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ANIMAL WASTE MANAGEMENT PLAN
BILL R. ANDERSON
POULTRY PRODUCTION OPERATION
Sections 30 & 33, T20N, R25E
DELAWARE COUNTY, OKLAHOMA

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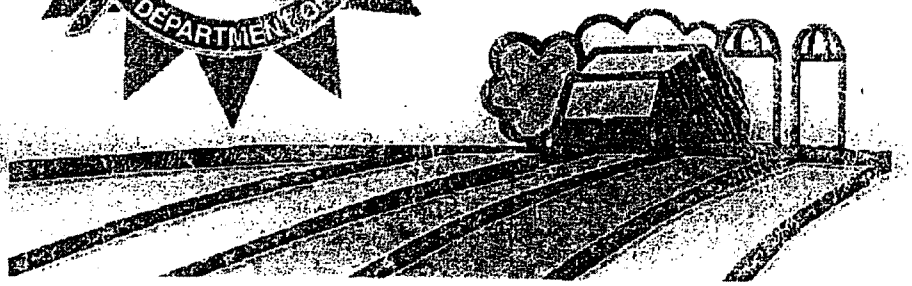
Water Quality
STATE DEPT. OF AGRICULTURE



WATER QUALITY SERVICES DIVISION
OKLAHOMA DEPARTMENT OF AGRICULTURE
P.O. Box 528804, Oklahoma City, OK. 73105

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ANIMAL WASTE MANAGEMENT PLAN
BILL R. ANDERSON
POULTRY PRODUCTION OPERATION
DELAWARE COUNTY, OKLAHOMA
Prepared in November 2002

A - INTRODUCTION

Plants remove from the soil 4 to 10 times as much nitrogen as phosphorus. Consequently, a significant build up of phosphorus in the soil can take place over a period of time. Much of the build up can be lost through runoff, which greatly reduces the quality of water downstream. Due to these water quality concerns, future land application of poultry litter will be based upon the phosphorus content in the soil and the amount of phosphorus in the chicken litter to be applied. The law requires that the Natural Resources Conservation Service recommendations for litter application rates be followed. NRCS recommends the application of a maximum of 200 lbs. of phosphorus per acre per year if the soil test shows a phosphorus index below 250. If the soil test phosphorus index is above 250 then rate applications are adjusted downward accordingly. If the maximum amount of litter that can be applied does not supply sufficient nitrogen for the desired production then nitrogen from other sources can be applied (ex. ammonium nitrate). About 50 lbs. of nitrogen is needed to produce a ton of bermuda grass and about 60 lbs is needed to produce a ton of fescue. Based on current litter and soil tests, and with recommended litter applications, potassium will be adequate for plant growth.

B - DESCRIPTION OF OPERATION

This waste management plan includes the production, handling, and distribution of waste and litter from four pullet houses. These houses are each 40 feet wide and 300 feet long. They are located in Section 30, T20N, R25E, Delaware County, Oklahoma. Each batch of about 18,600 pullets (plus about 1500 roosters) is kept approximately 5 months. There is about a 3-week period between batches to allow for cleanout and preparation for the next batch of pullets. The average is 2 batches of birds per year. Total waste and litter production is estimated to be 170 tons. The waste is accumulated on wood shavings bedding material and is completely removed 2 times per year. The present clean out schedule is November and June. The litter is spread on the surface of the ground, when removed, if conditions are right for spreading. Otherwise, it is stored and protected from outside water. There will be no runoff from the stockpile. There are about 40 acres in this property. However the owner has access to an additional approximately 275 acres.

As shown on the aerial photograph, the 40 acres, where the pullet houses are, is separated from the other property by a dash line. This total acreage above receives litter from poultry houses owned by the Anderson's daughter.

C – APPLICATION RATES

Field 1: Section 33, T20N, R25E
Field 2: Section 30, T20N, R25E
(See attached aerial photographs for specific location of each field).

Nutrient Content

According to the latest (9/02) litter test, each ton of litter contains:
N – 43 lbs. P205 – 60 lbs. K20 – 48 lbs.

Soil test results (7&8/02)

Field No.	N03	P Index	K Index
1	6 lbs.	54 lbs.	232 lbs.
2	4 lbs.	27 lbs.	294 lbs.

Soil test P Index is below 250 in both fields. Litter can be applied at the full rate. The bottomland area shown in blue on the soils map can only receive litter between June 20 and September 20 or if there is a 4-inch growth of fescue litter can be applied between February 1 and April 20.

200 lbs. P205 divided by 60 lbs. P205 per/ton = 3.3 tons of litter per acre per year. This 3.3 tons will supply enough nitrogen to produce about 2 tons of bermuda grass or about 1.7 tons of fescue. (Fertilizer is 70 percent effective the first year).

The following lime applications are recommended.
Field 1 – 1.4 tons ECCE lime per acre
Field 2 – 1.2 tons ECCE lime per acre

Do not apply litter adjacent to ponds, streams, or water wells.

Application Summary

Litter production from 4 pullet houses = 170 tons. 170 tons divided by 3.3 tons per acre = 52 acres that can be covered at the full rate. This will only cover a portion of the available land. However some of the land is receiving litter from other sources. Caution should be taken not to put litter on the same land twice in one year. Adequate and timely soil sampling is very important where litter is being supplied from two sources. (See Item F. 2 & 3).

D - DEAD BIRD DISPOSAL

Birds from normal death loss are disposed of in an incinerator.

Birds from catastrophic losses are disposed of in a dug pit as approved by the appropriate poultry inspector. An alternate method is infield composting.

E - WASTE UTILIZATION GUIDELINES

1. All waste will be applied in accordance with all state and local laws and ordinances.
2. All waste applications will be timed to minimize pollution.

Any one of the following conditions will prohibit the surface application of litter.

a. High velocity wind is toward a populated area.
b. There is a high probability of a runoff producing rainfall.
c. The ground is frozen.
d. Saturated soil condition exists.

3. Discharge or runoff from waste application sites is prohibited.
4. Spread litter during growing season of dominant plants.
5. Do not apply to actively eroding areas.
6. Do not apply on shallow soils (less than 10 inches deep), on slopes greater than 15 percent, or on stony areas.

F - BEST MANAGEMENT PRACTICES

1. Apply litter not to exceed amounts given in this waste management plan or a revised recommendation based on new soil and litter tests.
2. Soil and litter are to be tested every year.
3. Secure enough soil tests to adequately represent the conditions on your farm. Generally one composite soil sample is needed for each 40 acres where litter is to be applied.
4. Maintain a good growth of grass at all times. Grass should not be less than four inches tall. This reduces runoff, erosion, and nutrient loss.
5. Control weeds and brush to maintain a good stand of grass.
6. Do not apply litter within 50 to 100 feet of streams, ponds, and water wells. Buffer strips should be maintained along these areas.
7. On slopes of 8 to 15 percent, use one-half the normal prescribed rate of litter.

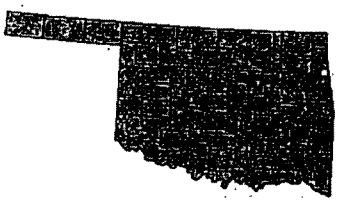
G - ENVIRONMENTAL ASSESSMENT

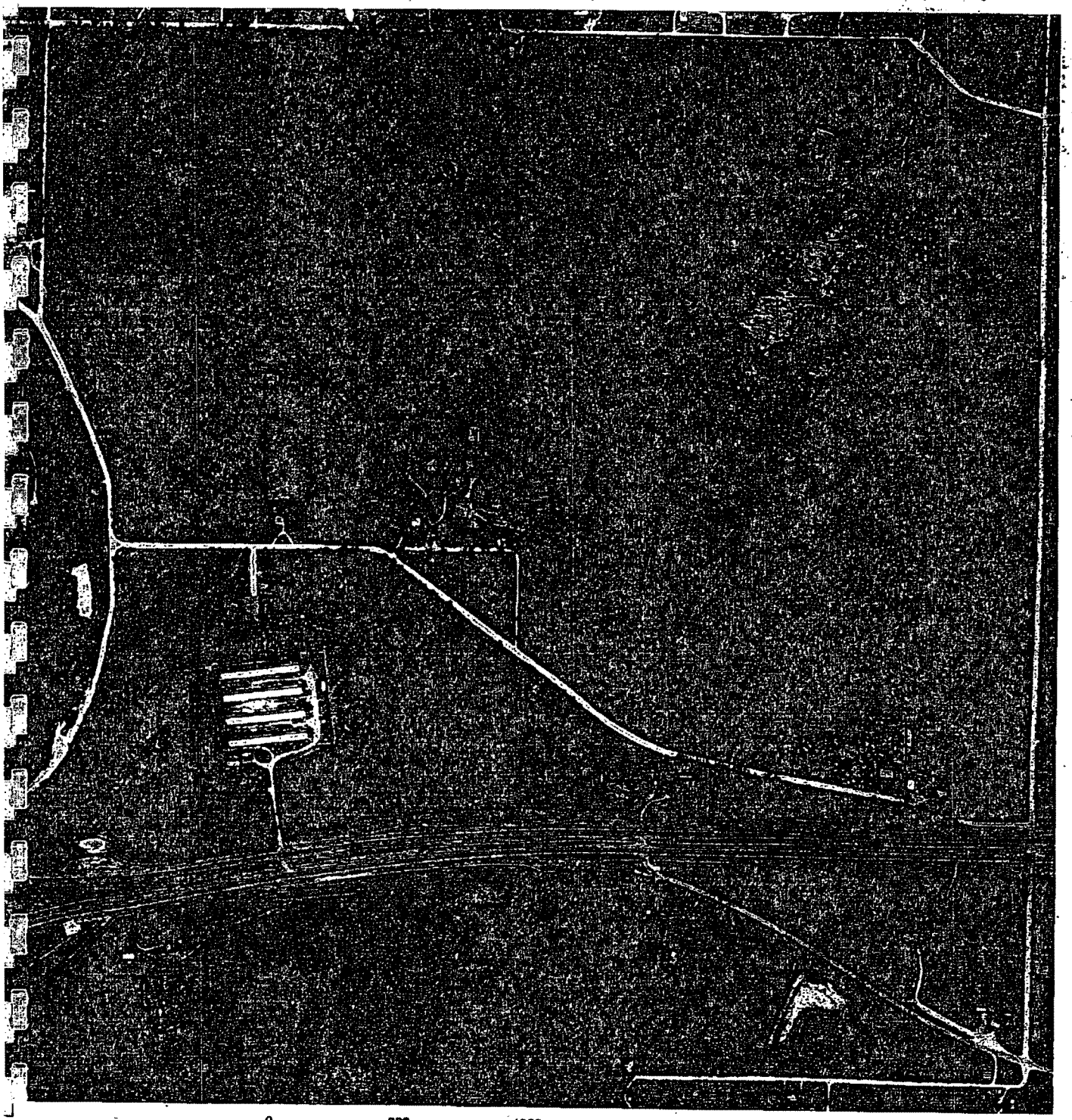
There are ponds and intermittent streams on this property that require special precautions when spreading litter. (See Item F. 6). Some areas are seasonally wet which limits litter application to certain times of the year. The steep and/or stony areas are still in timber.

H - ADDITIONAL INFORMATION

1. The dominant grasses are bermuda grass and fescue.
2. The present clean out schedule is November and June.
3. Litter sampling after each batch of chickens is not required. One sample per year is adequate. Additional sampling can be done for your own information.
4. Owner should keep records of time of clean out, tons of litter produced and who receives the litter in the event any should be removed from this farm.
5. The amount of litter produced was taken from the owner's records.

S30 T20N R25E
Delaware County, OK





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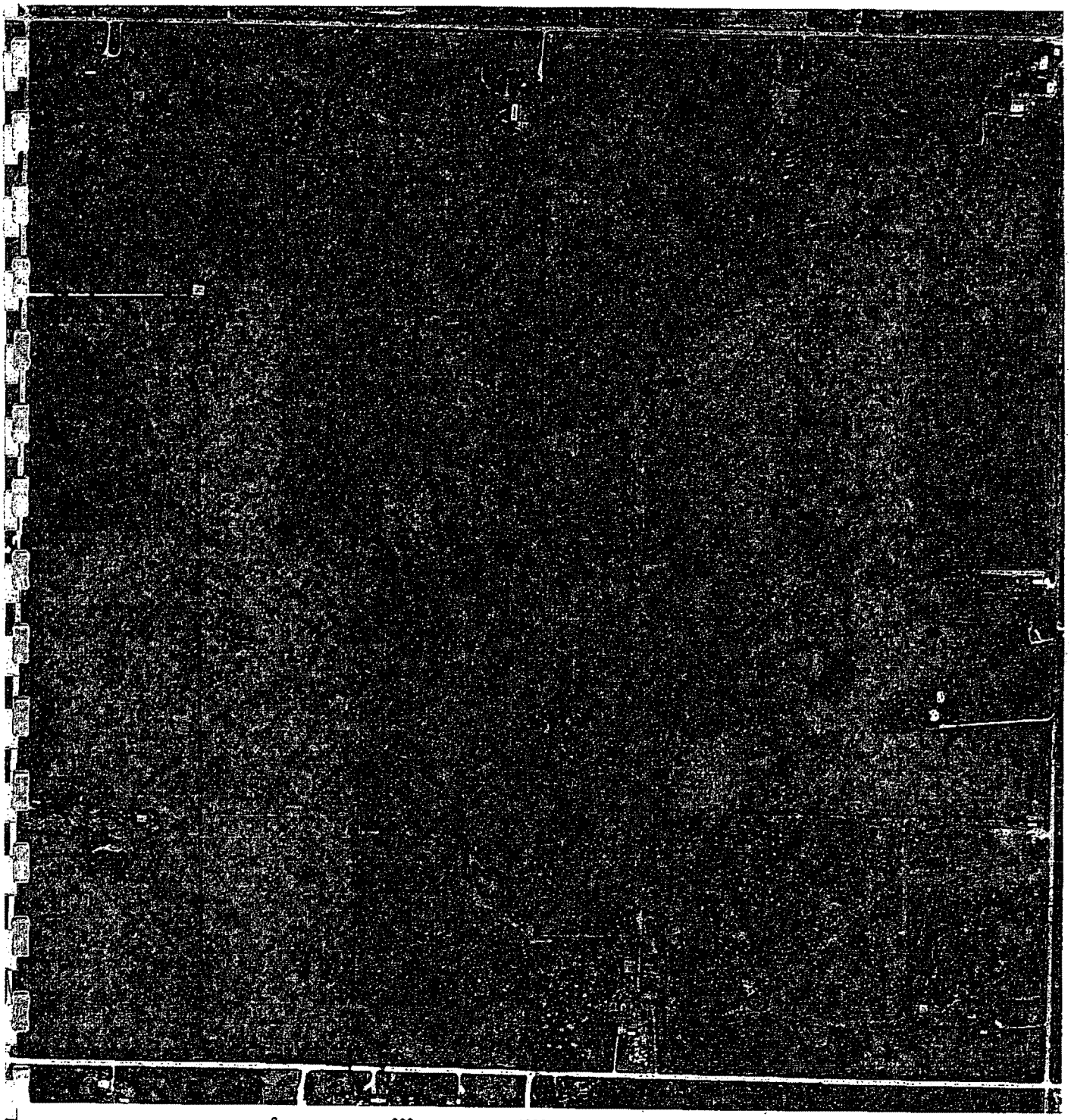
Produced by the Oklahoma Department of Agriculture Geographic Information System.

S.T. = Soil Test

S33 T20N R25E
Delaware & Adair Counties, OK



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S.T.= Soil Test

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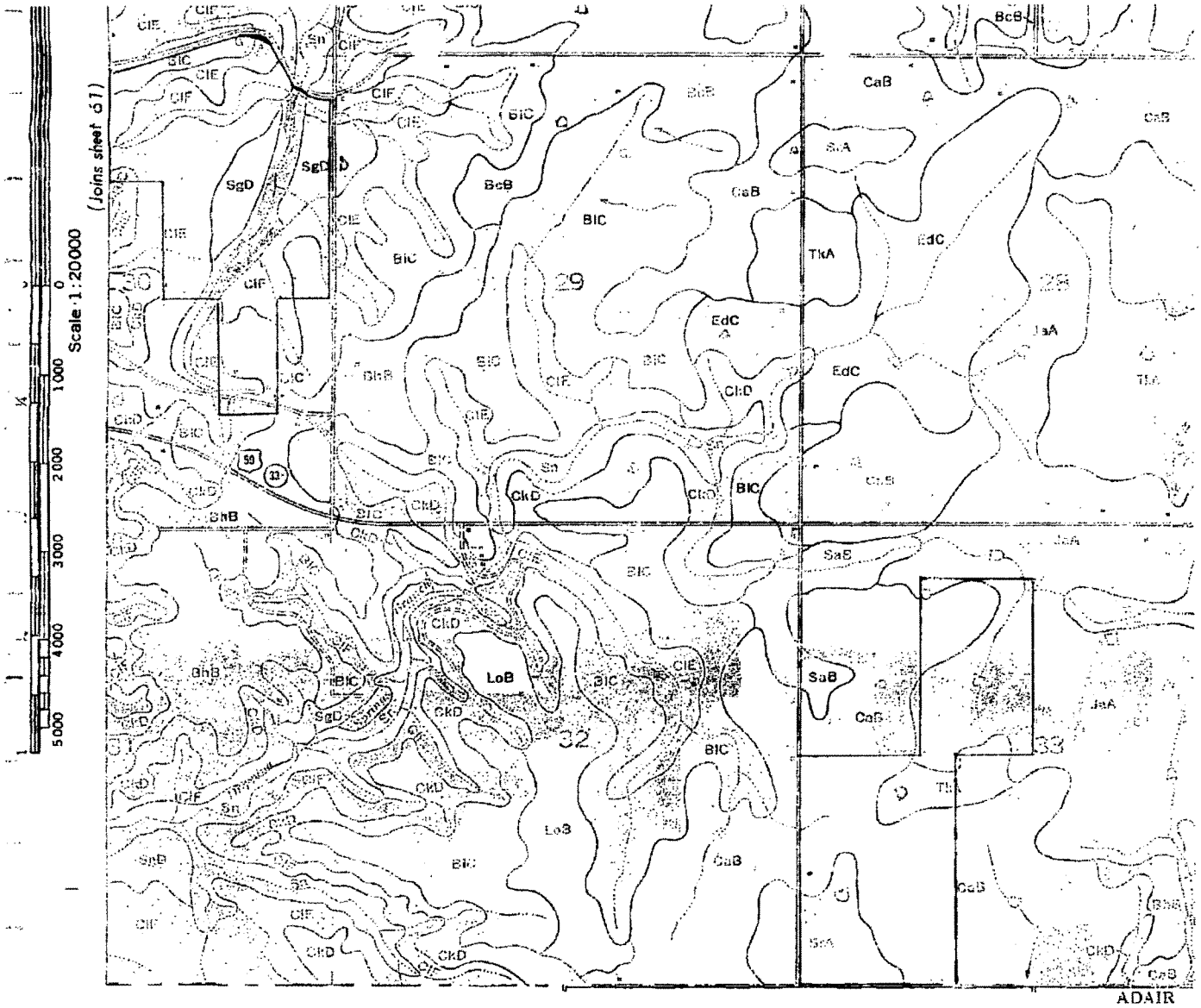

Section 30 & 33 T.20N R.25E DELAWARE COUNTY, OKLAHOMA

Map Symbol	Soil Name
BiC	Baxter-Locust complex, 3 to 5 percent slopes
CaB	Captina silt loam, 1 to 3 percent slopes
CiE	Clarksville stony silt loam, 5 to 20 percent slopes
CiF	Clarksville stony silt loam, 20 to 50 percent slopes
JaA	Jay silt loam, 0 to 2 percent slopes
SaB	Sallisaw silt loam, 1 to 3 percent slopes
SgD	Sallisaw gravelly silt loam, 3 to 8 percent slopes
Sn	Staser gravelly loam, 0 to 3 percent slopes
SrA	Stigler silt loam, 0 to 1 percent slopes
TkA	Taloka silt loam, 0 to 1 percent slopes

Map Symbol	SOIL NAME AND DESCRIPTION
BiC	**Baxter-Locust complex, 3 to 5 percent slopes** These soils occur in such a pattern they could not be shown separately on the soil map. They are both deep soils and have cherty silt loam surface layers. Baxter is dominantly a cherty clay in the subsoil and Locust is a cherty silty clay loam in the subsoil. Natural fertility, organic matter content, and available water capacity are medium.
CaB	**Captina silt loam, 1 to 3 percent slopes** This is a deep soil with a silt loam surface layer and a silty clay loam subsoil. Natural fertility and organic matter contest are medium. The available water capacity is high.
CiE	**Clarksville stony silt loam, 5 to 20 percent slopes** This is a deep soil with a stony silt loam surface layer and a stony silty clay loam subsoil. Natural fertility, organic matter content, and available water capacity are medium to low.
CiF	**Clarksville stony silt loam, 20 to 50 percent slopes** This is a deep soil that contains many chert fragments in the soil and is stony on the surface. It has a very cherty silt loam surface layer and a very cherty silty clay loam subsoil. Natural fertility, organic matter content and available water capacity are medium to low.
JaA	**Jay silt loam, 0 to 2 percent slopes** This is a deep soil with a silt loam surface layer and a silty clay loam subsoil. Natural fertility and organic matter content are medium. The available water capacity is high.
SaB	**Sallisaw silt loam, 1 to 3 percent slopes** This is a deep soil with a silt loam surface layer and a silty clay loam subsoil. Natural fertility and organic matter content are medium. The available water capacity is high.

SgD **Sallisaw gravelly silt loam, 3 to 8 percent slopes**

This is a deep soil with a gravelly silt loam surface layer and a gravelly silty clay loam subsoil. Organic matter content, natural fertility, and available water capacity are medium.

Sn **Staser gravelly loam, 0 to 3 percent slopes**
This is a deep soil that is a gravelly loam throughout. It is subject to occasional flooding. Natural fertility, organic matter content, and available water capacity are medium to high.

SrA **Stigler silt loam, 0 to 1 percent slopes**

This is a deep soil with a thick silt loam surface layer and a silty clay loam subsoil. Natural fertility and organic matter content are medium. The available water capacity is high.

TkA **Taloka silt loam, 0 to 1 percent slopes**

This is a deep soil with a thick silt loam surface layer and a silty clay subsoil. Natural fertility, organic matter content, and available water capacity are high. Seasonal wetness may limit litter application.

OKLAHOMA COOPERATIVE EXTENSION SERVICE

①

SOIL, WATER & FORAGE ANALYTICAL LABORATORY
Division of Agricultural Sciences and Natural Resources • Oklahoma State University
Plant and Soil Sciences • 048 Agricultural Hall • Stillwater, OK 74078
Email: soils_lab@mail.pss.okstate.edu
Website: http://clay.agr.okstate.edu/extensio/swfal/intro.htm

SOIL TEST REPORT

DELAWARE CTY EXT OFC

PO BOX 1020
JAY, OK 74346
(918) 253-4332

Name: Bill Anderson
Location: Field 1

Lab ID No.: 297723
Customer Code: 21
Sample No.: 2944
Received: 8/28/2002
Report Date: 8/30/2002

- Soil Reaction -		- NO_3-N (lbs/acre) -		- Test Index (Mehlich 3) -	
pH:	5.2	Surface:	6	P:	54
Buffer Index:	6.7	Subsoil:		K:	232

- Secondary Nutrients -	- Micronutrients -	- Additional Test-
Surface SO_4-S (lbs/A):	Fe (ppm):	OM (%):
Subsoil SO_4-S (lbs/A):	Zn (ppm):	
Ca (lbs/A):	B (ppm):	
Mg (lbs/A):		

INTERPRETATION AND REQUIREMENTS FOR *Bermudagrass* (YIELD GOAL = *3tons/acre*)

- Test -	- Interpretation -	- Requirement -	- Recommendations and Comments -
pH	Lime needed	1.4 tons ECCE/acre	
Nitrogen	Deficient	144 lbs/acre N	
Phosphorus	98% Sufficient	9 lbs/acre P_2O_5 annually	
Potassium	98% Sufficient	11 lbs/acre K_2O annually	

DELAWARE COUNTY OSU EXTENSION CTR
PO BOX 1020 - FAIR GROUNDS
JAY, OK 74346
(918) 253-4332

Jason Hollibrock
JASON HOLLIBRACK
Extension Educator-Agriculture

Signature

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Cobb
S/14 - 7/30

SOIL, WATER & FORAGE ANALYTICAL LABORATORY
Division of Agricultural Sciences and Natural Resources • Oklahoma State University (2)
Plant and Soil Sciences • 048 Agricultural Hall • Stillwater, OK 74078
Email: soils_lab@mail.pss.okstate.edu
Website: http://clay.agr.okstate.edu/extensio/swfal/intro.htm

SOIL TEST REPORT

DELAWARE COUNTY
OKLA CONSER COMM PROG
PO BOX 1020
JAY, OK 74346
405-521-2384

Name: Tony Anderson
Location: Old Home Place
30-20-25

Lab I.D. No.:	261075
Customer Code:	1100
Sample No:	2603
Received:	07/09/01
Report Date:	07/19/01

TEST RESULTS

Soil Reaction		NO3-N (lbs/acre)		Test Index	
pH:	5.1	Surface:	4	P:	27
Buffer Index:	6.8	Subsoil:		K:	294

Secondary nutrients		Micronutrients
Surface SO4-S (lbs/acre):	Ca (lbs/acre) :	Fe (ppm):
Subsoil SO4-S (lbs/acre):	Mg (lbs/acre):	Zn (ppm):
		B (ppm):

INTERPRETATIONS AND REQUIREMENTS FOR *Bermudagrass* (YIELD GOAL = *3.00* tons/acre)

Test	Interpretation	Requirement	Recommendations and Comments
pH	Lime needed	1.2 tons ECCE/acre to pH 6.8	
Nitrogen	Deficient	146 lbs/acre N	
Phosphorus	85% Sufficient	33 lbs/acre P2O5 annually	
Potassium	Adequate	None	

Jason Hollenbeck
JASON HOLLENBECK
Extension Educator-Agriculture

DELAWARE COUNTY OSU EXTENSION CTR
PO BOX 1020 - FAIR GROUNDS
JAY, OK 74346
(918) 253-4332

Signature

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AGRICULTURAL DIAGNOSTIC LABORATORY
UNIVERSITY OF ARKANSAS - FAYETTEVILLE
DRY MANURE FOR FERTLIZER ANALYSIS (report for CES-429)

Name:	BILL ANDERSON	Received:	8-28-02
Address:	RT. 5, BOX 266	Mailed:	9-04-02
City:	COLCORD	State,Zip:	OK 74338
County:	DELAWARE	Check #:	POULTRY FEDERATION

Lab #	M21435
Sample #	DEL/OSU-921
Animal type	hens
-age/lbs	none given
Bedding type	hulls/shavings
Manure type	cleanout
Sample date	8-23-02
Age of manure	1 yr
pH	8.0
Ec(umhos/cm)	5850
% H20	19.3

	% on dry weight basis
Total N	2.66
Total P	1.62
Total K	2.47
Total Ca	2.24

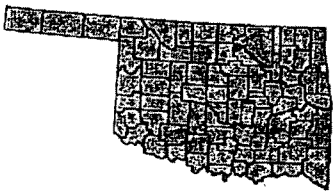
	% on "as-is" basis
Total N	2.15
Total P	1.31
Total K	1.99
Total Ca	1.81

	lbs/ton on "as-is" basis
N	42.9
TOTAL P AS "P2O5"	59.9
TOTAL K AS "K2O"	47.8
Ca	36.2

*lbs/ton P2O5 = %Total P on "as-is" basis multiplied by 20*2.29
*lbs/ton K2O = %Total K on "as-is" basis multiplied by 20*1.2

TSN60400S0K

S33 T20N R25E
Delaware & Adair Counties, OK



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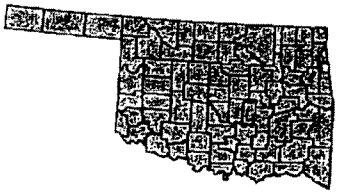
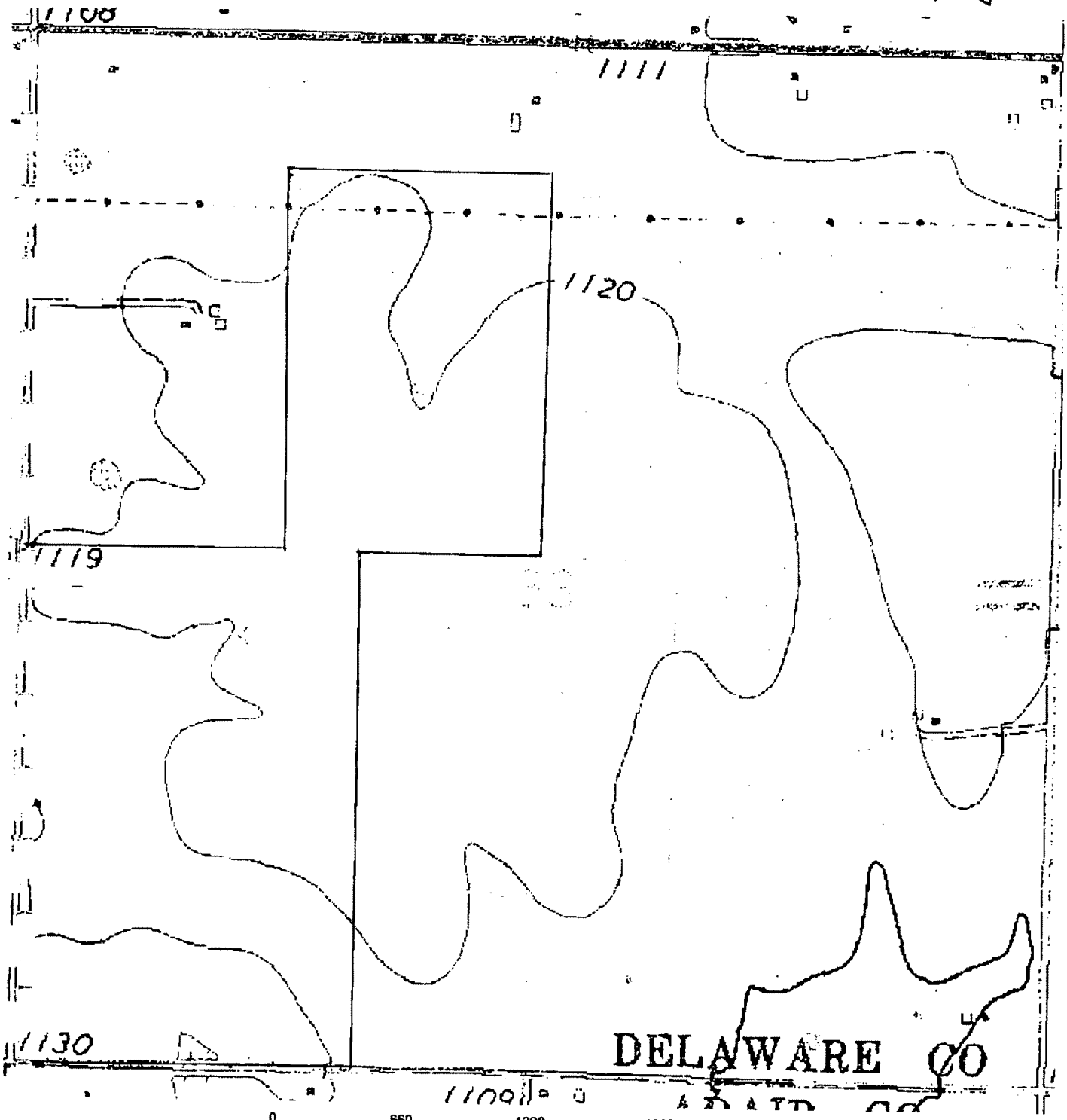
Delaware & Adair Counties, OK





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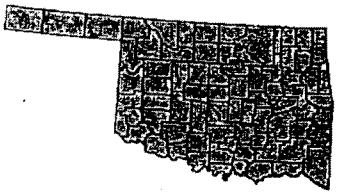
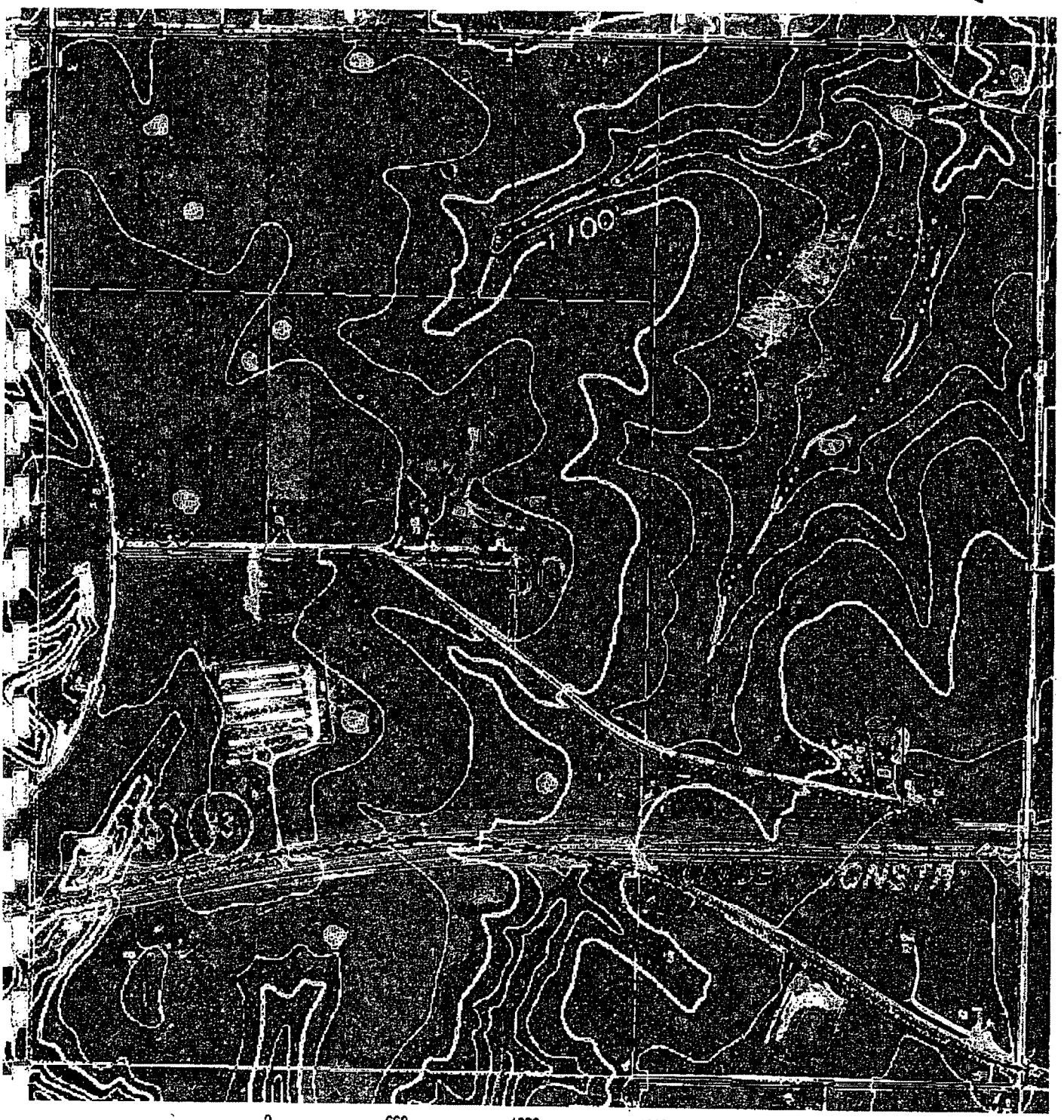
S30 T20N R25E
Delaware County, OK





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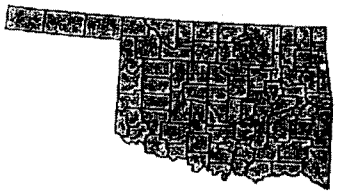
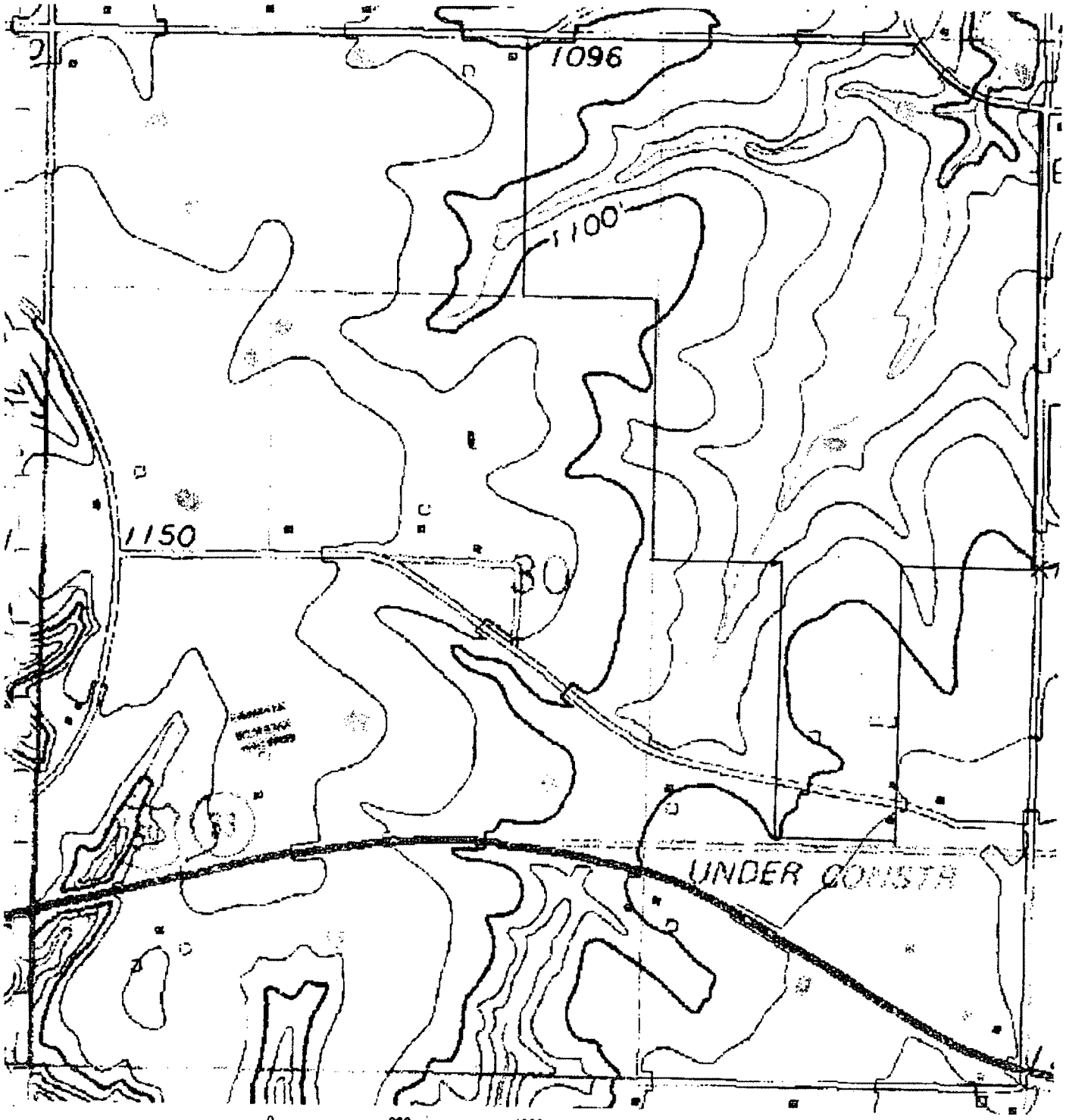
Delaware County, OK





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OKLAHOMA DEPARTMENT OF AGRICULTURE
WATER QUALITY SERVICES DIVISION
Legal Location Platt

NORTH

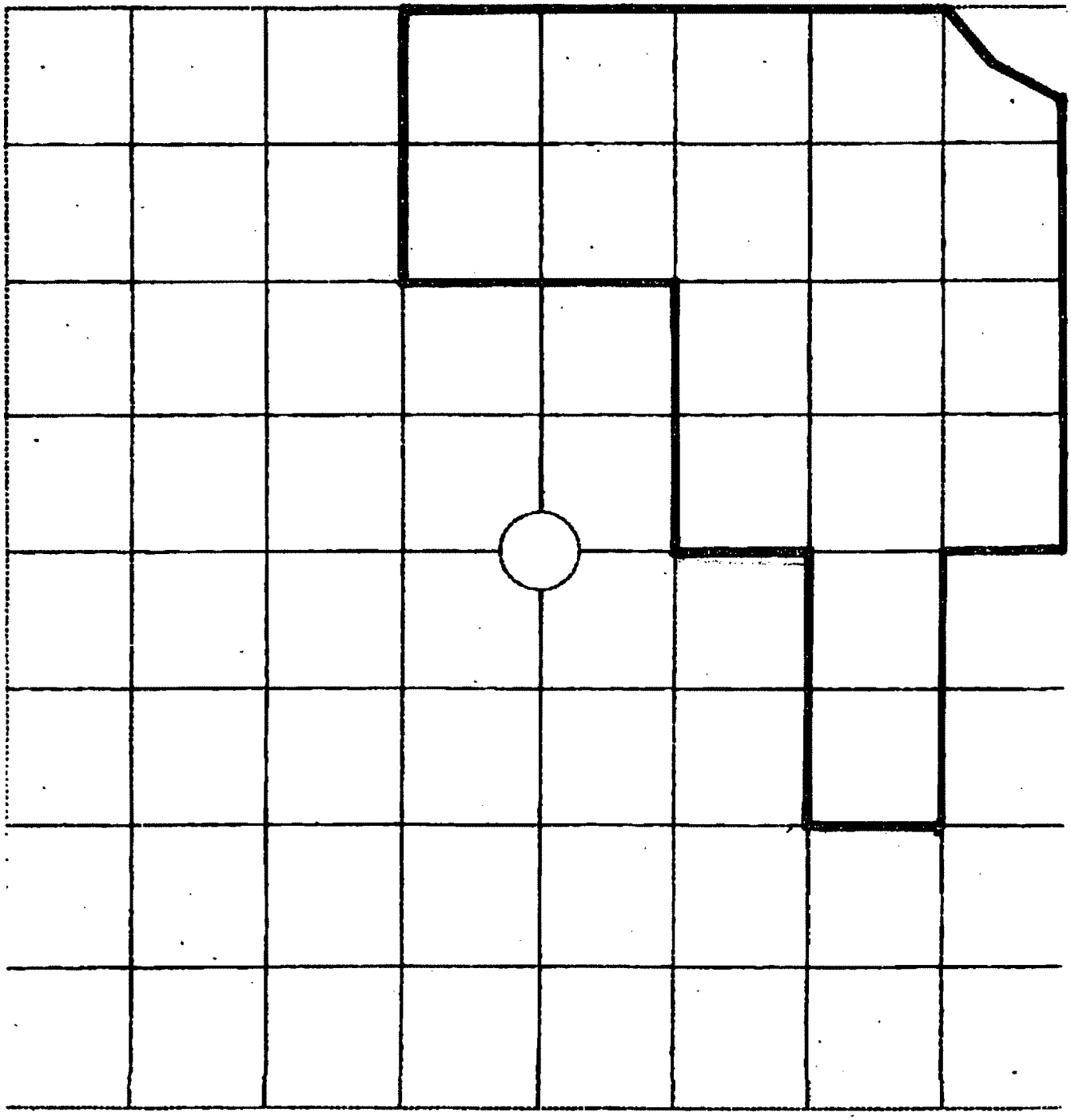
Size: 10 acre

Scale: 1" = 660'

Facility Name Bill R. Anderson

Legal Desc. ____, ____, ____ **Sec** 30 **T** 20N **R** 25E **Mer.** ____

County Delaware



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OKLAHOMA DEPARTMENT OF AGRICULTURE
WATER QUALITY SERVICES DIVISION
Legal Location Plat

NORTH

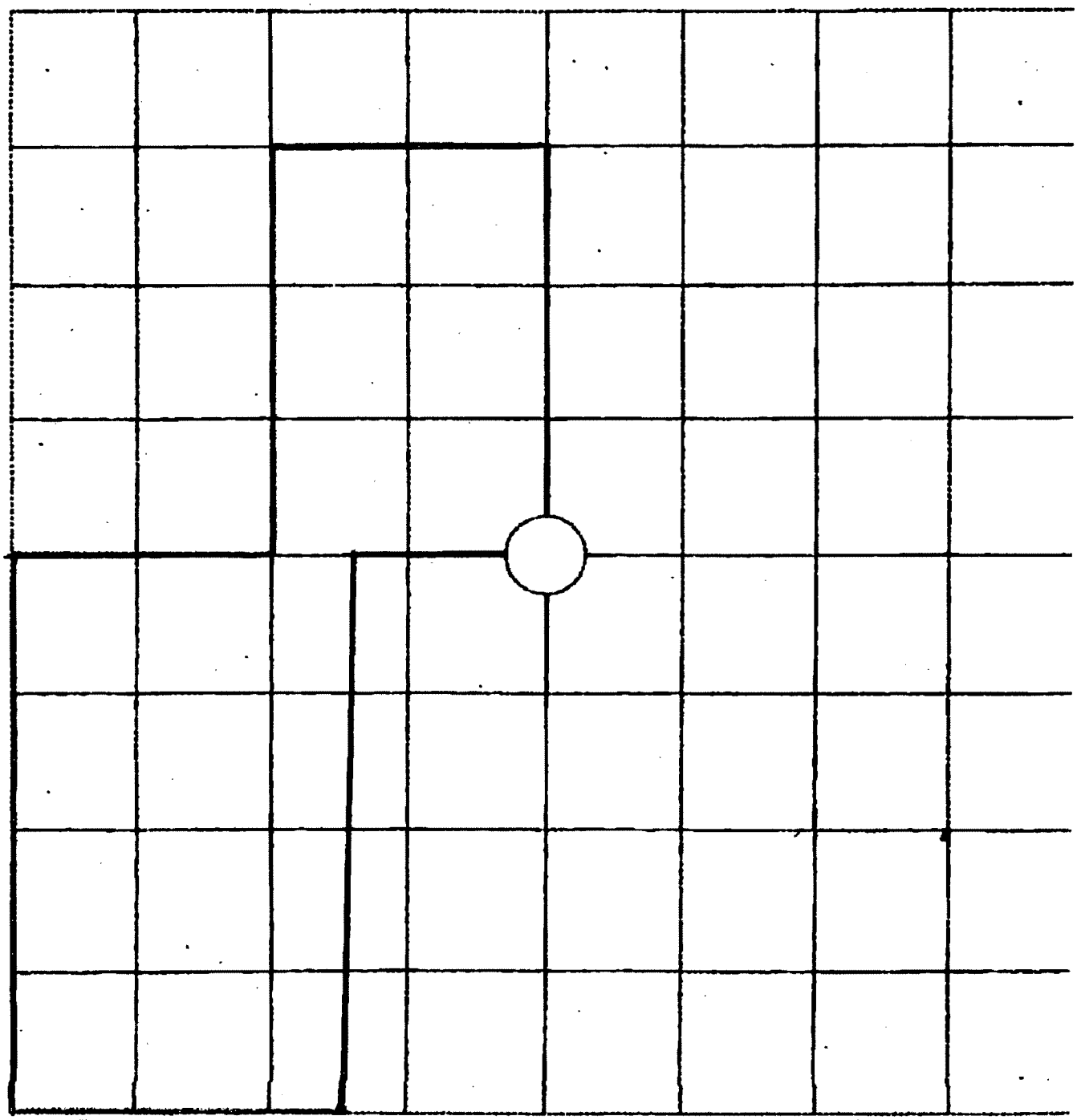
Size: 10 acre

Scale: 1" = 660'

Facility Name Bill R. Anderson

Legal Desc. ___, ___, ___ Sec 33 T 20N R 25E Mer. ___

County Delaware



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