



Redwood County

Animal Confinement Feedlot Conditional Use Permit Application

www.co.redwood.mn.us

Proposed Location of Feedlot Operation:

Permit #: 7-19 Date: 4/16/19

Address: 25682 290th St. City: Wabasso State: MN Zip: 56293
House # Street Name

Parcel #: 64-034-1030 Township: Sheridan Section: 34 Twp #: 112 N Range: 37 W

Information about the Operation:

General description of feedlot operation (including type and number of animal units, barns, and manure storage plan):

The existing facility consists of (1) 102' x 200' x 8' total confinement barn holding 2400 hd. of finishing pigs. The proposed facility will have (1) additional 102' x 200' x 8' total confinement barn holding 2400 hd. of finishing pigs with a belowground concrete manure pit. Total AU=1440

Legal Description of Proposed Feedlot Location:

NE 1/4 34-112N-37W Redwood County, MN

Site / Plan Information:

Zoning District: n/a

Soil Type 1: 421B Amiret loam

Soil Type 2: n/a

Water source for the site: Private well

Drainage System: Perimeter drain tile

Estimated water use:

Animal 1

Animal Type: Finishing swine
1.1 gallons/day/animal x 48000 number of animals on site x 360 number of days present
= 1,900,800 gallons/yr/site

Animal 2

Animal Type: _____
0 gallons/day/animal x 0 number of animals on site x 0 number of days present
= 0 gallons/yr/site

Animal 3

Animal Type: _____
0 gallons/day/animal x 0 number of animals on site x 0 number of days present
= 0 gallons/yr/site

Total Gallons: 1,900,800 gallons

Proposed Building(s) Information: (Please enter dimensions in feet)

(Existing) Building 1: Width: 102 Length: 200

Building 3: Width: _____ Length: _____

(proposed) Building 2: Width: 102 Length: 200

Building 4: Width: _____ Length: _____

Setback from road right-of-way: 875 feet

Setback from center line of road: 908 feet

Estimated date for beginning construction: 6/15/19 Estimated completion date: 10/1/19

General Contractor:

Name: Brey Tiling & Excavation, LLC City: Marshall State: MN

Applicant Information:

Note: If the applicant is not one natural person, requested information and signature(s) must be provided for each partner/associate/co-applicant and must include documentation of each co-applicant's legal identity and the legal relationship between them. Each partner/associate/co-applicant must sign or affirm the application before it will be accepted for consideration.

First Name: Tyler Last Name: Maertens

Business Name: -

Address: 25624 290th St. City: Wabasso State: MN Zip: 56293

Home Phone: - Cell Phone: 507-828-8728 Email: maertens67@hotmail.ci

List any additional applicants:

Land Owner: Complete only if different from Applicant

First Name: _____ Last Name: _____

Business Name: _____

Address: City: _____ State: MN Zip: _____

Home Phone: _____ Cell Phone: _____ Email: _____

If the applicant is not the owner of the land, please specify the type of agreement the applicant has with the owner of the land at the proposed site:

Feedlot Operator: Complete only if different from Applicant

If the operator is not a natural person(s), you must also provide documentation of the operator's legal identity.

First Name: _____ Last Name: _____

Business Name: _____

Address: City: _____ State: MN Zip: _____

Home Phone: _____ Cell Phone: _____ Email: _____

I affirm that the forgoing information is true and accurate. I understand that if any portion of this information is false or materially misleading, any conditional use permit issued in reliance upon this information is voidable at the election of Redwood County.

Applicant(s) Signature(s): Tyler Maertens Date: April 8, 2019

Landowner Signature: Tyler Maertens Date: April 8, 2019

- List of Required Documentation: (Application not complete until received)
- MPCA Application
 - Manure Spreading Agreements
 - Pit Design
 - Manure Management Plan

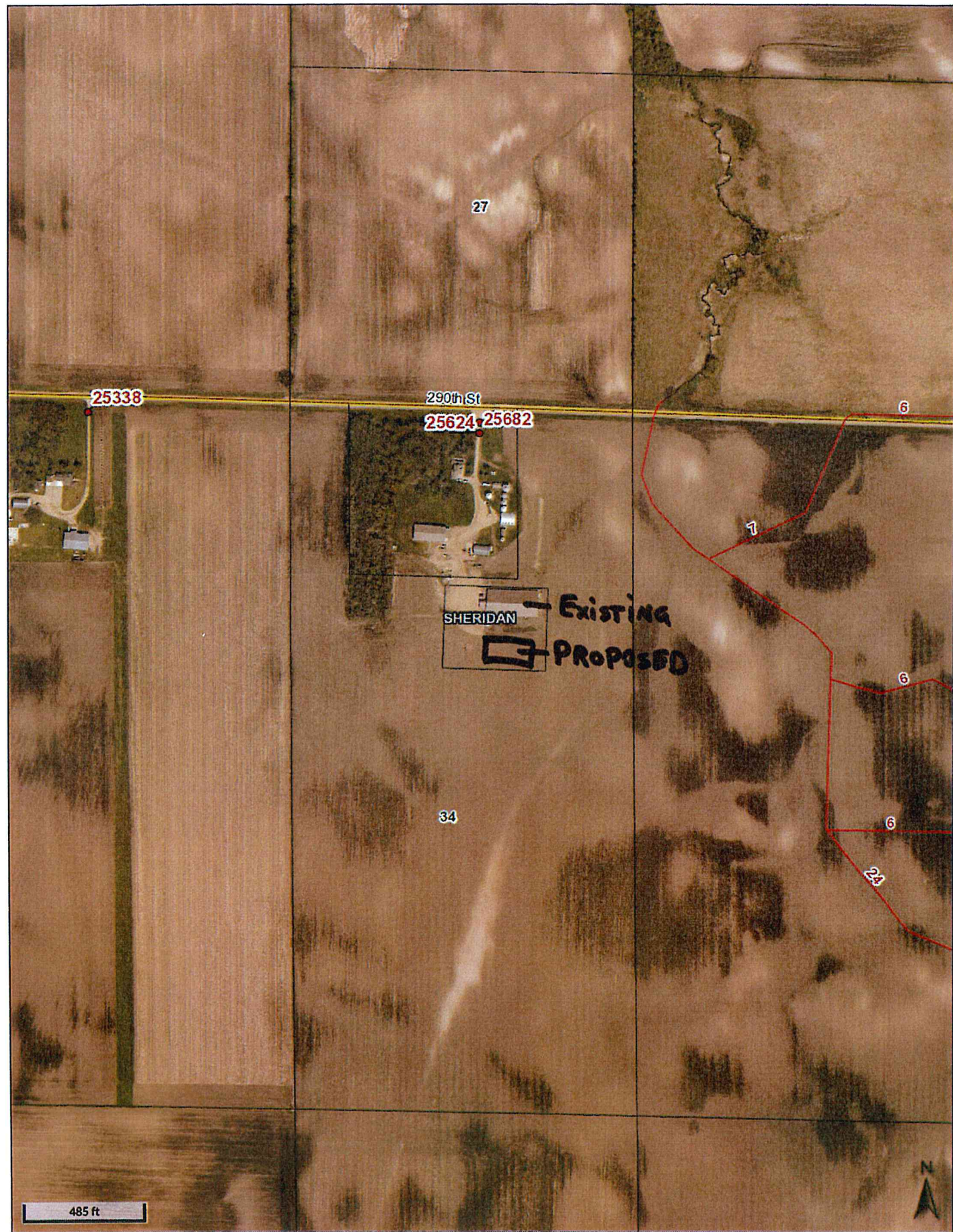
Office Use Only * The section below is to be filled out by the Environmental Office Staff

Permit fee: \$700 ~~\$0.00~~ Receipt #: 184970

Application Received: 4/16/19

Commission Action: Approved: _____ Date: _____ Disapproved: _____ Date: _____
County Board Action: Approved: _____ Date: _____ Disapproved: _____ Date: _____

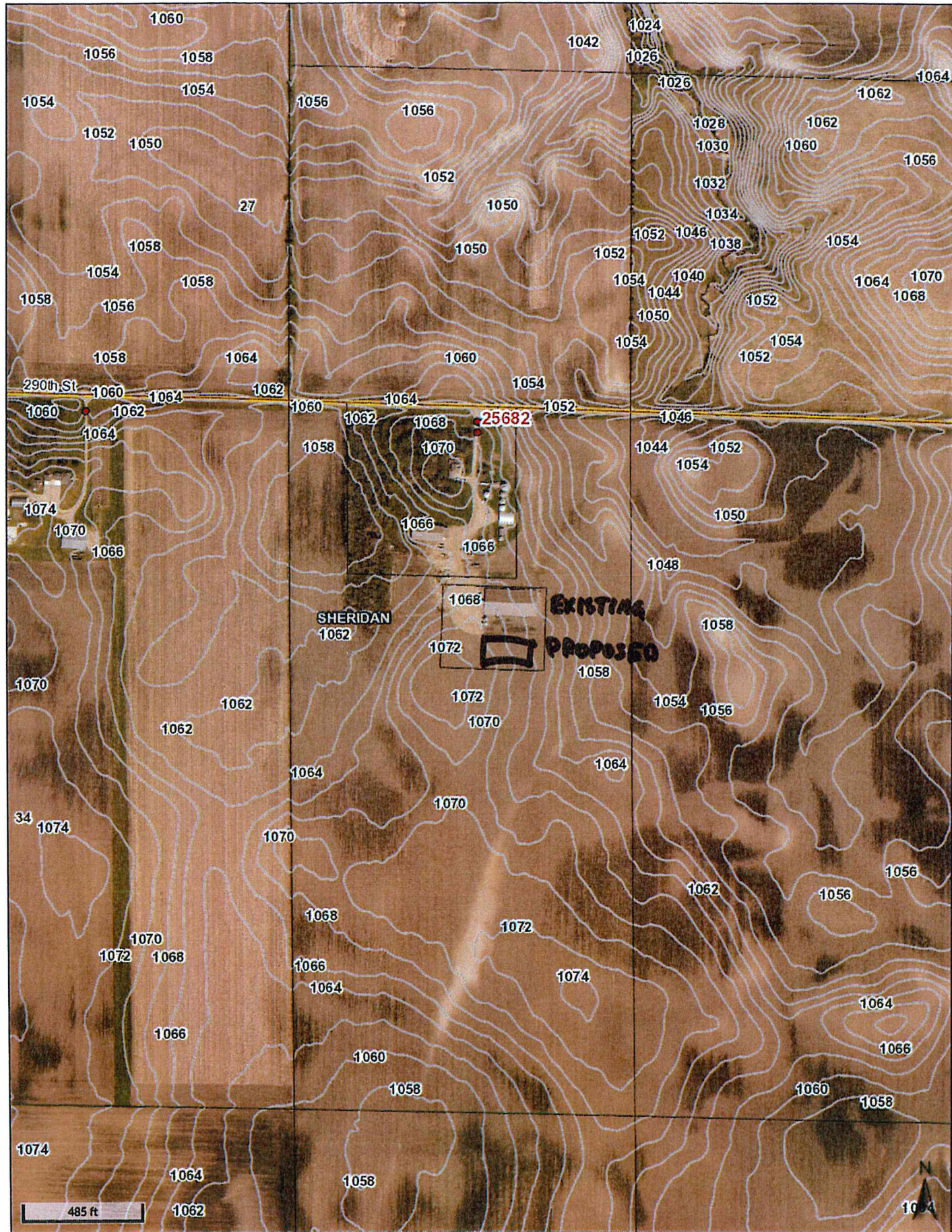
COUNTY TILE MAP

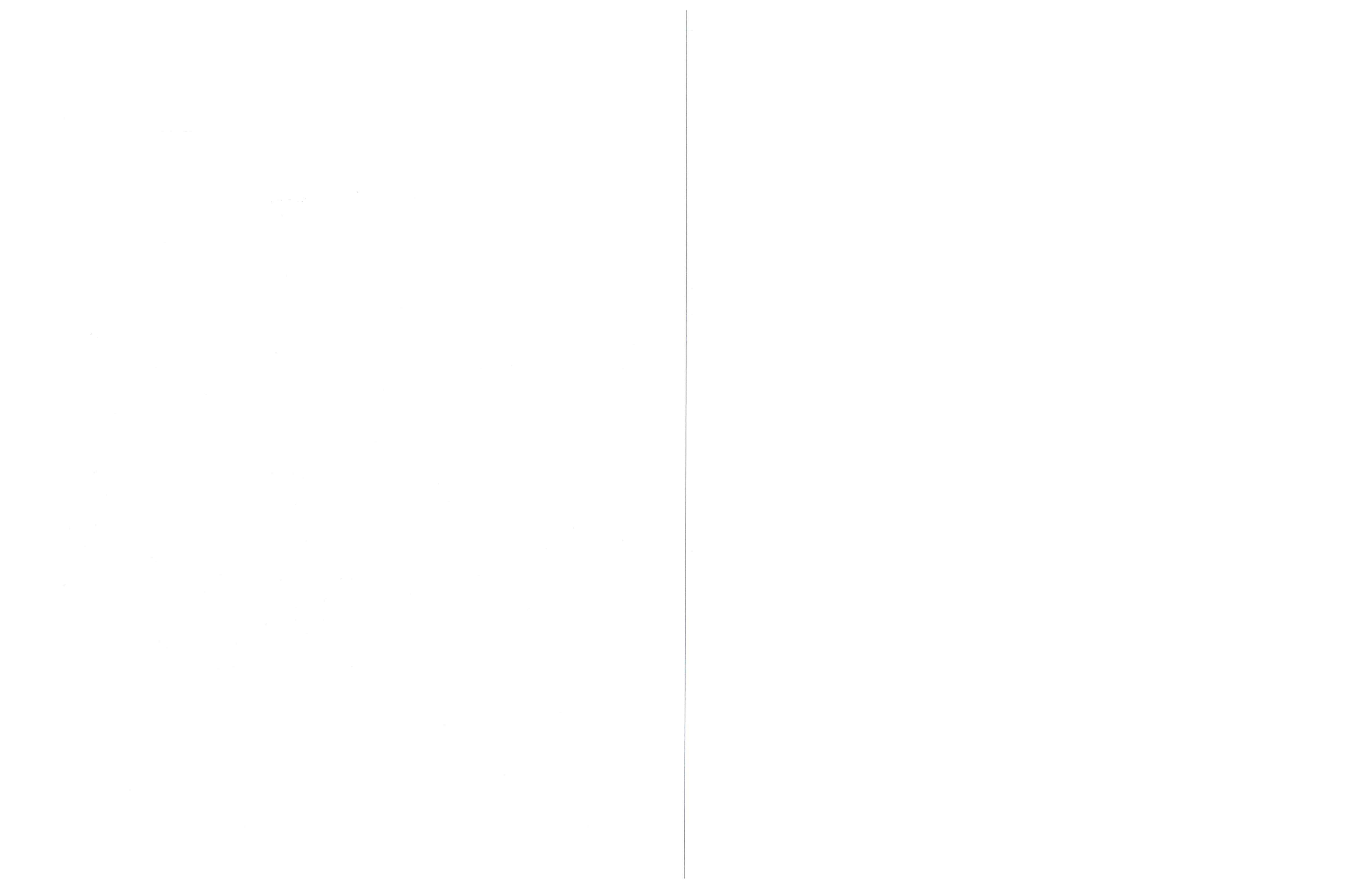


NEIGHBORHOOD MAP



ELEVATION CONTOUR MAP





Animal feedlot or manure storage area permit application

NPDES and SDS Permit Program

Doc Type: Permit Application

Applicability: You must submit this form to the Minnesota Pollution Control Agency (MPCA) for issuance, reissuance, and major modification of National Pollutant Discharge Elimination System (NPDES) or State Disposal System (SDS) feedlot permit coverage. A separate application form exists for minor modification requests. *The Feedlot permit modifications fact sheet that explains major and minor permit modifications is available on the MPCA website at <https://www.pca.state.mn.us/feedlots> Keep a copy of this application form and all submittals for your records.*

Submit this form and any required enclosures to the MPCA as follows:

- After signing this form, scan and email it along with any required enclosures to FeedlotSubmittal.pca@state.mn.us.
 - o To submit the application fee – mail the check with a copy of the first page of this form to the address listed below.
- If submission via email is not possible, you can mail this form, the required enclosures, and check for the application fee to:
 - Attn: Feedlot Master File Staff
 - Minnesota Pollution Control Agency
 - 18 Wood Lake Drive SE
 - Rochester, MN 55904

I. Permit type and reason for application

Feedlot Registration number: 127-124583

Please indicate which type of feedlot permit coverage you are applying for (*choose only one*)

- NPDES (Federal Permit) with State requirements included SDS (State Permit)

Please indicate the reason for the permit application (*choose only one*)

- General permit coverage issuance
(No existing general permit coverage or coverage under a new general permit due to pending expiration of current coverage)
- General permit coverage major modification
(Changes to sites with existing general permit coverage, including construction or expansion)
- Individual permit issuance
(No existing individual permit)
- Individual permit reissuance
(Existing Individual permit due to expire and no desire to make any changes)
- Individual permit major modification
(Changes to a site with an existing Individual permit, including construction or expansion)

II. Owner's name(s) and address(es) - (All partners of a Limited Liability Partnership (LLP) must be listed.)

Primary owner – Will be used as the mailing address

Additional owner – attach additional sheets as necessary

Name: Tyler Maertens

Name: _____

Address: 25624 290th St.

Address: _____

City: Wabasso State: MN

City: _____ State: _____

Phone: 507-828-8728 Zip: 56293

Phone: _____ Zip: _____

Email: maertens67@hotmail.com

Email: _____

Note: The term owner includes all persons having possession, control, or title to an animal feedlot or manure storage area (including lessees or renters). All owners must be listed. Attach to this application the names, addresses, and phone numbers of all additional owners.

III. Facility name and site address

Site Name: Tyler Maertens

Name: Tyler Maertens

Facility is a MN Ag Water Quality Certified Farm (MAWQCP)

Street: 25624 290th St.

Complete if facility address is different than the primary owner address:

City: Wabasso State: MN

Street: 25682 290th St.

Phone: _____ Zip: 56293

City: Wabasso State: MN

Cell phone: 507-828-8728

Phone: 507-828-8728 Zip: 56293

Email: maertens67@hotmail.com

(General letters/notices may be sent by email where one is indicated.)

IV. Billing address

Indicate where the Permit fee invoice(s) should be mailed (check only one):

- Primary owner address in Section II Contact person in Section III

V. Facility location

County: Redwood

Township name: Sheridan

Township (26 – 71 or 101 – 168)	Range (1 – 51)	Section (1 – 36)	¼ Section (160 acre) (NW, NE, SW, SE)	¼ of ¼ Section (40 acre) (NW, NE, SW, SE)
T 112 N	R 37 W	34	NE	NW

VI. Sensitive features

1. Is any part of the facility within 1,000 feet of any type of surface waters or tile intake? Yes No
If Yes, select all types below
 Lake River Stream (Perennial or Intermittent) Tile Intake
 Pond Creek Ditch Wetland Calcareous Fen Unknown
2. Is any part of the facility located within 300 feet of a river/stream? Yes No
3. Is any part of the facility located within a delineated flood plain (100 year flood)? Yes No
4. Is any part of the facility located within designated shoreland? Yes No
5. Is any part of the facility located within 1,000 feet of a karst feature? (sinkholes, caves, disappearing springs, resurgent springs, karst windows, dry valleys, or blind valleys) Yes No
If Yes, complete a. and b. below:
a. Are there 4 or more sinkholes within 1,000 feet? Yes No
b. Is any part of the facility within 300 feet of a known sinkhole? Yes No
6. Is any part of the facility located within 1,000 feet of the following types of wells: Yes No
If Yes, select the applicable well type below:
 a community water supply well
 a well serving a public school as defined under Minn. Stat. § 120A.05
 a well serving a private school excluding home school sites
 a well serving a licensed child care center where the well is vulnerable (Minn. R. 4720.5550, subp. 2)

VII. Environmental Review (complete when construction or expansion is proposed)

Mandatory environmental review is required when the addition of 1,000 or more animal units (AU) is proposed as part of the construction/expansion at any facility. The threshold when environmental review is mandatory is reduced to 500 AU when any part of the facility is located within a "sensitive area". The facility is within a sensitive area when any of the following apply.

- Any part of the facility is within a delineated floodplain (yes to question 3 above)
- Any part of the facility is within designated shoreland (yes to question 4 above)
- Any part of the facility is within 1,000 feet of a karst feature (yes to question 5 above)
- Any part of the facility is within a vulnerable drinking water supply management area
- Any part of the facility is within a federal, state, or local wild and scenic river district
- Any part of the facility is located within the Minnesota River Project Riverbend area or the Mississippi headwaters area

Additionally mandatory environmental review is required for "Phased actions". Phased actions are defined under Minnesota law (Minn. R. ch. 4410) as two or more projects located in the same geographic area and constructed sequentially within three years of each other by the same proposer. When this is the case, the animal units from all projects are combined to determine if environmental review is required. The following will assist the MPCA to evaluate if your project qualifies as a "phased action".

Do you have ownership interest in another livestock operation that was constructed/expanded within the past three years or are you substantially certain you will be constructing/expanding another livestock operation within the next three years?

- Yes No

If Yes, how far away (straight-line distance) is it located from the project proposed in this application? _____ miles

There are also rule provisions to require completion of the environmental review process in the event of a citizen petition or upon the discretion of the MPCA. Please see the MPCA fact sheet entitled "When is Environmental Review Required for Feedlots" (available on the MPCA website at <https://www.pca.state.mn.us/quick-links/environmental-review>) and/or Minn. R. 4410 for further details.

VIII. Animal numbers and animal unit (AU) calculation

Complete the table below to identify the **maximum** number of animals housed at the facility. All animal numbers and animal sizes used to complete this table should reflect the animal holding **capacity** of the facility even if the facility does not currently house or propose to house that number of animals. At no time is the number of animals at the facility allowed to exceed the capacity provided below without first obtaining a permit or permit modification.

Current capacity - List the current head count **capacity** for each animal type in column 3 below. For sites with a permit, this should match the currently permitted number of animals. Next, multiply the AU Factor in column 2 by the number of animals listed in column 3 to get the **Current AU Capacity** for each animal type (column 4). Finally, add together all AU's in column 4 to get a total at the bottom of the chart. *If this application is for a brand-new feedlot site leave columns 3 and 4 blank. (i.e., bare piece of ground)*

Final capacity - List the final head count **capacity** for each animal type in column 5 below. This number should include current animals plus or minus any expansion or reduction in each animal type. This should reflect the maximum AU capacity requested with this permit application. Next, multiply the AU Factor in column 2 by the number of animals listed in column 5 to get the **Final AU Capacity** for each animal type (column 6). Finally, add together all AU's in column 6 to get a total at the bottom of the chart.

1. Animal type	2. Animal unit factor	Current AU capacity		Final AU capacity (Current +/- Changes)	
		3. Head count	4. Animal units = column 2 x column 3	5. Head count	6. Animal units = column 2 x column 5
A. Dairy cattle					
Mature cow (milked or dry) over 1,000 lbs.	1.4				
Mature cow (milked or dry) under 1,000 lbs.	1.0				
Heifer	0.7				
Calf	0.2				
B. Veal					
Veal	0.2				
C. Beef cattle					
Slaughter steer/heifer, stock cow, or bull	1.0				
Feeder cattle (stocker or backgrounding), heifer	0.7				
Cow and calf pair	1.2				
Calf (weaned)	0.2				
D. Swine					
Over 300 lbs.	0.4				
Between 55 and 300 lbs.	0.3	2400	720	4800	1440
Under 55 lbs.	0.05				
E. Horses					
Horse	1.0				
F. Sheep					
Sheep or Lamb	0.1				
G. Chickens with a liquid manure system					
Layer Hens or Broilers	0.033				
H. Chickens with a dry manure system					
Broilers over 5 lbs.	0.005				
Broilers under 5 lbs.	0.003				
Layer Hens over 5 lbs.	0.005				
Layer Hens under 5 lbs.	0.003				
I. Turkeys					
Over 5 lbs.	0.018				
Under 5 lbs.	0.005				
J. Ducks					
Duck (with a liquid manure handling system)	0.01				
Duck (with a dry manure handling system)	0.01				
K. Animals not listed in A to J (AU factor in column 2 = average weight of the animal type divided by 1,000 lbs.)					
Animal type:					
Total animal unit capacity			Current AU Capacity Total		Final AU Capacity Total
Add all numbers in column 4 for Current AU total					
Add all numbers in column 6 for Final AU total			720		1440

Pasture access: Do any animals at the facility have access to pasture? Yes No

IX. Animal holding areas

Complete the table below for all your animal holding areas. If needed, continue your list on an additional copy of this page.

Animal holding area ID	List each animal holding area in a separate column					
Facility Site Sketch ID (i.e., #1, A, Barn 1)	Old Barn #1	New Barn #2				
Status: (check one box only) Proposed - not permitted previously Approved - permitted but not yet operational Existing - current operational component* Modifying - change to a permitted component	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input checked="" type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating
Distance to nearest well (ft.)	150'	350'				

* for facilities without current NPDES or SDS permit coverage, this would include all current components of your registered feedlot

Type of animal holding areas (indicate dimensions and floor type)	Write approximate dimensions in feet in the space below (width x length or area with units for irregular shapes)					
Total confinement barn (slatted floor)	102'x200'	102'x200'				
Total confinement barn (solid floor)						
Partial confinement barn						
Open lot with runoff controls						
Open lot without runoff controls						
Animal Holding Area Floor Type (check all that apply)	<input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other

Indicate the maximum capacity (number of animals) of each animal holding area
The total number of all animals listed should match the final animal numbers listed on page 3.

Mature dairy cows (over 1,000 lbs.)					
Mature dairy cows (under 1,000 lbs.)					
Dairy heifers					
Dairy calves					
Veal					
Slaughter steer/heifer, stock cow or bull					
Feeder cattle-stocker/background/heifer					
Cow and calf pair					
Beef calves (weaned)					
Swine over 300 lbs.					
Swine between 55 and 300 lbs.	2400	2400			
Swine under 55 lbs.					
Horses					
Sheep or lamb					
All chickens with liquid manure system					
Broiler chickens over 5 lbs. - dry system					
Broiler chickens under 5 lbs. - dry system					
Laying hens over 5 lbs. - dry system					
Laying hens under 5 lbs. - dry system					
Turkeys - over 5 lbs.					
Turkeys - under 5 lbs.					
Ducks					
Other:					

Air emissions plan for animal holding areas*
Indicate from the list below the letter(s) of the applicable air emission control strategy(s)
(choose at least one strategy for each category below for each animal holding area)

Odor control strategies currently employed	A, D, H	A, D, H			
Possible additional odor control strategies** (must indicate at least one practice)	J	J			

Potential practices employed to minimize emissions/odors from animal holding areas

- A. Disperse/mix air with tree plantings
- B. Treatment of escaping air with control technologies
- C. Maintain clean, dry floors to eliminate manure buildup
- D. Promptly clean up any spilled feed
- E. Regular removal of manure
- K. Other:
- F. Higher oil and fat content in feed to reduce dust
- G. Eliminate manure buildup under gates, feeders, etc..
- H. Maintain exhaust fans and avoid manure and dust accumulation
- I. Use spray oil to reduce dust
- J. I will consult the MPCA to identify changes that can be made to reduce odors

* This satisfies Minn. R. 7020.0505, subp. 4 item B (1). The response to documented exceedances is satisfied by the application certification text.
** In the event that odor complaints are validated, the practices identified will be implemented pursuant to MPCA request/approval.

X. Manure handling, feed storage, and dead animal areas

Complete the table below for your manure storage, feed/silage storage areas and dead animal disposal areas on your site. If needed, continue your list on an additional copy of this page.

Manure, feed, or dead animal areas List each manure handling, feed storage, and dead animal area in a separate column

Facility Site Sketch ID (i.e., #1, A, Basin 1)	Old Barn #1	New Barn #2	Feed Bins #3	Feed Bins #4	Compost Bunker #5	
Status: (check one box only) Proposed - not permitted previously Approved - permitted but not yet operational Existing - current operational component* Modifying - change to a permitted component	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input checked="" type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input checked="" type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input checked="" type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating	<input type="checkbox"/> Proposed <input type="checkbox"/> Approved <input type="checkbox"/> Existing <input type="checkbox"/> Modifying <input type="checkbox"/> Eliminating
Distance to nearest well (ft.)	150'	350'	255'	350'	375'	

* for facilities without current NPDES or SDS permit coverage, this would include all current components of your registered feedlot

Type of liquid manure or process wastewater storage/treatment areas (indicate dimensions) Write approximate top dimensions in feet in the space below (width x length x depth or volume with units for irregular shapes)

Earthen or GCL lined basin					
Below barn concrete tank	102'x200'x8'	102'x200'x8'			
In-ground concrete tank/basin (outdoor)					
Above-ground concrete tank					
Synthetic lined (HDPE, EPDM, etc.) basin					
Steel tank (i.e., slurry-store)					
Composite lined (2 liner types) basin/tank					
Vegetated Infiltration Area					
Other (describe):					

Type of solid manure, feed storage, and dead animal areas (indicate dimensions and floor type) Write approximate dimensions in feet in the space below (width x length or area with units for irregular shapes)

Permanent stockpile						
Dead animal management area					12'x24'	
Covered feed storage area			35'x25'	35'x25'		
Uncovered feed storage area						
Sweet corn silage storage storage pad area						
Tonnage on site at any one time						
Other (describe):						
Stockpile, feed storage, or mortality area floor/liner type (check all that apply)	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other	<input type="checkbox"/> Concrete <input type="checkbox"/> Soil <input type="checkbox"/> Asphalt <input type="checkbox"/> Other

Air emissions plan for liquid and solid manure storage areas* Indicate from the list below the letter(s) of the applicable air emission control strategy(s) (choose at least one strategy for each category below for each manure storage area) (this is not required for feed storage areas, vegetative infiltration areas, or dead animal management areas)

Odor control strategies currently employed	A, D, H	A, D, H	A, D, H	A, D, H	A, D, H
Possible additional odor control strategies** (must indicate at least one practice)	J	J	J	J	J

Potential practices employed to minimize emissions/odors from manure storage areas (no practices required for feed storage areas, vegetative infiltration areas, or dead animal management areas)

- | | |
|---|---|
| <p>Liquid storage area specific (basins, pits, etc.)</p> <ul style="list-style-type: none"> A. Maintain crust on basin by using organic bedding B. Cover liquid manure storage area with straw C. Cover liquid manure storage area with synthetic cover D. Anaerobic digestion E. Separate solids with settling basin or liquid/solid separator F. Utilize a pit additive to break down solids <p>Solid storage area specific (stockpiles)</p> <ul style="list-style-type: none"> G. Reduce length of time stockpile is maintained H. Solid manure composting I. Cover the solid manure stockpile J. Incinerate solid manure at approved/permitted facility | <p>Practices applicable to solid or liquid storage areas</p> <ul style="list-style-type: none"> K. Notify neighbors of manure application periods and avoid holidays L. Disperse/mix air with tree plantings M. Add straw or other bedding material to reduce odor/ emissions N. Treatment of escaping air with control technologies O. I will consult the MPCA to identify changes that can be made to reduce odors P. Other: _____ Q. Other: _____ R. Other: _____ |
|---|---|

* This satisfies Minn. R.7020.0505 subp. 4 item B (1). The response to documented exceedances is satisfied by the application certification text.
** In the event that odor complaints are validated, the practices identified will be implemented pursuant to MPCA request/approval.

XI. Changes to groundwater monitoring plan (complete only if applicable)

If groundwater monitoring is required at the facility, this application can request changes to the MPCA-approved groundwater monitoring plan. In order to request changes to the groundwater monitoring plan, please indicate the type of change requested.

- Elimination of monitoring Change to sampling frequency
 Change to sample testing protocol Other

When a change is requested, please include with this permit application documentation from a qualified professional that provides a technical analysis and justification for the requested changes.

XII. Notifications and public meetings

The notifications identified in items A and B are required to be done **before** permit issuance.

A. 500 or more AU: Notice to residents and property owners within 5,000 feet of a proposed project

When required. A notice is required in *either* of the following situations:

- **Construction of a new** feedlot, or manure storage area, which will have a capacity of 500 AU or more.
- **Expansion of an existing** feedlot, or manure storage area, which currently has, or will have upon completion of the expansion, a capacity of 500 AU or more.

Notice methods. The owner shall not less than 20 business days before the anticipated issuance date of the permit, provide notice to each resident and each owner of real property within 5,000 feet of the perimeter of the proposed facility. This notice *must* include, at a minimum, the information provided in Minn. R. 7020.2000, subp.4.

An example notice can be found in the factsheet [Public Notification Requirements – Feedlots with more than 500 Animal Units](https://www.pca.state.mn.us/feedlots) available on the MPCA website at <https://www.pca.state.mn.us/feedlots>.

Verification of notice.

The MPCA must verify that this notice has been completed prior to permit issuance. Documentation that this notice has been completed can be provided with the permit application (preferred) or submitted at a later date, prior to permit issuance.

When the notice has been completed prior to this application

Please include with this permit application one of the following options that provides verification that the required notice has been completed:

- An affidavit of publication from a newspaper of general circulation used to provide this notification.
- A list of all parties, with their location, that were notified by certified mail and copies of all signed mail return receipts.
- A list of all parties, with their location, that were personally visited with a date and signature from each party and certification signed by a notary public indicating in detail what was discussed.

When the notice has not been completed prior to this application

Please include with this permit application the following:

- A copy of the content of the notification
- Date notification is scheduled to occur: _____

Note: The permit cannot be issued prior to receiving verification that the notice has actually taken place. This verification must be one of the three items listed above.

B. Non-delegated county public meeting minutes (Minn. Stat. § 116.07, subd. 7(l))

A county which has not accepted delegation of the feedlot program must hold a public meeting prior to issuance of a feedlot permit by the MPCA for an animal feedlot with a capacity of 300 or more animal units.

Date meeting has occurred or is scheduled to occur: April 29th 2019

Verification of public meeting.

A copy of the meeting minutes must be provided to the MPCA for verification of completion of this requirement prior to permit issuance.

XIII. Certification and signature

General permit

The Applicant certifies that, if this is an application for a general permit, they are familiar with the requirements of the general permit. The Applicant understands that if the MPCA determines the facility does not meet the criteria for coverage under the general permit, this application will be used as an application for an individual Permit.

Notification to local officials

The Applicant certifies that, if the application includes construction of a new facility or expansion of an existing facility, all local zoning authorities have been notified in accordance with Minn. R. 7020.2000 subp. 5.

Operation and Maintenance Plan

The Applicant certifies that the following operation and maintenance measures will be employed:

- Operate and maintain manure storage areas according to the approved design plans including:
 - Repair of damage
 - Maintenance of freeboard
 - No discharge (unless approved)
 - Control vegetation and tree growth with frequent mowing
 - Access only at designated points (i.e. concrete ramps)
- Divert surface water flow away from and prevent pooling near manure storage areas
- Operate manure storage area capacity to be consistent with the approved manure management plan
- Perform routine maintenance of manure handling/transfer equipment
- Minimize erosion and sediment transport with vegetative buffers and/or gravel/rock energy dissipation
- Minimize stormwater contact with sources of pollution
- Operate animal mortality management areas according to MN Board of Animal Health and other applicable requirements
- Dispose of solid and hazardous waste according to applicable regulations
- Perform groundwater monitoring according to the MPCA approved plan

Air Emissions Plan – response to documented exceedances (Minn. R. 7020.0505 subp. 4, item B (1)(b))

The Applicant certifies that, if ambient air quality monitoring indicates an exceedance of the Hydrogen Sulfide Standard, they will submit a report, at the MPCA's request, that provides documentation that one of the following will control the emissions.

Liquid manure storage areas

- Chemical additions
- Natural crusting
- Straw cover
- Synthetic cover (i.e., HDPE)
- Treatment of escaping air

Solid manure storage areas

- Synthetic cover
- Frequent manure removal
- Frequent land application
- Incineration
- Composting

The report will provide evidence that the technology will control the emissions, indicate when the technology will be installed and fully operational, and indicate what temporary measures will be taken to minimize emissions prior to installation. Alternatives may be approved at the discretion of the MPCA. The report will be immediately implemented upon MPCA approval.

Construction Stormwater (CSW) Permit

The Applicant certifies that, if this application is for a NPDES permit where construction activities will disturb one or more acres of land, it will also serve as an application for the general CSW NPDES permit, as referenced in the feedlot NPDES permit, unless a separate application for CSW NPDES permit coverage has been made. The Applicant agrees to comply with the requirements of the CSW NPDES permit.

Applicant signature

I hereby certify that the design, construction, and operation of the facility will be in accordance with this application and plans, specifications, reports, and related communications approved by the MPCA, and in accordance with applicable permit conditions or regulations/standards of the MPCA.

I also certify under penalty of law that this document and all attachments were prepared under my direction or supervision and the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The person that signs this application must be one of the following:

- For a corporation, a principal executive officer of at least the level of vice president
- For a partnership, a general partner
- For a sole proprietorship, the proprietor

Print name: Tyler Maertens Print official title: owner

Office phone: _____ Cell phone: 507-828-8728

Signature: Tyler Maertens Date: April 8, 2019

To sign up for electronic communications including reminders for annual reports as well as MPCA feedlot newsletters and other MPCA communications, please go to the MPCA website at <https://public.govdelivery.com/accounts/MNPCA/subscriber/new>.

Required enclosures (Permit applications submitted without all required enclosures are incomplete.)

All forms are available on the [NPDES and SDS permits](https://www.pca.state.mn.us/feedlots) page of the MPCA feedlot program website at: <https://www.pca.state.mn.us/feedlots>

A. A site sketch/aerial photograph indicating the location of the existing and proposed facility components.

B. A Manure/Nutrient Management Plan (MMP) **submitted on the MPCA's standardized form.**

When **all** manure is transferred to another entity for utilization, complete a MMP using the form:

MMP requirements when ownership of manure is transferred.

When **any** portion of manure is applied to land owned, rented, or leased by the applicant(s), or applied to other land where nutrient application decisions are made by the applicant(s), complete a MMP using the spreadsheet form:

MPCA Manure Management Planner.

Notes: The MMP requirements when ownership of manure is transferred form is incorporated into the spreadsheet to account for instances when only some of the manure is transferred.

A hand-entry version of the MPCA Manure Management Planner.

C. Plans and Specifications for construction, modification, or expansion of any liquid manure storage area.

D. Emergency Response Plan for response to manure spills and catastrophic animal mortality events. The plan must be completed using the MPCA's form.

E. Permit application fee: (**Check payable to:** Minnesota Pollution Control Agency)

Permitting action	Application fee	Application fee when Environmental Review (EAW) is required*
General permit coverage issuance	\$620	\$5,270
General permit coverage major modification	\$620	\$5,270
Individual permit issuance	\$1,860	\$6,510
Individual permit reissuance	\$620	\$5,270
Individual permit major modification	\$1,860	\$6,510

*See Part VII of this application for more information regarding the need for preparation of an EAW.

F. **Conditional** – Stormwater Pollution Prevention Plan (SWPPP). Development of a SWPPP is required when construction disturbs one or more acres at any feedlot site. The SWPPP must be available at the construction site but does **not** need to be submitted with this application unless the construction disturbs 50 acres or more of land and this application is for an NPDES permit.

The MPCA has developed the SWPPP template for feedlot construction activities to assist in development of a SWPPP.

G. **Optional** – Verification of the notifications required in part XII of this application. If not submitted with the application, the MPCA must receive the verification prior to permit issuance. It is strongly recommended that the applicable verifications be included with the permit application.



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Emergency Response Plan

NPDES and SDS Permit Program

Feedlot Program

Doc Type: Permit Application

Applicability: This *Emergency Response Plan* is to be used in case of an emergency spill, leak, or failure at the production facility or land application area and to assist with response to catastrophic animal mortality events (barn fires, tornadoes, etc.). You must submit this form as part of an application for National Pollutant Discharge Elimination System (NPDES) or State Disposal System (SDS) feedlot permit coverage.

Facility name: Tyler Maertens Feedlot registration no.: 127-124583
 Owner/Operator name: Tyler Maertens Feedlot permit no.: _____

List of critical phone numbers and contacts

	Contact person (or Company)	Phone number		
Emergency contacts				
• Fire/Ambulance	-----	911		
• County Sheriff	Redwood County Sheriff	507-637-4036		
Agency contacts				
• Minnesota Duty Officer	-----	1-800-422-0798	Provide the Minnesota Duty Officer:	
• Minnesota Pollution Control Agency (MPCA) Field Office	MPCA Southwest Region	507-476-4268		
• County Feedlot Officer (CFO)				
• Board of Animal Health Contact	MN Board of Animal Health	651-296-2942		
Other contacts				
• Insurance company		507-342-5108	<ul style="list-style-type: none"> • Your contact information • Incident location, date, and time • For spills <ul style="list-style-type: none"> - spill type - spill amount - surface water or field tile impacted • Progress made in response to the spill or catastrophic mortality event 	
• Gopher State One Call	-----	1-800-252-1166		
•				
Local vendors for spill and/or catastrophic mortality response assistance				
• Manure pumper	Doug Rohlik	320-212-7953		
• Manure loading equipment	Doug Rohlik	320-212-7953		
• Earth moving equipment	Brey Tiling & Excavation	507-537-1297		
• Tiling equipment	Brey Tiling & Excavation	507-537-1297		
• Containment/Absorption materials (hay, straw, cornstalks, sawdust)				
•				

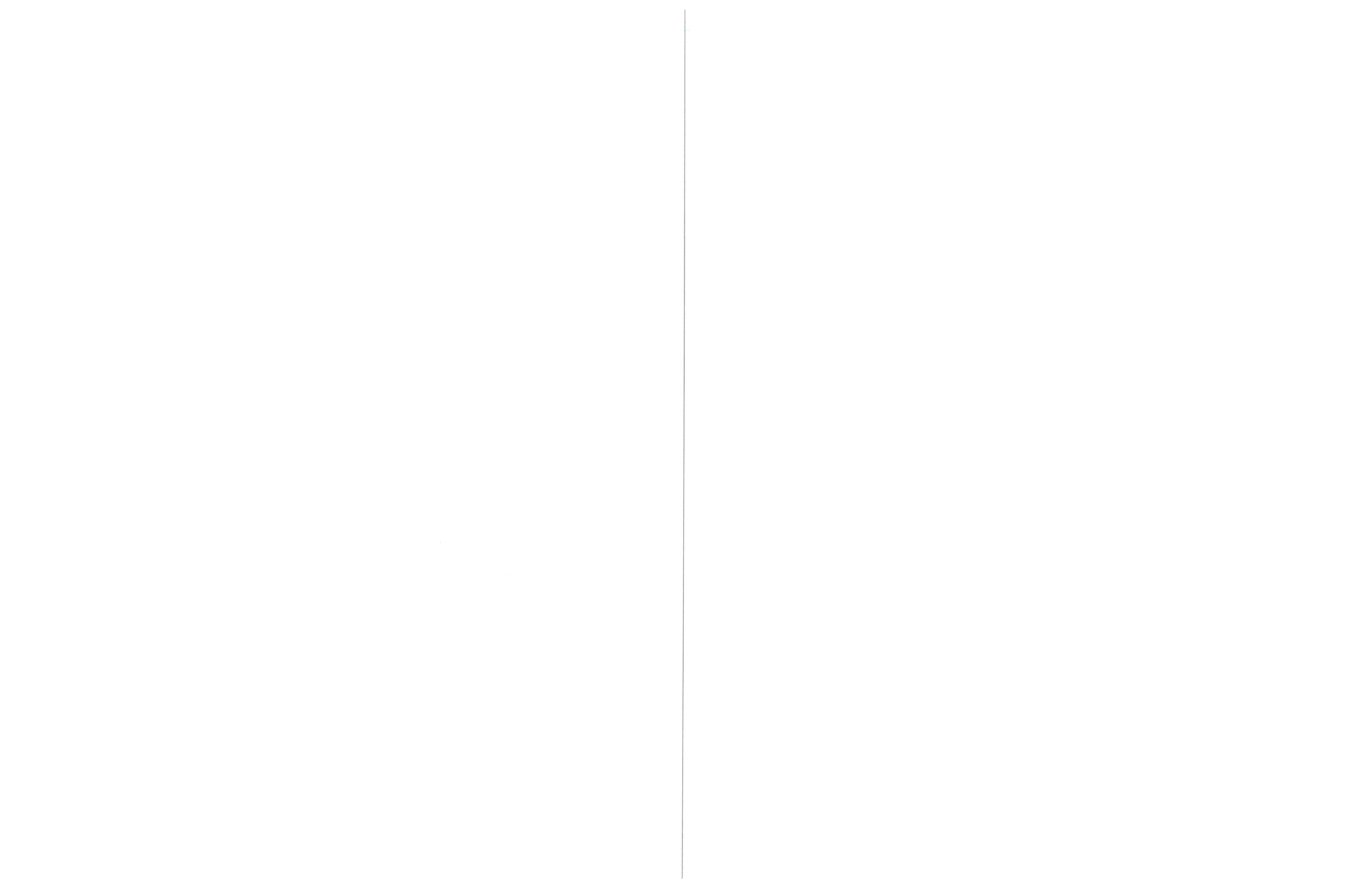
Manure Spill Emergency Response Procedures*

- Immediately stop the source of a liquid manure leak or spill:
 - Turn off pumps or valves
 - Clamp hoses or park tractor on hoses
- Contain spilled manure:
 - Use skid loader or tractor with blade to make berms
 - Install bale checks and block downstream culverts
 - Insert sleeves around tile intakes (or plug/cap)
 - Use tillage equipment to work ground ahead of spill
 - Use absorptive materials
- Make necessary phone calls as listed in the chart above:
 - Notify Minnesota Duty Officer at 1-800-422-0798
 - Notify sheriff's office if spilled on public roads or right-of-ways
- Cleanup:
 - Clean up spill immediately from road and roadside
 - Clean up all material, including the contaminated soil, as soon as possible by scraping, or by other means
 - Land apply manure at agronomic rates or place manure back in the manure storage area/ solid manure stockpile
 - Follow recommendations of MPCA staff and/or CFO
 - Restore site to its original conditions
 - If rain is expected prior to completion of cleanup; actions need to be taken to contain manure contaminated runoff from solid manure spills
- Document your actions:
 - Keep records of all actions related to the spill and follow up activities

*A detailed site map should be displayed on site to assist employees identify sensitive receptors near the facility (surface water, wells, tile intakes, etc.).

Catastrophic Animal Mortality Response

- Make necessary phone calls as listed in the chart above:
 - Notify Minnesota Duty Officer at 1-800-422-0798
 - Notify Minnesota Board of Animal Health
 - Notify MPCA and CFO
 - Cleanup
 - Dispose of mortalities according to recommendations of MN Board of Animal Health Representative
 - Locate disposal area for mortalities to prevent impacts to surface and/or groundwater (consult MPCA/CFO)
 - Document your actions
 - Keep records of all actions related to the animal mortality disposal activities
- If burial of animal mortalities is necessary, the burial site must meet the following:
- Located 1000 feet from lakes and 300 feet from rivers and streams
 - Mortalities are not buried within 5 feet of the seasonal water table
 - Mortalities are not buried within 10 feet of karst susceptible bedrock
 - Soils are not sandy or gravelly
- Describe approximate location(s) of potential burial site(s) below:
-



Tyler Maertens Farm Site Map

NE ¼ 34-112N-37W Redwood County, MN





NOTICE OF APPLICATION
FOR
LIVESTOCK FEEDLOT PERMIT

Notice is hereby given per Minnesota Statutes 116.07, subd. 7(a), that Tyler Maertens, will be applying to Redwood County and the Minnesota Pollution Control Agency for a permit to expand a feedlot with a capacity of 500 animal units or more.

The feedlot proposed to be expanded is located in the NE 1/4 of Section 34 of Sheridan Township, T112N, R 37W, of Redwood County, Minnesota. The existing feedlot currently has 2,400 head of finishing swine housed in a total confinement building for a total of 720 animal units. The proposed expansion will consist of one total confinement building holding an additional 2,400 head of finishing swine for a total of 4,800 head of finishing swine. All manure will be stored in under-floor concrete pits. After the expansion, the feedlot will consist of 1,440 animal units.

This publication shall constitute as notice to each resident and each owner of real property within 5,000 feet of the perimeter of the expanding feedlot as required by Minnesota State Law.

Land Application Agreement for Receiving Manure on Cropland

The undersigned landowner agrees to allow manure from Tyler Maertens's livestock feedlot to be spread on 320 acres of his/her land. The land is located in the one East half ~~quarter~~ of Section 34, in Sheridan Township, of Redwood County.

The undersigned landowner is the holder of Permit Number None (if none is held, please indicate none).

If the land indicated above received manure from livestock in addition to that from the feedlot indicated above, please list the number and types of livestock below (if none, please indicate none):

None

Enclose a Farm Service Agency aerial photo of all areas on which manure will be spread. Outline the areas used.

Brian Maertens

Signature of Landowner

This Agreement is Good Until Termination of land contract

Brian Maertens
Name of Landowner

507-984-5677
Phone Number

25624 240th St
Address

Wabasso MN 56293
City, State, Zip Code

April 14, 2015
Date

Return Form To:

Land Application Agreement for Receiving Manure on Cropland

The undersigned landowner agrees to allow manure from Tyler Mertens's livestock feedlot to be spread on 320 acres of his/her land. The land is located in the _____ one-quarter of Section 3, in Val Township, of Redwood County.

(owns entire section)

The undersigned landowner is the holder of Permit Number None (if none is held, please indicate none).

If the land indicated above received manure from livestock in addition to that from the feedlot indicated above, please list the number and types of livestock below (if none, please indicate none):

None

Enclose a Farm Service Agency aerial photo of all areas on which manure will be spread. Outline the areas used.


Signature of Landowner

This Agreement is Good Until Termination of land contract

Wayne Bennett
Name of Landowner

507-342-5776
Phone Number

25492 280th St
Address

Wabasso MN 56293
City, State, Zip Code

April 14, 2015
Date

Return Form To:

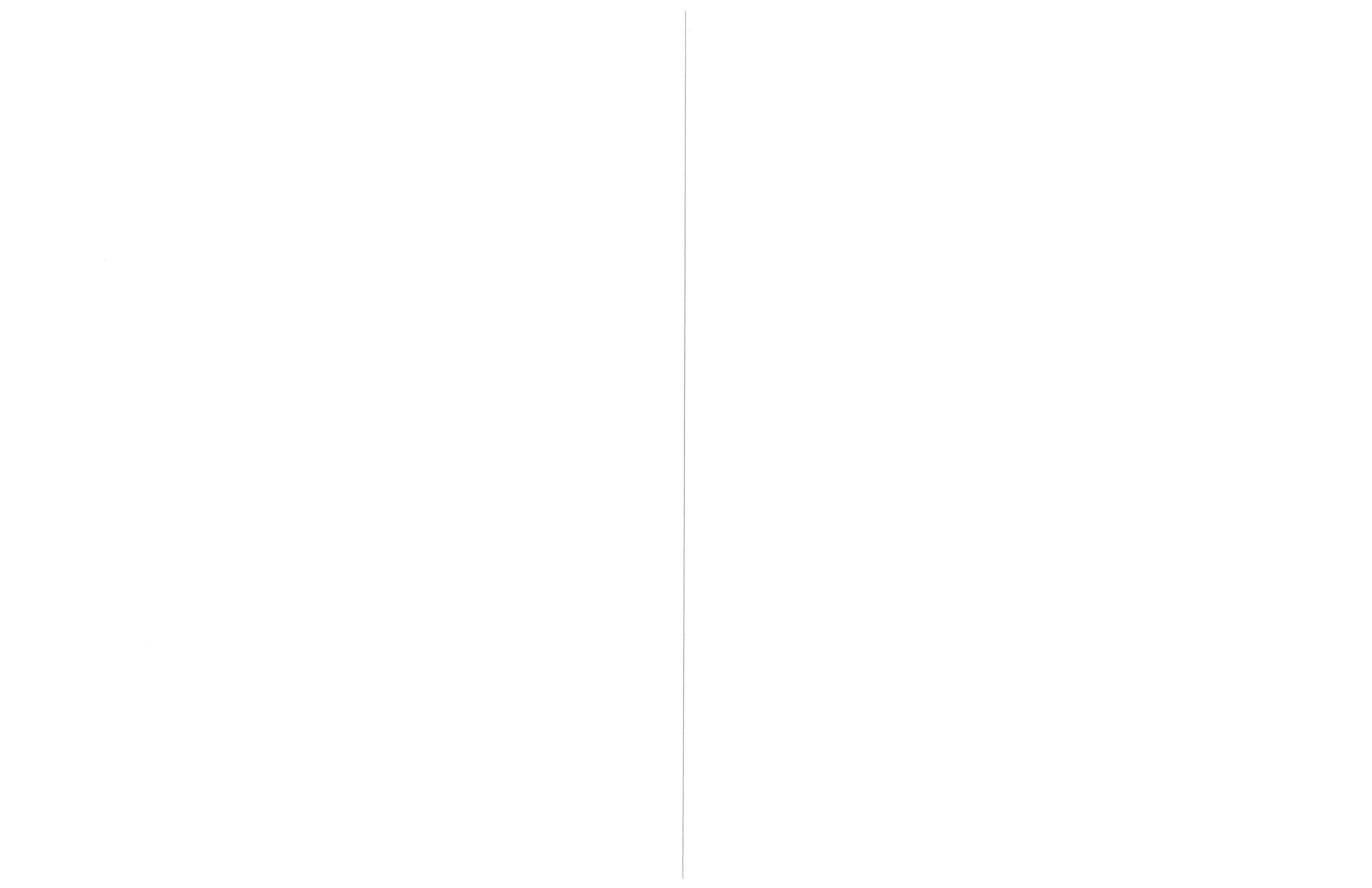
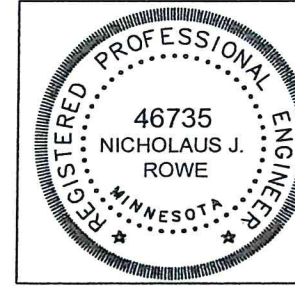


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- SHEET 5 - PUMP OUT PLAN
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PERIMETER TILE SYSTEM NOTE
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I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Nicholas J. Rowe Date *12/17/18*

Nicholaus J. Rowe, P.E.
License number 46735
My license renewal date is June 30, 2020
Pages or sheets covered by this seal: *Sheets 1-7*

SHEET
1/7

Project No.
18-184

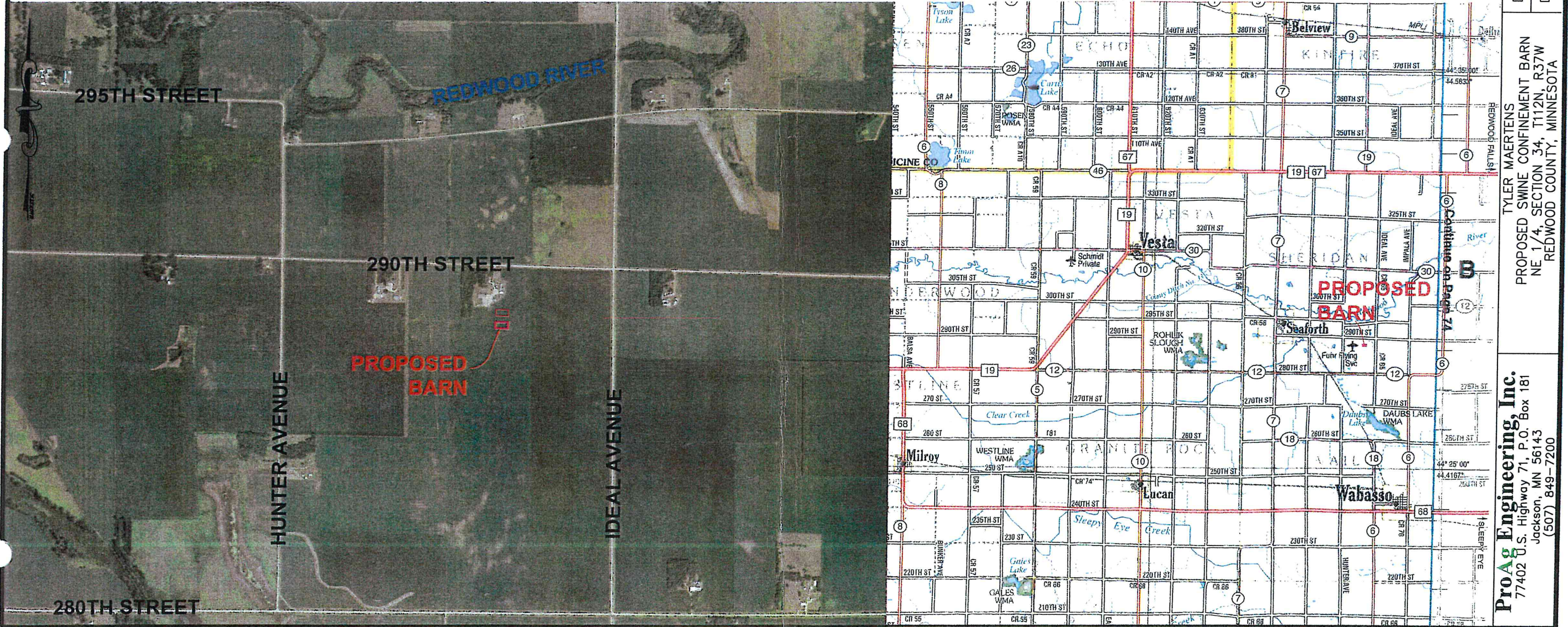
Checked By
N.J.R.

Date
12/14/18

Drawn
D.D.A.

TYLER MAERTENS
PROPOSED SWINE CONFINEMENT BARN
NE 1/4, SECTION 34, T112N, R37W
REDWOOD COUNTY, MINNESOTA

ProAg Engineering, Inc.
77402 U.S. Highway 71, P.O. Box 181
Jackson, MN 56143
(507) 849-7200



280TH STREET

PROPOSED MANURE GENERATION & STORAGE VOLUMES

- 1.) ON SITE ANNUAL LIQUID MANURE GENERATION:
2,400 HEAD FINISHING SWINE = 0.12 C.F./HEAD/DAY @ 365 DAYS = 105,120 C.F.
- 2.) ANNUAL WASTEWATER & SPILLAGE VOLUME = 20% x 105,120 C.F. = 21,024 C.F.
- 3.) TOTAL ANNUAL WASTE VOLUME GENERATED = 105,120 C.F. + 21,024 C.F. = 126,144 C.F.
- 4.) DEEP PIT BARN VOLUME = 198'-8" x 99'-2" x 6.5' = 128,057 C.F.
- 5.) TOTAL NUMBER OF DAYS STORAGE = 370 DAYS = 128,057 C.F. / 126,144 C.F. x 365 DAYS

PROPOSED CONSTRUCTION WILL DISTURB LESS THAN 3 ACRES AND WILL CREATE LESS THAN 1 ACRE OF IMPERVIOUS AREA (BARN 29,300 S.F. + DRIVEWAY 21,140 S.F. = 41,440 S.F.) NO STORM WATER PERMIT IS REQUIRED, BUT A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN DEVELOPED USING CONSTRUCTION BEST MANAGEMENT PRACTICES

ASSUMED NORTH LINE OF SECTION 34, T-112-N, R-137-W OF REDWOOD COUNTY, MINNESOTA

RESIDENCE

EXISTING WELL

1702' TO NEAREST RESIDENCE

1055' TO NEAREST WATER SOURCE

PROPOSED HIGH POINT OF PERIMETER DRAIN TILE PLACED AROUND THE PIT FOOTING, SLOPE TILE @ 0.1% TO THE SE CORNER OF PIT

TEST HOLE #1
OFFICE / LOADOUT

1068

101'-6"

TEST HOLE #2

1060

GRAPHIC SCALE



(IN FEET)
1 inch = 80 ft.

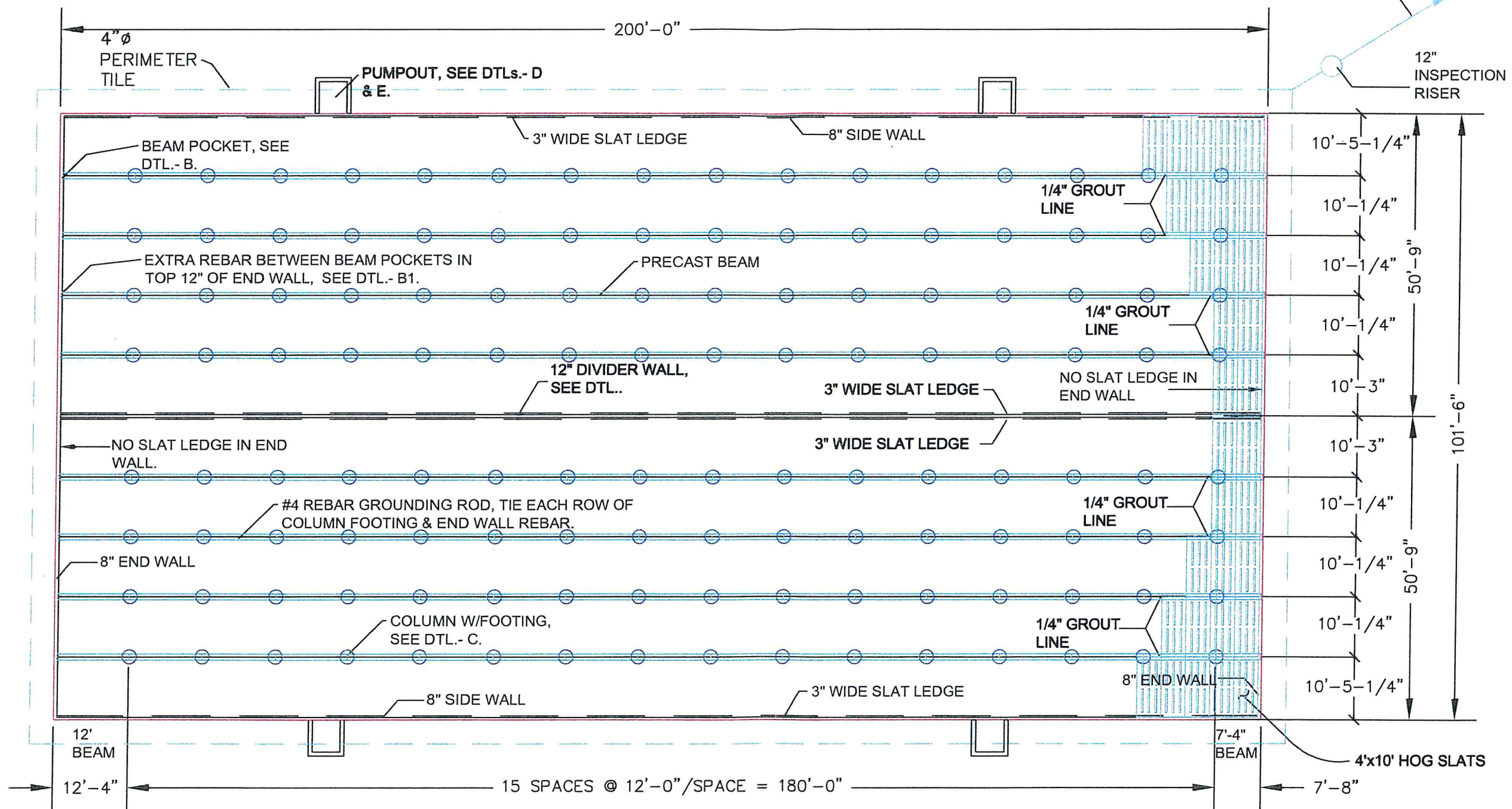
PROPOSED 2,400 HEAD SWINE FINISHING CONFINEMENT BARN (200'-0" x 101'-6") WITH 8' DEEP CONCRETE PIT BELOW THE SLATTED BARN FLOOR, BARN FLOOR ELEVATION 1068, BOTTOM OF PIT ELEVATION 1060.

EXISTING 2,400 HEAD SWINE FINISHING CONFINEMENT BARN (200'-0" x 101'-6") WITH 8' DEEP CONCRETE PIT BELOW THE SLATTED BARN FLOOR, BARN FLOOR ELEVATION 1066.6, BOTTOM OF PIT ELEVATION 1058.8.

PROPOSED PERIMETER TILE TO CONNECT TO EXISTING FIELD TILE. LOCATE OUTLET PRIOR TO CONSTRUCTION

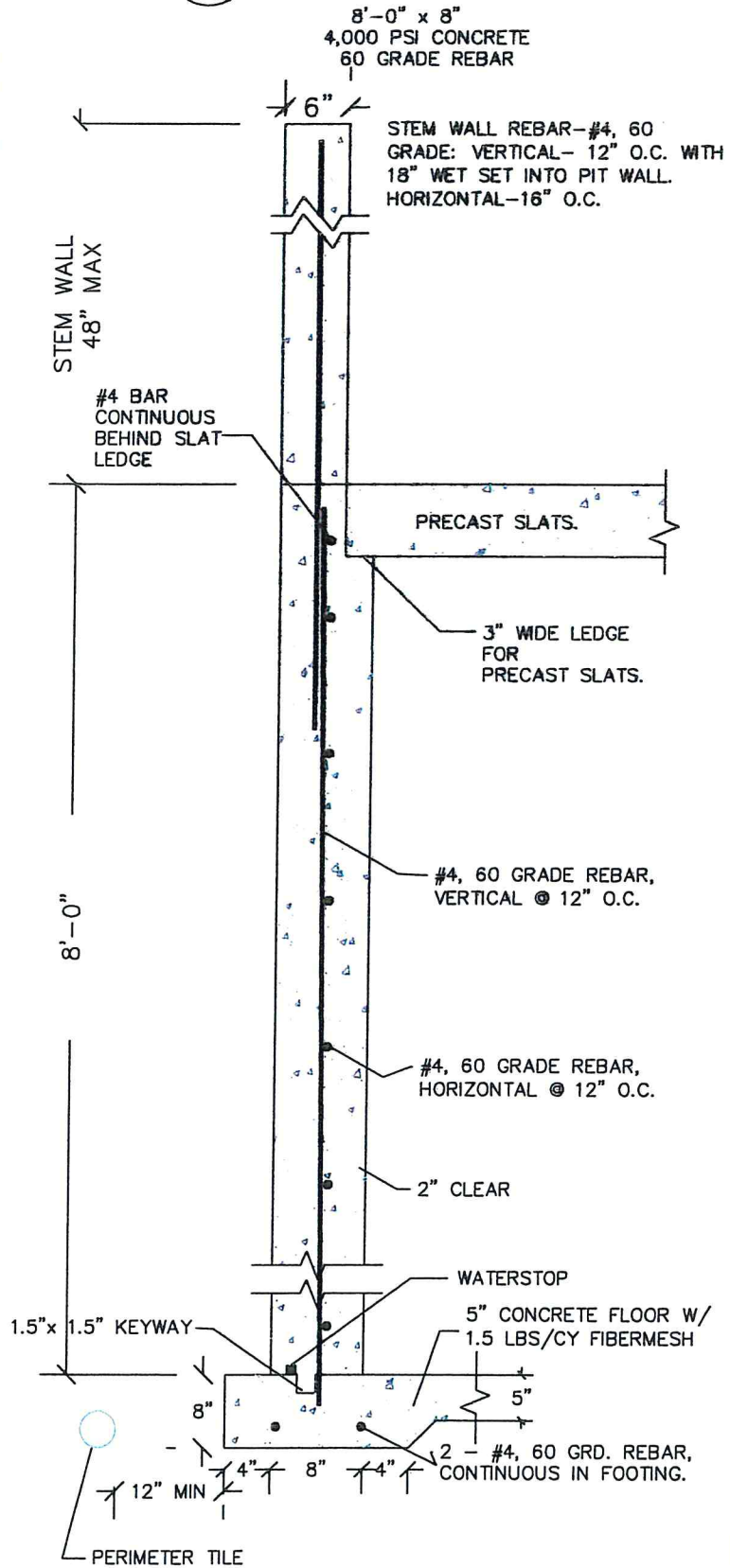
***IMPORTANT NOTE-** NUMBER OF PUMPOUTS & LOCATIONS DETERMINED BY OWNERS DISCRETION. PRECAST DIMENSIONS CHANGE BETWEEN SUPPLIERS. PUMPOUT LOCATIONS AND PRECAST DIMENSIONS MUST BE VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION.

IF AN EXISTING FARM TILE IS FOUND, THE PERIMETER TILE OF THE PIT MAY BE CONNECTED. IF THE PERIMETER TILE IS CONNECTED TO AN EXISTING FARM TILE THAT DOES NOT HAVE A SURFACE OUTLET ON THE SAME PROPERTY, A DEVICE TO ALLOW MONITORING OF THE WATER IN THE TILE MUST BE INSTALLED.

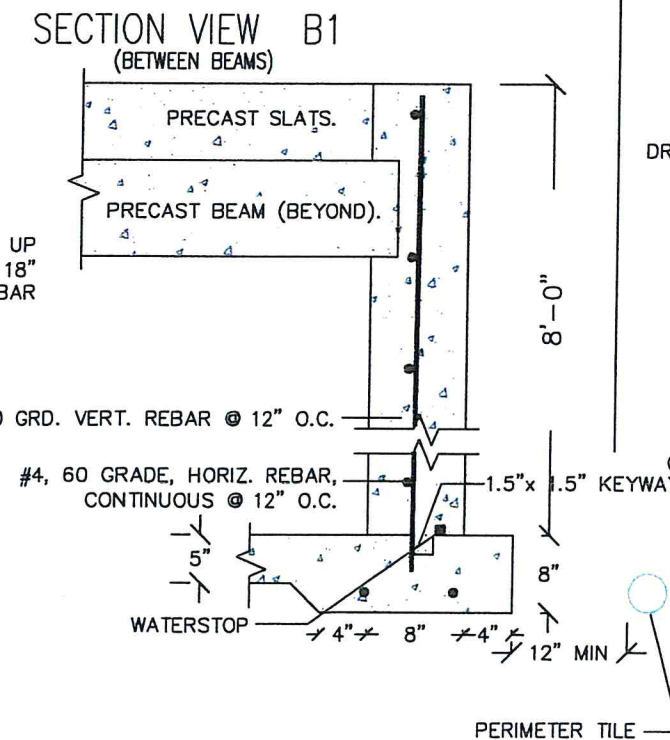
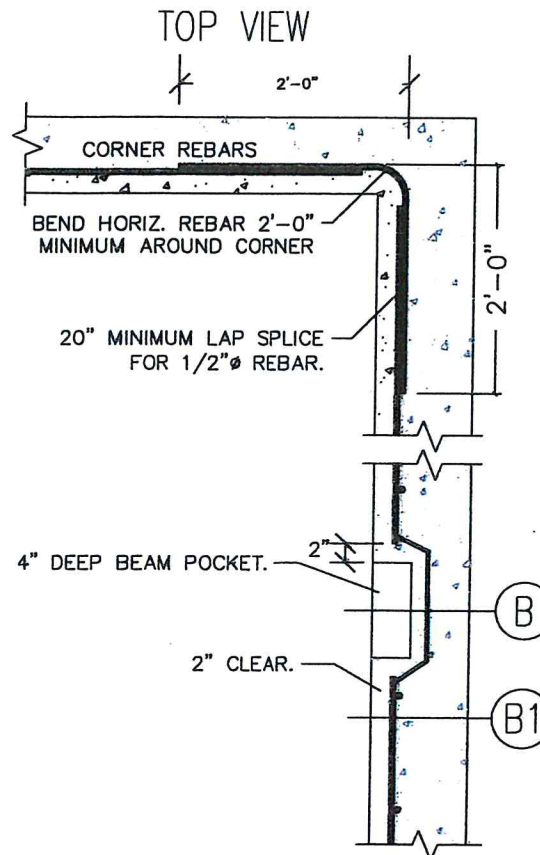
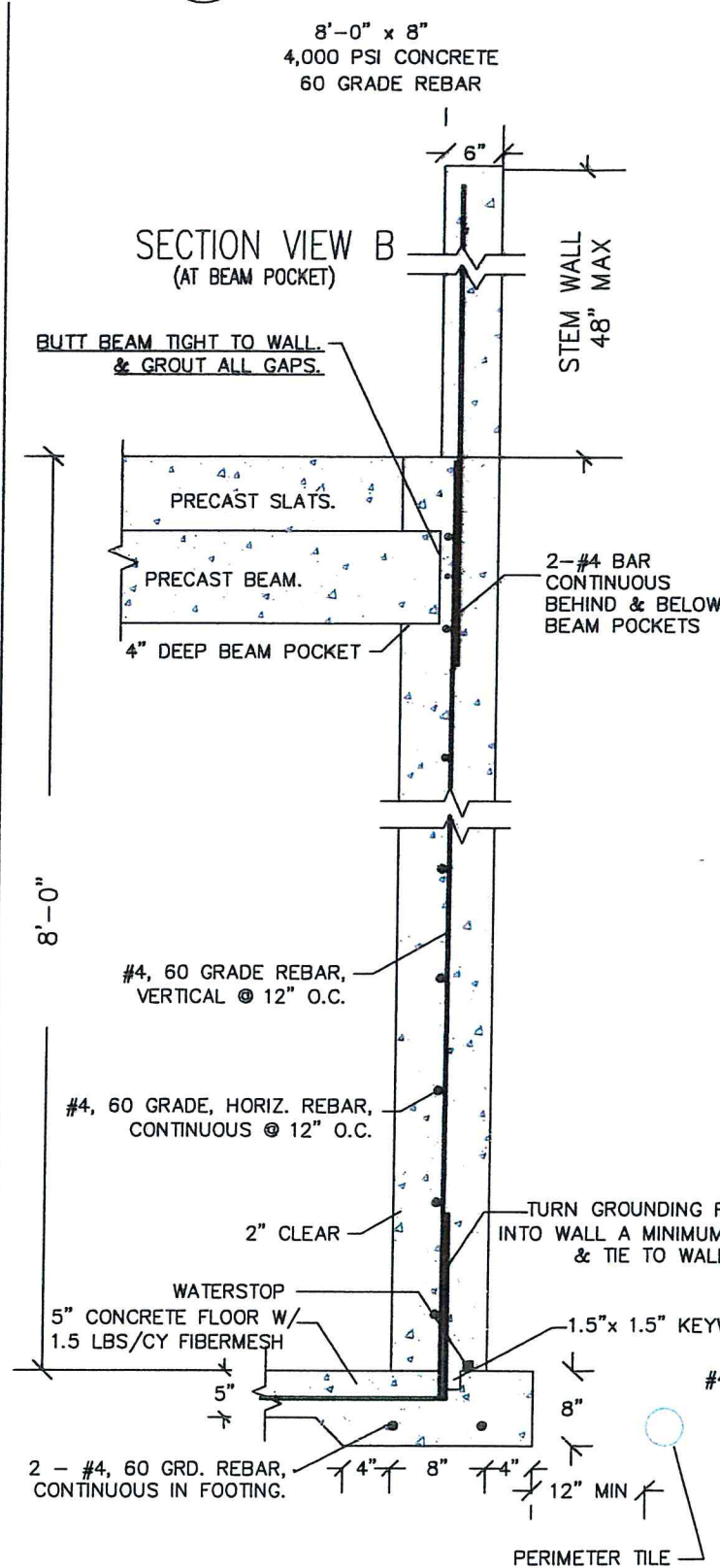


PIT FLOOR PLAN
(OUTSIDE DIMENSIONS 200'-0" x 101'-6")
NOT TO SCALE

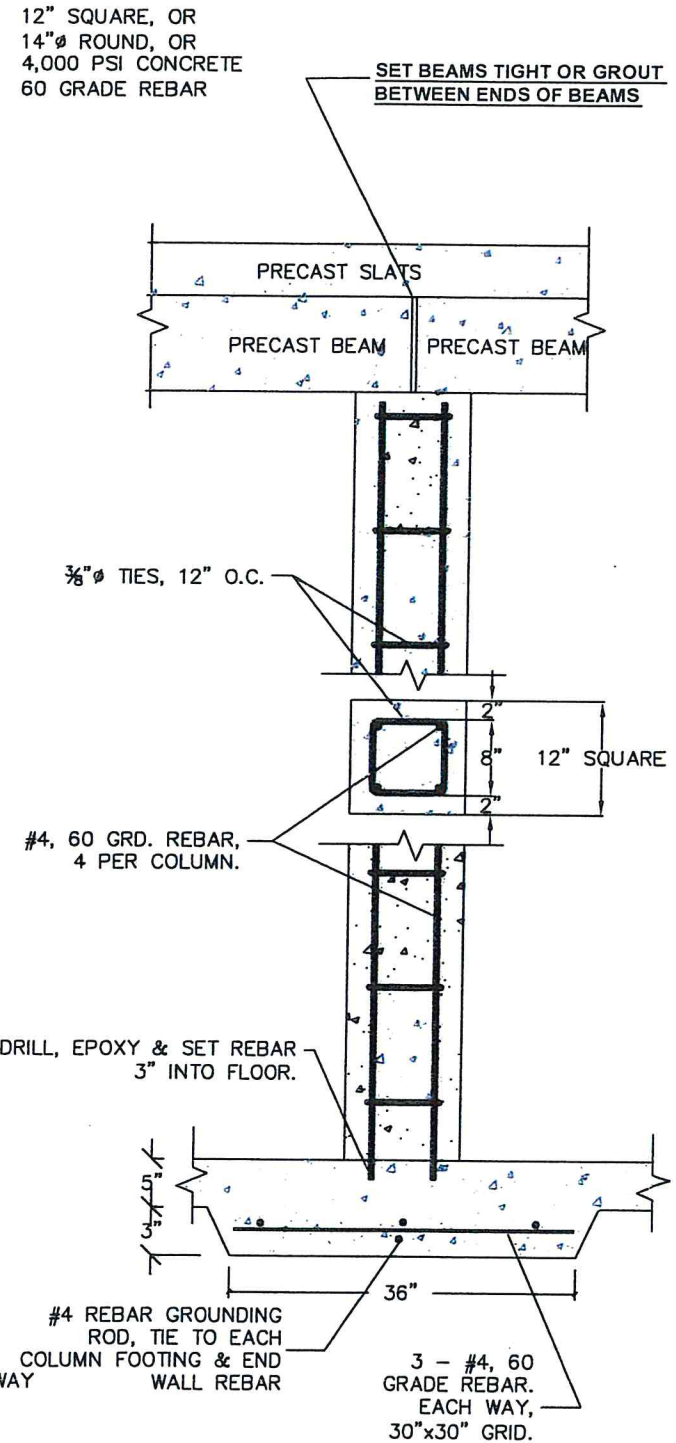
(A) SIDE WALL



(B) END WALL BRACING & BEAM POCKET



(C) COLUMN DETAIL



*IMPORTANT NOTE- PRECAST DIMENSIONS CHANGE BETWEEN SUPPLIERS. PRECAST DIMENSIONS MUST BE VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION.

SHEET 4/7

Project No. 18-184

Checked By N.J.R.

Date 12/14/18

Drawn D.D.A.

TYLER MAERTENS
PROPOSED SWINE CONFINEMENT BARN
NE 1/4, SECTION 34, T112N, R37W
REDWOOD COUNTY, MINNESOTA

ProAg Engineering, Inc.
77402 U.S. Highway 71, P.O. Box 181
Jackson, MN 56143
(507) 849-7200

***IMPORTANT NOTE**-NUMBER OF PUMPOUTS & LOCATIONS DETERMINED BY OWNERS DISCRETION. PRECAST DIMENSIONS CHANGE BETWEEN SUPPLIERS. PUMPOUT LOCATIONS AND PRECAST DIMENSIONS MUST BE VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION.

(D) PUMP OUT PLAN

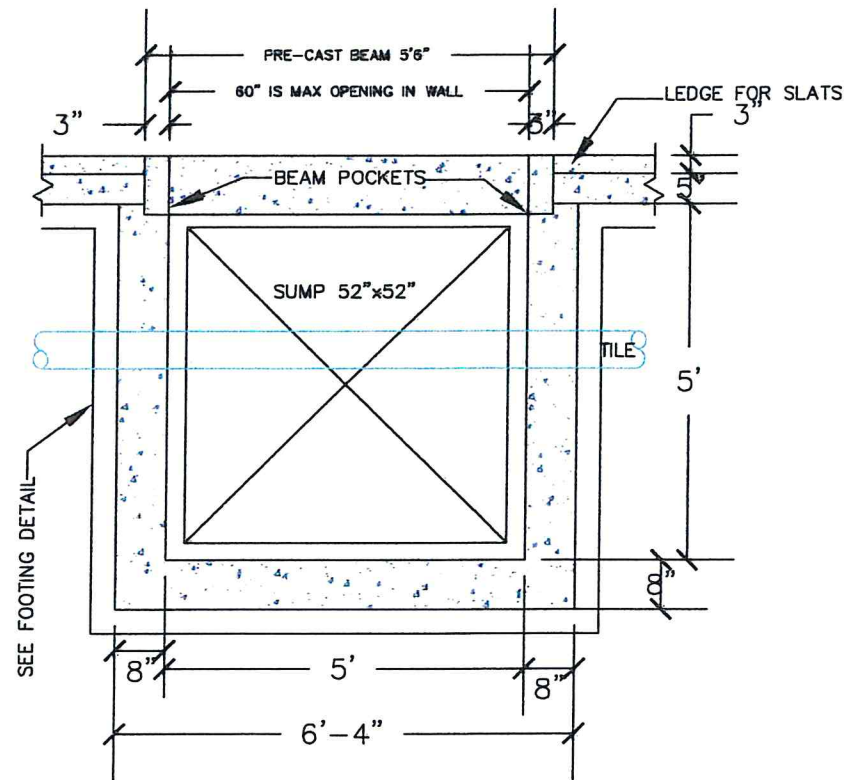
BEAM MAY BE CAST-IN-PLACE WITH STEM WALL.
MINIMUM OF 2-#4, 60 GRADE REBARS IN BOTTOM OF BEAM.

PUMPOUT FOOTINGS AND FLOOR SHALL BE POURED WITHOUT CONSTRUCTION JOINTS-SEE DETAIL 1.

KEYWAY UNDER WALLS SHALL BE CONTINUOUS AROUND CORNERS AND PUMPOUTS.

CONSTRUCTION JOINTS ARE NOT TO BE WITHIN THREE (3) FEET OF A PUMPOUT.

CAUTION: DO NOT DRIVE STAKES THRU PERIMETER TILE.

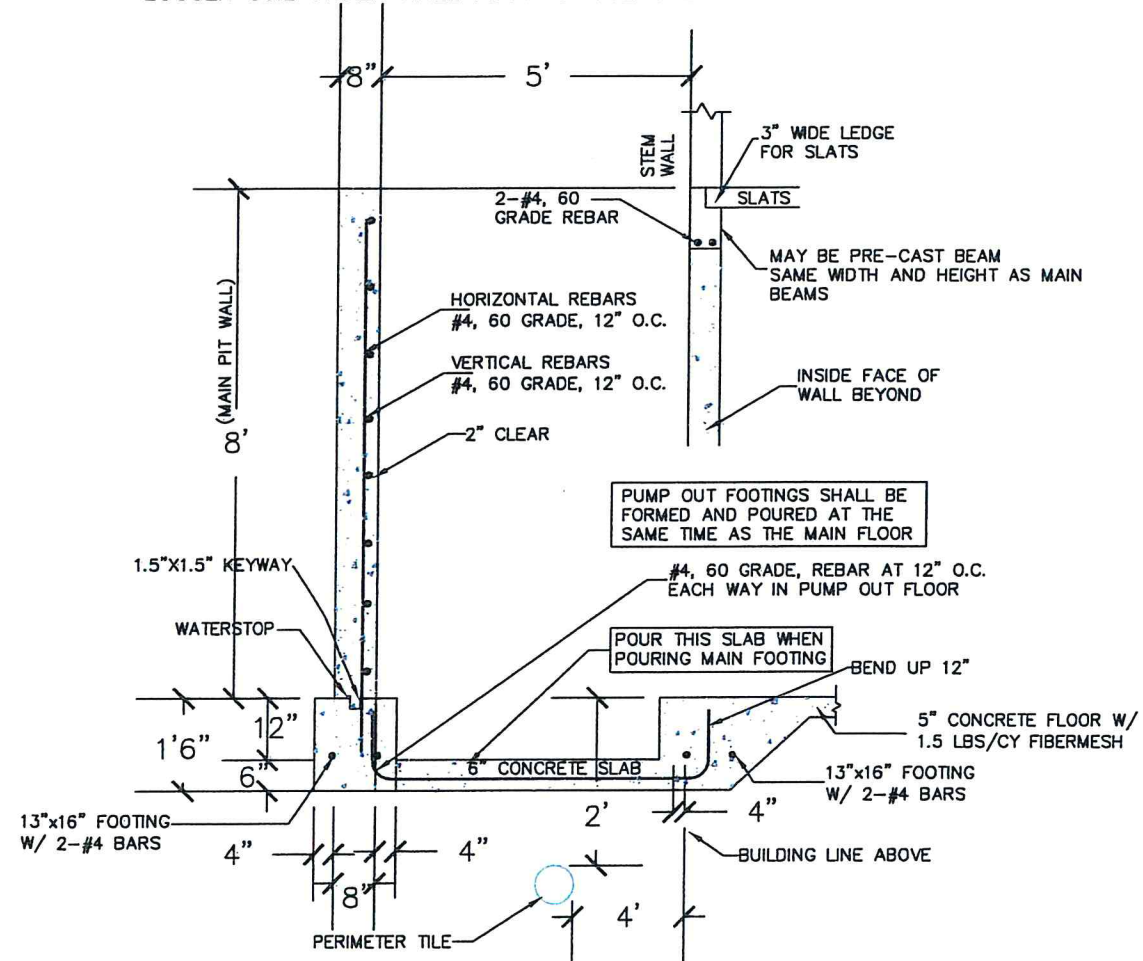


(E) PUMP OUT SECTION

8" THICK WALLS FOR 8'-0" DEEP PITS.

LOCATE PERIMETER TILE SO SIDE OF TRENCH BECOMES SIDE OF GENERAL EXCAVATION FOR PIT.

TO DEWATER THE SITE IN ADVANCE OF GENERAL EXCAVATION SHALL BE DECIDED BY THE OWNER, ENGINEER AND CONTRACTOR AT TIME OF THE PRECONSTRUCTION MEETING. IF THE TILE IS INSTALLED IN ADVANCE OF EXCAVATION, IT SHOULD BE INSTALLED 4 FT OUT FROM THE PIT WALL AND AT LEAST 2 FT BELOW THE TOP OF THE PIT FLOOR (IN ORDER TO GO UNDER PUMPOUT SUMP). SLOPE THE TILE AT 0.2 FT PER 100 FT TO THE SUMP OR DAYLIGHT OUTLET. PLOW TYPE MACHINES SHALL NOT BE USED WHEN INSTALLING PERIMETER TILE AROUND CONCRETE MANURE STORAGE STRUCTURES PRIOR TO GENERAL EXCAVATION, BECAUSE IT WILL LOOSEN SOIL UNDER WALL FOOTING. USE ONLY A BACKHOE OR TRENCHER.



SHEET
5/7

Project No.
18-184

Checked By
N.J.R.

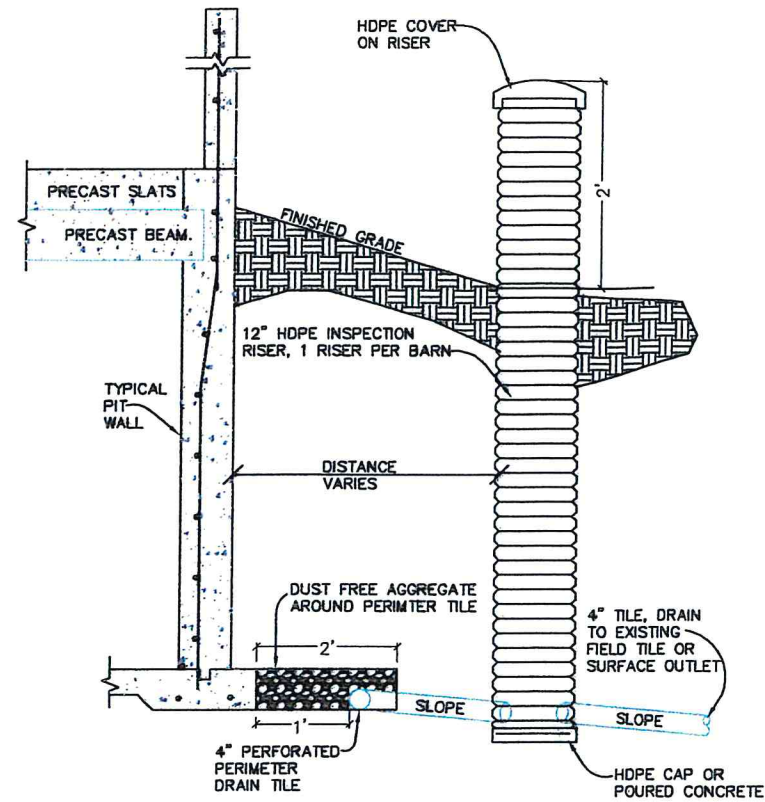
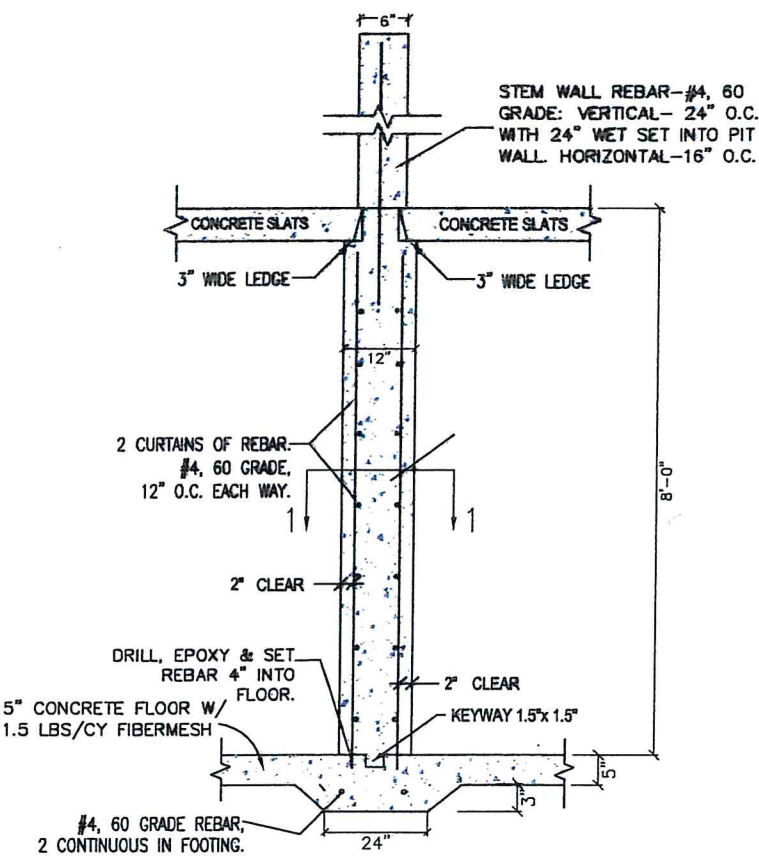
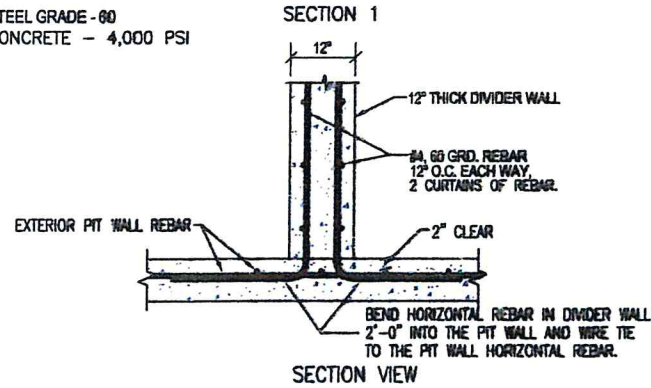
Date
12/14/18
Drawn
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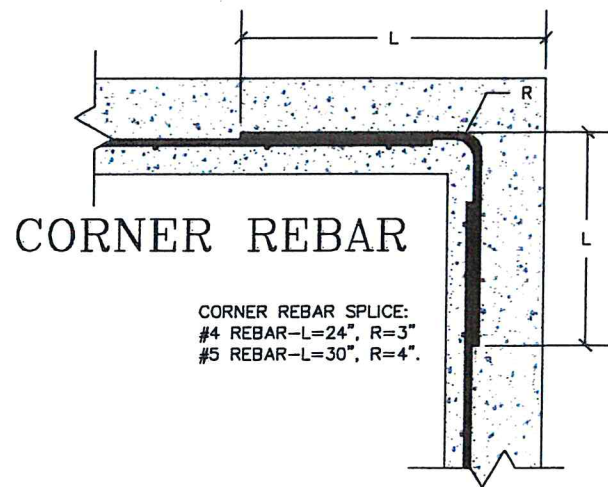
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12" DIVIDER WALL

STEEL GRADE - 60
CONCRETE - 4,000 PSI



INSPECTION RISER DETAIL-SECTION VIEW



CORNER REBAR

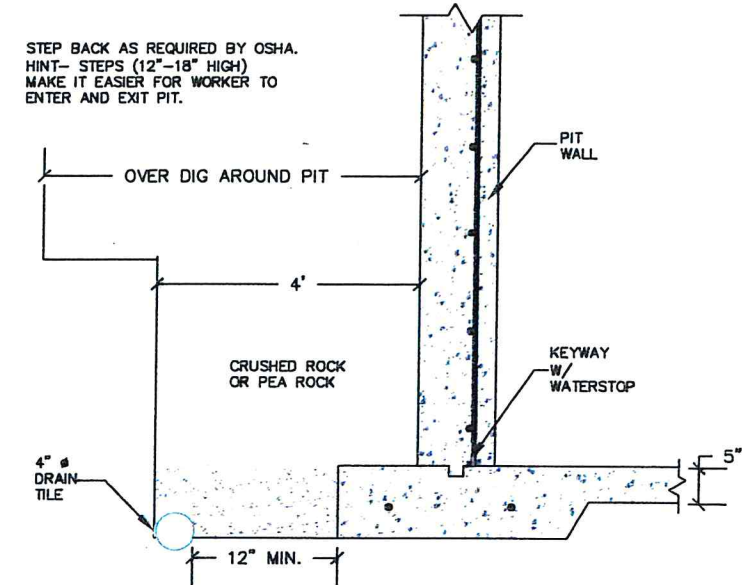
CORNER REBAR SPLICE:
#4 REBAR-L=24", R=3"
#5 REBAR-L=30", R=4"

*IMPORTANT NOTE - PRECAST DIMENSIONS CHANGE BETWEEN SUPPLIERS. PRECAST DIMENSIONS MUST BE VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION.

PERIMETER TILE

PERIMETER TILE WITH PEA ROCK COVER INSTALLED BY CONCRETE CONTRACTOR BEFORE POURING FLOOR SLAB.

STEP BACK AS REQUIRED BY OSHA. HINT- STEPS (12"-18" HIGH) MAKE IT EASIER FOR WORKER TO ENTER AND EXIT PIT.

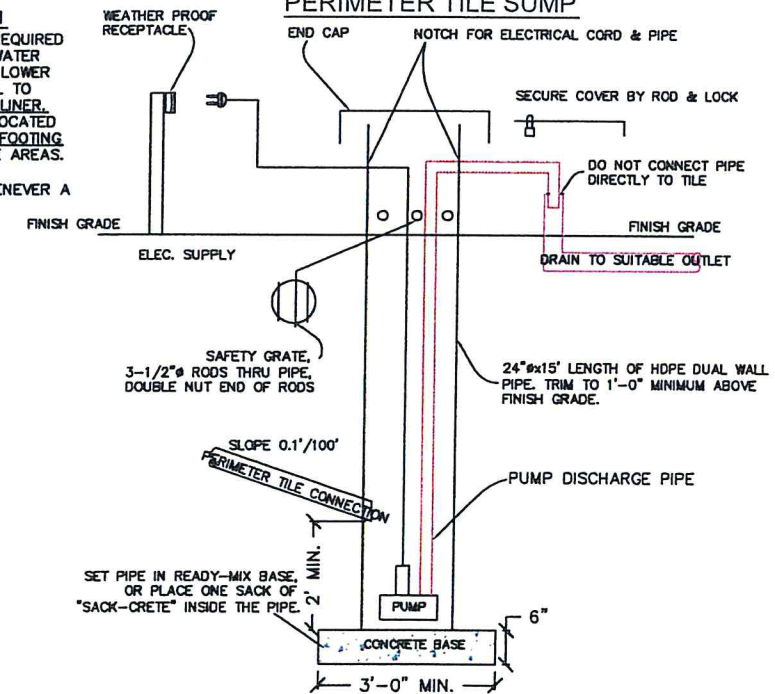


PERIMETER TILE SYSTEM

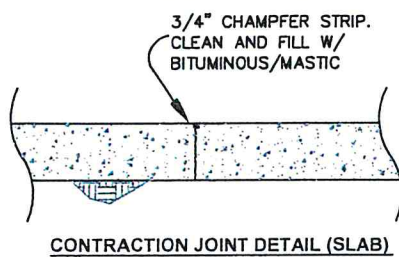
WHERE A PERIMETER TILE SYSTEM IS REQUIRED TO CONTROL THE ELEVATION OF THE WATER TABLE OR SATURATED SOILS, IT MUST LOWER THE WATER TABLE OR SATURATED SOIL TO BELOW THE BOTTOM OF THE STORAGE LINER. PERIMETER DRAINAGE TILE SHALL BE LOCATED AT LEAST ONE FOOT OUTSIDE OF THE FOOTING OF CONCRETE-LINED MANURE STORAGE AREAS.

SUMP PUMPS SHALL BE REQUIRED WHENEVER A GRAVITY OUTLET IS NOT AVAILABLE.

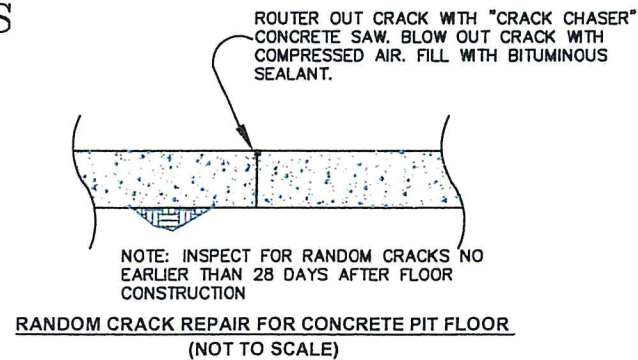
PERIMETER TILE SUMP



CONSTRUCTION JOINTS

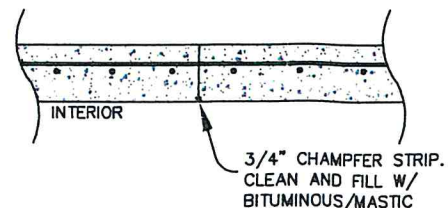


CONTRACTION JOINT DETAIL (SLAB)

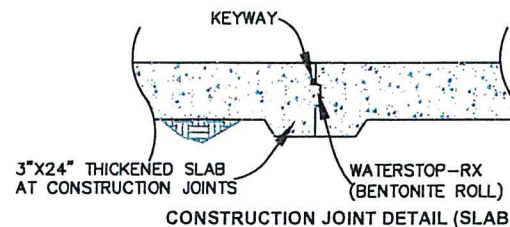


RANDOM CRACK REPAIR FOR CONCRETE PIT FLOOR (NOT TO SCALE)

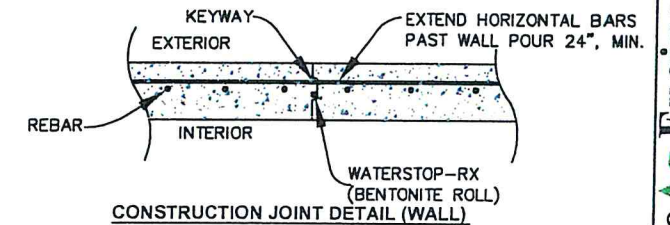
*REINFORCING CONTINUOUS THROUGH ALL JOINTS



CONTRACTION JOINT DETAIL (WALL)



CONSTRUCTION JOINT DETAIL (SLAB)



CONSTRUCTION JOINT DETAIL (WALL)

SHEET 6/7

Project No. 18-184

Checked By N.J.R.

Date 12/14/18
Drawn D.D.A.

TYLER MAERTENS
PROPOSED SWINE CONFINEMENT BARN
NE 1/4, SECTION 34, T112N, R37W
REDWOOD COUNTY, MINNESOTA

ProAg Engineering, Inc.
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Jackson, MN 56143
(507) 849-7200

CONCRETE & STRUCTURAL NOTES:

A. GENERAL

- NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE STRUCTURAL NOTES.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS PRIOR TO STARTING WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES.
- IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.
- DESIGN CHANGES MUST BE APPROVED IN WRITING BY BOTH THE OWNER AND ENGINEER BEFORE PROCEEDING WITH THE WORK. SOME DESIGN CHANGES MAY ALSO REQUIRE MPCA, COUNTY FEEDLOT OFFICER AND/OR NRCS APPROVAL.
- ANCHOR BOLTS SHALL BE SET AS SPECIFIED BY BUILDING CONTRACTOR.
- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES:
 - UNIFORM BUILDING CODE (UBC)
 - MINNESOTA STATE BUILDING CODE
 - AMERICAN CONCRETE INSTITUTE (ACI)
 - CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE

B. DRAIN TILE

- BEFORE ANY PIT CONSTRUCTION, TRENCH AND INSTALL DRAIN AROUND THE PROPOSED PIT, THE DRAIN TILE FLOW LINE MUST BE A MINIMUM OF 12" BELOW THE TOP.
- THE DRAIN TILE SHALL BE HEAVY DUTY PERFORATED POLYETHYLENE TUBING 4"Ø TILE WITH PEA ROCK COVER OR 4"Ø TILE W/ FABRIC SLEEVE AND SAND/GRAVEL COVER.
- CONNECT THE DRAIN TILE TO AN EXISTING FARM TILE IF AVAILABLE; DISCHARGE TO SURFACE DRAINAGE; OR DRAIN TO A SUMP AND PUMP TO SURFACE.

C. TEMPORARY BRACING AND BACKFILL

- PROVIDE TEMPORARY LATERAL SUPPORT FOR ALL WALLS WHERE GRADE VARIES ON THE TWO SIDES UNTIL THE PERMANENT STRUCTURAL SUPPORT SYSTEM IS IN PLACE.
- BACKFILL ONLY AFTER THE FLOOR SLATS OR SOLID FLOOR HAS BEEN INSTALLED.
- DO NOT BACKFILL AGAINST WALL UNTIL SLATS ARE INSTALLED AND GROUTED.
- CONCRETE IN ALL WALLS SHALL BE ALLOWED TO CURE FOR A MINIMUM OF 14 DAYS BEFORE BACKFILL IS PLACED AGAINST WALLS. EXERCISE CAUTION WHEN BACKFILLING TO BRING UP THE LEVEL UNIFORMLY ON ALL SIDES OF TANKS AND PITS.

D. FOOTINGS, FOUNDATIONS & SUBGRADE

- SOIL BEARING DESIGN VALUE;.....3000 PSF (ASSUMED) ON VIRGIN SOIL OR COMPACTED FILL FOR FOOTINGS.
- PROTECT FOUNDATION EXCAVATIONS FROM FROST. DO NOT PLACE CONCRETE ON FROZEN GROUND.
- EXISTING DISTURBED SUBGRADE SHALL BE RECOMPACTED TO 95 % OF STANDARD PROCTOR DENSITY.
- ALL FILL UNDER FOOTINGS AND SLAB SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 95 % OF MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-180.
- SAND FILL AS REQUIRED FOR LEVELING SUBGRADES SHALL BE PROVIDED AT ALL SLAB ON GRADE AREAS.

E. REINFORCED CONCRETE

- ALL CONCRETE AND REINFORCING WORK SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE'S "STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", (ACI 318-05)
- CONCRETE WORK SHALL CONFORM TO ALL THE REQUIREMENTS OF ACI 301.
- CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF $f'c=3500$ PSI FLOOR, 4000 PSI WALLS
- WATER CEMENT RATIO SHALL BE 0.45 MAXIMUM
- CEMENT SHALL CONFORM TO ASTM C150, TYPE 1.
- COARSE AGGREGATE SHALL BE 1".
- READY-MIX CONCRETE SHALL BE MIXED & DELIVERED IN ACCORDANCE WITH ASTM C94.
- SLUMP SHALL BE MAXIMUM OF 5"
- AIR CONTENT SHALL BE 5% TO 7%
- CONCRETE TO BE CURED WITH SONOBORN CURE AND SEAL OR EQUAL.
- ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER FOR THE PURPOSE OF INCREASING THE WORKABILITY BUT NOT TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. CALCIUM CHLORIDE SHALL NOT BE USED.
- FLOORS SHALL BE 5" THK. WITH WITH 1-1/2#/CY OF 3/4" FIBRILLATED POLYPROPYLENE FIBERS.
- REINFORCING STEEL SHALL BE PLACED IN THE CENTER OF CONCRETE PLACEMENT UNLESS NOTED OTHERWISE. STEEL MUST BE SUPPORTED WITH APPROPRIATE CHAIRS OR CONCRETE BLOCKS.
- IF CONSTRUCTION JOINTS NECESSARY, COORDINATE LOCATION WITH ENGINEER.
- CONSTRUCTION JOINTS ARE NOT PERMITTED IN THE END WALLS OR WITHIN 3 FT. OF A PUMPOUT. THE PUMPOUT FLOOR AND FOOTING MUST BE FORMED AND POURED WITH THE PIT FLOOR. THE PUMPOUT WALLS MUST BE FORMED AND POURED WITH THE PIT WALLS.

F. STEEL

- $F'Y =$ GRADE 60 (60,000 PSI) DEFORMED STEEL.
- REINFORCING SHALL BE CONTINUOUS AND LAP A MINIMUM OF 40 BAR DIAMETER UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL BE LAPPED A MINIMUM OF EIGHT INCHES.
- MINIMUM BENDING RADIUS SHALL BE 6 BAR DIAMETERS.
- MINIMUM BEND AROUND CORNERS FOR #4 BARS - 24", FOR #5 BARS - 30".
- ALL CONCRETE IS REINFORCED UNLESS SPECIFICALLY CALLED OUT AS "NOT REINFORCED". REINFORCE ALL CONCRETE NOT OTHERWISE SHOWN WITH THE SAME STEEL AS IN SIMILAR SECTIONS OR AREAS.
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR FOR REINFORCEMENT UNLESS OTHERWISE NOTED:

WHERE CAST AGAINST EARTH	3 INCHES
WALLS AND SLABS (EXPOSED TO EARTH OR WEATHER).....	2 INCHES
OTHER.....	2 INCHES

G. TOLERANCES & QUALITY CONTROL

- COLUMN FINISH ELEVATIONS SHALL BE + OR - 1/4" FROM DESIGN ELEVATION.
- WALL ALIGNMENT (HORIZONTAL) SHALL DEViate NO MORE THAN 1/4" IN 10 FT. NO MORE THAN 3/4" OVER THE FULL LENGTH OF WALL.
- WALL BEARING LEDGE ELEVATIONS SHALL BE + OR - 1/4" FROM DESIGN ELEVATION IN 10 FT. AND NO MORE THAN 1/2" OVER THE FULL LENGTH OF WALL.
- OVERALL FOUNDATION LENGTH & WIDTH DIMENSIONS AND DIAGONAL DIMENSIONS SHOULD BE WITHIN 1/2" OF PLAN DIMENSIONS.
- HONEYCOMB AND SHRINKAGE CRACKS WIDER THAN THE THICKNESS OF A PLASTIC CREDIT CARD SHALL BE FILLED WITHIN 48 HOURS WITH CEMENT GROUT SLURRY MOPPED INTO THE CRACKS. DO THE GROUTING OF FLOOR CRACKS BEFORE DIRT AND EQUIPMENT ARE BROUGHT ON THE FLOOR.

H. ELECTRICAL GROUND

- INSTALL REINFORCING BARS AS PER ELECTRICAL CODE GROUND AT A MINIMUM LOCATIONS AS PER ELECTRIC CODE NOTIFY THE LOCAL ELECTRICAL INSPECTOR FOR INSPECTION PRIOR TO PLACING CONCRETE.

I. COLD WEATHER CONCRETING

- WHEN, FOR MORE THAN 3 CONSECUTIVE DAYS, THE MEAN DAILY TEMPERATURE DROPS BELOW 40° F., THE CONTRACTOR SHALL PLACE AND PROTECT THE CONCRETE IN ACCORDANCE WITH ACI 306.

J. HOT WEATHER CONCRETING

- WHEN IT IS LIKELY THAT TEMPERATURE BETWEEN 75° F AND 100° F WILL BE APPROACHED OR EXCEEDED; THAT LOW RELATIVE HUMIDITY IS PRESENT; OR WIND VELOCITY WILL EXCEED 10 MPH, THE CONTRACTOR SHALL PLACE & PROTECT THE CONCRETE IN ACCORDANCE WITH CHAPTERS 4 & 5 OF ACI 305.

K. WATERSTOPS & SEALANTS

- WATERSTOP TO BE RIBBED PVC, OR BENTONITE ROLL, AT CONTRACTORS OPTION.
- 3/8"x3/4" BENTONITE/BUTYL RUBBER EQUAL TO WATERSTOP-RX BY AMERICAN COLLIED COMPANY WATERSTOPS SHALL BE PLACED IN ALL CONSTRUCTION JOINTS ON THE FLOOR AND IN THE WALLS. LOCATION AND NUMBER OF CONSTRUCTION JOINTS ARE TO BE DETERMINED BY THE CONTRACTOR. WATERSTOPS SHALL BE SUITABLE FOR USE WITH MANURE.
- MAKE PVC WATERSTOP SPLICES WITH SPLICING IRON.
- SEALANT TO BE ELASTOMETRIC POLYURETHANE OR BITUMINOUS ASPHALT BASED.

*IMPORTANT NOTE- PRECAST DIMENSIONS CHANGE BETWEEN SUPPLIERS. PRECAST DIMENSIONS MUST BE VERIFIED WITH THE OWNER PRIOR TO CONSTRUCTION.

SHEET
7/7

Project No.
18-184

Checked By
N.J.R.

Date
12/14/18

Drawn
D.D.A.

TYLER MAERTIENS
PROPOSED SWINE CONFINEMENT BARN
NE 1/4, SECTION 34, T112N, R37W
REDWOOD COUNTY, MINNESOTA

ProAg Engineering, Inc.
77402 U.S. Highway 71, P.O. Box 181
Jackson, MN 56143
(507) 849-7200

SLAT LEDGES & STEM WALL CONCRETE NOTES

1.) ANY SLAB ON GRADE WHICH WILL HAVE A VERTICAL WALL ON TOP SHALL HAVE A KEYWAY AND WATERSTOP AT SLAB/WALL INTERFACE.

2.) WATERSTOP TO BE BENTONITE ROLL OR RIBBED PVC @ CONTRACTORS OPTION.

3.) SLAT LEDGES MUST BE 3" WIDE x 5 1/2" HIGH.

4.) 12" CENTER DIVIDER WALLS: THE 3" WIDE x 5 1/2" LEDGE ON BOTH SIDES OF THE 12" WALL MUST BE FORMED AND POURED WITH THE WALL.

5.) 8" OUTSIDE WALLS: THE 3" WIDE x 5 1/2" LEDGE ON INSIDE SIDE OF 8" WALL MUST BE FORMED AND POURED WITH WALL.

DO NOT POUR WALL AND SET SLATS ON TOP. DO NOT EVEN ASK. BECAUSE THE 5 1/2" HIGH STEM IS NEEDED FOR SLATS BRACING THE TOP OF WALL

6.) A CONSTRUCTION JOINT IS PERMITTED BETWEEN THE PIT WALL AND STEM WALL, BUT THE CONSTRUCTION JOINT MUST BE EQUAL OR HIGHER THAN THE TOP OF THE PRE-CAST SLATS.

SUBSURFACE SOIL LOG

PROJECT: Tyler Maertens

BORING NO: 1

PROJECT NO: 18-184

DATE DRILLED: 12/6/2018

DRILLED BY: Contractor

ProAg Engineering, Inc.
77402 Highway 71 P.O. Box 181
Jackson, MN 56143 (507-849-7200)

CLASSIFIED BY: Taylor Salzwedel

ELEVATION (USGS)	DEPTH BELOW SURFACE	SOIL DESCRIPTION	USCS Symbol
1069.3	GRADE		
	0	(TOPSOIL) DARK BROWN SILTY CLAY LOAM (FROST 0-8")	CL
	2	BROWN SILTY CLAY LOAM, TRACE GRAY MOTTLES, TRACE Fe CONCRETIONS, MEDIUM CONSISTENCY	CL
	4		
	6		
	8		
1060.0	PROPOSED BOTTOM OF PIT		
	10		
	12		
1055.0	BOTTOM OF TEST HOLE		
	14	*TEST HOLE DUG & FILLED BY BACKHOE TO PREVENT VERTICAL GROUNDWATER TRANSPORT, PER MN RULES*	
	16		
	18	*SOILS ARE SUITABLE FOR PROPOSED PIT FOUNDATION	
	20	**PERIMETER TILE REQUIRED**	
	22		
	24		
	26		
	28		
	30		
	32		

-NO GROUNDWATER MEASURED, HOLE WAS DRY 12/6/18

SUBSURFACE SOIL LOG

PROJECT: Tyler Maertens

BORING NO: 2

PROJECT NO: 18-184

DATE DRILLED: 12/6/2018

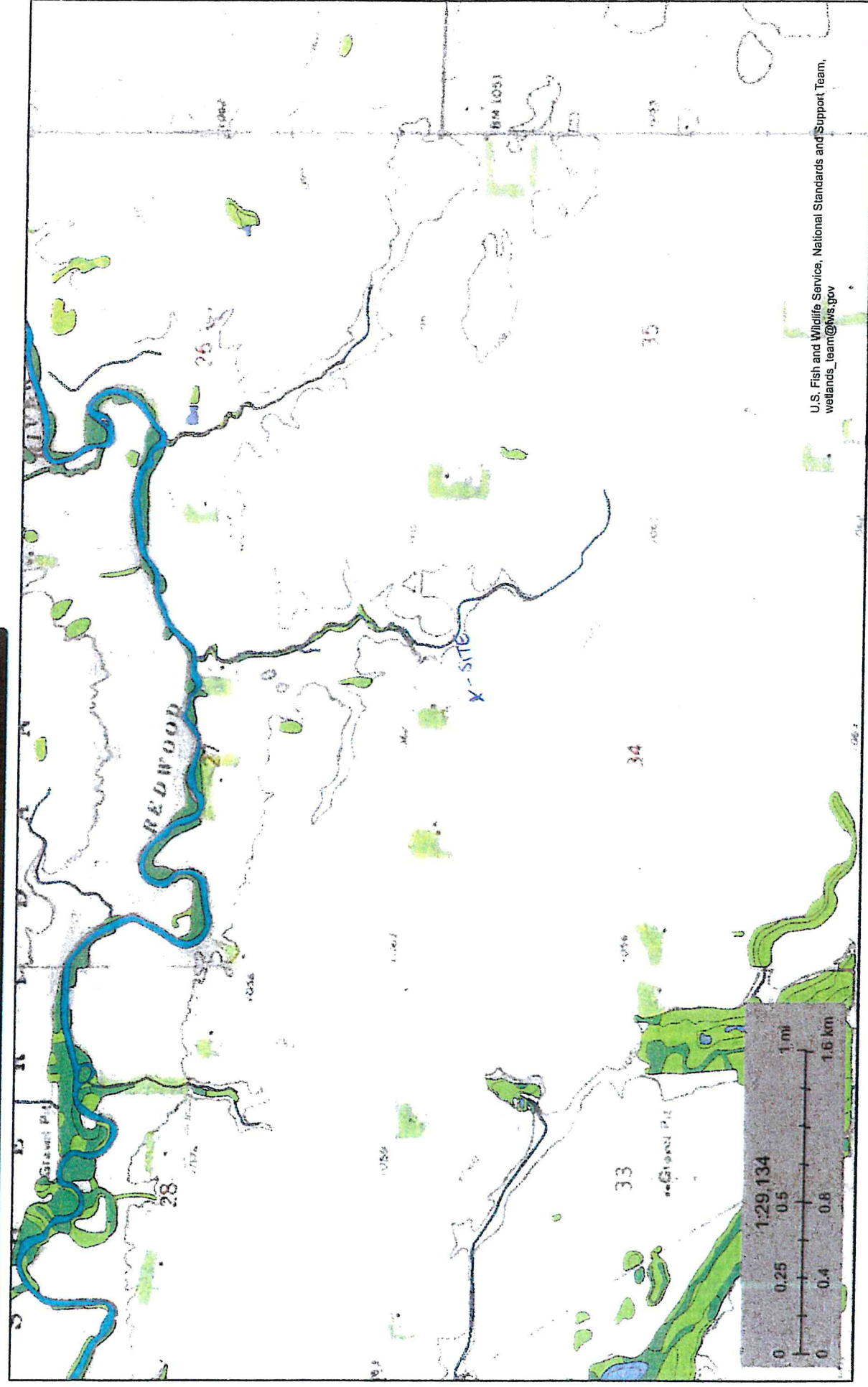
DRILLED BY: Contractor

ProAg Engineering, Inc.
77402 Highway 71 P.O. Box 181
Jackson, MN 56143 (507-849-7200)

CLASSIFIED BY: Taylor Salzwedel

ELEVATION (USGS)	DEPTH BELOW SURFACE	SOIL DESCRIPTION	USCS Symbol
1061.6	GRADE		
	0	(TOPSOIL) DARK BROWN SILTY CLAY LOAM (FROST 0-6")	CL
1060.0	PROPOSED BOTTOM OF PIT		
	2	BROWN SILTY CLAY LOAM, TRACE GRAY MOTTLES, TRACE Fe CONCRETIONS, MEDIUM CONSISTENCY	CL
	4		
	6		
	8		
1051.6	BOTTOM OF TEST HOLE		
	10	*TEST HOLE DUG & FILLED BY BACKHOE TO PREVENT VERTICAL GROUNDWATER TRANSPORT, PER MN RULES*	
	12		
	14	*SOILS ARE SUITABLE FOR PROPOSED PIT FOUNDATION	
	16	**PERIMETER TILE REQUIRED**	
	18		
	20		
	22		
	24		
	26		
	28		
	30		
	32		

-NO GROUNDWATER MEASURED, HOLE WAS DRY 12/6/18



U.S. Fish and Wildlife Service, National Standards and Support Team,
 wetlands_team@fws.gov

December 7, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)

National Flood Hazard Layer FIRMette

4°28'21.28"N



SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, A0, A1, V1, A1
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Are of 1% annual chance flood with average depth less than one foot or with dralnai areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone X

OTHER AREAS

- Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone X

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- Cross Sections with 1% Annual Chance
- Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

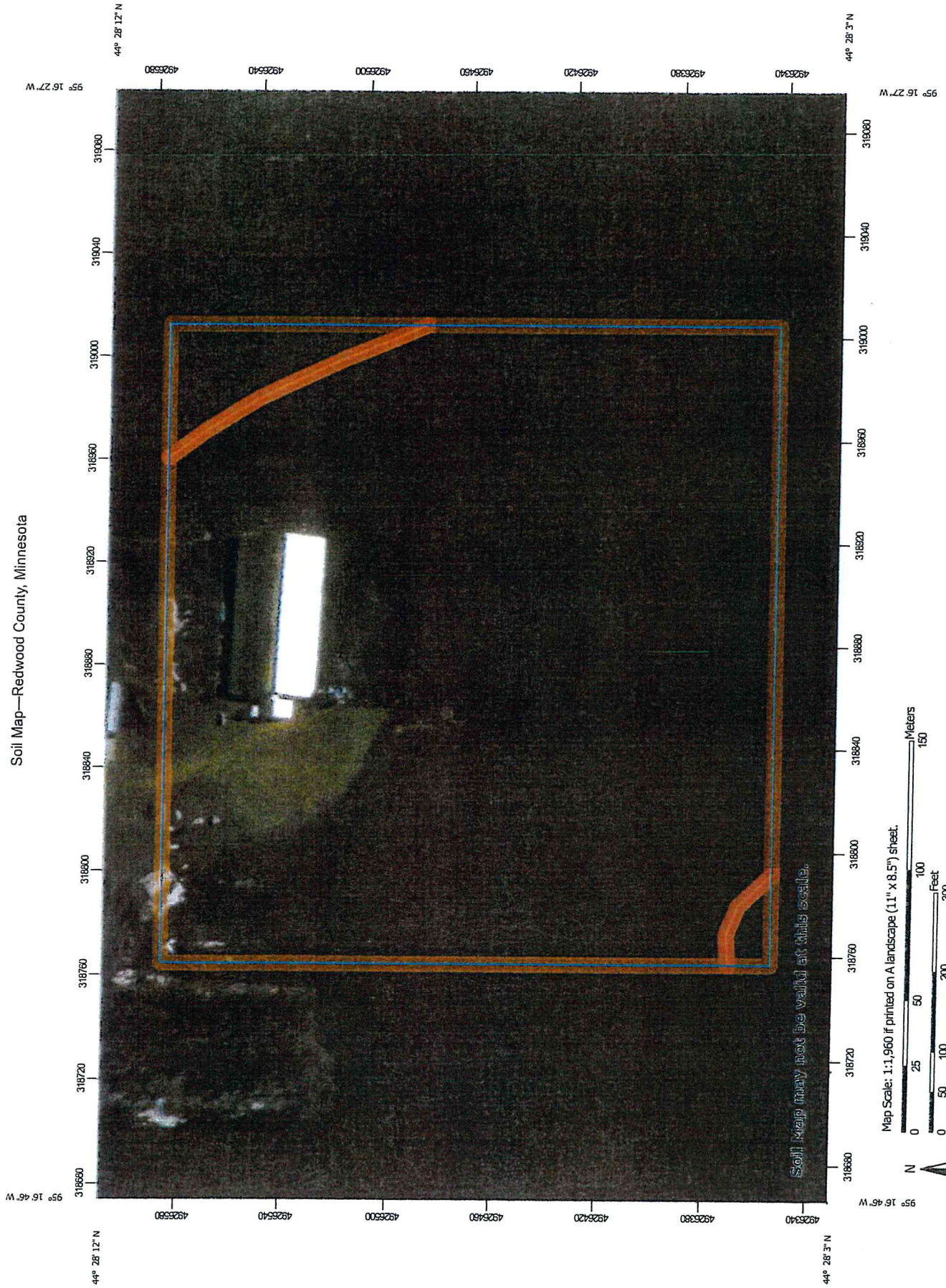
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/7/2018 at 2:45:55 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for

95°16'18.06"W

U.S. The National Map, Orthoimagery. Data refreshed October 2017. 44°27'55.61"N

Feet 1:6,000



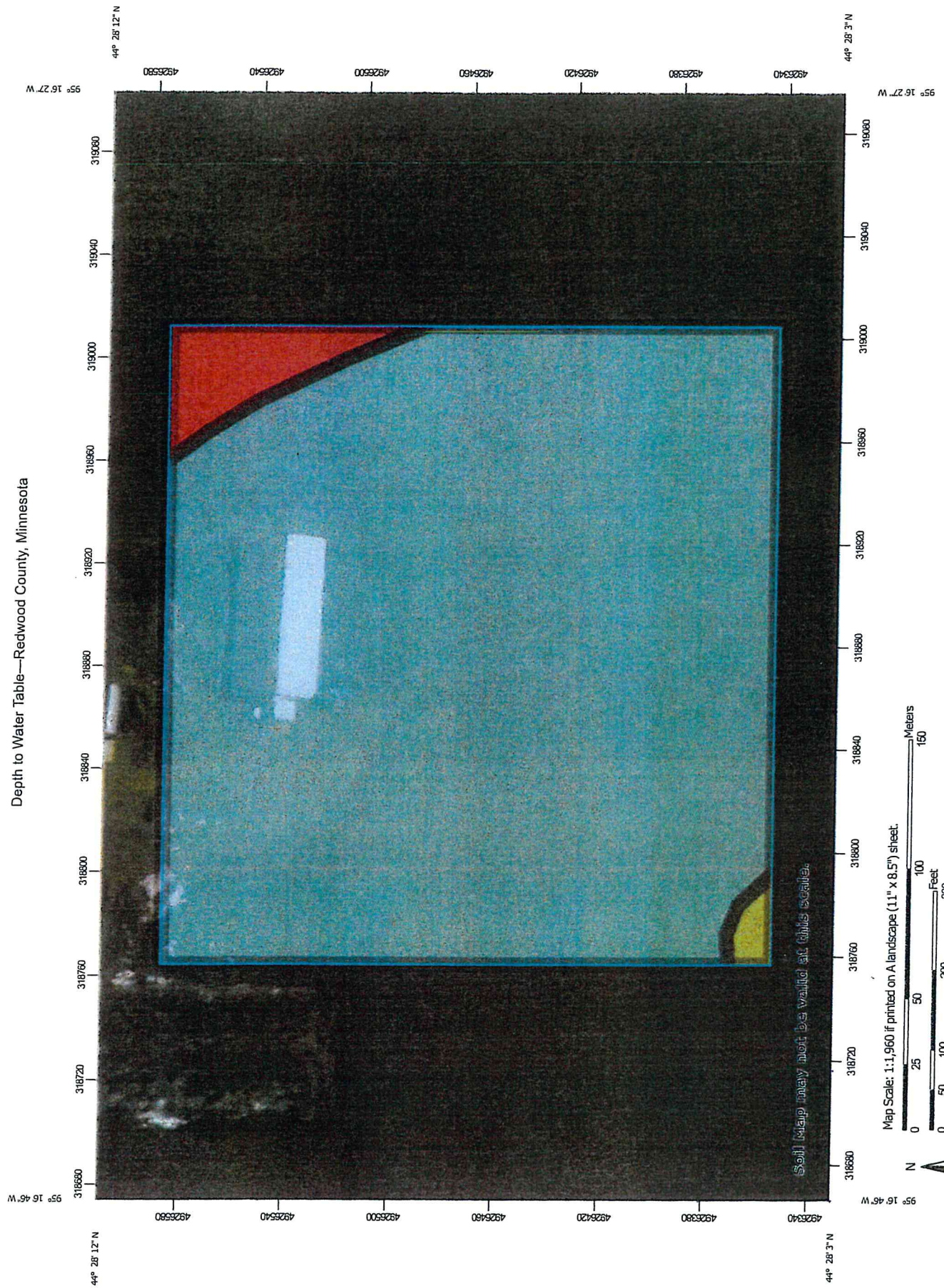
USDA
**Natural Resources
 Conservation Service**

Web Soil Survey
 National Cooperative Soil Survey

12/17/2018
 Page 1 of 3

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
421B	Amiret loam, 2 to 6 percent slopes	13.6	95.3%
884	Webster-Delft complex, 0 to 2 percent slopes	0.6	3.9%
L201A	Normania loam, 1 to 3 percent slopes	0.1	0.8%
Totals for Area of Interest		14.3	100.0%



Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
421B	Amiret loam, 2 to 6 percent slopes	110	13.6	95.3%
884	Webster-Delft complex, 0 to 2 percent slopes	0	0.6	3.9%
L201A	Normania loam, 1 to 3 percent slopes	70	0.1	0.8%
Totals for Area of Interest			14.3	100.0%

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December



ENGINEERING, INC.

77402 U.S. Hwy 71
P.O. Box 181
Jackson, MN 56143
507-841-3269
nic@proageng.com

TO: OWNER

INSTRUCTIONS FOR OWNER TO FOLLOW BEFORE—DURING—AFTER CONSTRUCTION OF MANURE STORAGE

1. Distribute only complete sets of plans and specifications: Keep a record of who gets plans because you may need to retrieve them later. Please call if you need more copies.
2. Ask your feedlot officer to send a copy of your feedlot permit to ProAg Engineering, Inc.. We need this so we know who issued the permit and where reports should be sent.
3. Each Contract for construction of the liquid manure storage (Concrete, tiling earthen basins) should include the following statement:
 - 10% of the contract amount will be held back until the MPCA Construction Inspection of Liquid Manure Area form has been signed by the Contractor and returned to the Engineer and Engineer certifies that the contract work is complete.
4. **A Pre-Construction Meeting shall be held before you start construction.** The pre-construction meeting must include the Owner, Engineer, Excavating Concrete Contractors, and County Feedlot Officer. If you start construction without a pre-construction meeting, we reserve the right to cancel our contract
5. You must notify ProAg Engineering, Inc. and the Permitting Agency:
 1. Three days before you start construction.
 2. Three days before you backfill.
 3. Within three days of completion.
6. Pictures should be taken as the work progresses. This is good protection for you because if problems develop later, you will have a record of what was done. If the Engineer finds problems during inspection, he may request copies of the pictures. Close up pictures showing details are more important than panoramic views. Suggest using single use or digital cameras.
7. MPCA requires that the design engineer submit a written construction report. We cannot do our final inspection and impact hammer test until the concrete is at least 28 days old and all accessory details shown on plans and specs are completed. Then allow at least 2 weeks for us to inspect and write our report.
8. **DO NOT** make a final payment to contractor until the Engineer's certifies that work is complete.
9. **DO NOT** put manure in the structure until you have received Engineer's Construction Report.

INSPECTIONS: *ProAg Engineering, Inc. must inspect before pouring concrete

Owner: _____

Location: _____

Barn or Tank Identification: _____

Date _____ Comment _____ Initials _____

Subgrade (No standing water or mud, forms set for proper floor thickness)

Floor Reinforcement (Grade, size, clean, location)

*Pouring Floor (Concrete, quality, take test cylinder)

Floor (Cracks sealed)

Perimeter Tile, Monitoring Port or Sump & Pump, Tile Outlet (Functional before forming walls)

Wall Forms and Reinforcement (Grade of steel, spacing, vertical reinforcement secured)

*Pouring Walls (Concrete quality, take test cylinders)

Water Supply Lines (None permitted through pit floor or walls below the HW line)

Outside of Walls (Honeycomb patched prior to backfilling)

Inside of Walls (Honeycomb patched)

Walls (Do impact hammer test)

Columns (Honeycomb patched)

Beams Grouted (First 3 beams at end walls and each side of solid divider walls)

Slats Grouted (Prior to backfilling)

Backfill (Height and slope to drain roof away from barns)

Finish Grading (Roads, drives, storm water catch basins & drainage)



Nicholaus J. Rowe, P.E.
 77402 U.S. Hwy 71
 P.O. Box 181
 Jackson, MN 56143
 507-841-3269
nic@proageng.com

PRE-CONSTRUCTION MEETING

PROJECT: _____ **DATE:** _____

LOCATION: ___ 1/4, SECTION ___, TWP. _____ CTY _____

OWNER: _____ **PHONE:** _____
 Owner's Representative _____ **PHONE:** _____ (to
 conduct weekly inspections for SWPPP and notify Engineer and Feedlot Officer.)

GENERAL CONTRACTOR
 Contact _____ **PHONE:** _____

EXCAVATION CONTRACTOR
 Contact _____ **PHONE:** _____
 Date to start excavation work _____

CONCRETE CONTRACTOR
 Contact _____ **PHONE:** _____
 Date to start concrete work _____

CONCRETE READY MIX
 Contact _____ **PHONE:** _____

PRE-CAST CONCRETE
 Contact _____ **PHONE:** _____

GROUTS, BEAMS AND SLATS
 Contact _____ **PHONE:** _____

FEEDLOT OFFICER _____ **PHONE:** _____

ELECTRICAL INSPECTOR _____ **PHONE:** _____

ENGINEER _____ **PHONE:** _____

PRE-CONSTRUCTION MEETING CHECK LIST

OW-Owner, OR-Owner's Representative, CC-Concrete Contractor,
 EC-Electrical Contractor, EN-Engineer, EX-Excavator, PC-Precast Supplier

ITEM	RESPONSIBILITY
1) Telephone directory	_____
2) Port-a-potty or Johnny-on-the-spot	_____
3) Storm Water Pollution Prevention Plan, SWPPP, weekly inspections.	_____
4) Stake out buildings and pits	_____
5) Locate underground utilities	_____
6) Call UTILITIES CALL CENTER	_____
7) Notify Engineer three days before starting	_____
8) Notify Engineer three days before backfilling	_____
9) Notify Electrical Inspector for grounding inspections	_____
10) Notify Engineer four hours before each concrete pour	_____
11) Temporary electrical power	_____
12) Temporary Water	_____
13) Telephone service	_____
14) Layout worksite, limits of worksite	_____
15) Equipment and employee parking	_____
16) Dirt stockpile area	_____
17) Construction materials stockpile area(s)	_____
18) Keep traffic off septic drainfield area(s)	_____
19) Security (daytime, night time)	_____
20) Bio-security	_____
21) Refuse disposal dumpster/burn pit	_____
22) Concrete truck wash-out area	_____
23) Does everyone have correct plans?	_____
24) At completion of construction, notify Engineer for final inspection	_____
25) Contractor sign MPCA Construction Report	_____

SPECIFICATIONS for Concrete Lined Manure Storage Areas

01001 QUALITY ASSURANCE AND CONTROL PLAN

Work under these specifications is subject to County and MPCA inspection and review.

- A. BEFORE STARTING CONSTRUCTION, Owner shall:
1. Consult the feedlot permit for required submittals, notifications and approvals.
 2. Arrange for pre-construction meeting with engineer, owner and contractors.
 3. Notify engineer, 3 days before starting construction.
 4. Notify permitting agency (MPCA or County) 3 days before starting construction.
- B. DURING CONSTRUCTION, Concrete Contractor shall:
1. Notify Engineer, minimum 4 hrs before each concrete pour.
 2. Wait for Engineer's inspection before pouring concrete.
 3. Concrete testing will occur at a minimum of one sample per 100 yards of placed concrete. Testing will include: Air/Slump/Strength per ASTM standards. Sampled concrete will be later tested at a certified testing facility to determine PSI strength requirements and quality assurance.
 4. If concrete is provided by different supplier or with different mixes, additional testing will be done on the first truck according to ASTM standards. Engineer must be notified immediately if any change does occur.
- C. BEFORE POURING CONCRETE PIT FLOORS; the following must be completed:
1. Contractor give Engineer & Electrical Inspector advance notice.
 2. Engineer inspect subgrade and floor slab thickness (full 5" thick).
 3. Engineer inspect grade and placement of reinforcing steel.
Steel shall be supported on chairs and tied.
 4. Perimeter tile shall be laid at least 12 inches from pit wall and covered with pea rock or 1/4" - 1/2" crushed rock.
 5. Grounding inspection by Electrical Inspector.
- Placement of the perimeter tile and rock cover shall be done by the Concrete Contractor. Tile and rock provided by Owner.
- D. BEFORE POURING CONCRETE PIT WALLS; the following must be completed:
1. Contractor give Engineer & Electrical Inspector advance notice.
 2. Engineer inspect forms, reinforcing steel, waterstop and tile.
 3. Tile system shall be working with (temporary or permanent) automatic sump pump or daylight outlet.
 4. Grounding inspection by Electrical Inspector.
- E. BEFORE BACKFILLING; Items 1 thru 4 must be complete, then Owner notify Engineer, and MPCA or CFO and allow 3 work days for inspection.
1. Concrete contractor shall have patched all cracks and honeycomb.
 2. Pre-cast concrete beams, slats and slabs in place and grouted.
 3. Permanent tile sump pump or inspection port set in-place, (braced if necessary) and ready for backfilling.
 4. All organic debris shall be removed from the overdig area.
 5. Engineer must inspect Items 1 thru 4 and approve before backfilling.

SPECIFICATIONS for Concrete Lined Manure Storage Areas

- F. UPON COMPLETION, Owner shall notify Engineer when all of these items are done.
1. Backfilling and finish grading completed.
 2. Pumpout covers and safety signs installed.
 3. Concrete Contractor sign MPCA Construction Inspection Form.
- G. ENGINEER shall conduct inspections as specified in Section 03001.B. and submit construction report to Owner and Permitting agency.

01301 DESIGN CHANGES

Design changes must be approved in writing by both the Owner and the Engineer before proceeding with the work. Some design changes may also require MPCA, COUNTY and/or NRCS approval.

01401 SITE SURVEY

The Contractor shall be responsible for layout of the work. Bidders must visit the site and acquaint themselves with existing conditions. Contractor shall CALL GOPHER-1 and be responsible for location of existing utilities in areas of work.

01501 SUBSURFACE INFORMATION

All available data relating to the subsurface material and conditions that are based upon test borings has been obtained by the Engineer for his/her own use in designing the project. Its accuracy or completeness is not guaranteed by the Owner or Engineer and in no event is it to be considered a part of the contact plans or specifications.

02101 EARTHWORK

- A. This section applies to earthwork (excavation and backfill) for concrete lined manure storage pits and tanks.
- B. Remove one foot (1') of topsoil under all concrete lined manure tanks. Save topsoil for finish grading.
- C. Removal of water: All excavations, fill, grading and embankments shall be maintained in a well drained condition at all times. The Contractor shall have temporary pumping equipment on site to remove water from trenches and excavations until the perimeter tile system is working.
- D. Any over-excavation for concrete footings and slabs on grade shall be backfilled with compacted sand/gravel.
- E. WARNING Engineer must inspect outside of wall and tile and give approval before backfilling. See Section 01001.
- F. CLEAN BACKFILL TRENCH. All organic material, cardboard, wood, paper, straw, etc. shall be removed from trench before backfilling. These materials will decay and contaminate the perimeter tile system.

SPECIFICATIONS for Concrete Lined Manure Storage Areas

- G. Do not backfill against concrete walls until the concrete has cured at least 7 days and all slat and slab floors and beams are in place and grouted to properly brace the walls. Exercise caution when backfilling to bring up the level uniformly on all sides of tanks and pits. Keep all heavy equipment back from the pit and tank walls a distance equal to the depth of the fill. Top off backfill with one foot (1') of topsoil, disk and leave smooth for planting grass.

02401 PERIMETER TILE SYSTEM

MPCA Rules: Where a perimeter tile system is required to control the elevation of the water table or saturated soils, it must lower the water table or saturated soils to below the bottom of the storage liner. Perimeter drainage tile shall be located at least one foot outside of the footing of the concrete-lined manure storage areas. Each manure storage area shall have a dedicated drain tile system with a dedicated riser, manhole or other access for collection of tile-water samples.

- A. PERIMETER TILE shall be 4 inch (unless otherwise shown on plans) heavy duty perforated corrugated polyethylene plastic agricultural drain pipe. Tile shall be bedded and covered with pea rock or 1/4" - 1/2" crushed rock.
- B. EXISTING TILE LINES intercepted during trenching for the perimeter tile system shall be removed back 10 feet from the tank wall. Existing tiles shall be connected to a suitable by-pass tile system. Do NOT connect existing area tile lines to the perimeter tile system, unless authorized by the Engineer.
- C. GRAVITY OUTLET FOR PERIMETER TILE shall not be used where flood water may backup into the tile and contaminate the dedicated sampling port. The tile outlet shall have a rodent guard. The tile outlet may serve as dedicated sampling port, when it is easily accessible and will never be inundated and contaminated by flood water.
- D. SUMP PUMPS shall be required whenever a gravity outlet is not available. On sites with more than one below ground manure storage structure, only one common sump pump system is required, but each structure must have an individual sampling port.
- E. PUMP shall be submersible type with 20 feet heavy duty electrical cord. Pump shall have an adjustable piggy back float switch. Pump shall be capable of 25 GPM at 15 feet head. Pump shall be fitted with a discharge hose or pipe equal or larger than the discharge of the pump. Furnish and install fused weatherproof disconnect switch, plug and receptacle for each pump. Plug type connections should be used for quick exchange of pumps by farm workers.
- F. ALTERNATE PLAN to dewater the site in advance of general excavation shall be decided by the owner, engineer and contractor at time of the pre-construction meeting. If the tile is installed in advance of excavation, it should be installed 4 feet out from the pit wall and at least 2 feet below the top of the pit floor. Slope the tile at 0.2 feet per 100 feet to the sump or daylight outlet. Plow type machines shall NOT be used when installing perimeter tile around concrete manure storage structures prior to general excavation, because it will loosen soil under wall footing. Use only a backhoe or trencher.
- G. CLEAN BACKFILL TRENCH. All organic material, cardboard, wood, paper, straw, etc. shall be removed from trench before backfilling. These materials will decay and contaminate the perimeter tile system.

SPECIFICATIONS for Concrete Lined Manure Storage Areas

02601 SEWER SYSTEM

- A. Sewer system consists of drains from the barns, cleanouts, sewer main, sewer outlet into concrete tanks and earthen basins, and level control between lagoon cells.
- B. Gravity sewer pipe (non-pressurized) shall be PVC SDR-35 with gasket or glued joints. Sewer cleanouts (CO) shall be located as shown on the plan.
- C. All holes for pipes passing through floors and walls shall be sealed water tight.

02701 FENCE AND GATES

All open top concrete tanks less than 4 feet of wall above ground and earthen manure storage basins shall be fenced. Fence and gates shall be child and livestock proof to prevent unsupervised access.

02801 SIGNS

The Owner shall post warning signs every 100-150 feet around open top tanks and earthen basins: "DANGER, DEEP WATER, KEEP OUT". Post warning sign at each manure pit, reception pit, pumping station and manhole where a 'confined space' may contain manure gases: "DANGER, POISONOUS GAS IN PIT, KEEP OUT".

02901 OTHER WORK

The Owner shall be responsible for putting child-proof fences around open top tanks and child-proof covers on all sumps, pump out ports and providing and utilizing safety guard fences around pump outs when open.

03000 PRECAST CONCRETE

- A. The Precast manufacturer shall submit design data for checking load capacity of the precast system or an Engineer's Certification that the pre-cast components meet the following design loads. For design of beams, slabs and slats refer to Concrete Manure Storages Handbook, MWPS-36, by Midwest Plan Service.

Type of barn	Solid slabs & beams	Slats
Hog nursery barns	35 psf	50 plf
Hog finishing barns	60 psf	125 plf
Sow & boar barns	65 psf	150 plf
Add an additional 160 plf on the edge(s) of slabs that support farrowing stalls.		
Dairy free-stall barns	100 psf	250 plf
Dairy holding & handling pens	125 psf	312 plf

- B. To properly brace pit or tank walls, space between ends of beams, slats and slabs shall be filled with grout and allowed to set 3 days before backfilling.

03001 CAST IN PLACE CONCRETE

- A. READY MIX CONCRETE shall meet requirements of ASTM C-94

SPECIFICATIONS for Concrete Lined Manure Storage Areas

CONTRACTOR shall give copy of this page to Ready Mix Plant prior to bidding.

Concrete 28 day compressive strength, f'c,psi	Aggregate, max.	Fibermesh
Footings & Floors	3,500	2"
Walls	4,000	1.5"
Columns	4,000	1.5"
Slump	3" - 6"	
Air entrained	5% - 7%	
Water:cement ratio	0.5	

Fly Ash, maximum 20% of cementitious material. Silica Fume, maximum 20% of cementitious material. The combination of fly ash and silica fume shall not exceed 35% of total cementitious materials. Fly ash and silica fume will increase resistance to sulfates and reduce permeability. CAUTION: fly ash slows curing, especially in cold weather.

To minimize shrinkage cracks in floors, minimize the amount of cement-water paste and maximize the amount of large aggregate. The use of water reducing plasticizers is encouraged. Contractor may order water reducing or other admixtures, except calcium chloride shall not be used.

B. INSPECTIONS AND TESTING.

1. Inspection before each concrete pour shall include evaluation of subgrade, forms, waterstop, placement and grade of reinforcing steel.
2. Concrete shall be sampled and tested for temperature, entrained air, slump and strength (test cylinders) as per ASTM C-94. Minimum of one sample per 100 yards placed.
3. The Inspector shall forward the inspection report including results of the ASTM tests to the Engineer.
4. The Engineer may request core samples be taken for any concrete of questionable strength or quality. All such concrete found to be defective shall be removed and replaced by the Contractor. If concrete is provided by different supplier or with different mixes, additional testing will be done on the first truck according to ASTM standards. Engineer must be notified immediately if any change does occur.

C. WATERSTOP shall be 3/4" x 3/8" Waterstop RX; 3/4" x 1" Swellstop; Synko-Flex; Hydro-Flex waterstop; Green-streak, Con-Seal CS-231, 220 or 102, or approved equal. These materials come in paper-backed coil or strips and shall be applied as per manufacturer's instructions.

D. All steel in the concrete floors and walls in livestock buildings must form an EQUIPOTENTIAL PLANE and be bonded to the electrical system. This must be coordinated with the Electrical Contractor and will require inspection by the Electrical Inspector prior to each pour of concrete.

E. REINFORCING STEEL shall be deformed bars, fy = 60,000 psi (Grade 60)

Steel details for deformed rerods	#4 bars	#5 bars
Bar bending radius, minimum 6d3"	4"	
Lap splices, minimum 40d	20"	25"
Bend around corner, minimum	24"	30"
Rods through construction joints	30"	36"

SPECIFICATIONS for Concrete Lined Manure Storage Areas

- F. Steel reinforcement shall be tied and supported on chairs, bolsters, spacers and other devices. Dowels and rods extending through construction joints shall be secured in positions against displacement before concrete is placed and shall be cleaned before subsequent pouring.
- G. Preparation of Forms and Subgrade: Prior to placement of concrete, the forms and subgrade shall be free of wood chips, sawdust, debris, standing water, ice, snow, extraneous oil, mortar and other harmful substances or coatings. Placement of concrete on mud, dried earth, un-compacted fill or frozen subgrade will not be permitted.
- H. Excavations shall be made to the dimensions and elevations indicated on the drawings. Should excavation through error be carried to a greater depth or size than indicated or required, such additional depth or size shall be filled with concrete at the CONTRACTOR'S EXPENSE.
- I. Tolerances: Elevations of floor slabs, top of walls, slab ledges, beam pockets and top of columns $\pm 1/4"$. Horizontal length and width of top of wall, location of beam pockets and columns $\pm 1/2"$. Straightness of top of wall $\pm 1/4"$. Anchor bolt spacing $\pm 1"$, centered in stem wall $\pm 1/2"$. Thickness of floor slab shall not be less than 5 inches at any point.
- J. Shrinkage cracks and honeycomb areas shall be filled with a mixture of masonry cement and water of medium consistency and brushed into the cracks with a stiff brush. Honeycomb areas shall: 1) have loose stones hammered out, 2) be wetted by brushing in a watery paste of masonry cement, 3) and filled and sealed with mixture of masonry cement with sand.
- K. COLD WEATHER. When for more than 3 consecutive days the mean daily temperature drops below 40°F, the contractor shall place and protect the concrete in accordance with ACI 306.
- L. HOT WEATHER CONSTRUCTION. When it is likely that temperature between 80°F and 100°F will be approached or exceeded; that low relative humidity is present; or wind velocity will exceed 10 mph, the contractor shall place and protect the concrete in accordance with Chapters 4 & 5 of ACI 305.
- M. Freeze/Thaw & Non-Use Protection, Long & Short Term After Construction: After the concrete pit is constructed and prior to its use or during non-use, the concrete floor and subgrade must be protected from freezing. If the pit is empty when the ground surface around the pit begins to freeze, a minimum liquid depth of 2 feet must be added to the pit to prevent freezing the subgrade below the floor. If the barn and pit are not being used for any extended period of time throughout the year (minimum of 60 days), a minimum liquid depth of 2 feet must be maintained in the pit to prevent freezing, groundwater pressure heaving, etc. The barn can also be heated during non-use times during cold weather to prevent freezing in the bottom of the pit instead of placing or leaving additional liquid in the pit.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

*These are recommendations and are not intended to meet the requirements of a site specific SWPPP for an NPDES Storm Water Discharge Permit.

Description of the site:

The site is currently cropland. The project consists of construction of a swine confinement operation with multiple deep pits. After construction, the area surrounding pit will be planted to grass.

Construction Sequence and Best Management Practices (BMP's)

1. The construction site shall be planted to grass (or cover crop) prior to commencement of construction. See Grass Seeding Guidelines.
2. Areas not to be disturbed during construction shall be staked and marked. Considerable rain water and sediment can be trapped on areas planted to grass and not compacted by construction traffic.
3. Install silt fence as shown on the site plan as needed to prevent erosion.
4. All drive entrances shall be protected with rock. Install road culvert(s) as per highway department specifications.
5. Build a berm to prevent field water from entering the construction site. Make berm 18-24" high with 3:1 side slopes. Use loose top soil from the barn area. A berm is an alternative to using silt fence. The loose soil will absorb a lot of water. Construct the berm on the contour with no channel on the up-hill side of the berm.
6. Temporary stockpiles shall have silt fence or other effective sediment controls and cannot be placed in stormwater conveyances, ditches or grass waterways.
7. Dewatering of pits and basins shall be done in a manner that does not cause nuisance conditions or discharge onto down-slope property. Rain and ground water in pit excavations shall not be allowed to flow direct into open tile, unless the tile inlet has silt fence or other protection or the perimeter tile is installed and covered with pea rock or crushed rock.
8. After backfilling and final grading is done, those areas shall be planted to grass. Slopes steeper than 5:1 shall be mulched. All seeding and mulching operations shall commence within 1 week after completion of each portion of the construction or as soon as soil conditions permit. See Grass Seeding Guidelines.
9. After berms are removed and backfill around barns is re-graded (the following spring) those areas shall be re-seeded to grass.
10. Final stabilization is achieved when soils have been stabilized by a uniform perennial vegetative cover over at least 70% of the pervious area, and all drainage ditches and grass waterways have been stabilized, then the silt fence may be removed.
11. The Owner shall keep the plans and records on file for a minimum of six (6) years.

Maintenance of BMP's

1. Owner shall inspect all BMP's weekly and within 24 hours after each rain event of 1/2" or more in 24 hours.
2. Silt shall be removed from behind silt fences within 24 hours of when the depth reaches 1/3 the height of the fence.
3. Mud and crushed rock are tracked onto public roads, it shall be removed within 24 hours.
4. If sediment escapes the site, off-site accumulations must be removed in a manner and frequency sufficient to minimize off-site impacts.

Assignment of Responsibilities for Execution of the SWPPP

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

1. Owner shall be responsible for execution, inspection, record keeping and up-dating The SWPPP as required in Appendix C of the NPDES Feedlot Permit. See form for the Storm Water Pollution Prevention Plan Record.
2. Owner shall inspect all BMP's weekly and within 24 hours after each rain event of 1/2" or more in 24 hours and supervise proper maintenance of erosion and sediment control practices.
3. Earthwork Contractor shall be responsible for implement, manage and maintain both temporary and permanent erosion and sediment control BMP's (except seeding) until final grading has been completed on site.
4. Owner shall be responsible for seedbed preparation, planting and mulching operations prescribed by the SWPPP.
5. Changes to the SWPPP shall be approved and recorded by Owner prior to implementation.

Grass Seeding Guidelines

All in-place topsoil shall be salvaged to the maximum extent possible. It is ideal to place 6 inches of top soil in areas to be seeded. Harrowing before and packing with roller after planting will help germination, make the ground smoother and easier to mow. Seeding mixture and rates are recommendations based on DOT specs. Fertilizer is important for quick growth. Mixtures 250 and 280 can be mowed.

Temporary seeding: Fertilizer 10-10-20 at 200 lbs/acre.

- Oats at 100 lbs/ac for spring/summer seeding of areas that will be left undisturbed for 21 days or more.
- Winter wheat at 100 lbs/ac for fall seeding of areas that will be disturbed again in the spring, such as backfill around barns.

Turf and agricultural grasses: Fertilizer 20-10-20 at 350 lbs/acre.

General Roadside mix.

Brome grass, smooth	9.8 lbs/ac	14.0%
Bluegrass, Kentucky "Certified Park"	20.3	29.0
Bluegrass, Canada	9.8	14.0
Switch grass	2.1	3.0
Wheat-grass, slender	2.8	4.0
Rye-grass, perennial	14.7	21.0
Timothy	2.1	3.0
Redtop	2.1	3.0
Alfalfa, creeping	4.2	6.0
White clover	2.1	3.0
Total	70 lb/ac	

Agricultural Roadside mix.

Alfalfa, creeping	15 lb/ac	30.0%
Brome grass, smooth	10	20.0
Redtop	3	6.0
Rye-grass, perennial	15	30.0
Switch grass	2	4.0
Timothy	2	4.0
Wheat-grass, slender	3	6.0
Total	50 lb/ac	

OPERATION, INSPECTION AND MAINTENANCE PLAN

NEED FOR OPERATION, INSPECTION AND MAINTENANCE PLAN

Although this Waste Storage Structure has been designed in accordance with MPCA recommendations and its based upon the best available technical knowledge, it must be recognized that any Waste Storage Structure needs to be properly maintained, including periodic inspection. You, the Owner, are responsible for this Waste Storage Structure. The following guidelines for safe operation and maintenance are recommended.

- (1) routine inspections, maintenance and record keeping to be completed to identify and document damage to the liner.
- (2) methods to be used to repair areas of damaged liner;
- (3) methods used to monitor the liquid level in the basin to evaluate proper operation and adequate available storage capacity; and
- (4) routine inspections of perimeter tile line outlets and inspection manholes to ensure proper operation of the system.

Annually, the liquid will be mixed and removed for land application. Liquid level in the pit(s) shall be monitored quarterly (4 times per year) and after any water line breaks or abnormal additions to the pit. The level shall be measured using a rod or wood stick and the depth recorded.

SEMI-ANNUAL INSPECTION OF LIQUID STORAGE AND HANDLING SYSTEMS

Establish a time each spring and fall for a thorough inspection of the liquid storage and handling systems. DO NOT ENTER COVERED PITS & TANKS.

All concrete storage tanks and reception pits shall be inspected to evaluate the outside of structures for cracks and deterioration of concrete. Any cracks showing discharge of liquid shall be inspected by an engineer and repairs done as prescribed by the engineer.

Maintain the following in proper working order:

- 1) Finish earthwork around the structure should be designed to carry runoff away from the foundation. Rainwater diversions to direct 'clean' water away and 'dirty' water into storage facilities. Grass should be established in those areas not covered by concrete and gravel.
- 2) Childproof covers must be placed upon the pumpouts. Open pumpouts should never be left unattended.
- 3) Warning signs shall be posted to prevent children and others from using the pit other than the intended use.
- 4) Animal wastes shall be handled and utilized as specified in the Manure Management Plan.
- 5) The Waste Storage Structure requires continuous ventilation to safely remove poisonous and noxious gases. Manure agitation will release large amounts of gas and may create a hazardous situation. Ensure that the ventilation fans are operating before agitation and, if possible, evacuate the building.
- 6) Manure pits that contain bearing divider walls should be emptied using a modified pumping plan. All manure sections should be partially emptied to prevent possible divider wall failure. Removal of about 3' of manure is recommended from each section before complete emptying of any one section is undertaken.
- 7) No person should enter a Waste Storage Structure without proper training and without wearing a self-contained breathing device. A second person should remain outside of the structure and should have an immediate means of removing the person inside the structure in an emergency.
- 8) Regular quarterly inspections should be made of the structure and its surroundings for leaks, concrete deterioration and pumpout cover conditions. Inspection of the slats for signs of deterioration is advised.
- 9) Concrete should be inspected for large cracks and exposed reinforcing steel. Joints should be checked for unusual openings.
- 10) Concrete surfaces should be quarterly inspected for erosion, scaling and exposed reinforcing steel.

- 11) Perimeter tile, sump pumps, sampling ports and rodent guards at outlets.
- 12) The structure walls are designed to resist earth loads only. Do not operate any equipment on this surface.
- 13) The beam and flooring system is designed for animal loads only. Do not operate any equipment on this surface.
- 14) If, during the inspection, serious defects are discovered, remedial actions may be required. The County Feedlot Officer and Engineer should be contacted and possible the MPCA.

RECORDS

Record the inspections, evaluations and maintenance done in a spiral bound notebook. Also take and date pictures before and after any maintenance work is done on cover and liquid storage and handling facilities.

PERIMETER TILE MONITORING AND CONTINGENCY PLAN

INSPECT PERIMETER TILE AT LEAST ONE WEEK BEFORE EMPTYING STORAGE

All below ground waste storage structures require perimeter tile to relieve the hydrostatic pressures which would otherwise damage the sides of the concrete tanks and manure storage pits under barns. There is a serious problem if the water level in the sump or inspection port is above the pit floor.

It is very important that the ground water level be lowered prior to emptying the manure storage pit. It may take a week or more for the system to lower the ground water pressure once the problem has been corrected.

BASE LINE SAMPLING

It is recommended that base line sampling be done before manure is put in the storage facility to document any pre-existing contamination that may be in the soil. This is especially important if the site is in an old barn-yard area or has received heavy applications of manure for many years.

Base line samples should be collected at least two (2) times prior to the addition of manure into the waste storage structure. If there is no flow from the tile, sampling shall begin as soon as water is available for sampling. Each 'base line' sampling event shall be scheduled at least two (2) weeks apart.

1. The Owner shall contract with an independent laboratory to collect and analyze the samples. The laboratory must be certified. The laboratory report shall include: Chain of custody record, date, parameter, method used, results, units.

2. The water quality parameters to be monitored are:

Total Kjeldahl Nitrogen	Nitrate Nitrogen
Nitrite Nitrogen	Ammonium Nitrogen
Dissolved Oxygen	Chloride
Sulfate	Total Phosphorus
Fecal Coliform	pH
Temperature	Specific Conductivity
Flow (as determined by time to fill 5 gallon pail)	

CHANGE IN TILE WATER COLOR OR ODOR

If visual observation of the tile water indicates a change in color or odor, then a more urgent response is necessary. A change in color or odor may be caused by either soil and/or manure water. If this should occur, immediately stop all discharge to field tile. Notify the MPCA or Engineer immediately.

Install a sump pump and discharge the tile water onto a vegetated filter strip area. If necessary, plug the line going to field tile with bentonite 'chips'. Bentonite chips may be obtained from your well driller.

Aerial Map

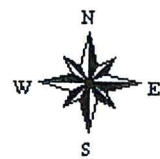


map center: 44° 27' 50.69, -95° 16' 48.3

0ft 879ft 1759ft

CENTROL
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34-112N-37W
Redwood County
Minnesota

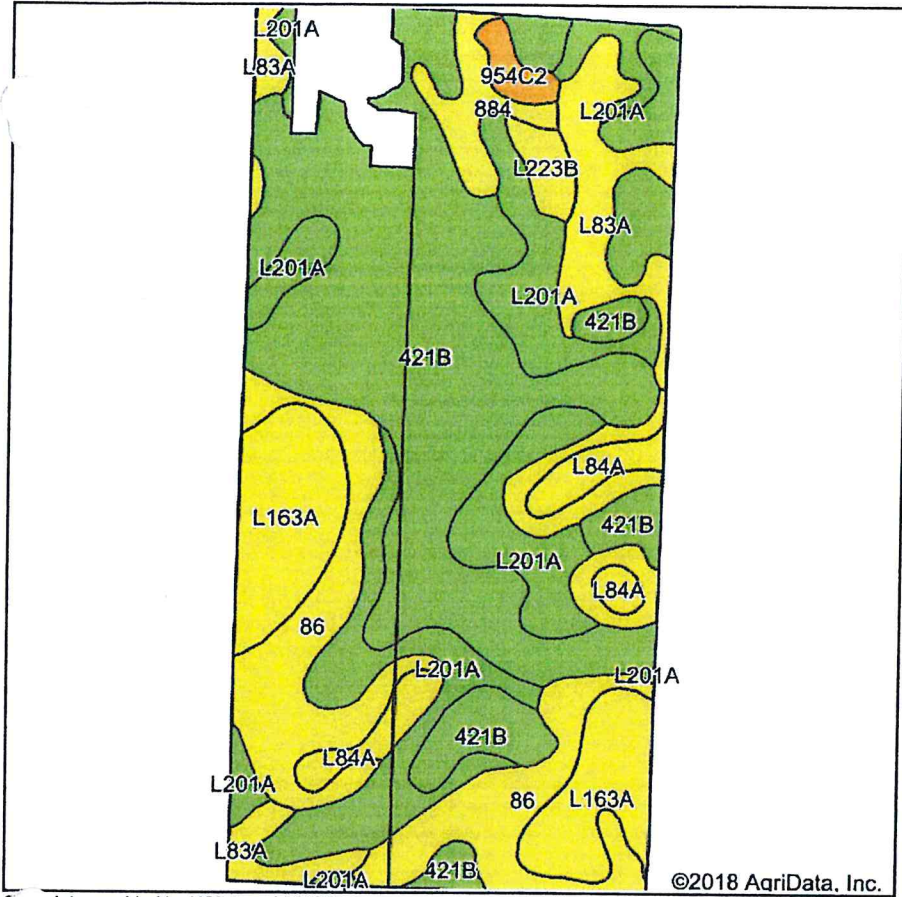


1/8/2019

Maps Provided By:
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CUSTOMIZED ONLINE MAPPING
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Field borders provided by Farm Service Agency as of 5/21/2008.

Soils Map



Data provided by USDA and NRCS.

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State: **Minnesota**
 County: **Redwood**
 Location: **34-112N-37W**
 Township: **Sheridan**
 Acres: **313.29**
 Date: **1/8/2019**

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Maps Provided By:

 CUSTOMIZED ONLINE MAPPING
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Area Symbol: MN127, Soil Area Version: 17

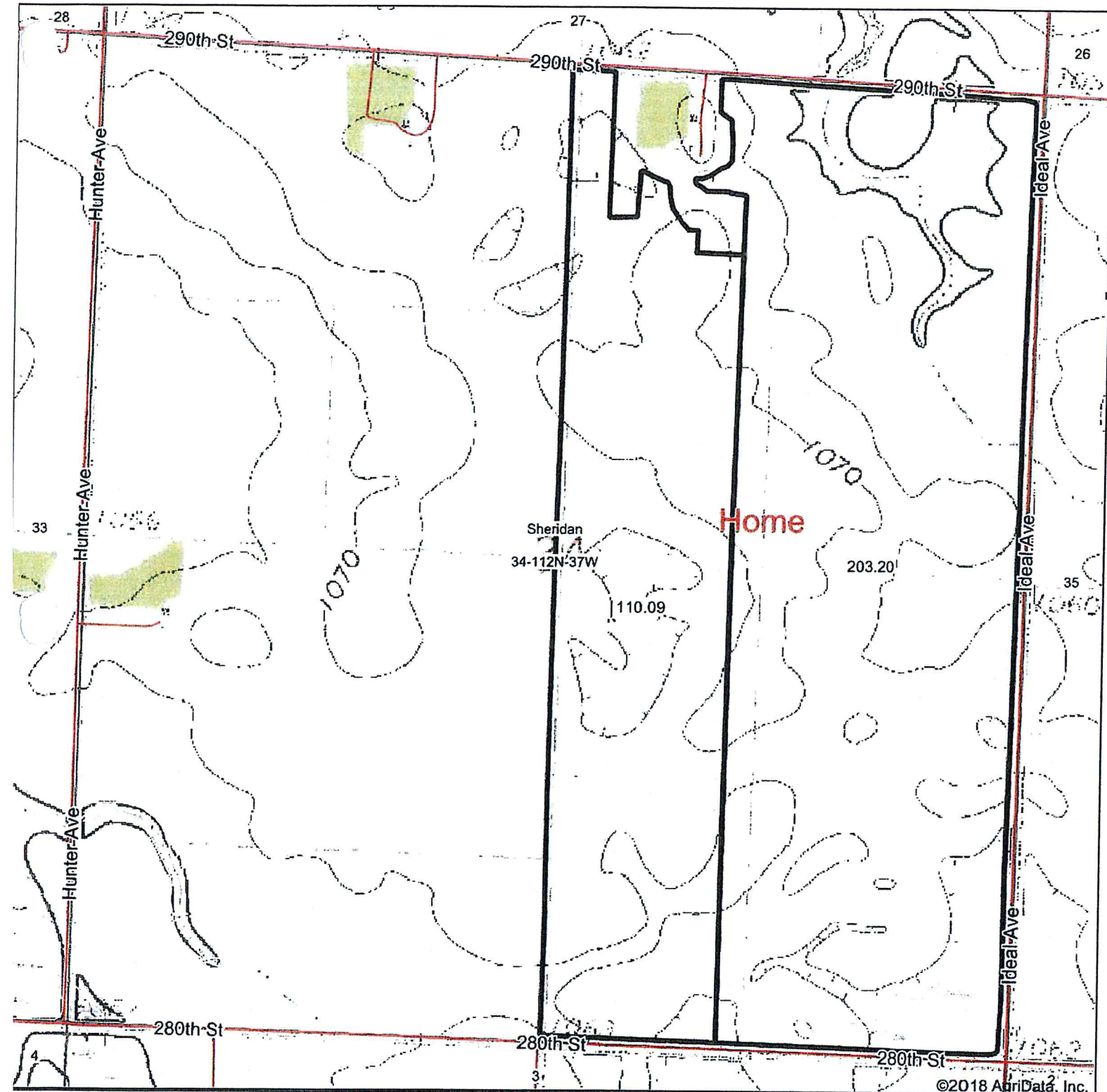
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421B	Amiret loam, 2 to 6 percent slopes	121.91	38.9%		Ile	98	81
L201A	Normania loam, 1 to 3 percent slopes	58.57	18.7%		Ie	99	81
86	Canisteo clay loam, 0 to 2 percent slopes	54.00	17.2%		IIw	93	79
L163A	Okoboji silty clay loam, 0 to 1 percent slopes	31.72	10.1%		IIIw	86	77
L83A	Webster clay loam, 0 to 2 percent slopes	21.97	7.0%		IIw	93	80
L84A	Glencoe clay loam, 0 to 1 percent slopes	10.66	3.4%		IIIw	86	78
884	Webster-Delft complex, 0 to 2 percent slopes	7.61	2.4%		IIw	94	78
L223B	Amiret-Swanlake loams, 2 to 6 percent slopes	3.74	1.2%		Ile	92	80
954C2	Storden-Ves complex, 6 to 10 percent slopes, moderately eroded	3.11	1.0%		IIIe	77	66
Weighted Average						95	*n 79.8

*n: The aggregation method is "Weighted Average using major components"

*c: Using Capabilities Class Dominant Condition Aggregation Method

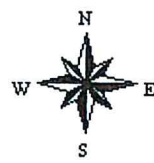
Soils data provided by USDA and NRCS.

Topography Map



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map center: 44° 27' 50.69, -95° 16' 48.3



1/8/2019

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34-112N-37W
Redwood County
Minnesota

Sensitive Features Map



Map data © HERE, Garmin, © OpenStreetMap contributors, and the GIS User community. Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

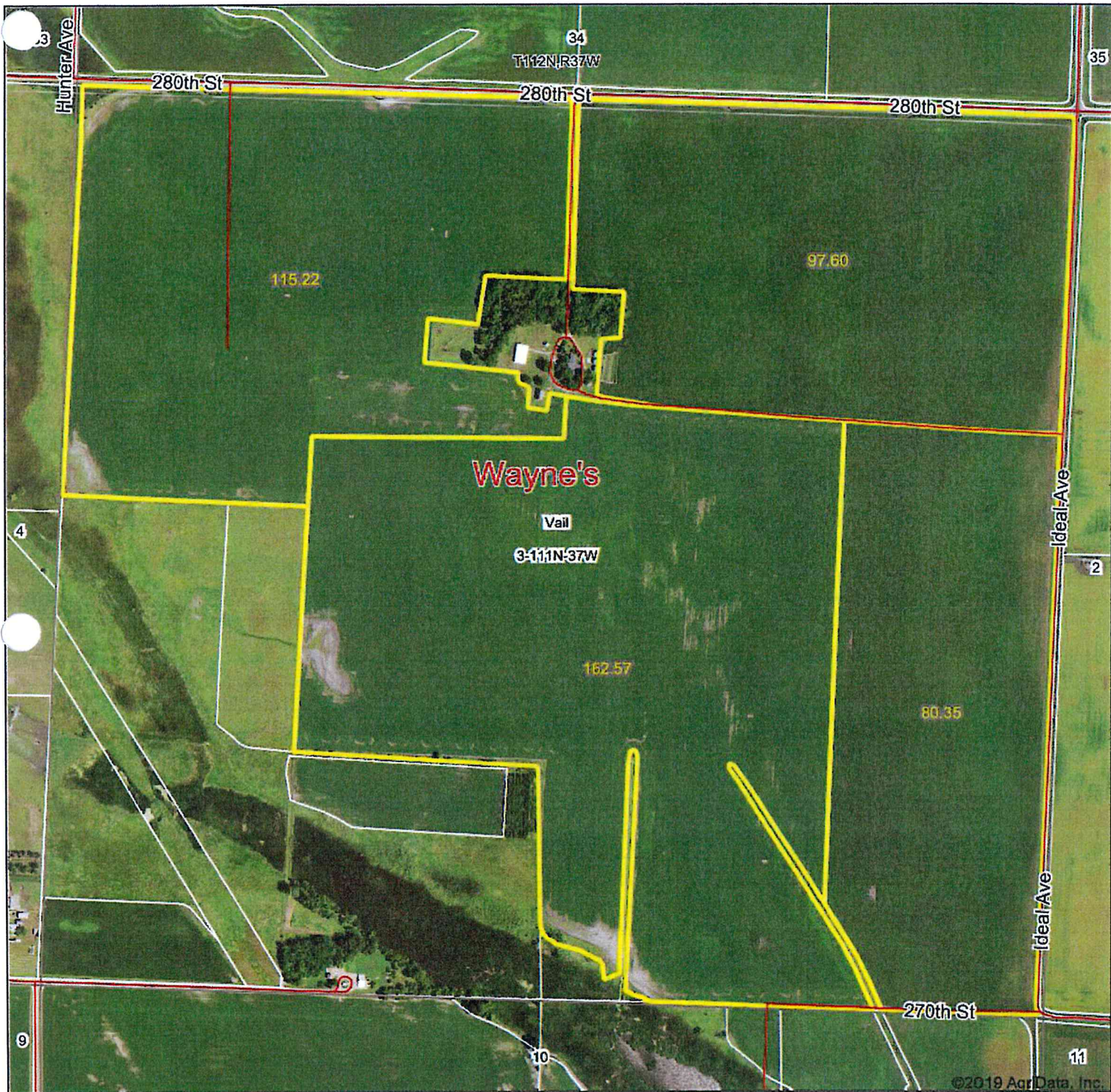
- ◆ Well Inventory
- Tile Intakes
- FSA Boundary
- Township
- Section
- Setback Areas
- DWSMA
- PWI
- PWI



CENTROL
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Brian Maertens
(Tyler Maertens NPDES)
Sheridan Sec. 34
Redwood County, MN

Aerial Map

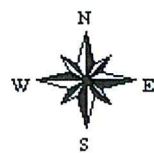


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map center: 44° 26' 58.8, -95° 16' 48.8

0ft 837ft 1673ft

3-111N-37W
Redwood County
Minnesota



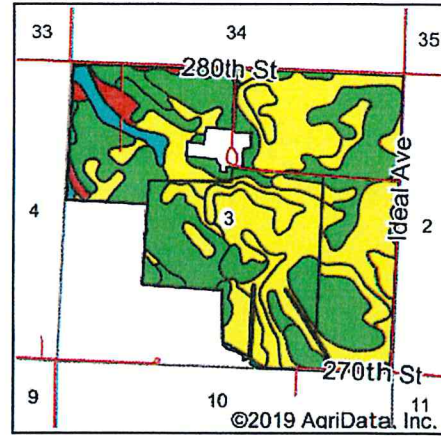
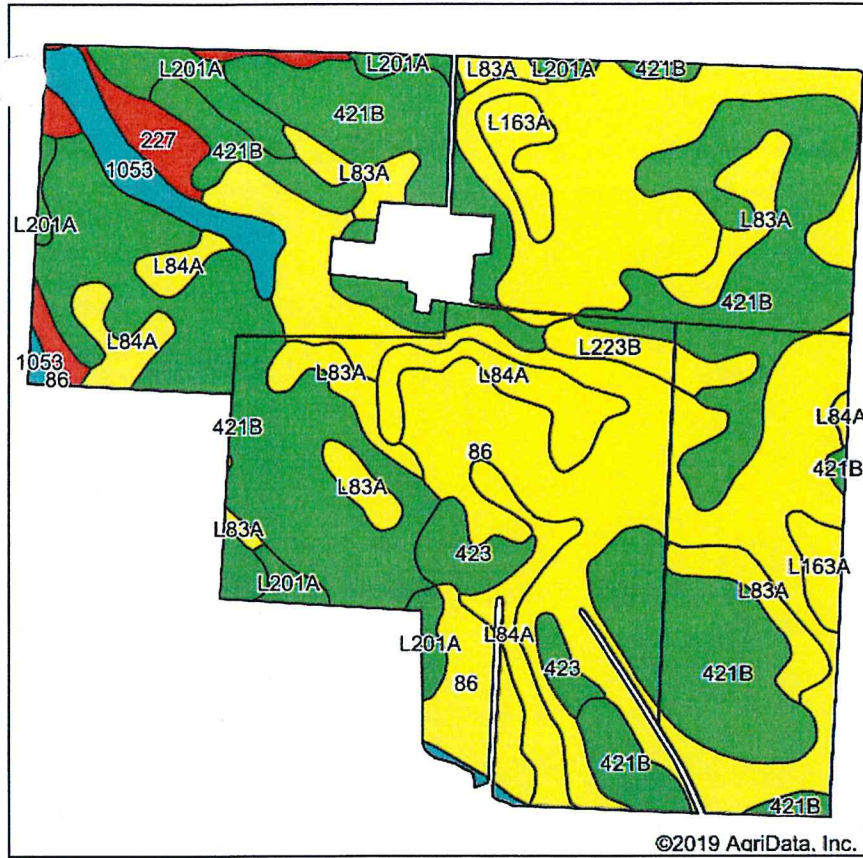
4/1/2019

Maps Provided By:
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Field borders provided by Farm Service Agency as of 5/21/2008.

Soils Map



State: Minnesota
 County: Redwood
 Location: 3-111N-37W
 Township: Vail
 Acres: 455.74
 Date: 4/1/2019

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Maps Provided By:

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Soils data provided by USDA and NRCS.

Area Symbol: MN127, Soil Area Version: 17

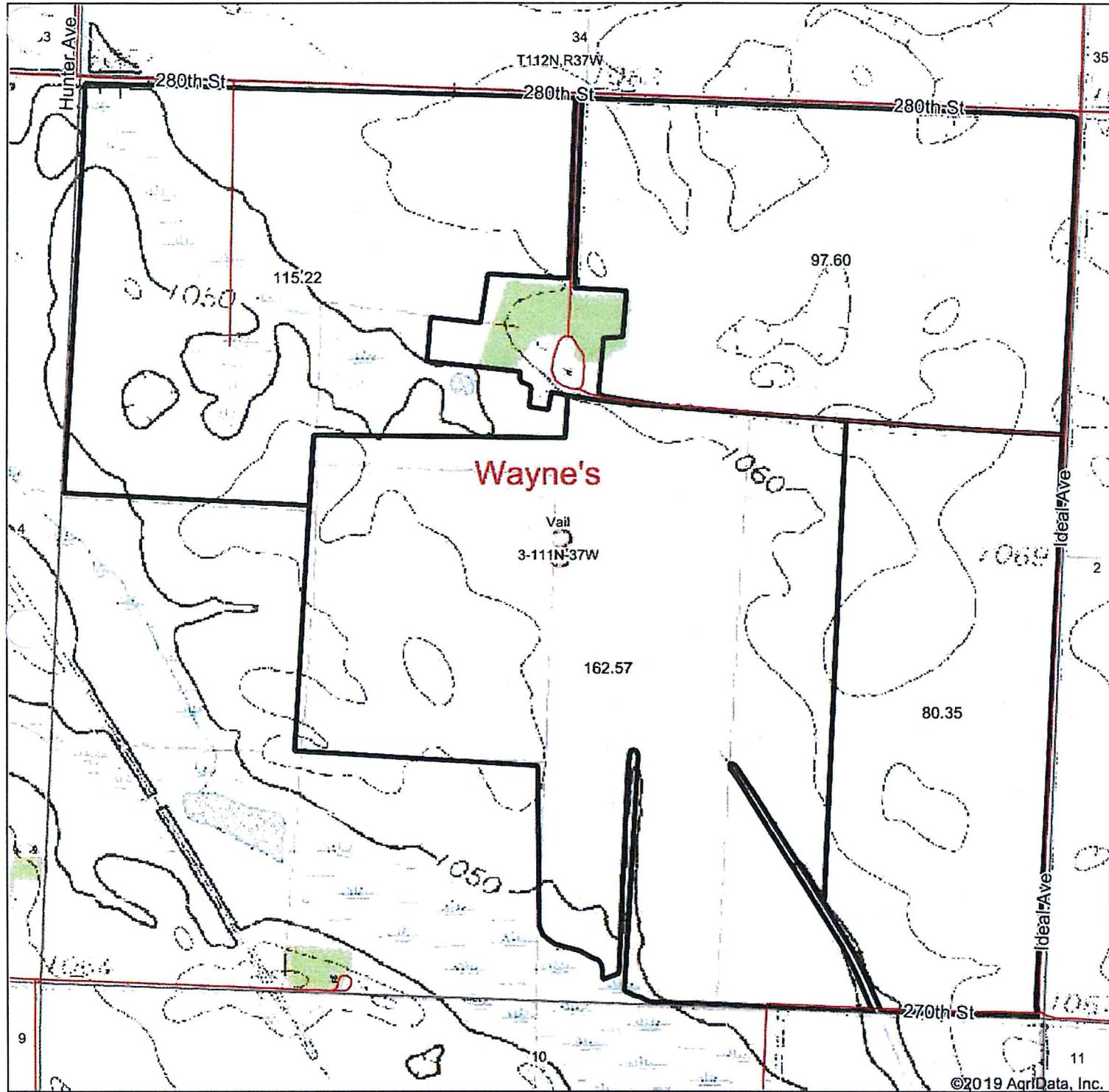
Code	Soil Description	Acres	Percent of field	PI Legend	Non-Irr Class *c	Productivity Index	*n NCCPI Soybeans
421B	Amiret loam, 2 to 6 percent slopes	177.12	38.9%		Ile	98	81
86	Canisteo clay loam, 0 to 2 percent slopes	157.23	34.5%		IIw	93	79
L84A	Glencoe clay loam, 0 to 1 percent slopes	28.79	6.3%		IIIw	86	78
L83A	Webster clay loam, 0 to 2 percent slopes	28.48	6.2%		IIw	93	80
L201A	Normania loam, 1 to 3 percent slopes	15.70	3.4%		Ie	99	81
1053	Aquolls, ponded	12.30	2.7%			5	0
227	Lemond loam, 0 to 2 percent slopes	10.77	2.4%		IIw	69	46
L163A	Okoboji silty clay loam, 0 to 1 percent slopes	9.68	2.1%		IIIw	86	77
423	Seaforth loam, 1 to 3 percent slopes	9.09	2.0%		IIs	95	84
L223B	Amiret-Swanlake loams, 2 to 6 percent slopes	6.58	1.4%		Ile	92	80
Weighted Average						91.6	*n 77

*n: The aggregation method is "Weighted Average using major components"

*c: Using Capabilities Class Dominant Condition Aggregation Method

Soils data provided by USDA and NRCS.

Topography Map



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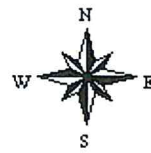
Maps Provided By:
surety
CUSTOMIZED ONLINE MAPPING

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map center: 44° 26' 58.8, -95° 16' 48.8

0ft 837ft 1673ft

3-111N-37W
Redwood County
Minnesota



4/1/2019

Sensitive Features Map



- Well Inventory
- Tile Intakes
- FSA Boundary
- Township
- Section
- ▨ Setback Areas
- ▨ DWSMA
- ▭ PWI
- ▭ PWI



CENTROL
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Brian Maertens
(Tyler Maertens NPDES)
Vail Sec. 3
Redwood County, MN

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Manure Storage, Handling, and Testing Information

Facility Name: Tyler Maertens NPDES or SDS Permit? Yes Permit Number: _____
 Owner/Operator Name: Tyler Maertens Date Last Revised: 1/8/2019 Registration Number: 127-124583
 Version 7.05 Last Updated: 10/12/16

Manure Sources	Manure Source #1	Manure Source #2	Manure Source #3	Manure Source #4
Description of Manure Source <small>Group sources with similar nutrient content if they have identical animal type, water usage, feed rations, and manure storage</small>				
Livestock Information				
Predominate Animal Type <small>(Contributing to Manure Source)</small>	Old Barn	New Barn		
Average Animal Weight	160 lbs	160 lbs	lbs	lbs
Animal Number	2,400	2,400	days/yr	days/yr
Length of Time Livestock Spend In Facility <small>(Contributing to Manure Source)</small>	355 days/yr	355 days/yr	days/yr	days/yr
Average Animal Weight	lbs	lbs	days/yr	days/yr
Animal Number	days/yr	days/yr	days/yr	days/yr
Length of Time Livestock Spend In Facility	days/yr	days/yr	days/yr	days/yr
Storage Information				
Storage Type	Underfloor Concrete Pit	Underfloor Concrete Pit	days/yr	days/yr
Capacity	1,000,000 gals	1,000,000 gals	days/yr	days/yr
Storage Length	12 months	12 months	days/yr	days/yr
Application Methods				
Commercial Applicator (Yes/No or Name)	Doug Rohlik	Doug Rohlik	days/yr	days/yr
Spreader Type	Liquid Tanker	Liquid Tanker	days/yr	days/yr
How Volume/Tonnage Determined per Load	Commercial Applicator	Commercial Applicator	days/yr	days/yr
How Application Rate is Calibrated	Commercial Applicator	Commercial Applicator	days/yr	days/yr
Manure Analysis - Existing facilities should use actual manure test results				
Sampling Frequency	Every Year	Every Year	days/yr	days/yr
Sampling Methods	Well Agitated Composite	Well Agitated Composite	days/yr	days/yr
Date Last Analyzed	10/19/17	10/19/17	days/yr	days/yr
Basis for N, P, & K Values Below	Average of Previous Samples	Average of Previous Samples	days/yr	days/yr
Total N - (do not enter lab estimated availability)	76 lbs/1000 gal	76 lbs/1000 gal	days/yr	days/yr
Total P ₂ O ₅ - (do not enter lab estimated availability)	26 lbs/1000 gal	26 lbs/1000 gal	days/yr	days/yr
Total K ₂ O - (do not enter lab estimated availability)	49 lbs/1000 gal	49 lbs/1000 gal	days/yr	days/yr
Annual Generation - Existing facilities should use actual production values				
Total Manure Produced per Year (Estimated)	900,623 gals	900,623 gals	days/yr	days/yr
Total Manure Produced per Year (Actual)	710,100 gals	0 gals	days/yr	days/yr
Annual N Produced	53,968 lbs	0 lbs	days/yr	days/yr
Annual P ₂ O ₅ Produced	18,463 lbs	0 lbs	days/yr	days/yr
Annual K ₂ O Produced	34,795 lbs	0 lbs	days/yr	days/yr
Average Book Values				
N	42	42	days/yr	days/yr
P ₂ O ₅	34	34	days/yr	days/yr
K ₂ O	24	24	days/yr	days/yr

Even though no data entry or acknowledgement is required, this information is required as part of a complete MMP and must be followed.

Nitrogen Management - Nitrogen Management - Nitrogen Management

Based on the crop rotation, nutrient application rates will not exceed the nitrogen needs/removal of the crops as derived from the following MN Extension Service publications: "Manure Management in Minnesota" publication "WW-03553-C, Revised 2012", "Fertilizer Guidelines for Agronomic Crops in Minnesota" publication "BU-06240-S, Revised 2011", and "Nutrient Management for Commercial Fruit & Vegetable Crops in Minnesota" publication BU-05886, Revised 2005.

Note: these publications have been incorporated into this planner.

Manure application rates will be calculated using the following factors:

- 1) Maximum Nitrogen needs for non-legumes and nitrogen removal for legumes will follow Tables A & C (included as part of planner)
- 2) Manure analysis test results (most recent or historical average)
- 3) Soil test results (where applicable)
- 4) First year nitrogen availability will be based on animal species and method of application as indicated in Table B (included as part of this planner)
- 5) If applicable, credits for previous crops and/or manure applications will be accounted for according to Tables A, B, & C (included as part of this planner)
- 6) If applicable, any fertilizer nitrogen applied will be accounted for in the calculations.

Any deviation from the maximum nitrogen applied will follow the standards allowed in Minn Rule 7020.2225, subp. 3 (A)(2) and the issued permit

Phosphorus Management - Phosphorus Management - Phosphorus Management

Phosphorus will be managed for all manure applications according to the following:

Manure application rates will be calculated using the following factors:

- 1) The calculations to determine crop P₂O₅ removal rate will be based on Table C (included as part of this planner)
- 2) For all animal species and all methods of application, the availability factor for phosphorus is 80 percent.
- 3) If applicable, any fertilizer P₂O₅ will be accounted for in the calculations.
- 4) When soil P test levels exceed 75 ppm Bray P1 (60 ppm Olsen) within 300 feet of an open tile intake, lake, stream, intermittent stream, drainage ditch without protective berms, or a public waters wetland, I will follow protocols listed in the issued permit.
- 5) When soil P test levels exceed 150 ppm Bray P1 (120 ppm Olsen) on any land, I will follow protocols listed in the issued permit.
- 6) Where winter-time manure application is approved, phosphorus management will follow rate restrictions listed in the issued permit.
- 7) In addition to items 1-6 I will manage Phosphorus according to one of the following options (either option is acceptable):

A) Minimum Phosphorus Management Based on Minnesota Rules

When the table below indicates soil test levels indicate phosphorus management is required, I will manage the rate and frequency of manure applications to not allow soil P build-up over any 6 year period, as required in the issued permit

B) Crop Phosphorus Removal Rates (over the rotation)

All manure will be applied according to phosphorus based rates, so that the rate and frequency of P₂O₅ applications will not exceed the expected crop P₂O₅ removal over the course of the crop rotation.

Minimum P₂O₅ Requirements

Bray P-1 (ppm)	Less than 22	22-75	76-150	Greater than 150
Olsen (ppm)	Less than 17	17-60	61-120	Greater than 120
More than 300 feet from waters*	No Phosphorus management requirements	No Phosphorus management requirements	No Phosphorus management requirements	Follow NPDES permit requirements
Less than 300 feet waters*	No Phosphorus management requirements	Prevent long-term build-up of soil P over a 6-year period (except open tile intakes)	Follow NPDES permit requirements	Follow NPDES permit requirements

* waters include: open tile lakes, streams, intermittent streams, protected wetlands, or unbermed drainage ditches

This worksheet identifies all allowable techniques that can be used to provide protection to sensitive features as required in Minnesota Rules and/or permit conditions. One of the following measures must be employed for the applicable sensitive feature. Any of the identified practices are acceptable.

<p>Tile Intakes</p> <p>Option A - Inject or incorporate within 24 hours and prior to rainfall within 300 ft, observe a 25 ft non-manured setback, and avoid long term soil P build-up</p> <p>Option B - Inject or incorporate within 24 hours and prior to rainfall within 300 ft.</p> <p>Option C - 35 ft grassed buffer</p> <p>Option D - 100 ft setback with at least 16.5 ft as grassed buffer</p>
<p>Drainage Ditches</p> <p>Option A - Inject or incorporate within 24 hours and prior to rainfall within 300 ft, observe a 25 ft non-manured setback, and avoid long term soil P build-up</p> <p>Option B - 50 ft wide grassed buffer</p> <p>Option C - 100 ft setback with at least 16.5 ft as grassed buffer</p> <p>Option D - Protective Berm (prohibits runoff from entering the ditch)</p>
<p>Lakes, Rivers, and Streams</p> <p>Option A - Inject or incorporate within 24 hours and prior to rainfall within 300 ft, observe a 25 ft non-manured setback, and avoid long term soil P build-up</p> <p>Option B - 100 ft wide grassed buffer</p> <p>Option C - 100 ft setback with at least 16.5 ft as grassed buffer</p>
<p>Intermittent Streams and/or Public Waters Wetlands (over 10 acres)</p> <p>Option A - Inject or incorporate within 24 hours and prior to rainfall within 300 ft, observe a 25 ft non-manured setback, and avoid long term soil P build-up</p> <p>Option B - 50 ft wide grassed buffer</p> <p>Option C - 100 ft setback with at least 16.5 ft as grassed buffer</p>
<p>Wells, Mines, or Quarry</p> <p>Option A - 50 ft setback - minimum (100 ft if NPDES permitted)</p>
<p>Sinkholes</p> <p>Option A - Inject or incorporate within 24 hours and prior to rainfall upslope and within 300 ft and observe a 50 ft non-manured setback (100 ft non-manured setback for NPDES)</p> <p>Option B - Berm that prevents runoff from entering the sinkhole</p>
<p>Application of Manure During the Summer Months (June, July, and August)</p> <p>Option A - A cover crop will be planted on all fields that receive manure applications during June, July, and August</p>
<p>Other Conduits to Water</p> <p>Option A - Inject or incorporate within 24 hours and prior to rainfall within 300 ft, observe a 25 ft non-manured setback, and avoid long term soil P build-up</p> <p>Option B - 50 ft wide grassed buffer</p> <p>Option C - 100 ft setback with at least 16.5 ft as grassed buffer</p> <p>Option D - Protective Berm (prohibits runoff from entering the waters)</p>
<p>Early Fall Land Application - Unless otherwise required, this only applies to early fall manure application at NPDES or SDS permitted facilities</p> <p>Option A - Fall Application onto fields that are dominated by coarse-textured soils shall be delayed until soil temperatures in the upper six (6) inches, are less than 50 degrees Fahrenheit, unless otherwise first approved by the MPCA.</p>
<p>Soil Erosion Conservation Measures - Required for ANY field used for winter application and for ALL fields at NPDES permitted sites</p> <p>Option A - Establish grassed waterways</p> <p>Option B - Contour stripcropping</p> <p>Option C - No-Till cropping</p> <p>Option D - Terracing</p> <p>Option E - Meet tolerable soil erosion rates ("T") as defined by NRCS</p> <p>Option F - Use rotations that include other than row crops (alfalfa, grass, etc)</p> <p>Option G - Chisel or disk tillage with residue</p> <p>Option H - Field edge buffers</p> <p>Option I - Contour buffer strip</p> <p>Option J - Sediment control basin</p> <p>Option K - Plant a cover crop on bare ground</p>

Even though no specific measures are required in Minnesota Rule, a complete MMP is required to identify measures that will be used to provide protection to the following areas. This worksheet will assist you in identifying which techniques will be used to provide protection to the following sensitive features even though **no specific practices are required** in Minnesota Rules.

This worksheet identifies possible techniques that can be used to provide protection to the following sensitive features. One of the following measures will be employed for the applicable sensitive feature. Any of the identified practices are acceptable.

Wetlands Under 10 Acres (uncultivated)

No specific state requirements unless a public waters wetland or other permit conditions apply.

- Option A - Observe a non-manured setback
- Option B - Maintain a grass buffer
- Option C - Incorporate manure near the wetland
- Option D - Prevent long term soil P buildup
- Option E - Utilize soil conservation practices
- Option F - Other: _____

Public Well Management Area & Drinking Water Supply Management Areas

No specific state requirements unless other permit conditions apply.

- Option A - Observe a non-manured setback
- Option B - Follow practices recommended in city wellhead protection plan
- Option C - Soil nitrate test will be used to refine nitrogen rate management decisions
- Option D - Apply no earlier than late October or when soil temperatures are less than 50°F
- Option E - Other: _____

Shallow Bedrock - less than 3 feet of soil over limestone bedrock

No specific state requirements unless other permit conditions apply.

- Option A - Use composted manure or other process which kill bacteria
- Option B - Maximize separation between fractured bedrock and manure
- Option C - Incorporate manure
- Option D - Other: _____

Floodplain

No specific state requirements unless other permit conditions apply.

- Option A - Avoid manure application during peak flooding periods
- Option B - Incorporate or inject manure when there is a risk of flooding
- Option C - Avoid winter-time manure applications
- Option D - Other: _____

6 Year Soil Phosphorus Management Plan

When soil phosphorus levels are required to be maintained (or reduced) over a 6 year period, one of the following crop rotation scenarios will be employed for the applicable field or area near sensitive features. You must complete at least one rotation below or indicate that manure will not be applied within 300 feet of sensitive features.

Manure will not be applied within 300 ft of open tile intakes, lakes, streams, intermittent streams, public waters wetlands, or drainage ditches without protective berms (when checked there is no need to complete scenarios below - text will be gray if not applicable due to extremely high soil P test)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
Crop (Year 1)	Corn	Corn						
Yield	200 bu	200 bu						
Manure Application Source (1-12) & Rate	1 2700 gals	1 2700 gals						
2nd Manure Application Fertilizer P (total)	lbs	lbs						
Crop (Year 2)	Corn	Soybeans						
Yield	200 bu	55 bu						
Manure Application Source (1-12) & Rate	1 2700 gals							
2nd Manure Application Fertilizer P (total)	lbs	lbs						
Crop (Year 3)	Corn	Corn						
Yield	200 bu	200 bu						
Manure Application Source (1-12) & Rate	2 2700 ###	2 2700 ###						
2nd Manure Application Fertilizer P (total)	lbs	lbs						
Crop (Year 4)	Corn	Soybeans						
Yield	200 bu	55 bu						
Manure Application Source (1-12) & Rate	2 2700 ###							
2nd Manure Application Fertilizer P (total)	lbs	lbs						
Crop (Year 5)	Soybeans	Corn						
Yield	55 bu	200 bu						
Manure Application Source (1-12) & Rate		1 2700 gals						
2nd Manure Application Fertilizer P (total)	lbs	lbs						
Crop (Year 6)	Corn	Soybeans						
Yield	200 bu	55 bu						
Manure Application Source (1-12) & Rate	1 2700 gals							
2nd Manure Application Fertilizer P (total)	lbs	lbs						

Results

P Applied over 6 Yrs	280 lbs	168 lbs	lbs	lbs	lbs	lbs	lbs	lbs
P Removed over 6 Yrs	395.1 lbs	345.3 lbs	lbs	lbs	lbs	lbs	lbs	lbs
Will Rotation Build Soil Phosphorus Levels?	No	No						

Animal Mortality Management Worksheet

Indicate with a check mark the anticipated method(s) of dead animal disposal.

Rendering

Carcasses at the pick-up point will comply with the following:

- Kept in an animal-proof, enclosed area.
- At least 200 yards from a neighbor's buildings.
- Picked up within 72 hours (7 days if refrigerated to less than 45 degrees).
- Other: _____

Composting

The composting area will comply with the following:

- Built on an impervious, weight-bearing pad that is large enough to allow equipment to maneuver.
- Note: Class V gravel material is not considered to be impervious.
- Covered with a roof to prevent excessive moisture on the composting material, but if sawdust or other water-repelling material is used as the bulking agent, a roof may not be necessary.
- Built of rot-resistant material that is strong enough to withstand the force exerted by equipment.
- Large enough to handle each day's normal mortality through the endpoint of the composting which consists of a minimum of two (2) heat cycles.
- Other: _____

Burial

The following operational practices will be implemented

- Stay 5 feet above seasonal high water table.
- Stay 1000 feet away from lakes and 300 feet away from rivers, streams, ditches, etc.
- Be covered immediately with enough soil to keep scavengers out (three feet is sufficient).
- Not be placed in sandy or gravelly soil types.
- Maintain at least 10 feet vertical separation between dead animals and bedrock.
- Other: _____

Incineration

The incinerator will meet the following:

- Capable of producing emissions not to exceed 20 percent opacity.
- Fitted with an afterburner that maintains flue gases at 1,200 degrees Fahrenheit for at least 0.3 seconds.
- Ash from the incinerator must be handled in such a manner as to prevent particulate matter from becoming airborne.

Other Method

The following operational practices will be implemented (describe the alternative method below)

Odor Management Plan

Tyler Maertens
25624 290th St.
Wabasso, MN 56293

Regarding the proposed addition of a total confinement barn housing 2,400 head of finishing pigs to the Tyler Maertens site, the following MPCA approved odor management strategies will be implemented to help mitigate odors to neighboring areas:

- Manure pits will be treated with an odor-reducing additive multiple times per year
- A row of shrubs will be planted to the south of the existing grove to help mix/disperse air
- Barn floors will be maintained and cleaned to eliminate manure buildup
- Spilled feed will be promptly cleaned up
- Exhaust fans will be maintained to avoid manure and dust accumulation
- Maintain a good neighbor policy and avoid manure pumping on holidays or other special occasions
- Will consult with MPCA to identify changes that can be made to reduce odors, if need be.

The facility and project will be operated under the National Pollution Discharge Elimination System (NPDES) general permit. This permit requires the highest level of environmental compliance for feedlot design and maintenance. As a condition of the permit, Tyler Maertens must follow the MPCA approved Air Emissions Plan and Operation Maintenance Plan. These plans address the prevention and control of offensive odors, gases, fumes, and dust associated with operating a swine facility. Noise and vibration from the feedlot is not expected to increase as a result of project.

Redwood County Swine Composting Protocol:

- I. Purpose and scope: To allow hog producers to compost their dead livestock (carcasses) in lieu of rendering. These guidelines are based upon Minnesota Rules 1719 (Board of Animal Health), which are incorporated herein by reference. In any instance where these guidelines diverge from Minnesota Rules 1719, the stricter rule shall control.
- II. Site selection – must take into account:
 - a. Prevailing winds – reasonable attempts must be made to avoid sites where the prevailing winds will carry odors onto neighboring land uses (excepting agricultural fields and feedlots).
 - b. Public view – the compost facility must be shielded from public view, so that the composting material is not visible from public roadways or neighboring land uses.
- III. Facility – requirements for construction:
 - a. Overall design: Compost facility must consist of at least three (3) compost bays each with 20 cubic feet of area for every one (1) pound daily normal mortality. Each bay must have poured concrete walls on three sides and be gated on the front so that wild and domestic animals cannot access the compost. The entire structure must sit on a concrete pad and have a roof to deflect rainwater from the compost.
 - b. Floor: Floor must be constructed of 5" thick impervious concrete. Floor must be sloped toward the rear of the facility to keep liquid from running out of the composting area onto the ground.
 - c. Walls: Walls must be constructed of 6" thick impervious concrete. Cement walls must be no more than 5' high. If lower than 5', the walls must include fencing up to 5' to prevent wild or domestic animals from accessing the compost. Cement walls must be high enough to contain the compost material.
 - d. Roof: Roof must be supported by treated wood or metal supports and rafters. Roof must completely cover the composting bays so as to deflect rainwater.
- IV. Process – the following practices must be observed:
 - a. Dead pigs must be added within 24 hours of death.
 - b. Each composting bay shall begin with a 1' layer of litter. Thereafter, carcasses shall be stacked up to 1' and covered by 1' of litter. Add additional layers as needed.
 - c. Litter can be finely chopped vegetable matter (such as corn stalks), sawdust, or finished compost. The carbon to nitrogen ratio must in the range of 15:1 to 35:1.
 - d. Carcasses must be kept at least 6" from the edge of the compost bay.
 - e. The 3 compost bays allow for a three stage composting process. When the first bay is full, start a new pile in the second bay. When the second bay is full, start a new pile in the third bay. When the third bay is full, empty the first bay and start over. Turn each bay every 7 to 10 days. Add water as necessary to keep up the heat.
 - f. Temperature:
 - i. Must be taken and recorded in each bay daily.
 - ii. Must be at least 130 degrees Fahrenheit.
 - iii. Temperature records must be kept on hand for 2 years.
- V. Protocol:
 - a. Must keep a written composting protocol describing the composting steps on-site.
 - b. Must instruct all employees on-site about the protocol.
- VI. Pests, such as flies and rodents, must be controlled
- VII. Transportation of Carcasses on public roads:
 - a. An owner who transports the owner's own carcasses does not need a permit to do so.
 - b. Carcasses transported on public roads must be in leak-proof, covered containers.
- VIII. Finished compost:
 - a. Must contain no visible soft tissue pieces.
 - b. May be handled and stored according to PCA and Dept. of Agriculture rules.

OFFSET Summary and Results

OFFSET Ver 2.0
University of Minnesota
1/21/2017

Farm Name: Tyler Maertens
County: To Maertens residence
Evaluator: Nick Brozek
Date: 5/14/19

Source Characteristics Summary

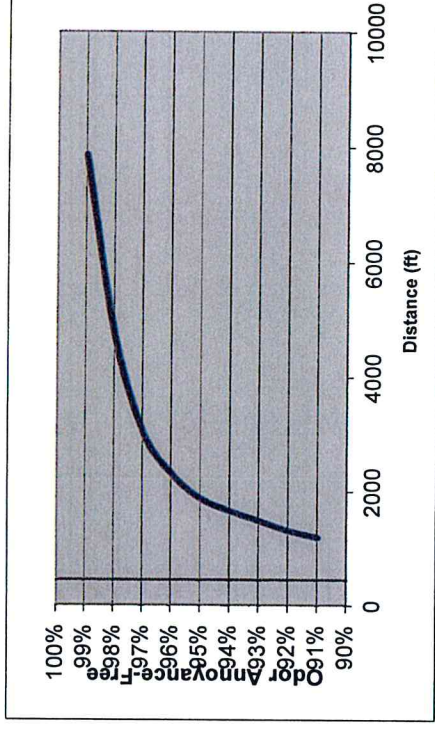
	Similar Sources	Emit Area sq ft	Control Technology Type	Percent Treated	Flux Rates (with control technology)			Source Emission Rates*				
					Odor oul/s/m2	OFFSET OER	H2S ug/s/m2	Ammonia ug/s/m2	Odor oul/s	H2S ug/s	Ammonia ug/s	
Buildings												
Swine Finishing - deep pit	2	40800	None	0%	10.5	34.2	6.0	99.0	39820	22754	375446	
Area Sources												
Earthen manure storage		0	None		14.0	13	25.3	107.0	0	0	0	0
User added		0	None		0.0	0.0	0.0	0.0	0	0	0	0

*includes control technologies

Site Emissions

Total Site Area (ft2)	40,800
Total Odor Emission Factor (TOEF)	139
Total Site H2S Emissions (mg/s)	23
Total Site H2S Emission AVERAGE (lbs/day)	4
Total Site H2S Emission MAX (lbs/day)	9
Total Site H2S Emissions (tons/yr)	1
Total Site Ammonia Emissions (mg/s)	375
Total Site Ammonia Emission AVERAGE (lbs/day)	71
Total Site Ammonia Emissions MAX (lbs/day)	143
Total Site Ammonia Emissions (tons/yr)	13

Source Edge to Nearest Neighbor (ft)	445
OFFSET Annoyance-free frequency	84%



Conditions for Permit No. 7-19 (Tyler Maertens)

1. The permit holder shall comply with all applicable laws, rules, and regulations, including but not limited to Redwood County Ordinance, as hereafter amended from time to time.
2. The permit holder shall allow the Redwood County Environmental Office to inspect the site for all purposes permitted by law whenever deemed necessary by the Redwood County Environmental Office.
3. All waste, refuse, and the like generated by or from the conditional use must be disposed of in the manner provided by the applicable local, state, and federal statutes, rules, and regulations. A copy of all disposal records and receipts must be kept on file for no less than five (5) years and shall be provided to the Redwood County Environmental Office upon request.
4. The permit holder shall contact all relevant local, state, and federal authorities/entities and inquire as to whether a permit and/or license is required. If a permit and/or license is required, the permit holder shall apply for and obtain any and all required permits and/or licenses. A copy of all such permits and/or licenses shall be provided to the Redwood County Environmental Office upon request.
5. The permit holder shall take appropriate and reasonable measures to assure that all surface water runoff satisfies all applicable local, state, and federal discharge standards.
6. The permit holder shall not allow the conditional use to be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted.
7. The permit holder shall not allow the conditional use to impede the normal and orderly development and improvement of surrounding vacant property for uses predominant to the area.
8. Adequate utilities, access roads, drainage, and other necessary facilities shall be provided and continue to be provided by the permit holder now and in the future.
9. Adequate measures shall be taken to prevent or control offensive odor, fumes, dust, and vibration, so that none of the foregoing will constitute a nuisance now or in the future.
10. The manner in which manure is stored and disposed of shall comply with all applicable local, state, and federal laws, rules, and regulations. If manure is applied to land, it shall be applied to land at agronomic rates. Applied manure shall be injected or incorporated within 24 hours. The permit holder shall retain a record of all locations where manure is applied to land. Such records shall be maintained for a period of no less than five (5) years, measured from the date the manure is applied to land. Such records shall be submitted to the Redwood County Environmental Office upon request.
11. The permit holder shall abide by the Odor Management Plan attached to the application, or by any amended plan approved by the Zoning Administrator.

12. The permit holder shall report any changes in spread agreements or spread areas to the Redwood County Environmental Office within thirty (30) days subsequent to any such change.
13. The County Board of Commissioners may at any time impose additional conditions as necessary and appropriate including but not limited to: the planting of trees and shrubs for use as a windbreak for the feedlot operation; the furnishing and placing in a dedicated account, to be administered by the County, an annual payment for reclamation purposes based upon the number of Animal Units involved; and restrictions on the days on which a manure storage structure may be disturbed or manure may be transferred, applied, incorporated, or injected.
14. Dead livestock shall be stored in such a manner as to not create a nuisance. Disposal of dead livestock by burial is strictly prohibited. Dead hogs may be composted according to the Redwood County Swine Composting Protocol, which is attached hereto and incorporated into Conditional Use Permit #7-19.
15. The permit holder shall construct the manure storage structure/concrete pit(s) to meet or exceed the minimum requirements set forth in the plans and specifications prepared by Nicholas J. Rowe, P.E. and signed by him on December 17, 2018, attached to the permit holder's application.
16. A perimeter tile line shall be maintained around the outside of the base of the pit wall and an inspection manhole shall be provided where the perimeter tile branches out into the local drain tile system.
17. The permit holder shall install a warning sign at all entrances to the concrete pits. These signs shall warn the reader of the dangers of entering the pit.
18. No construction on the pit shall be done between October 15th and April 15th, except by approval of the Zoning Administrator.
19. The Redwood County Planning Commission shall review the conditional use permit and shall be authorized to take any and all necessary action(s), including but not limited to revoking the conditional use permit and/or requiring the permit holder to reapply for a conditional use permit, if: 1) The Redwood County Environmental Office acquires information previously unavailable that indicates the terms and conditions of the permit do not accurately represent the actual circumstances of the permitted facility or the conditional use; 2) It is discovered subsequent to the issuance of the permit the permit holder failed to disclose all facts relevant to the issuance of the permit or submitted false or misleading information to the Redwood County Environmental Office, the Redwood County Planning Commission, or the Redwood County Board of Commissioners; 3) The Redwood County Environmental Office determines the permitted facility or conditional use endangers human health or the environment; and/or (4) The permit holder violates any of the herein described conditions.



REDWOOD COUNTY ENVIRONMENTAL OFFICE

*Planning & Zoning • Parks & Trails • GIS
Aquatic Invasive Species • Septic Inspector
Drainage Inspector • Agricultural Inspector*

PO BOX 130
REDWOOD FALLS
MINNESOTA 56283
PH: 507-637-4023

**REDWOOD COUNTY PLANNING COMMISSION
Tyler Maertens feedlot
Conditional Use Permit Application #7-19
May 20, 2019**

FINDINGS OF FACT

ORDINANCE CRITERIA – The Planning Commission may recommend the granting of a Conditional Use Permit in any district provided the proposed use is listed as a conditional use for the district and upon a showing that the standards and criteria stated in this Ordinance will be satisfied and that the use is in harmony with the general purposes and intent of this Ordinance and the Comprehensive Plan.

In determining whether the proposed use is in harmony with the general purposes and intent of the Ordinance and the Comprehensive Plan, the Planning Commission shall consider and make findings on the following questions:

1) Will the proposed use have an adverse impact on the health, safety, and general welfare of the residents in the surrounding neighborhood?

Yes _____ No _____

Why?: _____

2) Has evidence been presented that shows the proposed use will cause material injury to the use and enjoyment of other property in the surrounding neighborhood for land uses that are already permitted?

Yes _____ No _____

Why?: _____

3) Will the proposed use have a substantial adverse effect on property values or future development of land in the surrounding neighborhood for uses common to the area?

Yes _____ No _____

Why?: _____

4) Are there, or will there be provided, adequate utilities, access roads, drainage, off-street parking and loading areas, and other necessary facilities to support the proposed use of the property?

Yes _____ No _____

Why?: _____

5) Have adequate measures been taken, or will adequate measures be taken, to prevent or control offensive odor, fumes, dust, noise, lights, and vibration, so that no disturbance to neighboring properties will result?

Yes _____ No _____

Why?: _____

6) Is the proposed use of the property consistent with the general purpose and intent of the Zoning Ordinance and the goals and policies adopted in the Comprehensive Plan?

Yes _____ No _____

Why?: _____

NAME: _____ DATE: _____

ELIZABETH L LANGE ETAL
404 SOUTHWAITE CT
REDWOOD FALLS, MN 56283

CURTIS & CARLA A TROST
27482 290 ST
WABASSO, MN 56293

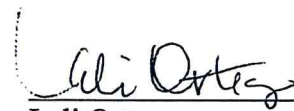
CHRISTOPHER J TURBES
25397 295 ST
WABASSO, MN 56293

AARON J & ROBYN J STRUNTZ
25697 295 ST
WABASSO, MN 56293

JEANETTE MALECHA ETAL
34459 LASER AVE
REDWOOD FALLS, MN 56283

SHERIDAN TOWNSHIP BOARD OF SUPERVISORS
% SALLY SCHUELLER, CLERK
28234 CO HWY 6
REDWOOD FALLS, MN 56283

by enclosing a copy of the same in an envelope, with postage prepaid, and depositing said envelope in a United States Postal Service mailbox located at Redwood Falls, Minnesota on the 2nd day of May, 2019.

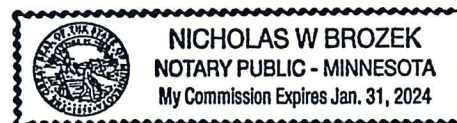


Lali Ortega
Administrative Assistant
Environmental Office

Subscribed and sworn to before me, a Notary Public, on this 2nd day of May, 2019, by Nicholas W. Brozek.



Notary Public



AFFIDAVIT OF PUBLICATION

Redwood Gazette RECEIVED


Redwood Falls, Minnesota
State of Minnesota
County of Redwood

MAY 13 2019
REDWOOD COUNTY
ENVIRONMENTAL OFFICE

Lisa Drafall, being first duly sworn, on oath states as follows:

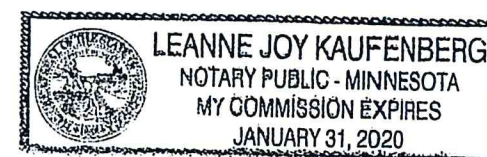
1. I am the general manager of the Redwood Gazette. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.
2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.
3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows: ~~MONDAY~~, the 6th day of MAY, 2019.
4. The general manager's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06 and §331A.07.
5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in Redwood County. The newspaper complies with the conditions in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

By: 
General Manager

Subscribed and sworn before me
on the 6th day of MAY, 2019.

By: 
Notary Public



OFFICIAL PUBLICATION NOTICE OF PUBLIC HEARING

An *Animal Confinement Feedlot Conditional Use Permit Application* has been filed by Tyler Maertens, pursuant to Minnesota Statute 116.07 subd. 7(a) and Redwood County Code of Ordinances, Title XV, Sections 153.290 and 153.142, for the expansion of a swine feedlot with a current capacity of 2400 head of finishing swine (720 animal units).

The proposed feedlot expansion will include one total confinement swine barn housing an additional 2400 head (720 animal units) of finishing swine on the following described real property, situated in the County of Redwood, State of Minnesota, to wit:

A 400' by 327' tract in the West Half of the Northeast Quarter (W1/2 NE1/4) of Section 34, Township 112 North, Range 37 West, Sheridan Township.

After the expansion, the feedlot will have the capacity for 4800 head of finishing swine (1440 animal units) in total confinement barns. All manure will be stored in under-floor poured concrete pits.

A public hearing thereon will be held before the Redwood County Planning Commission at the Planning Commission meeting starting at 1:00 o'clock p.m. on Monday, the 20th day of May, 2019, at the Board Room of the Redwood County Government Center located at 403 South Mill Street, Redwood Falls, MN 56283.

If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023, via email at Environmental@co:redwood.mn.us, or in writing at Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283.

DATED: May 1, 2019
Nicholas W. Brozek
Land Use & Zoning Supervisor
Redwood County Environmental Office
Published in the Redwood Gazette May 6, 2019.

AFFIDAVIT OF PUBLICATION

Wabasso Standard **RECEIVED**

Wabasso, Minnesota
State of Minnesota
County of Redwood

MAY 13 2019

REDWOOD COUNTY
ENVIRONMENTAL OFFICE


Lisa Drafall, being first duly sworn, on oath states as follows:

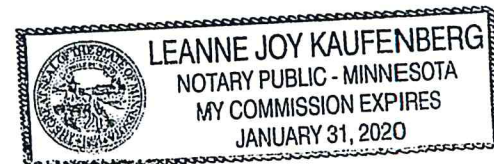
1. I am the general manager of the Wabasso Standard. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.
2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.
3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows: -WEDNESDAY-, the 8th day of MAY, 2019.
4. The general manager's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06 and §331A.07.
5. Mortgage Foreclosure Notices. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in Redwood County. The newspaper complies with the conditions in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

By: 
General Manager

Subscribed and sworn before me
on the 8th day of MAY 2019.

By: 
Notary Public



OFFICIAL PUBLICATION NOTICE OF PUBLIC HEARING

An Animal Confinement Feedlot Conditional Use Permit Application has been filed by Tyler Maertens, pursuant to Minnesota Statute 116.07 subd. 7(a) and Redwood County Code of Ordinances, Title XV, Sections 153.290 and 153.142, for the expansion of a swine feedlot with a current capacity of 2400 head of finishing swine (720 animal units).

The proposed feedlot expansion will include one total confinement swine barn housing an additional 2400 head (720 animal units) of finishing swine on the following described real property, situated in the County of Redwood, State of Minnesota, to wit:

A 400' by 327' tract in the West Half of the Northeast Quarter (W1/2 NE1/4) of Section 34, Township 112 North, Range 37 West, Sheridan Township.

After the expansion, the feedlot will have the capacity for 4800 head of finishing swine (1440 animal units) in total confinement barns. All manure will be stored in under-floor-poured concrete pits.

A public hearing thereon will be held before the Redwood County Planning Commission at the Planning Commission meeting starting at 1:00 o'clock p.m. on Monday, the 20th day of May, 2019, at the Board Room of the Redwood County Government Center located at 403 South Mill Street, Redwood Falls, MN 56283.

If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023, via email at Environmental@co.redwood.mn.us, or in writing at Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283.

DATED: May 1, 2019

Nicholas W. Brozek

Land Use & Zoning Supervisor

Redwood County Environmental Office

Published in the Wabasso Standard May 8, 2019.

OFFICIAL PUBLICATION
NOTICE OF PUBLIC
HEARING

An Animal Confinement Feedlot Conditional Use Permit Application has been filed by Tyler Maertens, pursuant to Minnesota Statute 116.07 subd. 7(a) and Redwood County Code of Ordinances, Title XV, Sections 153.290 and 153.142, for the expansion of a swine feedlot with a current capacity of 2400 head of finishing swine (720 animal units).

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If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023, via email at Environmental@co.redwood.mn.us, or in writing at Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283.

DATED: May 1, 2019
Nicholas W. Brozek
Land Use & Zoning
Supervisor
Redwood County
Environmental Office

Published in the Standard-Gazette & Messenger May 8, 2019.

Affidavit of Publication

RECEIVED

State of Minnesota)
) SS.
County of Renville)

MAY 13 2019

REDWOOD COUNTY
ENVIRONMENTAL OFFICE

Denise Bonsack, being first duly sworn, on oath states as follows:

1. I am the publisher of the Standard-Gazette & Messenger, or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.

2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.

3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows:

Wed., May 8, 2019

4. The publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to § 331A.06, is as follows:

\$ 7.40

5. Mortgage Foreclosure Notices [Effective 7/1/15]. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notices: The newspaper's known office of issue is located in Renville County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

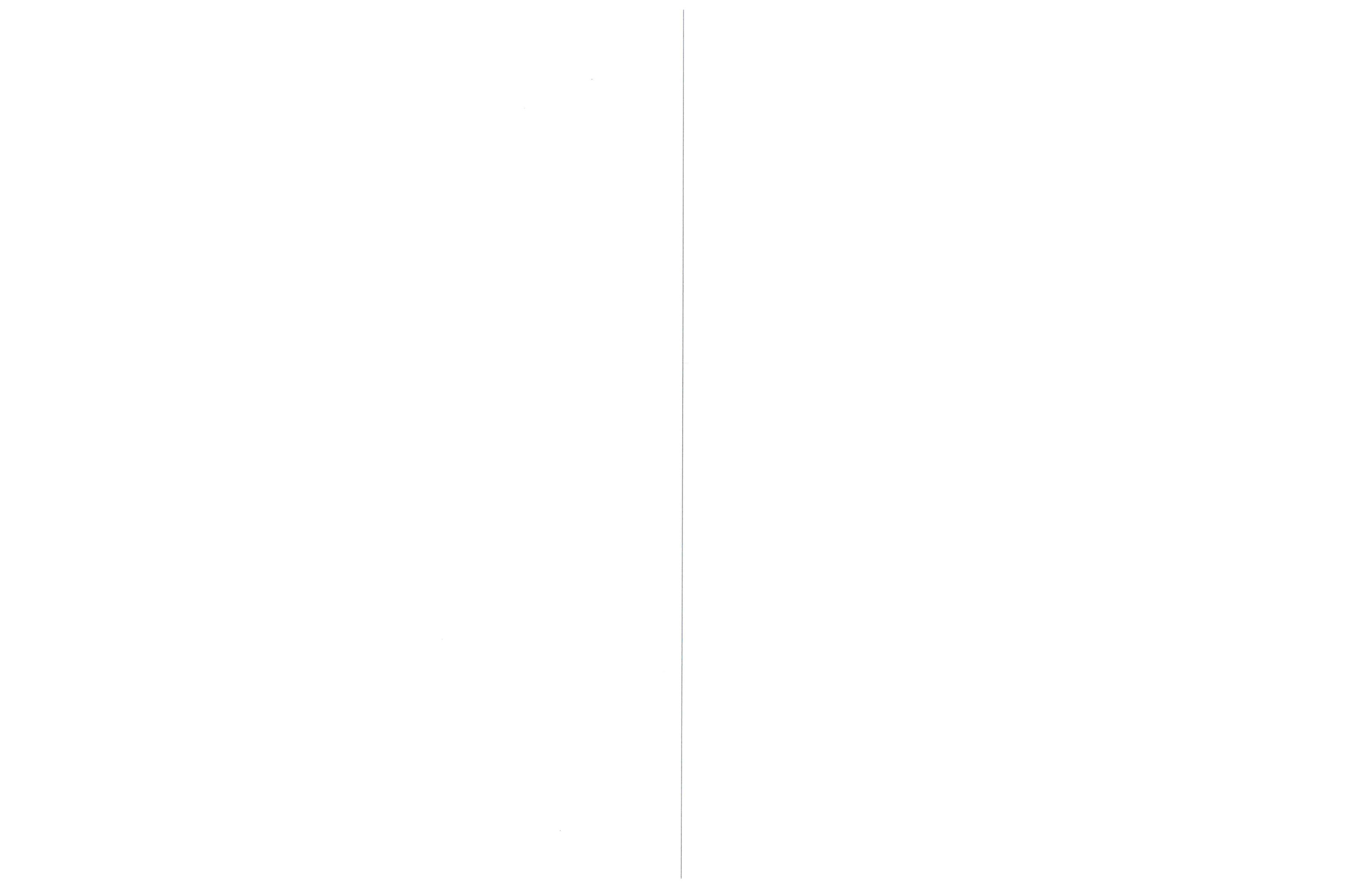
FURTHER YOUR AFFIANT SAITH NOT.

Denise Bonsack
[Signature]

Subscribed and sworn to before me on
this 8 day of May 2019.

Christine M Jandl
Notary Public





COPY



NOTICE OF PUBLIC HEARING

An *Animal Confinement Feedlot Conditional Use Permit Application* has been filed by Tyler Maertens, pursuant to Minnesota Statute 116.07 subd. 7(a) and Redwood County Code of Ordinances, Title XV, Sections 153.290 and 153.142, for the expansion of a swine feedlot with a current capacity of 2400 head of finishing swine (720 animal units).

The proposed feedlot expansion will include one total confinement swine barn housing an additional 2400 head (720 animal units) of finishing swine on the following described real property, situated in the County of Redwood, State of Minnesota, to wit:

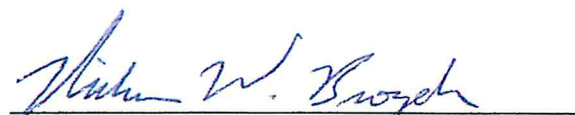
A 400' by 327' tract in the West Half of the Northeast Quarter (W1/2 NE1/4) of Section 34, Township 112 North, Range 37 West, Sheridan Township.

After the expansion, the feedlot will have the capacity for 4800 head of finishing swine (1440 animal units) in total confinement barns. All manure will be stored in under-floor poured concrete pits.

A public hearing thereon will be held before the Redwood County Planning Commission at the Planning Commission meeting starting at 1:00 o'clock p.m. on Monday, the 20th day of May, 2019, at the Board Room of the Redwood County Government Center located at 403 South Mill Street, Redwood Falls, MN 56283.

If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023, via email at Environmental@co.redwood.mn.us, or in writing at *Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283.*

DATED: May 1, 2019



Nicholas W. Brozek
Land Use & Zoning Supervisor
Redwood County Environmental Office

TO: Whom It May Concern

FROM: Nick Brozek *NB*
Land Use and Zoning Supervisor
Redwood County Environmental Office



DATE: May 1, 2019

RE: Notice of Public Hearing on Animal Confinement Feedlot Conditional Use Permit Application

Please find enclosed a *Notice of Public Hearing* regarding an *Animal Confinement Feedlot Conditional Use Permit Application* filed by Tyler Maertens, pursuant to Minnesota Statute 116.07 subd. 7(a) and Redwood County Code of Ordinances, Title XV, Sections 153.290 and 153.142, for the expansion of a swine feedlot with a current capacity of 2400 head of finishing swine (720 animal units).

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A public hearing thereon will be held before the Redwood County Planning Commission at the Planning Commission meeting starting at 1:00 o'clock p.m. on Monday, the 20th day of May, 2019, at the Board Room of the Redwood County Government Center located at 403 South Mill Street, Redwood Falls, MN 56283.

Pursuant to Redwood County Zoning Ordinance, all property owners of record within five hundred (500) feet in incorporated areas and/or one-quarter (1/4) of a mile of the affected property or the ten (10) properties nearest to the affected property, whichever would provide notice to the greatest number of landowners in the unincorporated areas, the township in which the affected property is located, and all municipalities within two (2) miles of the property are required to be notified in writing of the time and place of the public hearing.

If you have any comments or questions regarding this matter, please contact the Redwood County Environmental Office by telephone at (507) 637-4023, via email at Environmental@co.redwood.mn.us, or in writing at *Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283*, and/or attend the Public Hearing at the time and date set forth in the *Notice of Public Hearing* enclosed herein.

Enclosure

Cc: Tyler Maertens (w/ encl)

Redwood County Government Center - Environmental Department
P.O. Box 130 Redwood Falls, MN 56283
(507) 637-4023 redwoodcounty-mn.us Environmental@co.redwood.mn.us