

Environmental Assessment Worksheet

Alternative EAW Form for Animal Feedlots

December 2024 version

This form is authorized to prepare Environmental Assessment Worksheets (EAWs) for **animal feedlots**. This most recent Environmental Assessment Worksheet (EAW) Alternative Form for Animal Feedlots (and guidance) is available at the [Environmental Quality Board's \(EQB\) website](#). This form provides information about a project that may have the potential for significant environmental effects. Guidance documents provide additional detail and links to resources for completing the EAW form.

Cumulative potential effects can be addressed under each applicable EAW Item or collectively under EAW Item 21.

Note to reviewers

Comments must be submitted to the Responsible Governmental Unit (RGU) during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation, and the need for an EIS.

1. Feedlot Project Title:

2. Proposer:	2a. Consultant assisting in EAW completion (if applicable):	3. Responsible Governmental Unit (RGU):
<i>Company</i>	<i>Company</i>	<i>Government Body</i>
<i>Contact Name</i>	<i>Contact Name</i>	<i>Contact Name</i>
<i>Title</i>	<i>Title</i>	<i>Title</i>
<i>Address</i>	<i>Address</i>	<i>Address</i>
<i>City, State, Zip</i>	<i>City, State, Zip</i>	<i>City, State, Zip</i>
<i>Phone</i>	<i>Phone</i>	<i>Phone</i>
<i>Email</i>	<i>Email</i>	<i>Email</i>

4. Reason for EAW Preparation: *Choose an item.*

- a. **MN Rule 4410.4300 subp. 29. – Animal Feedlots.** If EAW is mandatory, does subpart A or B apply?
Choose an item.

5. Project Location:

- a. County:
b. City or Township:
c. Legal Description (¼, ¼, Section, Township, Range):
d. Watershed in 81 major watershed scale, Hydrologic Unit Code (HUC) 8:
e. GPS Coordinates:
f. Tax Parcel Number:
g. **At a minimum, attach each of the following to the EAW:**
- County map showing the general location of the project

- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries
- Site plan showing all significant project and natural features for pre- and post-construction
- Map showing manure application sites, manure storage, permanent manure stockpiles, and setback buffers
- Map showing all wells, tile inlets, residences, and sensitive receptors within a one-mile radius of the feedlot or on manure land application sites
- Feedlot Permit Application (SDS, NPDES)
- Map of Tribal boundaries within 10 miles
- List of data sources, models, and other resources (from the Item-by-Item Guidance: *Climate Adaptation and Resilience* or other) used for information about current Minnesota climate trends and how climate change is anticipated to affect the general location of the project during the life of the project (as detailed below in item 7. Climate Adaptation and Resilience)

6. Project Description:

- Provide the brief project summary to be published in the *EQB Monitor* (approximately 50 words).
- Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion, include a description of the existing facility; emphasize:
 - purpose of the project,
 - construction, operation methods, and features that will cause physical manipulation of the environment or will produce waste,
 - modifications to existing equipment or industrial processes,
 - significant demolition, removal, or remodeling of existing structures,
 - timing and duration of construction activities,
 - any future plans/stages for this project including an anticipated timeline and plans for environmental review, and
 - any past stages of this project, including timeframe and environmental review proceedings.
- Provide facility information.

Facility components (show on site map)			
<i>Animal holding areas</i>	Existing/Proposed	Total quantity	Total area (sq ft)/volume (gal)
• Total confinement barns			
• Partial confinement barns			
• Open lots			
• Individual animal housing areas			
<i>Manure storage areas</i>	Existing/Proposed	Total quantity	Total area (sq ft)/volume (gal)
• Liquid manure storage areas			
• Solid manure storage areas			
<i>Other components</i>	Existing/Proposed	Total quantity	Total area (sq ft)/volume (gal)
• Feed storage areas			

• Mortality management areas			
• Etc.			

d. Provide animal information.

Animal type	Number existing	Animal units existing	Number after project	Animal units after project
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
TOTAL	N/A		N/A	

e. Provide annual manure generation information.

Animal type	Existing annual generation		After project annual generation	
	liquid (gal)	solid (ton)	liquid (gal)	solid (ton)
Swine				
Dairy cattle				
Beef cattle				
Turkeys				
Chickens				
Other (Identify species)				
TOTAL				

f. Check any of the items below that are part of the manure management system proposed for this feedlot.

- ☐ Stockpiling
- ☐ Liquid storage under barns
- ☐ Liquid storage outside of barns
- ☐ Dry manure/litter pack
- ☐ Dry manure/litter under barn storage
- ☐ Manure composting system
- ☐ Anaerobic digestion
- ☐ Manure solids separation
 - i. Manure storage capacity (number of months/days):
 - ii. Land available for manure application (acres):
 - iii. Land needed for manure application (acres):

- g. Are future stages of this development including development on any other property planned or likely to happen? If yes, briefly describe future stages, relationship to the present project, timeline, and plans for environmental review.
- h. Is this project a subsequent stage of an earlier project? If yes, briefly describe the past development, timeline, and any past environmental review.

7. Climate Adaptation and Resilience:

- a. Describe the climate trends in the general location of the project and how climate change is anticipated to affect that location during the life of the project. See guidance: EQB Climate Adaptation and Resilience, Section 2, and the Feedlot EAW Guidance document. Examples are shown in italics, below. List which climate trends and projections resource tool(s) was used in completing the EAW and describe how it was used.

State of Minnesota historic climate trends (data-driven) and projected climate changes (model-driven)	County/local trends	Project impacts (climate effects on project location)
Average annual temperature increasing		<i>e.g., Site may be subject to increased air conditioning loads to grid, interior and exterior infrastructure.</i>
Average annual precipitation increasing		<i>e.g., Increased run-off and erosion may affect soil/site stability.</i>
Cold weather warming		<i>e.g., Decreased snow cover may affect vegetation cover that leads to increased soil erosion.</i>
Heavier, more damaging rains		<i>e.g., Vegetation changes, stressors, more exposed soils in winter.</i>
Increasing heat waves		<i>e.g., Construction materials may break down quicker in high heat conditions.</i>
Increasing risks of drought		<i>e.g., Limitations on groundwater, surface water for use in dust reduction.</i>
Optional: Additional relevant climate variables		

- b. For each Resource Category in the table below, describe how the project's proposed activities and how the project's design will interact with those climate trends. Describe proposed adaptations to address the project effects identified. Refer to Feedlot Guidance and EQB EAW Guidance and complete the table below using the information from those guidance documents. Examples are shown in italics, below.



Refer to Feedlot EAW Guidance, Section 7, to help complete the table below.

Resource category	Climate trends and climate projections	Project components	Potential environmental effects Identify climate change risks & vulnerabilities to the project component. Identify long-term impacts that climate conditions pose to proposed activities.	Adaptation strategies (with applicable timeframe – construction to end of expected lifespan)
Project design	Average annual temperature increasing	<i>e.g., Increased impervious surfaces.</i>	<i>e.g., Environmental impact not foreseen with interaction between impervious surfaces and average temperature increasing.</i>	<i>e.g., Decrease impervious surfaces where possible.</i>
		<i>e.g., Increased constructed surfaces, such as dark roofing and asphalt.</i>	<i>e.g., Increased heat absorption during the day that is radiated at night, which increases heat island effect and amplifies warming temperatures of climate change.</i>	<i>e.g., Use of light-colored building materials and surfaces to reduce heat absorption. Regular maintenance and updates to infrastructures, as needed, for life of project.</i>
		<i>e.g., Increased quantity of concrete and building construction materials, and infrastructure.</i>	<i>e.g., Infrastructure more vulnerable to damage and deterioration from elevated temperatures.</i>	<i>e.g., Use of construction materials that are resilient to increasing temperatures for the life of the project.</i>
	Average annual precipitation increasing	Repeat all project components for each climate trend and projection ↓	Discuss potential environmental effects with each project component ↓	List adaptation strategies for each project component ↓
	Cold weather warming			
	Heavier, more damaging rains			

Resource category	Climate trends and climate projections	Project components	Potential environmental effects Identify climate change risks & vulnerabilities to the project component. Identify long-term impacts that climate conditions pose to proposed activities.	Adaptation strategies (with applicable timeframe – construction to end of expected lifespan)
	Increasing risk of heatwaves			
	Increasing risk of drought			
Land use	Address in item 10	Address in item 10	Address in item 10	Address in item 10
Water resources	Address in item 12	Address in item 12	Address in item 12	Address in item 12
Contamination/Hazardous Materials/Wastes	Address in item 13	Address in item 13	Address in item 13	Address in item 13
Fish, wildlife, plant communities, and sensitive ecological resources (rare features)	Address in item 14	Address in item 14	Address in item 14	Address in item 14

8. Cover Types:

Estimate the acreage of the site with each of the following cover types before and after development:

Cover types	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)		
Deep lakes (>2 meters deep)		
Wooded/forest		
Rivers/streams		
Brush/grassland		
Cropland		
Livestock rangeland/pastureland		
Lawn/landscaping		
Green infrastructure TOTAL (from table below*)		
Impervious surface		
Stormwater pond (wet sedimentation basin)		
Other (describe)		
TOTAL		

Green infrastructure*	Before (acres)	After (acres)
Constructed infiltration systems (infiltration basins/infiltration trenches/ rainwater		
Gardens/bioretention areas without underdrains/swales with impermeable check dams)		
Constructed tree trenches and tree boxes		
Constructed wetlands		
Constructed green roofs		
Constructed permeable pavements		
Other (describe)		
TOTAL*		

Trees	Percent	Number
Percent tree canopy removed, or number of mature trees removed during development		
Number of new trees planted	N/A	

9. Permits and Approvals Required: List all known local, state, and federal permits, approvals, certifications, and financial assistance for the project. Include modifications of any existing permits, governmental

review of plans, and all direct and indirect forms of public financial assistance, including bond guarantees, Tax Increment Financing, and infrastructure. ***All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.***

a. MPCA

i. Feedlot permit

☐ Planned ☐ Submitted ☐ Denied ☐ Not required

ii. Construction stormwater permit

☐ Planned ☐ Submitted ☐ Denied ☐ Not required

b. DNR

i. Water appropriations

☐ Planned ☐ Submitted ☐ Denied ☐ Not required

c. City/Township/County

i. ☐ Planned ☐ Submitted ☐ Denied ☐ Not required

d. Tribe

i. ☐ Planned ☐ Submitted ☐ Denied ☐ Not required

e. Other (Feedlot permit, rezoning, variance): *Please note permit here.*

☐ Planned ☐ Submitted ☐ Denied ☐ Not required

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 10-20, or the RGU can address all cumulative potential effects in response to EAW Item No. 22. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 21.

10. Land Uses:

a. Describe:

- i. Existing uses of the site as well as adjacent lands to and near the site, and give the distances and directions to nearby residences, schools, daycare facilities, senior citizen housing, places of worship, open space, cemeteries, trails, prime or unique farmlands, tribal lands, and other places accessible to the public (including roads) within one mile of the feedlot and within or adjacent to the boundaries of the manure application sites.
- ii. Planned land use as identified in a comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.
- iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic river, critical area, agricultural preserve, etc.
- iv. If any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) are proposed in floodplain areas and other areas identified as at risk for localized flooding, describe the risk potential considering changing precipitation and event intensity.

- b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 10a above, concentrating on implications for environmental effects.
- c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above and any risk potential.

11. Geology, Soils and Topography / Landforms:

- a. **Geology** – Describe the geology of the underlying project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

Geologic features	Project site	Manure application site
Unconfined or shallow aquifer?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 50 ft of soil cover over karst susceptible bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Less than 40 inches of soil cover over karst susceptible bedrock?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Karst features ^a within 300 ft?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

^a Karst features include sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys

- b. **Soils and topography** – Describe the soils on the site, giving Natural Resources Conservation Service (NRCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes or highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12, b. ii. Soils information for the manure land application sites will be addressed in Item 12, b., V.

NRCS soil	Feedlot	Manure storage area
List classifications	X	X

12. Water Resources:

- a. Describe surface water and groundwater features on or near the site and manure application areas below and on attached maps.
 - i. **Surface water** – lakes, streams, wetlands, intermittent streams, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303(d) Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s) if any.

- ii. **Groundwater** – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) federal equivalent to wellhead protection areas or drinking water supply management areas found near/within tribal boundaries; 4) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells on site or nearby, explain the methodology used to determine this.
- iii. **Risks to Groundwater** – Indicate **Yes or No** whether any of the following **geologic site risks to ground water** are present at the feedlot, manure storage area, or manure application sites. If yes, describe the features, show them on a map, and discuss proposed design and mitigation measures to avoid or minimize potential impacts.

Geologic site risks to groundwater	Feedlot	Manure storage area	Manure application sites
Karst features (sinkhole, cave, resurgent spring, disappearing spring, karst window, blind valley, or dry valley)			
Exposed bedrock and /or limited unconsolidated cover soils			
Soils developed in bedrock (as shown on soils maps)			
Sandy soils and/or sand plain			

- b. Describe effects from project activities on water resources and measures to minimize or mitigate the effects in items below.
 - i. **Wastewater** – All sewage produced in Minnesota must be disposed of in accordance with Minn. R 7080.2450 Subp. 6. This rule requires that “Septage or any waste mixed with septage must be disposed of in accordance with state, federal, and local requirements for septage and other wastes.” As such, anyone wishing to co-mix sewage with animal manure is allowed to do so provided all state, federal, and local regulations are met. Currently, state regulations require adherence with the federal regulations found within 40 C.F.R. § 503. Additionally, local units of government within Minnesota may have supplementary ordinance requirements that must be followed. All material that comes into contact with sewage must be treated to the same requirements as sewage alone. Furthermore, any other regulations which apply to the material the sewage is mixed with must also be followed.

For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic, and industrial wastewater produced or treated at the site.

- (1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.
- (2) If the wastewater discharge is to a subsurface sewage treatment system (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity, and amount with this discussion.

- (3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.
- ii. **Stormwater** – Describe the following:
- (1) changes in surface hydrology resulting from change of land cover;
 - (2) routes and receiving water bodies for runoff from the project site (immediate receiving waters and major downstream water bodies);
 - (3) environmental effects from stormwater discharges on receiving waters post-construction including affected runoff volume, discharge rate, and change in pollutants,
 - (4) effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity;
 - (5) total number of acres that will be disturbed and describe the stormwater pollution prevention plan (SWPPP) (for projects requiring NPDES/SDS Construction Stormwater permit coverage), include best management practices to address soil erosion and sedimentation during and after project construction;
 - (6) permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices;
 - (7) any receiving waters that have construction-related water impairments or are classified as special as defined in the Construction Stormwater permit;
 - (8) additional requirements for special and/or impaired waters.
- iii. **Water appropriation** – Describe the following:
- (1) if the project proposes to appropriate surface or groundwater (including dewatering);
 - (2) the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required;
 - (3) any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure;
 - (4) environmental effects from water appropriation, including an assessment of the water resources available for appropriation;
 - (5) how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons;
 - (6) any measures to avoid, minimize, or mitigate environmental effects from the water appropriation;
 - (7) contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.
 - (a) Current water use (gal/yr):
 - ☐ Not applicable
 - (b) Proposed water use (gal/yr):
 - (c) Water supply source:
 - ☐ Existing well
 - ☐ New well

- ☐ Public supply
- ☐ Other:
- (d) Aquifer test required by DNR? ☐ Yes ☐ No

iv. **Surface Waters**

(1) **Wetlands** – Describe the following:

- (a) any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal;
- (b) direct and indirect environmental effects from physical modification of wetlands, (include anticipated effects to the host watershed, taking into consideration how current Minnesota climate trends may be affected);
- (c) measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands;
- (d) required compensatory wetland mitigation for unavoidable wetland impacts that will occur in the same minor or major watershed and identify those probable locations.

(2) **Other surface waters** – Describe the following:

- (a) anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent streams, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal, riparian alteration, drain tiling, and tile inlets or outlets. Show these features on maps;
- (b) direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects;
- (c) measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water best management practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features;
- (d) how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage;
- (e) quantity and quality of site runoff before and after the project;
- (f) permanent controls to manage or treat runoff. Identify water resource affected and give the DNR Protected Waters Inventory (PWI) number(s) if the water resources affected are on the PWI;
- (g) proposed mitigation measures to avoid or minimize impacts.

v. **Manure management.** Describe how manure will be collected and stored at this facility. Include a description of any manure processing activities such as liquid solid separation and anaerobic digestion. Attach a copy of the Manure Management Plan (MMP). If an anaerobic digester will process manure, list any other feedstocks used in the digester.

(1) **Manure removal activities.**

(a) Manure removal frequency:

- ☐ Once per year
- ☐ Twice per year
- ☐ Other:

(b) Time required for manure removal (days/year):

(2) **Manure transfer.** Will any amount of manure be transferred to a third party for land

application?

☐ Yes – complete a-c below ☐ No – skip a-c below

(a) Estimated amount of manure transferred throughout the year:

Transfer timeframe (months)	Liquid (gal)	Solid (ton)
• <i>e.g. October 1-14</i>		
•		
TOTAL		

(b) Describe the protocols used to ensure information about nutrient content, nitrogen and phosphorus rate requirements, and setback requirements are made available to the recipient.

(c) Describe efforts to limit the potential for application of transferred manure to fields without actively growing crops during the summer and during frozen or snow-covered conditions.

(3) **Manure Land Application (non-transfer).** Will any amount of manure be applied to fields owned, leased, rented, or otherwise controlled by any member of the ownership entity of the feedlot?

☐ Yes – complete a-e below ☐ No – skip a-e below

(a) Estimated amount of manure applied throughout the year:

Application timeframe	Liquid (gal)	Solid (ton)
• <i>e.g. October 1-14</i>		
•		
TOTAL		

(b) Describe anticipated manure application technologies and methods of application and incorporation. Include measures to limit the potential for runoff, especially for manure applied in winter conditions.

(c) Describe measures used to manage field soil phosphorous levels to prevent excessive phosphorus build-up.

(d) Describe any measures (Best Management Practices) used to limit the potential for nitrate impacts to water resources.

(e) If land application acres drain to a waterbody with an impairment, describe the measures used to limit land application effects on the impairment.

(4) **Manure application fields.**

(a) **General description.** Describe each land application field with the following:

- (i) Field name/ID, location (Township-Range-Section), tillable acres, predominant soil type, field tiling system, irrigation system, description of bordering lands/roads, waters (within 2 miles) receiving runoff or tile line flow, etc.... Include DNR Public Waters

Inventory numbers (if available) and any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water.

- (b) Map the manure application fields. Show on a map the following within or near (300 ft) land application fields:
 - (i) Lakes, rivers, streams, intermittent streams, wetlands, county/judicial ditches, open tile intakes, wells, springs, Karst features (Sinkholes, caves, resurgent springs, disappearing springs, karst windows, blind/dry valleys)
- (c) Additional field sensitivity information. Below each of the following items list any fields that meet the criteria described.
 - (i) Fields within Drinking Water Supply Management Areas (DWSMAs) or Source Water Protection Areas (SWPAs) with medium to high vulnerability, including tribal drinking water supply areas.
 - (ii) Fields planned for winter manure applications.
 - (iii) Fields with soil phosphorous tests levels above 21 ppm Bray 1 or 16 ppm Olson and have surface water within 300 feet.
 - (iv) Fields with soil phosphorous tests levels above 75 ppm Bray 1 or 60 ppm Olson.
 - (v) Fields that could receive broadcast manure (not immediately incorporated) that have slopes at 6% or greater.
- (d) Using Web Soil Survey data, list any fields with at least 33% of the acreage that meets the following:
 - (i) sensitive aquifer assessment rating
 - (ii) soil texture of sand, loamy sand, loamy coarse sand, fine sand, loamy fine sand, coarse sand, or very fine sand
 - (iii) depth to bedrock of 40 inches or less
 - (iv) soil erosion ("T factor") rating of 5 or more tons/acre/year
 - (v) frequently flooded
- (5) **Manure application setbacks.** Describe any required township/county/state setbacks for land application systems. Show as a buffer on maps.
- (6) **Other methods of manure utilization.** If the project will utilize manure other than by land application, please describe the methods. If the project includes an anaerobic digester or one exists on-site include that information here.

13. Contamination/Hazardous Materials/Wastes:

- a. Pre-project site conditions — Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.
- b. Project related generation/storage of solid wastes — Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential

environmental effects from solid waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.

- c. Project related use/storage of hazardous materials — Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location, and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size, and age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.
- d. Project related generation/storage of hazardous wastes — Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.
- e. Dead animal disposal — Describe the quantities of dead animals anticipated, the method for storing and disposing of carcasses, and frequency of disposal. What is the response to a major disease or death event? Identify local ordinance restrictions for animal disposal, composting, etc.

14. Fish, Wildlife, Plant Communities, and Sensitive Ecological Resources (Rare Features):

- a. Describe fish and wildlife resources as well as habitats and vegetation on or near the site.
- b. Describe rare features such as state-listed (endangered, threatened, or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (ERDB ____) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.
- c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.
- d. Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.

15. Historic and Cultural Resources: Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include 1) historic designations, 2) known artifact areas, 3) architectural features, 4) Tribal connections to the site. Attach any comment letters received from the state, Tribal, or other governmental organizations. Discuss anticipated effects to historic properties and cultural resources during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties and cultural resources.

16. Visual: Describe any scenic views or vistas on or near the project site. Describe any project-related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

17. Air/Odor Emissions: Describe the following.

- a. Stationary source emissions –
 - i. type, sources, quantities, and compositions of any hazardous air pollutants and criteria pollutants emissions from stationary sources;
 - ii. effects on air quality including any sensitive receptors, human health, or applicable regulatory criteria. Include a discussion of any methods used to assess the project’s effect on air quality and the results of that assessment;
 - iii. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions;
 - iv. proposed feedlot design features or air or odor emission mitigation measures to be implemented to avoid or minimize potential adverse impacts and discuss their anticipated effectiveness.

If no feedlot design features or mitigations were proposed, provide a summary of the results of an air emissions modeling study designed to compare predicted emissions at the property boundaries with state standards, health risk values, or odor threshold concentrations. The modeling must incorporate an appropriate background concentration for hydrogen sulfide to account for potential cumulative air quality impacts.

- b. Vehicle emissions – Describe the effect of the project’s traffic generation on air emissions. Discuss the project’s vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.
- c. Dust and odors – Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation, and any proposed measures to mitigate adverse impacts. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors. Describe any plans to notify neighbors of operational events (such as manure storage agitation and pump out) that may result in higher-than-usual levels of air or odor emissions.

18. Greenhouse Gas (GHG) Emissions/Carbon Footprint:

- a. GHG Quantification: For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation. Refer to EAW Guidance, Section 18 and GHG calculator tools.

The following tables list some examples, but the user must complete tables based on their project components; other layouts are acceptable for providing GHG quantification results.

Construction emissions

Scope	Type of emission	Emission sub-type	Project-related CO ₂ e emissions (tons/year)	Calculation method(s)
<i>Scope 1</i>	<i>Combustion</i>	<i>Mobile equipment</i>		
<i>Scope 1</i>	<i>Land use</i>	<i>Conversion</i>		
<i>Scope 1</i>	<i>Land use</i>	<i>Carbon sink</i>		
TOTAL				

Operational emissions

Scope	Type of emission	Emission sub-type	Existing facility CO ₂ e emissions (tons/year)	Project related CO ₂ e emissions (tons/year)	Total CO ₂ e emissions (tons/year)	Calculation method(s)
Scope 1	Combustion	Mobile equipment				
Scope 1	Combustion	Stationary equipment				
Scope 1	Combustion	Area				
Scope 1	Non-combustion	Stationary equipment				
Scope 1	Land Use	Carbon Sink				
Scope 2	Off-site electricity	Grid-based				
Scope 2	Off-site steam production	Not applicable				
Scope 3	Off-site waste management	Area				
TOTAL						

b. GHG assessment

- i. Describe any mitigation considered to reduce the project's GHG emissions.
- ii. Describe and quantify reductions from selected mitigation, if proposed to reduce the project's GHG emissions. Explain why the selected mitigation was preferred.
- iii. Quantify the proposed project's predicted net lifetime GHG emissions (total tons/# of years) and how those predicted emissions may affect the achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

19. Noise:

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures taken to minimize or mitigate the effects of noise.

20. Transportation:

- a. Describe traffic-related aspects of project construction and operation. Include:
 - i. existing and proposed additional parking spaces,
 - ii. estimated total average daily traffic generated,
 - (1) Estimate the number of heavy truck trips generated per week and describe their routing over local roads. Describe any road improvements to be made.
 - (2) Identify manure application routes and crossings, types of hauling equipment, impacts to road surface, and impacts to traffic. Identify use and road crossings of drag hoses.
 - iii. estimated maximum peak hour traffic generated and time of occurrence,
 - iv. source of trip generation rates used in the estimates, and

- v. availability of transit and/or other alternative transportation modes.
- b. Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. Discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (*available at: <http://www.dot.state.mn.us/accessmanagement/resources.html>*) or a similar local guidance.
- c. Identify measures that will be taken to minimize or mitigate project-related transportation effects.
- d. Will new or expanded utilities, roads, other infrastructure, or public services be required to serve the project?
☐ Yes ☐ No

If yes, please describe.

21. Cumulative Potential Effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)

- a. Describe the geographic scales and timeframes of the project-related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.
- b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with the environmental effects of the proposed project within the geographic scales and timeframes identified above.
- c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

22. Other Potential Environmental Effects: If the project may cause any additional environmental effects not addressed by items 1 to 20, describe the effects here, discuss how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

RGU CERTIFICATION.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages, or components other than those described in this document, which are related to the project as “phased actions,” pursuant to Minn. R. 4410.0200, subp. 60, 4410.1000, subp. 4, and 4410.4300, subp. 1.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature _____

Date _____

Title _____

The format for the alternative Environmental Assessment Worksheet form has been approved by the Chair of the Environmental Quality Board pursuant to Minn. R. 4410.1300 for use for animal feedlot projects (Minn. Rule 4410.4300 subp. 29.). For additional information contact: Environmental Quality Board, 520 Lafayette Road, St. Paul, Minnesota, 551554194, 651-296-6300, or visit the [Environmental Review Program](#) website.