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

NOTICE OF PUBLIC HEARING

An *Animal Confinement Feedlot Conditional Use Permit Application* has been filed by Keith Schaefer pursuant to Minnesota Statute 116.07 subd. 7(a) and Section 17, Subd. 3 and Section 25 of Redwood County Zoning Ordinance, to convert an existing confinement feedlot from beef cattle to dairy cattle and for the construction of three solid manure stacking slabs, including three 20' x 20' x 8' in ground concrete tanks, a 96' x 110' permanent stockpile area, and a 62' x 340' permanent stockpile area. The proposed feedlot will hold 1,540 head of dairy heifers (1,048 State Animal Units, or 1,694 Redwood County Animal Units), in total and partial confinement barns with below barn concrete tank manure storage and manure pack on floor with open lots and runoff controls, on the following described property, situated in the County of Redwood, State of Minnesota, to wit:

> Northwest Quarter of the Southeast Quarter (NW1/4 SE1/4) of Section 5, Township 110 North, Range 34 West, Brookville Township.

A public hearing thereon will be held before the Redwood County Planning Commission at the regularly scheduled Planning Commission meeting starting at 1:00 o'clock p.m. on Monday, the 26th day of September, 2016, 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 or in writing at *Redwood County Environmental Office, P.O. Box 130, Redwood Falls, MN 56283.*

DATED: September 12th, 2016

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

Redwood County Environmental Office -- PO Box 130, Redwood Falls, MN 56283 Phone: (507) 637-4023

Redwood County

www.co.redwood.mn.us

Animal Confinement Feedlot Conditional Use Permit Application

Permit #: 0-00 **Date:** Aug. 29, 2016

Proposed Location of Feedlot Operation:

Address: 41762 (House #) 215th St. (Street Name) **City:** Morgan **State:** MN **Zip:** 56362

Parcel #: 50-005-4020 **Township:** Brookville **Section:** 5 **Twp #:** T-110*N **Range:** R-34-W

Information about the Operation:

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

Dairy heifer raising facility with one total confinement barn with a below the barn concrete LMSA and three partial confinement barns and open lots with proposed runoff controls and solid manure storage structures.

Legal Description of Proposed Feedlot Location:

NW 1/4 of the SE 1/4 of Section 5, Brookville Township, Redwood County, Minnesota

Information about the Land Owner:

First Name: Evergreen **Last Name:** Acres Dairy, LLC **Phone:** (320) 548-3666

Address: 26162 240th St. **City:** Paynesville **State:** MN **Zip:** 56362

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:

Site / Plan Information:

Zoning District: Ag Zone

Soil Type 1: Webster Clay Loam

Soil Type 2: Normania Loam

Water source for the site: Wells **If other, please explain:**

Drainage System: Drain Tile **If other, please explain:**

Estimated water use:

Animal 1

Animal Type: Dairy Heifers

10 *gallons/day/animal* **X** 1,540 *number of animals on site* **X** 365 *number of days present*

= 5,621,000 *gallons/yr/site*

Animal 2

Animal Type:

gallons/day/animal **X** *number of animals on site* **X** *number of days present*

= *gallons/yr/site*

Animal 3

Animal Type:

gallons/day/animal **X** *number of animals on site* **X** *number of days present*

= *gallons/yr/site*

Total Gallons: 0

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

Building 1:	**Width:** 50'	**Length:** 120'	**Height:**	**Sidewall Height:**	**Sidewall Thickness:**
Building 2:	**Width:** 42'	**Length:** 336'	**Height:**	**Sidewall Height:**	**Sidewall Thickness:**
Building 3:	**Width:** 42'	**Length:** 448'	**Height:**	**Sidewall Height:**	**Sidewall Thickness:**
Building 4:	**Width:** 50'	**Length:** 240'	**Height:**	**Sidewall Height:**	**Sidewall Thickness:**

Additional feedlot components are list on attached sheet.

Each building will have a minimum setback from every road right-of-way of: 250 feet

Estimated date for beginning construction: **Estimated completion date:**

General Contractor:

Name: **City:** **State:** MN

Feedlot Operator:

Complete this section only if the feedlot operator will be different from the "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:** **Phone:**

Address: **City:** **State:** MN **Zip:**

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: Keith **Last Name:** Schaefer

Business: Evergreen Acres Dairy, LLC

Address: 26162 240th St. **City:** Paynesville **State:** MN **Zip:** 56362

Home Phone: (320) 548-3666 **Cell Phone:** (320) 980-7323

List any additional applicants:

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): By Keith Schaefer Evergreen Acres Dairy LLC. **Date:** 8-16-16

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

CUP permit fee: $1400 **Reciept #:** 951956

Completed Application Acceptance Date: **Date Approved:**

Commission Action:

Approved: **Date:**

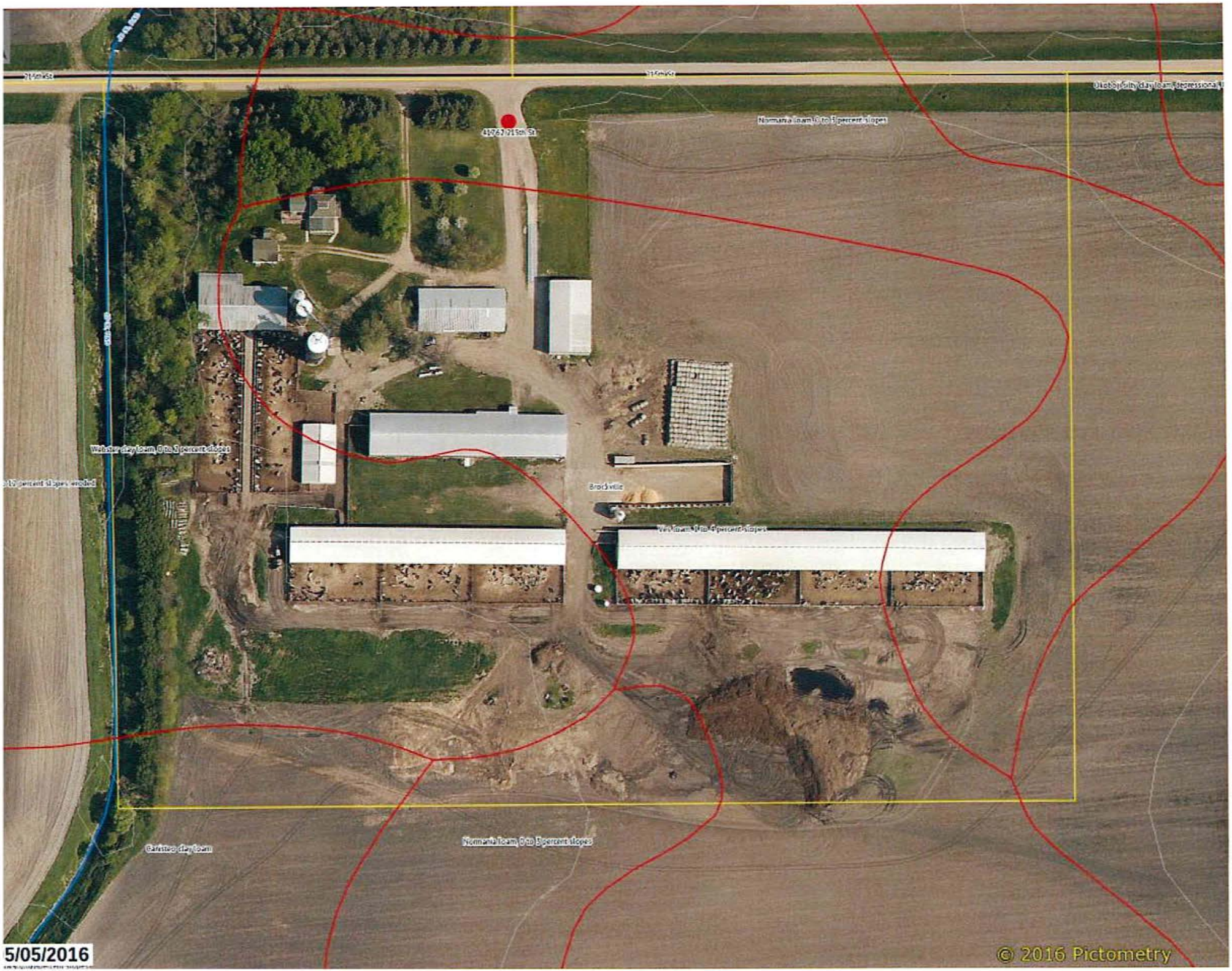
Disapproved: **Date:**

County Board Action:

Approved: **Date:**

Disapproved: **Date:**


N
STEINHAUS
41229 215th St
215th St
215th St
215th St
JD 34, R&B
JD 34, R&B
Ranch Ave
41762 215th St
FEEDLOT
Unnamed St
21559 Ranch Ave
ALAN MADSEN
Brookville
Prairie Ave
MARK & LYNN MADSEN
Unnamed St
21120 Prairie Ave
JD 63, R&B
10
10
12
NANCY BLICK
Unnamed St
21159 Ranch Ave
KOTTEN
21088 Prairie Ave
GILLAND
04/17/2016 - 05/05/2016


215th St
4976 215th St
Normania loam, 0 to 3 percent slopes
Webster clay loam, 0 to 3 percent slopes
Brookville
Canisteo clay loam
Normania loam, 0 to 3 percent slopes
5/05/2016
© 2016 Pictometry

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

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.

Keep a copy of this application form and all submittals for your records.

A fact sheet that explains major and minor permit modifications is available at: http://www.pca.state.mn.us/zihy6a1

Feedlot Registration Number: 127-50088

I. Permit type and reason for application

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

Name: Evergreen Acres Dairy, LLC
Address: 16162 240th St
City: Paynesville State: MN
Phone: (320) 548-9666 Zip: 56362
Email:

Additional owner – attach additional sheets as necessary

Name: Keith Schaefer
Address: 26162 240th St
City: Paynesville State: MN
Phone: (320) 548-3666 Zip: 56362
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: Morgan Heifer Farm

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

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

Street: 41762 215th St
City: Morgan State: MN
Phone: (320) 980-7323 Zip: 56266

Contact person for day-to-day activities

Name: Keith Schaefer
Street: 26162 240th St
City: Paynesville State: MN
Phone: (320) 548-3666 Zip: 56362
Cell phone: (320) 980-7323
Email: keithevergreenacres@gmail.com

(General letters/notices may be sent by e-mail 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: Brookville

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 110 N	R 34 W	5	SE	NW

VI. Sensitive features

1. Is any part of the facility within 1,000 feet of any type of surface waters? ☒ Yes ☐ No
   If Yes, complete a. and b. below:
   a. List the name of the surface water feature: Judicial Ditch 30
   b. Select the type of surface water feature below:
   ☐ Lake/Pond larger than 25 acres ☐ Wetland ☒ Drainage ditch ☐ Other
   ☐ River/Stream Is any part of the facility within 300 feet of the river/stream? ☒ Yes ☐ No
2. Is any part of the facility located within a delineated flood plain *(100 year flood)*? ☐ Yes ☒ No
3. Is any part of the facility located within designated shoreland? ☐ Yes ☒ No
4. Is any part of the facility located within 1,000 feet of a karst feature? ☐ Yes ☒ No
   (sinkholes, caves, disappearing springs, resurgent springs, karst windows, dry valleys, or blind valleys)
   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
5. 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)
6. Is any part of the facility located within 1,000 feet of an open tile intake? ☒ Yes ☐ No

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 2 above)
- Any part of the facility is within designated shoreland (yes to question 3 above)
- Any part of the facility is within 1,000 feet of a karst feature (yes to question 4 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 http://www.pca.state.mn.us/publications/wq-f1-10.pdf) 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. (ie. 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: 3. Head count	*Current* AU capacity: 4. Animal units = column 2 x column 3	*Final* AU capacity (Current +/- Changes): 5. Head count	*Final* AU capacity (Current +/- Changes): 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			1,540	1,078
Calf	0.2				
B. Veal					
Veal	0.2				
C. Beef cattle					
Slaughter steer/heifer, stock cow, or bull	1.0	975	975		
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				
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 Add all numbers in column 4 for Current AU total Add all numbers in column 6 for Final AU total			**Current AU Capacity Total** **975**		**Final AU Capacity Total** **1,078**

IX. Animal holding areas

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

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)	1	2	3	4		
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	☐Proposed ☐Approved ☒Existing ☐Modifying ☐Eliminating	And Proposed ☐Approved ☒Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☒Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☒Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating
Distance to nearest well (ft.)	355	116	128	293		

* 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)				50x240		
Total confinement barn (solid floor)						
Partial confinement barn	50x120	42x336	42x448			
Open lot with runoff controls	140x180	42x336	42x448			
Open lot without runoff controls						
Animal Holding Area Floor Type (check all that apply)	☒Concrete ☐Soil ☐Asphalt ☐Other	☒Concrete ☐Soil ☐Asphalt ☐Other	☒Concrete ☐Soil ☐Asphalt ☐Other	☒Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other

Animal numbers	***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	300	420	560	260		
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.						
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,G	A,D,G	A,D,G	A,D,G		
Possible additional odor control strategies** (must indicate at least one practice)	J	J	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
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
K. 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.

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)	G	A	B	C	D	E
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	☐Proposed ☐Approved ☒Existing ☐Modifying ☐Eliminating	☒Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☒Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☒Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☒Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☒Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating
Distance to nearest well (ft.)	293	343	370	264	56	66

* 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	36x240x10					
In-ground concrete tank/basin (outdoor)			20x20x8		20x20x8	20x20x8
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		96x110		62x340		
Dead Animal Management Area						
Covered Feed Storage Area						
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)	☐Concrete ☐Soil ☐Asphalt ☐Other	☒Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☒Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐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	K,L,M	K,L,M	K,L,M	K,L,M	K,L,M	K,L,M
Possible additional odor control strategies** (must indicate at least one practice)	O	O	O	O	O	O

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)

Liquid Storage Area Specific (basins, pits, etc.)

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

Solid Storage Area Specific (stockpiles)

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

*Practices applicable to solid **or** liquid storage areas*

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. 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)	F					
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	☒Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating	☐Proposed ☐Approved ☐Existing ☐Modifying ☐Eliminating
Distance to nearest well (ft.)	80					

* 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						
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	62x450					
Dead Animal Management Area						
Covered Feed Storage Area						
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)	☒Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐Other	☐Concrete ☐Soil ☐Asphalt ☐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	K,L,M					
Possible additional odor control strategies** (must indicate at least one practice)	O					

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)

Liquid Storage Area Specific (basins, pits, etc.)

G. Maintain crust on basin by using organic bedding
H. Cover liquid manure storage area with straw
I. Cover liquid manure storage area with synthetic cover
J. Anaerobic digestion
K. Separate solids with settling basin or liquid/solid separator
L. Utilize a pit additive to break down solids

Solid Storage Area Specific (stockpiles)

H. Reduce length of time stockpile is maintained
J. Solid manure composting
K. Cover the solid manure stockpile
K. Incinerate solid manure at approved/permitted facility

*Practices applicable to solid **or** liquid storage areas*

P. Notify neighbors of manure application periods and avoid holidays
Q. Disperse/mix air with tree plantings
R. Add straw or other bedding material to reduce odor/ emissions
S. Treatment of escaping air with control technologies
T. I will consult the MPCA to identify changes that can be made to reduce odors

Q. Other: _____

S. Other: _____

T. 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.

XII. 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.

XIII. 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 *Permit Notification Requirements – Feedlots with more than 500 Animal Units* available on the MPCA website http://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: September 26, 2016

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.

XIV. Certification and Signature

General permit

The Applicant certifies that, if this is an application is 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:

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

Print name: Evergreen Acres, LLC Print official title: Principal

Office phone: (320) 548-3666 Cell phone: (320) 980-7323

Signature: Evergreen Acres, LLC By Kent [illegible] Date: _____

A "wet signature" is required. No reproductions (i.e., copies or scans) of the signature will be accepted.

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.)

☐ 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 below:

Transferred Ownership MMP: http://www.pca.state.mn.us/index.php/view-document.html?gid=3763

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 below:

MPCA Manure Management Planner: http://www.pca.state.mn.us/index.php/view-document.html?gid=3548

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

A paper version is available at: http://www.pca.state.mn.us/index.php/view-document.html?gid=23197

☐ 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 available at: http://www.pca.state.mn.us/index.php/view-document.html?gid=3754.

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

• General Permit Coverage Issuance	$620
• General Permit Coverage Major Modification	$620
• Individual Permit Issuance	$1,860
• Individual Permit Reissuance	$620
• Individual Permit Major Modification	$1,860

Note: There is an additional fee of $4,650 for processing of an Environmental Assessment Worksheet (EAW) *(when required)*. The EAW fee must be paid via a separate check.

☐ 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 a form to assist in development of a SWPPP it is available at: http://www.pca.state.mn.us/index.php/view-document.html?gid=3485.

☐ G. **Optional** – Verification of the notifications required in part XIII 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.

Permit application submittal to the MPCA

Please mail the completed permit application, permit application fee, and all necessary attachments to the MPCA office contact indicated in the chart below. If a permit application is for a facility in multiple counties you can submit it to either office.

For facilities located in the following counties:

Aitkin	Fillmore	Lyon	Rice
Anoka	Freeborn	McLeod	Rock
Benton	Goodhue	Meeker	Scott
Big Stone	Hennepin	Mille Lacs	Sherburne
Carlton	Houston	Morrison	Stearns
Carver	Isanti	Mower	St. Louis
Cass	Itasca	Murray	Steele
Chippewa	Jackson	Olmsted	Swift
Chisago	Kanabec	Nobles	Todd
Cook	Kandiyohi	Pine	Wabasha
Cottonwood	Koochiching	Pipestone	Wadena
Crow Wing	Lac qui Parle	Ramsey	Washington
Dakota	Lake	Redwood	Winona
Dodge	Lincoln	Renville	Wright
			Yellow Medicine

Please mail your completed permit application, fee, and attachments to:

MPCA Feedlot Permit Coordinator
18 Woodlake Drive SE
Rochester, MN 55904

For facilities located in the following counties:

Becker	Martin
Beltrami	Nicollet
Blue Earth	Norman
Brown	Otter Tail
Clay	Pennington
Clearwater	Polk
Douglas	Pope
Faribault	Red Lake
Grant	Roseau
Hubbard	Sibley
Kittson	Stevens
Lake of the Woods	Traverse
Le Sueur	Waseca
Mahnomen	Watonwan
Marshall	Wilkin

Please mail your completed permit application, fee, and attachments to:

MPCA Feedlot Permit Coordinator
12 Civic Center Plaza, Suite 2165
Mankato, MN 56001

EQIP Ag-Waste Storage
and
Contaminated Runoff
Collection
for
Morgan Heifers

41762 215th Street

Morgan, MN 55266

September 21, 2016

Basis of Design
Wettest 6 Months, March-August

Lot #	Estimated Manure and Bedding	Estimated Runoff	Runoff from 24hr/25yr Storm (4.9")	Ag-Waste Component Runoff Component	Runoff Component Capacity +2,440 ft³ Tank	Total Ag-Waste Component Capacity
1	62,192 ft³	18,973 ft³	8,173 ft³	160'x60'x3.0'	27,640 ft³	94,840 ft³
2	88,346 ft³	11,980 ft³	5,160 ft³	60'x150'x2.0'	20,440 ft³	116,440 ft³
3	117,795 ft³	15,973 ft³	6,880 ft³	20'x400'x2.5'	22,440 ft³	142,440 ft³
Totals	268,333 ft³	46,746 ft³	20,213 ft³		90,960 ft³	353,720 ft³

The Ag-Waste Component capacities are based on the estimated amount of contaminated runoff, manure and bedding produced over the summer growing months of March through August plus the amount runoff estimated to be generated from a 24 hour/25 year precipitation event. Solid manure or runoff containment capacities do not have minimum capacities required by rule but are required to be managed and always have sufficient volume to prevent discharge during a storm event with less precipitation than that of a 24 hour/25 year event. Each stacking slab will include a 20'x20'x8' sump and containment to prevent any discharge during storm events less than that of a 24hr/25yr event.

AG WASTE POND DESIGN: RUNOFF CALCULATIONS (NRCS, MARSHALL: REV. 2-93), MRS: REV 3-96 SHEET 1 OF 2

COOPERATOR: Morgan Heifers, Lot 1 COUNTY: Redwood

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHKED BY: DATE:

********** COUNTY RUNOFF DATA **********

	STORAGE PERIOD NO.		MEAN	PAVED RCN=97 INCHES	INCHES	UNPAVED RCN=90 INCHES	INCHES	*MEAN EVAP.	POND NET PRECIP.
I	MONTH	2	PRECIP.	RUNOFF 1	RUNOFF 2	RUNOFF 1	RUNOFF 2	LOSS	EVAP.
I	JANUARY	0	0.60	0.12	0.00	0.06	0.00	0.4	0.2
I	FEBRUARY	0	0.54	0.19	0.00	0.05	0.00	0.8	-0.3
0	MARCH	2	1.60	0.00	0.64	0.10	0.16	1.6	0.0
0	APRIL	2	2.71	0.00	1.36	0.00	0.41	3.5	-0.8
0	MAY	2	3.23	0.00	1.62	0.00	0.55	5.4	-2.2
0	JUNE	2	4.32	0.00	2.38	0.00	1.08	6.2	-1.9
0	JULY	2	3.61	0.00	2.17	0.00	0.90	7.0	-3.4
0	AUGUST	2	3.70	0.00	2.04	0.00	0.93	5.9	-2.2
1	SEPTEMBER	0	3.03	1.61	0.00	0.76	0.00	3.9	-0.9
1	OCTOBER	0	2.13	1.07	0.00	0.43	0.00	2.7	-0.6
1	NOVEMBER	0	1.43	0.57	0.00	0.21	0.00	1.2	0.2
1	DECEMBER	0	0.61	0.15	0.00	0.06	0.00	0.4	0.2
ANNUAL TOTALS =			27.51	3.70	10.19	1.67	4.02	39.0	-11.5
	Annual Total, Appendix 10C			13.755		5.502			App. 10C

LOT AREA PAVED = 22,350 SQ FT PAVED RUNOFF 1 = 3.70 INCHES

LOT AREA UNPAVED = 0 SQ FT PAVED RUNOFF 2 = 10.19 INCHES

TOTAL AREA = 22,350 SQ FT UNPAVED RUNOFF 1 = 1.67 INCHES

% PAVED = 100 % UNPAVED RUNOFF 2 = 4.02 INCHES

TOTAL RUNOFF 1 = 3.70 INCHES

TOTAL RUNOFF 2 = 10.19 INCHES

NET PRECIP/EVAP 1 = -1.06 INCHES

NET PRECIP/EVAP 2 = -10.43 INCHES

*NOTE: MEAN EVAPORATION LOSS IS BASED ON 80% OF THE MEAN FREE WATER SURFACE EVAPORATION IN CHAPT. 8 OF THE MN. HYDRO. GUIDE

NET PRECIP 1 = 8.34 INCHES NET PRECIP 2 = 19.17 INCHES

NORMAL RUNOFF VOLUME:

STORAGE PERIOD NO. 1: 22,350 SQ FT X 3.70 INCHES = 6,899 CU FT

STORAGE PERIOD NO. 2: 22,350 SQ FT X 10.19 INCHES = 18,973 CU FT

25 YEAR FREQUENCY STORM RUNOFF VOLUME:

(ENTER P25/24HR RAINFALL, RCN AND q WILL BE CALCULATED FOR YOU.)

P25/24HR = 4.74 INCHES RCN = 97 4.39 INCHES

22,350 SQ FT X 4.39 INCHES / 12 IN/FT = 8173 CU FT

IS AN EMERGENCY SPILLWAY PLANNED? (1 = YES, 0 = NO): 0

WHAT IS THE PLANNED EMERGENCY SPILLWAY FLOW DEPTH?: 0.0 FEET

DIRECT RAINFALL ADJUSTMENTS TO AVAILABLE POND STORAGE DEPTH:

STORAGE PERIOD NO.		1	2
NET PRECIP-EVAP. ON POND SURFACE	=	0.00 INCHES	0.00 INCHES
25YR 24HR STORM DIRECT RAINFALL	=	4.74 INCHES	4.74 INCHES
2ND 25YR 24HR STORM DIRECT RAINFALL	=	4.74 INCHES	4.74 INCHES
NET DECREASE (+) / INCREASE (-) IN DEPTH	=	0.79 FEET	0.79 FEET

AG WASTE POND DESIGN: WASTE VOLUMES & POND SIZES (NRCS, MARSHALL: REV. 2-93), MRS: REV 3-96: SHEET 2 OF 2

COOPERATOR: **Morgan Heifers, Lot 1** COUNTY: **Redwood**

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHECKED BY: _____ DATE: _____

WASTE VOLUMES:

MANURE VOLUME: ANIMAL TYPE	NUMBER HEAD	AVERAGE WEIGHT	ANIMAL UNITS	WASTE/ AU/DAY	TOTAL WASTE/DAY	
DAIRY COWS	0	1200	0.0	1.70	0.0	CU FT/DAY
DAIRY HEIFERS (OVER 750 LBS)	300	1000	210.0	1.30	273.0	CU FT/DAY
DAIRY CALVES (UP TO 750 LBS)	0	500	0.0	0.70	0.0	CU FT/DAY
BEEF COWS	0	1000	0.0	1.00	0.0	CU FT/DAY
BEEF FEEDERS	0	800	0.0	1.00	0.0	CU FT/DAY
BROOD SOWS W/ LITTERS	0	200	0.0	1.44	0.0	CU FT/DAY
SOWS & BOARS	0	240	0.0	0.55	0.0	CU FT/DAY
FINISHING PIGS (> 150 LBS)	0	150	0.0	1.10	0.0	CU FT/DAY
FEEDER PIGS (35 - 150 LBS)	0	0	0.0	1.08	0.0	CU FT/DAY
NURSERY PIGS (<35 LBS)	0	35	0.0	1.09	0.0	CU FT/DAY
ANIMAL UNITS & WASTE/DAY TOTALS:			210.0	AU's	273.0	CU FT/DAY
BEDDING VOLUMES:						
NO. SQUARE BALES / DAY x WEIGHT x .125 CUFT PER LB			0.0	BALES =	0.0	CU FT/DAY
NO. ROUND BALES / DAY x 35.3 CU.FT PER BALE		35.3	2.00	BALES =	70.6	CU FT/DAY
BEDDING AS A % OF MANURE:	26%	% X	273.0	=	0.7	CU FT/DAY
MANURE & BEDDING DELIVERY RATIO:	100	% NET VOLUME TO STACKING SLAB:			343.6	CU FT/DAY
WASHWATER GALLONS/DAY @ 0.1337 CU FT/GAL:			0	GAL/DAY =	0.0	CU FT/DAY
TOTAL WASTE VOLUME GENERATED PER DAY:					343.6	CU FT/DAY

TOTAL WASTE GENERATED FOR EACH STORAGE PERIOD:

STORAGE PERIOD NO. 1:	181 DAYS X	343.6	CU FT/DAY =	62,192	CU FT
STORAGE PERIOD NO. 2:	181 DAYS X	343.6	CU FT/DAY =	62,192	CU FT

REQUIRED STORAGE VOLUMES:		Sept-Feb	Mar-Aug
STORAGE PERIOD NO.		1	2
NORMAL RUNOFF VOL.	=	6,899 CU FT	18,973 CU FT
25YR STORM VOLUME	=	8,173 CU FT	8,173 CU FT
WASTE VOLUME	=	62,192 CU FT	62,192 CU FT
MIN. DESIGN VOLUME	=	77,264 CU FT	89,338 CU FT
2ND 25 YR STORM VOL.	=	8,173 CU FT	8,173 CU FT
TOTAL DESIGN VOLUME	=	77,264 CU FT	97,510 CU FT
MINIMUM LIQUID DESIGN VOLUME	=	15,072 CU FT	27,146 CU FT

STORAGE POND DIMENSIONS:	Solids Storage	Liquid Storage	Pump Tank			
VOLUME (CU FT)	67,200	25,200	2,440	0	2,440	2,440
GROSS DEPTH (FT)	7.0	0.0	0.0	0.0	0.0	0.0
FREEBOARD (FT)	0.0	0.0	1.0	0.0	0.0	1.0
RESIDUAL DEPTH (FT)	0.0	0.0	0.0	0.0	0.0	0.0
EMERG. SPWY. DEPTH (FT)	0.0	0.0	0.0	0.0	0.0	0.0
25 yr 24 hr storm direct precip	0.00	4.74	4.74	4.74	0.00	0.00
NET DESIGN DEPTH (FT)	7.00	3.00	7.0	0.0	0.0	0.0
SIDE SLOPE RATIO	0.0	0.0	0.0	0.0	0.0	0.0
BOTTOM WIDTH (FT)	60	60	19	0	0	0
BOTTOM LENGTH (FT)	160	140	19	0	0	0
TOP WIDTH (FT)	60	60	19	0	0	0
TOP LENGTH (FT)	160	140	19	0	0	0
WIDTH @ RESIDUAL DEPTH (FT)	60	60	19	0	0	0
LENGTH @ RESIDUAL DEPTH (FT)	160	140	19	0	0	0

COMPONENT VOLUME =	67200	25200	2440	0	0	0
TOTAL CAPACITY =	94840					
LIQUID CAPACITY =	27640					

AG WASTE POND DESIGN: INPUT DATA; COMPONENT NUMBER 1 SHEET 1 OF 1

COOPERATOR: Morgan Heifers, Lot 1 COUNTY: Redwood

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHKED BY: DATE:

	STORAGE PERIOD	NO.	MANURE VOLUME: ANIMAL TYPE	NUMBER HEAD	AVERAGE WEIGHT
1	MONTH	0	DAIRY COWS	0	1,200
1	JANUARY	2	DAIRY HEIFERS (OVER 750 LBS)	300	750
1	FEBRUARY	0	DAIRY CALVES (UP TO 750 LBS)	0	250
1	MARCH	0	BEEF COWS	0	1,000
1	APRIL	0	BEEF FEEDERS	0	800
1	MAY	0	BROOD SOWS W/ LITTERS	0	200
1	JUNE	0	SOWS & BOARS	0	240
1	JULY	0	FINISHING PIGS (> 150 LBS)	0	150
1	AUGUST	0	FEEDER PIGS (35 - 150 LBS)	0	0
1	SEPTEMBER	0	NURSERY PIGS (<35 LBS)	0	35
1	OCTOBER	0	DAILY MANURE PRODUCTION - "OTHER" :		
1	NOVEMBER	0			
1	DECEMBER	0			

BEDDING: ENTER # AND WEIGHT OF BALES OR AS A % OF MANURE

NUMBER OF SQUARE BALES/DAY:	0	BALES
WEIGHT PER SQUARE BALE:	56	LBS
NUMBER OF ROUND BALES/DAY:	2	BALES
WEIGHT PER ROUND BALE:	1555	LBS
PERCENTAGE OF MANURE AS BEDDING:	26%	%
MANURE AND BEDDING DELIVERY RATIO:	0	%
GALLONS OF WASH WATER/DAY:	0	GALLONS

FEEDLOT AREAS:

LOT AREA PAVED (SQUARE FEET)	=	22,350
LOT AREA UNPAVED (SQUARE FEET)	=	0
25 YEAR FREQ. STORM RAINFALL (P25/24HR)	=	4.74

IS AN EMERGENCY SPILLWAY PLANNED FOR THIS POND? 0 (0 OR 1)
(ENTER 1 IF AN ES IS PLANNED, 0 IF IT IS NOT) ^^^^^^^^^^^

WHAT IS THE PLANNED EMERGENCY SPILLWAY DEPTH? 0.0 FEET
(ENTER 0.0 IF NO ES IS PLANNED) ^^^^^^^^^^^

AG WASTE POND DESIGN: RUNOFF CALCULATIONS (NRCS, MARSHALL: REV. 2-93), MRS: REV 3-96 SHEET 1 OF 2

COOPERATOR: Morgan Heifers, Lot 2 COUNTY: **Redwood**

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHKED BY: DATE:

********** COUNTY RUNOFF DATA **********

STORAGE PERIOD NO.			MEAN	PAVED RCN=97 INCHES RUNOFF 1	PAVED RCN=97 INCHES RUNOFF 2	UNPAVED RCN=90 INCHES RUNOFF 1	UNPAVED RCN=90 INCHES RUNOFF 2	*MEAN EVAP. LOSS	POND NET PRECIP. EVAP.
1	MONTH	2	PRECIP.						
1	JANUARY	0	0.60	0.12	0.00	0.06	0.00	0.4	0.2
1	FEBRUARY	0	0.54	0.19	0.00	0.05	0.00	0.8	-0.3
0	MARCH	2	1.60	0.00	0.64	0.10	0.16	1.6	0.0
0	APRIL	2	2.71	0.00	1.36	0.00	0.41	3.5	-0.8
0	MAY	2	3.23	0.00	1.62	0.00	0.55	5.4	-2.2
0	JUNE	2	4.32	0.00	2.38	0.00	1.08	6.2	-1.9
0	JULY	2	3.61	0.00	2.17	0.00	0.90	7.0	-3.4
0	AUGUST	2	3.70	0.00	2.04	0.00	0.93	5.9	-2.2
1	SEPTEMBER	0	3.03	1.61	0.00	0.76	0.00	3.9	-0.9
1	OCTOBER	0	2.13	1.07	0.00	0.43	0.00	2.7	-0.6
1	NOVEMBER	0	1.43	0.57	0.00	0.21	0.00	1.2	0.2
1	DECEMBER	0	0.61	0.15	0.00	0.06	0.00	0.4	0.2
ANNUAL TOTALS =			27.51	3.70	10.19	1.67	4.02	39.0	-11.5
Annual Total, Appendix 10C				13.755		5.502			App. 10C

LOT AREA PAVED = 14,112 SQ FT PAVED RUNOFF 1 = 3.70 INCHES

LOT AREA UNPAVED = 0 SQ FT PAVED RUNOFF 2 = 10.19 INCHES

TOTAL AREA = 14,112 SQ FT UNPAVED RUNOFF 1 = 1.67 INCHES

% PAVED = 100 % UNPAVED RUNOFF 2 = 4.02 INCHES

TOTAL RUNOFF 1 = 3.70 INCHES

TOTAL RUNOFF 2 = 10.19 INCHES

NET PRECIP/EVAP 1 = -1.06 INCHES

NET PRECIP/EVAP 2 = -10.43 INCHES

*NOTE: MEAN EVAPORATION LOSS IS BASED ON 80% OF THE MEAN FREE WATER SURFACE EVAPORATION IN CHAPT. 8 OF THE MN. HYDRO. GUIDE

NET PRECIP 1 = 8.34 INCHES NET PRECIP 2 = 19.17 INCHES

NORMAL RUNOFF VOLUME:

STORAGE PERIOD NO. 1: 14,112 SQ FT X 3.70 INCHES = 4,356 CU FT

STORAGE PERIOD NO. 2: 14,112 SQ FT X 10.19 INCHES = 11,980 CU FT

25 YEAR FREQUENCY STORM RUNOFF VOLUME:

(ENTER P25/24HR RAINFALL, RCN AND q WILL BE CALCULATED FOR YOU.)

P25/24HR = 4.74 INCHES RCN = 97 4.39 INCHES

14,112 SQ FT X 4.39 INCHES / 12 IN/FT = 5160 CU FT

IS AN EMERGENCY SPILLWAY PLANNED? (1 = YES, 0 = NO): 0

WHAT IS THE PLANNED EMERGENCY SPILLWAY FLOW DEPTH?: 0.0 FEET

DIRECT RAINFALL ADJUSTMENTS TO AVAILABLE POND STORAGE DEPTH:

STORAGE PERIOD NO.		1	2
NET PRECIP-EVAP. ON POND SURFACE	=	0.00 INCHES	0.00 INCHES
25YR 24HR STORM DIRECT RAINFALL	=	4.74 INCHES	4.74 INCHES
2ND 25YR 24HR STORM DIRECT RAINFALL	=	4.74 INCHES	4.74 INCHES
NET DECREASE (+) / INCREASE (-) IN DEPTH	=	0.79 FEET	0.79 FEET

AG WASTE POND DESIGN: WASTE VOLUMES & POND SIZES (NRCS, MARSHALL: REV. 2-93), MRS: REV 3-96: SHEET 2 OF 2

COOPERATOR: Morgan Heifers, Lot 2 COUNTY: Redwood

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHECKED BY: _____ DATE: _____

WASTE VOLUMES:

MANURE VOLUME: ANIMAL TYPE	NUMBER HEAD	AVERAGE WEIGHT	ANIMAL UNITS	WASTE/ AU/DAY	TOTAL WASTE/DAY	
DAIRY COWS	0	1200	0.0	1.70	0.0	CU FT/DAY
DAIRY HEIFERS (OVER 750 LBS)	420	1000	294.0	1.30	382.2	CU FT/DAY
DAIRY CALVES (UP TO 750 LBS)	0	500	0.0	0.70	0.0	CU FT/DAY
BEEF COWS	0	1000	0.0	1.00	0.0	CU FT/DAY
BEEF FEEDERS	0	800	0.0	1.00	0.0	CU FT/DAY
BROOD SOWS W/ LITTERS	0	200	0.0	1.44	0.0	CU FT/DAY
SOWS & BOARS	0	240	0.0	0.55	0.0	CU FT/DAY
FINISHING PIGS (> 150 LBS)	0	150	0.0	1.10	0.0	CU FT/DAY
FEEDER PIGS (35 - 150 LBS)	0	0	0.0	1.08	0.0	CU FT/DAY
NURSERY PIGS (<35 LBS)	0	35	0.0	1.09	0.0	CU FT/DAY
ANIMAL UNITS & WASTE/DAY TOTALS:			294.0	AU's	382.2	CU FT/DAY

BEDDING VOLUMES:					
NO. SQUARE BALES / DAY x WEIGHT x .125 CUFT PER LB			0.0	BALES =	0.0 CU FT/DAY
NO. ROUND BALES / DAY x 35.3 CU.FT PER BALE		35.3	3.00	BALES =	105.9 CU FT/DAY
BEDDING AS A % OF MANURE:	28%	% X	382.2	=	1.1 CU FT/DAY
MANURE & BEDDING DELIVERY RATIO:	100	% NET VOLUME TO STACKING SLAB:			488.1 CU FT/DAY
WASHWATER GALLONS/DAY @ 0.1337 CU FT/GAL:			0	GAL/DAY =	0.0 CU FT/DAY
TOTAL WASTE VOLUME GENERATED PER DAY:					488.1 CU FT/DAY

TOTAL WASTE GENERATED FOR EACH STORAGE PERIOD:

STORAGE PERIOD NO. 1:	181 DAYS X	488.1	CU FT/DAY	=	88,346 CU FT
STORAGE PERIOD NO. 2:	181 DAYS X	488.1	CU FT/DAY	=	88,346 CU FT

REQUIRED STORAGE VOLUMES:		Sept-Feb	Mar-Aug
STORAGE PERIOD NO.		1	2
NORMAL RUNOFF VOL.	=	4,356 CU FT	11,980 CU FT
25YR STORM VOLUME	=	5,160 CU FT	5,160 CU FT
WASTE VOLUME	=	88,346 CU FT	88,346 CU FT
MIN. DESIGN VOLUME	=	97,863 CU FT	105,486 CU FT
2ND 25 YR STORM VOL.	=	5,160 CU FT	5,160 CU FT
TOTAL DESIGN VOLUME	=	97,863 CU FT	110,647 CU FT
MINIMUM LIQUID DESIGN VOLUME	=	9,517 CU FT	17,140 CU FT

STORAGE POND DIMENSIONS:	Solids Storage	Liquid Storage	Pump Tank			
VOLUME (CU FT)	96,000	18,000	2,440	0	2,440	2,440
GROSS DEPTH (FT)	10.0	0.0	0.0	0.0	0.0	0.0
FREEBOARD (FT)	0.0	0.0	1.0	0.0	0.0	1.0
RESIDUAL DEPTH (FT)	0.0	0.0	0.0	0.0	0.0	0.0
EMERG. SPWY. DEPTH (FT)	0.0	0.0	0.0	0.0	0.0	0.0
25 yr 24 hr storm direct precip	4.74	0.00	4.74	4.74	0.00	0.00
NET DESIGN DEPTH (FT)	8.00	2.00	7.0	0.0	0.0	0.0
SIDE SLOPE RATIO	0.0	0.0	0.0	0.0	0.0	0.0
BOTTOM WIDTH (FT)	80	60	19	0	0	0
BOTTOM LENGTH (FT)	150	150	19	0	0	0
TOP WIDTH (FT)	80	60	19	0	0	0
TOP LENGTH (FT)	150	150	19	0	0	0
WIDTH @ RESIDUAL DEPTH (FT)	80	60	19	0	0	0
LENGTH @ RESIDUAL DEPTH (FT)	150	150	19	0	0	0

VOLUME PROVIDED =		96000	18000	2440	0	0	0
TOTAL CAPACITY =	116440						
TOTAL LIQUID CAPACITY =	20440						

AG WASTE POND DESIGN: INPUT DATA; COMPONENT NUMBER 1 SHEET 1 OF 1

COOPERATOR: Morgan Heifers, Lot 2 COUNTY: Redwood

DESIGNED BY: Alta D. Larsen, PE DATE: 9/15/2016 CHKED BY: DATE:

STORAGE PERIOD NO.		MANURE VOLUME: ANIMAL TYPE	NUMBER HEAD	AVERAGE WEIGHT
1	MONTH	0 DAIRY COWS	0	1,200
1	JANUARY	2 DAIRY HEIFERS (OVER 750 LBS)	420	750
1	FEBRUARY	0 DAIRY CALVES (UP TO 750 LBS)	0	250
1	MARCH	0 BEEF COWS	0	1,000
1	APRIL	0 BEEF FEEDERS	0	800
1	MAY	0 BROOD SOWS W/ LITTERS	0	200
1	JUNE	0 SOWS & BOARS	0	240
1	JULY	0 FINISHING PIGS (> 150 LBS)	0	150
1	AUGUST	0 FEEDER PIGS (35 - 150 LBS)	0	0
1	SEPTEMBER	0 NURSERY PIGS (<35 LBS)	0	35
1	OCTOBER	0 DAILY MANURE PRODUCTION - "OTHER" :		
1	NOVEMBER	0		
1	DECEMBER	0		

BEDDING: ENTER # AND WEIGHT OF BALES OR AS A % OF MANURE

NUMBER OF SQUARE BALES/DAY:	0	BALES
WEIGHT PER SQUARE BALE:	56	LBS
NUMBER OF ROUND BALES/DAY:	3	BALES
WEIGHT PER ROUND BALE:	1555	LBS
PERCENTAGE OF MANURE AS BEDDING:	28%	%
MANURE AND BEDDING DELIVERY RATIO:	0	%
GALLONS OF WASH WATER/DAY:	0	GALLONS

FEEDLOT AREAS:		
LOT AREA PAVED (SQUARE FEET)	=	14,112
LOT AREA UNPAVED (SQUARE FEET)	=	0
25 YEAR FREQ. STORM RAINFALL (P25/24HR)	=	4.74

IS AN EMERGENCY SPILLWAY PLANNED FOR THIS POND? (ENTER 1 IF AN ES IS PLANNED, 0 IF IT IS NOT)	0	(0 OR 1)
WHAT IS THE PLANNED EMERGENCY SPILLWAY DEPTH? (ENTER 0.0 IF NO ES IS PLANNED)	0.0	FEET

AG WASTE POND DESIGN: RUNOFF CALCULATIONS (NRCS, MARSHALL: REV. 2-93), MRS: REV 3-96 SHEET 1 OF 2

COOPERATOR: Morgan Heifers, Lot 3 COUNTY: Redwood

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHKED BY: DATE:

********** COUNTY RUNOFF DATA **********

STORAGE PERIOD NO.			MEAN	PAVED RCN=97 INCHES RUNOFF 1	INCHES RUNOFF 2	UNPAVED RCN=90 INCHES RUNOFF 1	INCHES RUNOFF 2	*MEAN EVAP. LOSS	POND NET PRECIP. EVAP.
1	MONTH	2	PRECIP.						
1	JANUARY	0	0.60	0.12	0.00	0.06	0.00	0.4	0.2
1	FEBRUARY	0	0.54	0.19	0.00	0.05	0.00	0.8	-0.3
0	MARCH	2	1.60	0.00	0.64	0.10	0.16	1.6	0.0
0	APRIL	2	2.71	0.00	1.36	0.00	0.41	3.5	-0.8
0	MAY	2	3.23	0.00	1.62	0.00	0.55	5.4	-2.2
0	JUNE	2	4.32	0.00	2.38	0.00	1.08	6.2	-1.9
0	JULY	2	3.61	0.00	2.17	0.00	0.90	7.0	-3.4
0	AUGUST	2	3.70	0.00	2.04	0.00	0.93	5.9	-2.2
1	SEPTEMBER	0	3.03	1.61	0.00	0.76	0.00	3.9	-0.9
1	OCTOBER	0	2.13	1.07	0.00	0.43	0.00	2.7	-0.6
1	NOVEMBER	0	1.43	0.57	0.00	0.21	0.00	1.2	0.2
1	DECEMBER	0	0.61	0.15	0.00	0.06	0.00	0.4	0.2
ANNUAL TOTALS =			27.51	3.70	10.19	1.67	4.02	39.0	-11.5
Annual Total, Appendix 10C				13.755		5.502			App. 10C

LOT AREA PAVED = 18,816 SQ FT PAVED RUNOFF 1 = 3.70 INCHES

LOT AREA UNPAVED = 0 SQ FT PAVED RUNOFF 2 = 10.19 INCHES

TOTAL AREA = 18,816 SQ FT UNPAVED RUNOFF 1 = 1.67 INCHES

% PAVED = 100 % UNPAVED RUNOFF 2 = 4.02 INCHES

TOTAL RUNOFF 1 = 3.70 INCHES

TOTAL RUNOFF 2 = 10.19 INCHES

NET PRECIP/EVAP 1 = -1.06 INCHES

NET PRECIP/EVAP 2 = -10.43 INCHES

*NOTE: MEAN EVAPORATION LOSS IS BASED ON 80% OF THE MEAN FREE WATER SURFACE EVAPORATION IN CHAPT. 8 OF THE MN. HYDRO. GUIDE

NET PRECIP 1 = 8.34 INCHES NET PRECIP 2 = 19.17 INCHES

NORMAL RUNOFF VOLUME:

STORAGE PERIOD NO. 1: 18,816 SQ FT X 3.70 INCHES = 5,808 CU FT

STORAGE PERIOD NO. 2: 18,816 SQ FT X 10.19 INCHES = 15,973 CU FT

25 YEAR FREQUENCY STORM RUNOFF VOLUME:

(ENTER P25/24HR RAINFALL, RCN AND q WILL BE CALCULATED FOR YOU.)

P25/24HR = 4.74 INCHES RCN = 97 4.39 INCHES

18,816 SQ FT X 4.39 INCHES / 12 IN/FT = 6880 CU FT

IS AN EMERGENCY SPILLWAY PLANNED? (1 = YES, 0 = NO): 0

WHAT IS THE PLANNED EMERGENCY SPILLWAY FLOW DEPTH?: 0.0 FEET

DIRECT RAINFALL ADJUSTMENTS TO AVAILABLE POND STORAGE DEPTH:

STORAGE PERIOD NO.		1	2
NET PRECIP-EVAP. ON POND SURFACE	=	0.00 INCHES	0.00 INCHES
25YR 24HR STORM DIRECT RAINFALL	=	4.74 INCHES	4.74 INCHES
2ND 25YR 24HR STORM DIRECT RAINFALL	=	4.74 INCHES	4.74 INCHES
NET DECREASE (+) / INCREASE (-) IN DEPTH	=	0.79 FEET	0.79 FEET

AG WASTE POND DESIGN: WASTE VOLUMES & POND SIZES (NRCS, MARSHALL: REV. 2-93), MRS: REV 3-96: SHEET 2 OF 2

COOPERATOR: **Morgan Heifers, Lot 3** COUNTY: **Redwood**

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHECKED BY: _____ DATE: _____

WASTE VOLUMES:

MANURE VOLUME: ANIMAL TYPE	NUMBER HEAD	AVERAGE WEIGHT	ANIMAL UNITS	WASTE/ AU/DAY	TOTAL WASTE/DAY	
DAIRY COWS	0	1200	0.0	1.70	0.0	CU FT/DAY
DAIRY HEIFERS (OVER 750 LBS)	560	1000	392.0	1.30	509.6	CU FT/DAY
DAIRY CALVES (UP TO 750 LBS)	0	500	0.0	0.70	0.0	CU FT/DAY
BEEF COWS	0	1000	0.0	1.00	0.0	CU FT/DAY
BEEF FEEDERS	0	800	0.0	1.00	0.0	CU FT/DAY
BROOD SOWS W/ LITTERS	0	200	0.0	1.44	0.0	CU FT/DAY
SOWS & BOARS	0	240	0.0	0.55	0.0	CU FT/DAY
FINISHING PIGS (> 150 LBS)	0	150	0.0	1.10	0.0	CU FT/DAY
FEEDER PIGS (35 - 150 LBS)	0	0	0.0	1.08	0.0	CU FT/DAY
NURSERY PIGS (<35 LBS)	0	35	0.0	1.09	0.0	CU FT/DAY
ANIMAL UNITS & WASTE/DAY TOTALS:			392.0	AU's	509.6	CU FT/DAY

BEDDING VOLUMES:					
NO. SQUARE BALES / DAY x WEIGHT x .125 CUFT PER LB			0.0	BALES =	0.0 CU FT/DAY
NO. ROUND BALES / DAY x 35.3 CU.FT PER BALE		35.3	4.00	BALES =	141.2 CU FT/DAY
BEDDING AS A % OF MANURE:	28%	% X	509.6	=	1.4 CU FT/DAY
MANURE & BEDDING DELIVERY RATIO:	100	% NET VOLUME TO STACKING SLAB:			650.8 CU FT/DAY
WASHWATER GALLONS/DAY @ 0.1337 CU FT/GAL:			0	GAL/DAY =	0.0 CU FT/DAY
TOTAL WASTE VOLUME GENERATED PER DAY:					650.8 CU FT/DAY

TOTAL WASTE GENERATED FOR EACH STORAGE PERIOD:

STORAGE PERIOD NO. 1:	181 DAYS X	650.8	CU FT/DAY	=	117,795 CU FT
STORAGE PERIOD NO. 2:	181 DAYS X	650.8	CU FT/DAY	=	117,795 CU FT

REQUIRED STORAGE VOLUMES:		Sept-Feb	Mar-Aug
STORAGE PERIOD NO.		1	2
NORMAL RUNOFF VOL.	=	5,808 CU FT	15,973 CU FT
25YR STORM VOLUME	=	6,880 CU FT	6,880 CU FT
WASTE VOLUME	=	117,795 CU FT	117,795 CU FT
MINIMUM DESIGN VOLUME	=	130,484 CU FT	140,648 CU FT
2ND 25 YR STORM VOL.	=	6,880 CU FT	6,880 CU FT
TOTAL DESIGN VOLUME	=	130,484 CU FT	147,529 CU FT
MINIMUM LIQUID DESIGN VOLUME	=	12,689 CU FT	22,854 CU FT

STORAGE POND DIMENSIONS:	Solids Storage	Liquid Storage	Pump Tank			
VOLUME (CU FT)	120,000	20,000	2,440	0	2,440	2,440
GROSS DEPTH (FT)	10.0	0.0	0.0	0.0	0.0	0.0
FREEBOARD (FT)	0.0	0.0	1.0	0.0	0.0	1.0
RESIDUAL DEPTH (FT)	0.0	0.0	0.0	0.0	0.0	0.0
EMERG. SPWY. DEPTH (FT)	0.0	0.0	0.0	0.0	0.0	0.0
25 yr 24 hr storm direct precip	0.00	4.74	4.74	4.74	0.00	0.00
NET DESIGN DEPTH (FT)	7.50	2.50	7.0	0.0	0.0	0.0
SIDE SLOPE RATIO	0.0	0.0	0.0	0.0	0.0	0.0
BOTTOM WIDTH (FT)	40	20	19	0	0	0
BOTTOM LENGTH (FT)	400	400	19	0	0	0
TOP WIDTH (FT)	40	20	19	0	0	0
TOP LENGTH (FT)	400	400	19	0	0	0
WIDTH @ RESIDUAL DEPTH (FT)	40	20	19	0	0	0
LENGTH @ RESIDUAL DEPTH (FT)	400	400	19	0	0	0

VOLUME PROVIDED =		**120000**	20000	2440	0	0	0
TOTAL CAPACITY =	**142440**						
TOTAL LIQUID CAPACITY =	**22440**						

AG WASTE POND DESIGN: INPUT DATA; COMPONENT NUMBER 1 SHEET 1 OF 1

COOPERATOR: Morgan Heifers, Lot 3 COUNTY: Redwood

DESIGNED BY: Alan D. Larsen, PE DATE: 9/15/2016 CHKED BY: DATE:

STORAGE PERIOD NO.		MANURE VOLUME: ANIMAL TYPE	NUMBER HEAD	AVERAGE WEIGHT
1	MONTH	0 DAIRY COWS	0	1,200
1	JANUARY	2 DAIRY HEIFERS (OVER 750 LBS)	560	750
1	FEBRUARY	0 DAIRY CALVES (UP TO 750 LBS)	0	250
1	MARCH	0 BEEF COWS	0	1,000
1	APRIL	0 BEEF FEEDERS	0	800
1	MAY	0 BROOD SOWS W/ LITTERS	0	200
1	JUNE	0 SOWS & BOARS	0	240
1	JULY	0 FINISHING PIGS (> 150 LBS)	0	150
1	AUGUST	0 FEEDER PIGS (35 - 150 LBS)	0	0
1	SEPTEMBER	0 NURSERY PIGS (<35 LBS)	0	35
1	OCTOBER	0 DAILY MANURE PRODUCTION - "OTHER" :		
1	NOVEMBER	0		
1	DECEMBER	0		

BEDDING: ENTER # AND WEIGHT OF BALES OR AS A % OF MANURE

NUMBER OF SQUARE BALES/DAY:	0	BALES
WEIGHT PER SQUARE BALE:	56	LBS
NUMBER OF ROUND BALES/DAY:	4	BALES
WEIGHT PER ROUND BALE:	1555	LBS
PERCENTAGE OF MANURE AS BEDDING:	28%	%
MANURE AND BEDDING DELIVERY RATIO:	0	%
GALLONS OF WASH WATER/DAY:	0	GALLONS

FEEDLOT AREAS:

LOT AREA PAVED (SQUARE FEET)	=	18,816
LOT AREA UNPAVED (SQUARE FEET)	=	0
25 YEAR FREQ. STORM RAINFALL (P25/24HR)	=	4.74

IS AN EMERGENCY SPILLWAY PLANNED FOR THIS POND? 0 (0 OR 1)
(ENTER 1 IF AN ES IS PLANNED, 0 IF IT IS NOT) ^^^^^^^^^^^

WHAT IS THE PLANNED EMERGENCY SPILLWAY DEPTH? 0.0 FEET
(ENTER 0.0 IF NO ES IS PLANNED) ^^^^^^^^^^^

Morgan Helfers; Recommended EQIP Conservation Practices, February 10, 2016							
Practice Name	**Practice Component**	**unit measure**	**2015 EQIP Rate, $/unit**	**units**	**EQIP Cost Share, FY 2016 Rates**	**FY2016 EQIP Component Maximums**	**Estimated EQIP Cost Share**
313, Waste Storage Facilty	Dry Stack, Reinforced Concrete Floor, Reinforced Concrete Wall	sq. ft.	$ 6.24	10,560	$ 65,894.40	$ 125,000.00	$ 65,894.40
313, Waste Storage Facilty	Dry Stack, Reinforced Concrete Floor, Reinforced Concrete Wall	sq. ft.	$ 6.24	7,480	$ 46,675.20	$ 125,000.00	$ 46,675.20
313, Waste Storage Facilty	Dry Stack, Reinforced Concrete Floor, Reinforced Concrete Wall	sq. ft.	$ 6.24	9,900	$ 61,776.00	$ 125,000.00	$ 12,430.40
313, Waste Storage Facilty	Concrete Storage Tank, Buried, less than 5,000 ft^3	cu. ft.	$ 3.47	9,600	$ 33,312.00		
606,Subsurface Drain	Waste Storage Facility Perimeter Drain, 9 or less feet deep	Ln. ft.	$ 14.24	948	$ 13,499.52	$ 26,000.00	$ 26,000.00
362, Diversion	Reinforced Concrete Curb with Footer	Ln. ft.	$ 18.19	132	$ 2,401.08		$ 2,401.08
634, Waste Transfer	Hopper Inlet with gravity pipeline to waste storage facility	Ea	$ 5,106.53	1	$ 5,106.53		$ 5,106.53
561 Heavy Use Area Protection	Concrete Flatwork, 5 inches thick, no wall (Apron between lot and stacking slab)	Sq. ft.	$ 2.00	17,020	$ 34,040.00	$ 70,000.00	$ 34,040.00
382, Fence	Safety	Ln. ft.	$ 2.13	180	$ 383.40		$ 383.40
				Total	**$ 262,704.73**		
			Total Estimated Cost Share Ag Waste System				**$ 192,931.01**

Plans and Specifications for:

Dairy Heifer Feedlot Runoff Collection and Treatment in Redwood County, Minnesota

PREPARED FOR:

Evergreen Acres Dairy, LLC
Paynesville, Minnesota

January 29, 2016

PREPARED BY:

Anez Consulting, Inc
1700 Technology Drive NE, Suite 130, Willmar, MN 56201

Evergreen Acres Dairy, LLC, Morgan Heifers Site
Morgan, Minnesota

Plans and Specifications for:

Solid Manure Storage and Open Lot Runoff Collection and Storage

Evergreen Acres Dairy, LLC plans to obtain the required permits to construct solid manure storage and open lot runoff and storage facilities at an existing dairy heifer raising facility in Redwood County, Minnesota. The existing facility is near Morgan, Minnesota in the Northwest Quarter of the Northeast Quarter of Section 5 in Brookville Township. The proposed construction includes three solid manure stacking slabs that will also collect all contaminated open feedlot runoff. The structures will be recessed below grade and include reinforced concrete collection sumps for any drainage from the stacking slabs. The structures are sized to provide total containment of all estimated contaminated runoff from the open lots comingled with the solid manure and bedding generated by the animals confined in the partial confinement buildings and open lots. The system is designed to be a zero-discharge facility consistent with requirements of a General NPDES Concentrated Animal Feeding Operation as issued by the Minnesota Pollution Control Agency.

This document contains Plans and Specifications for the permitting and construction of the contaminated runoff collection diversions, three reinforced concrete stacking slabs including reinforced concrete aprons, each with a below ground reinforced concrete drainage sump and one runoff collection sump with gravity discharge to a solid manure stacking slab.

Anez Consulting, Inc
1700 Technology Drive NE, Suite 130, Willmar, MN 56201

Plans and Specifications for:

Solid Manure Storage and Open Feed Lot Runoff Collection and Storage

Prepared for:

Morgan Heifers Site
Evergreen Acres Dairy, LLC
26162 240th St.
Paynesville, MN. 56362

Location:

NW ¼ of NE ¼ Sect. 5
Brookville Township
Redwood County, MN

Prepared By:

Anez Consulting, Inc.
1700 Technology Dr. NE
Suite 130
Willmar, MN 56201
320-235-1970

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Alan D. Larsen

February 10, 2016

Alan D. Larsen P.E.
Minnesota Registration #25402
My Registration Expires June 30, 2016

INDEX:

01000 QUALITY ASSURANCE AND CONTROL PLAN FOR CONCRETE MANURE STORAGE STRUCTURES

Construction quality assurance and control (QAC) involves a commitment by all involved to use quality materials and perform the best possible workmanship.

A. OWNER shall schedual pre-construction conference of the Owner, Engineer, Excavator, Conrete and Electrical Contractors at least 5 days prior to starting excavation for concrete manure storage facilities.

B. OWNER shall keep a diary (in spiral bound notebook) of when these tasks are done:

1. Distribute full set of plans and specifications to concrete, excavating, and plumbing contractors and ready mix and pre-cast suppliers.
2. Arrange for pre-construction conference.
3. Notify engineer, 3 days before starting construction.
4. Notify permitting agency (MPCA or County) 3 days before starting construction.
5. Notify engineer, when excavation is complete.
6. Notify engineer, minimum 4 hrs before each concrete pour.
7. Notify engineer when all wall forms have been removed.
8. Notify engineer when all beams and slats have been grouted.
9. Allow 3 working days for wall inspection before backfilling.
10. Notify permitting agency (MPCA or County) within 3 days following completion of manure storage construction.

* If more than one structure, repeat items d thru j and keep diary for each structure.

C. CONCRETE FOREMAN shall represent the Contractor and all communications given to the Foreman shall as binding as if given to the Contractor. Important communications will be confirmed in writing. See Section 01300.

D. CONCRETE CONTRACTOR shall patch honeycomb and all shrinkage cracks wider than thickness of a plastic credit card within 48 hours. Clean and fill any cracks in floor slab before dirt is tracked onto the slab. See Section 03000.

E. ENGINEER will conduct random inspections during construction.

F. READY-MIX CONCRETE PLANT shall receive copy of Section 03000 before bidding. Batch tickets returned to the plant shall show amount of any additives and/ or water added at the job site. Ready -Mix plant shall keep batch tickets.

G. TEST CYLINDERS shall be filled by an ACI Level-1 certified technician or Testing Lab designated by the Engineer. See Section 03000.

H. PRE-CAST CONCRETE MANUFACTURER shall submit engineer's certification or testing lab report for pre-cast slats and beams. See Section 03200.

I. ENGINEER shall conduct final inspection and submit construction report to Owner and the permitting agency (MPCA or County).

J. A FINAL CONSTRUCTION REPORT will be prepared by the engineer after completion of construction. The report shall include the name and qualifications of the inspector, completed inspection forms as supplied by MPCA and construction contractors certification forms as supplied by MPCA. The owner shall be responsible for obtaining and providing these items to the engineer for incorporation into the report.

K. OWNER SHALL NOT PUT MANURE IN THE STRUCTURE UNTIL HAVING RECEIVED THE ENGINEER'S CONSTRUCTION REPORT.

01300 DESIGN CHANGES

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 or NRCS approval.

01400 SITE SURVEY

The Contractor shall be responsible for layout of the work. Bidders must visit the site and acquaint themselves with existing conditions.

01500 SUBSURFACE INFORMATION

Any available data concerning subsurface material or conditions which is based upon test borings has been obtained by the Engineer for his 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 contract plans or specifications. Contractors must assume all risks in excavating for this project and shall not be entitled to rely on any subsurface information shown on the drawings.

02100 EARTHWORK

A. **This section applies to earthwork for drives, buildings, embankments, stormwater basins and parking areas, except for construction of cohesive soil liner in earthen basins and under** manure stacking areas.

B. Remove 1' of top soil under drives, buildings, embankments and parking areas. Save top soil for finish grading.

C. Fill shall be native material, without organic matter. Any course grain soil used for fill shall be covered with a minimum of 2 feet of fine grained soil, except under building floors. Fill for buildings and embankments shall be compacted to 95% of maximum standard density.

D. Building subgrades shall be prepared to the elevation shown on the plans, extending out beyond the building lines a minimum of 5' in cut areas and 10' in fill areas. Finished side slopes in cut and fill areas shall not be steeper than 3H:1V, but 5H:1V is preferred.

E. Subgrade for drives shall be crowned 1/2" per foot. The subgrade for parking and drive areas shall consist of minimum of 2' of fill compacted to 95% maximum standard density. Shoulder of road and drive subgrades shall be minimum of 2' higher than bottom of ditches. The side slopes of roadside ditches shall not be steeper than 3H:1V, but 5H:1V is preferred.

F. Base course for drives shall be 6" thick, compacted to 95% maximum standard density. The base course shall be at least 50% crushed rock with or without gravel, plus sufficient binder for stabilization (PI= 4 to 9 and LL<35).

G. Diversion ditches shall be constructed to keep surface water out of earthen basins and away from buildings. Minimum depth shall be 1'. Side slopes of diversion ditches shall not be steeper than 3H:1V, but 5H:1V is preferred.

H. Finish grading on all areas to be planted to grass, including the top and outside slopes of earthen basin dikes, around buildings and other areas not paved or graveled, shall be 6" of top soil. Backfill at building line shall be 6" below the inside floor level and sloped away for drainage. Disk and smooth soil for planting.

I. Pollution Control: No water which transports sediment resulting from earth moving, demolition or other construction activities shall be permitted to discharge into waters of the State of Minnesota or beyond the construction limits of the project. The Contractor shall install diversions, silt fences and settling ponds as necessary to control erosion and sediment transport.

J. Removal of water: All excavations, fill, grading and embankments shall be maintained in a well drained condition at all times. The Contractor shall have pumping equipment on site to remove water from trenches and earthen basins until completion of the earthwork and placement of the cohesive soil liner.

K. Any over-excavation for concrete footings and slabs on grade shall be backfilled with compacted sand/gravel.

L. Sand fill, for concrete slab floors, shall be placed in layers not to exceed 6" loose thickness and compacted with mechanical equipment to not less than 95% standard proctor density. Construction tolerances shall be 0.1 ft elevation and 0.5 ft horizontal measurement. If there is any question concerning compaction, the Engineer may order compaction tests by a qualified testing firm. Owner would pay for any testing, not the contractor.

M. 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 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 and rollers back from the pit and tank walls a distance equal to the depth of the fill.

02200 SEDIMENT CONTROL/EROSION PROTECTION

A. Temporary erosion control in accordance with General Permit For Storm Water Discharges Associated with Construction Activity, Permit No. SDR10 # # # # shall be adhered until completion. Contractor shall schedule and install temporary erosion control measures as shown in the plans. No water which transports sediment resulting from earth moving, demolition or other construction activities shall be permitted to discharge into waters of the State or beyond the construction limits of the project.

B. A temporary rock construction entrance will be installed at locations of existing driveways to be used for site access. Following construction of driveways and site roadways, new entrances will be used for material or equipment delivery. Mud must not be tracked onto roadway and nor sediment allowed to leave the site.

C. Contractor shall maintain all temporary erosion control devices until they are no longer necessary and are removed. When sediment reaches 30% of height of device or 50% of sediment storage volume in sediment basin, sediment shall be removed and placed where suitable for seeding.

02210 EXCAVATION

A. Excavation is unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered. All excavations shall be completed to elevations indicated on the plan +/- .02 ft. (¼ in.)

B. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of engineer. Unauthorized excavation, as well as remedial work directed by the engineer shall be at contractor's expense. Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by the engineer.

C. When excavation has reached required subgrade elevations, notify the engineer who will make an inspection of conditions. If unsuitable materials are encountered at required subgrade elevations, carry excavations 2 ½ feet further and replace excavated material with suitable soils. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

D. Slope sides of excavations to comply with OSHA Rules, local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

E. Stockpile suitable excavated materials until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Locate and retain soil materials away from edge of excavations. Topsoil shall be stockpiled in a location where placement at time of final grading is most efficient.

F. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F (1 degree C). Do not place concrete on frozen ground.

G. Foundation excavations shall be free of loose material and standing water. All excavations, fill, grading and embankments shall be maintained in a well-drained condition at all times. The contractor shall have pumping equipment on hand to remove water from trenches and or excavations or provisions for drainage until completion of the earthwork.

02400 TRENCHING

A. This section applies to installation of field and perimeter tile, culverts, sewer, recycle, force main and water supply pipelines.

B. Foundation material for pipes shall be crushed rock. Foundation material shall be furnished and placed below the sand bedding materials in the trench to a depth of 4" ONLY WHEN ORDERED BY THE ENGINEER. Trench bottoms that become mucky on top due to the presence of water or workmen shall be stabilized at the CONTRACTOR'S EXPENSE. Granular foundation used as a trench dewatering aid will not be compensated.

C. Trenching and backfilling:

Perimeter tile around concrete manure storage structures shall be installed by trenching with a backhoe or trencher. Plow type machines shall not be used for installing perimeter tile near the area of proposed manure storage structures, because the plow will loosen the soil under the wall footing.

Method-1: Trenching by backhoe: Trench width shall allow a minimum of 3" space on each side of pipe for placement of backfill. Backfill and compact by hand at sides and minimum of 6" over the pipes with pit run sand/gravel, which passes a 3/4" screen. For the remaining depth of trench, backfill with native material, except do not use material containing rocks or lumps larger than 4". Place the fill in layers not exceeding 4" in loose depth and compact to 100% of standard proctor density. Excavation shall be provided in the trench bottom for pipe bells, so that pipe is uniformly supported along its length.

Method-2: Installation of tile by plow or trencher: When trench width does not exceed 12", the sand/gravel envelope and compaction of backfill is not required, except where lines pass under other pipelines, buildings, dikes and drives, then compact backfill to 95% standard proctor density.

D. Existing tile lines intercepted during trenching for the perimeter tile system shall be removed from within the basin area bounded by the perimeter tile trench. Existing tiles shall be connected to a suitable by-pass tile system. The area where existing tiles are removed shall be backfilled and compacted as indicated in Methods 1 and 2 above.

E. Backfill around manholes shall be placed in layers not to exceed 6" loose thickness and compacted to 95% standard proctor density.

F. All pipelines, except sewers, shall be installed at least 6' deep and 7' deep under drives and bare-ground areas, to prevent freezing.

G. Water supply pipelines shall be at least 10 feet horizontal distance from other parallel pipelines. Never place water supply pipelines in same trench with other pipelines. Water supply lines shall not pass thorough floor or walls of manure storage structures, below the high water line.

02430 DRAINAGE SYSTEM

The drainage system consists of culverts, perimeter drain tile around concrete and earthen basins manure storage structures and other drain tile shown on the plans.

Drain tile shall be heavy duty perforated corrugated polyethylene plastic agricultural drain pipe, conforming to ASTM F405 or F667 and SCS 606. The tile for the earthen basin perimeter and French drains shall have a fabric sleeve.

A. Culverts shall be steel, reinforced concrete or dual-wall corrugated polyethylene pipe. Steel culverts shall be galvanized of 0.064" minimum thickness with bolted band connections. Concrete pipe shall have tongue and groove ends. PE culverts shall have sleeve connectors. All culverts shall be fitted with sloped flared ends.

B. Tile outlets in ditches shall have a minimum of 10' of CMP. When a flap gate is specified, it shall have water tight connection to the tile. Tile outlets shall be fitted with a rodent guard.

02440 SEWER SYSTEM

Sewer system consists of drains from the barns, cleanouts, sewer main, sewer outlet into earthen basins, level control between lagoon cells and inlet pipe to the pump station.

Gravity sewer pipe (non-pressurized) shall be PVC-SDR-35 with gasket or glued joints or dual wall polyethylene (smooth interior) pipe with gasketed connectors. The last section entering an earthen basin shall be 20' long. Sewers larger than 20" may be reinforced concrete pipe with tongue and groove ends sealed with an approved mastic.

A. Sewer cleanouts (CO) shall be located as shown on the plan and elsewhere at not more than 150' spacing.

02500 SEPTIC TANK

Septic tanks and drainfields shall be installed by a MPCA licensed septic tank installer. Septic tanks and drainfields shall be located down slope and minimum of 150 ft from wells.

All human waste, from urinals and water closets, shall go to a septic tank. The effluent from the septic tank shall be discharged into the sewer system, waste pit, tank, earthen basin or approved drain field. Waste waters from sinks and showers may go directly into a waste pit, tank or earthen basin.

02600 MANHOLES

A. Manholes for sewer systems and pump stations shall be Class-II pre-cast tongue and groove concrete pipe with manhole steps. Manholes shall have pre-cast integral bottoms.

B. All holes for pipes passing through walls and base and all joints shall be sealed water tight.

C. Manholes shall be fitted with lockable or heavy child-proof covers.

02650 GRASS AND TREE PLANTING

A. The outside slope, top and inside slope, above the low water line of earthen basins, shall be planted to a short stem perennial grass. The grass should be mowed regularly to discourage animals from burrowing into the dike.

B. Grass shall be planted on the top and both inside and outside slopes as soon as possible. The use of chopped straw mulch and hydro-seeding is recommended to establish grass cover. After seeding, slopes shall be compacted with rubber tired roller or culti-packer.

C. DO NOT plant alfalfa, trees or shrubs on the dike top or slopes. When deep rooted plants die, the decaying roots leave a tunnel which may start a leak in the dike. Allow space for tractor and field cultivator between trees and toe of dike.

02700 WATER WELLS

Wells shall be located up-slope and a minimum of 100' from livestock barns and 150' from lots, septic tanks and drainfields, earthen waste storage basins and lagoons.

02800 FENCE AND GATES

A. All open top concrete tanks less than 4 ft 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. Fence shall be a minimum of 4' high. Provide 16' wide access gates for manure pumping equipment. Consider location that will provide access inside of fence for equipment, maintenance, grass mowing, etc.

02900 SIGNS

Post warning signs every 100-150' 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".

03000 CAST IN PLACE CONCRETE

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

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

Concrete 28 day compressive strength, f'c, psi		Aggregate, maximum
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 cementious material
Sila Fume, maximum 20% of cementious material

The combination of fly ash and silica fume shall not exceed 35% of total cementious materials. Fly ash and/or silica fume will increase resistance to sulfates and reduce permeability.
CAUTION: fly ash slows setting, expecially 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. CONCRETE TESTING shall be performed by obtaining a representative sample from either the point of delivery or point of placement dependent upon saftey of the sampler. Sample should not be from the beginning nor at the end of the load being delivered. Slump, temperature, and entrained air content shall be recorded and results provided to the design engineer.

C. TEST CYLINDERS shall be taken in sets of 3 for each 150 cyds of ready mix concrete. Either 6x12 or 4x8 cylinders may be used. Test cylinders shall be filled by an ACI Level-1 certified technician or Testing Lab designated by the Engineer. Initial curing of the cylinders shall take place in a protected location on-site for a minimum of 24 hours. After the initial curing, one of the test cylinders shall be cured in a protected location for 28 days. The remaining two cylinders shall be transported within two days to a licensed testing laboratory to be cured and tested at 7 days and 28 days. These ASTM methods and standards shall govern: Sampling, C-172; Compression Test Specimens, C-31, Compressive Strength, C-39. All concrete found to be defective (500 psi or more below the specified strength) shall be removed and replaced by the Contractor.

D. 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 6d	3"	4"
Lap splices, minimum 40d,=	20"	25"
Bend around corner, minimum	24"	30"
Rods through construction joints	30"	36"

E. 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 before beginning concrete construction and will require inspection by the Electrical Inspector prior to each pour of concrete.

F. Steel reinforcement shall be tied and supported on chairs, bolsters, spacers and other devices. In slabs, reinforcing steel shall be supported by pre-cast concrete bricks (not clay bricks), corrosion resistant metal chairs or plastic chairs. Dowels and rods extending through construction joints shall be secured in position 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.

H. Surfaces against which concrete is to be placed shall be firm and damp. Placement of concrete on mud, dried earth, un-compacted fill or frozen subgrade will not be permitted. Forms shall be properly oiled and reinforcing steel shall be free of oil.

I. 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. Bottom of excavations shall be level.

J. Formwork shall conform to the shape, lines and dimensions of the members called for on the drawings. All forms shall be true to line, plumb, level and with joints tight. They shall be properly braced and of sufficient strength to carry the load as a liquid. The formwork at grade line shall be tight to prevent run-out of concrete.

K. Tolerances: Elevation of floor slabs, top of walls, slat ledges, beam pockets and top of columns +/- 1/4". Horizontal length and width of top of wall, location of beam pockets and columns +/- 1/2". Straightness of top of wall +/- 1/4". Anchor bolt spacing +/- 1", centered in stem wall +/- 1/2".

L. Concrete shall be cured seven (7) days; by covering with burlap and wetting twice a day, covering with plastic sheet or using an approved liquid curing compound.

M. Forms shall not be removed from walls sooner than 24 hours cumulated time above 50F, not necessarily consecutive time.

N. Defective concrete: Before men, materials and equipment bring dirt onto new floor slabs, the shrinkage cracks shall be filled with appropriate materials (epoxy injection, routing and joint sealant or stitching). Shrinkage cracking can be minimized by proper concrete mix and curing of slabs.

O. Shrinkage cracks and honeycomb areas shall be repaired within 48 hours. Shrinkage cracks and honeycombing shall be filled with appropriate materials (epoxy injection, routing and joint sealant or stitching). Honeycomb where wall meets the floor are most likely to leak water clear through the wall. Even the slightest amount of honeycomb near the floor must be repaired. Tight forms and proper use of vibrator during placement of concrete will prevent honeycomb.

P. Cracks are bound to occur in flat slabs. Sawing of crack control joints in floor slabs is Owner's option. All saw cracks must be properly sealed.

03010 BACKFILL AND FILL

A. Backfill structures only when concrete has cured a minimum of 7 days and precast beams and concrete slats have been placed and grouted. Materials used shall be free of vegetation, trash, rocks, frozen soils, frost or ice. Backfill should be placed and compacted to 95% of standard proctor density and must be graded to drain away from the structure and prevent ponding.

B. Backfill trench shall be cleaned and free of all organic material including cardboard, wood, paper, straw, etc. These materials will decay and result in either voids or contamination of perimeter drain tile discharge.

C. When backfilling drainage tile, sewer piping or other utilities, placement shall be performed evenly to prevent crushing, wedging or displacement. Materials used shall be free of vegetation, trash, rocks, frozen soils, frost or ice.

03100 PHOTOGRAPHIC INSPECTION OF CONCRETE PITS

A. This will be accomplished by the Owner, allowing the Engineer and the MPCA to review the construction without being present full-time.

B. In the event that questions arise regarding the construction, this photographic documentation may be very helpful.

C. Coordinate your photographic record with the construction foreman for safety and helpful information.

D. The following photographs are important to the evaluation:

1. Storage area of reinforcing steel.
2. Placement of drainage tile and the point of discharge.
3. Excavation activities, including any dewatering, over-excavation and recompaction, etc.
4. The final excavation, footing subgrade (walls and columns), forms, reinforcing steel, and concrete as it is poured.
5. Slump tests taken and documentation of test cylinders aquired.
6. Completed floor and footings. Show thickness of floor and footings with a yardstick or tape measure.
7. Prior to pouring walls, but when reinforcing steel is in place, show placement with a yardstick or tape measure. Separation distances, both vertical and horizontal, and thickness of walls where both forms are in place.
8. Show any corners or that may include additional splices and/or corner steel.
9. Prior to setting of beams or slats, show wall both outside and inside in several places.
10. After beams and slats are in place, show grouting completed and outside of walls prior to backfill.

E. Two sets of prints shall be forwarded to the design engineer for review, and then included in the final construction report and test results to the MPCA for review and final permitting.

03120 COLD WEATHER CONCRETE PLANS

Any time the atmospheric temperature may be expected to drop below 40F during the delivery, placement or curing period, the following shall apply:

A. The temperature of the concrete at the time of placing shall not be less than 50F nor more than 90F. The temperature of water or aggregates shall not be more than 140F just prior to mixing with the cement.

B. When the minimum daily atmospheric temperature is less than 40F, concrete structures shall be insulated or housed and heated after placement. The temperature of the concrete and surrounding air shall be maintained at not less than 50F nor more than 90F during the curing period.

03140 HOT WEATHER CONCRETE PLANS.

Anytime the combination of high temperature, low relative humidity and wind velocity will impair the quality of fresh concrete the following practices shall be employed:

A. The contractor shall maintain the temperature of the concrete below 90^{o}F during mixing, conveying and placement.

B. The concrete shall be placed in the work immediately after mixing. Truck mixing shall be delayed only until time enough remains to accomplish it before the concrete is placed.

C. Exposed concrete surfaces which tend to dry or set too rapidly shall be continuously moistened by means of fog sprays or other means to maintain adequate moisture during the time between placement and finishing, and after finishing.

D. Finishing of slabs and other exposed surfaces shall be started as soon as the condition of the concrete allows and shall be completed without delay.

E. Formed surfaces shall be kept completely and continuously wet for the duration of the curing period (prior to, during, and after form removal) or until a curing compound is applied.

F. Concrete surfaces, especially large flat work areas shall be covered as soon as concrete has sufficiently hardened and shall be kept continuously wet for at least 24 hours of the curing period. This curing method shall be continued for the required curing period or until a curing compound is applied. Flat slabs placed directly on clay soil, without sand base, are especially susceptible to surface shrinkage cracks because the surface dries faster than the lower part of the slab.

03200 PRECAST CONCRETE

A. Precast manufacturer shall submit a certification to Anez Consulting, Inc. (FAX 320-235-1986 or by email to alan@anezconsulting.com) from a registered professional engineer or testing laboratory that the precast system will support these live loads:

Type of barn	Solid slabs & Beams	Slats
Swine B,G and F Barns	65 psf	150 psf
Swine Finishing Barns	60 psf	125 psf
Dairy Freestall Barns	100psf	250 psf
Dairy Holding and Handling Pens	125 psf	325 psf

For design of gang slats refer to Concrete Manure Storages Handbook, MWPS-36, by Midwest Plan Service.

Precast manufacturer shall submit shop drawings showing the column spacing and beam pocket layout when different than shown on the plans.

B. Beams, slats and precast slabs shall not be placed until concrete walls and columns have cured at least 7 days.

C. Where it is necessary to level up support for beams, slats and slabs; grout, plastic or stainless steel shims shall be used. Grout must provide full bearing under beams, slats and slabs, except small wood shims may be used to support and hold alignment of precast components until the grout sets.

D. 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.

04010 BASIN LINER CONSTRUCTION

A. Construction of earthen basin liner shall only be accomplished between April 15 and October 15.

B. The earthen basin shall be over-excavated by a minimum of 1.0 feet. The cohesive soil liner shall be a minimum of 1.0 feet in thickness. Side slopes of the earthen basin shall be constructed in horizontal lifts a minimum of 10 feet in width or the width of earthmoving or compaction equipment used. The liner material shall be laid in layers, not more than 8" in loose thickness or as specified in Number 5 below, and compacted to 95% standard proctor density.

C. Soil types for the liner material shall be CH, CL, SC, or GC with 30% to 100% passing the #200 sieve and the plasticity index (PI) shall be 10 or greater. Liner material shall be moistened or aerated as necessary to provide moisture content wet of optimum but not more than 4% above optimum.

D. Liner material shall not include rocks greater than 4" diameter nor shall it include frozen material. Construction shall not continue if either the previously laid liner material or borrow area is frozen, at or below 35F.

E. Compaction equipment (sheepsfoot rollers or equivalent) shall have a tooth length longer than the maximum layer thickness (eight inches) to provide adequate mixing of liner lift materials. Equipment shall be provided on site to wet or to aerate the liner material to obtain the required moisture content.

F. All defects in the liner remaining at density/moisture test locations or following removal of construction stakes, shall be filled and compacted with bentonite.

04020 PIPING

A. Drainage tile, culverts, sewers, recycle lines, force mains and water supply lines shall be installed with uniform support along their length to prevent settling and breakage. When PVC or CPVC pipe is used, backfill and compact by hand at the sides and a minimum of 6" over the pipes with pit run sand or gravel. Do not use fill containing rocks or lumps larger than 4" in diameter.

B. Where pipelines penetrate earthen basin liner, the backfill material for the entire length of pipe within the basin sidewall, shall only be soils approved for earthen basin liner construction. Backfill shall include a bentonite collar equal to the width of the compacted cohesive soil liner with soil materials placed in layers not to exceed 4" loose depth and compacted to 100% standard proctor density.

C. Pressure pipelines shall be PVC SDR 2241, Class 160 or PVC SCH-40 or better, at least 6 feet below surface. Never use 90-degree elbows where sweep curves or combination of 45-degree elbows with adequate blocking can be accommodated.

D. Sewer lines shall be PVC-SDR-3034 or better at a minimum 0.5% slope. Sewer cleanouts shall be located as shown on the plan and elsewhere at not more than 100 foot spacing. The outlet of sewer line into earthen basin shall be of sufficient length to reach erosion protection as shown on the plan.

E. Pressure pipelines shall be subject to hydrostatic pressure testing. Newly constructed pipe shall maintain a pressure of 100 psi for 2 hours. No pressure drop will be allowed. All defective joints, pipe, valves or connections revealed during testing shall be corrected before final acceptance. Corrections will be at the Contractor's expense and the test repeated until passing. Granular backfill or concrete blocking shall be in place prior to testing.

F. Installation of dual wall HDPE manure collection flume shall be completed in accordance with ASTM Standard D 2321-00, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.

G. All PVC piping shall be installed in accordance with ASTM Standard D 2855-96, Standard Practice for Making Solvent-Cemented Joints with PVC Pipe and Fittings.

04030 LINER INSPECTION AND TESTING REQUIREMENTS

A. The person conducting inspection, sampling, and testing activities, shall be the design engineer or a qualified soil analyst working under their direction.

B. Inspection records during liner placement shall include a complete set of construction plans and specifications, and results of all laboratory and field-testing completed.

C. Atterburg Limits, #200 sieve analysis and visual soil classification shall be performed and obtained from the liner material at a minimum of every 500 cubic yards of liner material.

D. For each soil type of liner material, Standard Proctor Density shall be obtained with optimum moisture content determined.

E. Density and moisture content of in-place liner material shall be obtained every 500 cubic yards of material placed. Field analyses may be performed using ASTM D4643 (Determination of Moisture by Microwave Oven Method) and ASTM D2937 (Density of Soil by the drive-Cylinder Method) or ASTM D3017 (Moisture Content of Soil by Nuclear Methods) and ASTM D2922 (Density of Soil by Nuclear Methods). Minimum of 20 tests.

F. Record soil classification of liner material once every 500 cubic yards using ASTM D 2488 Visual Manual Procedure, Description, and Identification of Soils. Minimum of 20 recordings.

G. Permeability testing of the completed liner shall be performed at the rate of one test per acre surface area, minimum of two tests in the basin bottom and minimum of two tests on the side slopes. Samples shall be taken in accordance with ASTM D-1587, Shelby Tube Samples and tested by U.S Army Corps of Engineers, EM 1110-2-1906 or ASTM D-5084.

H. An As-Built Construction Report shall be prepared after construction completion containing results of all laboratory Atterburg, sieve, soil classifications, field density, moisture and classifications and permeability testing. Elevations of installed perimeter tile, constructed basin bottom and dike top shall also be included.

04040 BASIN EROSION PROTECTION

A. Concrete used for construction of splash pads for inlet protection shall be a minimum of 4 inches in thickness of concrete with a minimum 28-day compressive strength of 3,500 psi. Outlet of the pipe shall be of sufficient length to extend over the top of the splash pad 18 inches, +/- 6 inches.

B. Concrete used for construction of ramps and pads for access by agitation equipment shall be a minimum of 4 inches in thickness with a minimum 28-day compressive strength of 3,500 psi and placed as shown on the plans. Concrete ramps shall begin at the top of the basin berm and extend a minimum of 20 feet into the basin.

08800 OTHER WORK

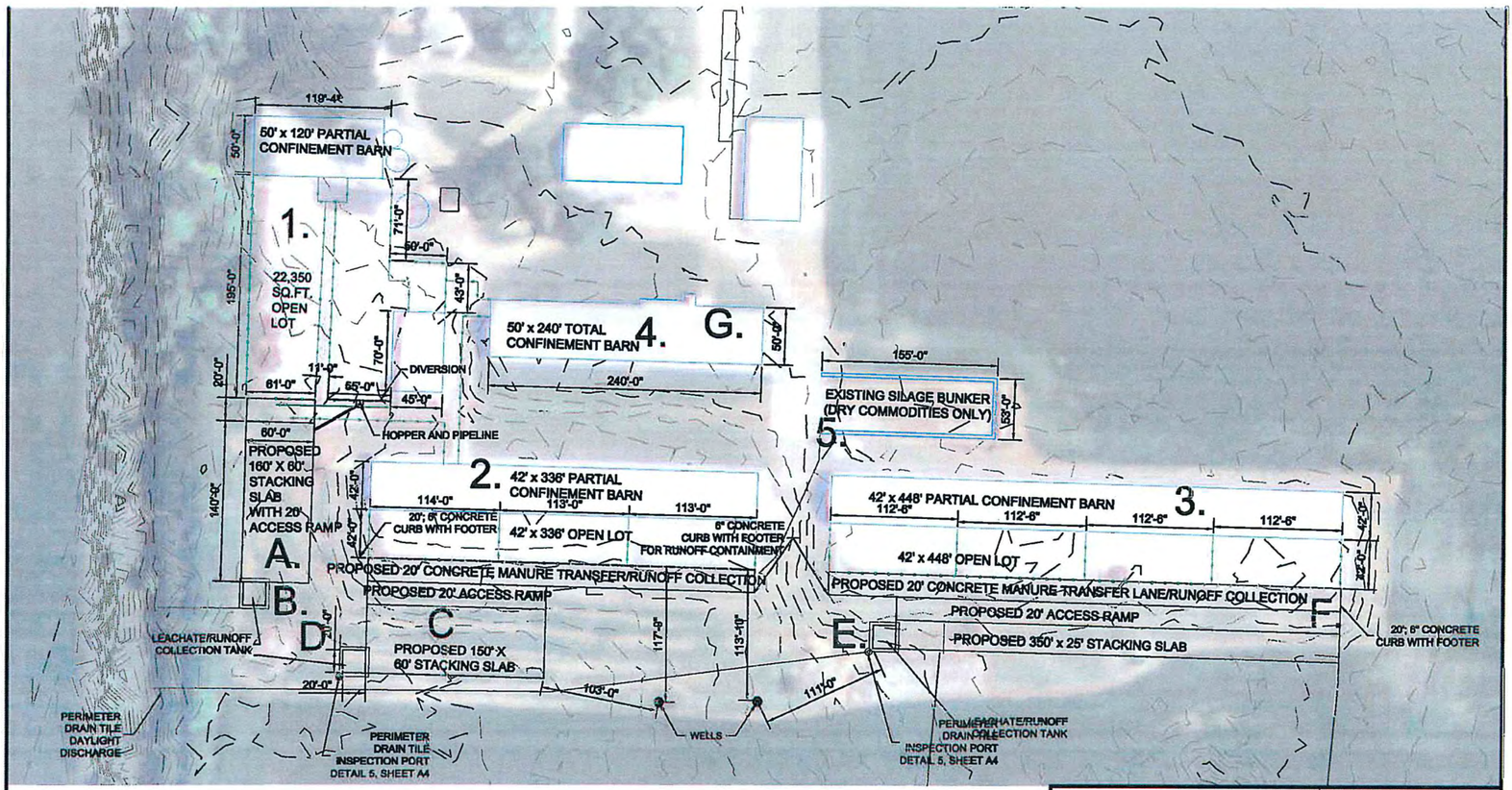
The Owner shall be responsible for putting child-proof fences around open top tanks and child-proof covers on all sumps, pump out ports and providing and utilizing safety guard fences around pump outs when open.

12000 PUMPS AND CONTROLS FOR PERIMETER TILE SYSTEM

When ever a gravity outlet (without chance of contamination of perimeter tile by backup of dirty water) is not available, a sump pump system must be installed. 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. Each site must have at least one sump large enough to install a sump pump, in future if needed.

A. SUMP PUMP shall be submersible type with 20' heavy duty electrical cord. Pump shall have an adjustable piggy back float switch. Pump shall be capable of 25 GPM at 15 ft head. Pump shall be fitted with a discharge hose or pipe equal or larger than the discharge of the pump.

B. ELECTRICAL CONTRACTOR shall furnish and install fused weatherproof disconnect switch, plug and receptacle for each pump. Plug type connections are required for quick exchange of pumps by non-electrical workers. Recommend installing a post mounted light, switch and duplex receptacle at each pump location for service work. Electrical Contractor shall install special control panels furnished by others.



BROOKVILLE TWP.

5

REDWOOD COUNTY, MN.

N

W E

S

0 80' 160'

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

"To the best of my knowledge and professional judgement, this design and plan meet NRCS standards."

Signature: Alan D. Larsen

Alan D. Larsen, PE
Registration No. 25402

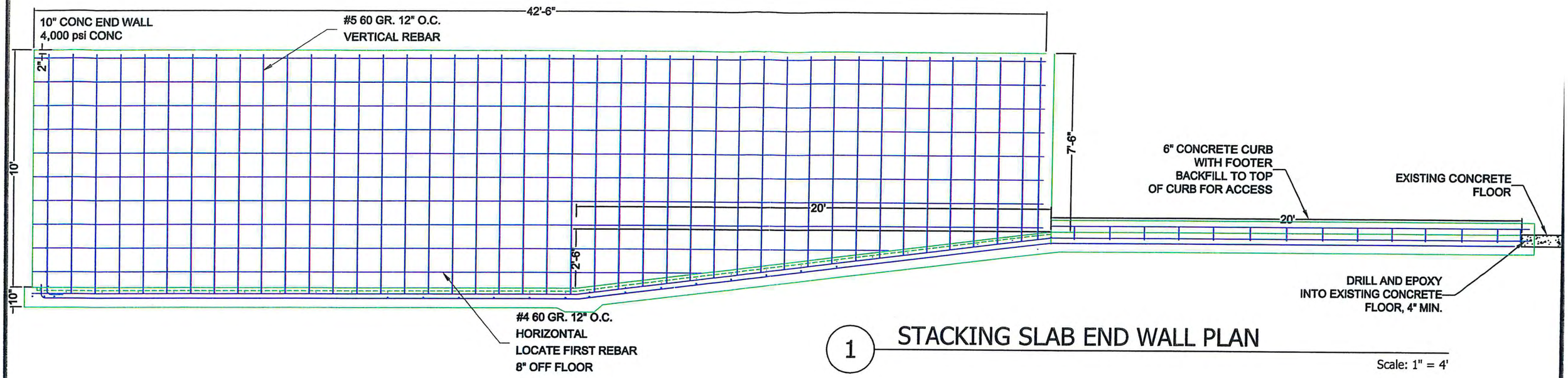
Date: September 1, 2016

My Registration Expires June 30, 2018

1700 Technology Drive NE
Suite 130
Willmar, MN 56201
(320) 235-1970

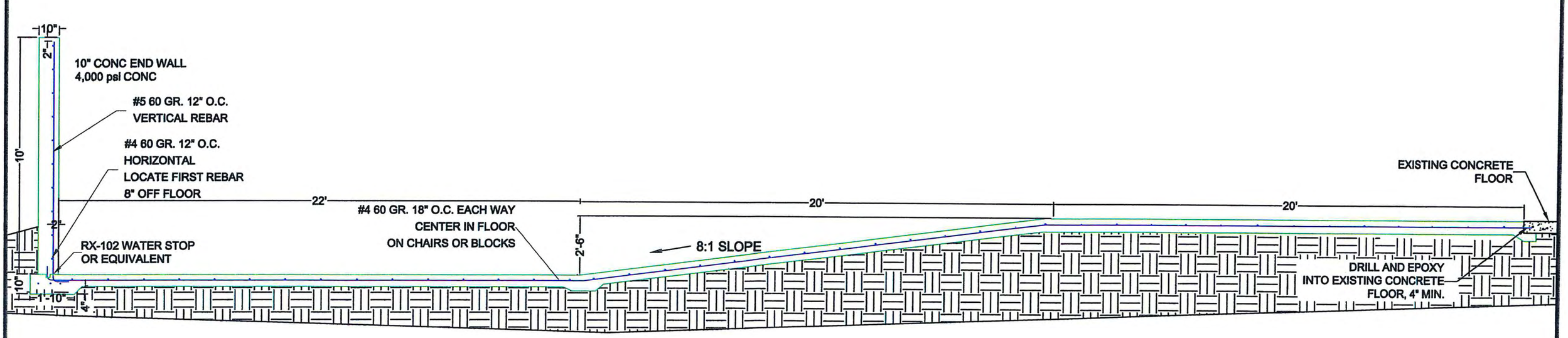
MORGAN HEIFERS
PROPOSED COMPONENTS
SITE PLAN
SEC. 5, TWP. 110N, R. 34W
REDWOOD COUNTY, MN.

Scale	Date
1" = 80'	09/21/2016
Revision	Sheet Number
	A1



1 STACKING SLAB END WALL PLAN

Scale: 1" = 4'



2 TYPICAL STACKING SLAB CROSS SECTION

Scale: 1" = 4'

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

"To the best of my knowledge and professional judgement, this design and plan meet NRCS standards."

Signature: Alan D. Larsen

Alan D. Larsen, PE
Registration No. 25402

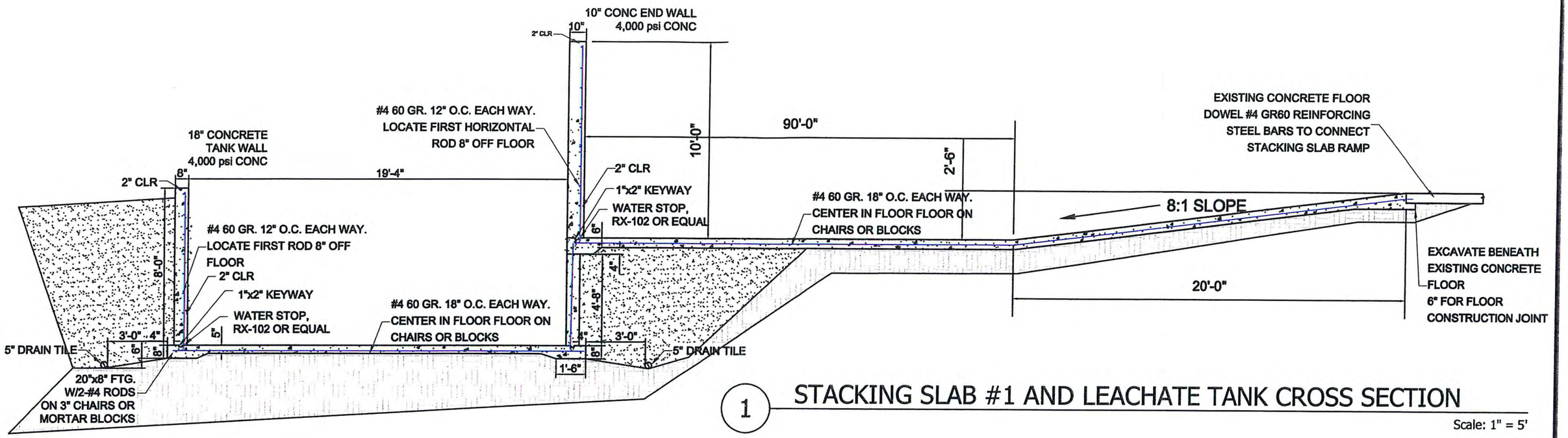
Date: February 10, 2016

My Registration Expires June 30, 2016

Anez Consulting, Inc.
1700 Technology Drive NE
Suite 130
Willmar, MN 56201
(320) 235-1970

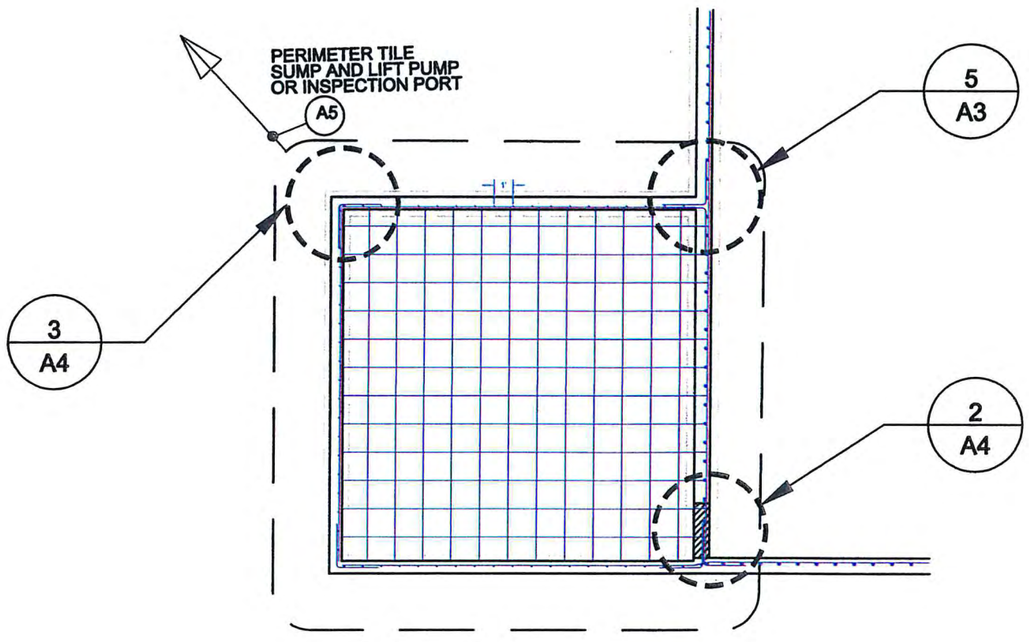
MORGAN HEIFERS
CROSS SECTIONS
SEC. 5, TWP. 110N, R. 34W
REDWOOD COUNTY, MN.

Scale	Date
AS NOTED	02/01/2016
Project Number	Sheet Number
	A2



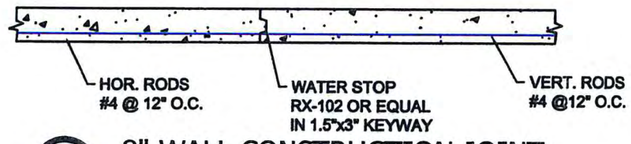
1 STACKING SLAB #1 AND LEACHATE TANK CROSS SECTION

Scale: 1" = 5'



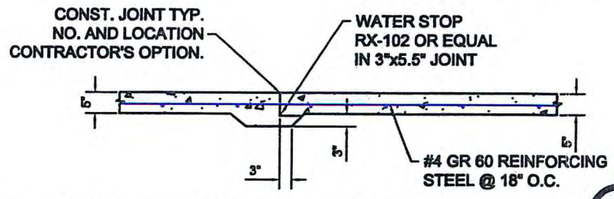
2 TYPICAL LEACHATE COLLECTION TANK PLAN

Scale: 1" = 8'



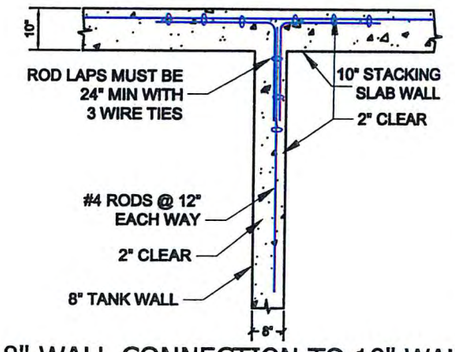
3 8" WALL CONSTRUCTION JOINT

Scale: 1" = 3'



4 TANK FLOOR CONSTRUCTION JOINT

Scale: 1" = 3'



5 8" WALL CONNECTION TO 10" WALL

Scale: 1" = 3'

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

"To the best of my knowledge and professional judgement, this design and plan meet NRCS standards."

Signature: Alan D. Larsen

Alan D. Larsen, PE
Registration No. 25402

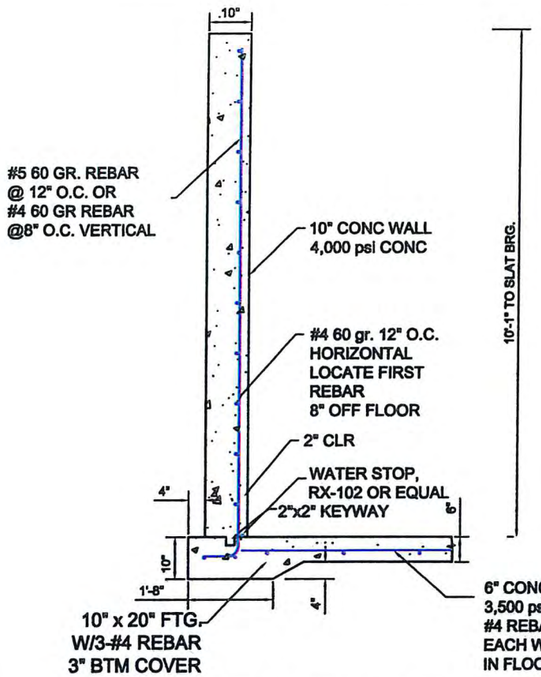
Date: April 3, 2016

My Registration Expires June 30, 2016

Anez Consulting, Inc
1700 Technology Drive NE
Suite 130
Willmar, MN 56201
(320) 235-1970

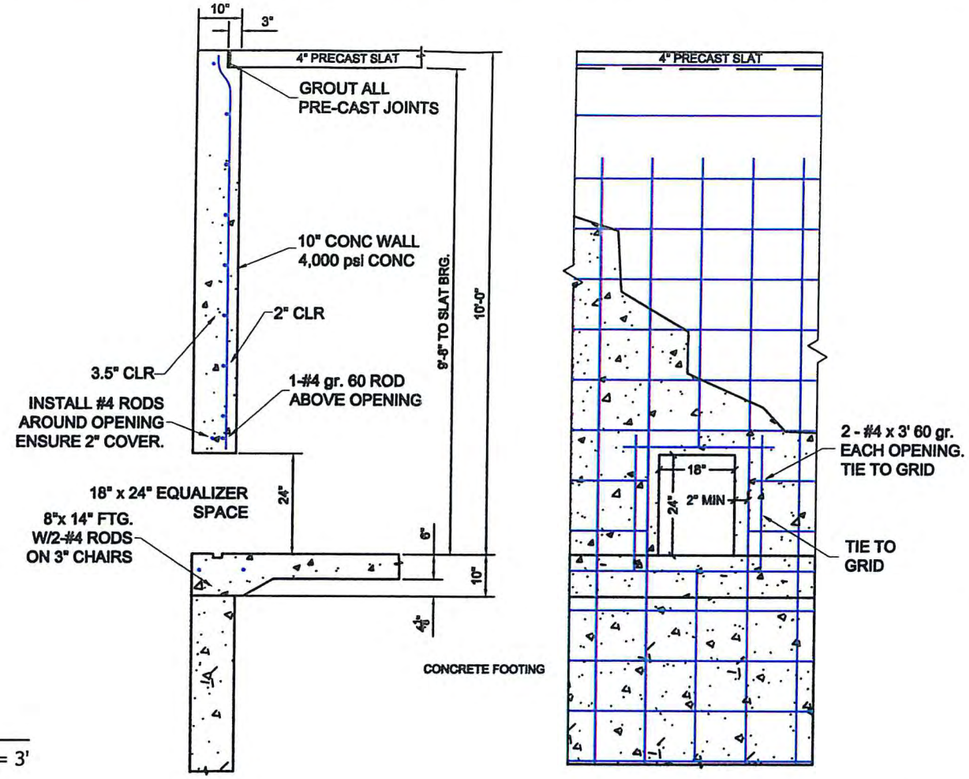
MORGAN HEIFERS
CONSTRUCTION DETAILS
SEC. 5, TWP. 110N, R. 34W
REDWOOD COUNTY, MN.

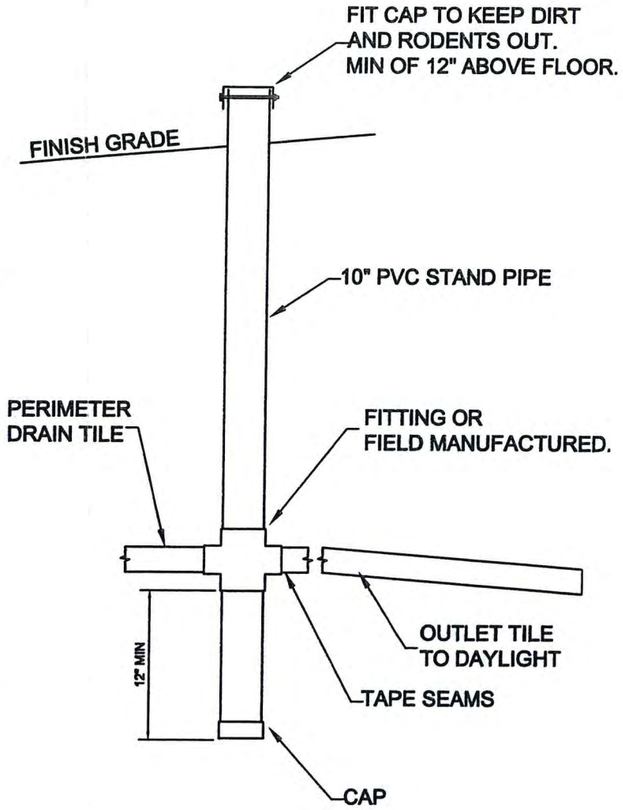
Scale	Date
AS NOTED	APRIL 3, 2016
Revision	Sheet Number
ADD FLOOR REBAR	A3



1 TYPICAL 10' STACKING SLAB WALL

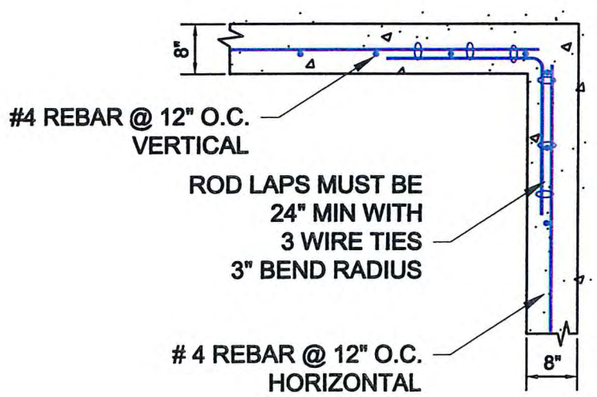
Scale: 1" = 3'





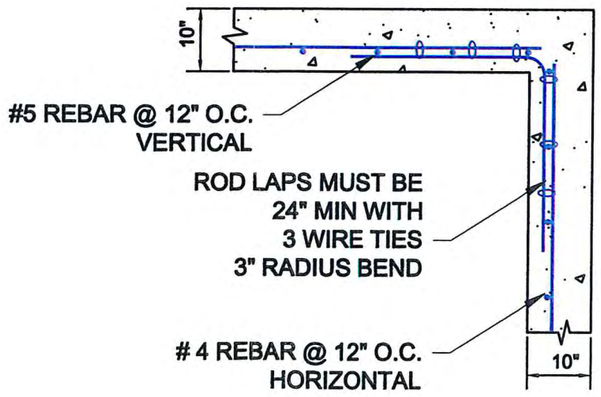
2 TYPICAL RUNOFF/LEACHATE DRAIN WALL PENETRATION

Scale: 1" = 3'



3 TYPICAL LEACHATE TANK WALL CORNER

Scale: 1" = 2'



4 TYPICAL STACKING SLAB WALL CORNER

Scale: 1" = 2'

5 PERIMETER DRAIN TILE MONITORING PORT

Scale: 1" = 3'

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

"To the best of my knowledge and professional judgement, this design and plan meet NRCS standards."

Signature: Alan D. Larsen

Alan D. Larsen, PE
Registration No. 25402

Date: April 3, 2016

My Registration Expires June 30, 2016

Anez Consulting, Inc
1700 Technology Drive NE
Suite 130
Willmar, MN 56201
(320) 235-1970

MORGAN HEIFERS
WALL CONSTRUCTION
DETAILS

SEC. 5, TWP. 110N, R. 34W
REDWOOD COUNTY, MN.

Scale	Date
AS NOTED	APRIL 3, 2016
Revision	Sheet Number
ADD FLOOR REBAR	A4

Manure Storage, Handling, and Testing Information

Minnesota Pollution Control Agency

Facility Name: Morgan Heifer Farm | NPDES or SDS Permit? Yes | Permit Number:

Owner/Operator Name: Keith Schafer | Date Last Revised: 9/6/2016 | Registration Number: 127-50088

Version 7.02 Last Updated: 8/31/16

Manure Sources	Manure Source #1	Manure Source #2	Manure Source #3	Manure Source #4
Description of Manure Source Group sources with similar nutrient content if they have identical animal type, water usage, feed rations, and manure storage	Dairy Solids	Dairy Liquid		
Livestock Information				
Predominate Animal Type (Contributing to Manure Source)	Dairy Heifer	Dairy Heifer		
Average Animal Weight	800 lbs	1,200 lbs	lbs	lbs
Animal Number	1,280	260		
Length of Time Livestock Spend In Facility	365 days/yr	365 days/yr	days/yr	days/yr
Additional Animal Type (Contributing to Manure Source)				
Average Animal Weight	lbs	lbs	lbs	lbs
Animal Number				
Length of Time Livestock Spend In Facility	days/yr	days/yr	days/yr	days/yr
Storage Information				
Storage Type	Stockpile	Underfloor Concrete Pit		
Capacity	31,500 tons	648,000 gals		
Storage Length	210 days	365 days		
Application Methods				
Commercial Applicator (Yes/No or Name)				
Spreader Type				
How Volume/Tonnage Determined per Load				
How Application Rate is Calibrated				
Manure Analysis - Existing facilities should use actual manure test results				
Sampling Frequency				
Sampling Methods				
Date Last Analyzed				
Basis for N,P, & K Values Below	Last Year's Sample	Last Year's Sample		
Total N - (do not enter lab estimated availability)	7 lbs/ton	19 lbs/1000 gal		
Total P_2O_5 - (do not enter lab estimated availability)	3 lbs/ton	7 lbs/1000 gal		
Total K_2O - (do not enter lab estimated availability)	10 lbs/ton	17 lbs/1000 gal		
Annual Generation - Existing facilities should use actual production values				
Total Manure Produced per Year (Estimated)	4,578 tons	791,276 gals		
Total Manure Produced per Year (Actual)	6,658 tons	564,144 gals		
Annual N Produced	46,606 lbs	10,719 lbs	lbs	lbs
Annual P_2O_5 Produced	19,974 lbs	3,949 lbs	lbs	lbs
Annual K_2O Produced	66,580 lbs	9,590 lbs	lbs	lbs

Average Book Values	
N	10
P_2O_5	3
K_2O	7

Average Book Values	
N	32
P_2O_5	14
K_2O	28

Average Book Values	
N	
P_2O_5	
K_2O	

Average Book Values	
N	
P_2O_5	
K_2O	

General Field Information (Fields 1-35)

Minnesota Pollution Control Agency

Unique Field ID Attach Aerial Photo or Map With Location Description (twp-rng-sec)	Field Acreage	Sensitive Features (Identify on Aerial Photo or Sketch) ***Insert a check mark by double-clicking the appropriate cells***												Soils Information (Test required once every 4 yrs)				Irrigation?	Anticipated Manure Application Timing NOTE: NPDES & SDS permitted sites cannot apply liquid manure in the winter (unless emergency)	Winter Application Field Info (If Applicable)		
		Tile Intakes	Drainage Ditch	Lake, River, Stream	Intermittent Stream (If farmed call MPCA)	Wetland (non-farmed)	Coarse-Textured Soil (soil type ends in "sand")	Floodplain	Public Well Management Area	Shallow Bedrock	Sinkhole	Well, Mine, or Quarry	Other Conduit to Water	Year of Soil Test	Soil Test Phosphorus (P) Field Average (ppm)		Organic Matter			Distance from Field to Waters		Field Slope (%)
Example	80	✔	***You must double-click cells to insert a check mark***											2005	30	Olsen	Med/High	No	Late Fall	800	ft	3%
Gilland N	140	✔	✔									✔	✔	2013	47	Olsen	Med/High	No	Spring & Fall			
Gilland Feedlot	133	✔	✔									✔	✔	2013	47	Olsen	Med/High	No	Spring & Fall			

Total Acres (Fields 1 - 35) 273

Field Specific Info for Methodology Portion of MMP (Fields 1 - 35)

Minnesota Pollution Control Agency

Unique Field ID — Consistent with maps or aerial photos	Crops Grown (Indicate all crops that will likely be grown during the permit period) — Double-Click cells to insert check mark															Planned Manure Application (Indicate all timings and methods that could occur) — Timing — Double-Click cells to insert check mark					Method (follow setbacks) — Double-Click cells to insert check				Emergency Winter Application of Liquid Manure			
	Corn (grain)	Corn (silage)	Sweet corn	Soybeans	Alfalfa	Grass/legume hay	Oats	Wheat	Edible beans	Potatoes	Rye	Sugarbeets	Other	Other	Other	Fall	Spring	Summer (with cover crop)	Winter (Solid Manure Only)	MN P Index Value (attach input & output)	Injection	Incorp. within 24 hrs & before rainfall	Incorporation within 4 days	No Incorporation	Potential App Site?	Distance from App Area to Waters (at least 300 ft)		Field Slope (%)
Example	✔	✔		✔	✔			✔								✔					✔	✔			✔	800	ft	2 %
Gilland N	✔	✔		✔	✔											✔	✔					✔			✔	300	ft	%
Gilland Feedlot	✔	✔		✔	✔											✔	✔					✔			✔	300	ft	%

Sensitive Features Management Worksheet

Minnesota Pollution Control Agency

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.

Tile Intakes

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
Option B - Inject or incorporate within 24 hours and prior to rainfall within 300 ft.
Option C - 35 ft grassed buffer
Option D - 100 ft setback with at least 16.5 ft as grassed buffer

Drainage Ditches

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
Option B - 50 ft wide grassed buffer
Option C - 100 ft setback with at least 16.5 ft as grassed buffer
Option D - Protective Berm (prohibits runoff from entering the ditch)

Lakes, Rivers, and Streams

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
Option B - 100 ft wide grassed buffer
Option C - 100 ft setback with at least 16.5 ft as grassed buffer

Intermittent Streams and/or Public Waters Wetlands (over 10 acres)

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
Option B - 50 ft wide grassed buffer
Option C - 100 ft setback with at least 16.5 ft as grassed buffer

Wells, Mines, or Quarry

Option A - 50 ft setback - minimum (100 ft if NPDES permitted)

Sinkholes

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)
Option B - Berm that prevents runoff from entering the sinkhole

Application of Manure During the Summer Months (June, July, and August)

Option A - A cover crop will be planted on all fields that receive manure applications during June, July, and August

Other Conduits to Water

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
Option B - 50 ft wide grassed buffer
Option C - 100 ft setback with at least 16.5 ft as grassed buffer
Option D - Protective Berm (prohibits runoff from entering the waters)

Early Fall Land Application - Unless otherwise required, this only applies to early fall manure application at NPDES or SDS permitted facilities

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.

Soil Erosion Conservation Measures - Required for ANY field used for winter application and for ALL fields at NPDES permitted sites

Option A - Establish grassed waterways
Option B - Contour stripcropping
Option C - No-Till cropping
Option D - Terracing
Option E - Meet tolerable soil erosion rates ("T") as defined by NRCS
Option F - Use rotations that include other than row crops (alfalfa, grass, etc)
Option G - Chisel or disk tillage with residue
Option H - Field edge buffers
Option I - Contour buffer strip
Option J - Sediment control basin
Option K - Plant a cover crop on bare ground

Crop and Nutrient Planning Worksheet (Fields 1-35)

Minnesota Pollution Control Agency

Cropping Year: September 1, 2016 to August 31, 2017 **Crop Land Manager's Name:**

Field Information	Crop Information				Last Year's Manure App (Nutrients for 2016 Crop) leave blank if none applied				Nutrient Recommendations and Credits N (lb/ac)						P_2O_5 (lb/ac)		Irrigated Sands Alternate N Needs displayed if applicable	
Field ID	Crop Grown to Utilize the Nutrients Applied 2017 Crop	Expected Yield (per acre) crop receiving nutrients	Crop Most Recently Harvested 2016 Crop	Crop Grown 2 Years Ago 2015 Crop	Last Year's Manure Test N	Animal Type of Manure Applied Last Year	Last Year's Application Rate (per acre) Typically 9/1/15 to 8/31/16		N Recommendation after 2016 crop credits	Legume-N Credit from the 2015 Crop	N Credit from Manure Applied to 2016 Crop	N Credit from Irrigation Water	N Needs after all credits	N Removal after all credits	P_2O_5 Needs (based on soil test data)	P_2O_5 Removal (based on crop uptake)	N Needs for Corn on Irrigated Sands after all credits	Use Irrigated Sands N Needs instead of typical N Needs
Example	Corn	180 bu	Corn	Alfalfa-Good	25	Dairy	15,000	gal	180	75	94	—	11	—	0	63	—	
Gilland N	Corn	180 bu	Corn	Corn	10	Dairy	22	ton	180	0	55	—	125	—	0	63	—	
Gilland Feedlot	Corn	180 bu	Corn	Corn	27	Dairy	8,200	gal	180	0	55	—	125	—	0	63	—	

Nutrient Application Planning Worksheet (Fields 1-25)

Minnesota Pollution Control Agency

Manure Source Summary

Source 1: Dairy Solids (7-3-10)	Source 5:	Source 9:
Source 2: Dairy Liquid (19-7-17)	Source 6:	Source 10:
Source 3:	Source 7:	Source 11:
Source 4:	Source 8:	Source 12:

☐ I will transfer ownership of some of the manure.

Field Information Summary		Crops Grown Summary		Nutrients Needed to Meet Yield Goal (lb/acre) after credits for nutrients from previous crops and manure applications			Manure Application Information (Nutrients for the 2017 Crop) Application Typically 9/1/2016 to 8/31/2017					Nitrogen (lb N/ac)				Phosphorus (lb P_2O_5/ac)			
Field ID	Acres After Setbacks	Crop Grown to Utilize the Nutrients Applied 2017 Crop	Crop Most Recently Harvested 2016 Crop	Nitrogen Needs	Nitrogen (Removal)	Phosphorus (Needs)	Manure Source (1-12)	Method of Application and Incorporation NPDES/SDS permitted sites cannot apply liquid manure in the winter (unless emergency)	Acres Receiving Manure (reduce to split the field)	Manure Application Rate (gals/tons per acre) Calculated Max Rate based on Nitrogen	Manure Application Rate (gals/tons per acre) Planned Rate max used if blank	N from Manure (Available this year)	Total Fertilizer Application (lbs/acre) Starter	Total Fertilizer Application (lbs/acre) Supplemental	Excess Available N (negative for deficiency)	P from Manure (Available this year)	Total Fertilizer Application (lbs/acre) Starter	Total Fertilizer Application (lbs/acre) Supplemental	P In Excess of Removal (negative for deficiency)
Gilland N	140	Corn	Corn	125	---	0	1	Incorp. within 4 days	140	30	30	84	9	32.2	0	72	23	0	32
Gilland Feedlot	133	Corn	Corn	125	---	0	2	Knife Injection	50	11,737	11700	111	13.5	0	-1	66	34.5	0	38

More Fields Above ^ ^ ^

Nutrient Application Planning Worksheet (Split, Dual, and 2nd Crop Fields)

Minnesota Pollution Control Agency

Field Information Summary		Crops Grown Summary		Nutrients Needed to Meet Yield Goal (lb/acre) after credits for nutrients from previous crops and manure applications			Manure Application Information (Nutrients for the 2017 Crop) Application Typically 9/1/ to 8/31/2017					Nitrogen (lb N/ac)				Phosphorus (lb P_2O_5/ac)			
Field ID	Acres After Setbacks	Crop Grown to Utilize the Nutrients Applied 2017 Crop	Crop Most Recently Harvested 2016 Crop	Nitrogen Needs	Nitrogen (Removal)	Phosphorus (Needs)	Manure Source (1-12)	Method of Application and Incorporation NPDES/SDS permitted sites cannot apply liquid manure in the winter (unless emergency)	Acres Receiving Manure	Manure Application Rate (gals/tons per acre) Calculated Max Rate based on Nitrogen	Manure Application Rate (gals/tons per acre) Planned Rate max used if blank	N from Manure (Available this year)	Fertilizer Application (lbs/acre) Starter	Fertilizer Application (lbs/acre) Supplemental	Excess Available N (negative for deficiency)	P from Manure (Available this year)	Fertilizer Application (lbs/acre) Starter	Fertilizer Application (lbs/acre) Supplemental	P In Excess of Removal (negative for deficiency)
Gilland Feedlot (Split)	83	Corn	Corn	125	—	0	1	Incorp. within 4 days	83	40	30	84	13.5	0	-28	72	34.5	0	44

Total Split/Dual Acres = 83

Nutrient Application Planning Worksheet (Fields 26-50)

Minnesota Pollution Control Agency

Field Information Summary		Crops Grown Summary		Nutrients Needed to Meet Yield Goal (lb/acre) after credits for nutrients from previous crops and manure applications			Manure Application Information (Nutrients for the 2017 Crop) Application Typically 9/1/ to 8/31/2017				Nitrogen (lb N/ac)				Phosphorus (lb P_2O_5/ac)			
Field ID	Acres After Setbacks	Crop Grown to Utilize the Nutrients Applied 2017 Crop	Crop Most Recently Harvested 2016 Crop	Nitrogen Needs	Nitrogen (Removal)	Phosphorus (Needs)	Manure Source (1-12)	Method of Application and Incorporation NPDES/SDS permitted sites cannot apply liquid manure in the winter (unless emergency)	Acres Receiving Manure (reduce to split the field)	Manure Application Rate (gals/tons per acre) Calculated Max Rate based on Nitrogen	Manure Application Rate (gals/tons per acre) Planned Rate max used if blank	N from Manure (Available this year)	Total Fertilizer Application (lbs/acre) Starter	Total Fertilizer Application (lbs/acre) Supplemental	Excess Available N (negative for deficiency)	P from Manure (Available this year)	Total Fertilizer Application (lbs/acre) Starter	Total Fertilizer Application (lbs/acre) Supplemental	P In Excess of Removal (negative for deficiency)

Total Acres (Fields 1 - 50) = 273

☐ I will transfer ownership of the remaining amount of manure.

	Amount Applied	Amount Remaining	Acres Applied
Source 1:	6,658	0	0
Source 2:	564,144	0	0
Source 3:	—	—	—
Source 4:	—	—	—

	Amount Applied	Amount Remaining	Acres Applied
Source 5:	—	—	—
Source 6:	—	—	—
Source 7:	—	—	—
Source 8:	—	—	—

	Amount Applied	Amount Remaining	Acres Applied
Source 9:	—	—	—
Source 10:	—	—	—
Source 11:	—	—	—
Source 12:	—	—	—

Land Application of Manure Records (Fields 1-19)

Minnesota Pollution Control Agency

Be sure to make any changes necessary to represent the actual nutirent application (including dates of manure application) that occurred during the indicated crop year.

Cropping Year: September 1, 2014 **to August 31,** 2015 **Crop Land Manger's Name:** _____

Name of Facility Where Manure is Generated: _____ **Registration/Permit Number:** _____

Name of Licensed Commercial Animal Waste Technician Used: _____ **License Number:** _____

Manure Analysis Results - Entries must represent manure applied (A recent sample, or a running average, can be used)

Source ID	Description	Animal Type	Storage Type	Date Last Analyzed	N	P	K	Units of Test
Manure Source #1:	Dairy Solids	Dairy	Manure Pack		10	3	7	lbs/ton
Manure Source #2:	Dairy Liquid	Dairy	Underfloor Concrete Pit		27	14	24	lbs/1000 gal
Manure Source #3:								
Manure Source #4:								
Manure Source #5:								
Manure Source #6:								
Manure Source #7:								
Manure Source #8:								
Manure Source #9:								
Manure Source #10:								
Manure Source #11:								
Manure Source #12:								

Field Information		Soil Testing Information (Test required once every 4 yrs)				Crop Information					Manure Application Information (Nutrients for the 2015 Crop) (Typically Applied 9/1/2014 to 8/31/2015)				Nitrogen Application Rates (lb N/ac)				Phosphorus Application Rate (lb P_2O_5/ac)		
Field ID	Acres Actually Used	Year of Most Recent Test	Soil Test Phosphorus Field Average (ppm)		Organic Matter	Crops Grown: Crop Grown to Utilize the Nutrients Applied 2015 Crop	Crops Grown: Crop Most Recently Harvested 2014 Crop	Expected Yield (crop receiving manure)	N Needs (lb/ac) (removal for legumes)	P_2O_5 Needs (lb/ac) (based on soil test data)	Manure Source (1-12)	Dates of Application	Application Rate Per Acre	Method of Application and Incorporation	Fertilizer N Applied + Irrigation Water N	Carry-Over N Last Year's Manure	Manure N This Year's	Total Available N This Year	Fertilizer P Applied	Manure P This Year's	Total Available P This Year
Example	*80*	*2006*	*9*	*Olsen*	*Med/High*	*Corn*	*Soybeans*	180	140	55	*1*	*10/15 - 10/16*	*3000*	*Incorp. within 4 days*	5	0	140	145	0	60	60
Gilland N	72	2013	47	Olsen	Med/High	Corn	Corn	180	180	0	2		8,000	Knife Injection	0	53	108	161		90	90
Gilland Feedlot	133	2013	47	Olsen	Med/High	Corn	Corn	180	180	0	1		22	Knife Injection	0	53	110	163		53	53

Land Application of Manure Records (Split, Dual, & Double Cropped Fields)

This sheet summarizes the planned nutrient applications for those fields that included a planned field split, dual application, or double crop situation.
It will also be utilized to display information for fields that had an unplanned field split or dual application (created by double-clicking the applicable cell above).
It is also available to enter fields that were actually used for nutrient application but were not included in the plan at the time this record form was created. To add such a field to this form, simply enter the necessary info below. This will not add the field to your manure managment plan, you must do this via the field info sheet. Do not use the terms (Double), (Split), or (Dual) at the end of a field name that you add to this form as this will cause errors in the program.

Cropping Year: September 1, 2014 to August 31, 2015 **Crop Land Manger's Name:** _____

Name of Facility Where Manure is Generated: _____ **Registration/Permit Number:** _____

Field Information		Soil Testing Information (Test required once every 4 yrs)				Crop Information					Manure Application Information (Nutrients for the 2015 Crop) (Typically Applied 9/1/2014 to 8/31/2015)				Nitrogen Application Rates (lb N/ac)				Phosphorus Application Rate (lb P_2O_5/ac)		
						Crops Grown															
Field ID	Acres Actually Used	Year of Most Recent Test	Soil Test Phosphorus Field Average (ppm)		Organic Matter	Crop Grown to Utilize the Nutrients Applied 2015 Crop	Crop Most Recently Harvested 2014 Crop	Expected Yield (crop receiving manure)	N Needs (lb/ac) (removal for legumes)	P2O5 Needs (lb/ac) (based on soil test data)	Manure Source (1-12)	Dates of Application	Application Rate Per Acre	Method of Application and Incorporation	Fertilizer N Applied + Irrigation Water N	Carry-Over N Last Year's Manure	Manure N This Year's	Total Available N This Year	Fertilizer P Applied	Manure P This Year's	Total Available P This Year
Gilland N (Dual)	133	2013	47	Olsen	Med/High	Corn	Corn	180	####	0	1		22	Incorp. within 4 days	—	—	88	88	—	53	53

Land Application of Manure Records (Fields 20-46)

Cropping Year: September 1, 2014 **to August 31,** 2015 **Crop Land Manger's Name:** ______________________

Name of Facility Where Manure Is Generated: ______________________ **Registration/Permit Number:** ______________________

Field Information		Soil Testing Information (Test required once every 4 yrs)			Crop Information					Manure Application Information (Nutrients for the 2015 Crop) (Typically Applied 9/1/2014 to 8/31/2015)				Nitrogen Application Rates (lb N/ac)				Phosphorus Application Rate (lb P_2O_5/ac)		
					Crops Grown															
Field ID	Acres Actually Used	Year of Most Recent Test	Soil Test Phosphorus Field Average (ppm)	Organic Matter	Crop Grown to Utilize the Nutrients Applied 2015 Crop	Crop Most Recently Harvested 2014 Crop	Expected Yield (crop receiving manure)	N Needs (lb/ac) (removal for legumes)	P2O5 Needs (lb/ac) (based on soil test data)	Manure Source (1-12)	Dates of Application	Application Rate Per Acre	Method of Application and Incorporation	Fertilizer N Applied + Irrigation Water N	Carry-Over N Last Year's Manure	Manure N This Year's	Total Available N This Year	Fertilizer P Applied	Manure P This Year's	Total Available P This Year

Total Acres (Fields 1-46) = 205

Manure Source Summary of Applied and Remaining Manure

	Amount Applied	Amount Remaining
Source 1:	5,852	0
Source 2:	576,000	0
Source 3:	—	—
Source 4:	—	—

	Amount Applied	Amount Remaining
Source 5:	—	—
Source 6:	—	—
Source 7:	—	—
Source 8:	—	—

	Amount Applied	Amount Remaining
Source 9:	—	—
Source 10:	—	—
Source 11:	—	—
Source 12:	—	—

Land Application of Manure Records (Fields 1-19)

Minnesota Pollution Control Agency

Be sure to make any changes necessary to represent the actual nutirent application (including dates of manure application) that occurred during the indicated crop year.

Cropping Year: September 1, 2015 **to August 31,** 2016 **Crop Land Manger's Name:** _____

Name of Facility Where Manure is Generated: _____ **Registration/Permit Number:** _____

Name of Licensed Commercial Animal Waste Technician Used: _____ **License Number:** _____

Manure Analysis Results - Entries must represent manure applied. (A recent sample, or a running average, can be used)

Source ID	Description	Animal Type	Storage Type	Date Last Analyzed	N	P	K	Units of Test
Manure Source #1:	Dairy Solids	Dairy	Manure Pack		10	3	7	lbs/ton
Manure Source #2:	Dairy Liquid	Dairy	Underfloor Concrete Pit		27	14	24	lbs/1000 gal
Manure Source #3:								
Manure Source #4:								
Manure Source #5:								
Manure Source #6:								
Manure Source #7:								
Manure Source #8:								
Manure Source #9:								
Manure Source #10:								
Manure Source #11:								
Manure Source #12:								

Field Information		Soil Testing Information (Test required once every 4 yrs)				Crop Information					Manure Application Information (Nutrients for the 2016 Crop) (Typically Applied 9/1/2015 to 8/31/2016)				Nitrogen Application Rates (lb N/ac)				Phosphorus Application Rate (lb P_2O_5/ac)		
						Crops Grown															
Field ID	Acres Actually Used	Year of Most Recent Test	Soil Test Phosphorus Field Average (ppm)		Organic Matter	Crop Grown to Utilize the Nutrients Applied 2016 Crop	Crop Most Recently Harvested 2015 Crop	Expected Yield (crop receiving manure)	N Needs (lb/ac) (removal for legumes)	P2O5 Needs (lb/ac) (based on soil test data)	Manure Source (1-12)	Dates of Application	Application Rate Per Acre	Method of Application and Incorporation	Fertilizer N Applied + Irrigation Water N	Carry-Over N Last Year's Manure	Manure N This Year's	Total Available N This Year	Fertilizer P Applied	Manure P This Year's	Total Available P This Year
Example	*80*	*2006*	*9*	*Olsen*	*Med/High*	*Corn*	*Soybeans*	180	140	55	*1*	*10/15 - 10/16*	*3000*	*Incorp. within 4 days*	5	0	140	145	0	60	60
Gilland N	140	2013	47	Olsen	Med/High	Corn	Corn	180	180	0	1		22	Incorp. within 4 days	39.1	53	88	180	0	53	53
Gilland Feedlot	70	2013	47	Olsen	Med/High	Corn	Corn	180	180	0	2		8,200	Knife Injection	4.6	65	111	181	0	92	92

Land Application of Manure Records (Split, Dual, & Double Cropped Fields)

This sheet summarizes the planned nutrient applications for those fields that included a planned field split, dual application, or double crop situation.
It will also be utilized to display information for fields that had an unplanned field split or dual application (created by double-clicking the applicable cell above).
It is also available to enter fields that were actually used for nutrient application but were not included in the plan at the time this record form was created. To add such a field to this form, simply enter the necessary info below. This will not add the field to your manure managment plan, you must do this via the field info sheet. Do not use the terms (Double), (Split), or (Dual) at the end of a field name that you add to this form as this will cause errors in the program.

Cropping Year: September 1, 2015 **to August 31,** 2016 **Crop Land Manger's Name:** _____

Name of Facility Where Manure is Generated: _____ **Registration/Permit Number:** _____

Field Information		Soil Testing Information (Test required once every 4 yrs)				Crop Information					Manure Application Information (Nutrients for the 2016 Crop) (Typically Applied 9/1/2015 to 8/31/2016)				Nitrogen Application Rates (lb N/ac)				Phosphorus Application Rate (lb P_2O_5/ac)		
						Crops Grown															
Field ID	Acres Actually Used	Year of Most Recent Test	Soil Test Phosphorus Field Average (ppm)		Organic Matter	Crop Grown to Utilize the Nutrients Applied 2016 Crop	Crop Most Recently Harvested 2015 Crop	Expected Yield (crop receiving manure)	N Needs (lb/ac) (removal for legumes)	P2O5 Needs (lb/ac) (based on soil test data)	Manure Source (1-12)	Dates of Application	Application Rate Per Acre	Method of Application and Incorporation	Fertilizer N Applied + Irrigation Water N	Carry-Over N Last Year's Manure	Manure N This Year's	Total Available N This Year	Fertilizer P Applied	Manure P This Year's	Total Available P This Year
Gilland Feedlot (Split)	33	2013	47	Olsen	Med/High	Corn	Corn	180	180	0	1		22	Incorp. within 4 days	4.6	65	88	158	0	53	53

Land Application of Manure Records (Fields 20-46)

Cropping Year: September 1, 2015 **to August 31,** 2016 **Crop Land Manger's Name:** ______

Name of Facility Where Manure is Generated: ______ **Registration/Permit Number:** ______

Field Information		Soil Testing Information (Test required once every 4 yrs)			Crop Information					Manure Application Information (Nutrients for the 2016 Crop) (Typically Applied 9/1/2015 to 8/31/2016)				Nitrogen Application Rates (lb N/ac)				Phosphorus Application Rate (lb P_2O_5/ac)		
					Crops Grown															
Field ID	Acres Actually Used	Year of Most Recent Test	Soil Test Phosphorus Field Average (ppm)	Organic Matter	Crop Grown to Utilize the Nutrients Applied 2016 Crop	Crop Most Recently Harvested 2015 Crop	Expected Yield (crop receiving manure)	N Needs (lb/ac) (removal for legumes)	P2O5 Needs (lb/ac) (based on soil test data)	Manure Source (1-12)	Dates of Application	Application Rate Per Acre	Method of Application and Incorporation	Fertilizer N Applied + Irrigation Water N	Carry-Over N Last Year's Manure	Manure N This Year's	Total Available N This Year	Fertilizer P Applied	Manure P This Year's	Total Available P This Year

Total Acres (Fields 1-46) = 210

Manure Source Summary of Applied and Remaining Manure

	Amount Applied	Amount Remaining
Source 1:	3,806	0
Source 2:	574,000	0
Source 3:	—	—
Source 4:	—	—

	Amount Applied	Amount Remaining
Source 5:	—	—
Source 6:	—	—
Source 7:	—	—
Source 8:	—	—

	Amount Applied	Amount Remaining
Source 9:	—	—
Source 10:	—	—
Source 11:	—	—
Source 12:	—	—

Gill and Feedlot

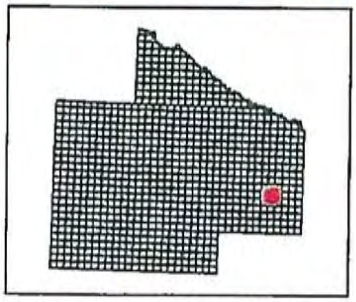
USDA U.S. Dept. of Agriculture
Farm Service Agency

Minnesota
Redwood County

5-110-34
BRO

- Wetlands
- CLU Field Boundary
- Tract Boundary
- Section Lines

N



September 08, 2006

Gilland N

USDA U.S. Dept. of Agriculture
Farm Service Agency

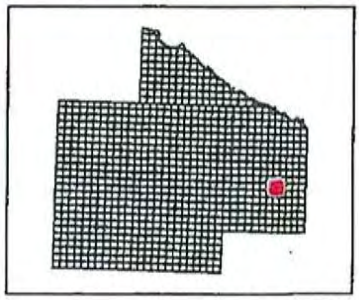
- Wetlands
- CLU Field Boundary
- Tract Boundary
- Section Lines

Minnesota
Redwood County

32-111-34

Morgan

N



September 08, 2006

USDA FSA maps are for FSA Program administration only. This map does not represent a legal survey or reflect actual ownership; rather it depicts the information provided directly from the producer and/or the 2003 ortho rectified imagery for Minnesota. The producer accepts the data 'as is' and assumes all risks associated with its use. The USDA Farm Service Agency assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data outside of FSA Programs.

Anez Consulting, Inc

NOTICE OF APPLICATION
FOR LIVESTOCK FEEDLOT PERMIT

Notice is hereby given per Minnesota Statue 116.07 subd. 7 (a) that

Morgan Heifer Farm
41762 215th St
Morgan, MN 56266

has made application to the Minnesota Pollution Control Agency and the county of Redwood for a permit to construct or expand a feedlot with a capacity of 500 animal units or more.

The feedlot is located in the NW ¼ of the SE ¼ of Section 5, Brookville Township, Redwood County.

The proposed feedlot expansion is located in the NW ¼ of the SE ¼ of Sec 5, Brookville Township, Redwood County. The feedlot is currently registered for 975 slaughter steers / heifers (975 AU) in total and partial confinement barns with below barn concrete tank manure storage and manure pack on floor with open lots and runoff controls. Three 20' x 20' x 8' in ground concrete tanks and a 96' x 110' Permanent Stockpile area and a 62'x340' Permanent Stockpile area are being proposed. With expansion the feedlot will have a total of 1,540 heifers (1,078 AU). Total animal units for the site will be 1,078.

This publication shall constitute as notice to each resident and each owner of real property within 5000 feet of the perimeter of the proposed feedlot as required by Minnesota State Law.

Printed at the request of Morgan Heifer Farm.

August 29, 2016

Anez Consulting
1700 Technology Drive NE
Suite 130
Willmar, MN 56201

Nick Brozek
Redwood County Environmental Office
403 South Mill St
PO Box 130
Redwood Falls, MN 56283

RE: Morgan Heifer Farm

Dear Nick,

This letter is submitted to Redwood County as notification that a NPDES permit has been submitted to the Minnesota Pollution Control Agency by Morgan Heifer Farm to expand a feedlot with 500 or more animal units.

The proposed feedlot expansion is located in the NW ¼ of the SE ¼ of Sec 5, Brookville Township, Redwood County. The feedlot is currently registered for 975 slaughter steers / heifers (975 AU) in total and partial confinement barns with below barn concrete tank manure storage and manure pack on floor with open lots and runoff controls. Three 20' x 20' x 8' in ground concrete tanks and a 96' x 110' Permanent Stockpile area and a 62'x340' Permanent Stockpile area are being proposed. With expansion the feedlot will have a total of 1,540 heifers (1,078 AU). Total animal units for the site will be 1,078.

Sincerely,

Jeff Bauman

Jeff Bauman
Ag Nutrient Consultant
jeff@anezconsulting.com
320-262-5713 office
320-894-3716 cell

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: Morgan Heifer Farm
Feedlot registration no.: 127-50088
Owner/Operator name: Evergreen Acres Dairy, LLC
Feedlot permit no.:

List of critical phone numbers and contacts

	Contact person (or Company)	Phone number
Emergency contacts		
• Fire/Ambulance	----------	911
• County Sheriff	Randy Hanson	507-637-4036
Agency contacts		
• Minnesota Duty Officer	----------	1-800-422-0798
• Minnesota Pollution Control Agency (MPCA) Field Office	Marshall	507-537-7146
• County Feedlot Officer (CFO)	Nick Brozek	507-637-4023
• Board of Animal Health Contact	Mike Fier	651-270-7230
Other contacts		
• Insurance company		
• Gopher State One Call	----------	1-800-252-1166
• Anez Consulting	Jared or Jeff	320-235-1970
Local vendors for spill and/or catastrophic mortality response assistance		
• Manure pumper	Onsite	
• Manure loading equipment	Onsite	
• Earth moving equipment	Blomeke Construction	507-249-3135
• Tiling equipment	Blomeke Construction	507-249-3135
• Containment/Absorption materials (hay, straw, cornstalks, sawdust)	Onsite	
•		

Provide the Minnesota Duty Officer:

- Your contact information
- Incident location, date, and time
- For spills
  - spill type
  - spill amount
  - surface water or field tile impacted
- Progress made in response to the spill or catastrophic mortality event

Manure Spill Emergency Response Procedures*

1. Immediately stop the source of a liquid manure leak or spill:
   - Turn off pumps or valves
   - Clamp hoses or park tractor on hoses
2. 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
3. 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
4. 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
5. 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

1. 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
2. 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)
3. 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:

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

MNDNR

Water Appropriation General Permit Authorization

Authorization Number
2015-3018

General Permit Number
2004-0275

On the basis of statements and information contained in the permit application, letters, maps, and plans submitted by the applicant and other supporting data, all of which are made part hereof by reference, **PERMISSION IS HEREBY GRANTED** to the applicant to perform actions as authorized below. Applicant must comply with all conditions listed in the above referenced General Permit.

Project Name:	**County:**	**Watershed:**	**Resource:**
Morgan Cattle Site	Redwood	Cottonwood River	Groundwater

Purpose of Permit:	**Authorized Action:**
Livestock Watering	Withdrawal of up to 5.0 million gallons of water per year for livestock watering.

Permittee:	**Authorized Agent:**
EVERGREEN ACRES DAIRY CONTACT: SCHOENBERG, GRANT, (320) 260-1325 26162 240TH ST PAYNESVILLE, MN 56362 (320) 548-3666	N/A

To Appropriate From:

Well Installation #1 : 5.0 inches diameter, 135.0 feet depth, 60 gpm, unique number 133066
Point(s) of Taking
UTM zone 15N, 344446m east, 4913734m north
NWSE of Section 5, T110N, R34W

Well Installation #2: 6.0 inches diameter, 139.0 feet depth, 100 gpm, unique number 455972
Point(s) of Taking
UTM zone 15N, 344474m east, 4913730m north
NESE of Section 5, T110N, R34W

Authorized Issuer:	**Title:**	**Issued Date:**	**Effective Date:**	**Expiration Date:**
Lucas Youngsma	Area Hydrologist	07/06/2016	07/06/2016	Long-Term Appropriation

This permit is granted **subject to** the following **CONDITIONS**:

Applicant must comply with all conditions listed in General Permit 2004-0275.

CONDITIONS continued on next page...

cc: Skip Wright, EWR District Manager
Andrew Dirks, Conservation Officers, Redwood Falls
Kane Radel, BWSR Wetland Specialists, Redwood
Lisa Gelvin-Innvaer, DNR Regional Nongame Specialists, South
Kevin Mixon, DNR Regional Environmental Assessment Ecologist, Region 4
Cory Netland, DNR Wildlife, New London
Scott Mackenthun, DNR Fisheries, Hutchinson Area
Scott Wold, County, Redwood
Nick Brozek, County, Redwood
Ryan Malterud, Corps of Engineers, Redwood
Marilyn Bernhardson, SWCD, Redwood SWCD

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

Amended

Water Appropriation General Permit

General Permit Number

2004-0275

Expiration Date: 01/21/2018

Pursuant to Minnesota Statutes, Chapter 103G, and on the basis of statements and information contained in the permit application, letters, maps, and plans submitted by the applicant and other supporting data, all of which are made part hereof by reference, **PERMISSION IS HEREBY GRANTED** to the applicant to perform actions as authorized below. This permit supersedes the original permit and all previous amendments.

Project Name:	**County:**	**Watershed:**	**Resource:**
Animal Feedlots and Livestock Operations	Statewide	All watersheds in Minnesota	Groundwaters of the state

Purpose of Permit:	**Authorized Action:**
Livestock watering and sanitation. This permit is valid for animal feedlots and other livestock operations that appropriate groundwater for use in the production of animals, poultry, or direct animal products such as milk or eggs.	The Permittee is authorized to appropriate from groundwaters of the state for an amount not to exceed 5 million gallons per year for a single operation, and at a rate not to exceed 100 gallons per minute.
Permittee:	**Authorized Agent:**
Owners of animal feedlots and livestock operations	N/A

To Appropriate From:

The Permittee must own, control, or have permission to access and use all lands where water is appropriated, conveyed, and used.

Authorized Issuer:	**Title:**	**Issued Date:**	**Effective Date:**	**Expiration Date:**
Tom Hovey	Water Regulations Unit Supervisor	01/20/2014	01/21/2014	01/21/2018

This permit is granted **subject to** the following **CONDITIONS**:

LIMITATIONS: (a) Any violation of the terms and provisions of this permit and any appropriation of the waters of the state in excess of that authorized hereon shall constitute a violation of Minnesota Statutes, Chapter 103G. (b) This permit shall not be construed as establishing any priority of appropriation of waters of the state. (c) This permit is permissive only. No liability shall be imposed upon or incurred by the State of Minnesota or any of its employees, on account of the granting hereof or on account of any damage to any person or property resulting from any act or omission of the Permittee relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claims or right of action of any person other than the state against the Permittee, for any damage or injury resulting from any such act or omission, or as estopping or limiting any legal claim or right of action of the state against the Permittee, for violation of or failure to comply with the provisions of the permit or applicable provisions of law. (d) In all cases where the doing by the Permittee of anything authorized by this permit shall involve the taking, using, or damaging of any property, rights or interests of any other person or persons, or of any publicly owned lands or improvements thereon or interests therein, the Permittee, before proceeding therewith, shall obtain the written consent of all persons, agencies, or authorities concerned, and shall acquire all property, rights, and interests necessary therefore. (e) This permit shall not release the Permittee from any other permit requirements or liability or obligation imposed by Minnesota Statutes, Federal Law, or local ordinances relating thereto and shall remain in force subject to all conditions and limitations now or hereafter imposed by law. (f) Unless explicitly specified, this permit does not authorize any alterations of the beds or banks of any public (protected) waters or wetlands. A separate permit must be obtained from the Department of Natural Resources prior to any such alteration.

WATER USE REPORTING: (a) FLOW METER The Permittee shall equip each installation for appropriating or using water with a flow meter, unless another method of measuring the quantity of water appropriated to within ten (10) percent of

GENERAL PERMIT CONDITIONS (*Continued from previous page*)

actual amount withdrawn is approved by the Department. (b) REPORTS Monthly records of the amount of water appropriated or used shall be recorded for each installation. Such readings and the total amount of water appropriated or used shall be reported annually to the Director of DNR Ecological and Water Resources, on or before February 15 of the following year, via the MNDNR Permitting and Reporting System (MPARS) at www.mndnr.gov/mpars/signin. Any processing fee required by law or rule shall be submitted with the records whether or not any water was appropriated during the year. Failure to report shall be sufficient cause for terminating the permit 30 days following written notice. (c) TRANSFER OR ASSIGNMENT Any transfer or assignment of rights, or sale of property involved hereunder shall be reported within 90 days thereafter to the Director of DNR Ecological and Water Resources. Such notice shall be made by the transferee (i.e., new owner) and shall state the intention to continue the appropriation as stated in the permit. This permit shall not be transferred or assigned except with the written consent of the Commissioner. (d) MODIFICATION The Permittee must notify the Commissioner in writing of any proposed changes to the existing permit. This permit shall not be modified without first obtaining the written permission from the Commissioner.

COMMISSIONER'S AUTHORITY: (a) The Commissioner may inspect any installation utilized for the appropriation or use of water. The Permittee shall grant access to the site at all reasonable times and shall supply such information concerning such installation as the Commissioner may require. (b) The Commissioner may, as he/she deems necessary, require the Permittee to install gages and/or observation wells to monitor the impact of the Permittee's appropriation on the water resource and require the Permittee to pay necessary costs of installation and maintenance. (c) The Commissioner may restrict, suspend, amend, or cancel this permit in accordance with applicable laws and rules for any cause for the protection of public interests, or for violation of the provisions of this permit.

PUBLIC RECORD: All data, facts, plans, maps, applications, annual water use reports, and any additional information submitted as part of this permit, and this permit itself are part of the public record and are available for public inspection at the offices of DNR Ecological and Water Resources. The information contained therein may be used by the Division as it deems necessary. The submission of false data, statements, reports, or any such additional information, at any time shall be deemed as just grounds for revocation of this permit.

MONITORING REQUIREMENTS: Minnesota Statutes 103G.282 authorizes the Department of Natural Resources to require permittees to install and maintain monitoring equipment to evaluate water resource impacts from permitted appropriations. You may be required to modify or install automated measuring devices and keep records for each installation. The frequency of measurements and other requirements will be based on quantity of water appropriated, source of water, potential connections to other water resources, nature of concern, and other relevant factors.

DROUGHT PLANNING: In accordance with M.S. 103G.293, all permits must be consistent with the drought response plan detailed in the Statewide Drought Plan at http://files.dnr.state.mn.us/natural_resources/climate/drought/drought_plan_matrix.pdf.

WATER USE CONFLICT: If notified by the DNR that a water use conflict is suspected and probable from your appropriation, based on confirmation of a formal well interference complaint or a preliminary hydrologic assessment, all appropriation authorized by this permit must cease immediately until the interference is resolved. The permittee may be required to obtain additional data to support the technical analysis, such as domestic well information within a radius of one and one-half miles of the production well. The permittee and impacted party may engage in a negotiated settlement process and there may be modifications made to this permit in support of conflict resolution.

WATER CONSERVATION: All practical and feasible water conservation methods and practices must be employed to promote sound water management and use the least amount of water necessary, such as reuse and recycling water, water-saving devices, and water storage.

WELL SEALING: The permittee shall notify the Minnesota Department.of Health prior to sealing, removing, covering, plugging or filling the well(s} from which the authorized appropriation was made. The well(s) must be sealed by a licensed well driller and in accordance with the procedures required under Minnesota Statutes 1031 and Minnesota Rules 4725 as administered by the Minnesota Department of Health.

WELL INTERFERENCE: If notified by the Department that well interference is suspected and probable from your appropriation, based on confirmation of a formal well interference complaint, all appropriation authorized by this permit must cease immediately until the interference is resolved. The permittee may be required to obtain domestic well information within a radius of one and one half miles of the production well should well interference problems develop.

MPCA FEEDLOT PROGRAMS: This permit is only valid for operations that comply with all feedlot rules and regulations required by the Minnesota Pollution Control Agency and county feedlot programs.

GENERAL PERMIT CONDITIONS (*Continued from previous page*)

ENVIRONMENTAL IMPACTS: This permit is not valid in areas or locations where trout streams, calcareous fens, or other significant environmental resources may be adversely impacted.

APPLY USING MPARS: The permittee shall apply for prior authorization for all intended uses under this General Permit using the MNDNR Permitting and Reporting System (MPARS) at www.mndnr.gov/mpars/signin. Users will need to create an account the first time they access the system. Once created, click on the link for 'Apply for a New Permit/Authorization' under the Actions box and complete the application questions.

OFFSET Summary and Results

OFFSET Ver 2.0
University of Minnesota
8/1/2012

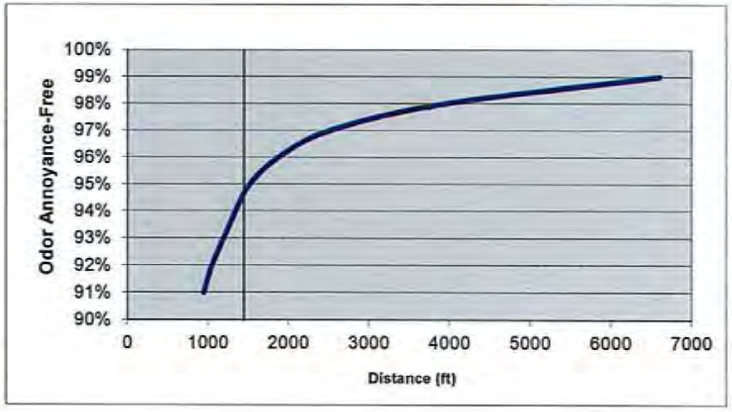
Farm Name	Schaefer
County	to Alan Madsen site
Evaluator	
Date	

Source Characteristics Summary					Flux Rates (with control technology)				Source Emission Rates*		
	Similar Sources	Emit Area sq ft	Control Technology Type	Percent Treated	Odor ou/s/m2	OFFSET OER	H2S ug/s/m2	Ammonia ug/s/m2	Odor ou/s	H2S ug/s	Ammonia ug/s
Buildings											
Dairy - loose housing	1	37968	None	0%	1.8	6.0	0.9	13.0	6494	3035	45879
Dairy - loose housing	1	55608	None	0%	1.8	6	0.9	13.0	9511	4445	67194
Dairy - loose housing	1	12000	None	0%	1.8	6	0.9	13.0	2052	959	14500
Dairy - loose housing	1	59210	None	0%	1.8	6	0.9	13.0	10127	4733	71547
Dairy - loose housing	3	1200	None	0%	1.8	6	0.9	13.0	205	96	1450
Area Sources											

*includes control technologies

Site Emissions	
Total Site Area (ft2)	165,986
Total Odor Emission Factor (TOEF)	99
Total Site H2S Emissions (mg/s)	13
Total Site H2S Emission AVERAGE (lbs/day)	3
Total Site H2S Emission MAX (lbs/day)	5
Total Site H2S Emissions (tons/yr)	0
Total Site Ammonia Emissions (mg/s)	201
Total Site Ammonia Emission AVERAGE (lbs/day)	38
Total Site Ammonia Emissions MAX (lbs/day)	76
Total Site Ammonia Emissions (tons/yr)	7

Source Edge to Nearest Neighbor (ft)	1450
OFFSET Annoyance-free frequency	95%



OFFSET Summary and Results

OFFSET Ver 2.0
University of Minnesota
8/1/2012

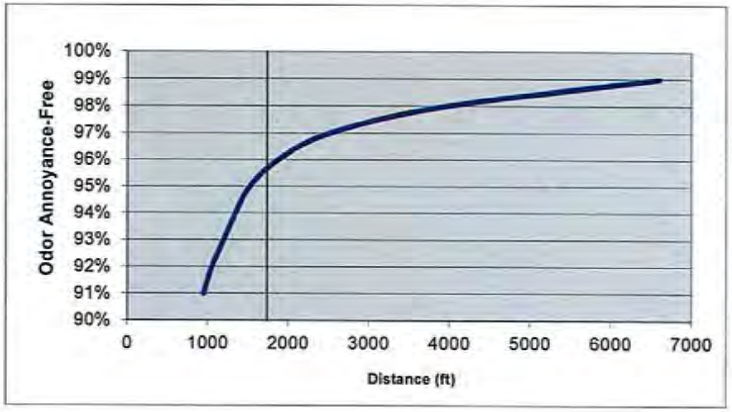
Farm Name	Schaefer
County	to Nancy Blick site
Evaluator	
Date	

Source Characteristics Summary					Flux Rates (with control technology)				Source Emission Rates*		
	Similar Sources	Emit Area sq ft	Control Technology Type	Percent Treated	Odor ou/s/m2	OFFSET OER	H2S ug/s/m2	Ammonia ug/s/m2	Odor ou/s	H2S ug/s	Ammonia ug/s
Buildings											
Dairy - loose housing	1	37968	None	0%	1.8	6.0	0.9	13.0	6494	3035	45879
Dairy - loose housing	1	55608	None	0%	1.8	6	0.9	13.0	9511	4445	67194
Dairy - loose housing	1	12000	None	0%	1.8	6	0.9	13.0	2052	959	14500
Dairy - loose housing	1	59210	None	0%	1.8	6	0.9	13.0	10127	4733	71547
Dairy - loose housing	3	1200	None	0%	1.8	6	0.9	13.0	205	96	1450
Area Sources											

*includes control technologies

Site Emissions	
Total Site Area (ft2)	165,986
Total Odor Emission Factor (TOEF)	99
Total Site H2S Emissions (mg/s)	13
Total Site H2S Emission AVERAGE (lbs/day)	3
Total Site H2S Emission MAX (lbs/day)	5
Total Site H2S Emissions (tons/yr)	0
Total Site Ammonia Emissions (mg/s)	201
Total Site Ammonia Emission AVERAGE (lbs/day)	38
Total Site Ammonia Emissions MAX (lbs/day)	76
Total Site Ammonia Emissions (tons/yr)	7

Source Edge to Nearest Neighbor (ft)	1740
OFFSET Annoyance-free frequency	96%



OFFSET Summary and Results

OFFSET Ver 2.0
University of Minnesota
8/1/2012

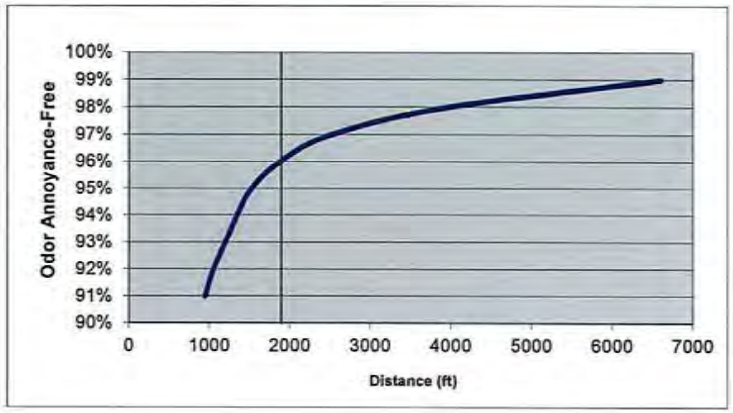
Farm Name	Schaefer
County	to Mark & Lynn Madsen site
Evaluator	
Date	

Source Characteristics Summary					Flux Rates (with control technology)				Source Emission Rates*		
	Similar Sources	Emit Area sq ft	Control Technology Type	Percent Treated	Odor ou/s/m2	OFFSET OER	H2S ug/s/m2	Ammonia ug/s/m2	Odor ou/s	H2S ug/s	Ammonia ug/s
Buildings											
Dairy - loose housing	1	37968	None	0%	1.8	6.0	0.9	13.0	6494	3035	45879
Dairy - loose housing	1	55608	None	0%	1.8	6	0.9	13.0	9511	4445	67194
Dairy - loose housing	1	12000	None	0%	1.8	6	0.9	13.0	2052	959	14500
Dairy - loose housing	1	59210	None	0%	1.8	6	0.9	13.0	10127	4733	71547
Dairy - loose housing	3	1200	None	0%	1.8	6	0.9	13.0	205	96	1450
Area Sources											

*includes control technologies

Site Emissions	
Total Site Area (ft2)	165,986
Total Odor Emission Factor (TOEF)	99
Total Site H2S Emissions (mg/s)	13
Total Site H2S Emission AVERAGE (lbs/day)	3
Total Site H2S Emission MAX (lbs/day)	5
Total Site H2S Emissions (tons/yr)	0
Total Site Ammonia Emissions (mg/s)	201
Total Site Ammonia Emission AVERAGE (lbs/day)	38
Total Site Ammonia Emissions MAX (lbs/day)	76
Total Site Ammonia Emissions (tons/yr)	7

Source Edge to Nearest Neighbor (ft)	1900
OFFSET Annoyance-free frequency	96%



OFFSET Summary and Results

OFFSET Ver 2.0
University of Minnesota
8/1/2012

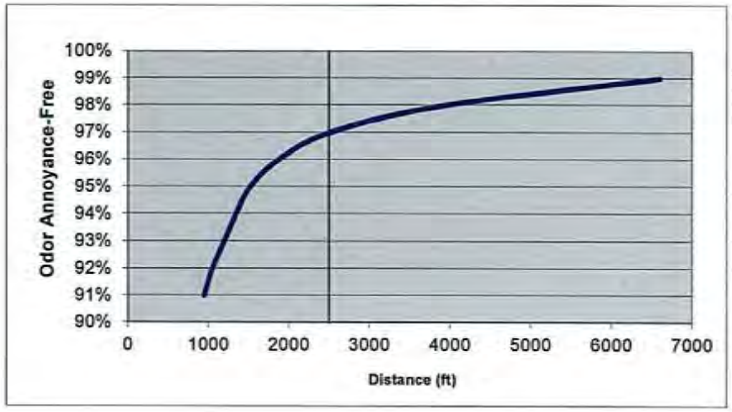
Farm Name	Schaefer
County	to half-mile sites
Evaluator	
Date	

Source Characteristics Summary					Flux Rates (with control technology)				Source Emission Rates*		
	Similar Sources	Emit Area sq ft	Control Technology Type	Percent Treated	Odor ou/s/m2	OFFSET OER	H2S ug/s/m2	Ammonia ug/s/m2	Odor ou/s	H2S ug/s	Ammonia ug/s
Buildings											
Dairy - loose housing	1	37968	None	0%	1.8	6.0	0.9	13.0	6494	3035	45879
Dairy - loose housing	1	55608	None	0%	1.8	6	0.9	13.0	9511	4445	67194
Dairy - loose housing	1	12000	None	0%	1.8	6	0.9	13.0	2052	959	14500
Dairy - loose housing	1	59210	None	0%	1.8	6	0.9	13.0	10127	4733	71547
Dairy - loose housing	3	1200	None	0%	1.8	6	0.9	13.0	205	96	1450
Area Sources											

*includes control technologies

Site Emissions	
Total Site Area (ft2)	165,986
Total Odor Emission Factor (TOEF)	99
Total Site H2S Emissions (mg/s)	13
Total Site H2S Emission AVERAGE (lbs/day)	3
Total Site H2S Emission MAX (lbs/day)	5
Total Site H2S Emissions (tons/yr)	0
Total Site Ammonia Emissions (mg/s)	201
Total Site Ammonia Emission AVERAGE (lbs/day)	38
Total Site Ammonia Emissions MAX (lbs/day)	76
Total Site Ammonia Emissions (tons/yr)	7

Source Edge to Nearest Neighbor (ft)	2500
OFFSET Annoyance-free frequency	97%



Conditions for Permit No. 12-16 (Keith Schaefer – former Roger Gilland site)

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. When applied to land, manure will 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 report any changes in spread agreements or spread areas to the Redwood County Environmental Office within thirty (30) days subsequent to any such change.

12. 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.

13. Dead livestock shall be stored and rendered in such a manner as to not create a nuisance. Disposal of dead livestock by burial is strictly prohibited.

14. 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 Alan Larsen, attached to the permit holder's application.

15. The Redwood County Environmental Office shall be contacted for two on-site inspections during the construction of the manure storage structures: once when the floor is ready to be poured, and once when the walls are ready to be poured.

16. No construction on the pit shall be done between October 15th and April 15th, except by approval of the Zoning Administrator.

17. The permit holder shall take any and all actions necessary to prevent the conditional use from contaminating County Ditch 109.

18. 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, the Redwood County Ordinances, State statutes, or Federal laws.

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

Keith Schaefer
Animal Confinement Feedlot Conditional Use Permit Application #12-16
September 26th, 2016

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 conditional use be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, or substantially diminish and impair property values within the immediate vicinity?

Yes _____ No _____

Supporting Facts:

2) Will the establishment of the conditional use impede on the normal and orderly development and improvement of surrounding vacant property for uses predominant to the area?

Yes _____ No _____

Supporting Facts:

3) Are there, or will there be provided, adequate utilities, access roads, drainage, and other necessary facilities?

Yes _____ No _____

Supporting Facts:

4) Have adequate measures been taken, or will adequate measures be taken, to provide sufficient off-street parking and loading space to serve the proposed use of the property?

Yes _____ No _____

Supporting Facts:

5) Have adequate measures been taken, or will adequate measures be taken, to prevent or control offensive odor, fumes, dust, noise and vibration, so that none of these will constitute a nuisance, and to control lighted signs and other lights in such a manner that no disturbance to neighboring properties will result?

Yes _____ No _____

Supporting Facts:

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

Yes _____ No _____

Supporting Facts:

NAME: _____ DATE: _____