



Iowa Department of Natural Resources

Construction Permit Application Form Confinement Feeding Operations

INSTRUCTIONS:

Prior to constructing, installing, modifying or expanding a confinement feeding operation structure¹, 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 10-16). 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 structure². 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): _____
- b) Date when the operation was first constructed: _____
- c) Date when the last construction, expansion or modification was completed: _____

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

- d) Is this also an ownership change? Yes No

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

A) Name of operation: Luke Tjelmeland Finisher

Location:	<u>SW 1/4</u>	<u>SE 1/4</u>	<u>11</u>	<u>T84N,R23W</u>	<u>Milford</u>	<u>Story</u>
	<small>(1/4 1/4)</small>	<small>(1/4)</small>	<small>(Section)</small>	<small>(Tier & Range)</small>	<small>(Name of Township)</small>	<small>(County)</small>

B) Applicant information:

Name: Lucas and Krista Tjelmeland Title: Owner

Address: 60649 180th St. , Nevada, IA 50201

Telephone: 515-231-4057 Fax: na Email: na

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

Name: Maschhoff Environmental C/o Seth Wengert Title: Consultant

Address: 7475 State Route 127, Carlyle, IL 62231

Telephone: 712-304-4792 Fax: 866-571-4887 Email: seth.wengert@pigsrus.net

- Enclose aerial photo or engineering drawing showing the proposed location of the confinement feeding operation structure¹ and all applicable separation distances, as requested in Attachment 1 (pages 11 or 14). See example of aerial photo on pages 18 to 19, at the end of this form.
- I manage or am the majority owner of 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.

¹ 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.

² 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 www.iowaDNR.gov select the link to 'Environment, click on Mapping & GIS.' then click on "AFO Siting Atlas" link. Click on the red push pin icon to enter a legal description of the proposed location. Make sure the karst box is checked in the left legend. 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.
- B) Alluvial Soils Determination: Go to www.iowaDNR.gov select the link to 'Environment, click on Mapping & GIS.' then click on "AFO Siting Atlas" link. Click on the red push pin icon to enter a legal description of the proposed location. Make sure the alluvial box is checked in the left 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 structure³, or constructing or modifying a confinement building that uses an unformed manure storage structure³.
 2. Constructing, installing or modifying a confinement building or a formed manure storage structure² 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 structure³, 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 structure² 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 structure³ or egg washwater storage structure;
 2. The confinement feeding operation includes only confinement buildings and formed manure storage structures² 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.

³ 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:

The scope of the project will entail construction of a new swine finishing barn on the site. The new barn will be 101' x 305' x 8' depth deep pit facility. It will house 4,600 wean-market hogs or 1,840 animal units.

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 structure¹ 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.
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 structure¹ 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 structure¹ is abandoned if the confinement feeding operation structure¹ 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 structure¹ so that it cannot be used as a confinement feeding operation structure¹ 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 Proposed 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		0.4	4600	0.4
Nursery pigs 15 lbs to 55 lbs		0.1		0.1
Sheep and lambs		0.1		0.1
Horses		2.0		2.0
Turkeys 7lbs 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

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)

TOTALS:	a) Existing AUC:		b) Total proposed AUC:	1840	c) New AU = b) - a):	1840
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(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				
Horses				
Turkeys 7lbs or more				
Turkeys less than 7 lbs				
Broiler/Layer chickens 3 lbs or more				
Broiler/Layer chickens less than 3 lbs				

TOTALS:	a) Existing AWC:		b) Total proposed AWC:		c) New AWC = b) - a):	
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(This is the AWC of the operation)

ITEM 5 – SUBMITTAL REQUIREMENTS Checklists No. 1 or 2 (pages 10-16) describe the submittal requirements, which are based on the type of confinement feeding operation structure¹ and AUC proposed. To determine which checklist to use, choose the option that best describes your confinement feeding operation:

- A) **Formed manure storage structures²:** The proposed confinement feeding operation structure¹ will be or will use a formed manure storage structure². Check one of the following boxes:
- A swine farrowing and gestating operation with an AUC of 1,250 AU or more. Use submittal checklist No. 2 (page 13.)
 - A swine farrow-to-finish operation with an AUC of 2,750 AU or more. Use submittal checklist No. 2 (page 13.)
 - A cattle confinement feeding operation (including dairies) with an AUC of 4,000 AU or more. Use submittal checklist No. 2 (page 13.)
 - Other confinement feeding operations with an AUC of 3,000 AU or more. Use submittal checklist No. 2 (page 13.)
 - None of the above. Use Submittal Checklist No. 1 (page 10.)

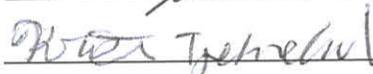
If any of boxes 1 to 4 are checked, the operation meets the threshold requirements for an engineer⁴ and a Professional Engineer (PE), licensed in Iowa, is required. For these cases, use Submittal Checklist No. 2 (pages 13-15.)

If you checked box 5, your operation is below threshold requirements for an engineer⁴ and a Professional Engineer (PE) is not required. Use Submittal Checklist No. 1 (pages 10-12).

- B) **Unformed manure storage structure³:** The proposed confinement feeding operation structure¹, will be or will use an unformed manure storage structure³ 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 (pages 13-15) and Addendum "A" (page 16).

ITEM 6 – SIGNATURE:

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

Signature of Applicant(s):  Date: 4-25-14
 4-25-14

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/InsideDNR/DNRStaffOffices/EnvironmentalFieldOffices.aspx>.

⁴ Threshold requirements for an engineer apply to the construction of a formed manure storage structure². 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 to 15.)

ITEM 7

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
Luke Tjelmeland	60649 180th St. ,	Nevada, IA	50201
Krista Tjelmeland	60649 180th St. ,	Nevada, IA	50201

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.

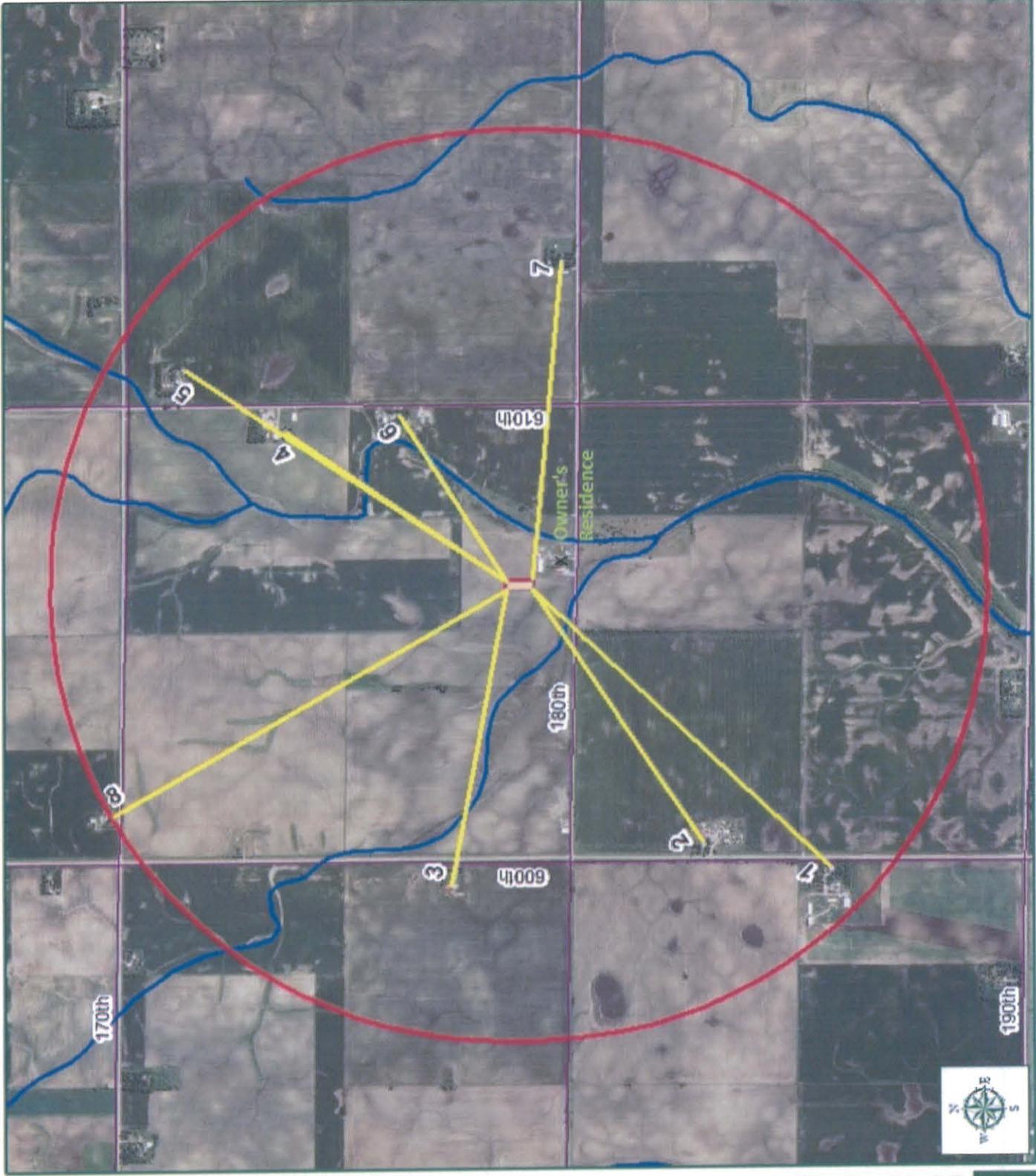
Operation Name	Location (1/4 1/4, 1/4, Section, Tier, Range, Township, County)	City
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None [There are no other confinements in Iowa in which the above listed person(s) has or have an interest].

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

Signature of Applicant(s): *Luke Tjelmeland*
Krista Tjelmeland

Date: 4-25-14
4-25-14



Legend

- Measurements
- Proposed Facility
- Load Chute
- Office
- Swine Confinement Barn
- Story Co. Roads
- 1mile Buffer of Proposed Barn
- streams

Id	Type	Distance
1	Residence	4711ft
2	Residence	3524ft
3	Residence	3480ft
4	Residence	3087ft
5	Residence	4455ft
6	Residence	2316ft
7	Residence	3723ft
8	Residence	5230ft

- There are no:
- Wells within 100 feet
 - Water sources within 500 feet (see close up map)
 - Major water sources within 1,000 feet
 - Residences within 1,875 feet
 - Incorporated Areas or Public Use areas within 2,500 feet
 - Designated Wetlands within 2,500 feet

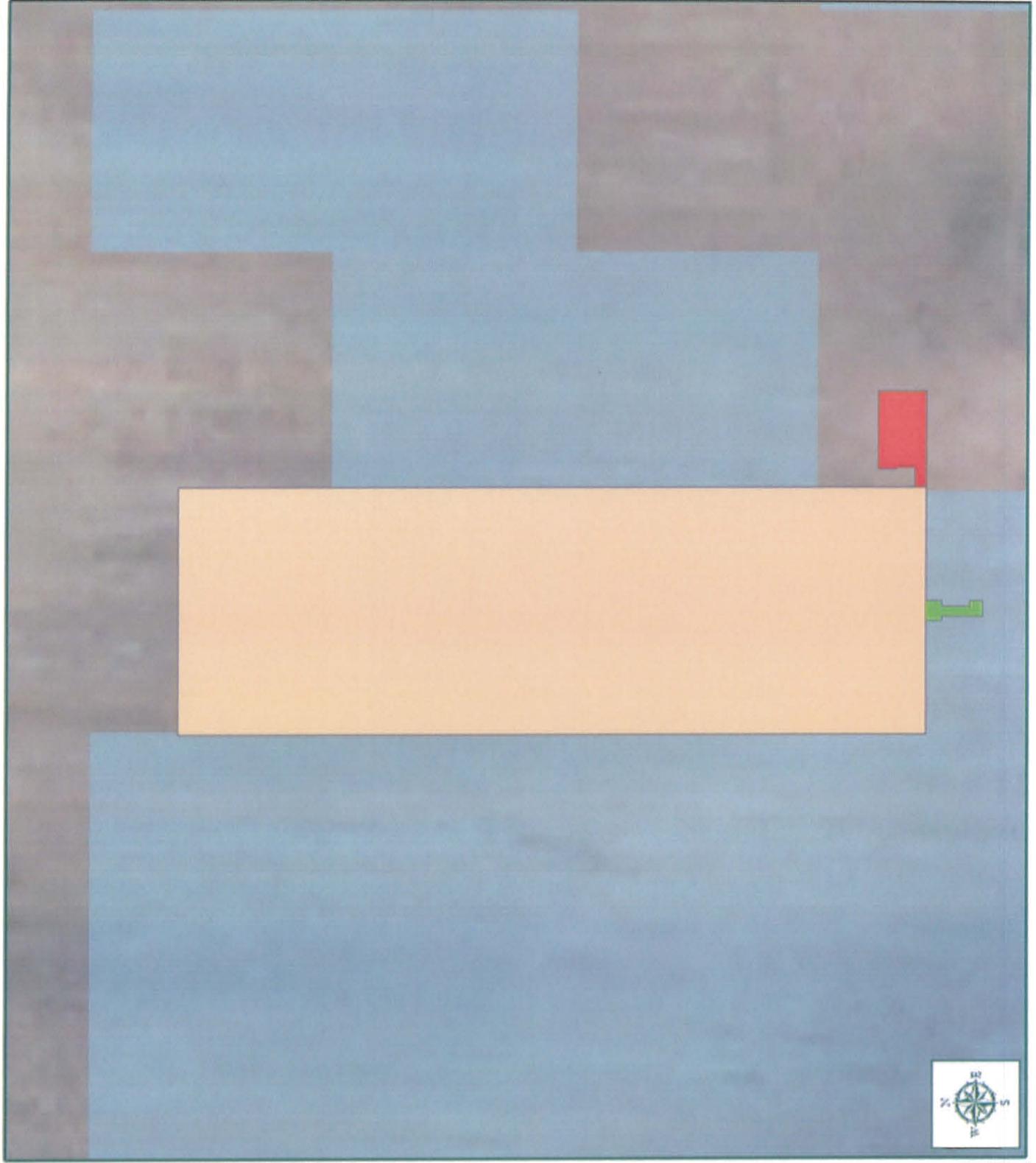
Legend

Proposed Facility

-  Load Chute
 -  Office
 -  Swine Confinement Barn
- alluvial
-  Potentially Alluvial Soils
- Karst
-  Not Karst
 -  Karst (within 1,000 ft of a sink hole)
 -  Potential Karst

**The Site is not located
in Karst Topography.**

**The Site is not located
in Alluvial Soils.
Documentation is
attached to refute the
designation of alluvial
soil on the building site.**



Legend

— Story Co. Roads

— streams

Measurements

Type

R.O.W

Water

Well

Proposed Facility

Load Chute

Office

Swine Confinement Barn

The proposed facility will be located greater than 500ft from the nearest water source.

The proposed facility will be located approximately 451ft from the Right-of-Way

The proposed facility will be located 334ft from the nearest well.





Construction Design Statement (CDS)

Instructions:

1. This form is for new or expanding confinement feeding operations with an AUC¹ of more than 500 AU, not required to have a professional engineer (PE)², that are proposing to construct a formed manure storage structure³.
2. Complete and submit Sections 1, 2 and 3 (pages 1 to 5).
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 structures⁴.
4. Mail only pages 1 to 5, and page 6 (if applicable) as instructed on page 6. Do not mail the remainder of this form.
5. If the site-specific design is sealed by a PE², do not use this CDS instead use DNR Form 542-8122.

Section 1 - Information about the proposed formed manure storage structure³(s)

A) Information about the operation:

Name of operation: Luke Tjelmeland Finisher Facility ID No. : _____
 Location: SW 1/4 SE 1/4 11 T84N R23W Milford Story _____
(¼ ¼) (¼) (Section) (Tier & Range) (Name of Township) (County)

B) Description of the proposed formed manure storage structure³. Include dimensions (length, width, or diameter, depth). Indicate if it is aboveground or belowground; covered or uncovered, made of concrete or steel. If necessary attach more pages:

One 101' 10" x 305' x 8' deep, below ground, covered, formed concrete manure storage tank will be constructed.

C) Karst Determination: Go to <http://www.iowadnr.gov>, select the link to 'Environment' then click on 'Mapping and GIS'. then click on AFO Siting Atlas. Click on the red push pin icon to enter a legal description of the proposed location. Make sure the karst box is checked in the left legend. 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).

D) Alluvial Soils Determination: Go to <http://www.iowadnr.gov>, select the link to 'Environment' then click on 'Mapping and GIS' then click on AFO Siting Atlas. Click on the red push pin icon to enter a legal description of the proposed location. Make sure the alluvial box is checked in the left legend. If you cannot access the map, or if you have questions about this issue, contact DNR Flood Plain at 1-866-849-0321. 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.

Section 2 - Manure management plan:

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

Lucas and Krista Tjelmeland
 Owner's Name (print)

Owner's Signature

4-25-14
 Date

¹ 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>
² PE is a professional engineer licensed in the state of Iowa or a NRCS-Engineer working for the USDA-Natural Resources Conservation Service (NRCS).
³ Formed manure storage structure means a covered or uncovered concrete or steel tank, including concrete pits below the floor.
⁴ Confinement feeding operation structure = A confinement building, a formed or unformed manure storage structure, or an egg washwater storage structure.

Section 3 - Construction design standards: The person responsible for constructing the formed manure storage structure(s)³ must complete pages 2 to 5.

A) Liquid and semi-liquid manure: The proposed formed manure storage structure³ 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 structure³ 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 2 for each formed manure storage structure³ that have different dimensions. Complete all of the following information:

Number of buildings: one Building name: Swine Finisher

Dimensions of proposed formed manure storage structure³

	Length	Width	Height or depth	Wall thickness	Diameter (circular tanks only)
Feet	305	101	8	0	N\A
Inches	0	10	0	8	N\A

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 pages 7-8), 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 structures³ 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 pages 8-9) 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 9 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) ^a	All walls with pumpout ports and walls where vehicles are allowed within 5 feet (use Table D-2) ^a	Walls where vehicles are <u>not</u> allowed within 5 feet (use Table D-3) ^b	All walls with pumpout ports and walls where vehicles are allowed within 5 feet (use Table D-4) ^b	
Grade 40, No. 4					
Grade 40, No. 5					
Grade 60, No. 4			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 structure³, 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)³:

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.
 - In lieu of the drain tile, a certification signed by a PE², 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 -½ 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 10). 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 10). 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.
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 structure³ 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)³ at the operation:

Name of operation: Luke Tjelmeland Finisher County: Story

Owner's name: Lucas and Krista Tjelmeland

will be constructed in accordance with these minimum requirements. Included with this certification are:

- Page 2, for each formed manure storage structure³ that have different dimensions
- Pages 3 to 5 (applicable sections)
- Other documents (specify): _____

Brent V. Rastetter		3-12-2014
(Print name)	(Signature)	(Date)
Quality Ag, Inc.	15481 Highway D20, Alden, IA 50006	515-859-7824, ext. 11
(Company)	(Address)	(Phone No.)

(See page 6 for mailing instructions)

H) Upgraded Concrete Standards Certification: If "Yes" was checked in Section 1.C (page 1) --site exhibits karst terrain or drains into a known sinkhole-- the person responsible for constructing the formed manure storage structure must also complete this section:

567 IAC 65.15(14)"c". Karst terrain—upgraded standards. If the site of the proposed formed manure storage structure is located in an area that exhibits karst terrain or an area that drains into a known sinkhole, the minimum concrete standards set forth in 65.15(14)"a" or "b" shall apply. In addition, the following requirements apply to all formed manure storage structures that store nondry or dry manure (check all of the following boxes):

- (1) A minimum 5-foot vertical separation distance between the bottom of a formed manure storage structure and limestone, dolomite, or other soluble rock is required if the formed manure storage structure is not designed by a PE or an NRCS engineer.
- (2) If the vertical separation distance between the bottom of the proposed formed manure storage structure and limestone, dolomite, or other soluble rock is less than 5 feet, the structure shall be designed and sealed by a PE or an NRCS engineer who certifies the structural integrity of the structure. A 2-foot-thick layer of compacted clay liner material shall be constructed underneath the floor of the formed manure storage structure. However, it is recommended that any formed manure storage structure be constructed aboveground if the vertical separation distance between the bottom of the structure and the limestone, dolomite, or other soluble rock is less than 5 feet.
- (3) In addition, in an area that exhibits karst terrain or an area that drains into a known sinkhole, a PE, an NRCS engineer or a qualified organization shall submit a soil exploration study based on the results from soil borings or test pits to determine the vertical separation between the bottom of the formed structure and limestone, dolomite, or other soluble rock. A minimum of two soil borings or two test pits, equally spaced within each formed structure, are required. After soil exploration is completed, each soil boring and pit shall be properly plugged with concrete grout, bentonite, or similar materials.
- (4) Groundwater monitoring shall be performed as specified by the department.
- (5) Backfilling shall not start until the floor slats have been placed or permanent bracing has been installed, and shall be performed with material free of vegetation, large rocks, or debris.

"I have read and understand the upgraded concrete standards of IAC 65.15(14)"c", and certify that the proposed formed manure storage structure(s)³ at the above operation will be constructed according to these standards":

(Print name)	(Signature)	(Date)
(Company)	(Address)	(Phone No.)

(See page 6 for mailing instructions)

Luke Tjelmeland Finisher Site

Item	Total	A	W	C	Notes
1	25	16.25	0	8.75	The closest residence to the proposed facility is approximately 2316 feet. This is an additional 441 feet above the required 1875 feet to unincorporated areas (residences, hospitals, nursing homes, or licensed/registered child care facilities, etc.) Refer to site map.
2	30	12	0	18	The closest public use area to the proposed facility is approximately 19,450 feet (Evergreen Memory Gardens Cemetery). This is an additional 16,950 feet above the required minimum of 2500 feet to public use areas (picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes, swimming beaches, etc.) Refer to site map.
3	30	12	0	18	The closest educational institution, religious institution or commercial enterprise is located greater 22,000 feet from the facility (City of Nevada). This is over an additional 19,500 feet above the required minimum separation distance of 2,500 feet to the closest educational institution, religious institution, or commercial enterprise. Refer to site map.
5	30	9	0	21	The proposed facility will be located 451 feet from the nearest thoroughfare. Refer to site map.
6	10	4	0	6	The closest critical public area is approximately 20,004 from the facility (McFarland Park). This is an additional 17,504 feet above the required minimum of 2,500 feet to critical public areas. Refer to site map.
7	30	0	24	6	The deep well is located 334 feet away from the facility, which is more than two times the minimum separation distance of 100 feet to the nearest private or public water well. Refer to site map, and attached documentation to confirm that the well is a deep well.
8	50	5	25	20	The closest major water source (South Skunk River) is approximately 20,570 feet away from the facility. This is an additional 19,570 feet above the minimum requirement of 1,000 feet from the closest agricultural drainage well, known sinkhole, or major water source.
9	25	7.5	7.5	10	There are no facilities within three-quarters of a mile (3,960 feet) that have submitted a department manure management plan.
10	30	0	22.5	7.5	The closest high quality (HQ) water, high quality resource (HQR) water, or protected water area (PWR) is the South Skunk River, which is approximately 20,570 feet away from the facility. This is an additional 19,570 feet above the minimum requirement of 1,000 feet from the closest high quality (HQ) water, high quality resource (HQR) water, or protected water area (PWR).
12	30	27	0	3	<p>A. Design: The site will consist of 1 swine finishing buildings housing a maximum of 4600 finishing animals, 1840 animal units. Each building will have an 8' deep formed concrete pit and covered by slats. The construction design specification will meet the IDNR requirements as verified in the IDNR Construction Design Statement form, which is attached. According to Iowa Department of Natural Resources rules, this will qualify this structure as "covered" storage. (Refer to Construction Permit Application.)</p> <p>B. Operation: Weekly inspections of the building structure roof will be conducted by the site owner to ensure water is not infiltrating the storage pit, and that the structural integrity of the building structure roof is not compromised in any areas.</p> <p>C. Maintenance: Maintenance of the cover will be minimal, as it is built of steel, and is the main component of the confinement building. However, a maintenance routine shall include a weekly walk around of the outside of the building structure, looking for any evidence of compromised integrity. If any leaks are found, they will be immediately repaired with appropriate materials to achieve as-built condition.</p>
15	20	10	0	10	See attached design, operation, and maintenance for three rows of shrubs and trees on 3 sides of the barn.
17	30	0	27	3	<p>A. Design: The site will utilize an 8' deep formed concrete pit. (Refer to Construction Design Statement for specification of concrete and reinforcement materials to be used in this structure.)</p> <p>B. Operation: The facility will be operated as a below building concrete pit with weekly inspections to assure the soundness of the structure. Heavy equipment will maintain a safe distance to avoid any stress on the structures.</p> <p>Maintenance: Due to the concrete design and specification for the structure, maintenance is expected to be minimal for this structure. however, the exterior of the below building pits will be inspected weekly to look for cracks or any evidence of outside water entering the pit. If any evidence of cracks is found, grout or another form of sealing agent will be immediately used to seal the cracks to achieve as-built condition. In addition, the integrity of each pit shall be evaluated by observing the perimeter footing tile discharge for signs of contamination such as bad smell, discoloration, excessive liquid in the tile lines during dry times, and dead foliage. Also, proper functioning of the perimeter tile system will be checked. Any collapsing and plugging of the drain tile must be fixed and immediate measures will be taken if any leaks are detected from the pits. If contamination occurs, a prompt investigation will be conducted to locate the source of the manure leak and the DNR will be notified. Any significant reduction in the discharge rate should be considered an indicator of the footing tile collapse or blockage, which would be corrected immediately.</p>

19	20	0	0	20	<p>A. Design: The site will have a driveway large enough so that trucks will not have to back onto the road. It will have a radius greater than 120ft. The driveway will be adequately surfaced for traffic in inclement weather.</p> <p>B. Operation: The driveway will be operated to provide for safe entrance and exit to the property for delivery vehicles and not to obstruct the public thoroughfare.</p> <p>C. Maintenance: The driveway will be maintained to a level that will support regular truck traffic. The driveway will be constructed with a 2-3 inch base. Road rock gravel will be used as a road surface that will be monitored for the purposes of leveling, filling potholes, and adequate snow removal.</p>
20	30	0	0	30	Lucas and Krista Tjelmeland have had no history of administrative orders in the last 5 years. This makes Lucas and Krista Tjelmeland eligible for points on Matrix item #20.
22	25	0	0	25	The permit applicant Lucas and Krista Tjelmeland are the closest resident to the proposed structure. Lucas and Krista Tjelmeland holds ownership of this confinement feeding operation and have their personal residence at the same location.
23	25	0	0	25	Family Farm Tax Exemption
24	20	0	0	20	The proposed swine facility will hold a total capacity of 4600 head, or 1840 animal units. Refer to Construction Permit Application, page 3.
25	25	0	12.5	12.5	<p>A. Design: The buildings on the site will utilize a wet/dry feeder design. These feeders utilize pressure regulators to reduce waste and manure volume in the storage structure. Industry wide accepted data shows significant water savings compared to a gate mounted watering nipple. Refer to the attached scientific articles illustrating the water savings and benefits of utilizing wet/dry feeders.</p> <p>B. Operation: Feeders and watering cups will be adjusted to reduce waste and optimize feed efficiency for the facility. The water savings result in reducing the gallons of nutrients in the pit that later have to be hauled out onto farm fields.</p> <p>C. Maintenance: The feeders will be inspected on a daily basis and adjusted as needed. Water flow and useage will be monitored and logged on a regular basis to control waste and excess manure volume due to waste.</p>
35	10	0	7.5	2.5	The nearest high quality (HQ) water, high quality resource (HQR) water, or protected water area (PWR) in Story County is the South Skunk River. This river is located more than 400 feet above the minimum required separation distance from any land where manure application will occur.
37	10	1	5	4	In support for points taken for item 37, Luke Tjelmeland Finisher site has completed a Worker Safety and Protection Plan to accompany the Emergency Action Plan. (See Attached)
40	5	0	2.5	2.5	The attached Emergency Action Plan/Emergency Response Plan (ERP) will be posted and maintained on site along with the manure management plan records, and will be implemented in case of emergency. Any changes needed to the ERP will be made immediately and re-posted on site, to ensure the document is always up-to-date. See Attached Emergency Response Plan.
41	5	0	2.5	2.5	In the event that this site will need to close the deep pit, the NRCS Code 360 - Closure Of Waste Impoundments will be followed. All buildings will be washed completely and flushed into the below building pits. The pits will be completely pumped out and applied to the soils at an appropriate application rate and method, determined by a manure sample and DNR-management guidelines. The remaining facility buildings and cement structures will be destroyed and disposed of according to approved methods, regulations, and permits required by the appropriate county, state and federal departments, agencies, and personnel required at that time. (See attached NRCS Code 360.)
Score	515	87.5	136	267	
Score to Pass	440	53.4	38	101	

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/distribution/livestocksystems/DI7680.html>. For more information, contact Dr. Larry Jacobson, University of Minnesota, (612) 625-8288, 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	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(s)	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

Proof of Homestead Tax Exemption is required as part of the construction permit application.

- (A) 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

(A) 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	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 a 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 a department manure	30	12.00	12.00	6.00

	management plan				
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 remaining manure is applied under the requirement of a manure management plan	30	9.00	9.00	12.00
	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

- (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/regional/sites.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

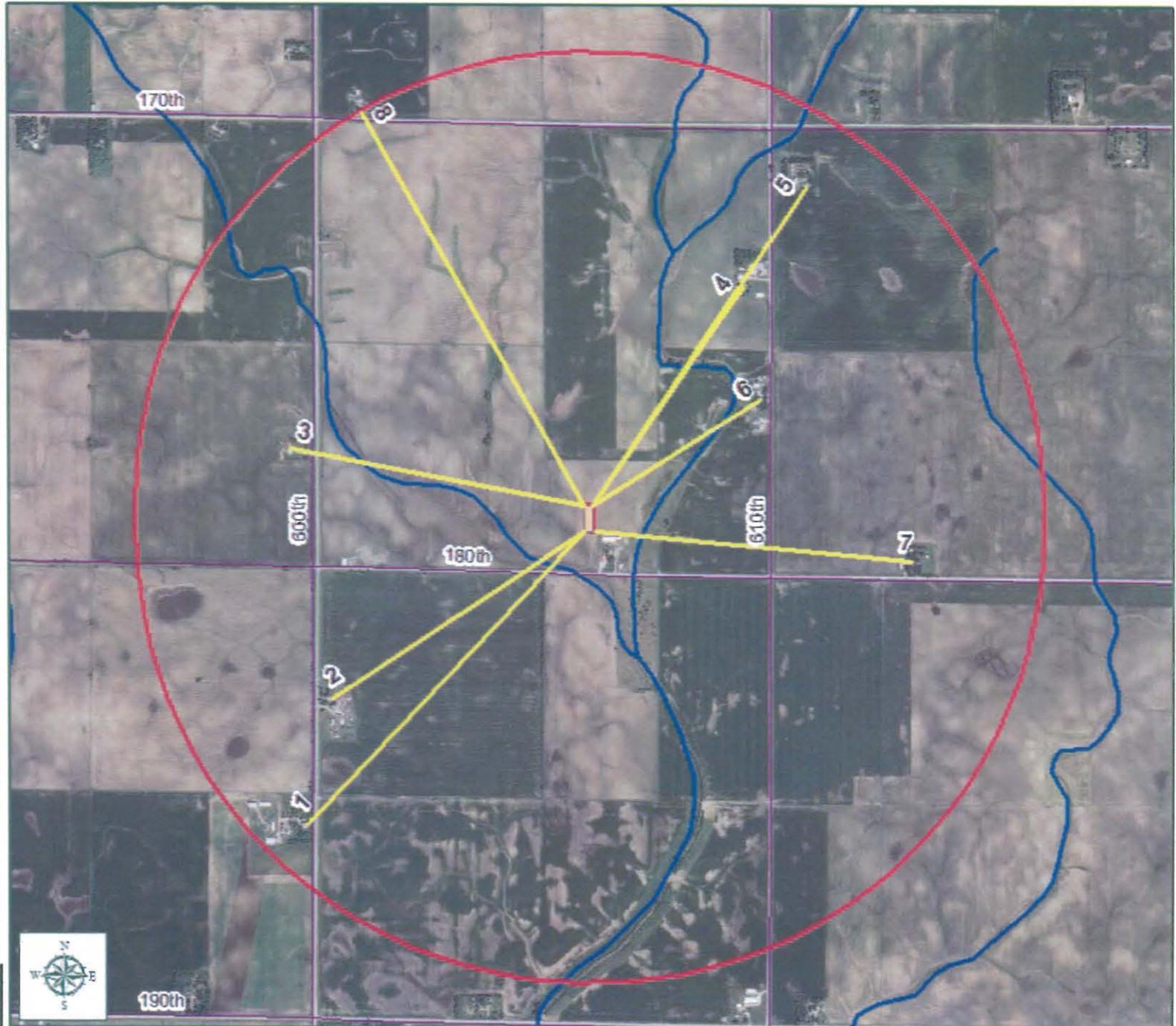
Total Score	Air	Water	Community
880	213.50	271.00	404.50
440	53.38	67.75	101.13

Legend

- Story Co. Roads
 - streams
 - Measurements
- Proposed Facility**
- Load Chute
 - Office
 - Swine Confinement Barn
 - 1mile Buffer of Proposed Barn

Id	Type	Distance
1	Residence	4711ft
2	Residence	3524ft
3	Residence	3480ft
4	Residence	3087ft
5	Residence	4455ft
6	Residence	2316ft
7	Residence	3723ft
8	Residence	5230ft

- There are no:
- Wells within 100 feet
 - Water sources within 500 feet (see close up map)
 - Major water sources within 1,000 feet
 - Residences within 1,875 feet
 - Incorporated Areas or Public Use areas within 2,500 feet
 - Designated Wetlands within 2,500 feet



Legend

— Story Co. Roads

— streams

Measurements

Type

— R.O.W

Proposed Facility

— Load Chute

— Office

— Swine Confinement Barn

The proposed facility
will be located
approximately 451ft
from the Right-of-Way



Legend

— Story Co. Roads

Measurements

Type

— Well

Proposed Facility

Load Chute

Office

Swine Confinement Barn

The proposed facility
will be located 334ft
from the nearest well.



Legend

- Story Co. Roads
- Proposed Facility**
- Load Chute
- Office
- Swine Confinement Barn
- major_water_sources

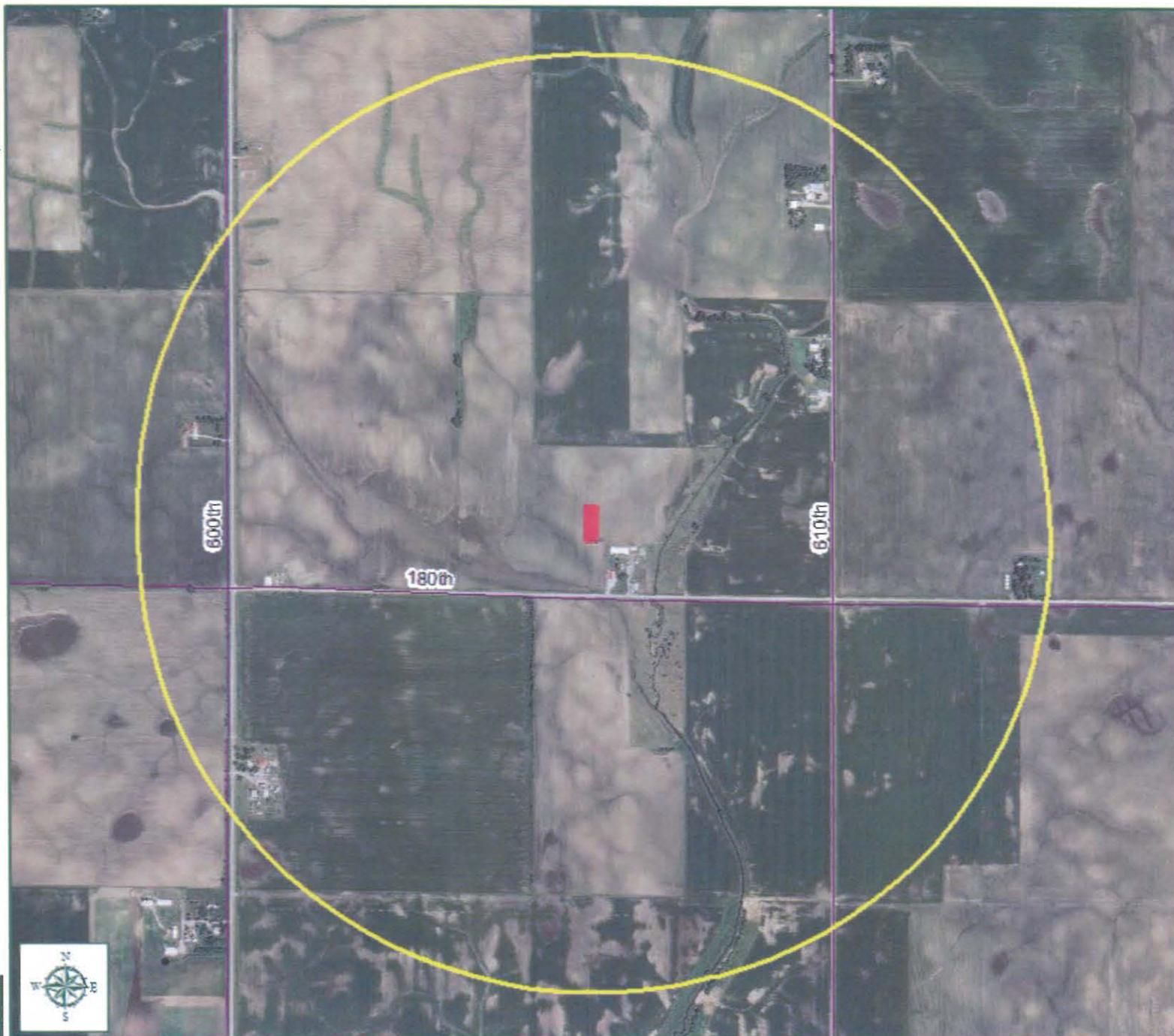
The proposed facility will be located 20,570ft from the closest major water source



Legend

-  3960ft Buffer of Proposed Facility
-  Story Co. Roads
- Proposed Facility**
-  Load Chute
-  Offices
-  Swine Confinement Barn
-  AFQ confinements
-  major_water_sources

The proposed facility will be located farther than 3,960 feet from the nearest facility that has submitted a manure management plan to the IDNR.



Master Matrix Item 15: Utilization of Landscaping
Design, Operation, and Maintenance

The design planned for this site consists of a three row field windbreak to the North, East and West of the confinement flowing in an East/West direction and North/South orientations respectively. The three rows will include redosier dogwood or a similar species, hybrid willow or similar species, and arborvitae or a similar species.

The shrubs will get approximately 8 feet tall and will provide spring and winter color as well as a mast for wildlife. The hybrid willow or similar species will grow the fastest and achieve an overall height of 25 feet. The arborvitae or similar species will get to about 10-20 feet and will provide a continual barrier against wind, dust from winds as well as a visual screen.

Maintenance prescribed would consist of a chemical application of Roundup, Pendulum and Simazine prior to planting spring of 2015. Roundup will of course kill existing vegetation and Pendulum and Simazine are pre-emergents to hold annual grasses and broadleaves at bay. Irrigation will be important year one. These varieties of trees tolerate a lot of water, but also will survive with a minimum. The more water available, however, the faster the trees will grow.



High Quality Water Resources

A list for manure applicators and producers who need a construction permit

Passed by the 2002 General Assembly, Senate File 2293 set new requirements for the location and expansion of confinement feeding operations and for the land application of manure.

One of these changes added high quality water resources to the protected areas from certain manure application practices and as Items 10 and 35 on the master matrix, a system used to rate potential locations for confinement feeding operations needing a construction permit.

As defined by SF 2293, high quality water resources include high quality (HQ) waters and high quality resource (HQR) waters which are both listed in Iowa's Water Quality Standards in Chapter 61.3(5) "e" of the Iowa Administrative Code. Waters that were listed as HQ or HQR waters have above average characteristics and have not been channelized or significantly altered. High quality water resources also include protected water areas (PWA) listed below and on the DNR website under state parks, other division programs.

Definitions of the three water types

High quality water (HQ): Waters with exceptionally better quality than the levels specified in the Water Quality Standards and with exceptional recreational and ecological importance. Special protection is warranted to maintain the unusual, unique or outstanding physical, chemical, or biological characteristics which these waters possess.

High quality resource water (HQR): Waters of substantial recreational or ecological significance which possess unusual, outstanding or unique physical, chemical, or biological characteristics which enhance the beneficial uses and warrant special protection.

Protected water areas (PWA): This program started in 1978 to maintain, preserve and protect outstanding natural and scenic qualities of select waters and their adjacent land areas. Sections of five rivers have been designated (see below), but other possible protected

waters exist, including lakes and marshes. The long-term goal of the program is to have one PWA in each of the seven landform regions in Iowa.

How to use the list

Look for high quality water resources by county or in the PWA list below.



A meandering stream, Catfish Creek is a typical high quality resource water (HQR). The creek is located in Swiss Valley County Park in Dubuque County.

Photo by Jamie Mootz.

For More Information

Manure applicators should see the DNR factsheet "Separation Distances for Land Application of Manure," available on the DNR website and at DNR field offices. **Producers** who need to use the master matrix can find more information, including an interactive matrix, under animal feeding operations on the DNR website at www.iowadnr.com/.

Protected Water Areas (PWA)

- Upper Iowa River:** Kendallville (Winneshiek Co.) to Hwy 76 in Allamakee Co. (64.2 miles)
- Little Sioux River:** Spencer (Clay Co.) to the Linn Grove Dam in Buena Vista Co. (34.5 miles)
- Middle Raccoon River:** Panora (Guthrie Co.) to the Redfield Dam in Dallas Co. (14.6 miles)
- Wapsipinicon River:** Hwy 93 (Bremer Co.) to conjunction with the Mississippi River, Clinton/Scott Co. line (177 miles)
- Boone River:** Webster City (confluence of Brewers Cr.) to confluence with the Des Moines River (25 miles)

CAUTION: This document is only a summary of administrative rules contained in 567 IAC chapters 61 and 65; it is a guidance document and should not be used as replacement for the administrative rules. While every effort has been made to assure the accuracy of this information, the administrative rules will prevail in the event of a conflict between this document and the administrative rules.

DNR 117: 3-2003

High Quality Water Resources by County

HQ = High Quality Water

HQR = High Quality Resource Water

PWA = Protected Water Areas on p.1

Allamakee

Yellow River - Mouth to Allamakee-Winneshiek Co. line

Dousman Creek - Mouth to Allamakee-Clayton Co. line

Suttle Creek - Mouth to Allamakee-Clayton Co. line

Unnamed Creek (aka Bear Creek) - Mouth (S13, T96N, R5W) to N. line of S12, T96N, R5W, Allamakee Co.

Norfolk Creek - Mouth to confluence with Teeple Cr. (S24, T97N, R6W, Allamakee Co.)

Teeple Creek - Mouth to W. Line of S11, T97N, R6W, Allamakee Co.

Cota Creek - Mouth to W. line of S10, T97N, R3W, Allamakee Co.

Trout Run - Mouth through one mile reach

Unnamed Creek (Erickson Spring) - Mouth (S 23, T98N R4W) to W. line of S23, T98N, R4W, Allamakee Co.

Irish Hollow Creek - Mouth to N. line of S17, T100N, R4W, Allamakee Co.

Clear Creek - Mouth to N. line of S15, T100N, R5W, Allamakee Co.

Upper Iowa River - Lane's Bridge (Allamakee Co.) to Allamakee-Winneshiek Co. line

Paint Creek - Little Paint Creek to Rd Crossing, S18, T97N, R4W, Allamakee Co.

Little Paint Creek - Mouth to N. line of S30, T97N, R3W, Allamakee Co.

Hickory Creek - Mouth to S. line of S28, T96N, R5W, Allamakee Co.

Wexford Creek - Mouth to W. line of S25, T98N, R3W, Allamakee Co.

Village Creek - Mouth to W. line of S19, T98N, R4W, Allamakee Co.

Clear Creek - Mouth to W. line of S25, T99N, R4W, Allamakee Co.

French Creek - Mouth to E. line of S23, T99N, R5W, Allamakee Co.

Silver Creek - Mouth to S. line of S31, T99N, R5W, Allamakee Co.

Waterloo Creek - Mouth to Iowa-Minnesota state line

Patterson Creek - Mouth to E. Line S3, T98N, R6W, Allamakee Co.

Appanoose

Chariton River - Hwy 2 to Appanoose - Lucas Co. line

Black Hawk

Cedar River - Confluence with Beaver Creek to Blackhawk-Bremer Co. line

W Fk Cedar River - Mouth to Blackhawk-Butler Co. line

Shell Rock River - Mouth to Blackhawk-Bremer Co. line

Wapsipinicon River - Buchanan-Blackhawk Co. Line to Blackhawk-Bremer Co. line

Boone

Des Moines River - Fraiser Dam to Boone - Webster Co. line

Bremer

Cedar River - Bremer-Blackhawk Co. line to Bremer-Chickasaw Co. line

Shell Rock River - Bremer-Blackhawk Co. Line to Bremer-Butler Co. line

Wapsipinicon River - Bremer-Blackhawk Co. line to Snyder's Access (S34, T93N, R12W, Bremer Co.)

Buchanan

Wapsipinicon River - Linn-Buchanan Co. line to Buchanan-Blackhawk Co. line

Buena Vista

Little Sioux River - entire length in Buena Vista Co.

Butler

W Fk Cedar River - Butler-Blackhawk Co. line to confluence with Maynes Creek

Shell Rock River - Butler-Bremer Co. line to S. corporate limits, Shell Rock (S12, T91N, R15W, Butler Co.)

Carroll

North Raccoon River - Carroll-Greene Co. line to Hwy 286 (S17, T85N, R33W, Carroll Co.)

Cerro Gordo

Clear Lake

Cherokee

HQR

Little Sioux River - Hwy 3 in Cherokee (S26, T92N, R40W, Cherokee Co.) to Buena Vista - Cherokee Co. line

Chickasaw

HQR

Cedar River - Bremer-Chickasaw Co. line to S29, T94N, R14W, Chickasaw Co.

Clay

HQR

Little Sioux River - Buena Vista-Clay Co. line to east corporate limit Spencer (S17, T96N, R36W, Clay Co.)
Elk Lake

Clayton

HQR

Point Hollow Creek - Mouth to Clayton-Dubuque Co. line

Bloody Run Creek (aka Grimes Hollow) - Mouth to Clayton-Delaware Co. line

Pecks Creek - Mouth to S. line S15, T91N, R3W, Clayton Co.

South Cedar Creek - N. line S7, T92N, R3W to N. line S30, T93N, R3W, Clayton Co.

Steeles Branch - Mouth to Clayton-Delaware Co. line

Brownfield Creek - Mouth to spring source (S31, T91N, R3W, Clayton Co.)

Volga River - Mouth to Clayton-Fayette Co. line

Bear Creek - S. Line S18, T91N, R4W to W. line S23, T91N, R5W, Clayton Co.

Mossey Glen Creek - Mouth to S. line S10, T91N, R5W, Clayton Co.

Cox Creek (aka Anderson Hollow) - Kleinlein Cr. To S. Line S12, T91N, R6W, Clayton Co.

Kleinlein Creek (aka Spring Creek) - Mouth to spring source (S10, T91N, R6W, Clayton Co.)

Hewett Creek - Mouth to S. line of S29, T92N, R6W, Clayton Co.

Dry Mill Creek - Mouth to W. line of S9, T93N, R4W, Clayton Co.

Miners Creek - Hwy 52 (Clayton Co.) to W. line of S1, T92N, R3W, Clayton Co.

Unnamed Creek (aka W. Fk. Sny Magill Cr.) - Mouth to W. line of S7, T94N, R3W, Clayton Co.

Bloody Run - Mouth to W. line of S22 T95N, R4W, Clayton Co.

Maquoketa River - Delaware-Clayton Co. line to Clayton-Fayette Co. line

Pine Creek - Mouth to confluence with Brownfield Creek (Clayton Co.)

HQ

Turkey River - Confluence with Volga River to Clayton-Fayette County line

Little Turkey River - Clayton-Delaware Co. line to S. line S11, T90N, R3W, Delaware Co.

Ram Hollow - Mouth to Clayton-Delaware Co. line

Baron Spring - Mouth to spring source (S4, T91N, R6W, Clayton Co.)

Ensign Creek (aka Ensign Hollow) - Mouth to spring source (S29, T92N, R6W, Clayton Co.)

Mink Creek - Mouth to Clayton-Fayette Co. line

Buck Creek - Mouth to W. line of S9, T93N, R3W, Clayton Co.

Sny Magill Creek - Mouth to W. line of S6, T94N, R3W, Clayton Co.

North Cedar Creek - Mouth to W. line of S24, T94N, R4W, Clayton Co.

Cedar

HQR

Cedar River - Muscatine-Cedar Co. line to Cedar-Johnson Co. line

Wapsipinicon River - Cedar-Clinton Co. line to Cedar-Jones Co. line

Clinton

HQR

Wapsinpinicon River - Mouth to Clinton-Cedar Co. line

Dallas

HQR

Raccoon River - Polk-Dallas Co. line to confluence of N. & S. Raccoon River

Middle Raccoon River - Redfield Dam to Dallas-Guthrie Co. line

North Raccoon River - Mouth to Dallas-Greene County line

Dickinson

HQR

Grover's Marsh

HQ

Big Spirit Lake

East Okoboji Lake

Lower Gar Lake

Minnewashta Lake

Upper Gar Lake

West Okoboji Lake

Delaware

HQR

Bloody Run Creek (aka Grimes Hollow) - Clayton-Delaware Co. line to source S3, T90N, R3W, Delaware Co.

Steeles Brook - Clayton-Delaware Co. line to W. line S5, T90N, R4W, Delaware Co.

Twin Springs Creek - Mouth to spring source in S12, T90N, R4W, Delaware Co.

HQR

- S Br Fountain Spring Creek** - Mouth to W. line of SW1/4, S16, T90N, R4W, Delaware Co.
- Schechtman Branch** - Mouth to S. line S14, T90N, R4W, Delaware Co.
- Maquoketa River** - Delaware-Jones Co. line to confluence with Plum Creek

HQ

- Maquoketa River** - Mouth of S. Fk. Maquoketa River to Clayton-Delaware Co. line
- Spring Branch** - Mouth to spring source in S35, T89N, R5W, Delaware Co.
- Fenichel Creek** - Mouth to Richmond Springs (center S4, T90N, R6W, Delaware Co.)
- Little Turkey River** - Clayton-Delaware Co. line to S.Line S11, T90N, R3W, Delaware Co.
- Ram Hollow** - Clayton-Delaware Co. line to source S10, T90N, R3W, Delaware Co.
- Fountain Spring Creek** - Mouth to W. line of NW1/4, S16, T90N, R4W, Delaware Co.

Dubuque

HQR

- Catfish Creek** - S. line S9, T88N, R2E to W. line S30, T88N, R2E, Dubuque Co.
- Little Maquoketa River** - Hogans Branch to N. line of S5, T88N, R1W, Dubuque Co.
- Bloody Run** - Mouth to W. line S21, T90W, R2E, Dubuque Co.
- Cloie Branch** - Mouth to W. line S5, T89W, R2E, Dubuque Co.
- Hogans Branch** - Mouth to W. line S9, T88N, R1W, Dubuque Co.
- Point Hollow Creek** - Clayton-Dubuque Co. line to source (S8, T90N, R2W, Dubuque Co.)

HQ

- Mid. Fk Little Maquoketa River** - W. line S31, T90N, R1E to N. line S33, T90N, R1W, Dubuque Co.

Emmet

HQR

- Burr Oak Lake**
- Tuttle Lake**

Fayette

HQ

- Volga River** - Clayton-Fayette Co. line to E. corporate limit Fayette (NE1/4, S28, T93N, R8W, Fayette Co.)
- Brush Creek** - Bear Creek to E. line of S17, T92N, R7W, Fayette Co.
- Bell Creek** - Mouth to W. line S8, T94N, R7W, Fayette Co.
- Bass Creek** - Mouth to W. line S3, T95N, R9W, Fayette Co.
- Otter Creek** - Mouth to confluence Grovers Cr. (S22, T94N, R8W, Fayette Co.)

HQ

- Maquoketa River** - Fayette-Clayton Co. line to Hwy. 3
- Turkey River** - Clayton-Fayette Co. line to Fayette-Winnishek Co. line
- Mink Creek** - Clayton-Fayette Co. line to W. line S15, T93N, R7W, Fayette Co.
- Bear Creek** - Mouth to W. line S6, T92N, R7W, Fayette Co.
- Grannis Creek** - Mouth to W. line S36, T93N, R8W, Fayette Co.
- Unnamed Creek** (aka Glovers Cr.) - Mouth to W. line S15, T94N, R8W, Fayette Co.

Greene

HQR

- North Raccoon River** - Entire length in Co.

Guthrie

HQR

- Middle Raccoon River** - Dallas-Guthrie Co. line to Lake Panaroma Dam
- Lake Panaroma**

Hamilton

HQR

- Boone River** - Webster-Hamilton Co. line to confluence with Brewers Creek
- South Skunk River** - Story-Hamilton Co. line to Drainage Ditch 71 (S11, T86N, R24W)

Hardin

HQR

- Iowa River** - Marshall-Hardin Co. line to E. corporate limits, Iowa Falls (S20, T89N, R20W)

Harrison

HQR

- DeSoto Bend**

Henry

HQR

- Skunk River** - Henry Co. Rd. (S3, T71N, R7W) to Henry-Jefferson Co. line

Humboldt

HQR

- E. Fork Des Moines River** - Mouth to Humboldt - Kossuth Co. line

Howard

HQR

- Chialk Creek** - Mouth to N. line of S36, T99N, R11W, Howard Co.
- Upper Iowa River** - Winnishek-Howard Co. line to NE1/4, S12, T100N, R13W (Howard Co.)
- Staff Creek** - Mouth to W. line S 27, T100N, R14W
- Beaver Creek** - Mouth to S. line S29, T100N, R13W, Howard Co.

HQ

- Turkey River** - Howard-Winneshiek Co. line to Vernon Springs (S34, T99N, R11W)
- Bohemian Creek** - Winneshiek-Howard Co. line to W. line S2, T97N, R11W, Howard Co.
- Nichols Creek** (aka Bigalk Cr.) - Winneshiek-Howard Co. line to W. line S23, T100N, R11W, Howard Co.

Jackson

HQR

- N Fork Maquoketa River** - Mouth to Jackson-Jones Co. line
- Cedar Creek** - Mouth to E. line of S29, T85N, R3E, Jackson Co.
- Unnamed Creek** - Mouth (S7, T86N, R2E) to W. line S11, T86N, R 1E, Jackson Co.
- Ozark Spring Run** - Mouth to spring source in center of S32, T86N, R1E, Jackson Co.
- Pleasant Creek** - W. line S11, T85N, R4E, to W. line S15, T85N, R4E, Jackson Co.
- Maquoketa River** - Deep Creek to Jones-Jackson Co. line

HQ

- Brush Creek** - N. line S23, T85N, R3E to N line S1, T85N, R3E, Jackson Co.
- Mill Creek (aka Big Mill Creek)** - Confluence with Little Mill Cr. to confluence with unnamed Cr. (S1, T86N, R3E, Jackson Co.)
- Little Mill Creek** - Mouth to W. line of S29, T86N, R4E, Jackson Co.
- S. Fk. Big Mill Creek** - Mouth to W. line of S17, T86N, R4E, Jackson Co.
- Storybook Hollow** - Mouth to S. line S12, T86N, R3E, Jackson Co.
- Unnamed Creek** - Mouth (S1, T86N, R3W) to W. line of S1, T86N, R3E, Jackson Co.
- Dalton Lake**

Jefferson

HQR

- Skunk River** - Entire length in Jefferson Co.

Jones

HQR

- Maquoketa River** - Jones-Jackson Co. line to Delaware-Jones Co. line
- N Fork Maquoketa River** - Jackson-Jones Co. line to confluence with White Water Creek
- Waspinicon River** - Cedar-Jones Co. line to Jones-Linn Co. line

Johnson

HQR

- Iowa River** - Louisa-Johnson Co. line to northernmost point of Johnson-Washington Co. line
- Cedar River** - Cedar-Johnson Co. line to Johnson-Linn Co. line

Keokuk

HQR

- Skunk River** - Keokuk-Washington Co. line to confluence N. & S. Skunk R.
- South Skunk River** - Mouth to Hwy 21 (S34, T75N, R13W, Keokuk Co.)
- North Skunk River** - Mouth to Keokuk-Mahaska Co. line

Kossuth

HQR

- E. Fork Des Moines River** - Kossuth-Humboldt Co. line to Co. Rd. B63 (S23, T94N, R29W, Kossuth Co.)
- Union Slough**

Linn

HQR

- Cedar River** - Johnson-Linn Co. line to Hwy 30
- Waspinicon River** - Entire length in county

Louisa

HQR

- Iowa River** - Mouth to S. corporate limits Wapello (S35, T74N, R3W, Louisa Co.)
- Iowa River** - Confluence with Cedar River to Louisa-Johnson Co. line
- Cedar River** - Mouth to Louisa-Mucatine Co. line

Lucas

HQR

- Chariton River** - Appanoose-Lucas Co. line to Highway 14

Mahaska

HQR

- North Skunk River** - Entire length in county

Marshall

HQR

- Iowa River** - Hwy 149 to confluence with Asher Creek (excluding waters in Meskwaki Settlement of the Sac Fox Tribe of the Mississippi)

Mitchell

HQR

- Burr Oak Creek** - Co. Rd. T46 to N. line of S5, T98N, R16W, Mitchell Co.
- Beaver Creek** - Mouth to Mitchell Co. Rd A31 (N line S19, T99N, R15W, Mitchell Co.)
- Rock Creek** - Confluence with Goose Cr. to Hwy. 9 (N line S26, T98N, R18W, Mitchell Co.)

HQ

- Waspinicon River** - Town of McIntire to N line S20, T100N, R15W, Mitchell Co.
- Spring Creek** - Mouth to N. line of S8, T97N, R16W, Mitchell Co.
- Turtle Creek** - Mouth to E. line of S7, T99N, R17W, Mitchell Co.

Muscatine

Cedar River - Entire length in county

Palo Alto

Virgin Lake

Scott

Wapsinipinicon River - entire length in Scott Co.

Story

South Skunk River - Ames Waterworks Dam to Story-Hamilton Co. line

Warren

North River - Co. Rd. R63 (S16, T77N, R24W) to Badger Cr. (S33, T77N, R25W, Warren Co.)

Washington

Skunk River - Entire length in Washinton Co.
Iowa River - Entire length in Washinton Co.
English River - Mouth to confluence (N. line S2, T77N, R6W, Washington Co.) with Ramsey Cr.

Webster

Des Moines River - Boone-Webster Co. line to W. line S15, T88N, R28W, Webster Co.
Boone River - Mouth to Webster-Hamilton Co. line

Winneshiek

Yellow River - Allamakee-Winneshiek Co. line to N. Fork Yellow R. (S13, T96N, R7W, Winneshiek Co.)
Upper Iowa River - Entire length in Co.
Middle Bear Creek - Mouth to N. line S16, T100N, R7W, Winneshiek Co.
Paint Creek (aka Pine Cr.) - Mouth (Allamakee Co.) to unnamed creek (SE¼, S11, T99N, R7W, Winneshiek Co.)
Unnamed Creek - Mouth (SE¼, Sec II, T99N, R7W) to N. line S12, T99N, R7W, Winneshiek Co.
Pine Creek - Mouth to N. line S21, T99N, R7W, Winneshiek Co.
North Canoe Creek - Mouth to N. line S2, T99N, R8W, Winneshiek Co.
Trout Creek (aka Trout River) - Mouth to confluence with Smith Cr.
Trout Creek (aka Trout Run) - Mouth to confluence with unnamed stream (S27, T98N, R8W, Winneshiek Co.)

HQR

Ten Mile Creek - Mouth to confluence with Walnut Cr. (S18, T98N, R9W, Winneshiek Co.)
Unnamed Stream (aka Casey Spring) - Mouth to W. line S26, T99N, R9W, Winneshiek Co.
Dry Run Creek - Mouth to W. line S36, T98N, R9W, Winneshiek Co.
Martha Creek - Mouth to W. line S13, T99N, R10W, Winneshiek Co.
E Pine Creek - Mouth to Iowa-Minnesota State line
Pine Creek - Mouth to Iowa-Minnesota State line
Silver Creek - Mouth to N. line S26, T100N, R9W, Winneshiek Co.

HQ

Bohemian Creek - Mouth to Howard-Winneshiek Co. line
Bear Creek - N. Bear Creek to spring source S29, T100N, R7W, Winneshiek Co.
North Bear Creek - Mouth to Iowa-Minnesota State line
Canoe Creek (aka W. Canoe Cr.) - Winneshiek Co. Rd W38 to W. line of S8, T99N, R8W, Winneshiek Co.
Coon Creek - Mouth to road crossing S13, T98N, R7W, Winneshiek Co.
Smith Creek (aka Trout River) - Mouth to S. line S33, T98N, R7W, Winneshiek Co.
Twin Springs Creek - Mouth to springs in S20, T98N, R8W, Winneshiek Co.
Unnamed Stream (aka Trout Run) - mouth to S. line S27, T98N, R8W, Winneshiek Co.
Nichols Creek (aka Bigalk Cr.) - Mouth to Winneshiek-Howard Co. line
Unnamed Creek (aka Cold Water Cr.) - Mouth to N. line S31, T100N, R9W, Winneshiek Co.
Turkey River - Fayette-Winneshiek County line to Winneshiek-Howard Co. line

Worth

Silver Lake
Silver Lake Marsh

Wright

Elm Lake

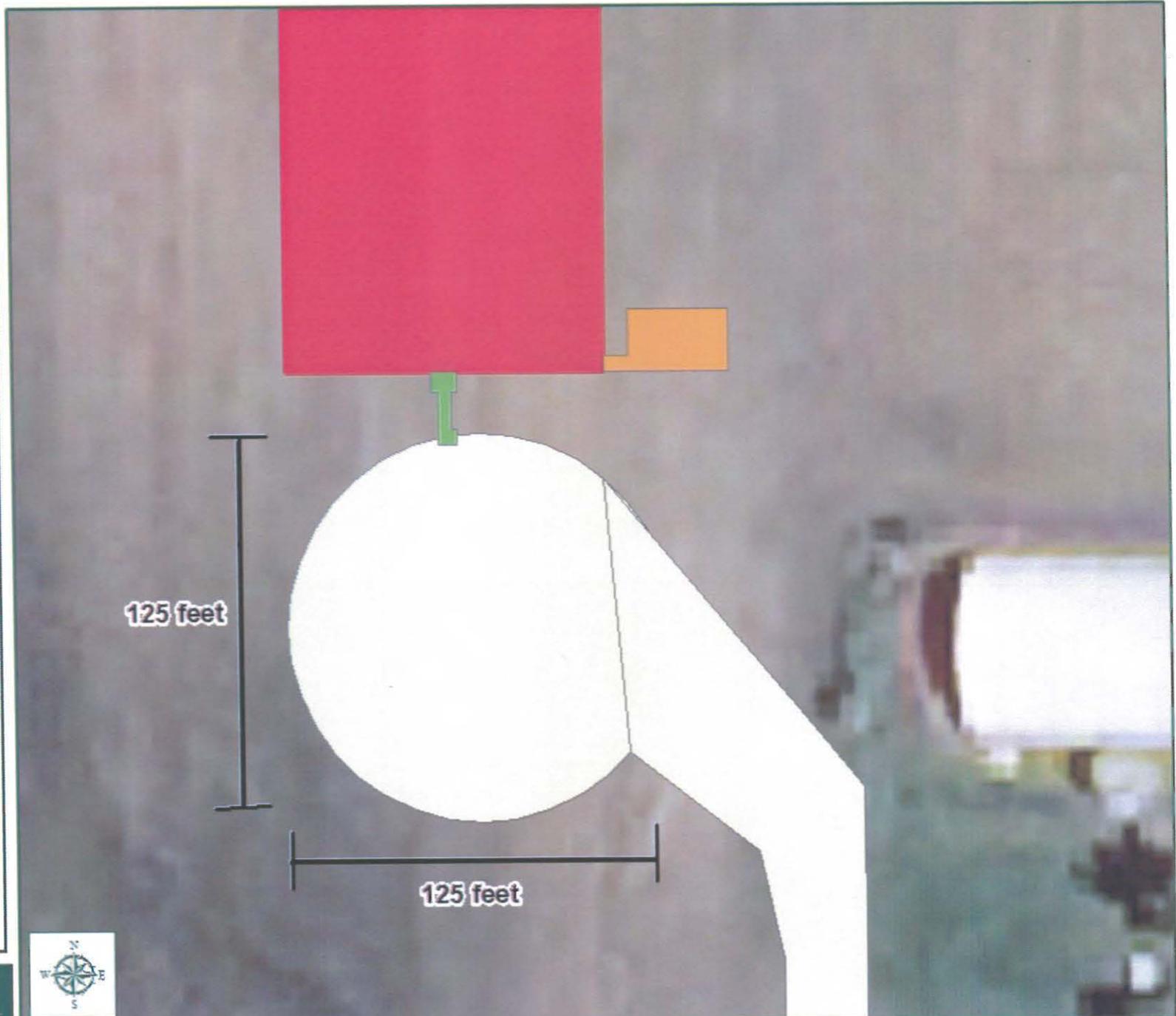
This list was developed to assist manure applicators and applicants for a confinement feeding operation construction permit. It was current in March 2003.

If you need more information, please contact the closest DNR field office.

Legend

- Story Co. Roads
- Proposed Facility**
- Load Chute
- Office
- Swine Confinement Barn
- Driveway
- major_water_sources

The site will have a driveway large enough so that trucks will not have to back onto the road. The driveway will have an approximate radius of 125 feet. The driveway will be adequately surfaced for traffic in inclement weather.



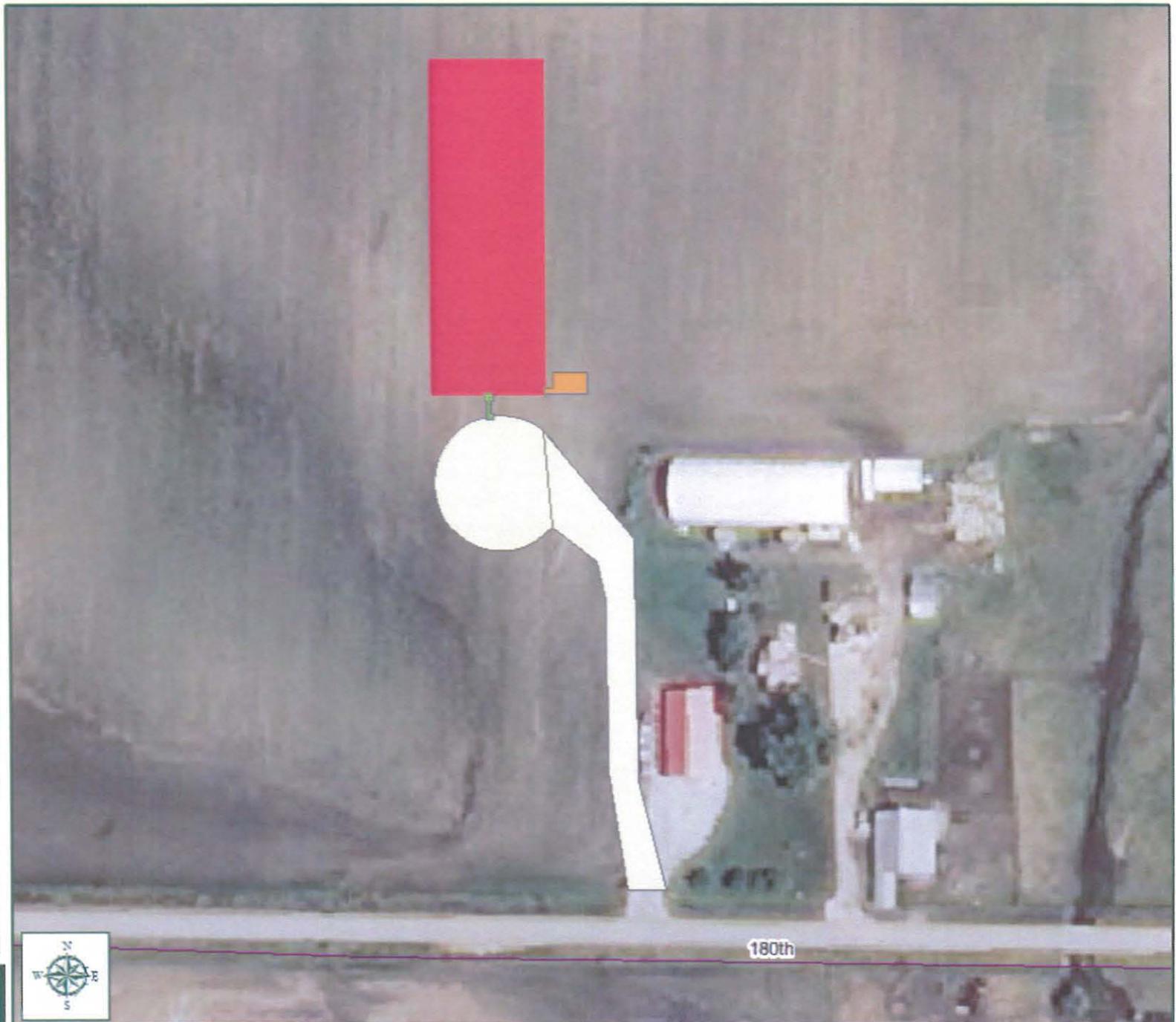
Legend

— Story Co. Roads

Proposed Facility

-  Load Chute
-  Offices
-  Swine Confinement Barn
-  Driveway
-  major_water_sources

The site will have a driveway large enough so that trucks will not have to back onto the road. The driveway will have an approximate radius of 125 feet. The driveway will be adequately surfaced for traffic in inclement weather.



Legend

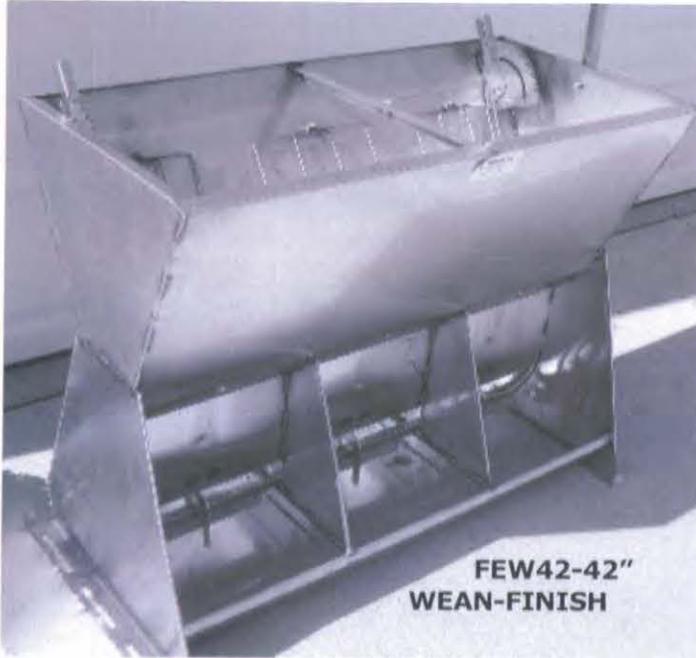
- Story Co. Roads
- Proposed Facility**
- Load Chute
- Offices
- Swine Confinement Barn
- major_water_sources

The permit applicant, Lucas and Krista Tjelmeland are the closest resident to the proposed structure. Lucas and Krista Tjelmeland holds ownership of this confinement feeding operation and have their personal residence at the same location.



A.J. O'Mara **FEED-EASE** **WET / DRY FEEDERS**

**THE *DEPENDABLE* WET/DRY FEEDER... HOG ACTIVATED
TREMENDOUS FEED INTAKE, BETTER GAINS**



- Proven performance. "Best in Class"
- Precise **"NEW"** lever adjustment.
- Weaned pigs use feeder dry.
- Pig activated paddles drop feed. Plugging is eliminated.
- Hand crafted heavy stainless steel. Standard FEED EASE all-304 stainless steel OR combination 304/430ss FEED EASE Value Feeder.
- Time saver. Not necessary to tip the feeder to clean it out.

With the **FEED-EASE WET/DRY FEEDER** you will see great feed intake and rate of gain..... with fewer days to market. **Less water waste... ●Less manure to manage**

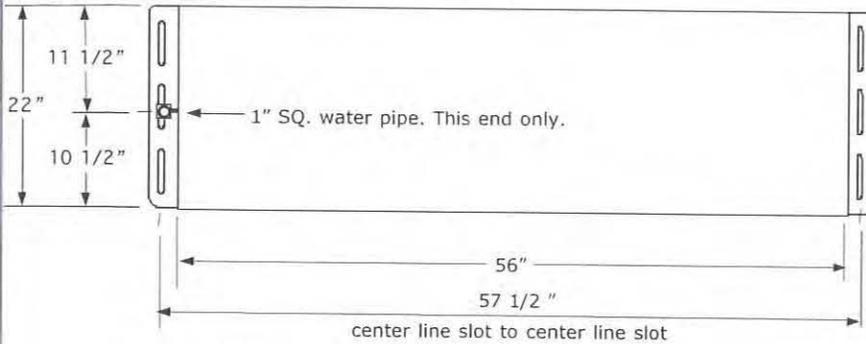
Pig mixes water and feed in the trough. Pigs consume all of the feed and water.
Less food wasted... ● Excellent feed efficiency

FEED-EASE WET/DRY FEEDERS are the best-unmatched anywhere in the world for efficiency and durability!

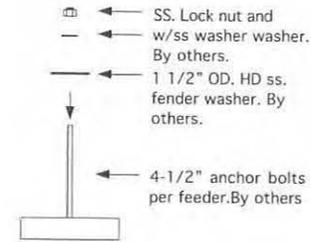
FEEDER TYPE	MODEL	LENGTH inches	Spaces per side	Pigs per feeder	Pig Size - weight range	
					pounds	kilograms
Nursery	FEN36	36	6-6" wide	48	12-60	6-27
Grow to Finish	FEF28	28	2-14"	40	30 - 280	14-128
Grow to Finish	FEF42	42	3-14"	60	30 - 280	14-128
Wean-to-Finish	FEW28	28	2-14"	40	10-280	6-128
Wean-to-Finish	FEW42	42	3-14"	60	10-280	6-128
Wean-to-Finish	FEW48	48	3-16"	60	10-280	6-128
Wean-to-Finish	FEW56	56	4-14"	80	10-280	6-128
Wean-to-Finish	FEW60	60	4-16"	80	10-280	6-128
Wean-to-Finish	FEW70	70	5-14"	100	10-280	6-128
Wean-to-Finish	FEW84	84	6-14"	120	10-280	6-128
Wean-to-Finish	FEW96	96	6-16"	120	10-280	6-128
Wean-to-Finish	FEW98	98	7-14"	140	10-280	6-128
Wean-to-Finish	FEW112	112	8-14"	160	10-280	6-128

FEED EASE FEEDER
A.J. O'MARA GROUP, LLC
 36 Deer Run Circle
 McCook Lake, SD. 57049
 605-242-4742 ajomara@longlines.com
www.ajomara.com

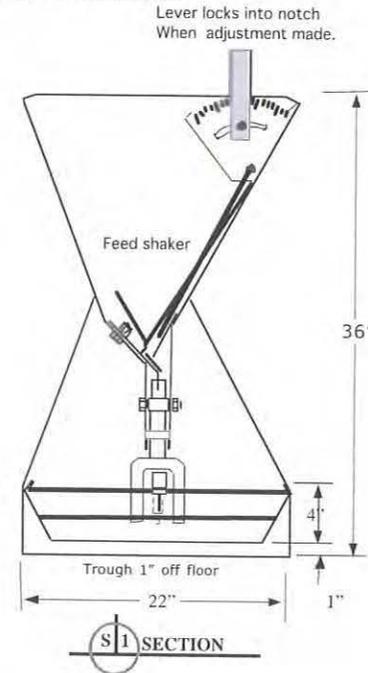
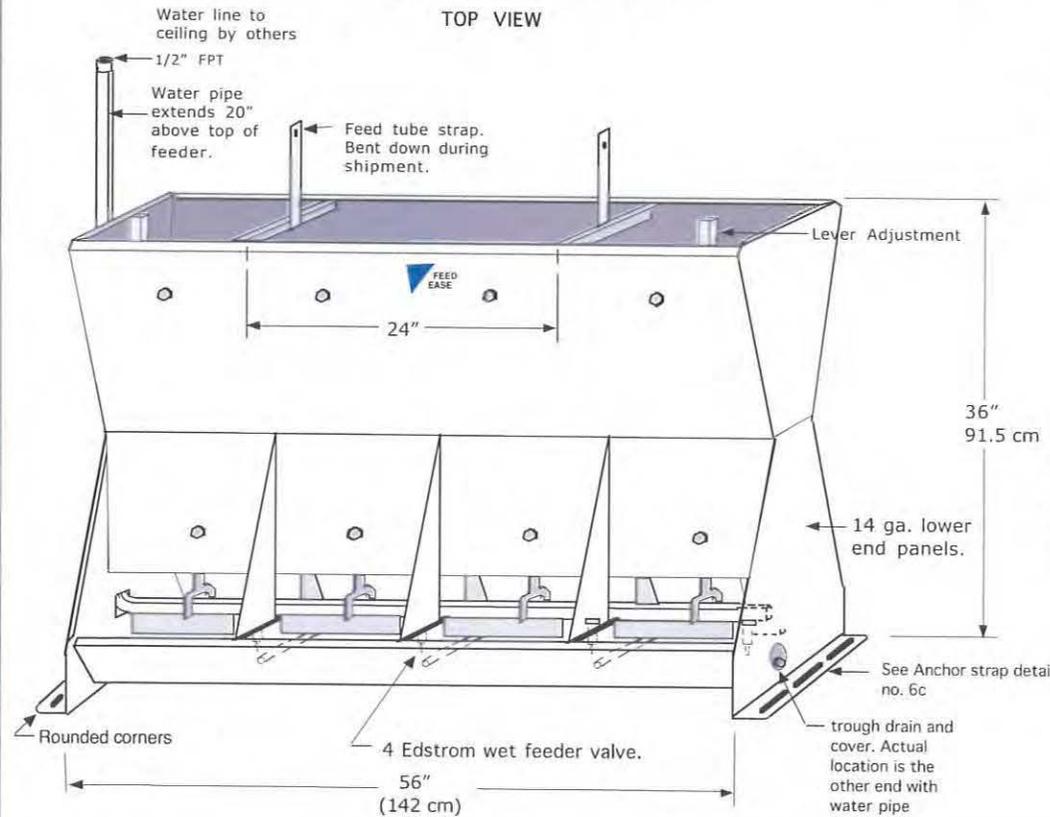
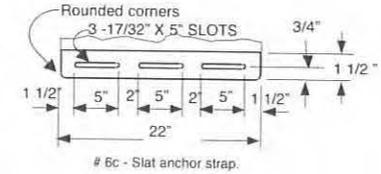
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TOP VIEW



Suggested Feeder anchors



Capacity 40 pigs per side/ 80 head total

A.J. O'Mara Grp. LLC
36 Deer Run Circle
McCook Lake, SD 57049

FEW56 - 56" Feed Ease
Lever Adjustment

Wean to Finish Wet Feeder

DATE: 9/10/10

DRAWING NO. 182719

All 16 ga. 304 ss construction unless noted otherwise.

Luke Tjelmeland Finisher Site SAFETY

Emergency Preparedness- Hospital and emergency medical care contact information and the site's 9-1-1 address will be displayed in the Luke Tjelmeland Finisher Site site office. All injuries, regardless of how minor, will be reported to the Luke Tjelmeland Finisher Site business office. Employees need to be aware of the site's:

- Method for communicating an emergency (i.e. verbal, by radio, by cell phone)
- Severe weather shelter
- Evacuation point, and
- Procedure for accounting for all employees after an emergency evacuation.

Fire extinguishers are located through-out the building. In the event of a fire, report the fire immediately. Employees may attempt to extinguish the fire only if they are comfortable doing so, have the appropriate training, and the fire is manageable – if the fire is too big, Get Out!

Personal Protective Equipment (PPE) - All necessary PPE will be on site and available for workers.

Equipment and Machinery- Proper machine guarding will always be in place, and equipment maintenance guidelines will be followed in accordance with the manufacturer's recommendation.

Minors will always be under the supervision of an authorized adult

Luke Tjelmeland Finisher Site Recommendations for Accident Prevention

To all Luke Tjelmeland Finisher Site site workers: Make accident prevention a management as well as a personal goal. Develop an awareness of potential hazards on the farm and make every possible effort to eliminate them. Make a conscious effort to prepare for emergency situations including fires, vehicle accidents, electrical shocks from equipment and wires, and adverse health effects from chemical exposures. Be aware that the entire facility is built on top of a manure storage area and plan for the potential danger of the manure and gases.

- Ensure exit routes and exits are free of obstructions
- Reduce your risk of injury and illness with preventive measures. Read and follow instructions in equipment operator's manuals. Follow instructions on product labels for safe use, handling, and storage.
- Always use proper lifting techniques. Never attempt to lift or push an object that is too heavy; use an alternate means of lifting or seek assistance
- Observe and follow all posted warnings and rules
- Conduct routine inspections of the equipment to determine problems and potential failures that may contribute to or cause an accident.
- Conduct meetings with fellow workers and family members to assess safety hazards, discuss potential accident situations, and outline emergency procedures.
- Be especially alert to hazards that may affect children.

- Minimize hazards by careful selection of products we buy, by providing good maintenance of tools, buildings, and equipment, and establishing good housekeeping procedures.
- Make sure guards for farm equipment are put back on after maintenance to protect workers from moving machinery parts.
- Review material safety data sheets (MSDSs) and labels that come with chemical products.
- Chemicals that may be poisonous or not intended for consumption should be kept in well-labeled containers

Communicate information concerning hazards to all workers. Prevent pesticide poisonings and dermatitis caused by chemicals by ensuring that protective measures recommended in the MSDSs or labels are taken.

- Take the necessary precautions to prevent entrapment and suffocation caused by unstable surfaces of feed storage bins.
- Be aware that methane gas, carbon dioxide, ammonia and hydrogen sulfide can be present in unventilated grain bins and manure pits in quantities sufficient to cause asphyxiation or explosion.
- Lockout/tagout (de-energize) equipment before performing repairs or maintenance operations.
- Safety precautions should be taken for hot work activities (i.e. move hot work activity to a designated shop or outside of the building, adequate ventilation, use of welding blankets).
- Properly store sharps/needles to prevent inadvertent injuries or punctures.

Benefits

A safer, healthy workplace improves production and morale and prevents human suffering.

Summary

Luke Tjelmeland Finisher Site wants to raise the level of awareness concerning the need for improved site safety. All site workers should be active in the prevention of potentially dangerous equipment and situations. Please let Luke Tjelmeland Finisher Site know of any potentially dangerous equipment or situations and be assertive to follow through to make sure that remedies are made.

<p>Site Information</p> <p>Farm Name: Luke Tjelmeland Finisher</p> <p>Address: 60649 180th St. City, ST zip: Nevada, IA 50201 Latitude: 42.09435 Longitude: -93.48954 Facility Phone: 515-231-4057</p> <p>Site Premise ID: _____</p> <p>Animal Care Hotline: 1-877-574-4227 This toll-free number is a 24 hr reporting system for animal care concerns</p>	<p>Directions</p> <p>From Nevada, drive north on county hwy S14 4.5 miles, turn west on 180th St. Continue driving West for 1.3 miles Facility is located on the north side of the road.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
--	---

<u>Ambulance</u>	<u>Fire</u>	<u>Police</u>
Name: <u>Emergency Service, -</u> Phone: <u>911</u>	Name: <u>Emergency Service, -</u> Phone: <u>911</u>	Name: <u>Emergency Service, -</u> Phone: <u>911</u>

Contact Information

<p>Site Owner: <u>Tjelmeland, Lucas and Krista</u></p> <p>Home Phone: _____</p> <p>Mobile Phone: <u>(515) 231 - 4057</u></p> <p>Address: <u>60649 180th St</u> <u>Nevada, IA, 50201</u></p>	<p>Site Manager: <u>Tjelmeland, Luke</u></p> <p>Home Phone: _____</p> <p>Mobile Phone: <u>(515) 231 - 4057</u></p> <p>Address: <u>60649 180th St.</u> <u>Nevada, IA, 50201</u></p>
<p>Contract Holder: <u>The Maschhoffs, LLC</u></p> <p>Home Phone: _____</p> <p>Mobile Phone: <u>(618) 594 - 2125</u></p> <p>Address: <u>7475 State Route 127</u> <u>Carlyle, IL, 62231</u></p>	<p>Field Advisor: <u>Volante, Ali</u></p> <p>Home Phone: _____</p> <p>Mobile Phone: <u>(515) 231 - 2624</u></p> <p>Address: _____</p> <p>_____</p> <p>_____</p>

Alarm Contact Order

1	Name: _____	Phone #: _____
2	Name: _____	Phone #: _____
3	Name: _____	Phone #: _____
4	Name: _____	Phone #: _____
5	Name: _____	Phone #: _____



Emergency Contact List

uke Tjelmeland Finisher

Farm Contacts

Phone Numbers

Name	Category	Phone Numbers		
		Mobile	Business	Home
Tjelmeland, Lucas and Krista	Site Owner	(515) 231 - 4057		
Tjelmeland, Luke	Site Operator	(515) 231 - 4057		
The Maschhoffs, LLC	Contract Holder	(618) 594 - 2125	(618) 594 - 2125	
Volante, Ali	Field Rep	(515) 231 - 2624		
Johnson, Clayton	Veterinarian	(618) 830 - 4940	(618) 594 - 2125	
Buckeye Feed Mill	Feed Mill		(515) 855 - 4111	
Patterson, Tim	Custom Applicator	(515) 509 - 8758		
Quality Ag Builders, Inc.	Construction		(515) 859 - 3388	
Tjelmeland, Luke	Electrician	(515) 231 - 4057		
Tjelmeland, Luke	Plumbing	(515) 231 - 4057		
Tjelmeland, Luke	Maintenance	(515) 231 - 4057		
Wasson, JR	Transport	(618) 335 - 1232	(618) 594 - 2125	
Wengert, Seth	Environmental	(712) 304 - 4792		
Key Coop,	Gas Company		(515) 382 - 5461	
Well	Water Company			
Midland Power,	Electric Company		(800) 833 - 8876	
Emergency Service, -	Fire		911	
Emergency Service, -	Police		911	
Emergency Service, -	Ambulance		911	
Darling International - Des	Rendering		(515) 265 - 0381	
Tjelmeland, Luke	Site Manager	(515) 231 - 4057		
Tjelmeland, Luke	Manager	(515) 231 - 4057		
Volante, Ali	Service Manager	(515) 231 - 2624		
Wengert, Seth	NMP Consultant	(712) 304 - 4792		

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MEDICAL EMERGENCY

1. **STOP** all other activities to address the emergency.
2. **CHECK** scene and the nature and extent of the medical emergency.
Insure that the scene and/or area is safe to enter. Determine how much help is needed.
3. **CALL** 9-1-1 or the local emergency number for an ambulance immediately if the victim needs emergency medical treatment (loss of consciousness, severe bleeding, airway/breathing difficulty, eye injury, broken bones, spinal injury, chest pains, etc).
 - a. **For life-threatening injuries or illnesses** (chest pains, eye injury, severe bleeding, head/neck wound, airway/ breathing difficulty, loss of consciousness, broken bones, etc.) **someone should call 9-1-1 immediately**. If unsure whether the situation is a life-threatening emergency, 911 should be called.
 - ❖ When reporting the emergency provide the following information:
 - Type of Emergency
 - Address of Facility
 - Location of the Victim
 - Condition of the Victim
 - Any dangerous conditions
 - Name of Caller
 - ❖ Do not move the individual unless authorized by some medical authority, or if the accident scene is becoming unsafe for the responders and accident victim.
 - b. If the injury/illness is not life threatening, the employee will notify the supervisor immediately. If unsure whether the situation is a life-threatening emergency, 9-1-1 should be called.
 - ❖ Employee will seek immediate medical attention as deemed appropriate
 - ❖ If the individual does not request an ambulance, then assist the individual, in the form of transportation, to the proper medical treatment facility.
4. **CARE** for the victim until help arrives.

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FIRE PROCEDURES

1. **STOP** all other activities to address the emergency.
2. **CALL** the fire protection district immediately.
3. **EVACUATE** the building upon seeing smoke/fire or hearing the fire alarm (other types of evacuation are covered elsewhere in this document):
 - a. Verbally warn employees in the immediate area, (such as, yelling "FIRE!")
 - b. All employees are required to evacuate the building, unless otherwise assigned or authorized to remain by the emergency agency in charge.
 - c. **CLOSE THE DOORS AS YOU LEAVE.**
 - d. Use Stairways. When out, move away from building to a prearranged assembly area for a head count. You should be as far out from the building as it is high. Leave walks and drives open for fire and emergency responders.
 - e. If necessary for a safe, orderly evacuation, activate fire extinguishers or firehose. At the discretion of the individual, use extinguisher if trained and assigned to do so.
4. **ASSESS** the nature and extent of the fire. If there is no immediate danger and you can safely do so:
 1. **CLOSE** main valve at propane tank.
 2. **DO NOT** turn off electrical mains unless directed by fire personnel.
5. **NOTIFY** Maschhoff personnel of the fire as soon as possible.
6. **POWER** disruptions can affect the water, feed, ventilation, emergency power, and manure transfer systems. Make sure all systems are operational for any surviving animals, especially the ventilation system.
7. **EMERGENCY ANIMAL RELOCATION:** Establish emergency transportation contacts in advance and make transport arrangements for surviving animals.

NOTES:

- ❖ Schedule a visit to the farm with your local fire chief to ensure the fire and protection department is aware of the location of the primary systems on the farm.
- ❖ Make sure breaker panels are labeled with the appropriate systems that they control.
- ❖ Make arrangements for emergency power (portable generators). Know where your main power systems are located, including underground electrical lines. (Refer to the **POWER OUTAGE** guidelines.)

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- ❖ Make emergency arrangements for temporary gas supplies in case the main pipe gets destroyed.
- ❖ Make arrangements for other construction supplies to make emergency repairs.
- ❖ Document and have diagrams of all underground wiring, critical control points of the electrical system, and methods for shutting off gas mains.

POWER FAILURE

1. **STOP** all other activities to address the emergency.
2. **MAKE SURE** generator starts and is working properly.
3. If generator fails, **VACATE** personnel and **DO NOT RE-ENTER** the confinement areas until ventilation is re-established due to possible asphyxiation hazard.
4. **MONITOR** generator and fuel level periodically to ensure proper operation.
5. **DROP** emergency curtains **ONLY** in the event that electrical power cannot be restored within 15 minutes (varies with size of animals and ambient temperature).
6. **NOTIFY** Maschhoff personnel of the outage as soon as possible.

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SEVERE WEATHER

1. **SEEK SHELTER** in an area of the building protected by concrete, that has no glass windows(exterior or interior) such as a hallway or bathroom area. Alternately for a tornado, seek shelter in a nearby ditch or culvert. Exit the shelter area **ONLY** after the danger has fully passed.
2. **ASSESS** damage and implement necessary procedures as described above.
 - a. Thunderstorm Warning, it is not necessary to take any additional steps other than to ensure that you are prepared if the conditions deteriorate.
 - b. Tornado Warning, take shelter in an area of the building protected by concrete, such as a hallway or bathroom area.
 - ❖ If you are unable to seek shelter in one of the designated areas, move away from windows. Stay away from auditoriums, areas having a wide, free span roof, or the upper levels of a building. Take cover under heavy furniture.
 - ❖ If you are outdoors and unable to access an indoor shelter, lie flat in the nearest depression, such as a ditch or ravine. If there is time, move away from the path of the Tornado at a right angle.
 - c. Blizzard
 - 1) If indoors:
 - a. Stay calm and await instructions from the designated official.
 - b. Stay indoors!
 - c. If there is no heat:
 - Close off unneeded rooms or areas.
 - Stuff towels or rags in cracks under doors.
 - Cover windows at night.
 - d. Eat and drink. Food provides the body with energy and heat. Fluids prevent dehydration.
 - e. Wear layers of loose-fitting, lightweight, warm clothing, if available.
 - 2) If outdoors:
 - a. Find a dry shelter. Cover all exposed parts of the body.
 - b. If stranded in a vehicle:
 - Stay in the car or truck.
 - Run motor about ten minutes each hour. Open the window a little for fresh air. Make sure exhaust pipe is not blocked.
 - Make yourself visible to rescuers.
 - Exercise to keep blood circulating and to keep warm.

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- d. Earthquakes usually occur without any type of warning. Due to the suddenness, all personnel should attempt to get under a table or desk, or any place that the employee feels is safe. After an earthquake has stopped, initiate the following procedure:
- 1) Stay calm and await instructions from the designated official.
 - 2) Keep away from overturned fixtures, windows, filing cabinets, and electrical power.
 - 3) Check for injuries and provide assistance as needed.
 - 4) Maintenance department should check for fires and shut off utilities to control gas and water leaks.
 - 5) If major structural damage has occurred, the Executive team, or designated representative(s), should order a complete evacuation. The building should be inspected by Business Development, or designated representative(s), for damage prior to reentry.
3. If you come into contact with an employee or visitor you should direct them to take shelter in the building. If you come into contact with an occupant who is disabled or having difficulty taking shelter you should assist the individual in getting into or taking shelter.
 4. After the danger has passed, you should report to the designated shelter/assembly point to allow the Emergency Coordinator to take a survey of all present to determine if anyone is potentially missing.

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MANURE DISCHARGE

1. **STOP** all non-emergency activities to address the situation.
2. **CHECK** the scene to make sure it is safe.
Assess the extent of the emergency.
Determine how much help is needed.
3. **CALL** for help as needed.
 - a. If serious human injuries have occurred, immediately call 9-1-1 or the local emergency number for an ambulance before caring for the victim.
 - b. If manure has been spilled on the road, contact police for traffic control.
 - c. **Call The Maschhoffs Environmental Services personnel at 618-830-8044 (Mike Kampwerth) or 618-444-5576 (Art Braundmeier).**
4. **CARE** for any injured people.
5. **CONTAIN** the spill and prevent downstream movement to waters of the state. Depending on the situation, this may or may not be possible. Suggested responses to several problems are listed below:
 - a. *Lagoon or slurry basin overflow possible solutions:*
 - add soil to berm to increase elevation of dam
 - pump wastes to fields at an acceptable rate
 - stop all additional flow to the structure (waters, flushing system, etc.)
 - call a pumping contractor
 - make sure no surface water is entering storage structure

** Note: These activities should be started when your lagoon level has exceeded the temporary storage level.*
 - b. *Runoff from waste application field actions include:*
 - immediately stop waste application
 - create a temporary diversion or berm to contain the waste in the field
 - incorporate waste to reduce further runoff

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- evaluate and eliminate the reason(s) that caused the runoff
 - evaluate the application rates for the fields where runoff occurred
- c. *Leakage from the waste distribution system:*
- pipes and sprinklers – actions include:
 - stop recycle (flushing system) pump
 - stop irrigation pump
 - close valves to eliminate further discharge
 - separate pipes to create an air gap and stop flow
 - repair all leaks prior to restarting pumps
 - flush system, houses, solids separators – actions include:
 - stop recycle (flushing system) pump
 - stop irrigation pump
 - make sure no siphon effect has been created
 - separate pipes to create an air gap and stop flow
 - repair all leaks prior to restarting pumps
 - Park tractor on hose end or use hose jacks to stop flow.
- d. *Leakage from base or sidewall of lagoon or earthen storage structure.* Often these are seepage rather than flowing leaks-possible action:
- dig a small well or ditch to catch all seepage, put in a submersible pump, and pump back into lagoon
 - if holes are caused by burrowing animals, trap or remove animals and fill holes and compact with a clay type soil
 - other holes may be likewise temporarily plugged with clay soil
6. **ASSESS** the extent of the spill and note any obvious damages.
- a. Did the waste reach any surface waters?
 - b. Approximately how much was released and for what duration?
 - c. Any damage noted, such as employee injury, fish kills, or property damage?
 - d. Did the spill leave the property?
 - e. Does the spill have the potential to reach surface waters?
 - f. Could a future rain event cause the spill to reach surface waters?

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- g. Are potable water wells in danger (either on or off the property)?
7. **REPORT** the spill.
 - a. Contact Environmental Services with spill details.
 - b. Environmental Services will be responsible for all verbal and written regulatory reporting requirements for that state.
 8. **IMPLEMENT** procedures as advised by the appropriate agency.
 9. **CLEAN** all livestock manure from the affected area.
 - a. Vacuum-pump the manure to an approved manure storage or land apply the manure according to the nutrient management plan.
 - b. Flush residual materials from the area with pressurized fresh water.
 - c. Capture and land apply rinse water.
 - d. Excavate and land apply manure-saturated soil.
 - e. Remove the temporary containment, and flush the affected area with large volumes of fresh water until clean.
 - c. **REPAIR** the equipment that caused the discharge before further use.
 - d. **RESTORE** the grade and vegetation of the affected area.
 - e. **DOCUMENT** all cleanup and repair activities with a written log and photographs.

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

WASTE FACILITY CLOSURE

(No.)

CODE 360

DEFINITION

The decommissioning of facilities, and/or the rehabilitation of contaminated soil, in an environmentally safe manner, where agricultural waste has been handled, treated, and/or stored and is no longer used for the intended purpose.

PURPOSE

- Protect the quality of surface water and groundwater resources.
- Mitigate air emissions.
- Eliminate a safety hazard for humans and livestock.
- Safeguard the public health.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to agricultural waste facilities or livestock production sites that are no longer needed as a part of a waste management system and are to be permanently closed or converted for another use. These facilities include liquid/dry waste storage facilities, confined animal housing, feedlots, livestock yards, or composting facilities. This practice applies to open lot operations that are closed and converted to confinement based operations (buildings).

This practice applies where impoundments that are to be converted to fresh water storage meet current NRCS standards.

Where structures that include agricultural waste storage, such as confined animal housing, are to be decommissioned, this practice will apply to

the removal of the waste and rehabilitation of soil within the facility.

This practice applies to remediation of soil contaminated by agricultural wastes that have been stored on-site.

It does not apply to sites contaminated by materials that require the issuance of a hazardous waste permit, such as fuel or pesticides.

CRITERIA

General Criteria Applicable to All Purposes

The closure shall comply with all Federal, State, and local laws, rules, and regulations including national pollutant discharge elimination system (NPDES) requirements.

Existing waste transfer components that convey to waste facilities or provide drainage from the facility area shall be removed and replaced with compacted earth material or otherwise rendered unable to convey waste.

Remove manure, agricultural waste, and contaminated soil to the maximum extent practicable. All manure and agricultural waste that could negatively impact water and/or air quality or pose a safety hazard shall be removed as deemed practicable. All liquid, slurry, sludge, and solid waste, and soil removed from the facility shall be utilized in accordance with Nutrient Management, (590) and/or Waste Utilization, (633).

Precautions (fencing and warning signs) shall be used where necessary to ensure that the facility is not used for purposes incompatible with the facility modification.

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [Field Office Technical Guide](#).

NRCS, IA

August 2011

Erosion and Pollution Control. All disturbed areas shall be re-vegetated or treated with other suitable measures used to control erosion and restore the aesthetic value of the site. Sites, not suitable for re-vegetation through normal cropping practices, shall be vegetated in accordance with Critical Area Planting, (342).

Liquid and Slurry Waste Removal. Liquid and slurry wastes shall be agitated and pumped to the maximum extent practicable. Water shall be added as necessary to facilitate the agitation and pumping. The wastewater shall be utilized in accordance with Nutrient Management, (590) and/or Waste Utilization, (633).

Sludge Removal. During sludge removal operations, the integrity of the liner, if one is present, shall be maintained. Sludge shall be removed to the maximum extent practicable and utilized in accordance with Nutrient Management, (590) and/or Waste Utilization, (633).

Impoundment Closure. Three options are associated with the decommissioning of liquid waste impoundments. One of the following will be used.

1. Embankment Impoundments (those with a depth of water at the design water level of three feet or more above natural ground) may be breached so that they no longer impound water. The embankment material can then be graded into the impoundment area, and the area vegetated for another use. Or the embankment may remain if the impoundment area surface has been sufficiently cleaned so that runoff leaving the site would not be considered as contaminated by the wastes.
2. Excavated Impoundments may be backfilled so that these areas may be reclaimed for other uses.
3. Impoundments may be converted to fresh water storage.

Embankment Impoundments. Waste and sludge shall be removed from the impoundment before the embankment is breached. Concrete and flexible membrane liners shall be removed or rendered unable to impound water and properly disposed of. The slopes and bottom of

the breach shall be stable for the soil material involved, however the side slopes shall be no steeper than three horizontal to one vertical (3:1).

Excavated Impoundments. Concrete and flexible membrane liners shall be removed or rendered unable to impound water and properly disposed of. The backfill height shall exceed the height to the design finished grade by a minimum of 5 percent to allow for settlement. The top one foot of the backfill shall be constructed of the most impervious soil material readily available and mounded to shed rainfall runoff. Incorporate available topsoil where feasible to aid establishment of vegetation.

Conversion to Fresh Water Storage. The converted impoundment shall meet the requirements as set forth in the appropriate NRCS practice standard for the intended purpose. Where the original impoundment was not constructed to meet NRCS standards, the investigation for structural integrity shall be in accordance with National Engineering Manual (NEM) 501.23. When it is not practical to remove the sludge from a waste impoundment that is being converted to fresh water storage, the impoundment shall not be used for fish production, swimming, or livestock watering until the water quality is adequate for these purposes.

Fabricated Liquid Waste Facilities. If fabricated structures are to be demolished, disassembled or otherwise altered, it shall be done to such an extent that no water can be impounded. Disassembled materials such as pieces of metal shall be temporarily stored in such a manner that they do not pose a hazard to animals or humans until their final disposition.

Demolished materials shall be recycled, if possible, or be buried on-site or moved off-site to locations designated by state or local officials. If buried on-site, the materials are to be covered with soil to a settled depth of at least one foot. The backfill height shall exceed the height to the design finished grade by a minimum of 5 percent to allow for settlement, and the backfill be sufficiently mounded such that runoff will be diverted from the site after the backfill settles.

Dry Waste Storage or Treatment Facilities. The soil at dry waste facilities such as confined

animal housing, feedlots, livestock yards, or composting facilities with earthen floors must be evaluated.

The evaluation shall include laboratory analyses of the soil profile for any nutrients for which specific information is needed to determine the required depth of rehabilitation. Soil samples shall be taken at multiple locations and depths within the facility. One sample per depth interval per acre of the area being decommissioned with a minimum of 3 samples per depth interval shall be taken. Samples taken for each specified sampling depth interval may be consolidated into a single set (e.g., 3 samples taken at the 0 to 6 inch depth interval may be consolidated into a single sample for testing). The samples shall be collected, prepared and tested in accordance with Nutrient Management, (590).

The results of the soil analysis will be used to prepare a plan to recover the site for its intended use. The following site appropriate options shall be utilized, if needed:

- Adjust pH to restore desired crop growing conditions
- Plant salt tolerant plants to restore the site to desired crop conditions. The harvested vegetation quality should be monitored for N, P, and K removal.
- Select plants and erosion control practices to minimize phosphorus transport from the site and facilitate remediation of excessively high phosphorus levels.

Although in-situ processes are the preferred method for adjusting the soil conditions, removal of a portion of the soil may be necessary. The removed soil shall be land applied in accordance with Nutrient Management, (590) and/or Waste Utilization, (633). Excavated areas shall be graded and or backfilled to shed rainfall and prevent ponding of runoff. Where feasible, available topsoil should be used to aid the establishment of permanent vegetation, a cover crop, or other planting in accordance with Critical Area Planting (342).

CONSIDERATIONS

Conduct pre-closure soil and water (surface and subsurface) testing to establish base line data

surrounding the site at the time of closure. Establishing baseline data can be used in the future to address soil and water issues.

Where the surface is covered by a dense mat of floating vegetation, pumping effort to empty waste impoundments may be reduced by first applying herbicide to the vegetation and then burning the residue. Appropriate permits must be obtained before burning. When burning is conducted, take necessary actions to ensure that smoke is managed to minimize impacts to downwind populations.

Alternative methods of sludge removal may be required where the impoundments contain large amounts of bedding, oyster shells, soil, or other debris.

Minimize the impact of odors associated with land applying dry wastes and with agitation, emptying, and land applying wastewater and sludge from a waste impoundment by conducting these operations at a time when the humidity is low, when winds are calm, and when wind direction is away from populated areas. Adding chemical and biological additives to the waste prior to agitation and emptying can reduce odors. Odor impacts from land application can also be mitigated by using an incorporation application method.

Minimize agitation of the wastes to only the amount needed for pumping to reduce the potential for release of air emissions.

Soil to fill excavated areas should not come from important farmlands (prime, statewide, local, and/or unique).

Waste facility closure may improve utilization and aesthetics of the farmstead.

Breached embankments may detract from the overall aesthetics of the operation. Embankments should be removed and the site returned to its original grade.

Disassembled fabricated structures may be suitable for assembly at another site. Care should be taken during closure to minimize damage to the pieces of the facility, particularly coatings that prevent corrosion of metal pieces.

Measures should be taken during contractor's activities to minimize site erosion and pollution

of downstream water resources. This may include such items as silt fences, hay bale barriers, temporary vegetation, and mulching.

To minimize potential impacts to livestock, such as nitrate poisoning, initiate a testing and monitoring program of nutrient levels in crop products, particularly livestock feeds, harvested from sites of closed animal confinement facilities.

PLANS AND SPECIFICATIONS

Plans and specifications for the decommissioning of abandoned waste facilities and the rehabilitation of contaminated soil shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. At a minimum, include the following:

1. A plan view showing the location and extent of the practice.
2. Pertinent elevations of the closed facility and excavation limits.
3. Number, capacity, and quality of facility(ies) and estimate of soil volume to be moved.
4. Location of known utilities.
5. Requirements for salvage and disposal of structural materials.
6. Vegetative requirements.
7. Nutrient Management/Utilization Plan for animal wastes and soil.
8. Odor management or mitigation requirement.
9. Safety plan requirements. Note: Per Occupational Safety and Health Administration (OSHA) confined space entry protocol, personnel shall not enter confined

space of an enclosed waste facility without breathing apparatus or taking other appropriate measures.

The following Construction Specifications is intended as a guide to selecting the appropriate specifications for specific project. The list includes most but may not contain all of the specifications that are needed for a specific project:

IA-1	Site Preparation
IA-3	Structural Removal
IA-5	Pollution Control
IA-6	Seeding and Mulching for Protective Cover
IA-11	Removal of Water
IA-21	Excavation
IA-23	Earthfill
IA-24	Drainfill
IA-26	Salvaging and Spreading Topsoil
IA-27	Diversions
IA-92	Fences

OPERATION AND MAINTENANCE

The proper decommissioning and rehabilitation of a waste facility should require little or no operation and maintenance. However, if it is converted to another use, such as a fresh water facility, operation and maintenance shall be in accordance with the needs as set forth in the appropriate NRCS conservation practice standard for the intended purpose.

REFERENCES

Rice, J.M., D.F. Caldwell, and F.J. Humenik. Ed. 2006. Closure of Earthen Manure Structures in Animal Agriculture and the Environment: National Center for Manure and Animal Waste Management White Papers, pp. 263-282. ASABE. Pub. Number 913C0306.