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## 1. Nutrient Management Plan

This Nutrient Management Plan has been prepared for Ron Bruns Feed Yards – East Place, which encompasses an existing feedlot with a capacity of 2,800 head of beef cattle. The manure and effluent will be properly utilized by applying it to cropland as fertilizer or irrigation water. The plan will provide management with a system to comply with state and federal regulations and provide the Nebraska Department of Environment and Energy with a means of monitoring, measuring and determining compliance.

The plan follows the narrative approach in that it describes the methods and procedures that will be used for determining nutrient application rates. It considers the production, loss and utilization of nutrients by crops in order to preserve the local natural resources.

### 1.1 Application Sites

The facility management owns or has contracted an ample amount of land for the application of solid and or liquid manure. The parcels included in this plan are identified on the attached field maps and cross-referenced on the Land Application Site Summary. These agricultural lands are used for production of agricultural commodities or grazing as determined annually by the land owner or operator. Management of the facility will coordinate the appropriate application of manure with the land owner or operator prior to each spreading event. A projection is included with this plan to determine sustainability or need for further acquisition of land for nutrient distribution.

Maps of the applications sites have been created using GIS software and are included as an appendix to this document.

Management will implement and adhere to the following operational guidelines when applying manure or effluent water. Management shall be responsible to account for all sources of nutrients prior to applying manure to land application sites covered in this plan.

### 1.2 Maximum Application Rates

Projections determining the application rates will be conducted on all sites destined to receive manure for the current or next growing season prior to spreading. Projections will be made for all crops or alternative crops covered in this plan.

In general, the method of determining manure application rates will be to establish the usage of nutrients by crops or crop rotation and subtracting nutrients in the soil and all credits.

| |
|---|
| nutrient requirement / manure nutrient content = application rate |

#### 1.2.1 Nitrogen Basis

The primary planning of application rates will be based upon Nitrogen as the desired target nutrient provided other nutrients remain in check. Manure will be applied at

agronomic rates based upon Nitrogen demand of a crop for a single growing season. In some cases, fields may produce two crops in a single growing season if preferred by the management of the land.

### 1.2.2 Multi-Year Phosphorus Basis

Manure or nutrients may be applied in a single growing season to provide for multiple growing seasons of phosphorus uptake of the crop or crop rotation. The level of phosphorus will be evaluated prior to the application events by a consultant or qualified individual.

### 1.2.3 Phosphorus Basis

A phosphorus index will be conducted at a minimum every 5 years. Phosphorus may be used as a secondary means of determining application rates if the deemed necessary by the phosphorus index. The index and all other relevant conditions will be used in an evaluation by the consultant or qualified individual to assess the transport phosphorus from the application fields. Management shall notify NDEE of any site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices to control runoff of pollutants.

### 1.2.4 Factors Determining Rate

The factors that will be used to determine the rate of application of manure and effluent are detailed as follows:

1. Soil analysis results
2. Manure analysis results
3. Crop nutrient requirement
4. Yield goal of the crop to be grown
5. Loss of nutrients in manure through volatilization and or mineralization
6. Projected Credits for all nitrogen that will be plant available
7. Method of application and timing

University of Nebraska recommendations, NRCS 590 standards, or equivalent will be used to determine the application rates. Application rates and management methods will be adjusted based on actual field logs, including but not limited to, plant tissue testing and the use of a Chlorophyll Meter to detect any nitrogen deficiencies.

## 1.3 Manure and Effluent Analysis

Analyze manure, litter, and process wastewater annually for nitrogen and phosphorus content. The number of samples taken will be determined by site specific criteria.

All samples will be extracted and analyzed according to normally accepted practices or the procedures suggested by the University of Nebraska ***NebGuide G1450*** or the NRCS 590-Standard, however the testing laboratory may determine the appropriate method of analysis based

upon the material being analyzed. The results of soil and manure analysis shall be used to determine appropriate land application rates.

## 1.4 Soil Analysis Procedures

The land identified in this plan that is to receive solid or liquid waste in the next growing season shall be sampled and analyzed for nutrient content prior to nutrient application. It shall be at the discretion of the facility management to conduct samplings on land that is not intended to receive manure within the next growing season. UNL guidelines or NRCS 590 standards for sampling and analysis will be used.

### 1.4.1 Timing of Soil Sampling

The timing of soil sampling may be either after harvest or prior to planting, prior to application of nutrients.

### 1.4.2 Depth of Soil Sampling

Management will conduct a surface (0 to 8 inch) and a subsurface (8 to 24 inch) soil test on all application sites that are about to receive manure in any given year. Typically, the bottom depth of the shallow sample is 8 inches from the surface but may differ depending upon local conditions. A deep sample analysis shall be performed starting at the bottom depth of the shallow sample extraction and continuing to a minimum of 24 inches below the surface. Deep nitrate soil tests are required whenever manure will be applied with the following exceptions and guidelines from the NRCS 590 Standard:

- *Non-legume crops following annual or biennial legumes (i.e. corn following soybeans/edible beans/sweet clover)* – Deep nitrate tests are required whenever nitrates may be elevated due to previous year manure application, drought, previous crop was hailed out, or any reason that nitrate levels could be elevated.
- *Non-legume crops following alfalfa or other perennial legume (i.e. corn following alfalfa):* Deep nitrate tests are not necessary unless there is a reason to believe they are elevated.
- *Pastures/CRP* – Deep nitrate tests are not necessary unless there is a reason to believe they are elevated. Refer to current NebGuide G78-406-A "Fertilizing Grass Pastures and Haylands".
- Deep nitrate tests are not required when 20 lbs. of nitrogen or less is applied via starter fertilizer and where starter fertilizer is the only source of commercial fertilizer.
- When deep nitrate tests are not taken, an assumed value of at least 3-ppm or 15 lbs/acre for residual nitrate values will be used in the nutrient budget in addition to appropriate nitrogen credits when following legumes.

### 1.4.3 Soil Sampling Density

Soil samples may be combined to form a composite sample representing an area of 40 acres of land but may be expanded or decreased depending upon specific site conditions as determined by the consulting agronomist or land owner or land operator.

### 1.4.4 Soil Analysis Requirements

Analyze soil at each application site for nitrogen content prior to the first application of any manure, litter, or process wastewater and then at least annually thereafter when used for application. Analyze soil at each application site for phosphorus content prior to the first application of any manure, litter, or process wastewater and then at least once every 5 years thereafter if used anytime in the 5 years for land application.

### 1.4.5 Phosphorus Forms

Due to site specific conditions the form of phosphorus analysis to be carried out will be at the discretion of the consulting agronomist or land owner and operator.

## 1.5 Irrigation Water Analysis Requirements

At a minimum irrigation water will be sampled prior to initial use and at least once every five years thereafter for nitrogen. UNL guidelines for collecting and analysis will be used.

## 1.6 Crop Rotations

The primary crop rotation will be corn and soybeans. Due to annual variations in weather and market conditions the exact rotation of crops will be determined on an annual basis by the land manager and consulting agronomist.

## 1.7 Alternative Crops

Alternative crops not detailed on this plan may be cultivated for the utilization of manure nutrients. When alternative crops are planned the manure, planning will be altered to account for the crop differences. Projections will be made prior to applications to account for differences in crops. Alternative crops, yields, and N & P recommendations are listed on the Crop Management attachment and Ward Guide.

## 1.8 Historic Yield Data

Crop yield data for this facility was obtained from the National Agricultural Statistics Service web site http://www.nass.usda.gov/Statistics_by_State/index.asp . The yield goal used for projections is derived by calculating the five-year county average plus an additional 10%. Yield goals may also be derived from Farm Service Agency crop certifications or other certified yields. The ten percent increase was used to account for developments in agricultural technology and proper nutrient management over that time frame.

## 1.9 Solid Manure Application

### 1.9.1 Solid Manure Application Timing

The majority of the manure will be applied between harvest and planting. As weather permits, manure application will take place anytime.

### 1.9.2 Transportation of Solid Waste

The solid manure generated from the facility will be transported to the application sites using 2 – 14-ton manure spreaders. The facility owns or will obtain the equipment for such hauling and distribution. In addition, the management of the facility may at any time retain a custom manure hauling company for the purpose transportation or application of the manure.

Care will be taken by the applicator to prevent spills and ensure proper maintenance of the facility. The Emergency Response Plan (ERP) contained at the end of this section will be implemented should any accidents arise.

## 1.10 Effluent Application

Effluent will be land applied according to this plan following agronomic rates. If application of effluent from the holding ponds is subject to runoff, the operation shall discontinue irrigation applications until conditions improve.

### 1.10.1 Change in Method or Location of Distribution

Management shall notify NDEE in writing prior to changing the method or location of effluent distribution.

### 1.10.2 Method of Effluent Application

The holding pond is pumped to a pivot irrigation distribution system as illustrated on the Irrigation Distribution Site map and labeled as Site(s) #1, #2, #3, & #11 covering 94.5 acres. A portable, 700-gpm electric pumping station will be used to feed the irrigation system. The pumping equipment is connected by an 8" high-pressure underground pipe to the irrigation distribution system. A forecast of the amount of effluent and nutrient balance has been included on the Planned Manure Application Worksheet. The land area for application of wastewater is identified on the attached Land Application Site Summary Sheet.

### 1.10.3 Effluent Application Timing

The majority of the effluent will be applied during the growing season as a side-dress application. Effluent can also be applied either late fall after harvest, winter, or early spring prior to planting, as weather permits.

### 1.10.4 Check Valve Assembly

The irrigation distribution system will have a check valve or total disconnect system to prevent effluent from entering the well. The check valve will be approved and inspected by the local NRD or a qualified individual. The facility also has the option of disconnecting from any irrigation water source during livestock waste application and therefore no check valve is required.

### 1.10.5 Surface Water Considerations

Management will not apply or stockpile manure and effluent within 100 feet of any surface waters, open tile line intake structures, well head, or other conduits to surface or ground water. Stockpiles of livestock waste shall be located to prevent a discharge to waters of the state.

### 1.10.6 Compliance Alternatives

The following two compliance alternatives may be substituted for the application setback requirement:

A 35-foot-wide vegetated buffer where the application of manure is prohibited. For the purposes of this document vegetated buffer means a permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients leaving the field and reaching waters of the state; or

A satisfactory demonstration that a setback or buffer is not necessary because implementation of alternative conservation practices will provide pollutant reductions equal to or better than reductions that would be achieved by the 100-foot setback.

## 1.11 Addition/Removal of Application Sites

Management will provide NDEE with written notification of any additions or deletions of land available for manure application. Such changes will be incorporated into this plan and resubmitted to the NDEE.

## 1.12 Manure Gifted, Traded or Sold

Management will keep a record of any manure or effluent that is sold, gifted or traded and will not be responsible for keeping record of or determining distribution rates of such manure. Records of manure transactions will detail the date, amount of manure transferred on a daily basis, party sold or given to, and any other details of the transfer. Management will provide the receiving party a representative manure analysis report.

## 1.13 Training

Management will attend or participate in the NDEE approved training for land application as specified in Title 130 every five years or as required.

## 1.14 Nutrient Management Plan Record Keeping

The plan will contain the following information and be maintained by the facility management and will be made available to NDEE upon request. These records shall be retained for a period of five years or as specified by Title 130. Please refer to the enclosed forms.

1. Maintain all records associated with this Plan.
2. Chemical analysis of the effluent produced, time of sampling and special conditions.
3. Chemical analysis of the solid waste produced, time of sampling, and special conditions.
4. Soil tests on application ground per this Plan.
5. Record of field locations and application rates per this Plan.
6. Results of all phosphorus risk assessments
7. Record of crop yield projections, actual crop yields, and adjustments and corrections to the Plan.
8. Record of all manure sold, gifted and traded to another party per this Plan.
9. Record of any correspondence with the NDEE as to the needed adjustments to this Plan.

## 2. Closure Plan

Should the need arise to close all or a portion of the LWCF a simple and effective procedure will be implemented, limiting environmental concerns and hazards.

### 2.1 Closure Notification

The management of the facility will notify the NDEE within 30 days should the facility become permanently closed.

### 2.2 Liquid and Solid Distribution

All liquids and solids will be distributed according to the guidelines listed in the Comprehensive Manure and Nutrient Management Plan and the Sludge and Sediment Management Plan.

### 2.3 Basin Cleaning

All basins and drainage ways will be cleaned and solids distributed according to this plan.

### 2.4 Liquid Removal

Agitate and de-water any structure detaining effluent. Ample liquid will be left in the pond so that the remaining sludge (if any) can be pumped without plugging the pumping equipment

### 2.5 Sludge Removal

Once the sludge and liquid have been removed from the structure, excavation equipment will be used to remove remaining sludge to the original constructed grade of the structure floor.

### 2.6 Equipment Removal

All motors, switches and piping will be removed from the pump stations and/or lift stations and the pump sump will be filled with on-site soils.

### 2.7 Final Site Topography

After all wastes and equipment have been removed, the pond site will then be leveled or left as is.

### 2.8 Ground Water Monitoring

Continue ground water monitoring, as required, unless the Department has vacated the monitoring requirement. If the ground water monitoring has been vacated, monitoring wells shall be properly decommissioned according to state regulations.

### 3. Sludge and Sediment Removal Plan

The pond will not be allowed to accumulate sludge above the Maximum Sludge Depth (as defined in the Operation and Maintenance Plan). When the need to restore capacity to the structure is determined from the listed indicator, the sludge will be removed when the sludge level reaches the Maximum Sludge Depth.

Agitation and pumping unit or excavation equipment will be used to physically remove a portion or all of the accumulated sludge/sediment. The removal equipment will not be allowed to physically come into contact with the liner; therefore, this system should allow proper protection of the liner.

Sludge or solids shall not be allowed to accumulate such that it cannot be disposed of agronomically. Samples shall be obtained in order to determine proper land application rates. The method and location of sludge and sediment application will be in accordance with the NMP for this facility.

## 4. Operation and Maintenance Plan

### 4.1 Inspection Requirements

Management will keep detailed written documentation for the operation, maintenance and inspection of the LWCF and related components on a weekly basis. In addition to the weekly recordings, the change in pond depth shall be recorded following a precipitation event or land application from the LWCF. Record the LWCF condition and evaluating the maintenance procedures as outlined herein. Corrective measures that are taken will be documented.

Parcels receiving manure will be monitored and inspected daily by the operator of manure application equipment to ensure that manure and/or runoff from the application site is not leaving the site. If a discharge is occurring, management will take necessary corrective action immediately. Documentation of each corrective action shall be made and be available for inspection by the NDEE if requested.

All records shall be kept by management for a period of at least five years at the facility. Any discharge shall be reported within 24 hours of the event, to the Department of Environment and Energy at (402) 471-2186. Such written report shall be submitted (see enclosed sample report form from NDEE) to the NDEE within 5 days of the event.

### 4.2 Pumping Station Systems and Debris Basin Maintenance

These Standard Operating Procedures shall be implemented by the management of the facility and pertain specifically to pumping equipment and debris basins.

#### 4.2.1 Equipment Security

All pumping equipment will have controlled access and be monitored to prevent any tampering or unauthorized use.

#### 4.2.2 Equipment Inspections

All pumping equipment shall be inspected by management weekly. Such inspection shall assure the proper operation of all valving, backflow prevention devices and pumping equipment.

#### 4.2.3 Basin Maintenance

All basins without a liner must be maintained to completely empty into the lift station and/or holding pond within 84 hours.

#### 4.2.4 Basin Inspections

All basins shall be inspected by management weekly. Such inspection shall assure the proper operation of all valving, backflow prevention devices and pumping equipment. Necessary repairs shall be implemented as soon as possible.

### 4.2.5 Sludge Removal

Management will remove sludge from basins as needed to ensure proper drainage and maintain function with regard to controlling the runoff from the design storm.

## 4.3 Holding Pond Maintenance Procedures

1. Erosion - Repair and re-vegetate any areas of significant erosion.
2. Damaged Grade Work - Repair any damaged earthwork to original grade.
3. LWCF Modifications - Any modifications to the LWCF shall be accomplished in accordance with the specifications and the guidelines of Title 130.
4. Liners & Pipes - Repair any damaged liner or pipes as discovered.
5. Livestock Entry - Livestock shall be prohibited from entering the earthen containment structure at any time.
6. Trash - Remove and dispose of significant trash and debris that will affect the functioning of the pumping unit system.
7. Weed Control - The pond will be maintained with seeding of the berms, diversion drainage channels and all disturbed soil. Proper herbicide applications and spraying will also take place to prevent the growth of weeds and trees on the berms to help maintain the integrity of the dikes.
8. Extraneous Water – If extraneous storm water runoff is diverted around the LWCF to eliminate unnecessary volume, then the diversions will be maintained on a regular basis to prevent the backup and spillage of fresh water into the waste retention pond (s).

## 4.4 Critical Stage Storage Depths

The Stage Storage data table identifies the critical stage storage depths by which to manage the pond volumes. The following list explains the critical stage storage volume depths and how they were determined.

### 4.4.1 Overflow Level

The overflow level is the elevation at which liquid will flow out of the LWCF.

### 4.4.2 Freeboard Level

The minimum freeboard for an earthen or synthetic liner is 1.5 feet below Top of Berm but may be greater.

### 4.4.3 Must Pump Level

The Must Pump Level is the trigger point where pumping shall begin and shall continue on all days that have suitable weather and soil conditions for land application until the capacity needed for the 25-year, 24-hour rainfall event is restored. Pumping may cease when the pond level is at or below the Must Pump Level as identified in Stage Storage Data table.

### 4.4.4 Winter Pumpdown Level

The pond (s) will be pumped down to or below the winter pumpdown level prior to the winter months to maximize the space available for runoff accumulation during the winter months.

### 4.4.5 Maximum Sludge Depth

Maximum sludge depth is the greatest depth to which sludge will be allowed to accumulate. This depth is calculated on the Stage Storage and Pond Level Worksheet. It is determined by subtracting the volume needed to Comply with Title 130 from the total volume of storage provided in each holding pond.

### 4.4.6 Dewatering

Management will surface apply liquid runoff when suitable weather and soil conditions allow, to restore the capacity needed for accumulation of effluent until the next scheduled pumping can be accomplished.

## 5. Best Management Practices

The following Best Management Practices (BMP) may be implemented by management of the operation, based upon the existing physical and economic conditions, opportunities and constraints:

### 5.1 Odor Control BMP's

The following management practices will assist in minimizing odor effect.

#### 5.1.1 Facility Maintenance and Odor Control Practices.

1. Keep pens as clean and dry as possible to avoid anaerobic decomposition of organic material.
2. Avoid manure buildup, thereby decreasing odor sources.
3. Basins will be cleaned as needed. Care will be taken to account for wind direction and timing of such activities to stay away from weekends and Holidays.

#### 5.1.2 Pond Odor Control Practices

1. The pond (s) will be managed properly with respect to dewatering as often as specified above.
2. The pond is large enough to consistently hold all runoff, store excess runoff and apply in a timely manner to cropland.
3. The pond (s) will be inspected and monitored as specified in the Operation and Maintenance Plan to prevent excess sludge accumulation and odor production associated with normal pond activities.

#### 5.1.3 Land Application

1. The application of liquid and solid manure onto cropland may be a significant source of odors and nuisance complaints from surrounding neighbors. The following procedures may help alleviate those concerns.
2. When liquids are applied to cropland, care will be taken to ensure wind direction is not conducive to neighbor residences and runoff is prevented.
3. Try to apply manure during times when the air is warming and rising from the ground.
4. Try to avoid application on hot humid days (where odors will stay close to the ground) and on weekends or holidays.

## 5.2 Other Best Management Practices

### 5.2.1 Surface Water

Manure and effluent will not be applied in a manner to allow contamination to surface waters.

### 5.2.2 Conservation Practices

Manure and effluent will utilize application areas that are under proper conservation treatment to prevent runoff into surface waters.

### 5.2.3 Agronomic Rates

Manure and effluent will not be applied in excess of agronomic rates for Nitrogen and shall provide for sampling and management as specified in the Nutrient Management Plan (NMP) in this application.

### 5.2.4 Manure Management Plan

Management will implement the NMP according to the requirements listed in Title 130, Chapter 11.

## 6. Emergency Response Plan

### 6.1 Emergency Response Strategies

Overbuilding the structure will minimize the risk of the holding pond overtopping or breaching due to power failures, storms, and chronic wet periods. Accidental spills of solids could result from such activities as hauling and transporting solid manure. All employees of the facility are responsible for taking immediate action to contain any spill or leak that they may observe, provided their immediate safety is not in jeopardy. Containment procedures include taking action to prevent further loss of the material and preventing the material from spreading. In the case of an emergency, all employees of the operation can be made available.

In the event of an immediate safety hazard the area will be evacuated to a safe distance. All other employees will be warned as best possible. The local Fire Department, rescue squad or county sheriff's office at (911) shall be notified immediately.

### 6.2 Spill & Leak Prevention

The maintenance of all equipment associated with waste containment, transport, and distribution in optimum working conditions will prevent spills and leaks. Each employee responsible for handling manure will be educated within one week of their first employment date on the proper maintenance of the equipment. In addition, when equipment is in long-term continual use (such as in irrigation distribution) it will be monitored twice daily to detect leaks and any equipment failure in a timely manner.

### 6.3 Large Spill Response Practices

#### 6.3.1 Stop the Cause

Shut off any mechanical device (such as a pump) or empty any containment structure that may be causing the spill or leak to continue.

#### 6.3.2 Containment

Contain the spill with local area soils by building temporary dikes or dams. The equipment to build such structures is readily available as the owner has a loader, a box scrapper and a manure spreader.

#### 6.3.3 Absorb Effluent

Absorb any effluent substance with local soil. The material will then be disposed of by land application at agronomical rates.

#### 6.3.4 Verbal Notification

Management must immediately report any releases of wastewater off of the property to NDEE (402) 471-2186 within 24 hours of the event.

### 6.3.5 Written Notification

A written report of a discharge will be submitted to NDEE within 5 days of the event. Such a report shall be recorded on the Notification of Discharge of Livestock Waste form.

## 6.4 Small Spill Response Practices

Repair any equipment failure such as valves or joints in piping that may be causing a small-scale leak.

### 6.4.1 Verbal Notification

Management must immediately report any releases of wastewater off of the property to NDEE (402) 471-2186 within 24 hours of the event.

### 6.4.2 Written Notification

Any discharge of waste shall be reported a written report of a discharge will be submitted to NDEE within 5 days of the event. Such report shall be recorded on the enclosed form titled Livestock waste Discharge Notification.

## 7. Mortality & Chemical Management Plan

Animal mortalities will not be disposed of in any livestock waste control facility.

### 7.1 Catastrophic Mortality Event

In the case of a catastrophic mortality event, management shall contact the agencies listed below management within 18 hours of discovery.

| | |
|---|---|
| Nebraska Department of Agriculture | (402) 471-2351 |
| Nebraska Department of Environment & Energy | (402) 471-2186 |

Final disposal of mortalities from a catastrophic event shall be approved on a case-by-case basis by the superior agency in charge. Depending on the nature of such an event different state or federal agencies may have jurisdiction.

### 7.2 Temporary Mortality Storage Area

Prior to final disposal, mortalities shall be stored in a location and manner consistent with this plan and the rules and regulations in effect at the time of such storage. This area is located on-site and is designated on the Mortality Management Site Map.

#### 7.2.1 Runoff Control

Storm water runoff from this area shall either be contained and disposed of by land application or directed into the LWCF. Mortalities shall temporarily be stored un-covered.

### 7.3 Mortality Disposal Methods

Disposal of mortalities shall conform to Nebraska Department of Agriculture's, §54-744.

#### 7.3.1 Primary method

Within 36 hours of discovery, mortalities shall be disposed of via commercial renderer.

#### 7.3.2 Secondary method

If the Primary Disposal Method is unattainable, mortalities shall be buried within 36 hours. Burial shall be conducted at the location designated on the Mortality Management Site Map.

## 7.4 Chemical Management Plan

Chemicals such as herbicides, insecticides and rodenticides may be used at this AFO to control unwanted vegetative growth, insect pests and rodents.

## 7.5 Chemical Storage

Chemicals will be stored in their original containers in a designated area with restricted entrance, away from feedstuffs.

## 7.6 Container Disposal

Empty containers will be flushed and disposed of according to label instructions. Chemicals or chemical containers will not be disposed of in any liquid manure, dry manure or process wastewater system associated with this LWCF.

## 7.7 Farmstead Safety & Security

Management will implement a Biosecurity plan for visitors, livestock, veterinary waste, sanitation, & employee safety as they see fit. Guidance for Safety and Security was derived from NebGuide G1444 and G1411.

## 8. Nutrient Management Plan Attachments

1. Waste Production Volumes
2. Chemical & Mortality Management Map
3. Listing of land available for manure application (Land Application Site Summary)
4. P-Index and Nitrogen Leaching Summary
5. Manure Management Worksheet
6. Maps of Application Sites
7. Planned Manure Applications
8. Alternative Crops and Nutrient Requirements
9. Operation and Maintenance record keeping forms
10. Land Application Agreements (if applicable)
11. Ward Guide Attachment
12. Record keeping forms

# Ron Bruns Feed Yards - East Place

## Chemical & Mortality Management Plan

0 175 350 700 1,050 1,400 Feet

**Legend**

Facility

Section_Lines

N

## *Waste Production Volume*

## *Solids Production*

| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| Type of Animals: | Number of Animals: | Average Weight (lbs): | Animal Units (au) | Volume of Waste Produced Per A.U. (cf/d/au) | Weight of Waste Produced Per A.U. (lb/d/au) | Annual Volume of Waste produced (d*e*365) (cu ft) | Annual Weight of Waste produced (e*f*365) (lbs) |
| Beef Feeders | 2,800 | 850 | 2,380 | 1.10 | 65.0 | 955,570 | 56,465,500 |

| | |
|---|---|
| Solid manure (8% of weight produced) | 4,517,240 |
| Solid manure (total lbs./2000) | 2,259 |
| Percentage of soil removed from pens | 10% |
| Annual Total Weight of Solids (solid manure tonage + soil removed) | 2,484 |
| Annual Total Volume of Solids (annual weight * 2000/85) | 58,458 |
| Volume of Liquid remaining in solids (annual solids * .5 * .5) | 621 |
| Weight of Liquid remaining in solids (liquid volume *85/2000) | 26 |

| | |
|---|---|
| Volume to be haulded annually (cu. ft.) | 73,073 |
| Weight to be hauled annually (tons) | 3,106 |

| | |
|---|---|
| No. of Manure Spreaders | 2 |
| Volume of Manure Spreaders (tons) | 14 |
| Loads of Solids Per Year | 222 |

*Animals are assumed to be in place 365 days per year

* 100% of manure from the facility will be collected.

## *Open Lot Runoff*

| I | J | K | L | M | N | O |
|---|---|---|---|---|---|---|
| Area: | Curve Number: | Find S (1000/I)-10 | Solve for Runoff Q=((P-(.2*S))2)/(P+(.8*S)) | Ratio of Contributing Acres to Feedlot Acres | Runoff (in.) | Runoff Volume (acre ft) |
| 18.7 | 90 | 1.11 | 4.85 | 0.66 | 6.00 | 9.4 |
| 9.5 | 74 | 3.51 | 3.18 | | 3.94 | 3.1 |

| | |
|---|---|
| Total Drainage Area Runoff (acre ft) | 12.5 |
| Solids Accumulation (acre ft) | 0 |
| Additional Added Liquid From Overflow Water (acre ft) | 1.69 |
| Total Runoff Volume (acre ft) | 14.2 |
| Total Runoff Volume (gallons) | 4,613,799 |

| | |
|---|---|
| Total Gal. Per Minute Pump Capacity | 700 |
| Avg Annual Pumping Time (hours) | 110 |

* Runoff values were derived from the WP-41 Worksheet

# Manure Management Worksheet
## Open Feedlot Manure

| A | B | C | D |
|---|---|---|---|
| Permitted Head Count | Turns Per Year | Total Head Count Finished Per Year | Avg. Wt. (lbs.) |
| 2800 | 2.3 | 6,440 | 850 |

### *Production and Storage Loss*

| E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|
| | Nitrogen | | | | Phosphorus | | | |
| | Produced | Storage Loss | | | Produced | Storage Loss | | |
| Manure Type | N / Animal / Year (lbs) | Total N / Year (c*f) (lbs.) | % Retained (book value) | After Losses (g*h) (lbs) | $P_2O_5$ / Animal / Year (book value) (lbs) | Total $P_2O_5$ / Year (c*j) (lbs) | % Retained (book value) | After Losses (k*l) (lbs) |
| Solids | 55.5 | 357,538 | 50% | 178,769 | 7.07 | 45,504 | 95% | **43,229** |
| Effluent | 55.5 | 357,538 | 5% | 17,877 | 7.07 | 45,504 | 5% | **2,275** |

### *Nitrogen Application Loss*

| N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|
| Manure Type | % of Organic N in Manure (book value) | First Year Available Organic-N (book value ) (%) | Total Organic N (l*o*p) (lbs.) | Ammonium in Manure (book value) (%) | Available Ammonium (book value) (%) | Total NH4-H (l*r*s) (lbs.) | Total (q+t) (lbs N/year) |
| Solids | 80% | 50% | 71,508 | 20% | 5% | 1787.69 | **73,295** |
| Effluent | 10% | 70% | 1,251 | 90% | 50% | 8044.62 | **9,296** |

### *Solids Distribution Minimums*

| V | W | X | Y | Z | AA | AB | AC |
|---|---|---|---|---|---|---|---|
| Crop | Yield | N Uptake Per Yield Unit (book value) (lbs) | N Uptake (w*x) (lbs/acre) | Minimum Required Area For Complete Nitrogen Distribtuion (u / x) (acres) | P Uptake Per Yield Unit (book value) (lbs) | Total P Uptake (w * aa) (lbs/acre) | Minimum Required Area For Complete Phosphorus Distribtuion (m / ab) (acres) |
| Corn | 192.8 | 0.97 | 188 | 390.6 | 0.3 | 59 | 734.0 |
| Corn | 146.4 | 0.97 | 143 | 514.3 | 0.3 | 45 | 966.7 |
| Soybeans | 53 | 2.12 | 113 | 651.1 | 0.8 | 42 | 1,031.3 |
| Soybeans | 43.6 | 2.12 | 93 | 791.5 | 0.8 | 34 | 1,253.6 |
| Corn Silage | 22 | 7.50 | 165 | 444.2 | 3.2 | 70 | 617.6 |
| Alfalfa | 4 | 55.00 | 220 | 333.2 | 9.2 | 37 | 1,171.2 |

### *Effluent Distribution Minimums*

| AD | AE | AF | AG | AH | AI | AJ | AK |
|---|---|---|---|---|---|---|---|
| Crop | Yield | N Uptake Per Yield Unit (book value) (lbs) | N Uptake (ae*af) (lbs/acre) | Minimum Required Area For Complete Nitrogen Distribtuion (u/ag) (acres) | P Uptake Per Yield Unit (book value) (lbs) | Total P Uptake (ae*al) (lbs/acre) | Minimum Required Area For Complete Phosphorus Distribtuion (l/aj) (acres) |
| Corn | 192.8 | 0.97 | 188 | 49.5 | 0.3 | 59 | 38.6 |
| Soybeans | 53 | 2.12 | 113 | 82.6 | 0.8 | 42 | 54.3 |
| Alfalfa | 4 | 55.00 | 220 | 42.3 | 9.2 | 37 | 61.6 |

All information and calculations were derived from the UNL Land Estimator spreadsheet. However certain assumptions were made as defaults to save time and reduce errors. The assumptions are as follows:

1. The spreadsheet is only to be used for open lot cattle facilities with all defaults.
2. The average weight is fixed at 1,000 lbs. with the beginning weight of 750# and the ending weight of #1250#.
3. Manure is broadcast applied, not incorporated, and is applied to cool soils.

## *Alternative Crops and Nutrient Requirements*

| Crop | Yield Unit | Yield | Nitrogen Requirement (lbs/yield unit) | Total Nitrogen Requirement (lbs./acre) | Phos. Removal (lbs/yield unit) | Total Phos. Required (lbs./acre) |
|---|---|---|---|---|---|---|
| Alfalfa | tons | 4.0 | 55.00 | 220.0 | 12.00 | 48.0 |
| Corn | bu | 146.4 | 1.20 | 175.7 | 0.31 | 45.4 |
| Corn Irrigated | bu | 192.8 | 1.20 | 231.4 | 0.31 | 58.9 |
| Corn Silage | tons | 14.8 | 10.50 | 155.4 | 3.20 | 47.4 |
| Corn Silage Irrigated | tons | 22.0 | 10.50 | 231.0 | 3.20 | 70.4 |
| Oats | bu | 72.9 | 1.30 | 94.7 | 0.23 | 16.8 |
| Soybeans | bu | 43.6 | 3.70 | 161.3 | 0.79 | 34.4 |
| Soybeans Irrigated | bu | 53.0 | 3.70 | 196.1 | 0.79 | 41.9 |

**Values derived from Ward Laboratories, Inc. (Ward Guide)*

**Alternate Crops listed in Ward Guide Attachment*

**Legume crops use Nutrient Content per Crop (Ward Guide)*

### *Mineralization and Volatilization Chart*

| Ammonium-N Available This Year: | | | | Organic Available | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Application Method | Incorporation | Liquid | Solid | Speicies | Manure Type | Organic-N Available This Year | Next Year | 2 Years From Now | 3 Years From Now |
| Sidedress | Incorporated | 1 | | Beef/Dairy | Solid | 0.25 | 0.15 | 0.07 | 0.04 |
| | Sprinkler | 0.5 | | Beef/Dairy | Stored Liquid | 0.35 | | | |
| | Flood | 0.9 | | Beef/Dairy | Compost | 0.15 | | | |
| Preplant Incorporated | Immediately | 0.95 | | Swine | Fresh | 0.50 | | | |
| | One Day | 0.5 | 0.7 | Swine | Stored Liquid | 0.35 | | | |
| | Two Days | 0.25 | 0.5 | Poultry | Deep Pit | 0.45 | | | |
| | Three Days | 0.15 | 0.35 | Poultry | Solid with litter | 0.30 | | | |
| | Seven Days or More | 0 | 0 | Poultry | Solid w/out litter | 0.35 | | | |
| *Crop Available Nitrogen =* | *Available This Year +* | | | *Organic Available This Year +* | | | *Organic N From Previous Apps.* | | |

** Based on UNL NebGuide G-1335*

### *Previous legume credit (I)*

| Legume | Lbs N/A |
|---|---|
| Soybean | 40 |
| Alfalfa (50-100% | 100 |
| Alfalfa (50% sta | 50-75 |
| Alfalfa (less thar | 0-25 |
| Other Beans | 25 |
| Clovers | 75 |

**If yield is <30 bu/ac due to season-long stress then use half (22 lb. N/ac.)*

**Based on UNL Limitations and Ward Guide*

**N Requirement (F) - Residual Soil N (Soil Test Results) - Legume Credit (I) - Commercial Fertilizer Credit - Clean Water Irrigation Credit / Crop Available Manure Content (H) = Application Rate**

## Planned Manure Application - Effluent - Field 1,2,3 and 11 - Continuous Corn (Pivot)

***Manure Analysis Information***

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total Nitrogen Available (tons) | | | | | | | |
| Nutrient | Analysis Value (lbs/1000 gal) | Application Method/Timing (select from list) | First Year Availability Factor | First Year Value (b*d) (lbs) | Second Year Availability Factor (book value) | Second Year Value (b*f) (lbs) | Third Year Availability Factor (book value) | Third Year Value (b*h) (lbs) | Fourth Year Availability Factor (book value) | Fourth Year Value (b*j) (lbs) |
| Amm.-Nitrogen | 2.6 | Not Incorporated | 0.50 | 1.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Org.-Nitrogen | 0.3 | Not Incorporated | 0.35 | 0.10 | 0.15 | 0.04 | 0.07 | 0.02 | 0.04 | 0.01 |
| | | | | 1.41 | 0.15 | 0.04 | 0.07 | 0.02 | 0.04 | 0.01 |
| Phosphorus | 1.7 | Not Incorporated | 0.7 | 1.211 | | | | | | |

***Nitrogen and Phosphorus Demand***

| L | M | N | O | P | Q | R | S | T | U | V |
|---|---|---|---|---|---|---|---|---|---|---|
| Crop Rotation | | | | | | Nitrogen Demand | | | Phosphorus Demand | |
| Scenario ID: | Current Crop | 5-Year Average Yield For Current Crop (bu/ac or T/ac) | Crop Harvest Units | Realistic Yield Goal (s * 105%) | Nitrogen Uptake Per Harvest Unit (book value) (lbs) | Total Nitrogen Uptake (p*q) (lbs/acre) | Organic Matter Added N Value (book value) (lbs) | Crop Nitrogen Recommendation (r+s) (lbs/ac) | Phos. Uptake Per Harvest Unit (book value) (lbs) | Total Phos. Uptake (lbs/acre) |
| 2020 | Corn | 192.8 | bu/ac | 202.4 | 1.2 | 243 | 35 | 278 | 0.3 | 61.8 |
| 2021 | Corn | 192.8 | bu/ac | 202.4 | 1.2 | 243 | 35 | 278 | 0.3 | 61.8 |
| 2022 | Corn | 192.8 | bu/ac | 202.4 | 1.2 | 243 | 35 | 278 | 0.3 | 61.8 |
| 2023 | Corn | 192.8 | bu/ac | 202.4 | 1.2 | 243 | 35 | 278 | 0.3 | 61.8 |
| 2024 | Corn | 192.8 | bu/ac | 202.4 | 1.2 | 243 | 35 | 278 | 0.3 | 61.8 |

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

***Nitrogen Credits***

| Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | Soil Test Residual Nitrate (lbs/acre) | Soil Organic Matter (%) | Organic Matter Credit (ab*p*.14) (lbs/acre) | Previous Year Legume Credit (lbs/acre) | Manure Application Rate (1000's gal/acre) | 3 Year Previous Manure Application Rate (1000's gal/acre) | 3 Year Previous Manure Application Credit (af*k) (lbs/acre) | 2 Year Manure Application Rate (1000's gal/acre) | 2 Year Previous Manure Application Credit (ah*l) (lbs/acre)* | 1 Year Previous Manure Application Rate (1000's gal/acre) | 1 Year Previous Manure Application Credit (aj*g) (lbs/acre) | Irrigation Water and Other Credits (lb/ac) | Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre) | Remaining Deficient N Recommendation (t-am) (lb/ac) |
| 2017 | | | | | 49 | | | | | | | | | |
| 2018 | | | | | 49 | | | | | | | | | |
| 2019 | | | | | 49 | | | | | | | | | |
| 2020 | 15.0 | 1.0 | 28.3 | 0 | 49 | 49 0 | 0.6 | 49.0 | 1.0 | 49.0 | 2.1 | 0.0 | 47.0 | 230.9 |
| 2021 | 15.0 | 1.0 | 28.3 | 0 | 49 | 49.0 | 0.6 | 49.0 | 1.0 | 49.0 | 2.1 | 0.0 | 47.0 | 230.9 |
| 2022 | 15.0 | 1.0 | 28.3 | 0 | 49 | 49 0 | 0.6 | 49.0 | 1.0 | 49.0 | 2.1 | 0.0 | 47.0 | 230.9 |
| 2023 | 15.0 | 1.0 | 28 3 | 0 | 49 | 49 0 | 0.6 | 49.0 | 1.0 | 49.0 | 2.1 | 0.0 | 47.0 | 230.9 |
| 2024 | 15.0 | 1.0 | 28 3 | 0 | 49 | 49 0 | 0.6 | 49.0 | 1.0 | 49.0 | 2.1 | 0.0 | 47.0 | 230.9 |

***Initial Application Rate***

| AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX |
|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | First Year Availability (d) (lbs/ton) | Allowable Effluent App. Rate For Balance of Nitrogen (am/ao) (1000's gal/acre) | Desired Application Rate For Nitrogen (1000's gal/acre) | Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR) | Commercial Nitrogen Fertilizer Applied (lbs. of N / acre) | Phosphorus Applied at Allowable N Rate (lbs/acre) | Phos Balance After Allowable N Rate (lbs/acre) | Phosphorus Applied at Desired N Rate (lbs/acre) | Phos Balance After Desired N Rate (lbs/acre) |
| 2020 | 1.41 | 164.2 | 49.0 | 68.9 | 162.0 | 284.0 | 222.2 | 59.3 | -2.5 |
| 2021 | 1.41 | 164.2 | 49.0 | 68.9 | 162.0 | 284.0 | 444.3 | 59.3 | -5.0 |
| 2022 | 1.41 | 164.2 | 49.0 | 68.9 | 162.0 | 284.0 | 666.5 | 59.3 | -7.5 |
| 2023 | 1.41 | 164.2 | 49.0 | 68.9 | 162.0 | 284.0 | 888.6 | 59.3 | -10.0 |
| 2024 | 1.41 | 164.2 | 49.0 | 68.9 | 162.0 | 284.0 | 1110.8 | 59.3 | -12.5 |

*- Nitrogen availability based UNL NebGuide G1335 - "Determining Crop Available Nutrients from Manure"*
*- Application rates are based on UNL Nitrogen fertilizer recommendations for corn grain, found in EC117 - "Fertilizer Suggestions for Corn"*
*3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches*
*4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14*
*5 Previous Legume Crop N Credit = UNL Guidelines or Ward Guide*
*6 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate*
*7Irrigation Water N Credit = (inches pumped x ppm Nitrate N x 2.7) / 12*

## Planned Manure Application - Solids - Field # 3 and 4 - Corn/Soybeans (Dryland)

*Manure Analysis Information*

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total Nitrogen Available (tons) | | | | | | | |
| Nutrient | Analysis Value (lbs/ton) | Application Method/Timing (select from list) | First Year Availability Factor | First Year Value (b*d) (lbs) | Second Year Availability Factor (book value) | Second Year Value (b*f) (lbs) | Third Year Availability Factor (book value) | Third Year Value (b*h) (lbs) | Fourth Year Availability Factor (book value) | Fourth Year Value (b*j) (lbs) |
| Amm.-Nitrogen | 2.0 | Not Incorporated | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Org.-Nitrogen | 22.0 | Not Incorporated | 0.25 | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0.88 |
| | | | | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0.88 |
| Phosphorus | 23.0 | Not Incorporated | 0.7 | 16.1 | | | | | | |

*Nitrogen and Phosphorus Demand*

| L | M | N | O | P | Q | R | S | T | U | V |
|---|---|---|---|---|---|---|---|---|---|---|
| Crop Rotation | | | | | | Nitrogen Demand | | | Phosphorus Demand | |
| Scenario ID: | Current Crop | 5-Year Average Yield For Current Crop (bu/ac or T/ac) | Crop Harvest Units | Realistic Yield Goal (s * 105%) | Nitrogen Uptake Per Harvest Unit (book value) (lbs) | Total Nitrogen Uptake (p*q) (lbs/acre) | Organic Matter Added N Value (book value) (lbs) | Crop Nitrogen Recommendation (r+s) (lbs/ac) | Phos. Uptake Per Harvest Unit (book value) (lbs) | Total Phos. Uptake (lbs/acre) |
| 2020 | Corn | 146.4 | bu/ac | 153 7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2021 | Soybeans | 43.6 | bu/ac | 45 8 | 3 7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2022 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2023 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2024 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

*Nitrogen Credits*

| Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | Soil Test Residual Nitrate (lbs/acre) | Soil Organic Matter (%) | Organic Matter Credit (ab*p*.14) (lbs/acre) | Previous Year Legume Credit (lbs/acre) | Manure Application Rate (tons) | 3 Year Previous Manure Application Rate (tons) | 3 Year Previous Manure Application Credit (af*k) (lbs/acre) | 2 Year Manure Application Rate (tons) | 2 Year Previous Manure Application Credit (ah*l) (lbs/acre)" | 1 Year Previous Manure Application Rate (tons) | 1 Year Previous Manure Application Credit (aj*g) (lbs/acre) | Irrigation Water and Other Credits (lb/ac) | Total Nitrogen Credits (aa+ac+ad+ag +ai+ak+al) (lbs/acre) | Remaining Deficient N Recommendation (t-am) (lb/ac) |
| 2017 | | | | | 0 | | | | | | | | | |
| 2018 | | | | | 0 | | | | | | | | | |
| 2019 | | | | | 0 | | | | | | | | | |
| 2020 | 15.0 | 1.0 | 21.5 | 40 | 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |
| 2021 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 66.0 | 0.0 | 87.4 | 82.0 |
| 2022 | 15.0 | 1.0 | 21.5 | 40 | 0 | 0.0 | 0.0 | 20.0 | 30.8 | 0.0 | 0.0 | 0.0 | 107.3 | 112.1 |
| 2023 | 15.0 | 1.0 | 6.4 | 0 | 0 | 20.0 | 17.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.0 | 130.4 |
| 2024 | 15.0 | 1.0 | 21.5 | 40 | 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |

*Initial Application Rate*

| AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX |
|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | First Year Availability (d) (lbs/ton) | Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre) | Desired Application Rate For Nitrogen (tons / acre) | Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR) | Commercial Nitrogen Fertilizer Applied (lbs. of N / acre) | Phosphorus Applied at Allowable N Rate (lbs/acre) | Phos Balance After Allowable N Rate (lbs/acre) | Phosphorus Applied at Desired N Rate (lbs/acre) | Phos Balance After Desired N Rate (lbs/acre) |
| 2020 | 5.50 | 26.0 | 20.0 | 110.0 | 32.9 | 418.4 | 371.5 | 322.0 | 275.0 |
| 2021 | 5.50 | 14.9 | 0.0 | 0.0 | 82.0 | 342.8 | 678.1 | 0.0 | 238.8 |
| 2022 | 5.50 | 20.4 | 0.0 | 0.0 | 112.1 | 469.0 | 1100.1 | 0.0 | 191.9 |
| 2023 | 5.50 | 23.7 | 0.0 | 0.0 | 130.4 | 545.2 | 1609.1 | 0.0 | 155.7 |
| 2024 | 5.50 | 26.0 | 20.0 | 110.0 | 32.9 | 597.8 | 2159.9 | 322.0 | 430.7 |

*- Nitrogen availability based UNL NebGuide G1335 - "Determining Crop Available Nutrients from Manure"*
*- Application rates are based on UNL Nitrogen fertilizer recommendations for corn grain, found in EC117 - "Fertilizer Suggestions for Corn"*
*3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches*
*4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14*
*5 Previous Legume Crop N Credit = UNL Guidelines or Ward Guide*
*6 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate*
*7Irrigation Water N Credit = (inches pumped x ppm Nitrate N x 2.7) / 12*

## Planned Manure Application - Solids - Field # 5 and 6 - Corn/Soybeans (Dryland)

*Manure Analysis Information*

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total Nitrogen Available (tons) | | | | | | | |
| Nutrient | Analysis Value (lbs/ton) | Application Method/Timing (select from list) | First Year Availability Factor | First Year Value (b*d) (lbs) | Second Year Availability Factor (book value) | Second Year Value (b*f) (lbs) | Third Year Availability Factor (book value) | Third Year Value (b*h) (lbs) | Fourth Year Availability Factor (book value) | Fourth Year Value (b*j) (lbs) |
| Amm.-Nitrogen | 2.0 | Not Incorporated | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Org.-Nitrogen | 22.0 | Not Incorporated | 0.25 | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0 88 |
| | | | | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0.88 |
| Phosphorus | 23.0 | Not Incorporated | 0.7 | 16.1 | | | | | | |

*Nitrogen and Phosphorus Demand*

| L | M | N | O | P | Q | R | S | T | U | V |
|---|---|---|---|---|---|---|---|---|---|---|
| Crop Rotation | | | | | | Nitrogen Demand | | | Phosphorus Demand | |
| Scenario ID: | Current Crop | 5-Year Average Yield For Current Crop (bu/ac or T/ac) | Crop Harvest Units | Realistic Yield Goal (s * 105%) | Nitrogen Uptake Per Harvest Unit (book value) (lbs) | Total Nitrogen Uptake (p*q) (lbs/acre) | Organic Matter Added N Value (book value) (lbs) | Crop Nitrogen Recommendation (r+s) (lbs/ac) | Phos. Uptake Per Harvest Unit (book value) (lbs) | Total Phos. Uptake (lbs/acre) |
| 2020 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2021 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2022 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2023 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2024 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

*Nitrogen Credits*

| Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | Soil Test Residual Nitrate (lbs/acre) | Soil Organic Matter (%) | Organic Matter Credit (ab*p*.14) (lbs/acre) | Previous Year Legume Credit (lbs/acre) | Manure Application Rate (tons) | 3 Year Previous Manure Application Rate (tons) | 3 Year Previous Manure Application Credit (af*k) (lbs/acre) | 2 Year Manure Application Rate (tons) | 2 Year Previous Manure Application Credit (ah*l) (lbs/acre)** | 1 Year Previous Manure Application Rate (tons) | 1 Year Previous Manure Application Credit (aj*g) (lbs/acre) | Irrigation Water and Other Credits (lb/ac) | Total Nitrogen Credits (aa+ac+ad+ag +al+ak+al) (lbs/acre) | Remaining Deficient N Recommendation (t-am) (lb/ac) |
| 2017 | | | | | 0 | | | | | | | | | |
| 2018 | | | | | 0 | | | | | | | | | |
| 2019 | | | | | 0 | | | | | | | | | |
| 2020 | 15.0 | 1.0 | 21.5 | 40 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |
| 2021 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 148.0 |
| 2022 | 15.0 | 1.0 | 21.5 | 40 | 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |
| 2023 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 66.0 | 0.0 | 87.4 | 82.0 |
| 2024 | 15.0 | 1.0 | 21.5 | 40 | 0 | 0.0 | 0.0 | 20.0 | 30.8 | 0.0 | 0.0 | 0.0 | 107.3 | 112.1 |

*Initial Application Rate*

| AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX |
|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | First Year Availability (d) (lbs/ton) | Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre) | Desired Application Rate For Nitrogen (tons / acre) | Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR) | Commercial Nitrogen Fertilizer Applied (lbs. of N / acre) | Phosphorus Applied at Allowable N Rate (lbs/acre) | Phos Balance After Allowable N Rate (lbs/acre) | Phosphorus Applied at Desired N Rate (lbs/acre) | Phos Balance After Desired N Rate (lbs/acre) |
| 2020 | 5.50 | 26.0 | 0.0 | 0.0 | 142.9 | 418.4 | 371.5 | 0.0 | -47.0 |
| 2021 | 5.50 | 26.9 | 0.0 | 0.0 | 148.0 | 618.8 | 954.1 | 0.0 | -83.2 |
| 2022 | 5.50 | 26.0 | 20.0 | 110.0 | 32.9 | 597.8 | 1504.9 | 322.0 | 191.9 |
| 2023 | 5.50 | 14.9 | 0.0 | 0.0 | 82.0 | 342.8 | 1811.5 | 0.0 | 155.7 |
| 2024 | 5.50 | 20.4 | 0.0 | 0.0 | 112.1 | 469.0 | 2233.5 | 0.0 | 108.7 |

*- Nitrogen availability based UNL NebGuide G1335 - "Determining Crop Available Nutrients from Manure"*
*- Application rates are based on UNL Nitrogen fertilizer recommendations for corn grain, found in EC117 - "Fertilizer Suggestions for Corn"*
*3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches*
*4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14*
*5 Previous Legume Crop N Credit = UNL Guidelines or Ward Guide*
*6 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate*
*7Irrigation Water N Credit = (inches pumped x ppm Nitrate N x 2.7) / 12*

## Planned Manure Application - Solids - Field # 7 and 8 - Soybeans/Corn (Dryland)

*Manure Analysis Information*

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total Nitrogen Available (tons) | | | | | | | |
| Nutrient | Analysis Value (lbs/ton) | Application Method/Timing (select from list) | First Year Availability Factor | First Year Value (b*d) (lbs) | Second Year Availability Factor (book value) | Second Year Value (b*f) (lbs) | Third Year Availability Factor (book value) | Third Year Value (b*h) (lbs) | Fourth Year Availability Factor (book value) | Fourth Year Value (b*j) (lbs) |
| Amm.-Nitrogen | 2.0 | Not Incorporated | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Org.-Nitrogen | 22.0 | Not Incorporated | 0.25 | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0.88 |
| | | | | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0.88 |
| Phosphorus | 23.0 | Not Incorporated | 0.7 | 16.1 | | | | | | |

*Nitrogen and Phosphorus Demand*

| L | M | N | O | P | Q | R | S | T | U | V |
|---|---|---|---|---|---|---|---|---|---|---|
| Crop Rotation | | | | | | Nitrogen Demand | | | Phosphorus Demand | |
| Scenario ID: | Current Crop | 5-Year Average Yield For Current Crop (bu/ac or T/ac) | Crop Harvest Units | Realistic Yield Goal (s * 105%) | Nitrogen Uptake Per Harvest Unit (book value) (lbs) | Total Nitrogen Uptake (p*q) (lbs/acre) | Organic Matter Added N Value (book value) (lbs) | Crop Nitrogen Recommendation (r+s) (lbs/ac) | Phos. Uptake Per Harvest Unit (book value) (lbs) | Total Phos. Uptake (lbs/acre) |
| 2020 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2021 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2022 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2023 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2024 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

*Nitrogen Credits*

| Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | Soil Test Residual Nitrate (lbs/acre) | Soil Organic Matter (%) | Organic Matter Credit (ab*p*.14) (lbs/acre) | Previous Year Legume Credit (lbs/acre) | Manure Application Rate (tons) | 3 Year Previous Manure Application Rate (tons) | 3 Year Previous Manure Application Credit (af*k) (lbs/acre) | 2 Year Manure Application Rate (tons) | 2 Year Previous Manure Application Credit (ah*l) (lbs/acre)* | 1 Year Previous Manure Application Rate (tons) | 1 Year Previous Manure Application Credit (aj*g) (lbs/acre) | Irrigation Water and Other Credits (lb/ac) | Total Nitrogen Credits (aa+ac+ad+ag +al+ak+ai) (lbs/acre) | Remaining Deficient N Recommendation (t-am) (lb/ac) |
| 2017 | | | | | 0 | | | | | | | | | |
| 2018 | | | | | 0 | | | | | | | | | |
| 2019 | | | | | 0 | | | | | | | | | |
| 2020 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 148.0 |
| 2021 | 15.0 | 1.0 | 21.5 | 40 | 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |
| 2022 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 66.0 | 0.0 | 87.4 | 82.0 |
| 2023 | 15.0 | 1.0 | 21.5 | 40 | 0 | 0.0 | 0.0 | 20.0 | 30.8 | 0.0 | 0.0 | 0.0 | 107.3 | 112.1 |
| 2024 | 15.0 | 1.0 | 6.4 | 0 | 0 | 20.0 | 17.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 39.0 | 130.4 |

*Initial Application Rate*

| AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX |
|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | First Year Availability (d) (lbs/ton) | Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre) | Desired Application Rate For Nitrogen (tons / acre) | Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR) | Commercial Nitrogen Fertilizer Applied (lbs. of N / acre) | Phosphorus Applied at Allowable N Rate (lbs/acre) | Phos Balance After Allowable N Rate (lbs/acre) | Phosphorus Applied at Desired N Rate (lbs/acre) | Phos Balance After Desired N Rate (lbs/acre) |
| 2020 | 5.50 | 26.9 | 0.0 | 0.0 | 148.0 | 433.2 | 397.0 | 0.0 | -36.2 |
| 2021 | 5.50 | 26.0 | 20.0 | 110.0 | 32.9 | 597.8 | 947.8 | 322.0 | 238.8 |
| 2022 | 5.50 | 14.9 | 0.0 | 0.0 | 82.0 | 342.8 | 1254.4 | 0.0 | 202.6 |
| 2023 | 5.50 | 20.4 | 0.0 | 0.0 | 112.1 | 469.0 | 1676.4 | 0.0 | 155.7 |
| 2024 | 5.50 | 23.7 | 0.0 | 0.0 | 130.4 | 545.2 | 2185.4 | 0.0 | 119.5 |

*- Nitrogen availability based UNL NebGuide G1335 - "Determining Crop Available Nutrients from Manure"*
*- Application rates are based on UNL Nitrogen fertilizer recommendations for corn grain, found in EC117 - "Fertilizer Suggestions for Corn"*
*3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches*
*4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14*
*5 Previous Legume Crop N Credit = UNL Guidelines or Ward Guide*
*6 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate*
*7Irrigation Water N Credit = (inches pumped x ppm Nitrate N x 2.7) / 12*

## Planned Manure Application - Solids - Field # 9 and 12 - Soybeans/Corn (Dryland)

*Manure Analysis Information*

| A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total Nitrogen Available (tons) | | | | | | | |
| Nutrient | Analysis Value (lbs/ton) | Application Method/Timing (select from list) | First Year Availability Factor | First Year Value (b*d) (lbs) | Second Year Availability Factor (book value) | Second Year Value (b*f) (lbs) | Third Year Availability Factor (book value) | Third Year Value (b*h) (lbs) | Fourth Year Availability Factor (book value) | Fourth Year Value (b*j) (lbs) |
| Amm.-Nitrogen | 2.0 | Not Incorporated | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Org.-Nitrogen | 22.0 | Not Incorporated | 0.25 | 5.50 | 0.15 | 3.30 | 0.07 | 1.54 | 0.04 | 0.88 |
| | | | | 5.50 | 0.15 | 3 30 | 0.07 | 1.54 | 0.04 | 0.88 |
| Phosphorus | 23.0 | Not Incorporated | 0.7 | 16.1 | | | | | | |

*Nitrogen and Phosphorus Demand*

| L | M | N | O | P | Q | R | S | T | U | V |
|---|---|---|---|---|---|---|---|---|---|---|
| Crop Rotation | | | | | | Nitrogen Demand | | | Phosphorus Demand | |
| Scenario ID: | Current Crop | 5-Year Average Yield For Current Crop (bu/ac or T/ac) | Crop Harvest Units | Realistic Yield Goal (s * 105%) | Nitrogen Uptake Per Harvest Unit (book value) (lbs) | Total Nitrogen Uptake (p*q) (lbs/acre) | Organic Matter Added N Value (book value) (lbs) | Crop Nitrogen Recommendation (r+s) (lbs/ac) | Phos. Uptake Per Harvest Unit (book value) (lbs) | Total Phos. Uptake (lbs/acre) |
| 2020 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2021 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2022 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |
| 2023 | Corn | 146.4 | bu/ac | 153.7 | 1.2 | 184 | 35 | 219 | 0.3 | 47.0 |
| 2024 | Soybeans | 43.6 | bu/ac | 45.8 | 3.7 | 169 | 0 | 169 | 0.8 | 36.2 |

**Demands are calculated by multiplying the yield goal by the uptake per harvest unit*

*Nitrogen Credits*

| Z | AA | AB | AC | AD | AE | AF | AG | AH | AI | AJ | AK | AL | AM | AN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | Soil Test Residual Nitrate (lbs/acre) | Soil Organic Matter (%) | Organic Matter Credit (ab*p*.14) (lbs/acre) | Previous Year Legume Credit (lbs/acre) | Manure Application Rate (tons) | 3 Year Previous Manure Application Rate (tons) | 3 Year Previous Manure Application Credit (af*k) (lbs/acre) | 2 Year Manure Application Rate (tons) | 2 Year Previous Manure Application Credit (ah*l) (lbs/acre)" | 1 Year Previous Manure Application Rate (tons) | 1 Year Previous Manure Application Credit (aj*g) (lbs/acre) | Irrigation Water and Other Credits (lb/ac) | Total Nitrogen Credits (aa+ac+ad+ag +al+ak+ai) (lbs/acre) | Remaining Deficient N Recommendation (t-am) (lb/ac) |
| 2017 | | | | | 0 | | | | | | | | | |
| 2018 | | | | | 0 | | | | | | | | | |
| 2019 | | | | | 0 | | | | | | | | | |
| 2020 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 148.0 |
| 2021 | 15.0 | 1.0 | 21.5 | 40 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |
| 2022 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 21.4 | 146.0 |
| 2023 | 15.0 | 1.0 | 21.5 | 40 | 20 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 76.5 | 142.9 |
| 2024 | 15.0 | 1.0 | 6.4 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 66.0 | 0.0 | 87.4 | 82.0 |

*Initial Application Rate*

| AO | AP | AQ | AR | AS | AT | AU | AV | AW | AX |
|---|---|---|---|---|---|---|---|---|---|
| Scenario ID: | First Year Availability (d) (lbs/ton) | Allowable Solids App. Rate For Balance of Nitrogen (am/ao) (tons/acre) | Desired Application Rate For Nitrogen (tons / acre) | Total 1st Year Available N @ Desired Rate (lbs/acre) (AP * AR) | Commercial Nitrogen Fertilizer Applied (lbs. of N / acre) | Phosphorus Applied at Allowable N Rate (lbs/acre) | Phos Balance After Allowable N Rate (lbs/acre) | Phosphorus Applied at Desired N Rate (lbs/acre) | Phos Balance After Desired N Rate (lbs/acre) |
| 2020 | 5.50 | 26.9 | 0.0 | 0.0 | 148.0 | 433.2 | 397.0 | 0.0 | -36.2 |
| 2021 | 5.50 | 26.0 | 0.0 | 0.0 | 142.9 | 597.8 | 947.8 | 0.0 | -83.2 |
| 2022 | 5.50 | 26.9 | 0.0 | 0.0 | 148.0 | 618.8 | 1530.4 | 0.0 | -119.4 |
| 2023 | 5.50 | 26.0 | 20.0 | 110.0 | 32.9 | 597.8 | 2081.2 | 322.0 | 155.7 |
| 2024 | 5.50 | 14.9 | 0.0 | 0.0 | 82.0 | 342.8 | 2387.8 | 0.0 | 119.5 |

*- Nitrogen availability based UNL NebGuide G1335 - "Determining Crop Available Nutrients from Manure"*
*- Application rates are based on UNL Nitrogen fertilizer recommendations for corn grain, found in EC117 - "Fertilizer Suggestions for Corn"*
*3Soil Nitrate N Credit = ppm Nitrate N x 0.3 x Depth of sample in inches*
*4Soil Organic Matter N Credit = OM % x Expected Realistic Yield x 0.14*
*5 Previous Legume Crop N Credit = UNL Guidelines or Ward Guide*
*6 Past Manure Credit within the last 3 years = Assumed Organic N availability x application rate*
*7Irrigation Water N Credit = (inches pumped x ppm Nitrate N x 2.7) / 12*

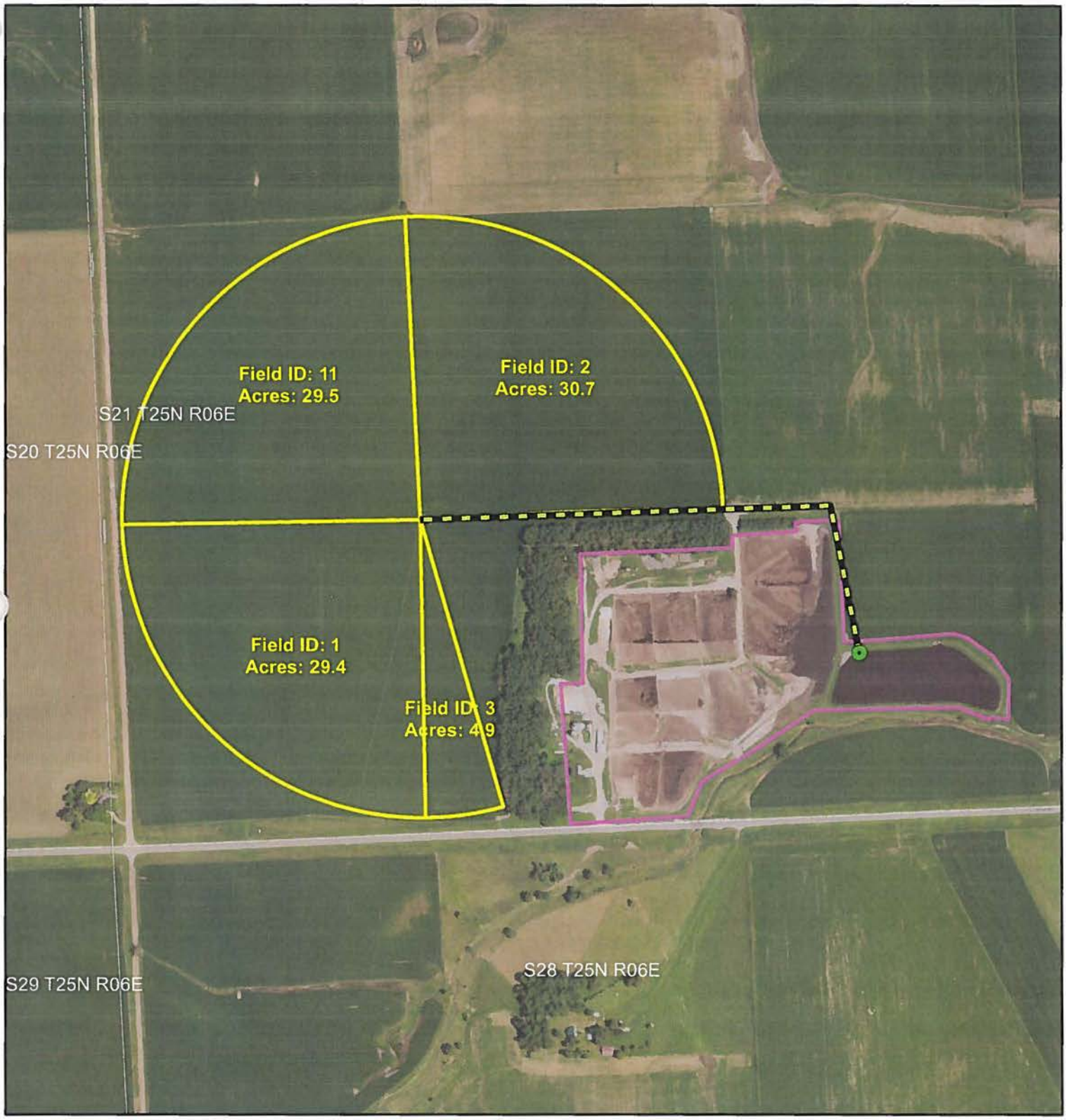
## *Ron Bruns Feed Yards - East Place* *Application Land Site Summary Information*

| NDEQ Field ID | Field Name | Legal Description | Fall Application | Spring Application | Sidedress | App Agreement | Livestock waste from another facility applied to this site |
|---|---|---|---|---|---|---|---|
| 1 | Ron's SW 40 | SW1/4,SW1/4, Sec.21, Tow. 25N, Ran.6E, of T | Low | Low | Low | ☐ | ☐ |
| 2 | Ron's NE 40 | NE1/4,SW1/4, Sec.21, Tow. 25N, Ran.6E, of T | lium-Low | Medium-Low | Low | ☐ | ☐ |
| 3 | Ron's East of Feedyard | pt.SW 1/4,SE 1/4 & pt. SE 1/4, SW1/4, Sec.21 of Thurston County | lium-Low | Medium-Low | Low | ☐ | ☐ |
| 4 | Pospisil Farm | SW1/4, Sec.20, Tow. 25N, Ran.6E, of Thurstor | lium-Low | Medium-Low | Low | ☑ | ☐ |
| 5 | Airport Ground | W1/2,NE1/4, Sec.28, Tow. 25N, Ran.6E, of Th | lium-Low | Medium-Low | Low | ☑ | ☐ |
| 6 | Allen's | NW1/4, Sec.29, Tow. 25N, Ran.6E, of Thurstor | lium-Low | Medium-Low | Low | ☑ | ☐ |
| 7 | Home Place | NE 1/4, Sec.30, Tow. 25N, Ran.6E, of Thurstor | Low | Low | Low | ☑ | ☐ |
| 8 | Barke Place | NE1/4, Sec.25, Tow. 25N, Ran.5E, of Thurston | Low | Low | Low | ☑ | ☐ |
| 9 | Duffy | NW1/4, Sec.28, Tow. 25N, Ran.6E, of Thurstor | lium-Low | Medium-Low | Low | ☑ | ☐ |
| 11 | Florene's | NW1/4,SW1.4, Sec.21, Tow. 25N, Ran.6E, of T | lium-Low | Medium-Low | Low | ☑ | ☐ |
| 12 | Sandahl | W1/2,NW1/4, Sec.21, Tow. 25N, Ran.6E, of Th | lium-Low | Medium-Low | Low | ☑ | ☐ |

| NDEQ ID | Field Name | Index Date | Erosion Sheet Rill Estimate | Runoff P Value | Erosion P Value | Phos Index Value | PIndex Text | Erosion Practices Planned | Waterway Planned | Filter Strips Planned | Setback Required |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Ron's SW 40 | 3/18/2020 | 0.72 | 2.38 | 1.18 | 3.56 | Medium | ☑ | ☐ | ☐ | ☐ |
| 2 | Ron's NE 40 | 3/18/2020 | 0.84 | 2.90 | 1.63 | 4.52 | Medium | ☑ | ☐ | ☐ | ☐ |
| 3 | Ron's East of Feedyard | 3/18/2020 | 0.13 | 1.46 | 0.20 | 1.66 | Low | ☑ | ☐ | ☐ | ☑ |
| 4 | Pospisil Farm | 3/18/2020 | 2.86 | 1.35 | 3.21 | 4.56 | Medium | ☑ | ☐ | ☐ | ☑ |
| 5 | Airport Ground | 3/18/2020 | 2.86 | 1.35 | 2.70 | 4.05 | Medium | ☑ | ☐ | ☐ | ☐ |
| 6 | Allen's | 3/18/2020 | 2.86 | 1.35 | 2.70 | 4.05 | Medium | ☑ | ☐ | ☐ | ☑ |
| 7 | Home Place | 3/18/2020 | 1.09 | 1.35 | 1.02 | 2.37 | Medium | ☑ | ☐ | ☐ | ☑ |
| 8 | Barke Place | 3/18/2020 | 2.17 | 1.35 | 2.05 | 3.40 | Medium | ☑ | ☐ | ☐ | ☑ |
| 9 | Duffy | 3/18/2020 | 2.86 | 1.35 | 3.21 | 4.56 | Medium | ☑ | ☐ | ☐ | ☑ |
| 11 | Florene's | 3/18/2020 | 1.89 | 1.80 | 2.50 | 4.30 | Medium | ☑ | ☐ | ☐ | ☐ |
| 12 | Sandahl | 3/18/2020 | 0.16 | 0.80 | 0.23 | 1.02 | Low | ☑ | ☐ | ☐ | ☑ |

# Ron Bruns Feed Yards - East Place

## Irrigation Distribution




**Legend**

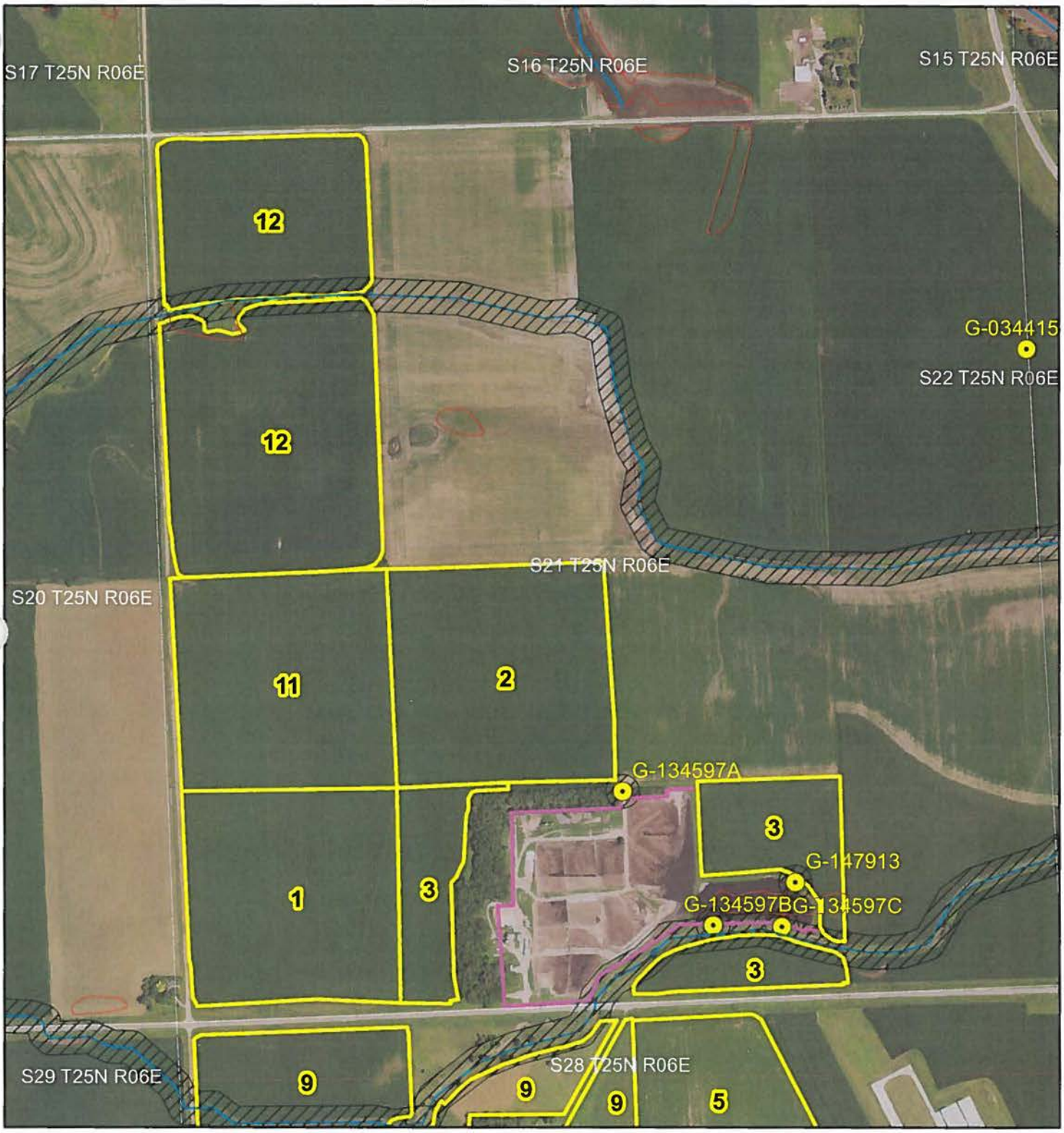
- Pumps
- Pipe
- Irrigation_Distribution
- Facility
- Section_Lines

0 312.5 625 1,250 1,875 2,500 Feet

N

# Ron Bruns Feed Yards - East Place

## Application Land Map




**Legend**

- Streams
- Wells
- National Wetlands Inventory
- Application_Land
- Facility
- Setback
- Section Lines

0 450 900 1,800 2,700 3,600 Feet

N

# Ron Bruns Feed Yards - East Place

## Application Land Map

**Legend**

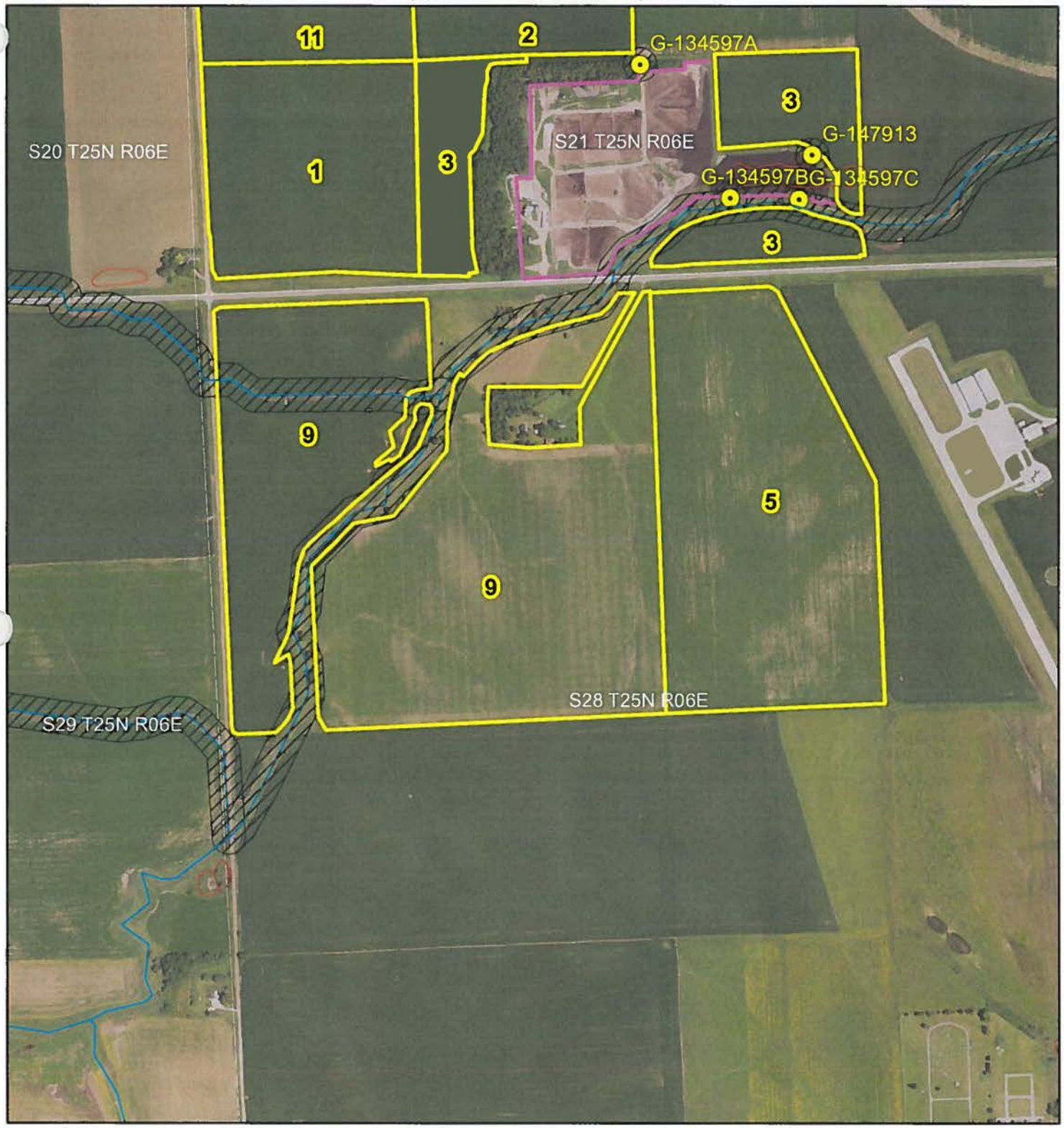
- Streams
- Wells
- National Wetlands Inventory
- Application_Land
- Facility
- Setback

0 450 900 1,800 2,700 3,600 Feet

N

# Ron Bruns Feed Yards - East Place

## Application Land Map




**Legend**

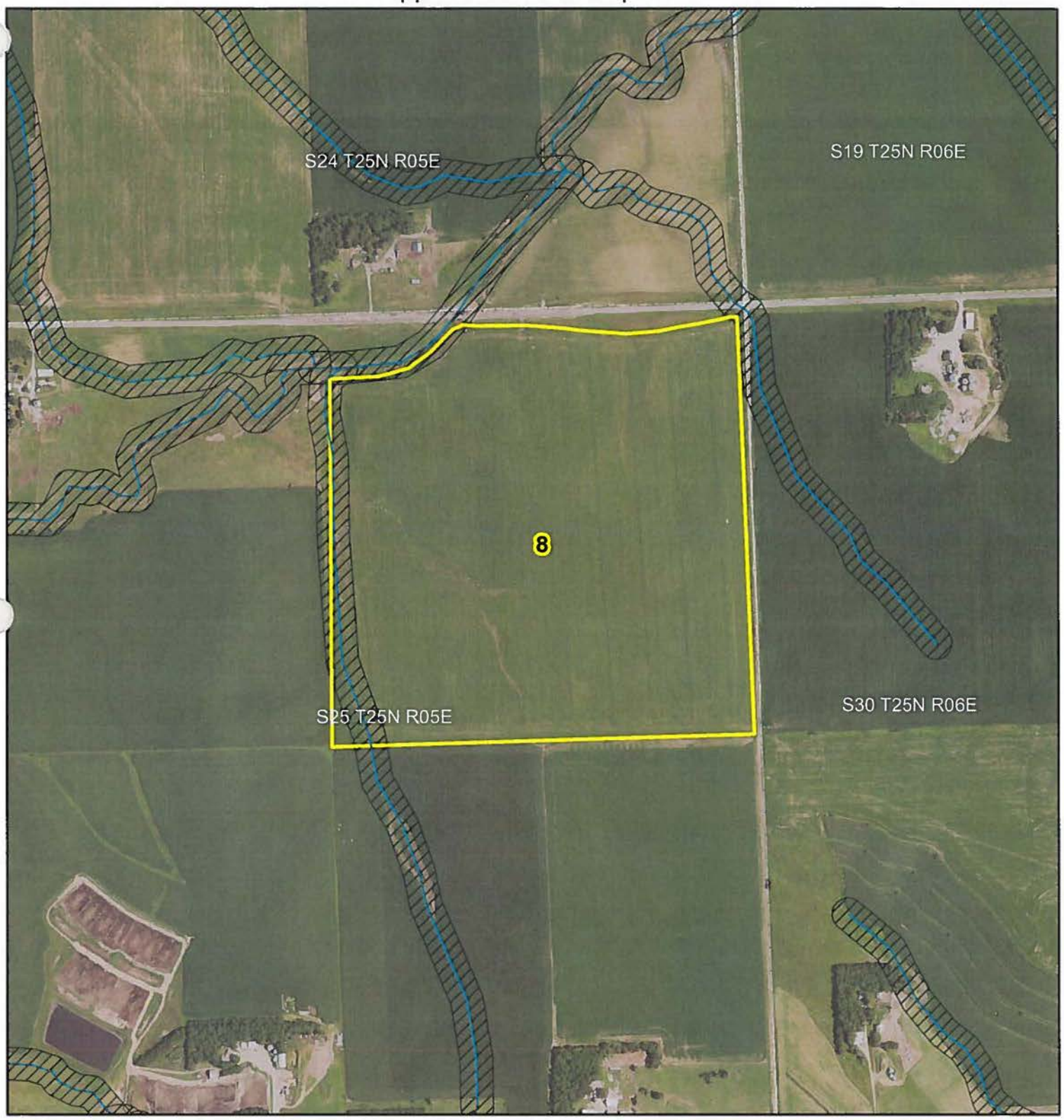
- Streams
- Wells
- National Wetlands Inventory
- Application_Land
- Facility
- Setback

0 450 900 1,800 2,700 3,600 Feet

N

# Ron Bruns Feed Yards - East Place

## Application Land Map




**Legend**

- Streams
- Wells
- National Wetlands Inventory
- Application_Land
- Facility
- Setback
- Section Lines

0 450 900 1,800 2,700 3,600 Feet

N

# Nutrient Application Agreement

This agreement is hereby made between RICHARD & DONNA SMITH (owner) and Ron Bruns representing Ron Bruns Feedyard - East Place
(Please print)

1. Ron Bruns Feedyard - East Place requires access to the below described land for the purposes of applying nutrients in the form of solid and/or liquid manure from the facility.
2. Ron Bruns Feedyard - East Place may or may not spread manure in any given year of this agreement.
3. Owner agrees to allow Ron Bruns Feedyard - East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyard - East Place and said owner.
4. Owner may specify application rate if desired but application rate will not exceed normal agronomic rates.
5. This Agreement shall continue from year to year without further renewal, except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Use Only | Common Name | Legal Description<br>Example: NE1/2 of SW1/4 S 14, T 11, R 4W | County | Irrigated ? | |
|---|---|---|---|---|---|
| 4 | POSPISIL FARM | SW 1/2 S 20 T 25 R 6 E | Thurston | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |

Ronald H Bruns
Ron Bruns (signature)

1-27-03
Date

& Richard M Smith
Land Owner (signature)

1-27-03
Date

Titled Owner(s)** Richard M & Donna Smith
Address: RR2
City State Zip: Pender Ne 68047
Phone: 402-385-3065

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.

5-25

Settje Agri-Services & Engineering, Inc.

**Please attach FSA photos of application land with fields highlighted.**

# Nutrient Application Agreement

This agreement is hereby made between Russell Tonjes (owner) and Ron Bruns representing Ron Bruns Feedyard - East Place
(Please print)

1. Ron Bruns Feedyard - East Place requires access to the below described land for the purposes of applying nutrients in the form of solid and/or liquid manure from the facility.
2. Ron Bruns Feedyard - East Place may or may not spread manure in any given year of this agreement.
3. Owner agrees to allow Ron Bruns Feedyard - East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyard - East Place and said owner.
4. Owner may specify application rate if desired but application rate will not exceed normal agronomic rates.
5. This Agreement shall continue from year to year without further renewal, except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Use Only | Common Name | Legal Description<br>Example: NE1/2 of SW1/4 S 14, T 11, R 4W | County | Irrigated ? | |
|---|---|---|---|---|---|
| 5 | AIRPORT BRUNS | W 1/2 of NE 1/4 S28 T25 R 6E | THURSTON | ☐ Yes ☑ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |

Ronald H Bruns
Ron Bruns (signature)

1-27-03
Date

Land Owner (signature) Russell Tonjes by Milton Tonjes

Date 1-27-03

Titled Owner(s): Russell Tonjes
Address: 215 N 5th st
City State Zip: Pender NE 68047
Phone: 402-385-2726

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.

Settje Agri-Services & Engineering, Inc.

**Please attach FSA photos of application land with fields highlighted.**

5-24

# Nutrient Application Agreement

This agreement is hereby made between LAURIE ALLEN (owner) and Ron Bruns representing Ron Bruns Feedyard - East Place
(Please print)

1. Ron Bruns Feedyard - East Place requires access to the below described land for the purposes of applying nutrients in the form of solid and/or liquid manure from the facility.
2. Ron Bruns Feedyard - East Place may or may not spread manure in any given year of this agreement.
3. Owner agrees to allow Ron Bruns Feedyard - East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyard - East Place and said owner.
4. Owner may specify application rate if desired but application rate will not exceed normal agronomic rates.
5. This Agreement shall continue from year to year without further renewal, except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Use Only | Common Name | Legal Description<br>Example: NE1/2 of SW1/4 S 14, T 11, R 4W | County | Irrigated ? | |
|---|---|---|---|---|---|
| 6 | | NW 1/4 S 29 T 25 R 6E | THURSTON | ☐ Yes ☑ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |

Ron Bruns (signature)
1-27-03
Date

Land Owner (signature)
1-27-03
Date

Titled Owner(s): Laurie Allen
Address: RR3 Box 183A
City State Zip: Pender Ne 68047
Phone: 402-385-2550

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.

Settje Agri-Services & Engineering, Inc.

**Please attach FSA photos of application land with fields highlighted.**

5-27

# Nutrient Application Agreement

This agreement is hereby made between KURT KASER (owner) and Ron Bruns representing Ron Bruns Feedyard - East Place
(Please print)

1. Ron Bruns Feedyard - East Place requires access to the below described land for the purposes of applying nutrients in the form of solid and/or liquid manure from the facility.
2. Ron Bruns Feedyard - East Place may or may not spread manure in any given year of this agreement.
3. Owner agrees to allow Ron Bruns Feedyard - East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyard - East Place and said owner.
4. Owner may specify application rate if desired but application rate will not exceed normal agronomic rates.
5. This Agreement shall continue from year to year without further renewal, except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Use Only | Common Name | Legal Description<br>Example: NE1/2 of SW1/4 S 14, T 11, R 4W | County | Irrigated ? | |
|---|---|---|---|---|---|
| 7 | HOME PLACE | NE 1/4 S30 T25 R 6E | Thurston | ☐ Yes ☑ No | |
| 8 | BARKE PLACE | NE 1/4 S25 T25 R 5E | Thurston | ☐ Yes ☑ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |

Ronald H Bruns
Ron Bruns (signature)

1-22-03
Date

Kurt Kaser
Land Owner (signature)

1-22-03
Date

Titled Owner(s): KURT & LORI KASER
Address: RT 3 BOX 182
City State Zip: PENDER, NE 68047
Phone: 402-385-2552

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.

Settje Agri-Services & Engineering, Inc.

**Please attach FSA photos of application land with fields highlighted.**

428

# Nutrient Application Agreement

This agreement is hereby made between EARL DUFFY (owner) and Ron Bruns representing Ron Bruns Feedyard - East Place
(Please print)

1. Ron Bruns Feedyard - East Place requires access to the below described land for the purposes of applying nutrients in the form of solid and/or liquid manure from the facility.
2. Ron Bruns Feedyard - East Place may or may not spread manure in any given year of this agreement.
3. Owner agrees to allow Ron Bruns Feedyard - East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyard - East Place and said owner.
4. Owner may specify application rate if desired but application rate will not exceed normal agronomic rates.
5. This Agreement shall continue from year to year without further renewal, except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Use Only | Common Name | Legal Description<br>Example: NE1/2 of SW1/4 S 14, T 11, R 4W | County | Irrigated ? | |
|---|---|---|---|---|---|
| 9 | Duffy's | NW 1/4 S28 T25 R6 | THURSTON | ☐ Yes ☑ ~~No~~ | 153 |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |

Ronald K Bruns
Ron Bruns (signature)
4-10-03
Date

Earl Duffy
Land Owner (signature)
4-10-03
Date

Titled Owner(s): EARL DUFFY
Address: 506 IVAN ST
City State Zip: PENDER NE 68047
Phone: 402 385-3102

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.

Settje Agri-Services & Engineering, Inc.

**Please attach FSA photos of application land with fields highlighted.**

# Nutrient Application Agreement

This agreement is hereby made between Leon Bruns (owner) and Ron Bruns representing Ron Bruns Feedyards-East Place
(Please print)

1. Ron Bruns Feedyards-East Place requires access to the below described land for the purposes of applying nutrients in the form of solid and/or liquid manure from the facility.
2. Ron Bruns Feedyards-East Place may or may not spread manure in any given year of this agreement.
3. Owner agrees to allow Ron Bruns Feedyards-East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyards-East Place and said owner.
4. Owner may specify application rate if desired but application rate will not exceed normal agrinomic rates.
5. This Agreement shall continue from year to year without further renewal, except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Only | Common Name | Legal Description<br>Example: NE1/2 of SW1/4 S 14, T 11, R 4W | County | Potential Crops or Pasture | | | Historical Yields** | | | Irrigated ? | Tillable Acres Or Pasture |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Corn | Beans | | Corn | Beans | | | |
| 11 | Florence's | NW¼ SW¼ S21 T25N R6E | THURSTON | | | | | | | ☐ Yes ☒ No | 40 |
| | | S T R | | | | | | | | ☐ Yes ☐ No | |
| | | S T R | | | | | | | | ☐ Yes ☐ No | |
| | | S T R | | | | | | | | ☐ Yes ☐ No | |
| | | S T R | | | | | | | | ☐ Yes ☐ No | |

Ronald H Bruns
Ron Bruns (signature)
3-20-03
Date

Leon Bruns
Land Owner (signature)
3-20-03
Date

Titled Owner(s): Leon Bruns
Address: RR3 Box 158
City State Zip: Pender NE 68047
Phone: 402-385-3650

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.

# Nutrient Application Agreement

This agreement is hereby made between JOHN SANDAHL (owner) and Ron Bruns representing Ron Bruns Feedyard - East Place

[illegible] applying nutrients [illegible] land and [illegible] applying nutrients [illegible] land [illegible] solid and liquid manure from the facility

[illegible] allow Ron Bruns Feedyard - East Place to spread manure on said premises at such times as are mutually agreeable by both Ron Bruns Feedyard - East Place and said owner.

4. Owner may specify application rate if desired but application rate will not exceed normal agronomic rates.
5. This Agreement shall continue from year to year without further renewal except if either party desires to change or cancel this Agreement they shall do so in writing on or before September 1, of any given year for the following year.
6. Owner agrees to provide the following land tracts for manure and nutrient applications:

| SASE Office Use Only | Common Name | Legal Description<br>Example: NE1/4 of SW1/4 S 14, T 11, R 4W | County | Irrigated ? | |
|---|---|---|---|---|---|
| 12 | | W 1/2 of NW 1/4 S 21 T 25N R 6E | THURSTON | ☐ Yes ☑ No | 78 |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |
| | | S T R | | ☐ Yes ☐ No | |

Ronald H Bruns
Ron Bruns (signature)

3-19-03
Date

John Sandahl
Land Owner (signature)

3-21-03
Date

Titled Owner(s): JOHN SANDAHL
Address: 85597 CHILDS AVE
City State Zip: WAKEFIELD, NE 68784
Phone: 402-287-2457

**Please note. County average yields will have to be used unless insurance yield documentation from the past 3 years is provided for each tract of land. Typically, when county averages are used, more acres are required to meet the acres needed.



**Please attach FSA photos of application land with fields highlighted.**

**Raymond C. Ward, Ph.D.**
Certified Professional Soil Scientist

## NITROGEN FERTILIZER RECOMMENDATIONS

Plants absorb nitrate from the soil solution and synthesize it into amino acids for use in plant growth. Nitrate is the decomposition product in the aerobic nitrogen cycle before it is taken up by the plants. Nitrate is soluble and easily extracted from the soil. The total amount measured by the soil test is usually available to the crop. Nitrogen recommendations are made by assuming 100 percent of the nitrate is available in the surface soil and subsoil.

Nitrogen fertilizer recommendations are made by calculating a nitrogen requirement for the crop and yield goal and subtracting the soil nitrate values from the requirement. The amount of nitrogen available from a past legume crop and/or from livestock manure must also be subtracted from the nitrogen requirement.

The suggested amounts of nitrogen available from a past legume crop are as follows:

(1) Alfalfa.....100 lbs N/A
(2) Alfalfa ½ stand.....50 - 75 lbs N/A
(3) Alfalfa poor stand...0 - 25 lbs N/A
(4) Soybeans.....40 lbs N/A
(5) Other Beans.....25 lbs N/A
(6) Clovers.....75 lbs N/A

The historic suggested amounts of nitrogen available from a manure application are as follows:

(1) Beef Feedlot.....5 lbs N/ton
(2) Dairy Barn.....5 lbs N/ton
(3) Poultry.....15 lbs N/ton
(4) Swine.....8 lbs N/ton
(5) Slurry.....17 lbs N/1,000 gal

However it is suggested that your manure/slurry be analyzed for a more accurate evaluation. The nitrogen requirement for each crop is shown on the next page along with the subsoil factor for converting the subsoil nitrate test to lbs of N per acre. The total nitrogen requirement is determined by multiplying the crop yield goal by the nitrogen requirement. Surface soil nitrate ppm reading is multiplied by .3 and by the sample depth (inches) to arrive at pounds of N per acre. The pounds of N in the subsoil are calculated by multiplying the subsoil nitrate ppm reading by subsoil sample depth (inches) and the subsoil factor. The sum of nitrogen from the surface soil and subsoil is subtracted from the calculated total nitrogen requirement. If a subsoil nitrate test is not available assume it to be 5 ppm $NO_3$-N for fine textured soils and 2 ppm $NO_3$-N for sandy soils.



Bus: 308-234-2418
Fax: 308-234-1940

website
www.wardlab.com

4007 Cherry Ave., P.O. Box 788
Kearney, Nebraska 68848-0788

**Raymond C. Ward, Ph.D.**
Certified Professional Soil Scientist

| Crop | Nitrogen Requirement | Subsoil Factor |
|---|---|---|
| Corn | 1.2 lbs / bu | 0.3 |
| Milo | 1.15 lbs / bu | 0.3 |
| Popcorn | 0.031 lbs / lb | 0.3 |
| Seed Corn | 2.0 lbs / bu | 0.3 |
| Corn Silage | 10.5 lbs / ton | 0.3 |
| Sorghum Silage | 9.5 lbs / ton | 0.3 |
| Feed-Hay | 27.0 lbs / ton | 0.3 |
| Sudan Hay | 27.0 lbs / ton | 0.3 |
| Soybeans | See Footnote | |
| Pinto Beans | 3.0 lbs / cwt | 0.3 |
| Gr. No. Beans | 3.0 lbs / cwt | 0.3 |
| Peanuts | See Footnote | |
| W. Wheat | 2.4 lbs / bu | 0.3 |
| Sp. Wheat | 2.5 lbs / bu | 0.3 |
| Oats | 1.3 lbs / bu | 0.3 |
| Rye | 1.9 lbs / bu | 0.3 |
| Feed Barley | 1.5 lbs / bu | 0.3 |
| Malting Barley | 1.3 lbs / bu | 0.3 |
| Sm. Gr. Silage | 13.0 lbs / ton | 0.3 |
| Sm. Gr. Hay | 35.0 lbs / ton | 0.3 |
| Alfalfa | 0 | 0 |
| New Alfalfa | See Footnote | |
| Grass-Alfalfa | 20.0 lbs / ton | 0.3 |
| Clover | 0 | 0 |
| Bromegrass | 40.0 lbs / ton | 0.3 |
| Bermudagrass | 40.0 lbs / ton | 0.3 |
| Fescue | 40.0 lbs / ton | 0.3 |
| Native Grass | 27.0 lbs / ton | 0.3 |
| Lovegrass | 32.0 lbs / ton | 0.3 |
| Cool Grass | 40.0 lbs / ton | 0.3 |
| Sugar Beets | 8.0 lbs / ton | 0.3 |
| Sunflowers | 0.05 lbs / lb | 0.3 |
| Potatoes | 0.5 lbs / cwt | 0.3 |
| Cotton | 0.1 lbs / lb | 0.3 |
| Millet | 1.7 lbs / bu | 0.3 |
| Onions | 0.25 lbs / cwt | 0.3 |
| Melons | 14 lbs / ton | 0.3 |
| Garden | 135 lbs / unit | 0.3 |

Footnote: The nitrogen rate for these legume crops is calculated on the basis of the P2O5 requirement.
The N requirement is based on a 1:3 ratio (N:P2O5)



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**Kearney, Nebraska 68848-0788**

**Raymond C. Ward, Ph.D.**
Certified Professional Soil Scientist

## Quantities of Plant Nutrients in Crops
## (Pounds of Plant Nutrient per Unit Indicated)

| Crop | Yield Unit | N (Nitrogen) | $P_2O_5$ (Phosphate) | $K_2O$ (Potash) | Calcium | Magnesium | Sulfur | Copper | Manganese | Zinc |
|---|---|---|---|---|---|---|---|---|---|---|
| Corn (Grain) | per bu | 0.75 | 0.33 | 0.23 | 0.01 | 0.05 | 0.07 | 0.0004 | 0.0006 | 0.001 |
| | 200 bu | 150 | 66 | 60 | 46 | 10 | 14 | 0.08 | 0.12 | 0.2 |
| Soybeans (Grain) | per bu | 3.7 | 0.77 | 1.4 | 0.18 | 0.18 | 0.32 | 0.001 | 0.0013 | 0.001 |
| | 60 bu | 222 | 46.2 | 84 | 10.8 | 10.8 | 22.2 | 0.06 | 0.078 | 0.06 |
| Wheat (Grain) | per bu | 1.2 | 0.52 | 0.26 | 0.015 | 0.15 | 0.12 | 0.0007 | 0.002 | 0.003 |
| | 60 bu | 72 | 31.2 | 15.6 | 1.5 | 9 | 7.2 | 0.042 | 0.12 | 0.18 |
| Cotton (Lint and Seed) | per bale | 12.5 | 4.8 | 5.8 | 0.67 | 1.33 | 0.96 | 0.02 | 0.037 | 0.107 |
| | 2 bale | 25 | 9.6 | 11.6 | 1.34 | 2.66 | 1.34 | 0.04 | 0.074 | 0.214 |
| Sorghum (Grain) | per bu | 0.9 | 0.27 | 0.2 | 0.067 | 0.083 | 0.083 | 0.000167 | 0.0007 | 0.00067 |
| | 100 bu | 90 | 27 | 20 | 6.7 | 8.3 | 8.3 | 0.0167 | 0.07 | 0.067 |
| Sunflowers (Grain) | per cwt | 3.6 | 1.2 | 1.1 | 1.2 | 0.20 | 0.22 | .002 | .002 | .005 |
| | 20 cwt | 72 | 24 | 22 | 2.4 | 4.0 | 4.4 | 0.04 | 0.04 | 0.1 |
| Alfalfa (Total) | per ton | 55 | 12 | 50 | 28 | 5.25 | 5.0 | 0.015 | 0.11 | 0.105 |
| | 6 ton | 330 | 72 | 300 | 168 | 31.5 | 30 | 0.09 | 0.66 | 0.63 |
| Grass (Total) | per ton | 30 | 12 | 42 | 8 | 3.5 | 3.75 | 0.01 | 0.15 | 0.04 |
| | 4 ton | 120 | 48 | 168 | 32 | 14 | 15 | 0.04 | 0.6 | 0.16 |
| Sugar Beets (Total) | per ton | 8 | 1.4 | 6.7 | 2.2 | 0.50 | 0.67 | 0.002 | 0.05 | .002 |
| | 25 ton | 200 | 35 | 160 | 55 | 12.5 | 16.75 | 0.05 | 1.25 | .05 |
| Oats (Grain) | per bu | 0.70 | 0.25 | 0.15 | 0.025 | 0.0375 | 0.074 | 0.0004 | 0.0015 | 0.0006 |
| | 80 bu | 56 | 20 | 12 | 2 | 3 | 5.9 | 0.032 | 0.12 | 0.048 |
| Potatoes (Tuber) | per cwt | 0.35 | 0.13 | 0.60 | 0.015 | 0.03 | 0.03 | 0.0002 | 0.0005 | 0.00025 |
| | 100 cwt | 35 | 13 | 60 | 1.5 | 3 | 3 | 0.02 | 0.05 | 0.025 |
| Peanuts (Nuts) | per cwt | 3.7 | 0.46 | 0.68 | 0.6 | 0.57 | 0.53 | * | * | * |
| | 35 cwt | 129.5 | 16.1 | 23.8 | 21 | 19.95 | 18.55 | * | * | * |

*No data for this nutrient



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Fax: 308-234-1940

website
www.wardlab.com

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Kearney, Nebraska 68848-0788

# Maintenance Inspection Log

**Facility Name:** ***Ron Bruns Feed Yards - East Place*** **Year** _____

**Facility Manager** ***Ron Bruns***

| Maintenance Inspections | (place an 'X' if conducted) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Berm or sidewall damage (erosion, vegetative loss) | | | | | | | | | | | | |
| Rip rap (coverage, or damage) | | | | | | | | | | | | |
| Riser pipes (damage or blockage) | | | | | | | | | | | | |
| Vegetative overgrowth (weeds, trees, bushes) | | | | | | | | | | | | |
| Staff gauge (damage, or leaning) | | | | | | | | | | | | |
| Pumps (leakage, or damage) | | | | | | | | | | | | |
| Waterlines inspected daily (wastewater, or drinking) | | | | | | | | | | | | |
| Dead animal containment area | | | | | | | | | | | | |
| Chemical and fuel containment area | | | | | | | | | | | | |
| Irrigation system (pump, pipes, or pivots) | | | | | | | | | | | | |
| Manure Application Equipment | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

Corrections taken:

_____

_____

_____

_____

_____

_____

Completed by: _____
(Print Name)

Instructions: Please note all repairs or maintenance activity. List the date, cause and corrective measures.

# Pond Level, and Precipitation Log

Facility Name **Ron Bruns Feed Yards - East Place**

Facility Manager **Ron Bruns**

Month / Yr _____

| | | | |
|---|---|---|---|
| Maximum Water | | | |
| Start Pumping | | | |
| Max. Sludge & Winter | | | |
| Day | Precip Amt | Pond Level | Comments |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
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| 29 | | | |
| 30 | | | |
| 31 | | | |

# Dewatering Log

Facility Name: Ron Bruns Feed Yards - East Place

Facility Manager: Ron Bruns

Month / Yr: _____

Pond #: _____

Maximum Water Level: _____

Start Pumping Level: _____

Maximum Sludge & Winter Pumpdown Level: _____

| Date | Pond Level | Start Pumping | Stop Pumping | | Application Field | 24 Hours Prior | | 24 Hours Post | | Volume Pumped |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Hr / Min | Hr / Min | Level | ID | Wind Dir. / Speed | Temp High & Low | Wind Dir. / Speed | Temp High & Low | |
| | | | | | | | | | | |
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# Manure Application Worksheet

Ron Bruns Feed Yards - East Place

Ron Bruns

| Date | Field | Load Weights | Number of Loads | Acres Covered | Estimated Tons/Acre | Manure Sample ID | 24 Hours Prior | | 24 Hours Post | | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Wind Dir / Speed | Temp High & Low | Wind Dir / Speed | Temp High & Low | |
| | | | | | | | | | | | |
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# Manure Sale or Gift Register

Facility Name: ***Ron Bruns Feed Yards - East P.*** Facility Manager ***Ron Bruns***

| Date of Transfer | Quantity | Delivery Point | Recipient | |
|---|---|---|---|---|
| | | | Name | |
| | | | Address | |
| | | | City | |
| | | | State | |
| | | | Phone | |
| | | | Name | |
| | | | Address | |
| | | | City | |
| | | | State | |
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| | | | Name | |
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| | | | Address | |
| | | | City | |
| | | | State | |
| | | | Phone | |
| | | | Name | |
| | | | Address | |
| | | | City | |
| | | | State | |
| | | | Phone | |

# Mortality Management Worksheet

**Facility Name:** ***Ron Bruns Feed Yards - East Place***
**Facility Manager** ***Ron Bruns***

| Mortality Date | Animal Type | Head Ct. | Disposal Date | Disposal Method |
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# Chemical Storage Log

**Facility Name:** *Ron Bruns Feed Yards - East Place*
**Facility Manager** *Ron Bruns*

| Chemical Name | Storage Location | Application Date | Container Disposal Method |
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# Fuel / Petroleum Disposal

| Fuel Name | Storage Location | Disposal Date | Disposal Method |
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