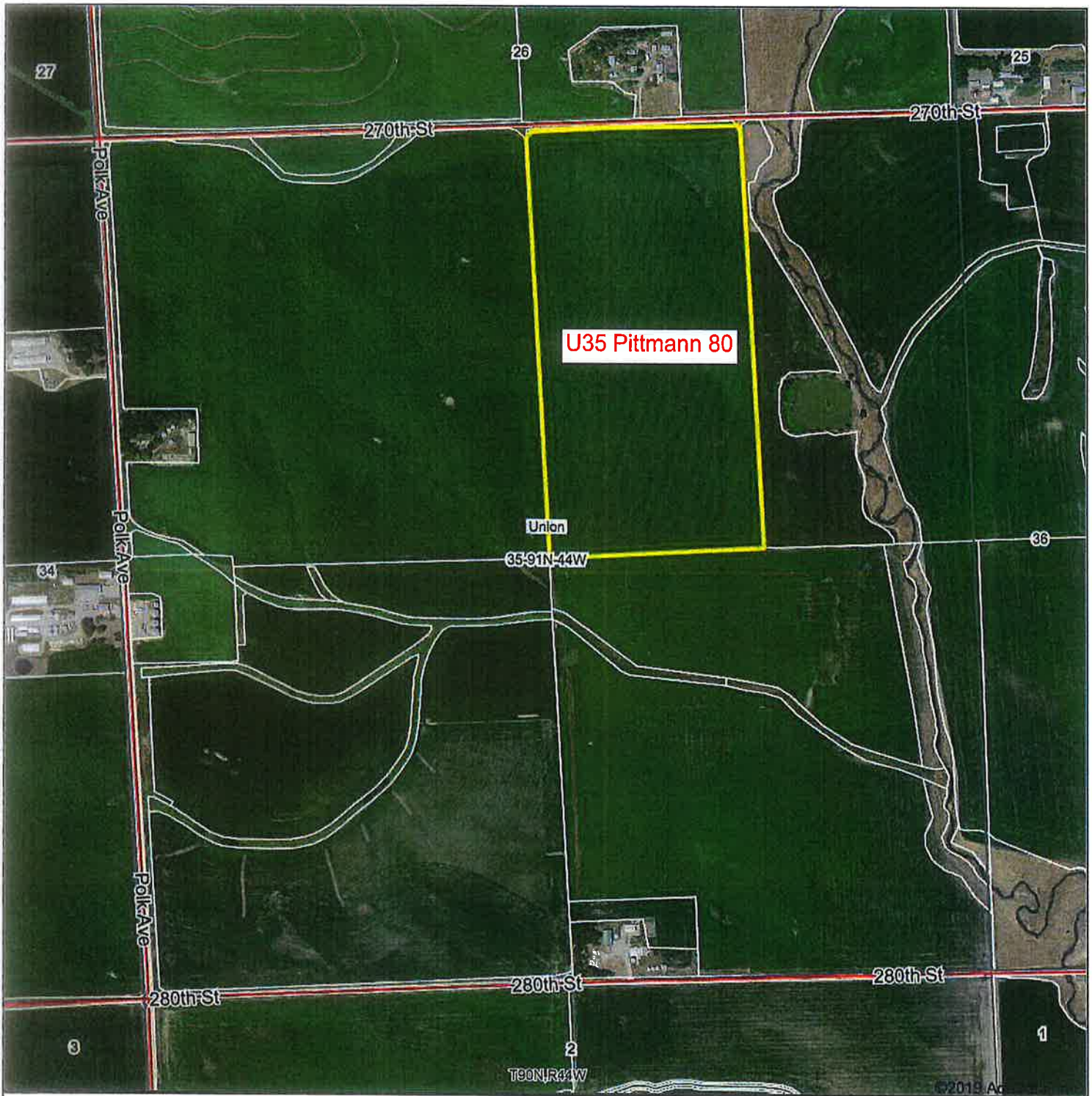
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**Iowa**

0ft 955ft 1909ft



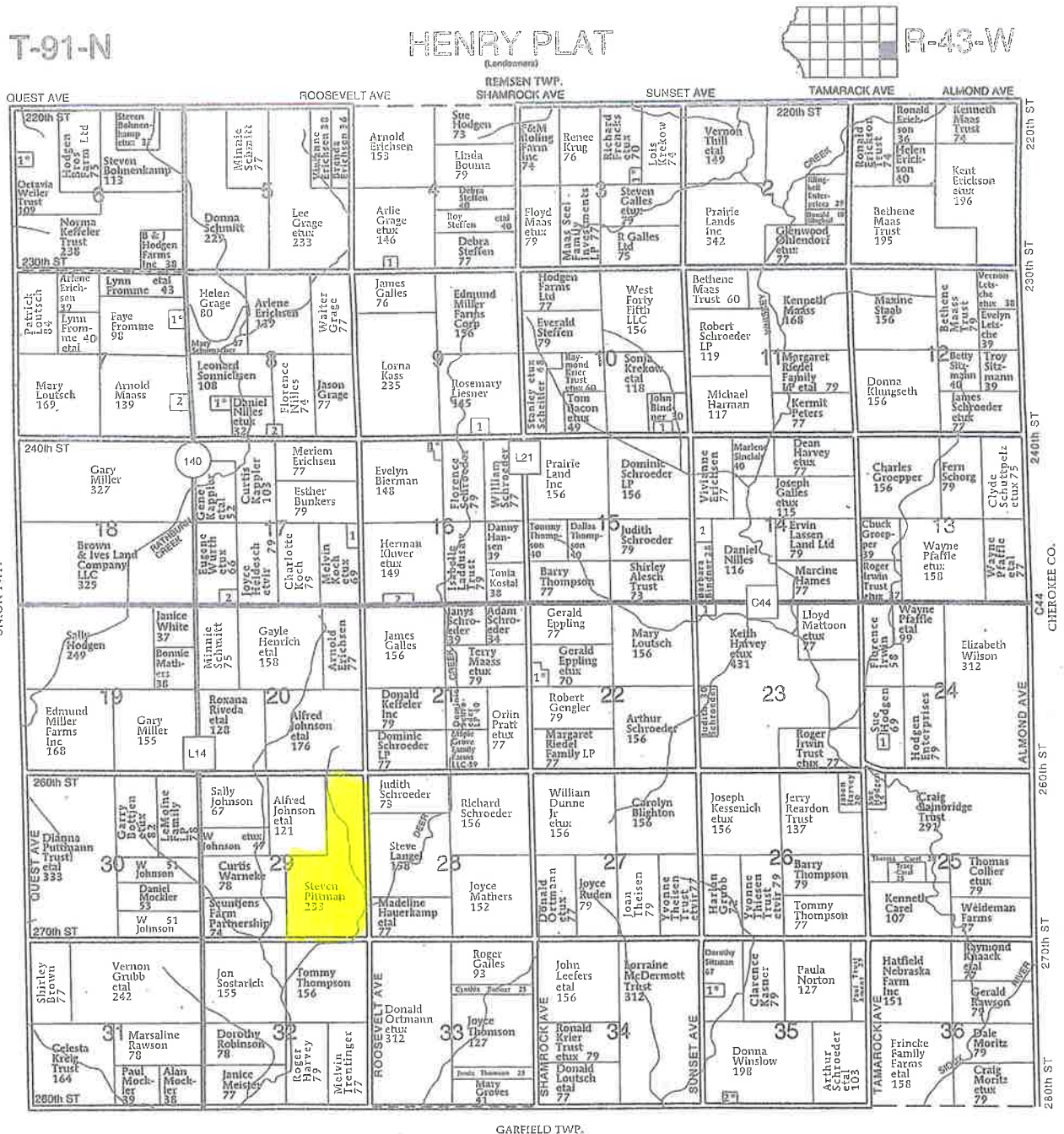
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**SECTION 3**

1. Ruhland, Guy 6

**SECTION 4**

1. Oswald, James 10

**SECTION 6**

1. Weller, Tim 10

**SECTION 7**

1. Fromme, Lynn 13

**SECTION 8**

1. Sherburne, James 8

**SECTION 11**

1. American Bank 11

**SECTION 9**

1. American Bank 11

**SECTION 10**

1. Binder, Sara 8

**SECTION 14**

1. Bindner, Sara 10

**SECTION 16**

1. Pratt, Orlin 8

2. Galles, Michael 7

**SECTION 17**

1. Pratt, Steven 8

2. Wurth, Chuck 7

**SECTION 22**

1. Persinger, Michael 9

**SECTION 23**

1. Harvey, Keith 7

**SECTION 24**

1. Schmid, Gary 6

**SECTION 35**

1. Sitzmann, Dana 10  
2. Schroeder, Steven 7



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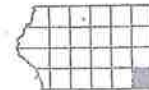
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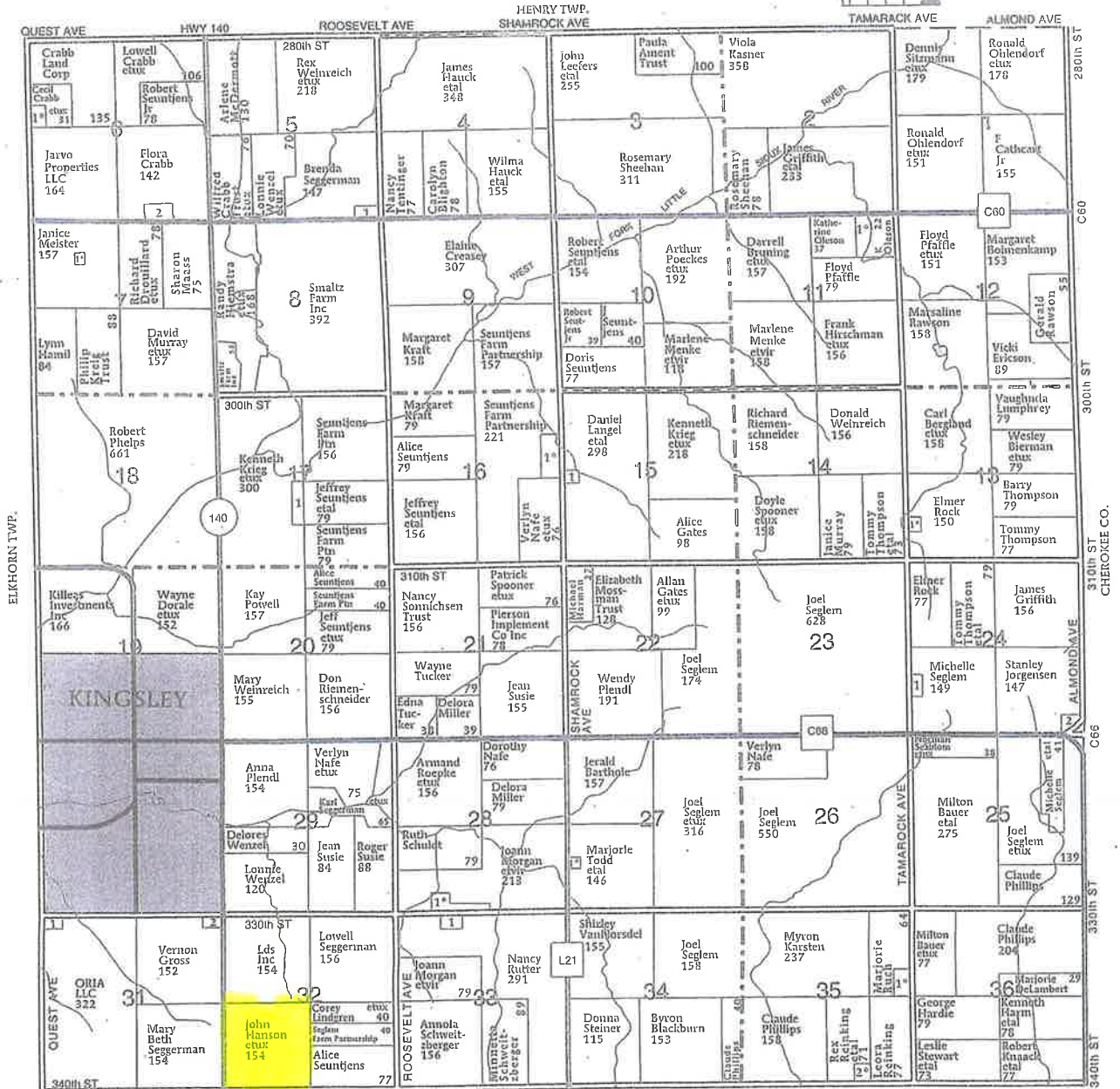
T-90-N

## GARFIELD PLAT

(Landoners)



R-43-W



### GARFIELD TOWNSHIP

#### SECTION 5

1. Wenzel, Shane 7

#### SECTION 6

1. Crabb, Lowell 13
2. Gemhart, Alan 12

#### SECTION 7

1. Meister, Ronald 8

#### SECTION 11

1. Vermeys, Jarold 14

#### SECTION 12

1. Lumphrey, Vaughnda 10

#### SECTION 13

1. Irwin, Rodney 6

#### SECTION 15

1. OKeefe, Michael 9

#### SECTION 16

1. Werner Jr, Walter 14

#### SECTION 17

1. Maple Grove Farms LLC 11

#### SECTION 24

1. Campbell, Lee 7
2. Volkert, Joel 9

#### SECTION 27

1. McBride, Patrick 8

#### SECTION 28

1. Morgan, Douglas 19

#### SECTION 31

1. Stansbury, Nicholas 5

#### SECTION 33

1. Thomas, Helen 7

#### SECTION 35

1. Hardie, Thomas 9
2. Ploeger, Lonnie 8



# Aerial Map



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**Plymouth County**  
**Iowa**

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# Iowa Phosphorus Index

Credits: Iowa State University  
USDA National Soil Tilth Laboratory  
USDA National Resource Conservation Service

Field Name	Erosion															Runoff					+ Tile/Subsurface Recharge					Overall																															
	Gross					Buffer					Enrichment					Erosion					RCN						STP					P App					Runoff					Flow					STP					Tile/Sub					P Index
	Erosion X	Sediment	Trap Factor	X	Factor	X	SDR	X	Factor	X	Enrichment	X	Factor	X	STP	Factor	X	Erosion	PI	RCN	Factor	X	STP	Factor	X		P App	Factor	X	Runoff	PI	Flow	Factor	X	STP	Factor	X	Tile/Sub	PI																		
Arlington 11 Krieg	4.10	1.00	1.00	0.43	1.00	1.00	0.43	1.00	1.00	1.10	0.90	1.75	1.12	0.28	0.02	0.34	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09																			
U26 Krieg Pittmann SE-E	4.50	1.00	1.00	0.49	0.70	1.20	1.01	1.87	1.08	0.42	0.02	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35																			
E35 Krieg Pittmann S	0.71	1.00	1.00	0.44	1.00	1.10	0.86	0.30	0.93	0.24	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54																			
E35 Krieg Pittmann E	0.93	1.00	1.00	0.48	1.00	1.10	0.99	0.49	0.93	0.39	0.02	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87																			
H29 Krieg Pittmann N	0.93	1.00	1.00	0.57	1.00	1.10	0.83	0.48	1.08	0.21	0.02	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.73																			
U26 Krieg Pittmann SW	1.40	0.00	0.00	0.39	1.00	1.10	0.88	0.00	0.83	0.26	0.02	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23																			
E35 Krieg Pittmann S	0.71	0.00	0.00	0.44	1.00	1.10	0.86	0.00	0.93	0.24	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24																			
H29 Krieg Pittmann	1.40	1.00	1.00	0.50	1.00	1.10	0.87	0.67	0.83	0.25	0.02	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89																			
G32 Krieg SW-se	1.40	1.00	1.00	0.67	0.70	1.20	0.98	0.77	1.08	0.39	0.02	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21																			
G32 Krieg SW	1.40	0.00	0.00	0.48	0.70	1.20	0.88	0.00	0.83	0.27	0.02	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24																			
U35 Krieg Pittmann S80	2.00	1.00	1.00	0.50	0.70	1.20	0.92	0.77	1.08	0.32	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14																			
U26 Krieg Pittmann SE-W	2.00	1.00	1.00	0.49	0.50	1.20	1.09	0.64	1.08	0.51	0.02	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.21																			
E35 Krieg Pittmann N	2.00	1.00	1.00	0.53	1.00	1.10	0.70	0.82	1.08	0.05	0.02	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90																			
E35 Krieg Pittmann N	2.00	1.00	1.00	0.53	1.00	1.10	0.90	1.05	1.08	0.29	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.38																			
H29 Krieg Pittmann S	2.00	1.00	1.00	0.77	1.00	1.10	0.93	1.58	1.08	0.32	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.95																			
E35 Krieg Pittmann W	2.00	1.00	1.00	0.64	1.00	1.10	1.01	1.42	0.93	0.42	0.02	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.83																			



## RUSLE2 Profile Erosion Calculation Record

Info: Arlington 11 Krieg

**File:** profiles\Krieg, Korey 1C3 CB Woodbury

**Access Group:** R2\_NRCS\_Fld\_Office

### Inputs:

Location: USA\Iowa\Woodbury County

Soil: SSURGO\Plymouth County, Iowa\1C3 Ida silt loam, 5 to 9 percent slopes, severely eroded\Iida Silt loam severely eroded 80%

Slope length (horiz): 200 ft

Avg. slope steepness: 7.0 %

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Corn, grain, high yield	bushels	173.00
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Soybean, mw 30 in rows	bu	50.000

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

General yield level: Set by user

Rock cover: 0 %

### Outputs:

T value: 4.0 t/ac/yr

Soil loss erod. portion: 4.1 t/ac/yr

Detachment on slope: 4.1 t/ac/yr

Soil loss for cons. plan: 4.1 t/ac/yr

Sediment delivery: 4.1 t/ac/yr

Net C factor: 0.068

Net K factor: 0.45 US

Crit. slope length: 200 ft

Surf. cover after planting: -- %

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Manure injector, liquid high disturb.30 inch		69
11/10/0	Aerator, field surface, ground driven 0 degree offset		63
4/25/1	Planter, double disk opnr	Corn, grain, high yield	50
10/20/1	Harvest, killing crop 50pct standing stubble		83
11/10/1	Aerator, field surface, ground driven 0 degree offset		91
5/6/2	Planter, double disk opnr	Soybean, mw 30 in rows	85
10/1/2	Harvest, killing crop 20pct standing stubble		89

Soil conditioning index (SCI): 0.347

Avg. annual slope STIR: 13.5

Wind & irrigation-induced erosion for SCI: 0 t/ac/yr





## RUSLE2 Profile Erosion Calculation Record

Info: U26 Krieg Pittmann SE-E

File: profiles\Krieg, Korey 317C2 CB

Access Group: R2\_NRCS\_Fld\_Office

### Inputs:

Location: USA\Iowa\Plymouth County

Soil: SSURGO\Plymouth County, Iowa\317C2 Galva-Wadena complex, 5 to 14 percent slopes, moderately eroded\Galva Silty clay loam moderately eroded 50%

Slope length (horiz): 200 ft

Avg. slope steepness: 10 %

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Corn, grain, high yield	bushels	146.00
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Soybean, mw 30 in rows	bu	42.000

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

General yield level: Set by user

Rock cover: 0 %

### Outputs:

T value: 5.0 t/ac/yr

Soil loss erod. portion: 4.5 t/ac/yr

Detachment on slope: 4.5 t/ac/yr

Soil loss for cons. plan: 4.5 t/ac/yr

Sediment delivery: 4.5 t/ac/yr

Net C factor: 0.084

Net K factor: 0.29 US

Crit. slope length: 200 ft

Surf. cover after planting: -- %

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Manure injector, liquid high disturb.30 inch		65
11/10/0	Aerator, field surface, ground driven 0 degree offset		59
4/25/1	Planter, double disk opnr	Corn, grain, high yield	47
10/20/1	Harvest, killing crop 50pct standing stubble		79
11/10/1	Aerator, field surface, ground driven 0 degree offset		88
5/6/2	Planter, double disk opnr	Soybean, mw 30 in rows	82
10/1/2	Harvest, killing crop 20pct standing stubble		86

Soil conditioning index (SCI): 0.380

Avg. annual slope STIR: 13.5

Wind & irrigation-induced erosion for SCI: 0 t/ac/yr





## RUSLE2 Profile Erosion Calculation Record

Info: U35 Krieg Pittmann S80; U26 Krieg Pittmann SE-W; E35 Krieg Pittmann N; E35 Krieg Pittmann W; H29 Krieg Pittman S

**File:** profiles\Krieg, Korey 310C2 CB

**Access Group:** R2\_NRCS\_Fld\_Office

**Inputs:**

Location: USA\Iowa\Plymouth County

Soil: SSURGO\Plymouth County, Iowa\310C2 Galva silty clay loam, 5 to 9 percent slopes, eroded\Galva Silty clay loam eroded 85%

Slope length (horiz): 200 ft

Avg. slope steepness: 7.0 %

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Corn, grain, high yield	bushels	214.00
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Soybean, mw 30 in rows	bu	62.000

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

General yield level: Set by user

Rock cover: 0 %

**Outputs:**

T value: 5.0 t/ac/yr

Soil loss erod. portion: 2.0 t/ac/yr

Detachment on slope: 2.0 t/ac/yr

Soil loss for cons. plan: 2.0 t/ac/yr

Sediment delivery: 2.0 t/ac/yr

Net C factor: 0.052

Net K factor: 0.33 US

Crit. slope length: 200 ft

Surf. cover after planting: -- %

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Manure injector, liquid high disturb.30 inch		77
11/10/0	Aerator, field surface, ground driven 0 degree offset		71
4/25/1	Planter, double disk opnr	Corn, grain, high yield	59
10/20/1	Harvest, killing crop 50pct standing stubble		88
11/10/1	Aerator, field surface, ground driven 0 degree offset		94
5/6/2	Planter, double disk opnr	Soybean, mw 30 in rows	90
10/1/2	Harvest, killing crop 20pct standing stubble		94

Soil conditioning index (SCI): 0.785

Avg. annual slope STIR: 13.5

Wind & irrigation-induced erosion for SCI: 0 t/ac/yr





## RUSLE2 Profile Erosion Calculation Record

Info: E35 Krieg Pittmann E; H29 Krieg Pittmann N

File: profiles\Krieg, Korey 310B CB

Access Group: R2\_NRCS\_Fld\_Office

### Inputs:

Location: USA\Iowa\Plymouth County

Soil: SSURGO\Cherokee County, Iowa\310B Galva silty clay loam, 2 to 5 percent slopes\Galva Silty clay loam 95%

Slope length (horiz): 200 ft

Avg. slope steepness: 4.0 %

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Corn, grain, high yield	bushels	232.00
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Soybean, mw 30 in rows	bu	67.000

Contouring: a. rows up-and-down hill

Strips/barriers: (none)

Diversion/terrace, sediment basin: (none)

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

General yield level: Set by user

Rock cover: 0 %

### Outputs:

T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.93 t/ac/yr

Detachment on slope: 0.93 t/ac/yr

Soil loss for cons. plan: 0.93 t/ac/yr

Sediment delivery: 0.93 t/ac/yr

Net C factor: 0.050

Net K factor: 0.29 US

Crit. slope length: 200 ft

Surf. cover after planting: -- %

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Manure injector, liquid high disturb.30 inch		80
11/10/0	Aerator, field surface, ground driven 0 degree offset		74
4/25/1	Planter, double disk opnr	Corn, grain, high yield	62
10/20/1	Harvest, killing crop 50pct standing stubble		89
11/10/1	Aerator, field surface, ground driven 0 degree offset		95
5/6/2	Planter, double disk opnr	Soybean, mw 30 in rows	91
10/1/2	Harvest, killing crop 20pct standing stubble		95

Soil conditioning index (SCI): 0.927

Avg. annual slope STIR: 13.5

Wind & irrigation-induced erosion for SCI: 0 t/ac/yr



## RUSLE2 Profile Erosion Calculation Record

Info: U26 Krieg Pittmann SW; H29 Krieg Pittmann; G32 Krieg SW-se; G32 Krieg SW

**File:** profiles\Krieg, Korey 310C2 CT CB

**Access Group:** R2\_NRCS\_Fld\_Office

### Inputs:

Location: USA\Iowa\Plymouth County

Soil: SSURGO\Plymouth County, Iowa\310C2 Galva silty clay loam, 5 to 9 percent slopes, eroded\Galva Silty clay loam eroded 85%

Slope length (horiz): 200 ft

Avg. slope steepness: 7.0 %

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Corn, grain, high yield	bushels	214.00
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Soybean, mw 30 in rows	bu	62.000

Contouring: b. absolute row grade 2 percent

Strips/barriers: (none)

Diversion/terrace, sediment basin: 1 level terrace at bottom of RUSLE slope

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

General yield level: Set by user

Rock cover: 0 %

### Outputs:

T value: 5.0 t/ac/yr

Soil loss erod. portion: 1.6 t/ac/yr

Detachment on slope: 1.6 t/ac/yr

Soil loss for cons. plan: 1.4 t/ac/yr

Sediment delivery: 0.25 t/ac/yr

Net C factor: 0.052

Net K factor: 0.33 US

Crit. slope length: 200 ft

Surf. cover after planting: -- %

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Manure injector, liquid high disturb.30 inch		77
11/10/0	Aerator, field surface, ground driven 0 degree offset		71
4/25/1	Planter, double disk opnr	Corn, grain, high yield	59
10/20/1	Harvest, killing crop 50pct standing stubble		88
11/10/1	Aerator, field surface, ground driven 0 degree offset		94
5/6/2	Planter, double disk opnr	Soybean, mw 30 in rows	90
10/1/2	Harvest, killing crop 20pct standing stubble		94

Soil conditioning index (SCI): 0.823

Avg. annual slope STIR: 13.5

Wind & irrigation-induced erosion for SCI: 0 t/ac/yr







## RUSLE2 Profile Erosion Calculation Record

Info: E35 Krieg Pittmann S

**File:** profiles\Krieg, Korey 310B CT CB

**Access Group:** R2\_NRCS\_Fld\_Office

### Inputs:

Location: USA\Iowa\Plymouth County

Soil: SSURGO\Cherokee County, Iowa\310B Galva silty clay loam, 2 to 5 percent slopes\Galva Silty clay loam 95%

Slope length (horiz): 200 ft

Avg. slope steepness: 4.0 %

Management	Vegetation	Yield units	# yield units, #/ac
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Corn, grain, high yield	bushels	232.00
managements\CMZ 04\c.Other Local Mgt Records\Krieg, Korey CB	vegetations\Soybean, mw 30 in rows	bu	67.000

Contouring: b. absolute row grade 2 percent

Strips/barriers: (none)

Diversion/terrace, sediment basin: 1 level terrace at bottom of RUSLE slope

Subsurface drainage: (none)

Adjust res. burial level: Normal res. burial

General yield level: Set by user

Rock cover: 0 %

### Outputs:

T value: 5.0 t/ac/yr

Soil loss erod. portion: 0.81 t/ac/yr

Detachment on slope: 0.81 t/ac/yr

Soil loss for cons. plan: 0.71 t/ac/yr

Sediment delivery: 0.13 t/ac/yr

Net C factor: 0.050

Net K factor: 0.29 US

Crit. slope length: 200 ft

Surf. cover after planting: -- %

Date	Operation	Vegetation	Surf. res. cov. after op, %
11/1/0	Manure injector, liquid high disturb.30 inch		80
11/10/0	Aerator, field surface, ground driven 0 degree offset		74
4/25/1	Planter, double disk opnr	Corn, grain, high yield	62
10/20/1	Harvest, killing crop 50pct standing stubble		89
11/10/1	Aerator, field surface, ground driven 0 degree offset		95
5/6/2	Planter, double disk opnr	Soybean, mw 30 in rows	91
10/1/2	Harvest, killing crop 20pct standing stubble		95

Soil conditioning index (SCI): 0.936

Avg. annual slope STIR: 13.5

Wind & irrigation-induced erosion for SCI: 0 t/ac/yr



Manure Application Lease/Fertilizer Consent Form

I Ken Krieg (Land Owner) \_\_\_\_\_ give

Korey Krieg (Site Owner) \_\_\_\_\_ permission to apply manure from

Creasey (Site Number/Name) site, during calendar year 2015 and any succeeding year until

canceled by written notice on 149 acres in the SE quarter of

Section 22, Township 89N

Range 14W of the 5<sup>th</sup> P.M., Woodbury County, Iowa.

FSA Tract # \_\_\_\_\_

I agree to release any FSA or NRCS information needed to complete my  
Required Nutrient Management Plans to the Site Owner and/or Nutrient Plan Writer.

I as land owner, or operator, agree that I will apply any additional commercial or organic fertilizers according to current DNR Manure Management Plan requirements specified for the site listed above. I plan to apply 0 pounds of Commercial Nitrogen Fertilizer and 0 pounds of Commercial Phosphorus Fertilizer to this field (described above), which is 0 pounds of no fertilizer (type of fertilizer). This application rate will remain in effect for calendar year 2015, and each succeeding year until amended or canceled by written notice.

K & S Hard  
by Ken Krieg  
(Land Owner)

Ken Krieg  
(Land Tenant/Operator)

\_\_\_\_\_  
(Site Owner)

Manure Application Lease/Fertilizer Consent Form

I Steven Pittmann give  
(Land Owner)  
Korey Krieg permission to apply manure from  
(Site Owner)

Creasey site, during calendar year 2015 and any succeeding year until  
(Site Number/Name)

canceled by written notice on 102 +/- acres in the NE, SE, SW quarter of

Section 35, Township 90N,

Range 44W of the 5<sup>th</sup> P.M., Plymouth County, Iowa.

I as land owner, or operator, agree that I will apply any additional commercial or organic fertilizers according to current DNR Manure Management Plan requirements specified for the site listed above. I plan to apply 0 pounds of Commercial Nitrogen Fertilizer and 0 pounds of Commercial Phosphorus Fertilizer to this field (described above), which is 0 pounds of \_\_\_\_\_ (type of fertilizer). This application rate will remain in effect for calendar year 2015, and each succeeding year until amended or canceled by written notice.

Steven Pittmann  
(Land Owner)

\_\_\_\_\_  
(Land Tenant/Operator)

Korey Krieg  
(Site Owner)

Manure Application Lease/Fertilizer Consent Form

I Ken Krieg / K&S Land Co LLC give  
(Land Owner)

Korey Krieg permission to apply manure from  
(Site Owner)

Creasey site, during calendar year 2015 and any succeeding year until  
(Site Number/Name)

canceled by written notice on 160 acres in the NW quarter of

Section 14, Township 89 N

Range 44W of the 5<sup>th</sup> P.M., Woodbury County, Iowa.

FSA Tract # \_\_\_\_\_

I agree to release any FSA or NRCS information needed to complete my  
Required Nutrient Management Plans to the Site Owner and/or Nutrient Plan Writer.

I as land owner, or operator, agree that I will apply any additional commercial or organic  
fertilizers according to current DNR Manure Management Plan requirements specified  
for the site listed above. I plan to apply 0 pounds of Commercial Nitrogen Fertilizer  
and 0 pounds of Commercial Phosphorus Fertilizer to this field (described above),  
which is 0 pounds of no fertilizer (type of fertilizer). This application  
rate will remain in effect for calendar year 2015, and each succeeding year until amended  
or canceled by written notice.

K&S Land Co LLC  
(Land Owner)

Krieg Farms Inc  
by Kent Krieg  
(Land Tenant/Operator)

\_\_\_\_\_  
(Site Owner)



Manure Application Lease/Fertilizer Consent Form

I Ken Krieg / K&S Land Co LLC give  
(Land Owner)

Korey Krieg permission to apply manure from  
(Site Owner)

Creasey site, during calendar year 2015 and any succeeding year until  
(Site Number/Name)

canceled by written notice on 1/6/0 acres in the SW quarter of

Section 11 Township 89N

Range 44W of the 5<sup>th</sup> P.M., Woodbury County, Iowa.

FSA Tract # \_\_\_\_\_

I agree to release any FSA or NRCS information needed to complete my  
Required Nutrient Management Plans to the Site Owner and/or Nutrient Plan Writer.

I as land owner, or operator, agree that I will apply any additional commercial or organic  
fertilizers according to current DNR Manure Management Plan requirements specified  
for the site listed above. I plan to apply 0 pounds of Commercial Nitrogen Fertilizer  
and 0 pounds of Commercial Phosphorus Fertilizer to this field (described above),  
which is 0 pounds of no fertilizer (type of fertilizer). This application  
rate will remain in effect for calendar year 2015, and each succeeding year until amended  
or canceled by written notice.

K&S Land Co LLC Ken Krieg  
(Land Owner) (Land Tenant/Operator)

\_\_\_\_\_  
(Site Owner)

Manure Application Lease/Fertilizer Consent Form

I Steven Pittmann give  
(Land Owner)  
Korey Krieg permission to apply manure from  
(Site Owner)

Creasey site, during calendar year 2015 and any succeeding year until  
(Site Number/Name)  
canceled by written notice on 160 +/- acres in the SW quarter of  
Section 26, Township 9 N,  
Range 44 W of the 5<sup>th</sup> P.M., Plymouth County, Iowa.

I as land owner, or operator, agree that I will apply any additional commercial or organic fertilizers according to current DNR Manure Management Plan requirements specified for the site listed above. I plan to apply 0 pounds of Commercial Nitrogen Fertilizer and 0 pounds of Commercial Phosphorus Fertilizer to this field (described above), which is 0 pounds of \_\_\_\_\_ (type of fertilizer). This application rate will remain in effect for calendar year 2015, and each succeeding year until amended or canceled by written notice.

Steven Pittmann  
(Land Owner)

\_\_\_\_\_  
(Land Tenant/Operator)

Korey Krieg  
(Site Owner)

**PLENDL FEED SERVICE**  
**KEVIN SCHAEUBLE**  
**PO BOX 396**  
**KINGSLEY IA 51028**



13611 B Street • Omaha, Nebraska 68144-3693 • (402) 334-7770

www.midwestlabs.com

### Nutrient Land Application

For: (20646) PLENDL FEED SERVICE  
 DAVE/KOREY KRIEG

Sample ID: CREASEY Lab Number: 10112117

Parameter	Analysis as Received	Pounds of Nutrient		Est. First Year Availability lbs per 1000 gal	Method	Reviewer-Date
		per 1000 gal	per acre-in			
Ammonium nitrogen (total)	0.58 %	49.0	1310	49	AOAC 2001.11 *	mjs5 2016-10-03 11:19:34
Organic nitrogen	0.17 %	14.4	383	5	Calculation *	Auto 2016-10-03 11:19:34
Nitrogen (total)	0.75 %	63.4	1691	54	MWL WC PROC 55 *	mjs5 2016-10-03 11:19:34
Phosphorus (as P2O5)	0.34 %	28.7	767	20	AOAC 985.01 (mod) *	Auto 2016-10-03 11:19:34
Potassium (as K2O)	0.51 %	43.1	1150	39	AOAC 985.01 (mod) *	Auto 2016-10-03 11:19:34
Sulfur (total)	0.10 %	8.4	226	3	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Calcium (total)	0.12 %	10.1	271	7	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Magnesium (total)	0.11 %	9.3	248	7	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Sodium (total)	0.10 %	8.4	226	6	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Copper (total)	54 ppm	0.46	12.2	0.32	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Iron (total)	159 ppm	1.34	35.8	0.94	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Manganese (total)	35 ppm	0.30	7.89	0.21	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Zinc (total)	98 ppm	0.83	22.1	0.58	AOAC 985.01 (mod) *	mjs5 2016-10-03 11:19:34
Moisture	91.8 %				SM 2540 G-(1997) *	mjs5 2016-10-03 11:19:34
Total solids	8.20 %	693			Calculation *	Auto 2016-10-03 11:19:34
Total salts	1.42 %	120	3200		Calculation *	Auto 2016-10-03 11:19:34
pH	7.6 S.U.				EPA 9045C	mjs5 2016-10-03 11:19:34

First year availability of nitrogen is calculated based on pre-plant application with incorporation. Nitrogen available from previous year's application not considered. Total manure salts should not exceed 500 lbs/acre. Less than 500 lbs/acre if annual rainfall is less than 25 inches and/or the soil CEC is less than 12 meq/100g. Salt contributions from commercial fertilizer applications must also be considered. Soil test yearly to monitor phosphorus levels, organic matter, pH, and micronutrients. Spring soil test for residual nitrate - make accurate sidedress recommendations! Nitrogen availability will vary with methods of application and field conditions. The nitrogen availability values used on a manure management plan must comply with state regulations. These regulations vary from state to state.

The result(s) issued on this report only reflect the analysis of the sample(s) submitted.

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## APPENDIX C MASTER MATRIX

### Proposed Site Characteristics

The following scoring criteria apply to the site of the proposed confinement feeding operation. Mark one score under each criterion selected by the applicant. The proposed site must obtain a minimum overall score of 440 and a score of 53.38 in the "air" subcategory, a score of 67.75 in the "water" subcategory and a score of 101.13 in the "community impacts" subcategory.

1. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:

- \* Residence not owned by the owner of the confinement feeding operation,
- \* Hospital,
- \* Nursing home, or
- \* Licensed or registered child care facility.

	Score	Air	Water	Community
250 feet to 500 feet	25	16.25		8.75
501 feet to 750 feet	45	29.25		17.50
751 feet to 1,000 feet	65	42.25		22.75
1,001 feet to 1,250 feet	85	55.25		29.75
1,251 feet or more	100	65.00		35.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
- (C) "Licensed child care center" – a facility licensed by the department of human services providing child care or preschool services for seven or more children, except when the facility is registered as a child care home.
- (D) "Registered child development homes" - child care providers certify that they comply with rules adopted by the department of human services. This process is voluntary for providers caring for five or fewer children and mandatory for providers caring for six or more children.
- (E) A full listing of licensed and registered child care facilities is available at county offices of the department of human services.

2. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest public use area.

	Score	Air	Water	Community
250 feet to 500 feet	5	2.00		3.00
501 feet to 750 feet	10	4.00		6.00
751 feet to 1,000 feet	15	6.00		9.00
1,001 feet to 1,250 feet	20	8.00		12.00
1,251 feet to 1,500	25	10.00		15.00
1,501 feet or more	30	12.00		18.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) "Public use area" - a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 of 567--Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.

3. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:

- \* Educational institution,
- \* Religious institution, or
- \* Commercial enterprise.

	Score	Air	Water	Community
250 feet to 500 feet	5	2.00		3.00

501 feet to 750 feet	10	4.00		6.00
751 feet to 1,000 feet	15	6.00		9.00
1,001 feet to 1,250 feet	20	8.00		12.00
1,251 feet to 1,500	25	10.00		15.00
1,501 feet or more	30	12.00		18.00

- (A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.
- (B) The department will award points only for the single building, of the three listed above, closest to the proposed confinement feeding operation.
- (C) "Educational institution" - a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
- (D) "Religious institution" - a building in which an active congregation is devoted to worship.
- (E) "Commercial enterprise" - a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

4. Additional separation distance, above minimum requirement of 500 feet, from proposed confinement structure to the closest water source.

	Score	Air	Water	Community
250 feet to 500 feet	5		5.00	
501 feet to 750 feet	10		10.00	
751 feet to 1,000 feet	15		15.00	
1,001 feet to 1,250 feet	20		20.00	
1,251 feet to 1,500	25		25.00	
1,501 feet or more	30		30.00	

"Water source" - a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.

5. Separation distance of 300 feet or more from the proposed confinement structure to the nearest thoroughfare.

	Score	Air	Water	Community
300 feet or more	30	9.00		21.00

- (A) "Thoroughfare" - a road, street, bridge, or highway open to the public and constructed or maintained by the state or a political subdivision.
- (B) The 300-foot distance includes the 100-foot minimum setback plus additional 200 feet.

6. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest critical public area.

	Score	Air	Water	Community
500 feet or more	10	4.00		6.00

- (A) All critical public areas as defined in 567--65.1(455B), are public use areas, and therefore subject to public use area minimum separation distances.
- (B) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567--Chapter 65 to determine minimum required separation distances.

7. Proposed confinement structure is at least two times the minimum required separation distance from all private and public water wells.

	Score	Air	Water	Community
Two times the minimum separation distance	30		24.00	6.00

Refer to Table 6 of 567--Chapter 65 for minimum required separation distances to wells.

8. Additional separation distance, above the minimum requirement of 1,000 feet, from proposed confinement structure to the closest:



- \* Agricultural drainage well,
- \* Known sinkhole, or
- \* Major water source.

	Score	Air	Water	Community
250 feet to 500 feet	5	0.50	2.50	2.00
501 feet to 750 feet	10	1.00	5.00	4.00
751 feet to 1,000 feet	15	1.50	7.50	6.00
1,001 feet to 1,250 feet	20	2.00	10.00	8.00
1,251 feet to 1,500 feet	25	2.50	12.50	10.00
1,501 feet to 1,750 feet	30	3.00	15.00	12.00
1,751 feet to 2,000 feet	35	3.50	17.50	14.00
2,001 feet to 2,250 feet	40	4.00	20.00	16.00
2,251 feet to 2,500 feet	45	4.50	22.50	18.00
2,501 feet or more	50	5.00	25.00	20.00

- (A) The department will award points only for the single item, of the three listed above, that is closest to the proposed confinement feeding operation.
- (B) "Agricultural drainage wells" - include surface intakes, cisterns and wellheads of agricultural drainage wells.
- (C) "Major water source" - a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 in 567--Chapter 65.

9. Distance between the proposed confinement structure and the nearest confinement facility that has a submitted department manure management plan.

	Score	Air	Water	Community
Three-quarter of a mile or more (3,960 feet)	25	7.50	7.50	10.00

Confinement facilities include swine, poultry, and dairy and beef cattle.

10. Separation distance from proposed confinement structure to closest:

- \* High quality (HQ) waters,
- \* High quality resource (HQR) waters, or
- \* Protected water areas (PWA)

is at least two times the minimum required separation distance

	Score	Air	Water	Community
Two times the minimum separation distance	30		22.50	7.50

- (A) The department will award points only for the single item, of the three listed above, closest to the proposed confinement feeding operation.
- (B) HQ waters are identified in 567--Chapter 61.
- (C) HQR waters are identified in 567--Chapter 61.
- (D) A listing of PWAs is available at:

<http://www.iowadnr.gov/Recreation/CanoeingKayaking/StreamCare/ProtectedWaterAreas.aspx>

11. Air quality modeling results demonstrating an annoyance level less than 2 percent of the time for residences within two times the minimum separation distance.

	Score	Air	Water	Community
University of Minnesota OFFSET model results demonstrating an annoyance level less than 2 percent of the time	10	6.00		4.00e

- (A) OFFSET can be found at <http://www.extension.umn.edu/agriculture/manure-management-and-air-quality/feedlots-and-manure-storage/offset-odor-from-feedlots/>. For more information, contact Dr. Larry Jacobson, University of Minnesota, (612) 625-8288, [jacob007@tc.umn.edu](mailto:jacob007@tc.umn.edu).
- (B) A residence that has a signed waiver for the minimum separation distance cannot be included in the model.
- (C) Only the OFFSET model is acceptable until the department recognizes other air quality models.

12. Liquid manure storage structure is covered.

	Score	Air	Water	Community
Covered liquid manure storage	30	27.00		3.00

- (A) "Covered" - organic or inorganic material, placed upon an animal feeding operation structure used to store manure, which significantly reduces the exchange of gases between the stored manure and the outside air.

Organic materials include, but are not limited to, a layer of chopped straw, other crop residue, or a naturally occurring crust on the surface of the stored manure. Inorganic materials include, but are not limited to, wood, steel, aluminum, rubber, plastic, or Styrofoam. The materials shall shield at least 90 percent of the surface area of the stored manure from the outside air. Cover shall include an organic or inorganic material which current scientific research shows reduces detectable odor by at least 75 percent. A formed manure storage structure directly beneath a floor where animals are housed in a confinement feeding operation is deemed to be covered.

- (B) The design, operation and maintenance plan for the manure cover must be in the construction permit application and made a condition in the approved construction permit.

13. Construction permit application contains design, construction, operation and maintenance plan for emergency containment area at manure storage structure pump-out area.

	Score	Air	Water	Community
Emergency containment area	20		18.00	2.00

- (A) The emergency containment area must be able to contain at least 5 percent of the total volume capacity of the manure storage structure.
- (B) The emergency containment area must be constructed on soils that are fine-grained and have low permeability.
- (C) If manure is spilled into the emergency containment area, the spill must be reported to the department within six hours of onset or discovery.
- (D) The design, construction, operation and maintenance plan for the emergency containment area must be in the construction permit application and made a condition in the approved construction permit.

14. Installation of a filter(s) designed to reduce odors from confinement building(s) exhaust fan(s).

	Score	Air	Water	Community
Installation of filter(s)	10	8.00		2.00

The design, operation and maintenance plan for the filter(s) must be in the construction permit application and made a condition in the approved construction permit.

15. Utilization of landscaping around confinement structure.

	Score	Air	Water	Community
Utilization of Landscaping	20	10.00		10.00

The design, operation and maintenance plan for the landscaping must be in the construction permit application and made a condition in the approved construction permit. The design should contain at least three rows of trees and shrubs, of both fast and slow-growing species that are well suited for the site.

16. Enhancement, above minimum requirements, of structures used in stockpiling and composting activities, such as an impermeable pad and a roof or cover.

	Score	Air	Water	Community
Stockpile and compost facility enhancements	30	9.00	18.00	3.00

- (A) The design, operation and maintenance plan for the stockpile or compost structure enhancements must be in the construction permit application and made a condition in the approved construction permit.
- (B) The stockpile or compost structures must be located on land adjacent or contiguous to the confinement building.

17. Proposed manure storage structure is formed

	Score	Air	Water	Community
Formed manure storage structure	30		27.00	3.00

- (A) "Formed manure storage structure" -a covered or uncovered impoundment used to store manure from an animal feeding operation, which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials. Similar materials may include, but are not limited to, plastic, rubber, fiberglass, or other synthetic materials. Materials used in a formed manure storage structure shall have the structural integrity to withstand expected internal and external load pressures.
- (B) The design, operation and maintenance plan for the formed manure storage structure must be in the construction permit application and made a condition in the approved construction permit.

18. Manure storage structure is aerated to meet departmental standards as an aerobic structure, if aeration is not already required by the department.

	Score	Air	Water	Community
Aerated manure storage structure	10	8.00		2.00

- (A) Aerobic structure - an animal feeding operation structure other than an egg wash water storage structure which relies on aerobic bacterial action which is maintained by the utilization of air or oxygen and which includes

aeration equipment to digest organic matter. Aeration equipment shall be used and shall be capable of providing oxygen at a rate sufficient to maintain an average of 2 milligrams per liter dissolved oxygen concentration in the upper 30 percent of the depth of manure in the structure at all times.

- (B) The design, operation and maintenance plan for the aeration equipment must be in the construction permit application and made a condition in the approved construction permit.

19. Proposed confinement site has a suitable truck turnaround area so that semitrailers do not have to back into the facility from the road

	Score	Air	Water	Community
Truck turnaround	20			20.00

- (A) The design, operation and maintenance plan for the truck turn around area must be in the construction permit application and made a condition in the approved construction permit.
- (B) The turnaround area should be at least 120 feet in diameter and be adequately surfaced for traffic in inclement weather.

20. Construction permit applicant's animal feeding operation environmental and worker protection violation history for the last five years at all facilities in which the applicant has an interest.

	Score	Air	Water	Community
No history of Administrative Orders in last five years	30			30.00

- (A) "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.
- (B) An environmental violation is a final Administrative Order (AO) from the department of natural resources or final court ruling against the construction permit applicant for environmental violations related to an animal feeding operation. A Notice of Violation (NOV) does not constitute a violation.

21. Construction permit applicant waives the right to claim a Pollution Control Tax Exemption for the life of the proposed confinement feeding operation structure.

	Score	Air	Water	Community
Permanent waiver of Pollution Control Tax Exemption	5			5.00

- (A) Waiver of Pollution Control Tax Exemption is limited to the proposed structure(s) in the construction permit application.
- (B) The department and county assessor will maintain a record of this waiver, and it must be in the construction permit application and made a condition in the approved construction permit.

22. Construction permit applicant can lawfully claim a Homestead Tax Exemption on the site where the proposed confinement structure is to be constructed

- OR -

the construction permit applicant is the closest resident to the proposed confinement structure.

	Score	Air	Water	Community
Site qualifies for Homestead Tax Exemption or permit applicant is closest resident to proposed structure	25			25.00

- (A) Proof of Homestead Tax Exemption is required as part of the construction permit application.
- (B) Applicant includes persons who have ownership interests. "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

23. Construction permit applicant can lawfully claim a Family Farm Tax Credit for agricultural land where the proposed confinement feeding operation is to be located pursuant to Iowa Code chapter 425A.

	Score	Air	Water	Community
Family Farm Tax Credit qualification	25			25.00

Applicant includes persons who have ownership interests. "Interest" - means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.



24. Facility size.

	Score	Air	Water	Community
1 to 2,000 animal unit capacity	20			20.00
2,001 to 3,000 animal unit capacity	10			10.00
3,001 animal unit capacity or more	0			0.00

- (A) Refer to the construction permit application package to determine the animal unit capacity of the proposed confinement structure at the completion of construction.
- (B) If the proposed structure is part of an expansion, animal unit capacity (or animal weight capacity) must include all animals confined in adjacent confinement structures.
- (C) Two or more animal feeding operations under common ownership or management are deemed to be a single animal feeding operation if they are adjacent or utilize a common area or system for manure disposal. In addition, for purposes of determining whether two or more confinement feeding operations are adjacent, all of the following must apply:
- At least one confinement feeding operation structure must be constructed on and after May 21, 1998.
  - A confinement feeding operation structure which is part of one confinement feeding operation is separated by less than a minimum required distance from a confinement feeding operation structure which is part of the other confinement feeding operation. The minimum required distance shall be as follows:
    - 1,250 feet for confinement feeding operations having a combined animal unit capacity of less than 1,000 animal units.
    - 2,500 feet for confinement feeding operations having a combined animal unit capacity of 1,000 animal units or more.

25. Construction permit application includes livestock feeding and watering systems that significantly reduce manure volume.

	Score	Air	Water	Community
Wet/dry feeders or other feeding and watering systems that significantly reduce manure volume	25		12.50	12.50

The design, operation and maintenance plan for the feeding system must be in the construction permit application and made a condition in the approved construction permit.

### Proposed Site Operation and Manure Management Practices

The following scoring criteria apply to the operation and manure management characteristics of the proposed confinement feeding operation. Mark one score under each criterion that best reflects the characteristics of the submitted manure management plan.

26. Liquid or dry manure (choose only one subsection from subsections "a" - "e" and mark one score in that subsection).

		Score	Air	Water	Community
a.	Bulk dry manure is sold under Iowa Code Chapter 200A and surface-applied	15		15.00	
	Bulk dry manure is sold under Iowa Code Chapter 200A and incorporated on the same date it is land-applied	30	12.00	12.00	6.00
b.	Dry manure is composted and land-applied under the requirements of an approved department manure management plan	10	4.00	4.00	2.00
	Dry manure is composted and sold so that no manure is applied under the requirements of an approved department manure management plan	30	12.00	12.00	6.00
c.	Methane digester is used to generate energy from manure and remaining manure is surface-applied under the requirements of an approved department manure management plan	10	3.00	3.00	4.00
	After methane digestion is complete, manure is injected or incorporated on the same date it is land-applied under the requirements of an approved department manure management plan	30	12.00	12.00	6.00
d.	Dry manure is completely burned to generate energy and no	30	9.00	9.00	12.00

	remaining manure is applied under the requirements of an approved department manure management plan				
	Some dry manure is burned to generate energy, but remaining manure is land-applied and incorporated on the same date it is land applied	30	12.00	12.00	6.00

e.	Injection or incorporation of manure on the same date it is land-applied	30	12.00	12.00	6.00
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- (A) Choose only ONE line from subsection "a", "b", "c", "d," or "e" above and mark only one score in that subsection.
- (B) The injection or incorporation of manure must be in the construction permit application and made a condition in the approved construction permit.
- (C) If an emergency arises and injection or incorporation is not feasible, prior to land application of manure the applicant must receive a written approval for an emergency waiver from a department field office to surface-apply manure.
- (D) Requirements pertaining to the sale of bulk dry manure under pursuant to Iowa Code chapter 200A must be incorporated into the construction permit application and made a condition of the approved construction permit.
- (E) The design, operation and maintenance plan for utilization of manure as an energy source must be in the construction permit application and made a condition in the approved construction permit.
- (F) The design, operation and maintenance plan for composting facilities must be in the construction permit application and made a condition in the approved construction permit.

**27. Land application of manure is based on a two-year crop rotation phosphorus uptake level.**

	Score	Air	Water	Community
Two-year phosphorus crop uptake application rate	10		10.00	

- (A) Land application of manure cannot exceed phosphorus crop usage levels for a two-year crop rotation cycle.
- (B) The phosphorus uptake application rates must be in the construction permit application and made a condition in the approved construction permit.

**28. Land application of manure to farmland that has USDA Natural Resources Conservation Service (NRCS) approved buffer strips contiguous to all water sources traversing or adjacent to the fields listed in the manure management plan.**

	Score	Air	Water	Community
Manure application on farmland with buffer strips	10		8.00	2.00

- (A) The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of filter strips. If a filter strip is present but not designed by NRCS, it must meet NRCS standard specifications.
- (B) The application field does not need to be owned by the confinement facility owner to receive points.
- (C) On current and future manure management plans, the requirement for buffer strips on all land application areas must be in the construction permit application and made a condition in the approved construction permit.

**29. Land application of manure does not occur on highly erodible land (HEL), as classified by the USDA NRCS.**

	Score	Air	Water	Community
No manure application on HEL farmland	10		10.00	

Manure application on non-HEL farmland must be in the construction permit application and made a condition in the approved construction permit.

**30. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:**

- \* Residence not owned by the owner of the confinement feeding operation,
- \* Hospital,
- \* Nursing home, or
- \* Licensed or registered child care facility.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	3.25		1.75
Additional separation distance of 500 feet	10	6.50		3.50

- (A) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
- (B) Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.



- (C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
- (E) "Licensed child care center" – a facility licensed by the department of human services providing child care or preschool services for seven or more children, except when the facility is registered as a child care home.
- (F) "Registered child development homes" - child care providers certify that they comply with rules adopted by the department of human services. This process is voluntary for providers caring for five or fewer children and mandatory for providers caring for six or more children.
- (G) A full listing of licensed and registered child care facilities is available at county offices of the Department of Human Services

31. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for land application of manure to closest public use area.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	2.00		3.00

- (A) "Public use area" - a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 in 567--Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.
- (B) Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
- (C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

32. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:

- \* Educational institution,
- \* Religious institution, or
- \* Commercial enterprise.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	2.00		3.00

- (A) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
- (B) Minimum separation distance for land application of manure injected or incorporated on same date as application: 0 feet.
- (C) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
- (D) "Educational institution" - a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
- (E) "Religious institution" - a building in which an active congregation is devoted to worship.
- (F) "Commercial enterprise" - a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

33. Additional separation distance of 50 feet, above minimum requirements (0 or 200 feet, see below), for the land application of manure to the closest private drinking water well or public drinking water well - OR well is properly closed under supervision of county health officials.

	Score	Air	Water	Community
Additional separation distance of 50 feet or well is properly closed	10		8.00	2.00

- (A) Minimum separation distance for land application of manure injected or incorporated on the same date as application or 50-foot vegetation buffer exists around well and manure is not applied to the buffer: 0 feet.
- (B) Minimum separation distance for land application of manure broadcast on soil surface: 200 feet.
- (C) If applicant chooses to close the well; the well closure must be incorporated into the construction permit application and made a condition in the approved construction permit.

34. Additional separation distance, above minimum requirements, for the land application of manure to the closest:

- \* Agricultural drainage well,
- \* Known sinkhole,
- \* Major water source, or
- \* Water source

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	0.50	2.50	2.00
Additional separation distance of 400 feet	10	1.00	5.00	4.00

- (A) "Agricultural drainage wells" - include surface intakes, cisterns and wellheads of agricultural drainage wells.
- (B) "Major water source" - a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state, which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 in 567--Chapter 65.
- (C) "Water source" - a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.
- (D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

35. Additional separation distance above minimum requirements, for the land application of manure, to the closest:

- \* High quality (HQ) water,
- \* High quality resource (HQR) water, or
- \* Protected water area (PWA).

	Score	Air	Water	Community
Additional separation distance of 200 feet	5		3.75	1.25
Additional separation distance of 400 feet	10		7.50	2.50

- (A) HQ waters are identified in 567--Chapter 61.
- (B) HQR waters are identified in 567--Chapter 61.
- (C) A listing of PWAs is available at:  
<http://www.iowadnr.gov/Recreation/CanoeingKayaking/StreamCare/ProtectedWaterAreas.aspx>.

36. Demonstrated community support.

	Score	Air	Water	Community
Written approval of 100% of the property owners within a one mile radius	20			20.00

37. Worker safety and protection plan is submitted with the construction permit application.

	Score	Air	Water	Community
Submission of worker safety and protection plan	10			10.00

- (A) The worker safety and protection plan must be in the construction permit application and made a condition in the approved construction permit.
- (B) The worker safety and protection plan and subsequent records must be kept on site with the manure management plan records.

38. Applicant signs a waiver of confidentiality allowing public to view confidential manure management plan land application records

	Score	Air	Water	Community
Manure management plan confidentiality waiver	5			5.00

The waiver of confidentiality must be in the construction permit application and made a condition in the approved construction permit. The applicant may limit public inspection to reasonable times and places.

39. Added economic value based on quality job development (number of full time equivalent (FTE) positions), and salary equal to or above Iowa department of workforce development median (45-2093)  
 -OR-

the proposed structure increases commercial property tax base in the county.

	Score	Air	Water	Community
Economic value to local community	10			10.00

The Iowa Department of Workforce Development regional profiles are available at  
<http://www.iowaworkforce.org/centers/regionalsites.htm>. Select the appropriate region and then select "Regional Profile."

40. Construction permit application contains an emergency action plan.

	Score	Air	Water	Community
Emergency action plan	5		2.50	2.50

- (A) Iowa State University Extension publication PM 1859 lists the components of an emergency action plan. The emergency action plan submitted should parallel the components listed in the publication.
- (B) The posting and implementation of an emergency action plan must be in the construction permit application and made a condition in the approved construction permit.
- (C) The emergency action plan and subsequent records must be kept on site with the manure management plan records.

41. Construction permit application contains a closure plan.

	Score	Air	Water	Community
Closure Plan	5		2.50	2.50

- (A) The closure plan must be in the construction permit application and made a condition in the approved construction permit.
- (B) The closure plan must be kept on site with the manure management plan records.

42. Adoption and implementation of an environmental management system (EMS) recognized by the department.

	Score	Air	Water	Community
EMS	15	4.50	4.50	6.00

- (A) The EMS must be in the construction permit application and made a condition in the approved construction permit.
- (B) The EMS must be recognized by the department as an acceptable EMS for use with confinement operations.

43. Adoption and implementation of NRCS approved Comprehensive Nutrient Management Plan (CNMP).

	Score	Air	Water	Community
CNMP	10	3.00	3.00	4.00

The implementation and continuation of a CNMP must be in the construction permit application and made a condition in the approved construction permit.

44. Groundwater monitoring wells installed near manure storage structure, and applicant agrees to provide data to the department.

	Score	Air	Water	Community
Groundwater monitoring	15		10.50	4.50

- (A) Monitoring well location, sampling and data submission must meet department requirements.
- (B) The design, operation and maintenance plan for the groundwater monitoring wells, and data transfer to the department, must be in the construction permit application and made a condition in the approved construction permit.

Score to pass

Total Score	Air	Water	Community
880	213.50	271.00	404.50
440	53.38	67.75	101.13

Site Name:

Creasey

Date: 10/25/2022

Matrix Item #	Actual Distance (feet) / Not Applicable (NA)	Minimum Required Distance (feet)	Actual Separation Distance above the Minimum (feet)	Claimed (X)	matrix additional feet needed	Score	Air	Water	Community
1	Closest Residence, Hospital, Nursing Home, Child Care (license/registered)	> 3715	> 1840		250-500				
					501-750				
					751-1000				
				X	1001-1250	100	65.00	0.00	35.00
2	Closest Public Use Area	> 3240	> 740		1251->				
				X	250-500	10	4.00	0.00	6.00
					501-750				
					751-1000				
3	Closest School, Church, Business	> 20000	> 18125		1001-1250				
					1251-1500				
					1501->				
				X	250-500	30	12.00	0.00	18.00
4	Closest Water Source	> 1095	> 595		501-750				
				X	751-1000	10	0.00	10.00	0.00
					1001-1250				
					1251-1500				
5	Closest Thoroughfare	> 125	100	> 25	1501->				
6	Closest Critical Public Area	> 3240	2500	> 740	200				
7	Closest public & Private water wells	> 120	100	> 20	X 500	10	4.00	0.00	6.00
8	Closest Ag. drainage well, known sinkhole, major water source	> 5615	1000	> 4615		200			
						250-500			
						501-750			
						751-1000			
						1001-1250			
						1251-1500			
						1501-1750			
						1751-2000			
9	Closest confinement facility (DNR submitted)	> 9675	3750	> 5925		2001-2250			
					X	2251-2500	50	5.00	25.00
10	Closest HQ waters, HQR waters, PWA waters	> 10000	1000	> 9000	X	2501->	25	7.50	10.00
					X	3960	30	0.00	22.50
						2000			7.50

\* Separation distance base on Table 6 from DNR document: Minimum Separation Distances for Construction or Expansion of Confinement Feeding Operation Structures.

	Score	Air	Water	Community
Scores on this page	265	97.5	65	102.5
Score in 11-44	185	39	51.5	94.5
<b>Total score</b>	<b>450</b>	<b>136.5</b>	<b>116.5</b>	<b>197</b>
Score Pass	440	53.38	67.75	101.13

Site Name:

**Creasey**

Date:

10/25/2022

	Matrix Item #	Claimed (X)	Score	Air	Water	Community
11	Air quality Modeling Results... <2% of time for residences, 2 times minimum separation distance					
12	Liquid Manure Storage Covered	x	30	27.00	0.00	3.00
13	Emergency containment area around pump-out area,					
14	Installation of a filter for odor reduction from buildings and fans					
15	Utilization of landscape					
16	Impermeable pad and roof/cover for stockpiling and composting activities					
17	Manure storage structure is formed	X	30	0.00	27.00	3.00
18	Manure storage is Aerated					
19	Truck Turnaround	X	20	0.00	0.00	20.00
20	No administrative orders in last 5 years	X	30	0.00	0.00	30.00
21	Waiver of rights to claim a Pollution Control Tax Exemption					
22	Homestead Tax Exemption					
23	Family Farm Tax Credit (IC 425A)					
24	Facility Size					
	1 to 2000 AU	x	20	0.00	0.00	20.00
	2001 to 3000 AU					
	3001+ AU					
25	Feeding and watering systems that reduce manure volume	X	25	0.00	12.50	12.50
26	Liquid or Dry Manure Score					
	a. Manure is sold under the Iowa Code 200A					
	a. Manure is sold under the Iowa Code 200A and land applied and incorporated the same day.					
	b. Dry manure is composted applied under IDNR MMP plan					
	b. Dry manure is composted and sold - No IDNR MMP planned application					
	c. Methane digester used to generate energy					
	c. After Methane digestion, manure isn injected or land applied and incorporated on same day					
	d. Dry Manure is burned to generate energy					
	d. Dry Manure- some is burned to generate energy & remaining is land applied and incorporated on same day					
	e. Injection or incorporated on same date	x	30	12.00	12.00	6.00
27	Application based on 2 year rotation phosphorus uptake levels					
28	Land applications of manure to land with approved bufferstrips contiguous to all water sources					
29	No manure on HEL land					
30	Additional separation distance for manure application to closest Residence, hospital, nursing home and child care facility					
	Additional 200 feet					
	Additional 500 feet					
31	Public Use Area - Additional 200' separation distance for manure applications					
32	Education, Religious and commercial - Additional 200' separation distance for manure applications					
33	Well (public & private) Additional 50' separation distance for manure applications					
34	Ag. Drainage well, Known sinkhole, major water source, water source additional separation distance for manure applications					
	Additional 200'					
	Additional 400'					



35	High Qualith HQ, High quality Resource HQR & Protected Water Area PWA additional seperation distance for manure applications				
	Additional 200'				
	Additional 400'				
36	Demonstrated community support				
37	Worker Safety Protection Plan				
38	Waiver of confidentiality- public viewing of MMP land application records				
39	Added economic value quality Job development or commerical property tax increases				
40	Emergency Action Plan				
41	Closure Plan				
42	Environmental Management System EMS Adoption and Implementation				
43	CNMP Adoption and Implementation				
44	Ground monitoring wells installed near manure storage structure				
<b>Total Score</b>		<b>450</b>	<b>136.5</b>	<b>116.5</b>	<b>197</b>

\* Seperation distance base on Table 6 from DNR document: Minimum Seperation Distances for Construction or Expansion of Confinement Feeding Operation Structures.

	Score	Air	Water	Community
Scores on this page	185	39	51.5	94.5
Score in page 1-10	265	97.5	65	102.5
<b>Total score</b>	<b>450</b>	<b>136.5</b>	<b>116.5</b>	<b>197</b>
Score to Pass	440	53.38	67.75	101.13

## Design, operation and maintenance for Master Matrix

### 12) Covered manure storage:

**Design:** storage structure – framed wooden storage structure with roof over the pit. 101' 10" X 193' X 8" covered confinement building with concrete floor and walls. Inside this confinement will be a 101' 10" X 192' X 8' deep-pit. Manure will be collected and stored until hauled. The deep-pit will have 1 year of storage. The manure will be land applied.

**Operation:** Fans will move air in regards to the health of the animals, odor control, and utility management. Visual Inspection of pit will be completed after pit is emptied.

**Maintenance:** Fan maintenance will be completed as needed. Pit walls showing cracks will be covered.

### 17) Formed Storage:

**Design:** See CDS- will meet DNR minimum standards.

**Operation:** Manure will be removed semi-annually or annually as needed to protect structure and overflow concerns.

**Maintenance:** Annual walk around looking for structural cracks and defects in pit wall. Monthly pit level readings are taken regarding possible water loss from feeders.

### 19) Truck Turnaround:

**Design:** The confinement will be built with a truck turnaround located on the east side of the facility. 6" base of rock; It will be at least 120 feet in diameter

**Operation:** Grading rock will be completed as needed

**Maintenance:** Rock and gravel will be added when needed

### 20) No administrative orders received

### 24) Maximum Swine finisher head number on this site will be 4800 = A.U. 1920

### 25) Wet/Dry Feeders or other Watering System:

**Design:** Wet/Dry Feeders reduce water use by 30% and slurry volume by 20-40%--See attachment –Energy Efficiency in Barns: Water Wastage.

**Operation:** Daily use and adjustment of water feeders.

**Maintenance:** Replacement of defective water systems/parts as necessary and daily walk through to check for possible broken equipment.

### 26) Manure will be injected or incorporated on the same date that it is land applied.

The results are as follows:

- Saskatoon – The cost to maintain the recommended temperature (21°-15°) would be \$120.20/yr. Moving to the 21°-18° and 21° temperature scenarios represents an additional \$67.07/yr and \$168/yr increase in heating costs respectively.
- Winnipeg – It would cost \$132.88/yr in heating to maintain the recommended setpoint temperature of 21°-15°. Moving to the 21°-18° and 21° temperature scenarios again would represent a large increase in the heating bill: an additional \$65.77/yr for the 21°-18° scenario and \$164.88/yr for the 21° scenario.

### The Bottom Line

Temperature within the barn is crucial for animal health and productivity but also affects energy efficiency (over heating, over cooling). Know your animals' target temperatures. Barn design and full vs. limit fed have implications in cold animal housing.

## Water Wastage

Pigs consume 1/4 to 1/3 gallons of water per pound of dry feed or a ratio by weight of approximately 3:1. Temperature has an impact on water consumption as a 1°C rise above 20°C results in a sow drinking 0.2L more water per day. Severely restricting water to swine results in concentrated urine, urinary tract infections and even death. The implication is that limiting water cannot be used to reduce energy costs but decreasing water wastage can.



Danish Drik-O-Matic watering bowl reduces water wastage up to 20% compared to conventional nipples

### Master Matrix #25

In regards to water wastage, producers should consider the following:

- wet/dry feeders address the water wastage concern by incorporating a nipple drinker in the feed bowl as the only water source, reducing water use by 30% and slurry volume by 20-40%. This has an implication on quantity of slurry within the barn
  - it is recommended that 1 nipple drinker be provided for every 15 pigs
- in a period of one minute drinkers should deliver 1 litre for breeding stock, 650-700ml for growers and 475ml for weaners
- grower – finisher pigs may waste up to 60% of the water from a nipple drinker
- cup or bowl waterers are returning in popularity primarily because they waste less water, reducing spillage 10-15%
- hauling manure a mile away costs at least a penny a gallon with a custom hauler. Therefore, cup waterers or bowl drinkers will save you money for manure removal and reduce the water bill.

### What's it Cost?

Let's return to our model example of 200 head in a grower-finish room. Assuming a total weight gain of 8.2kg and feed conversion 2.9kg of feed/kg of gain, each pig will drink 595L water/production cycle. If we use a 40% water wastage value at the drinker, 396L will be wasted/pig/cycle. There are approximately 2.8 cycles over the year and each pig produces 7.5L of manure/day.

- Total water wastage (L/year) = 221,760
- Total manure produced (L/year) = 547,500
- Water wastage/manure production (%) = 41%

If waste is pumped from the transfer pit to the outdoor storage facility, this would represent the first energy component. Manure pumps have an energy cost of \$0.01/m<sup>3</sup> of product. Outside the barn, we need to consider 3 processes: agitation, loading and transportation. This energy cost works out to \$0.04/m<sup>3</sup>. Adding the two totals results in a cost of \$0.05 to move 1m<sup>3</sup> of product. Therefore, the cost to move the wasted water in our example barn would be \$11.09/yr.

In addition to moving the waste water, field application should be considered. Using typical custom application rates (assume \$1.55/m<sup>3</sup> which includes labour, equipment use and energy costs) the cost could be estimated at \$0.61/pig. Therefore, the cost to spread just this waste water would be \$343.73/yr. The final yearly total (cost of moving and land application) is \$354.82.





### The Bottom Line

Slurry can include approximately 40% clean water wasted from drinkers. Producers can limit this by reducing water wastage within the barn. Wet/dry feeders, for example, can help to reduce water spillage. Try to incorporate cup or bowl drinkers, as they are more efficient at conserving water than nipple drinkers.

## Cut Back on Manure Volume

Feed has been an area of interest regarding manure volume reduction. This is important for the producer as it impacts the amount of manure to be removed from the barn and the energy required to do this.

The issue of manure volume can be simplified into the following three points:

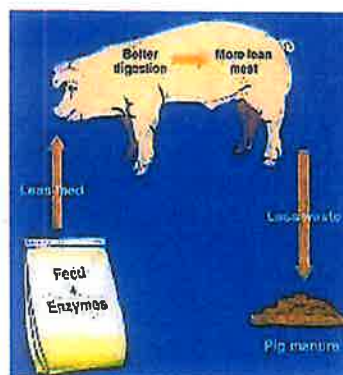
- feed enzymes can shift the digestive process in the pig allowing for more efficient growth, being brought to slaughter on a lower feed intake and consequently, less manure being produced. A 7% improvement in feed utilization effi-

ciency will translate into a 5% reduction in the weight or volume of manure excreted

- reducing crude protein in swine diets results in as much as a 28% decrease in slurry volume. This is due to the pig consuming less water in an effort to eliminate reduced amounts of nitrogen in the body

- feeding pellets rather than meal can in-

crease digestibility and decrease excretion due to efficiencies of digestion resulting from grinding to a smaller particle size. The feed processing aspect however is an energy consumer and producers should be aware of this. More information regarding feed processing will be available in Part II of this factsheet.



### What's it Cost?

Considering our grower-finish operation example of 200 head, total manure production can be approximated to 7.5L/pig/day. Taking into account total energy requirements (transfer from barn to storage, agitation and emptying) it would cost \$27.38/yr to move this slurry. If the producer were to incorporate two manure volume reduction methods: feed enzymes and diet protein, slurry removal would now cost \$18.34/yr.

Similar to the example in the water wastage section, field application should be considered. Recall our estimated cost of \$1.55/m<sup>3</sup> or \$0.61/pig. Without a manure reduction method, the cost for field application would be \$848.63/yr or a total yearly cost of \$876.01 for slurry removal. With the two combined manure reduction methods (feed enzymes and diet protein) the total yearly cost is reduced to \$586.92/yr, a savings of \$261.71/yr.

### The Bottom Line

Manure requires energy to remove it from the barn. Although it is a large energy sink, producers do have options to reduce this expense. Feed enzymes, protein levels and particle size can be manipulated for this benefit.

## Conclusion

Energy conservation and efficiency can be achieved through improved management, minor structural changes and new technologies. The remaining 5 of the Top 10 ways to reduce energy costs in the barn can be found in **Energy Efficiency in Barns Part II**. Of equal importance will be an information data-

base set up on the Prairie Swine Centre website for producers, professionals, scientists, etc. to access more detailed information regarding energy efficiency. This database will be functional in May 2001.



## Acknowledgements

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Research, writing and formatting of this document was completed by Term Research Assistant—Cory Fatteicher, B.S.A.



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Fax: 955-2510

*Coming Soon*

Energy Efficiency  
in Barns  
Part II

AND

The PSC Website  
Energy Database



## Wean-to-Finish



### Application

- Wean-to-Finish Shelf Feeders are used to raise piglets from weaning to market weight.

### Stocking Rates

- CSW (Wet/Dry Nursery feeder) - 12-13 pigs per feed space.

## Feeder Features

- Edstrom Nipples
- Solid Dividers
- Feed saving lip – Keeps feed in the trough
- Single piece, Flow-drilled waterline eliminates the chance of leaks around nipples.
- Roll-hemmed and folded edges to avoid sharp points and provide superior strength.
- Tube holders included

## Adjustments

- Precision Shift Adjust
- Ez Squeeze
- Hand Crank

## Options

- Available in 40" XT height.
- Available as bolt together feeders
- Available in single or double sided
- Welded on feet available

## Other SDI Products

- [Nipple Bars](#)
- [Water Cups](#)
- [Boot Unloaders](#)

Standard Sizes	Trough Spaces	Pigs per Feeder	Length (in)	Length (cm)	Width (in)	Width (cm)	Height (in)	H (
CSW15	1	20-30	15.25"	39	22"	56	31"	79
CSW28	2	40-48	28.25"	72	22"	56	31"	79
CSW30	2	40-48	30.25"	77	22"	56	31"	79
CSW36	3	60-72	36.25"	92	22"	56	31"	79
CSW42	3	60-72	42.25"	107	22"	56	31"	79

CSW48	3	60-72	48.25"	123	22"	56	31"	79
CSW56	4	80-96	56.25"	143	22"	56	31"	79
CSW60	4	80-96	60.25"	153	22"	56	31"	79
CSW72	5	100-124	72.25"	184	22"	56	31"	79
CSW84	6	120-144	84.25"	214	22"	56	31"	79
CSW92	6	132-156	92.25"	234	22"	56	31"	79

- \*Pigs/Feeder based on Double Sided Feeder
- \*\*Approximate Feed Capacity based on feed density of 42 lbs. per cubic foot.
- \*\*\*Custom Sizes Available

**Category:**

Wet/Dry Feeders

**Sub-Category:**