Nutrient Management Plan

Of

Joe Farmer

Farm# *Tract #*

Prepared by:

Becky's TSP service
Anywhere, IA 55555-4444

xxx/xxx-xxxx Phone

facsimile

becky *.com*

Nutrient Management Plan Checklist and Certification

County:_____ Date Plan Submitted:_____ Crop year(s) NMP plan is written for_____
(harvest to harvest or calendar year)

Producer/Owner Name, Address & Phone Number	Farm #(s) _____ Tract #(s) _____ Field #(s) _____ Cropland Acres _____	Circle relevant program(s): AFO Strategy, IDNR USDA –EQIP, 319 Grant, other _____

Nutrient Management Plan 590 (NMP)	Yes	No	Location in plan/Comments
1. <u>Evaluation & Inventory</u>			
a. Aerial site photographs and/or maps?	a.*		
b. Soil map w/features and limitations or equivalent?	b.*		
c. Photos indicate property/field boundaries (field #s correspond to FSA)?	c.*		
d. Environmentally sensitive areas identified, located, documented and discussed with producer? Check Iowa Master Matrix for operation. (If required by the county the operation is in)	d.*		
e. Conservation practices and management activities needed for erosion control and water management identified?	e.*		
f. Is site within area ID as impaired waterbodies?	f. *		
2. <u>Written Plan Components</u>			
a. Previous, current and/or planned crops rotations indicated?	a.*		
b. Soil test reports from approved lab http://www.agriculture.state.ia.us/certlabs.htm ? ▪ All fields tested within the last four years? (list dates) ▪ Soil test field ID corresponds to plan field map ID? ▪ LSNT tests? (if applicable)	b.*		
c. Plant tissue test analysis and fall N stalk test report (if applicable)?	c.		
d. Realistic crop yield potentials & a description of how they were identified?	d.*		
Quantification from all Nutrient Sources			
e. Complete nutrient budget (balance sheet) for N, P & K developed?	e.*		
f. Legume and manure credits included in crop budget? ▪ **Manure analysis completed** and used to applying manure nutrients. Book values used for planning purposes only. ▪ Minimum acres needed for waste spreading calculated? ▪ Manure application rates and spreading sites indicated? ▪ Phosphorus Risk Assessment (PI) ▪ If book values used has adjustment been made for wet/dry feed.	f.*		
g. Additional fertilizer needs are indicated? (based on Iowa State University Fertilizer Guide recommendations PM 1688 Rev. 11/2002)	g.*		
h. Plan includes all phases of nutrient application, including the location, rate, form, method, and timing for manure and commercial nutrient sources?	h.*		
i. Nutrient application equipment calibration completed?	i.*		
j. Client is compliant with all local, state, and federal rules relating to spreading and/or incorporation of manure?	j.*		
3. <u>Additional items</u>			
a. Record Keeping – documentation is maintained for 5 yrs?	a.*		
b. Annual accomplishment report and checklist for meeting minimum standard.	b.		
c. Narrative on WQ concerns of nitrogen and phosphorus loss from production site.	c.*		
d. Identification of operation and maintenance (O&M) practices/activities?	d.*		

(*) Required for minimum plan. If "no", explain why and include action plan for correction in comments.

Practice (does) (does not) meet minimum standards & specifications for a NRCS Nutrient Management Plan (590).

This Nutrient Management Plan was developed based on the requirements of the current NRCS Nutrient Management Standard (590) dated November 2006 and applicable federal, state, or local regulations or policies and that changes in any of these requirements may necessitate a revision of the plan.

Name of Certified Nutrient Management Specialist & Certification Number:	Date:	Certified conservation planner:	Date:
_____	_____	_____	_____

Insert a copy of the current 590 standard

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

NUTRIENT MANAGEMENT

(Acre)

CODE 590

DEFINITION

Managing the amount, source, placement, form and timing of the application of nutrients and soil amendments.

PURPOSES

- To budget and supply nutrients for plant production.
- To properly utilize manure or organic by-products as a plant nutrient source.
- To minimize agricultural nonpoint source pollution of surface and ground water resources.
- To maintain or improve the physical, chemical and biological condition of soil.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all lands where plant nutrients and soil amendments are applied.

CRITERIA

General Criteria Applicable to All Purposes.

Plans for nutrient management shall comply with all applicable Federal, state, and local laws and regulations.

Plans for nutrient management shall be developed in accordance with policy requirements of the NRCS General Manual Title 450, Part 401.03 (Technical Guides, Policy and Responsibilities) and Title 190, Part 402 (Ecological Sciences, Nutrient Management, Policy); technical requirements of the NRCS Field Office Technical Guide (FOTG); procedures contained in the National Planning Procedures Handbook (NPPH), and the NRCS National Agronomy Manual (NAM) Section 503.

Persons who review or approve plans for nutrient management shall be certified through any certification program acceptable to NRCS within the state. Producers will be able to develop their own nutrient management plans. These plans will be approved by an individual certified through a certification program approved by NRCS.

Plans for nutrient management that are elements of a more comprehensive conservation plan shall recognize other requirements of the conservation plan and be compatible with its other requirements.

A nutrient management plan for nitrogen (N), phosphorus (P), and potassium (K) shall be developed that considers all potential sources of nutrients including, but not limited to:

- legume credits,
- animal manure and organic by-products,

NUTRIENT MANAGEMENT PLAN

Purpose of a Nutrient Management Plan:

Nutrient management is the managing of the source, rate, form, timing and placement and utilization of manure, other organic by-products, bio-solids, and other nutrients in the soil and residues. The goal is to effectively and efficiently use the nutrient resources to adequately supply soils and plants with nutrients necessary to produce food, forage, fiber, and cover while minimizing the transport of nutrients to ground and surface water. The Nutrient Management Plan (NMP) is a component of your Conservation Plan. It is used in conjunction with crop rotations, residue management, pest management, conservation buffer practices, and/or other practices needed on a site specific basis to address natural resource concerns and landowner objectives.

Nitrogen, Phosphorus and Water Quality:

Nitrogen and phosphorus are the two nutrients most often identified as impairing the quality of our ground and surface water. Nitrogen leaching out of the root zone can enter tile and be transported to surface water or leach to groundwater. Nitrogen above 10 parts per million (ppm) in water is a health risk to both humans and animals. Phosphorus leachate or runoff attached to sediment particles entering the surface water contributes to excessive algae growth causing low oxygen levels in surface water that impairs aquatic life and contributes to bad tasting drinking water. Over application of phosphorus above the crop needs will cause phosphorus to accumulate in the soil and increase the potential for losses to the environment. The Iowa Phosphorus Index is available to assess the potential risk of phosphorus moving off site from agricultural fields. This nutrient management plan minimizes the transport of nitrogen and phosphorus to surface and ground water by providing recommendations on application rates, timing, placements and accounting for all sources of nutrients.

There are not any water sources in close proximity to this farm that are listed as High Quality Water Resources or are listed as Impaired Water Bodies.

This Nutrient Management Plan was developed based on the requirements of the current NRCS Nutrient Management Standard (590) dated and applicable Federal, state or local regulations for policies; and that changes in any of these requirements may necessitate a revision of the plan. The plan should receive periodic review to determine if adjustments or modifications are needed. As a minimum the plan will be reviewed and revised with each soil test cycle.

General Guidelines:

Soil samples, based on a 7-inch depth, shall be taken once every 4 years, as a minimum, to monitor the Phosphorus, Potassium, pH and organic matter levels and adjust nutrient Application rates as needed. The pH of the soil is important because it has a direct effect

on nutrient availability. Follow Iowa State University recommendations and soil testing procedures to develop a crop budget for determining crop nutrient needs. Nitrate testing using the late spring nitrate test and fall corn stalk test can be used to monitor the nitrogen management program. Soil pH levels shall be maintained near 6.5 for corn and soybeans and 6.9 for alfalfa.

Soil tests and realistic yield potentials will be used to determine the application rate of fertilizer so as to account for crop nutrient needs supplied through organic by-products and legume credits. No additional commercial phosphate or potash will be applied on soils testing High or Very High in P and K. On these fields additional commercial N will be applied as needed. This will optimize crop yield potential while minimizing nutrient runoff and nitrogen leaching.

Sensitive areas: Commercial nutrients and organic by-products shall not be applied to frozen, snow covered ground or saturated soil on slopes greater than 5% unless erosion is controlled. Organic by-products shall not be applied within 200 ft. of a stream, lake, Ag Drainage well or a sinkhole unless injected or incorporated within 24 hours.

Risk Analysis: The phosphorus index will be used to determine fields that are a high risk for phosphorus losses. Conservation and/or management practices will be used to reduce the potential for phosphorus movement off site. Soil tests will be taken every 4 years to determine changes in phosphorus levels.

Goals:

- To maintain productivity and optimize economic returns.
- To maintain soil fertility by applying nutrients, commercial or manure, to obtain maximum nutrient benefits while minimizing runoff of the nutrients.
- To improve wildlife habitat in the wetland area north of the farm.
- To maintain water quality in tributary of Creek that is less than feet from the farm.

Operation and Management:

The nutrient management plan will be reviewed annually to determine if adjustments or modifications to the plan are needed. As a minimum, the plan will be reviewed and revised with each soil test cycle.

Records will be maintained by documenting the actual rate at which nutrients were applied compared to the recommended and planned rates. The records will indicate the reasons for difference in application rates. Records will include:

- Soil test results and recommendations for nutrient applications.
- Quantities, analysis and sources of all nutrients applied.
- Dates and methods of nutrient applications.
- Crops planted, planting and harvest dates, yields, and crop residues removed.

- Results of water, plant, and organic by-product analysis.
- Dates of review and person performing review, and recommendation that resulted from review.

Records shall be maintained for five years.

Equipment for application of nutrients will be calibrated on an annual basis. Fertilizer will be uniformly applied to soils.

Protect fertilizer and organic by-products storage facilities from weather and accidental leakage or spillage.

Protect workers from and avoid unnecessary contact with chemical fertilizer and organic by-products. Protection should include the use of personal protective equipment when working with nutrients. Extra caution must be taken when handling ammonia sources of nutrients, or when dealing with organic wastes stored in unventilated enclosures.

Properly dispose of material generated by cleaning nutrient application equipment. Excess material should be collected and stored or field applied in an appropriate manner. Excess material should not be applied on areas of high potential risk for runoff or leaching.

Realistic Yield Potentials:

We have used Iowa Ag Statistics for corn and soybean yields for County to establish realistic yield goals.

We would encourage the Producer to keep production records for this farm with this document as part of the recordkeeping system so in future years real production numbers can be utilized.

Soil Tests Results:

The soil test results would suggest that the soil ph is okay. In the future, a small portion of the farm in the Northwest Quarter (NW ¼) could use some lime.

The phosphorus levels for the entire farm are in the High to Very High levels. No further phosphorus should be applied to this farm. Additional application of phosphorus will only lead to greater chances of water quality impairment and will not show any yield increase advantage.

The potash levels for this farm are in the Optimum to Very High levels. No further potash is needed at this time. No further yield advantage will be recognized with additional application of potash.

Description of Present System:

The cropland consists of 154.7 acres in a corn/soybean rotation. Yield goals are 192.6 bushels of corn and 50.6 bushels of beans.

The tillage system is as follows:

Date	*Operation*	*Vegetation*	*Yield (# harv. units)*	*External residue*
10/31/1	Fert applic. surface broadcast			
4/23/2	Cultivator, field 6-12 in sweeps			
4/27/2	planter, double disk opnr	Corn, grain	112	
5/1/2	Sprayer, pre-emergence			
5/30/2	Sprayer, post emergence			weeds; 0-3 mo
10/15/2	Harvest, killing crop 50pct standing stubble			
10/25/2	Disk, tandem secondary op.			
10/25/2	Subsoiler, wide spacing			
5/1/3	Cultivator, field 6-12 in sweeps			
5/15/3	planter, double disk opnr	Soybean, group II, III and IV 30 in rows	30.0	
5/30/3	Sprayer, post emergence			weeds; 0-3 mo
6/15/3	Sprayer, post emergence			weeds; 0-3 mo
10/10/3	Harvest, killing crop 30pct standing stubble			

The current nutritional plan consists of applying 200# of 5-14-42 after removal of soybean crop in the fall, then in the spring application of 35 gallons of 32% combined with a pre-emergence herbicide application. This nutrition program would deliver 134# of N, 28# of phosphorus and 84# of potash every two years. Due to the already high soil tests for P2O5 & K20, it is a concern that phosphorus will cause surface water and run off concerns.

Description of Planned System:

Due to the low RUSLE2 number, we would advise not changing the tillage system. We would, however, eliminate the application of P2O5 & K20 until the next soil test. We would recommend Nitrogen be applied in the spring at a rate of 100 – 150#s per acre.

Other Conservation Practices to Reduce Nutrient Losses Site:

Of great concern is the ephemeral gully erosion occurring between Points A and B as seen on the field map. These two broken tiles cause surface erosion. This area could be

losing 2 ½ to 3 ½ tons of soil per year. Nutrients and pesticides associated with this soil loss will contribute to degradation of near by water sources. This problem will also lead to plugged tile lines over time.

Marked ephemeral gully areas should also be carefully watched if serious washing action occurs a grassed waterway should be considered.

A very large portion of the surface water that leaves this farm does so at Point D. A large gully has developed in this area. Although the gully does not lie on this farm, it lies on the north side of the farm in the triangle wetland area. It would be advantages to both property owners to work together to fill this gully with rip rap to reduce the effect of surface water erosion. A filter strip or other conservation practice on this farm at this point would greatly improve water quality as it leaves this farm.

All conservation practices in place should and will be maintained.

Iowa Phosphorus Index:

The Iowa Phosphorus Index indicated the risk of phosphorus leaving the field as very low. Phosphorus Index is at **.55**. Although the close proximity of this farm to the nearest water sources warrant us to be vigil of surface water runoff.

Nutrient Applications:

No commercial P should be applied to any fields testing high or very high in P or potash. Only nitrogen is needed on these areas until the next soil test. No fall application of anhydrous Ammonia until mid-day 4" soil temperatures is less than 50° F and trending lower. The recommended application rates are as follows:

- It would be suggested that only Nitrogen be applied to 5067 Tract 11395 for the next four (4) years at a rate of 100 – 150# per acre.

- This farm may also have access to swine manure as a nutrient source. Included are calculations for manure if applied to this field. Manure can be applied at a rate of 2850 gallons per acre to meet the State and Federal requirements.

- It would also be highly recommended that manure samples be taken if manure is being used as a nutrient source. This is the only way to truly know what your nutrient balance will be.

- All manure from a site that has a Manure Management Plan must be documented. These forms have been included with this plan.

- No further nutrients can be applied to crop ground following manure application unless a late spring nitrogen test is performed with results showing a nitrogen deficit.

Manure Management Plan Form

Determining Maximum Allowable Manure Application Rates

Instructions: Complete a worksheet for each unique combination of the following factors (crop rotation, optimum crop yield, manure nutrient concentration, remaining crop N need, method of application) that occurs at this operation. Footnotes are given on pages 4, 5 and 6.

Management Identification (Mgt ID)[g]:	**CBDP**

(identify this application scenario by letter)

Method used to determine optimum yield [h]: Iowa Ag Statistics **Timing of Application:** Spring/Fall

Method of Application [i]: Incorporation **Application Loss Factor [i]:** .98

If spray irrigation is used, identify method [j]: NA

Table 2. Manure Nutrient Concentration

Manure Nutrient Content (lbs/1000gal or lbs/ton)					
Manure Storage Structure(s) [k]		**Deep Pit**			
Total N	49	**P_2O_5**	42		
% TN available 1st year[l]	100	**% 2nd year**	0	**% 3rd year**	0
Available N 1st year[m]	49	**2nd year [n]**	0	**3rd year [o]**	0

Table 3. Crop Usage Rates [p]

(lbs/bu or lbs/ton)	N	P_2O_5
Corn	1.2	0.375
Soybean	3.8	0.8
Alfalfa	50	12.5

* Use blank space above to add crop not listed.

Table 4. Calculations for rate based on nitrogen (always required).

1	**Applying Manure For** (crop to be grown)[q]		**Corn**	**Beans**	**Corn**	**Beans**
2	**Optimum Crop Yield [h]**	bu or ton/acre	192.6	50.6		
3	**P_2O_5 removed with crop by harvest [r]**	lb/acre	72.23	40.48		
4	**Crop N utilization [s]**	lb/acre	231.12	100.00		
5a	**Legume N credit [t]**	lb/acre	50	0		
5b	**Commercial N planned [u]**	lb/acre	40	0		
5c	**Manure N carryover credit [v]**	lb/acre	0	0		
6	**Remaining crop N need [w]**	lb/acre	141.12	100		
7	**Manure rate to supply remaining N [x]**	gal/acre or ton/acre	2880	2041		
8	**P_2O_5 applied with N-based rate [y]**	lb/acre	120.96	85.72		

Table 5. Calculations for rate based on phosphorus (fill out only if P-based rates are planned)

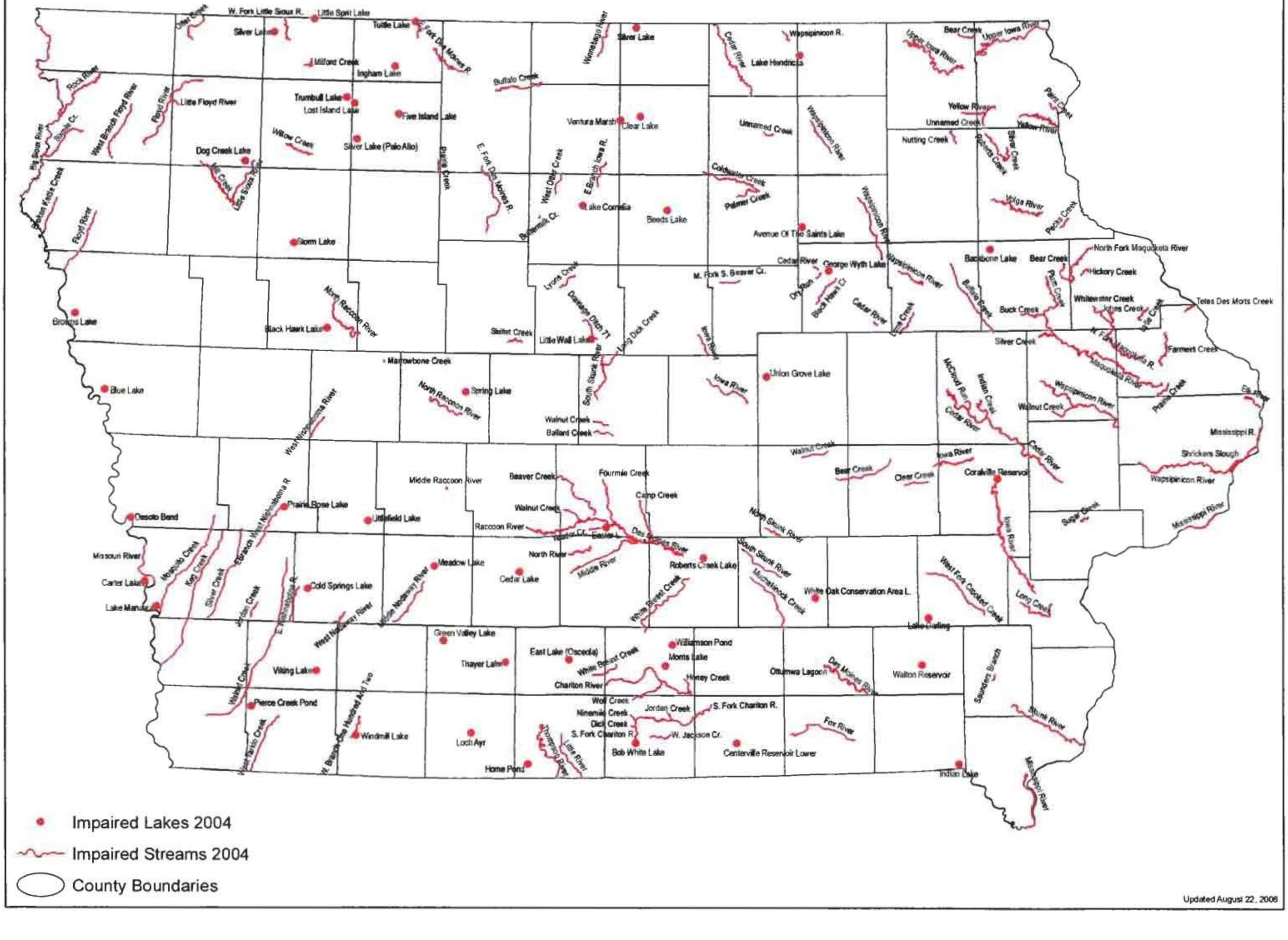
9	**Commercial P_2O_5 planned [z]**	lb/acre				
10	**Manure rate to supply P removal [aa]**	gal/acre or ton/acre				
11	**Manure rate for P based plan [bb]**	gal/acre or ton/acre				
12	**Manure N applied with P-based plan [cc]**	lb/acre				

Table 6. Application rates that will be carried over to page 3.

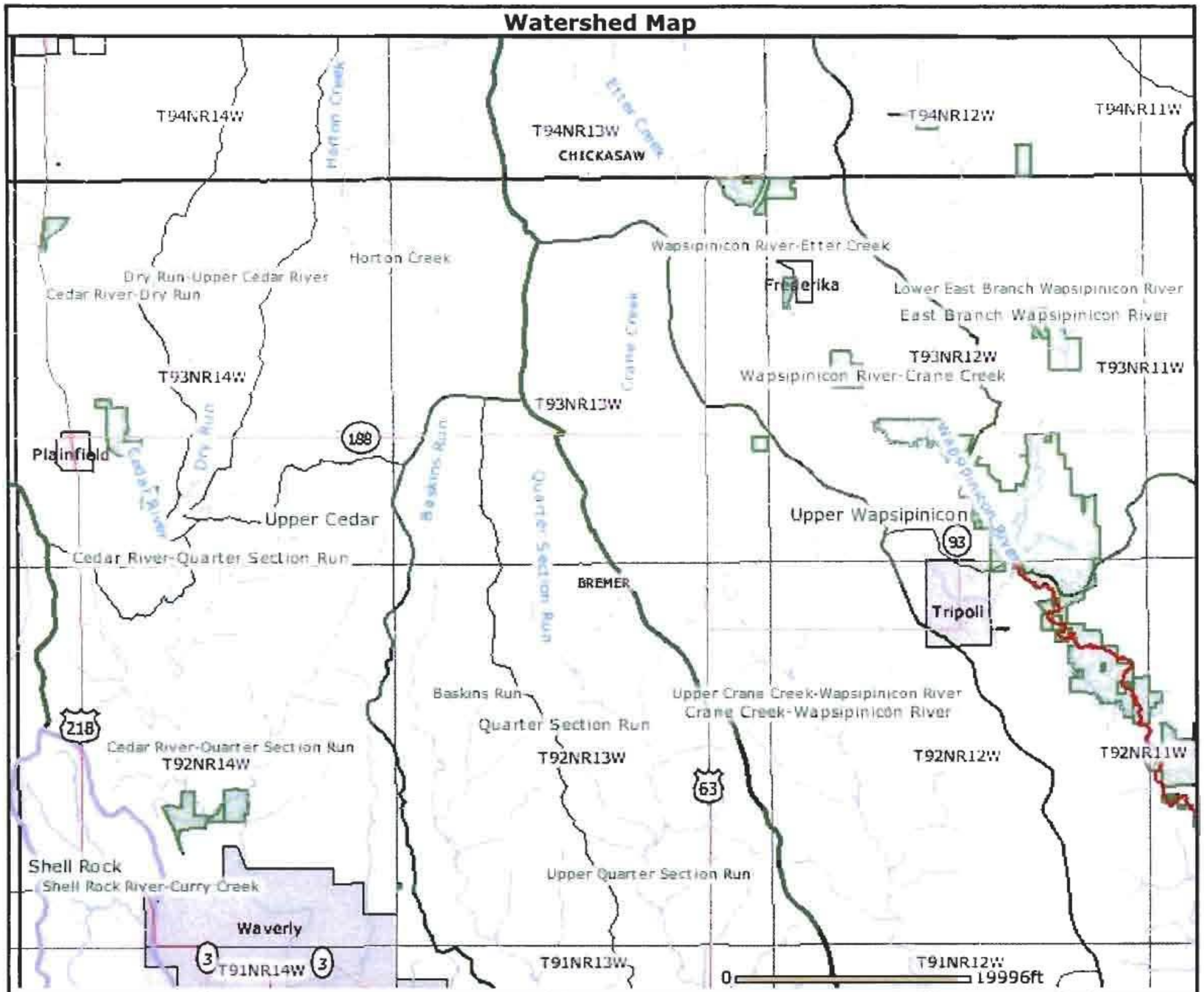
13	**Planned Manure Application Rate [dd]**	gal/acre or ton/acre	2850	NA		

When applicable, manure application rates must be based on the P index value as follows:
(0-2) N-based manure management.
(>2-5) N-based manure management but P application rate cannot exceed two times the P removal rate of the crop schedule.
(>5-10) Until December 31, 2008, P-based manure management while adopting practices to reduce P index to 5 or below.
(>10) No manure application until practices are adopted to reduce P index to 5 or below.

Iowa 303(d) Impaired Waters 2004

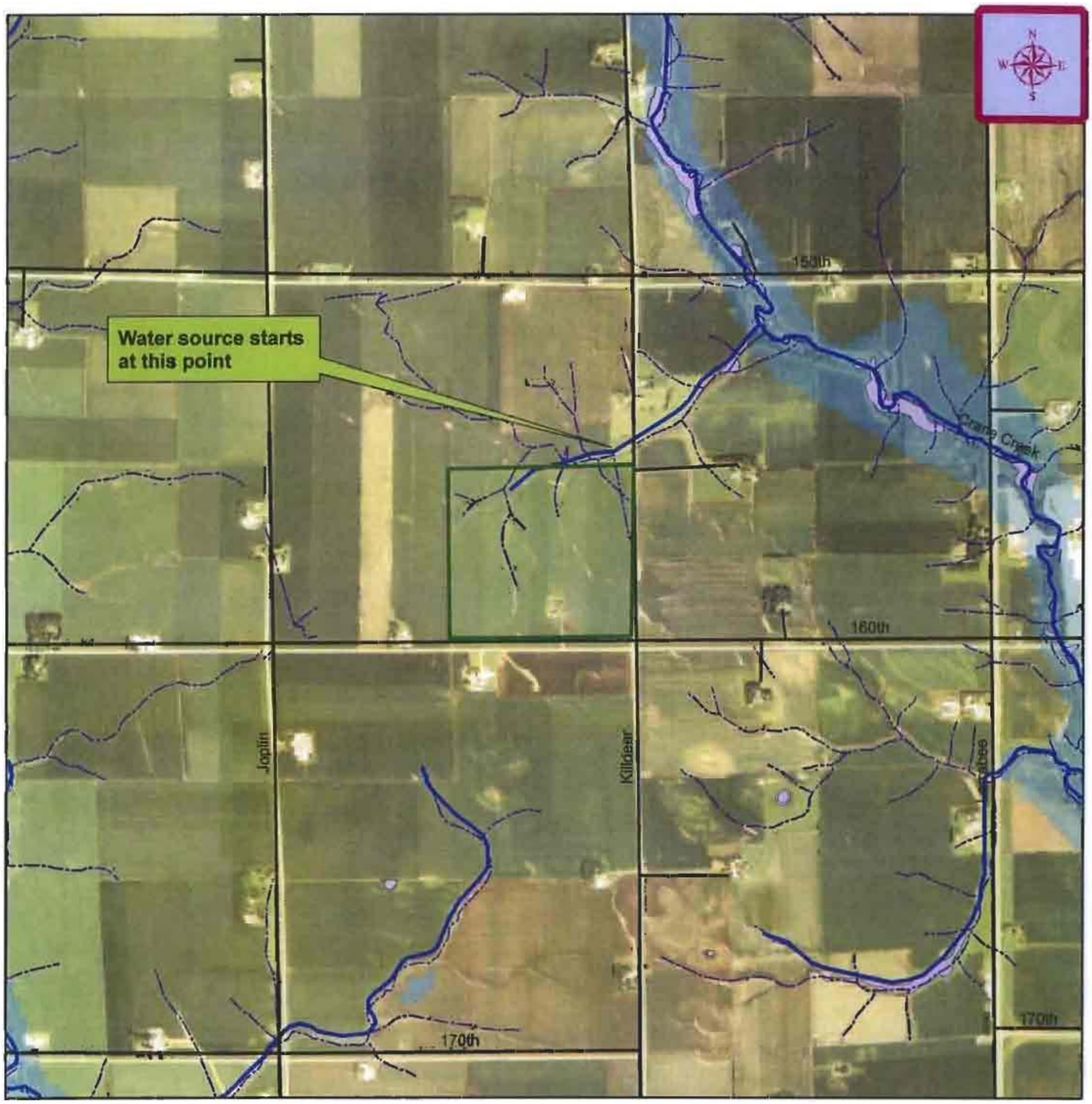


Updated August 22, 2006



Iowa Department of Natural Resources - go to http://www.iowadnr.gov and click on Mapping in left menu

Water Impact Map

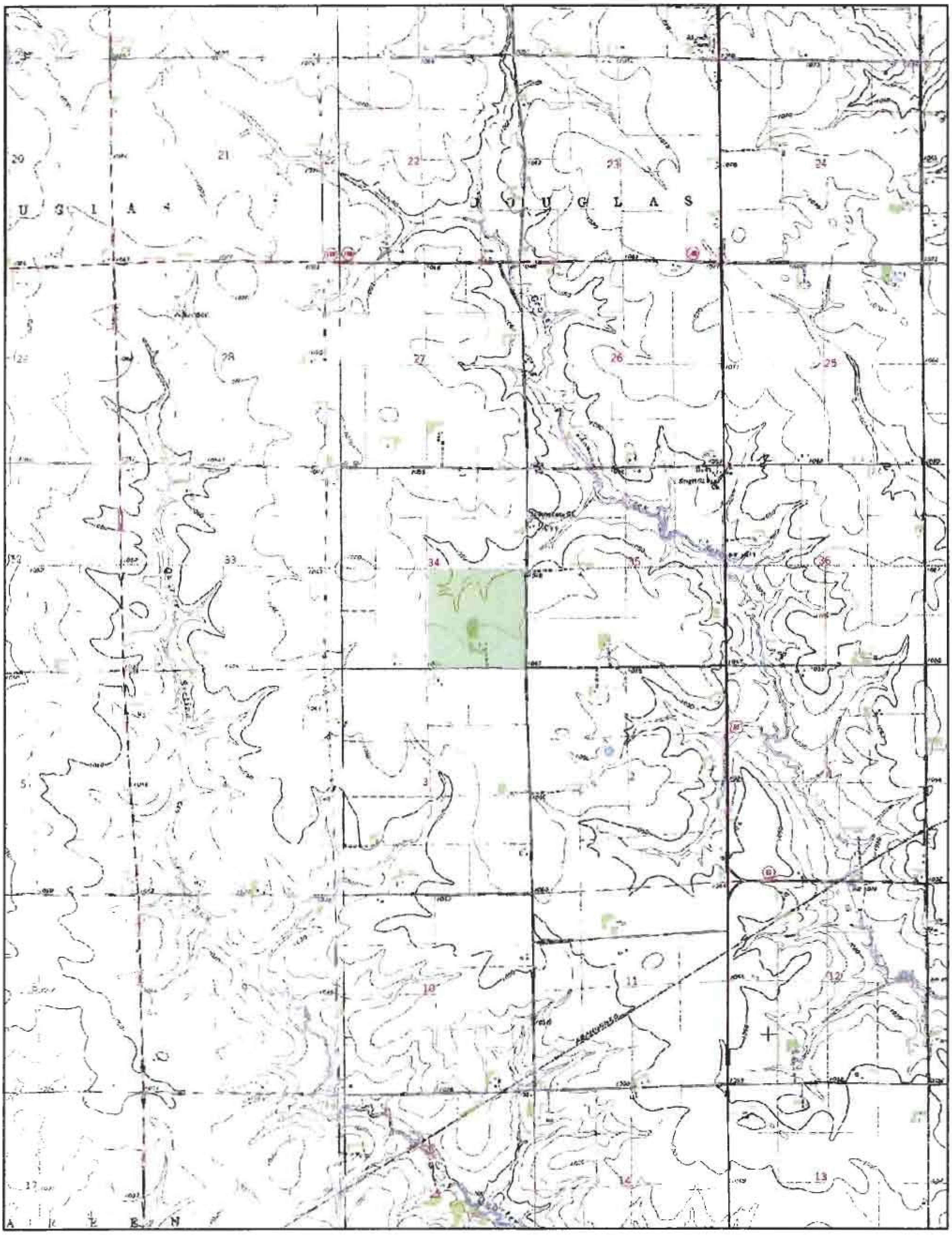


A very large percentage of the surface as well as groundwater leaving this farm goes to a tributary of Crane Creek or Crane Creek itself. For this reason tillage and nutrient guide lines should be estabilised and followed. Water quality contamination can easily occur from over application of nutrients to this farm.

0 1,500 3,000 6,000 Feet

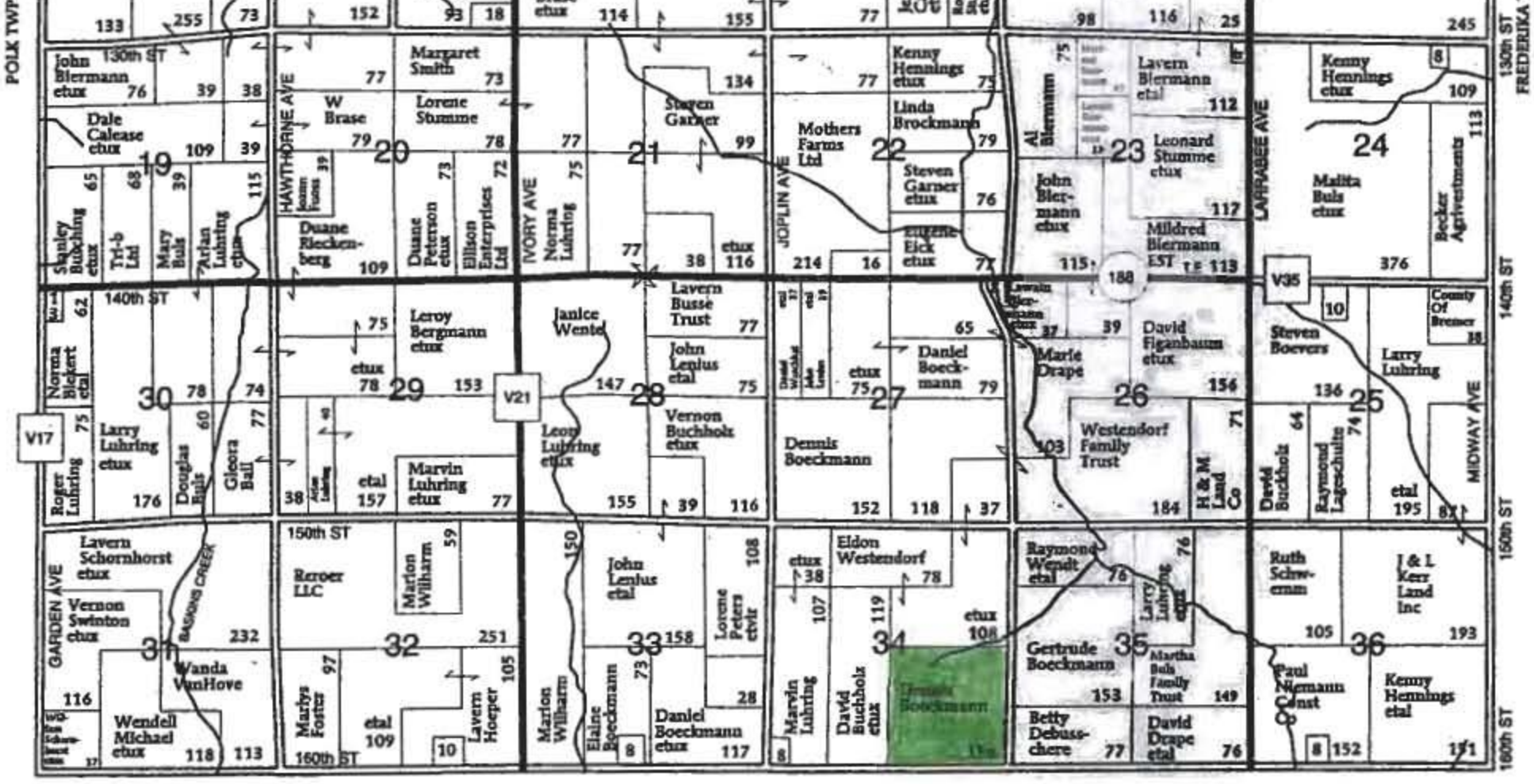
- Water Sources
- Drainage Structures
- National Wetlands Inventory
- Alluvial Soils

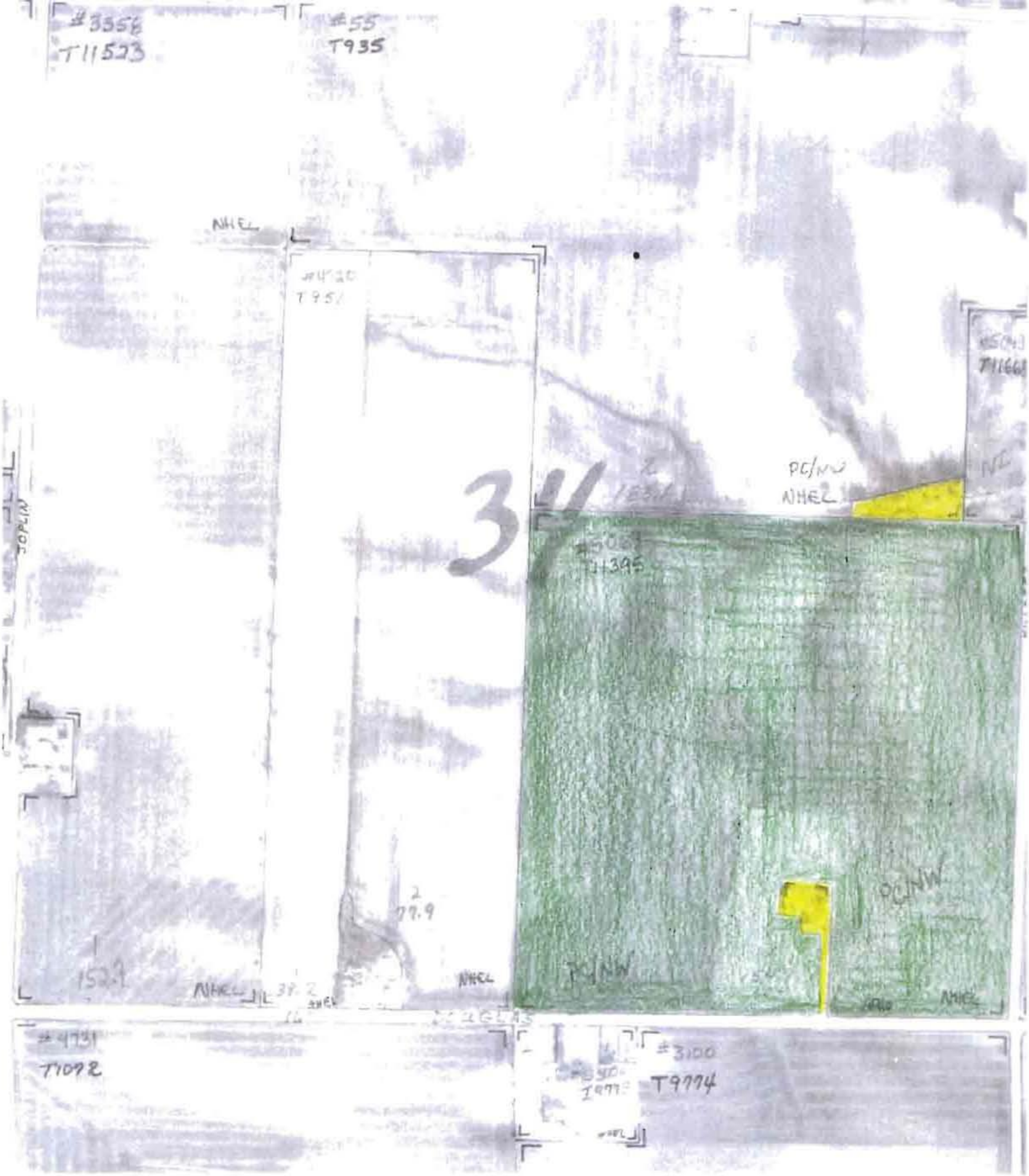
Topo Map



T-93-N **DOUGLAS PLAT** **R-13-W**

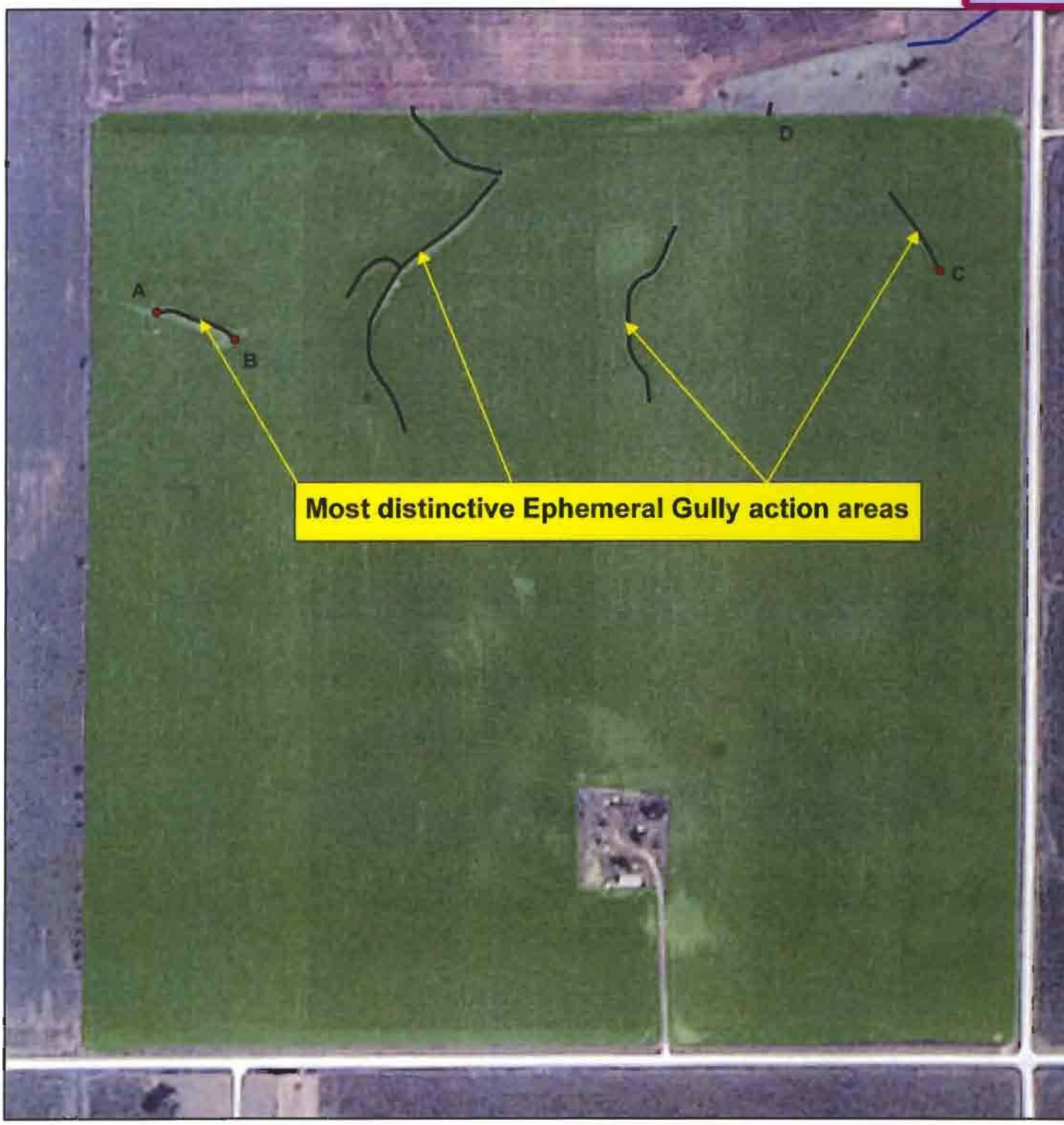
(Landowners)





NOT TO SCALE (1990 FLIGHT) BREMER COUNTY -CROP YEAR _____ G-4

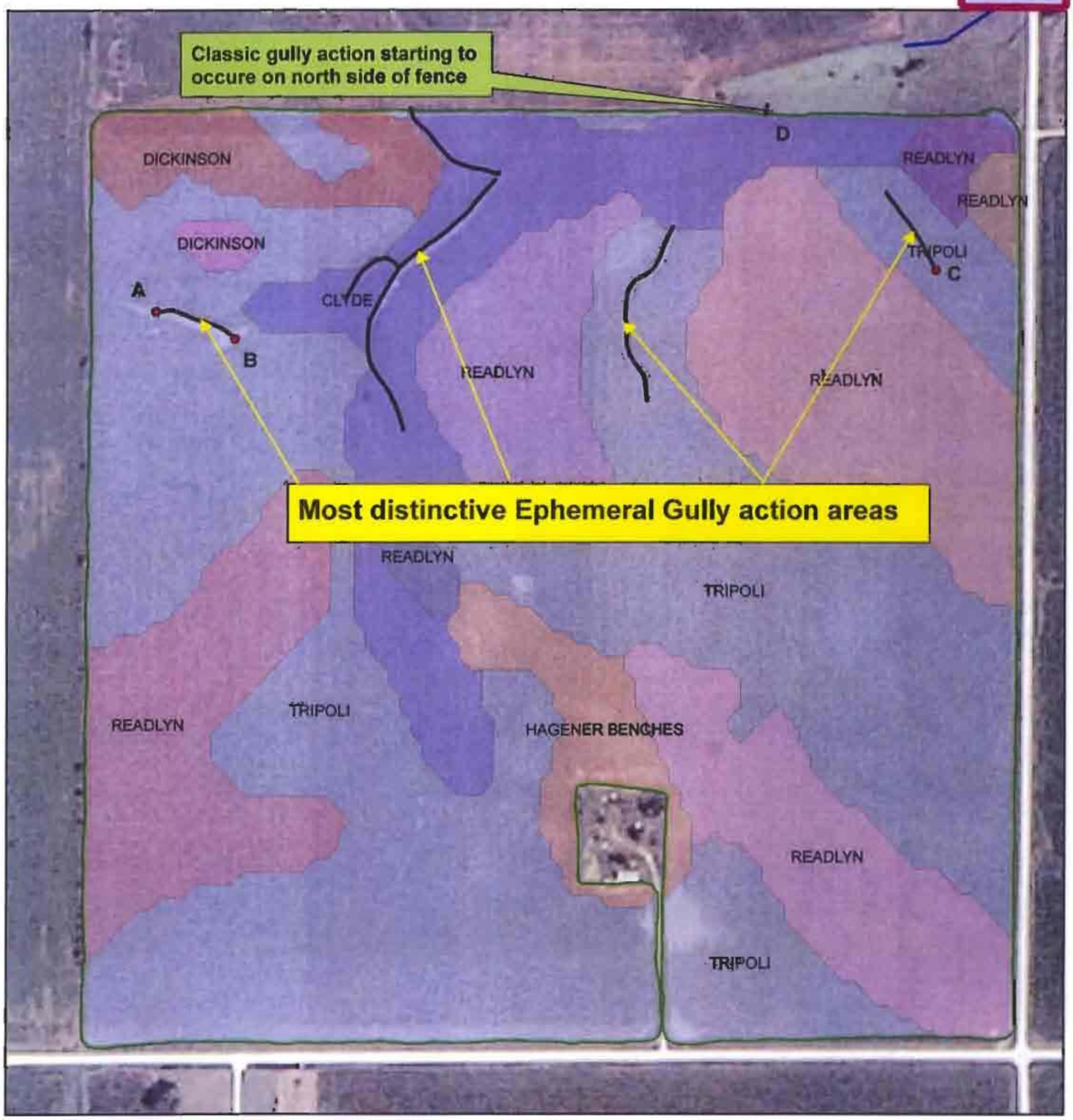
Field Tract



SE1/4 Section Douglas Plat T N R W County

Point A and B appear to be two broken tiles. Water comes to the surface at point A travels across ground to point B where it returns to subsurface tile.
Point C appears to be another broken tile.
Point D is where a large percentage of the surface water from this farm exits.

Field Tract



SE1/4 Section Douglas Plat T N R W County

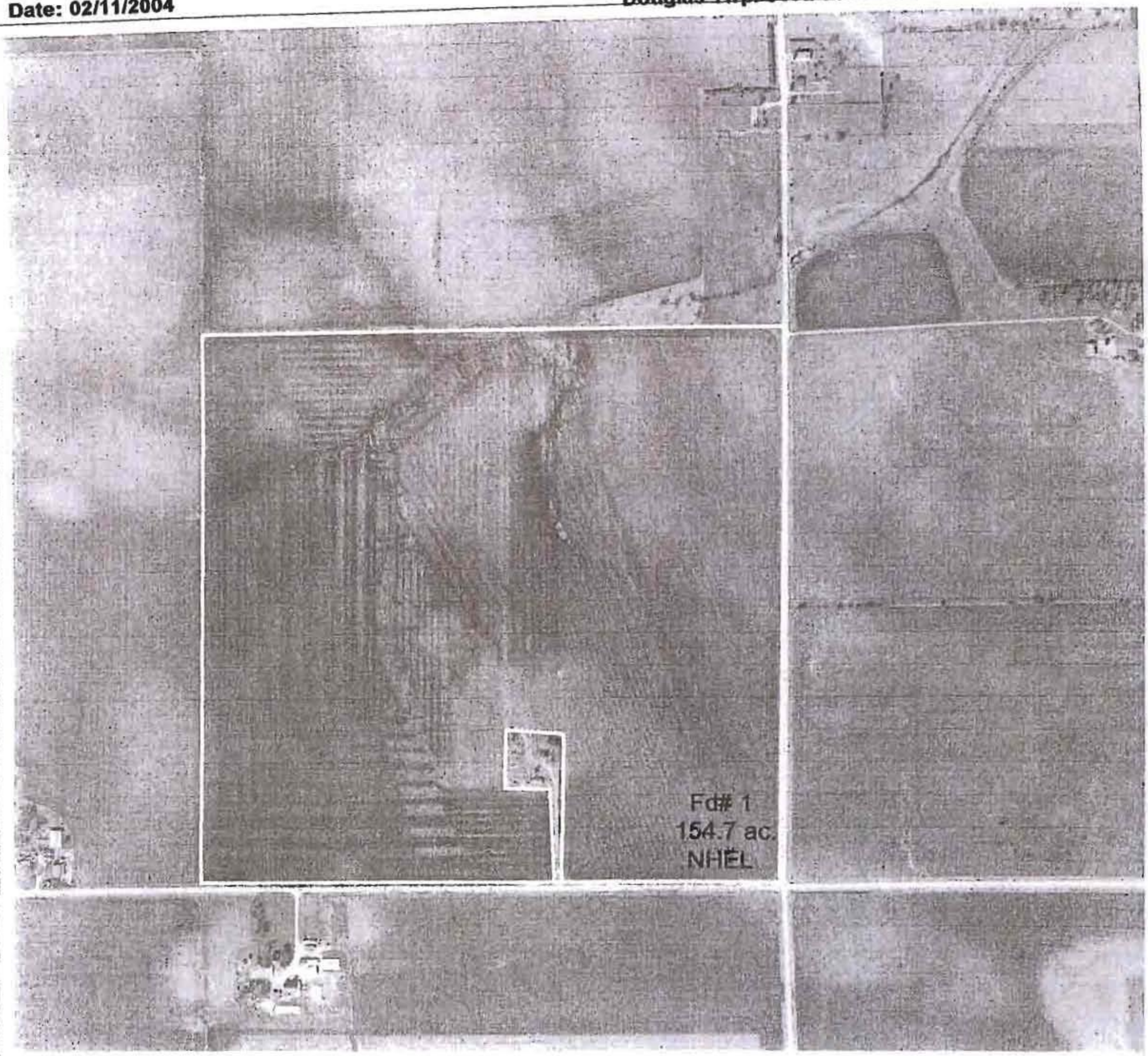
Conservation Plan

USDA Service Center
Natural Resources Conservation Service

SWCD

T11395
Douglas Twp. Sect. 34

Date: 02/11/2004



Legend

Planned Land Units

N

USDA

1000 0 1000 2000 Feet

NRCS
Natural Resources Conservation Service

District Conservationist

Conservation Plan

COPY

Owner

Operator

Crop

Tract:

Conservation Crop Rotation

Grow crops in a planned rotation for biodiversity and to provide adequate amounts of organic material for erosion reduction, nutrient balance and sustained soil organic matter. A crop rotation of corn-soybean will be used on this field.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	154.7 AC.	2	2004		
Total:	154.7 AC.				

CONSERVATION TILLAGE

To reduce soil erosion by wind and water, help maintain or develop soil tilth and efficient moisture utilization, and provide food and cover for wildlife. Corn stalks are fall tilled leaving 40% residue cover after planting soybeans. Soybean residue is spring tilled leaving 30% residue cover after planting corn.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	154.7 ac.	2	2004		
Total:	154.7 ac.				

Nutrient Management

Managing the amount, form, placement, and timing of application of plant nutrients. This practice may be applied as part of a system to accomplish one or more of the following purposes: (1) Increase or maintain nutrients in the soil. (2) Supply plant nutrients to maintain vegetation or for crop production. (3) Limit contamination of surface water. (4) Limit contamination of ground water. Soil testing is performed twice in a five year period. Nutrients are applied according to tests.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	154.7 AC.	2	2004		
Total:	154.7 AC.				

Pest Management

Manage infestations of weeds, insects and disease to reduce adverse effects on plant growth, crop production and material resources. Crop scouting is performed 4 to 5 times every season.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	154.7 AC.	2	2004		
Total:	154.7 AC.				

Residue Management, Mulch Till

Soybean residue is spring-tilled leaving 30% residue after planting corn. Corn stalks are tilled leaving 40% residue after planting beans.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	154.7 AC.	2	2004		
Total:	154.7 AC.				

CERTIFICATION OF PARTICIPANTS

Date

2/23/04
Date

CERTIFICATION OF:

District Conservationist

3/1/04
Date

CONSERVATION DISTRICT

Bremer SWCD

2-23-04
Date

NONDISCRIMINATION STATEMENT

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RUSLE2 Profile Erosion Calculation Record

Info: Field Tract
File: profiles\ :
Inputs: Location: Iowa\ County
Soil: ReA READLYN LOAM, 0 TO 2 PERCENT SLOPES\Readlyn loam 95%
Slope length (horiz): 200 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\buccholz corn bean	Corn, grain	bushels	194.00
CMZ 04\c.Other Local Mgt Records\buccholz corn bean	Soybean, group II, III and IV 30 in rows	bu	48.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: default
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 0.57 t/ac/yr
Detachment on slope: 0.57 t/ac/yr
Soil loss for cons. plan: 0.57 t/ac/yr
Sediment delivery: 0.57 t/ac/yr

Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/31/0	Fert applic. surface broadcast		90
4/23/1	Cultivator, field 6-12 in sweeps		68
4/27/1	planter, double disk opnr	Corn, grain	65
5/1/1	Sprayer, pre-emergence		64
5/30/1	Sprayer, post emergence		56
10/15/1	Harvest, killing crop 50pct standing stubble		87
10/25/1	Disk, tandem secondary op.		65
10/25/1	Subsoiler, wide spacing		65
5/1/2	Cultivator, field 6-12 in sweeps		54
5/15/2	planter, double disk opnr	Soybean, group II, III and IV 30 in rows	53
5/30/2	Sprayer, post emergence		54
6/15/2	Sprayer, post emergence		54
10/10/2	Harvest, killing crop 30pct standing stubble		93

USDA NRCS Natural Resources Conservation Service

RUSLE2 Profile Erosion Calculation Record

Info: Field ___. Tract

File: profiles\

Inputs: Location: Iowa\ County
Soil: ReA READLYN LOAM, 0 TO 2 PERCENT SLOPES\Readlyn loam 95%
Slope length (horiz): 200 ft
Avg. slope steepness: 1.0 %

Management	*Vegetation*	*Yield units*	*Yield (# of units)*
CMZ 04\c.Other Local Mgt Records\buccholz corn bean	Corn, grain	bushels	194.00
CMZ 04\c.Other Local Mgt Records\buccholz corn bean	Soybean, group II, III and IV 30 in rows	bu	48.000

Contouring: a. rows up-and-down hill
Strips/barriers: (none)
Diversion/terrace, sediment basin: (none)
Subsurface drainage: default
Adjust res. burial level: Normal res. burial

Outputs:
T value: 5.0 t/ac/yr
Soil loss erod. portion: 0.60 t/ac/yr
Detachment on slope: 0.60 t/ac/yr
Soil loss for cons. plan: 0.60 t/ac/yr
Sediment delivery: 0.60 t/ac/yr
Crit. slope length: -- ft
Surf. cover after planting: -- %

Date	*Operation*	*Vegetation*	*Surf. res. cov. after op, %*
10/31/0	Manure injector, liquid high disturb.30 inch		80
4/23/1	Cultivator, field 6-12 in sweeps		55
4/27/1	planter, double disk opnr	Corn, grain	53
5/1/1	Sprayer, pre-emergence		51
5/30/1	Sprayer, post emergence		46
10/15/1	Harvest, killing crop 50pct standing stubble		87
10/25/1	Disk, tandem secondary op.		64
10/25/1	Subsoiler, wide spacing		64
5/1/2	Cultivator, field 6-12 in sweeps		54
5/15/2	planter, double disk opnr	Soybean, group II, III and IV 30 in rows	53
5/30/2	Sprayer, post emergence		54
6/15/2	Sprayer, post emergence		54
10/10/2	Harvest, killing crop 30pct standing stubble		93

Iowa Phosphorus Index

v. 7/1/2004

Name _____ Date _____

Prepared by _____ Tract No. _____

Component Summary

Field: 5067	Erosion Component								Runoff Component			Subsurface Component			OVERALL
Runs	Sheet&Rill	Ephemeral	Gully	Sediment Trap	Filter	Enrichment	STP	Risk	RCN	STP	Risk	Tile	STP	Risk	**RISK**
	0.57	0.02	0.00	1.00	1.00	1.10	0.86	0.12	1.36	0.24	0.35	1.00	0.08	0.08	0.55

Field:	Erosion Component								Runoff Component			Subsurface Component			OVERALL
Runs	Sheet&Rill	Ephemeral	Gully	Sediment Trap	Filter	Enrichment	STP	Risk	RCN	STP	Risk	Tile	STP	Risk	**RISK**

Field:	Erosion Component								Runoff Component			Subsurface Component			OVERALL
Runs	Sheet&Rill	Ephemeral	Gully	Sediment Trap	Filter	Enrichment	STP	Risk	RCN	STP	Risk	Tile	STP	Risk	**RISK**

Risk Assessment:

Very Low 0-1 Low >1-2 Medium >2-5 High >5-15 Very High >15

Iowa Phosphorous Index

v. 7/1/2004

Credits: Iowa State University
USDA National Soil Tilth Laboratory
USDA Natural Resource Conservation Service

Field Number	Erosion								+	Runoff					+	Tile / Subsurface Recharge			=	Overall
	Gross Erosion	x	Sediment Trap Factor	x	SDR	x	Buffer Factor	x	Enrichment Factor	x	STP Factor	= Erosion PI		RCN Factor	x (	STP Factor	+ P App Factor	) = Runoff PI		Flow Factor	x	STP Factor	= Tile/Sub PI		P Index
5067 --	0.59		1.00		0.22		1.00		1.10		0.86	0.12		1.36		0.24	0.01	0.35		1.00		0.08	0.08		0.55

RISK ASSESSMENT

Very Low 0-1
Low >1-2
Medium >2-5
High >5-15
Very High >15

INTERPRETATIONS OF SITE VULNERABILITY RATINGS FOR THE P INDEX

VERY LOW– 0-1 A field in which movement of P off site will be VERY LOW. If soil conservation and P management practices are maintained at current levels, impacts on surface water resources from P losses from the field will be small.

LOW – >1-2 A field in which movement of P off site will be LOW. Although the P delivery to surface water bodies is greater than from a field with a very low rating, current soil conservation and P management practices keep water quality impairment low.

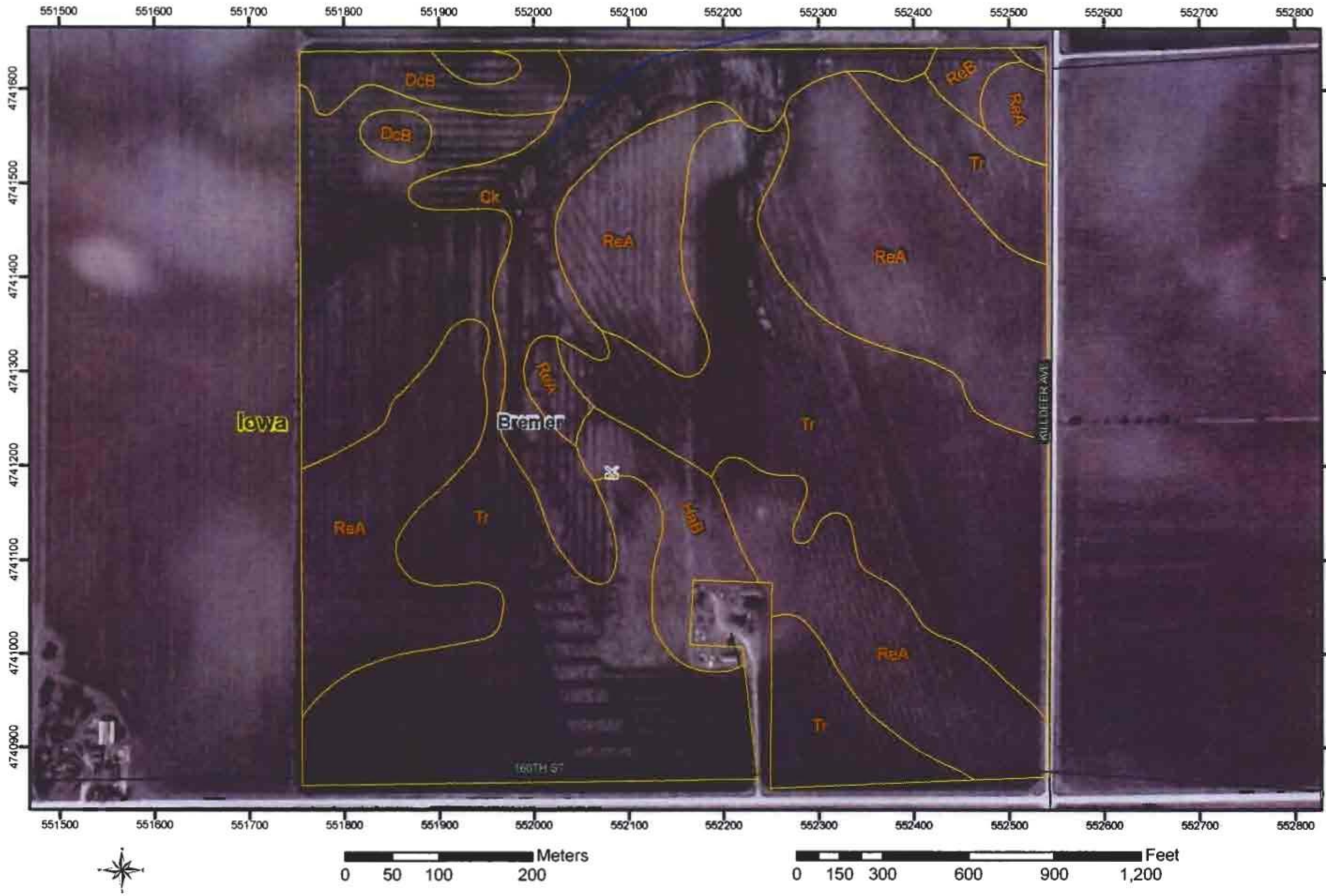
MEDIUM – >2-5 A field in which movement of P off-site will be MEDIUM. Impacts on surface water resources will be higher than for the field with a low rating, and the P delivery potential may produce some water quality impairment. Careful consideration should be given to further soil conservation and P management practices that do not increase P delivery to surface water.

HIGH – >5-15 A field in which movement of P offsite will be HIGH. Water quality impairment will be large. Remedial action is required to reduce P movement to surface water bodies. New soil and water conservation and/or P management practices are necessary to reduce offsite P movement and water quality degradation.

VERY HIGH – >15 A field in which movement of P offsite will be VERY HIGH. Impacts on surface water resources are extreme. Remedial action is required to reduce P delivery to surface water. All necessary soil and water conservation practices plus a P management plan, which may require discontinuing P applications, must be put in place to reduce water quality impairment.

NOTE: See NRCS Nutrient Management Standard 590 for nutrient management recommendations.

SOIL SURVEY OF COUNTY, IOWA



MAP LEGEND

- Soil Map Units
- Cities
- Detailed Counties
- Detailed States
- Interstate Highways
- Roads
- Rails
- Water
- Hydrography
- Oceans
- Escarpment, bedrock
- Escarpment, non-bedrock
- Gulley
- Levee
- Slope
- Blowout
- Borrow Pit
- Clay Spot
- Depression, closed
- Eroded Spot
- Gravel Pit
- Gravelly Spot
- Gulley
- Lava Flow
- Landfill
- Marsh or Swamp
- Miscellaneous Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Slide or Slip
- Sinkhole
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Perennial Water
- Wet Spot

MAP INFORMATION

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov

Coordinate System: UTM Zone 15

Soil Survey Area: Bremer County, Iowa
Spatial Version of Data: 2
Soil Map Compilation Scale: 1:15840

Map comprised of aerial images photographed on these dates:
2002

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend Summary

County, Iowa

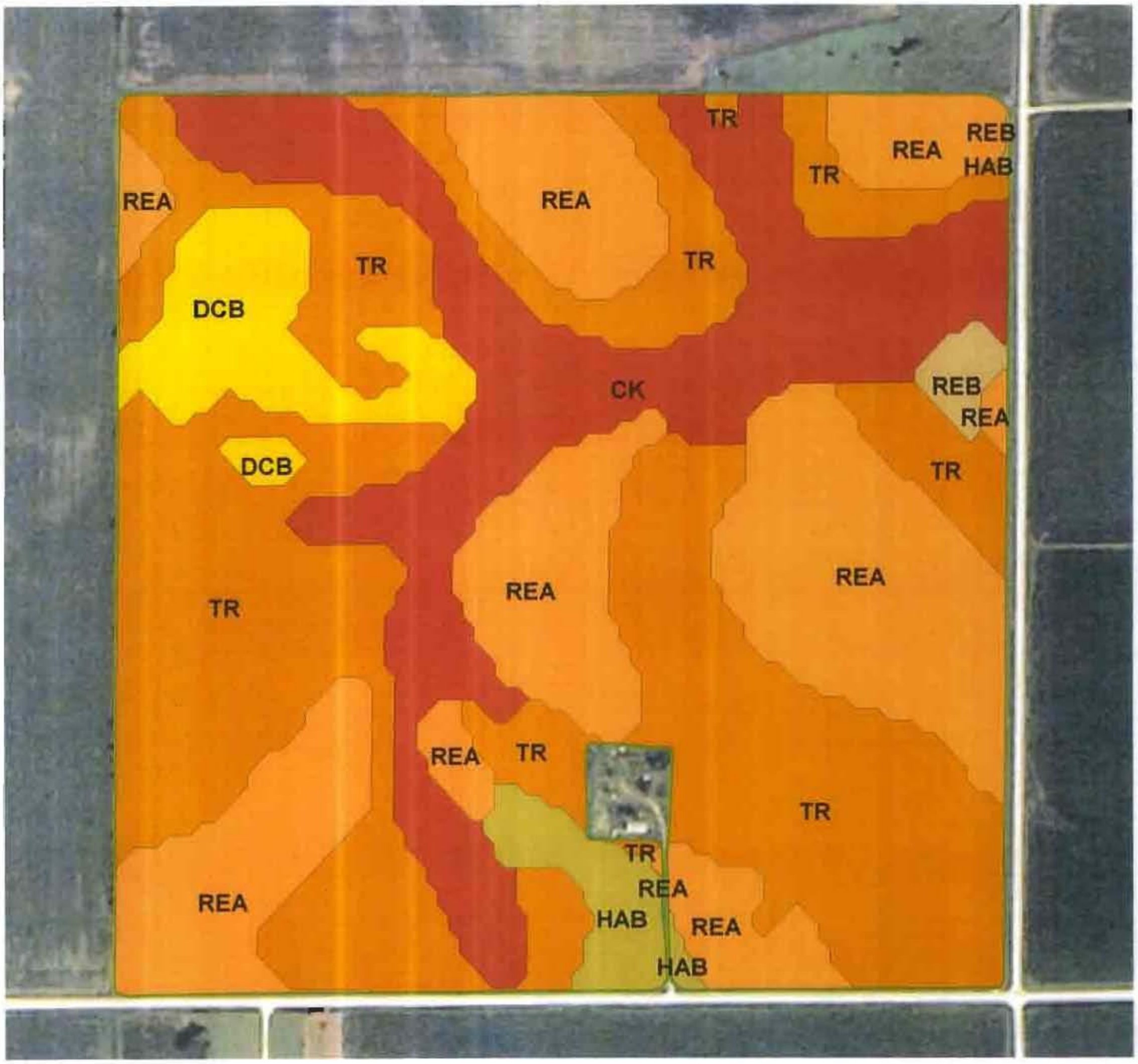
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ck	**Clyde clay loam**	**14.6**	**9.6**
DcB	Dickinson sandy loam, 2 to 5 percent slopes	4.2	2.8
HaB	**Hagener loamy sand, 2 to 5 percent slopes**	**4.8**	**3.2**
ReA	Readlyn loam, 0 to 2 percent slopes	48.4	32.0
ReB	**Readlyn loam, 2 to 5 percent slopes**	**1.1**	**0.7**
Tr	Tripoli clay loam	78.1	51.7

Appendix A8: Iowa Ag Statistics
County Corn and Soybean Yield Averages, 2001 - 2005

	Corn			Soybeans		
Counties	5 yr. avg. yield bu./a	5 yr. ave. yield + 10% bu./a	Avg. yield of 4 highest bu./a	5 yr. avg. yield bu./a	5 yr. ave. yield + 10% bu./a	Avg. yield of 4 highest bu./a
Adair	150.8	165.9	156.7	43.1	47.4	46.9
Adams	140.2	154.3	145.2	42.6	46.9	46.4
Allamakee	158.5	174.3	162.4	44.7	49.2	48.0
Appanoose	137.4	151.2	144.3	42.0	46.2	44.7
Audubon	153.9	169.3	160.2	45.2	49.7	48.8
Benton	169.6	186.5	171.9	47.0	51.7	51.3
Black Hawk	169.9	186.9	174.6	45.5	50.1	50.8
Boone	176.0	193.6	181.5	46.3	50.9	49.2
Bremer	175.1	192.6	180.7	46.0	50.6	51.6
Buchanan	170.2	187.2	172.9	43.9	48.3	48.4
Buena Vista	168.3	185.1	174.3	46.3	50.9	49.9
Butler	173.3	190.7	177.2	44.5	49.0	49.6
Calhoun	167.5	184.3	173.4	45.3	49.8	48.4
Carroll	166.8	183.5	172.9	47.7	52.5	50.7
Cass	151.1	166.2	157.2	44.0	48.4	47.6
Cedar	174.6	192.1	182.2	47.1	51.8	49.8
Cerro Gordo	165.8	182.4	170.6	42.9	47.2	46.4
Cherokee	169.9	186.9	174.9	51.5	56.7	54.4
Chickasaw	164.3	180.8	170.4	42.0	46.2	46.8
Clarke	134.6	148.0	139.7	39.2	43.1	42.4
Clay	161.4	177.5	167.6	43.5	47.9	45.8
Clayton	168.6	185.4	172.6	49.4	54.3	52.4
Clinton	161.5	177.7	172.7	44.9	49.4	48.1
Crawford	161.1	177.3	167.0	47.2	51.9	50.9
Dallas	161.7	177.9	168.3	45.3	49.8	48.6
Davis	142.1	156.3	148.8	41.2	45.3	43.3
Decatur	143.4	157.7	150.1	41.2	45.3	44.9
Delaware	173.0	190.3	176.5	47.4	52.1	51.8
Des Moines	160.7	176.8	165.1	47.0	51.7	49.7
Dickinson	158.8	174.7	166.1	43.0	47.3	45.1
Dubuque	170.9	188.0	174.4	48.8	53.6	52.5
Emmet	163.0	179.3	171.0	43.0	47.3	44.9
Fayette	169.1	186.0	173.1	44.9	49.4	49.9

updated 3/2006

TB93133401; 06 (155.28 ac.) - Soil Types: Sms



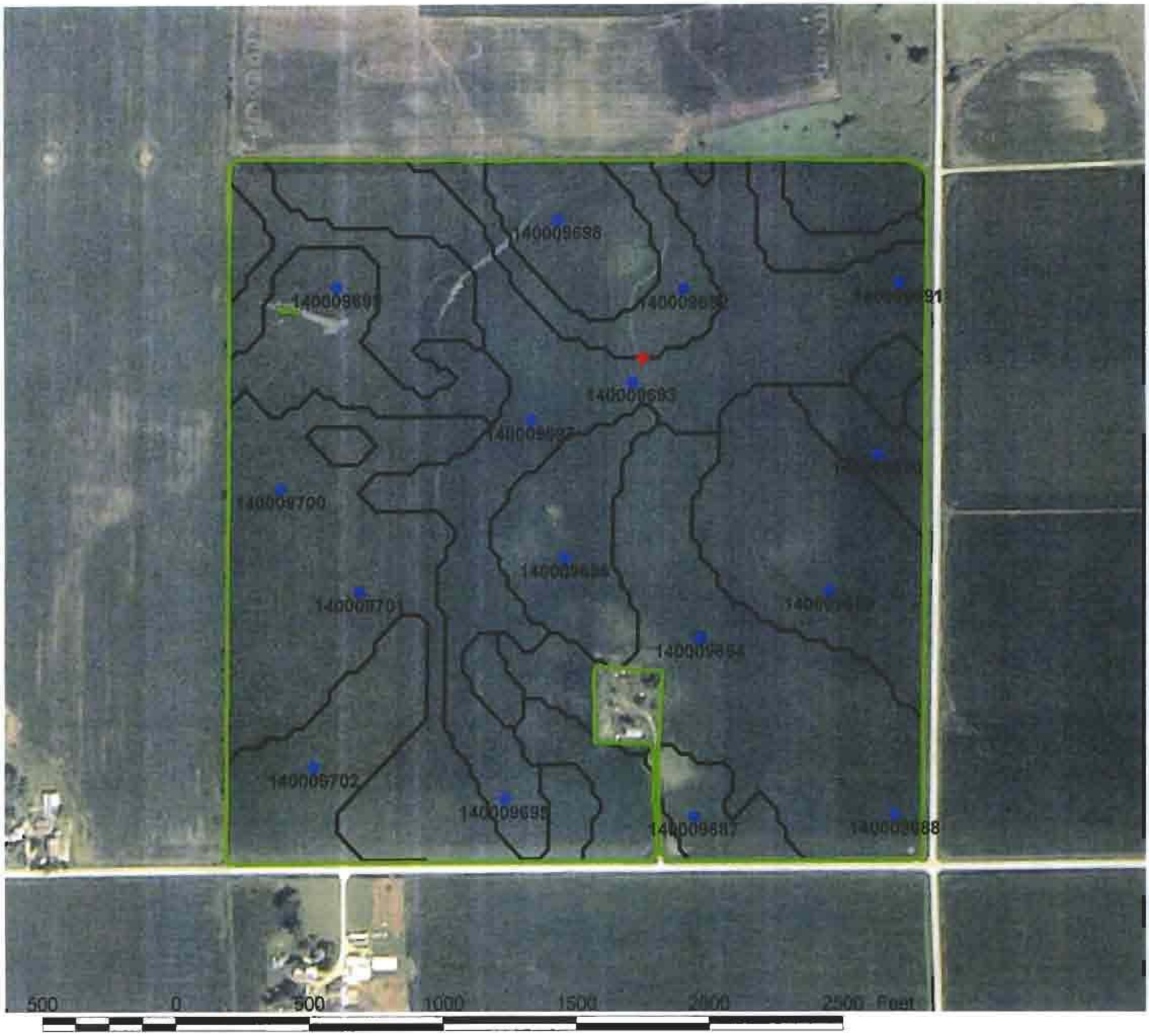
200 0 200 400 600 800 Feet

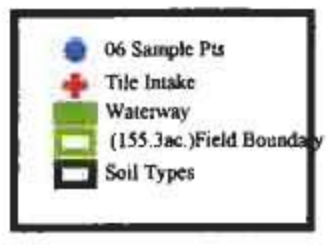
Date: Nov 22, 2006
Field Name: TB93133401; 06
Location: Co., Iowa, U.S.
Section 34, T 3N, R W
Farm Name:
Client Name:
Total Acres: 155.28
Field Boundary Start Location:
Latitude:
Longitude:

Soil Types: Sms

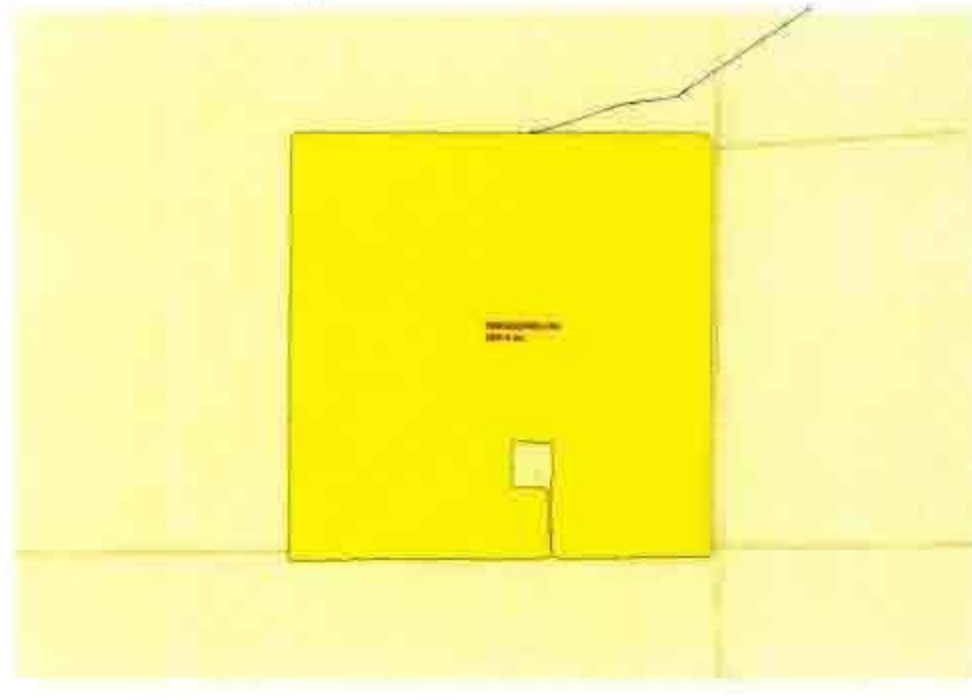
CK	(30.5 ac.)
DCB	(8.7 ac.)
HAB	(3.8 ac.)
REA	(45.0 ac.)
REB	(1.3 ac.)
TR	(66.1 ac.)

TB93133401; 06 (155.28 ac.)





; 06



Date: Nov 22, 2006
Field Name: TB93133401; 06
Location: Co., Iowa, U.S.
Section 34, T N, R W
Farm Name:
Client Name:
Total Acres: 155.28
Field Boundary Start Location:
Latitude:
Longitude: -

Soil pH

Soil pH is a measure of the **degree** of soil acidity or of the **active hydrogen** in the soil solution. This hydrogen is present in the soil solution as positively charged particles or ions.

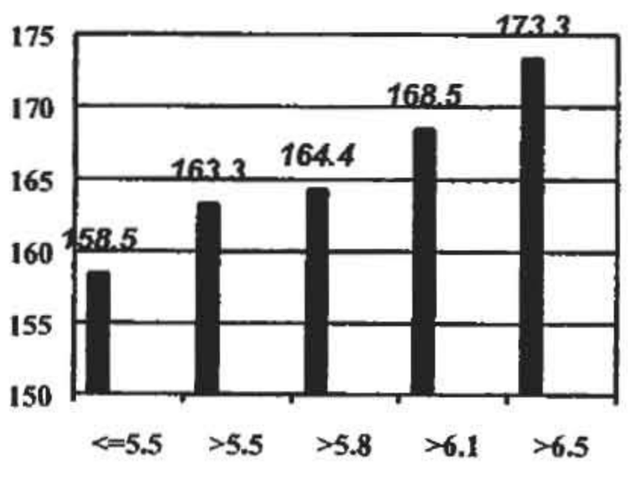
Soil pH can have a dramatic effect on the availability of nutrients. Soil pH is the measure of how alkaline or acid a soil is. A pH of slightly below 7 is considered ideal for most crops. A pH <7 is considered acidic and a pH >7 is considered alkaline. Acid soils can be corrected by using aglime. Alkaline soils are very difficult to practically treat. Our soils in this area range anywhere from 5.5 to 8.0 with some exceptions on either side.

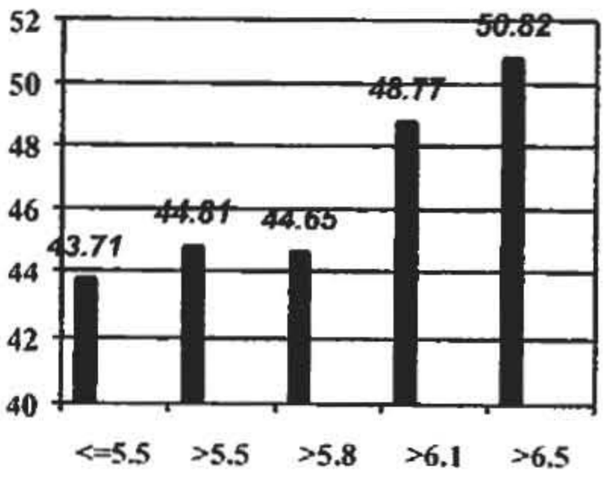
Uniform spreading on the land surface and mixing into the plow layer are assumed when making a limestone recommendation. Because lime moves very slowly in the soil and since uniform mixing is difficult to attain, it may be several years before the lime can be completely effective in neutralizing soil acidity in the plow layer. For any cropping system, apply lime before tilling the soil. Avoid spreading lime when the soil is wet, especially in the spring.

Farmers can do everything right, except one basic step... and lose profitable yields. Long-term research has shown that failing to lime acid soils can cause yield losses even with high fertility.

The tables at the right are results from research done at Christenson Research Farms near Humboldt, Ia.. In these studies, P & K levels were at adequate levels so that the increase in yield was the effect of the pH correction.

The table on top represents corn yield response and the bottom table is for soybean response.





TB93133401; 06 (155.28 ac.) - 06 Sample Pts - pH

Date: Nov 22, 2006
Field Name: TB93133401; 06
Location: Iowa, U.S.
Section 34, T N, R W
Farm Name:
Client Name:
Total Acres: 155.28
Field Boundary Start Location:
Latitude:
Longitude: -
No. of Observations: 16
Minimum pH: 6.3
Maximum pH: 7.3
Average pH: 6.9

Megasurfaca
- < 5.5 (0.0 ac.)
- 5.5 - 6.0 (0.0 ac.)
- 6.0 - 6.5 (15.4 ac.)
- 6.5 - 7.0 (115.9 ac.)
- > 7.0 (23.9 ac.)

INC.

Phosphorus

Phosphorus (P) is essential for crop growth. No other nutrient can be substituted for it. The plant must have P to complete its normal production cycle. It is one of the three major nutrients. The other two are nitrogen (N) and potassium (K).

Phosphorus plays a role in photosynthesis, respiration, energy storage and transfer, cell division, cell enlargement, and several other processes in the living plant. It promotes early root formation and growth. Phosphorus improves the quality of fruit, vegetable, and grain crops and is vital to seed formation. It is involved in the transfer of heredity traits from one generation to the next.

Phosphorus helps roots and seedlings develop more rapidly. It increases water use efficiency, contributes to disease resistance in some plants and hastens maturity…important to harvest and crop quality.

Phosphorus is very immobile in the soil. Due to this fact, it is important to maintain adequate levels of phosphorus to insure maximum yields. It can also become less available to the plant under cold wet conditions and at abnormal pH levels.

Pure phosphorus does not occur naturally. Commercial fertilizers consist of phosphate rock that has been strip mined at about 15 percent P and upgraded for use as fertilizer. Upgrading removes clay and other impurities. The phosphate rock is then treated with ammoniating phosphoric acid to produce what we know as diammonium phosphate or DAP.

DAP (18-46-0) represents 18 lbs. nitrogen and 46 lbs. phosphorus for every 100 lbs. material. Corn grain removes .38 lbs. phosphorus per bushel and soybeans remove .8 lbs. of phosphorus per bushel. For example, a crop rotation of 165 bushels corn and 55 bushels soybeans removes 107 lbs. of actual phosphorus or 232 lbs. of the product 18-46-0. A typical target level for phosphorus is 21 ppm.

Phosphorus (P) Recommendations
Corn

Soil Test Category:	Bray 1 ppm	Olsen ppm	P205 to apply
Very Low	0-8	0-5	100
Low	9-15	6-10	75
Optimum	16-20	11-14	50
High	21-30	15-20	0
Very High	31+	21+	0

Soybeans

Soil Test Category:	Bray 1 ppm	Olsen ppm	P205 to apply
Very Low	0-8	0-5	80
Low	9-15	6-10	60
Optimum	16-20	11-14	40
High	21-30	15-20	0
Very High	31+	21+	0

Iowa State Pm-1688 /October 1996

- The recommended amounts for the optimum soil test are based on nutrient removal for 150 bu. corn and 50 bu. soybeans. Adjustments are made for more suitable yield goals by soil productivity.
- Olsen tests are run on all samples with a pH>7.3

TB93133401; 06 (155.28 ac.) - 06 Sample Pts - P_ppm

Date: Nov 22, 2006
Field Name: TB93133401; 06
Location: Co., Iowa, U.S.
Section 34, T N, R W
Farm Name:
Client Name:
Total Acres: 155.28
Field Boundary Start Location:
Latitude:
Longitude:
No. of Observations: 16
Minimum P_ppm: 23.5
Maximum P_ppm: 84.5
Average P_ppm: 38.9

Megasurface
<8 Very Low (0.0 ac.)
8 - 15 Low (0.0 ac.)
15 - 20 Optimum (0.0 ac.)
20 - 30 High (36.2 ac.)
30+ Very High (119.0 ac.)

Potassium

The chemical symbol for potassium is K, which is derived from the German word, Kalium. Potassium is another one of the major plant nutrients including nitrogen and phosphorus. No other nutrient can replace it.

Potassium has a great impact on crop quality, including increased kernel weight and kernels per ear in corn and improved oil and protein content in soybeans. Potassium is vital to photosynthesis. High K levels help increase crop tolerance to drought stress. When K is deficient, photosynthesis declines, and the plant's respiration increases. Potassium is critical to maintaining favorable plant water status. If K becomes deficient, stomates do not function properly, inhibiting photosynthesis and interfering with plant water relations. K in the cell water allows the cells to maintain high internal water pressure. More K permits the maintenance of this pressure as the plant's environment gets drier and drier. With sufficient K, plants can continue to photosynthesize and to grow though periods of dry conditions. Sufficient levels of potassium also improve seedling vigor, plant health, and stalk strength.

Potassium's importance in disease suppression cannot be overstated. Many trials have shown potash as a key element in reducing leaf blight and stalk rot in corn as well as mold and mildew in soybeans. When K helps a plant resist disease, it doesn't do it as a direct agent of control, but by strengthening the natural resistance mechanisms of the plant.

Potash (0-0-60) represents 60 lbs. K2O for every 100 lbs. material. Corn grain removes .3 lbs. K2O per bushel and soybeans remove 1.5 lbs. of K2O per bushel. For example, a crop rotation of 165 bushels corn and 55 bushels soybeans removes 107 lbs. of actual potassium or 220 lbs. of the product 0-0-60. A typical target level for potassium is 140 ppm.

Potassium (K) Recommendations

Corn

Soil Test Category:	(ppm)	K20 to apply
Very Low	0-90	130
Low	91-130	90
Optimum	131-170	45
High	171-200	0
Very High	201+	0

Soybeans

Soil Test Category:	(ppm)	K20 to apply
Very Low	0-90	120
Low	91-130	90
Optimum	131-170	75
High	171-200	0
Very High	201+	0

Iowa State Pm-1688 /October 1996

- The recommended amounts for the optimum soil test are based on nutrient removal for 150 bu. corn and 50 bu. soybeans. Adjustments are made for more suitable yield goals by soil productivity.

TB93133401; 06 (155.28 ac.) - 06 Sample Pts - K_ppm

Date: Nov 22, 2006
Field Name: TB93133401; 06
Location: Co., Iowa, U.S.
Section 34, T N, R W
Farm Name:
Client Name:
Total Acres: 155.28
Field Boundary Start Location:
Latitude:
Longitude:
No. of Observations: 16
Minimum K_ppm: 149.0
Maximum K_ppm: 366.5
Average K_ppm: 227.2

Megasurfaca
<90 Very Low (0.0 ac.)
90 - 130 Low (0.0 ac.)
130 - 170 Optimum (11.7 ac.)
170 - 200 High (43.5 ac.)
200+ Very High (100.0 ac.)

CRG ING INC.

TB93133401; 06 (155.28 ac.) - 06 Sample Pts - Lime_index

Date: Nov 22, 2006
Field Name: TB93133401; 06
Location: Co., Iowa, U.S.
Section 34, T N, R W
Farm Name:
Client Name:
Total Acres: 155.28
Field Boundary Start Location:
Latitude:
Longitude:
No. of Observations: 16
Minimum Lime_index: 6.7
Maximum Lime_index: 7.2
Average Lime_index: 7.2

Megasurfaca
0 - 6.2 (0.0 ac.)
6.2 - 6.4 (0.0 ac.)
6.4 - 6.6 (0.0 ac.)
6.6 - 7 (13.6 ac.)

Field Record

Field ID/Location _____

FSA Tract and Field # _____

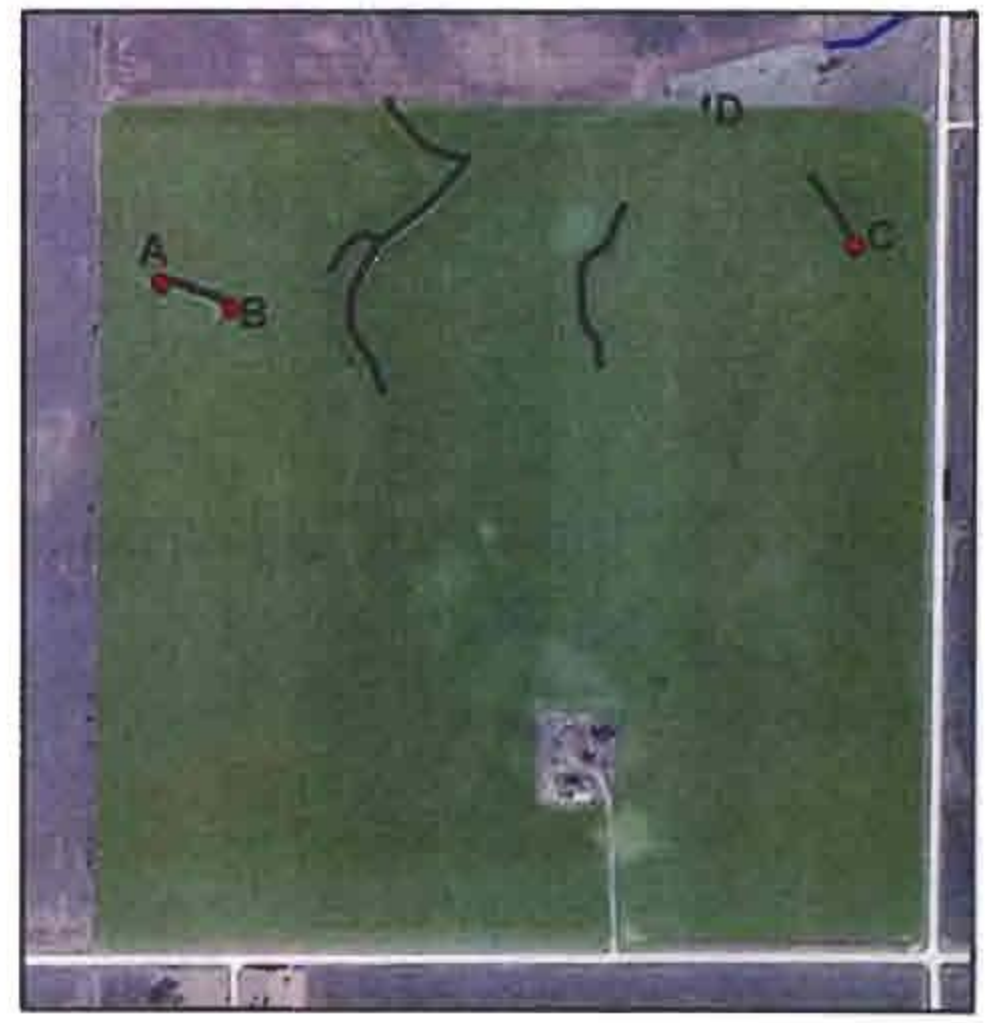
Acres _____ Crop _____ Prev. Crop _____

Variety _____

Planting Date _____ Population _____

Harvest Date _____ Yield _____

Moisture _____ Test Weight _____



Fertilizer Applications

Date	*Type*	*Analysis*	*Rate*

Herbicide & Pesticide Applications

Product _____ Date _____

Operator _____ Crop stage _____

Rate _____ Area _____ Total Applied _____

Target Weeds/Pests: _____

Weather and Soil Conditions _____

_____

_____

Product _____ Date _____

Operator _____ Crop stage _____

Rate _____ Area _____ Total Applied _____

Target Weeds/Pests: _____

Weather and Soil Conditions _____

_____

_____

Notes

Manure Applications

Date	*Source*	*Loads (number)*	*Area (acres)*	*Rate*	*Method*	*Date Incorporated*

insert supporting publications or supporting information

Concepts and Rationale for Regional Nitrogen Rate Guidelines for Corn

Authors

John Sawyer, Iowa State University

Emerson Nafziger, University of Illinois

Gyles Randall, University of Minnesota

Larry Bundy, University of Wisconsin–Madison

George Rehm, University of Minnesota

Brad Joern, Purdue University

Contributors

Carrie Laboski, University of Wisconsin–Madison

Robert Hoeft, University of Illinois

Robert Mullen, The Ohio State University

Randy Killorn, Iowa State University

Sylvie Brouder, Purdue University

PM 2015 April 2006

Manure Management Plan Recordkeeping Form

Part 1. Application Rate Calculation Information

Year _____

The following information may be taken from tables 2, 4, 5 and 6 in your Manure Management Plan (rev. 8/04)

Nutrient Concentration of Manure Used for Application * (lbs/1000gal or lbs/ton)

Total N _____ Available N 1st year _____ P_2O_5 _____

**Keep lab results in records if a sample is used.*

Cropping Information

Previous crop grown _____ Did previous crop receive manure? (yes/no) _____

Planned (or current) crop _____ Optimum crop yield _____ (bu or ton/ac)

Legume N credit _____ Lbs./ac Commercial N planned _____ Lbs./ac Manure N carryover credit _____ Lbs./ac

Remaining crop N need _____ lb/ac

Manure application rate to supply remaining N _____ gal or tons/ac

Phosphorus-Based Rate (fill out below if applying a phosphorous-based rate)

Planned crop rotation (crop(s) that P-based rate is based on) _____

P_2O_5 removal by crop harvest or crop rotation harvest _____ Lbs. P_2O_5/ac

Planned Manure Application Rate _____ gal or tons/ac

Part 2. Actual Manure Application Information

Date	Field Designation (from MMP)	Method of application	Total gallons or tons/field applied	Acres Covered	Application Rate (gal or tons/ac)
Weather Condition** Day before _____		Day of _____		Day after _____	
Weather Condition** Day before _____		Day of _____		Day after _____	
Weather Condition** Day before _____		Day of _____		Day after _____	
Weather Condition** Day before _____		Day of _____		Day after _____	

*** Indicate, e.g.: rainy, sunny, snowy, windy, etc.*

Statement of Intent

Commercial Fertilizer Application for Confinement Livestock and Poultry Producers

This form is for owners of confinement animal feeding operations that apply manure to farms that they do not own or rent. You will need a Statement of Intent from each crop producer (landowner or operator) indicating how much commercial N or P fertilizer will be applied to manured fields, even if no commercial fertilizer will be applied. The signed statement should become part of your manure management plan (MMP) and be kept with your MMP records for three years (five years starting Aug. 25, 2006) or the length of the crop rotation, whichever is longer. This DNR form is one option for providing that information.

The following fields are part of the manure management plan for this confinement facility:

Name of Facility Contact Person _____ Phone Number of Contact Person _____

Name of Facility _____ Facility ID Number _____

Please indicate the product name, the amount in gallons/acre or pounds/acre and the analysis for each field. Use zero (0) if none will be applied. *(Use one line per product application and multiple lines per field, if necessary. Use page 2 for additional fields.)*

Location of Manure Application Fields List County, Range, Township, Section and ¼ ¼ Section	**Field No.** (As listed on MMP)	**Applicable Time Period** (i.e., fall 2005, 2006 cropping year, next 3 crop years, etc.)	**Product Type & Analysis** (i.e., starter 10-34-0)	**Actual or Planned Application of Commercial N and/or P** (pounds/A or gal/A)
Example: Carroll Co., T84NR34W SE ¼ of SE ¼ Sec 31)	*1*	*2006, 2007 and 2008 crop years*	*Anhydrous 82%*	*100 pounds/A*

I certify that these are the planned application rates for commercial N and P; and that I may apply additional fertilizer to supplement manure application based on appropriate tests. I will supply the confinement feeding operation with all products and the rates of application for their records.

_____ (Cropland Owner/Operator's Name - Printed)

_____ (Cropland Owner/Operator's Signature)

_____ (Date Signed)

Aug. 28, 2005

542-8167

check current separation distances

nces for Land Application of Manure & Confinement Feeding Operations, including SAFOs

Revised
January 2003
Effective 3/1/03

Iowa law requires that all manure from an animal feeding operation must be land applied in a manner that will not cause surface or groundwater pollution. Chapter 65 of the Iowa Administrative Code (IAC) contains rules that govern land application of manure, including the separation distances summarized in Tables 1, 2 and 3 below. The separation distances are required by law and must be maintained between the protected area and the area where manure is applied. Distances apply to the type of manure and the method of application that is used.

In 2002, changes in Iowa Law added water sources (see definition) and protected wetlands as designated areas. Other changes required incorporation to occur on the same date as application (see Table 2).

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

Table 1: Required separation distances (in feet) to **buildings or public use areas** by type of manure and method of manure application

Buildings or Public Use Areas	Dry Manure		Liquid Manure (except irrigated)		
	Surface Application		Direct Injection	Surface Application	
	Incorporated within 24 hours	Incorporated after 24 hrs. or not incorporated		Incorporated within 24 hrs.	Incorporated after 24 hrs. or not incorporated
• residence • business • church • school • public use area	0	0	0	0	750 ft. [1]

1. a) This separation distance applies only to liquid manure from confinement feeding operations. It does not apply to manure from open feed lots or dry manure. The required 750-foot separation distance also does not apply if any of the following exist:
   1) manure is injected or incorporated within 24 hours,
   2) a written waiver is issued by owner of the building or public use area benefiting from the required separation distance,
   3) manure comes from a small animal feeding operation (SAFO), or
   4) manure is applied by low pressure spray irrigation equipment (a 250-foot separation distance applies—see Table 3).

   b) Measure the separation distance from the applied manure to the closest point of buildings; and to the facilities where people congregate (for public use areas)

Table 2: Required separation distances (in feet) to **designated areas** by type of manure and method of manure application

Designated Areas	Dry Manure		Liquid Manure (except irrigated)		
	Surface Application		Direct Injection	Surface Application	
	Incorporated on same date	Not incorporated		Incorporated on same date	Not incorporated
• sinkhole • abandoned well • cistern • drinking water well • designated wetland • water source	0	200 ft [2] (50 ft. with buffer [3])	0	0	200 ft [2] (50 ft. with buffer [3])
• high quality water resource	0	800 ft. [2, 4] (50 ft. with buffer [3])	0	0	800 ft. [2, 4] (50 ft. with buffer [3])
• unplugged ag drainage well • ag drainage well surface inlet	0	200 [5]	0	0	200 [5]

2. The separation distance applies to both open feedlots and confinement feeding operations, regardless of size. The 200-foot or 800-foot separation distance does not apply if either of the following exist:
   a) if manure is injected or incorporated on the same date as the manure was land applied, it can be applied up to the edge of the designated area, or
   b) if a 50-foot buffer is established around a designated area, manure can be applied up to the edge of the buffer (except a 200-foot separation distance must be maintained around an unplugged ag drainage well or an unplugged ag drainage well surface inlet).
3. Do not apply manure in the vegetative buffer.
4. Check with the DNR to see if you are adjacent to a high quality water resource, because an 800-foot separation distance will apply.
5. Manure shall not be applied within 200 feet of an unplugged ag drainage well or unplugged ag drainage well surface inlet, unless injected or incorporated on the same date.