

# NOTICE

This scan only represents the application as filed. The information contained herein meets the requirements of K.A.R. 5-3-1 or K.A.R. 5-5-1, and has been found acceptable for filing in the office of the Chief Engineer. The application should not be considered to be a complete application as per K.A.R. 5-3-1b or K.A.R. 5-5-2a.

SEP 12 2023

1100

KS DEPT OF AGRICULTURE

THE STATE OF KANSAS



KANSAS DEPARTMENT OF AGRICULTURE
Mike Beam, Secretary of Agriculture

DIVISION OF WATER RESOURCES
Earl D. Lewis Jr., Chief Engineer

File Number 51104

This item to be completed by the Division of Water Resources.

APPLICATION FOR PERMIT TO APPROPRIATE WATER FOR BENEFICIAL USE

Filing Fee Must Accompany the Application
(Please refer to Fee Schedule attached to this application form.)

To the Chief Engineer of the Division of Water Resources, Kansas Department of Agriculture,
1320 Research Park Drive, Manhattan, Kansas 66502:

1. Name of Applicant (Please Print): Tyler J. Peterson
Address: 1567 N 110th Rd
City: Minneapolis State KS Zip Code 67467
Telephone Number: (785) 201-2561

2. The source of water is: [ ] surface water in (stream)
OR [X] groundwater in Solomon River (drainage basin)

Certain streams in Kansas have minimum target flows established by law or may be subject to administration when water is released from storage for use by water assurance district members. If your application is subject to these regulations on the date we receive your application, you will be sent the appropriate form to complete and return to the Division of Water Resources.

3. The maximum quantity of water desired is 320 acre-feet OR gallons per calendar year, to be diverted at a maximum rate of 800 gallons per minute OR cubic feet per second.

Once your application has been assigned a priority, the requested maximum rate of diversion and maximum requested quantity of water under that priority number can NOT be increased. Please be certain your requested maximum rate of diversion and maximum quantity of water are appropriate and reasonable for your proposed project and are in agreement with the Division of Water Resources' requirements.

4. The water is intended to be appropriated for (Check use intended):
(a) [ ] Artificial Recharge (b) [X] Irrigation (c) [ ] Recreational (d) [ ] Water Power
(e) [ ] Industrial (f) [ ] Municipal (g) [ ] Stockwatering (h) [ ] Sediment Control
(i) [ ] Domestic (j) [ ] Dewatering (k) [ ] Hydraulic Dredging (l) [ ] Fire Protection
(m) [ ] Thermal Exchange (n) [ ] Contamination Remediation

YOU MUST COMPLETE AND ATTACH ADDITIONAL DIVISION OF WATER RESOURCES FORM(S) PROVIDING INFORMATION TO SUBSTANTIATE YOUR REQUEST FOR THE AMOUNT OF WATER FOR THE INTENDED USE REFERENCED ABOVE.

For Office Use Only:
F.O. 3 GMD Meets K.A.R. 5-3-1 (YES) Use IRR Source G S County OT ALB 9/12/23
Code RE2 Fee \$ 300 TR # Receipt Date 9/12/2023 Check # 1723

5. The location of the proposed wells, pump sites or other works for diversion of water is:

**Note:** For the application to be accepted, the point of diversion location must be described to at least a 10 acre tract, unless you specifically request a 60 day period of time in which to locate the site within a specifically described, minimal legal quarter section of land.

- (A) One in the SE quarter of the NE quarter of the NW quarter of Section 14, more particularly described as being near a point 4067 feet North and 2848 feet West of the Southeast corner of said section, in Township 10 South, Range 4 East West (circle one), Ottawa County, Kansas.
- (B) One in the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of Section \_\_\_\_\_, more particularly described as being near a point \_\_\_\_\_ feet North and \_\_\_\_\_ feet West of the Southeast corner of said section, in Township \_\_\_\_\_ South, Range \_\_\_\_\_ East/West (circle one), \_\_\_\_\_ County, Kansas.
- (C) One in the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of Section \_\_\_\_\_, more particularly described as being near a point \_\_\_\_\_ feet North and \_\_\_\_\_ feet West of the Southeast corner of said section, in Township \_\_\_\_\_ South, Range \_\_\_\_\_ East/West (circle one), \_\_\_\_\_ County, Kansas.
- (D) One in the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of the \_\_\_\_\_ quarter of Section \_\_\_\_\_, more particularly described as being near a point \_\_\_\_\_ feet North and \_\_\_\_\_ feet West of the Southeast corner of said section, in Township \_\_\_\_\_ South, Range \_\_\_\_\_ East/West (circle one), \_\_\_\_\_ County, Kansas.

If the source of supply is groundwater, a separate application shall be filed for each proposed well or battery of wells, except that a single application may include up to four wells within a circle with a quarter (1/4) mile radius in the same local source of supply which do not exceed a maximum diversion rate of 20 gallons per minute per well.

A battery of wells is defined as two or more wells connected to a common pump by a manifold; or not more than four wells in the same local source of supply within a 300 foot radius circle which are being operated by pumps not to exceed a total maximum diversion rate of 800 gallons per minute and which supply water to a common distribution system.

6. The owner of the point of diversion, if other than the applicant is (please print):

\_\_\_\_\_  
(name, address and telephone number)

\_\_\_\_\_  
(name, address and telephone number)

You must provide evidence of legal access to, or control of, the point of diversion from the landowner or the landowner's authorized representative. Provide a copy of a recorded deed, lease, easement or other document with this application. In lieu thereof, you may sign the following sworn statement:

I have legal access to, or control of, the point of diversion described in this application from the landowner or the landowner's authorized representative. I declare under penalty of perjury that the foregoing is true and correct.

Executed on \_\_\_\_\_, 20\_\_\_\_. \_\_\_\_\_  
Applicant's Signature

The applicant must provide the required information or signature irrespective of whether they are the landowner. Failure to complete this portion of the application will cause it to be unacceptable for filing and the application will be returned to the applicant.

7. The proposed project for diversion of water will consist of a battery of up to 4 wells  
(number of wells, pumps or dams, etc.)  
and (was will be) completed (by) 5/1/2025  
(Month/Day/Year - each was or will be completed)

8. The first actual application of water for the proposed beneficial use was or is estimated to be 10/1/2025.  
(Mo/Day/Year)

- 9. Will pesticide, fertilizer, or other foreign substance be injected into the water pumped from the diversion works?  
 Yes    No   If "yes", a check valve shall be required.

All chemigation safety requirements must be met including a chemigation permit and reporting requirements.

- 10. If you are planning to impound water, please contact the Division of Water Resources for assistance, prior to submitting the application. Please attach a reservoir area capacity table and inform us of the total acres of surface drainage area above the reservoir.

Have you also made an application for a permit for construction of this dam and reservoir with the Division of Water Resources?    Yes    No

- If yes, show the Water Structures permit number here   n/a
- If no, explain here why a Water Structures permit is not required   n/a

- 11. The application must be supplemented by a U.S.G.S. topographic map, aerial photograph or a detailed plat showing the following information. On the topographic map, aerial photograph, or plat, identify the center of the section, the section lines or the section corners and show the appropriate section, township and range numbers. Also, please show the following information:

- (a) The location of the proposed point(s) of diversion (wells, stream-bank installations, dams, or other diversion works) should be plotted as described in Paragraph No. 5 of the application, showing the North-South distance and the East-West distance from a section line or southeast corner of section.
- (b) If the application is for groundwater, please show the location of any existing water wells of any kind within 1/2 mile of the proposed well or wells. Identify each existing well as to its use and furnish the name and mailing address of the property owner or owners. If there are no wells within 1/2 mile, please advise us.
- (c) If the application is for surface water, the names and addresses of the landowner(s) 1/2 mile downstream and 1/2 mile upstream from your property lines must be shown.
- (d) The location of the proposed place of use should be shown by crosshatching on the topographic map, aerial photograph or plat.
- (e) Show the location of the pipelines, canals, reservoirs or other facilities for conveying water from the point of diversion to the place of use.

A 7.5 minute U.S.G.S. topographic map may be obtained by providing the section, township and range numbers to: Kansas Geological Survey, 1930 Constant, Campus West, University of Kansas, Lawrence, Kansas 66047.

- 12. List any application, appropriation of water, water right, or vested right file number that covers the same diversion points or any of the same place of use described in this application. Also list any other recent modifications made to existing permits or water rights in conjunction with the filing of this application.

Applicant requests 60 days to provide drillers test log for desired point of diversion in NW 1/4 of 14-10S-4W in Ottawa Co KS

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13. Furnish the following well information if the proposed appropriation is for the use of groundwater. If the well has not been completed, give information obtained from test holes, if available.

Information below is from:  Test holes  Well as completed  Drillers log attached

Well location as shown in paragraph No.	(A)	(B)	(C)	(D)
Date Drilled	_____	_____	_____	_____
Total depth of well	_____	_____	_____	_____
Depth to water bearing formation	_____	_____	_____	_____
Depth to static water level	_____	_____	_____	_____
Depth to bottom of pump intake pipe	_____	_____	_____	_____

14. The relationship of the applicant to the proposed place where the water will be used is that of

owner  
(owner, tenant, agent or otherwise)

15. The owner(s) of the property where the water is used, if other than the applicant, is (please print):

\_\_\_\_\_  
(name, address and telephone number)

\_\_\_\_\_  
(name, address and telephone number)

16. The undersigned states that the information set forth above is true to the best of his/her knowledge and that this application is submitted in good faith.

Dated at Minneapolis, Kansas, this 8<sup>th</sup> day of September, 2023.  
(month) (year)

Tyler J. Poth  
(Applicant Signature)

By \_\_\_\_\_  
(Agent or Officer Signature)

\_\_\_\_\_  
(Agent or Officer - Please Print)

Assisted by \_\_\_\_\_ (office/title) Date: \_\_\_\_\_

## FEE SCHEDULE

1. The fee for an application for a permit to appropriate water for beneficial use, except for domestic use, shall be (see paragraph No. 2 below if requesting storage):

ACRE-FEET	FEE
0-100	\$200.00
101-320	\$300.00
More than 320	\$300.00 plus \$20.00 for each additional 100 acre-feet or any part thereof.

2. The fee for an application in which storage is requested, except for domestic use, shall be:

ACRE-FEET	FEE
0-250	\$200.00
More than 250	\$200.00 plus \$20.00 for each additional 250 acre-feet of storage or any part thereof.

Note: If an application requests both direct use *and* storage, the fee charged shall be as determined under No. 1 or No. 2 above, whichever is greater, but not both fees.

3. The fee for an application for a permit to appropriate water for water power or dewatering purposes shall be \$100.00 plus \$200.00 for each 100 cubic feet per second, or part thereof, of the diversion rate requested.

Note: The applicant shall notify the Chief Engineer and pay the statutorily required field inspection fee of \$400.00 when construction of the works for diversion has been completed, except that for applications filed on or after July 1, 2009, for works constructed for sediment control use and for evaporation from a groundwater pit for industrial use shall be accompanied by a field inspection fee of \$200.00.

### **MAKE CHECKS PAYABLE TO THE KANSAS DEPARTMENT OF AGRICULTURE**

#### **ATTENTION**

A Water Conservation Plan may be required per K.S.A. 82a-733. A statement that your application for permit to appropriate water may be subject to the minimum desirable streamflow requirements per K.S.A. 82a-703a, b, and c may also be required from you. After the Division of Water Resources has had the opportunity to review your application, you will be notified whether or not you will need to submit a Water Conservation Plan. You also may be required to install a water flow meter or water stage measuring device on your diversion works prior to diverting water. There may be other special conditions or Groundwater Management District regulations that you will need to comply with if this application is approved.

#### **CONVERSION FACTORS**

1 acre-foot equals 325,851 gallons

1 million gallons equal 3.07 acre-feet



-  - 1/2 Mile Radius From Proposed Point of Diversion
-  - Proposed place of use

- Peterson Domestic Well – \*2196ft away from point of diversion\*  
Tyler J Peterson – 1567 N 110<sup>th</sup> Rd Minneapolis, KS 67467 (785)201-2561

\*All wells of any kind within 1/2 mile of the proposed point of diversion have been plotted\*

Signed Tyler J Peterson

Date 9/8/2023

9/11/2023

(Date)

Kansas Department of Agriculture  
Division of Water Resources  
Earl D. Lewis, Jr., Chief Engineer  
1320 Research Park Drive  
Manhattan, Kansas 66502

Re: Application  
File No. \_\_\_\_\_

Minimum Desirable Streamflow

I understand that a Minimum Desirable Streamflow requirement has been established by the legislature for the source of supply to which the above referenced application applies.

I understand that diversion of water pursuant to this application will be subject to regulation any time Minimum Desirable Streamflow requirements are not being met.

I also understand that if this application is approved, there could be times, as determined by the Division of Water Resources, when I would not be allowed to divert water. I realize that this could affect the economics of my decision to appropriate water.

I am aware of the above factors, and with the knowledge thereof, request that the Division of Water Resources proceed with processing and approval, if possible, of the above referenced application.

*Tyler J Peterson*

Signature of Applicant

*Tyler J Peterson*

(Print Applicant's Name)

State of Kansas )  
County of SALINE ) ss

I hereby certify that the foregoing instrument was signed in my presence and sworn to before me this 11 day of Sept, 2023.

*Kathy J Hollis*

Notary Public

My Commission Expires: June 01, 2025





**MINIMUM DESIRABLE STREAMFLOW FORM TO BE USED WHEN  
APPLICABLE WHEN FILING AN APPLICATION FOR PERMIT  
TO APPROPRIATE WATER FOR BENEFICIAL USE**

The Kansas Legislature has established minimum desirable streamflows for the streams listed below. If your proposed diversion of water is going to be from one of these watercourses or adjacent alluvial aquifers, please complete the back side of this page and submit it along with your application for permit to appropriate water.

Arkansas River  
Big Blue River  
Chapman Creek  
Chikaskia River  
Cottonwood River  
Delaware River  
Little Arkansas River  
Little Blue River  
Marais des Cygnes River  
Medicine Lodge River  
Mill Creek (Wabaunsee Co. area)  
Neosho River

Ninnescah River  
North Fork Ninnescah River  
Rattlesnake Creek  
Republican River  
Saline River  
Smoky Hill River  
Solomon River  
South Fork Ninnescah  
Spring River  
Walnut River  
Whitewater River

## IRRIGATION USE SUPPLEMENTAL SHEET

File No. \_\_\_\_\_

Name of Applicant (Please Print): Tyler J Peterson

1. Please supply the name and address of each landowner, the legal description of the lands to be irrigated, and designate the actual number of acres to be irrigated in each forty acre tract or fractional portion thereof:

**Landowner of Record**      NAME: Tyler J Peterson  
 ADDRESS: 1567 N 110<sup>th</sup> Rd Minneapolis, KS 67467

S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
14	10S	4W					23	19.5	38	40	40	10.3	9.5	40					220.3ac
15	10S	4W	5			3													8ac

**Landowner of Record**      NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_

S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

**Landowner of Record**      NAME: \_\_\_\_\_  
 ADDRESS: \_\_\_\_\_

S	T	R	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	

2. Please complete the following information for the description of the operation for the irrigation project. Attach supplemental sheets as needed.

a. Indicate the soils in the field(s) and their intake rates: *\*See attached Soil map packet\**

Soil Name	Percent of field (%)	Intake Rate (in/hr)	Irrigation Design Group
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Total:	100 %	_____	_____

b. Estimate the average land slope in the field(s): \_\_\_\_\_ %  
 Estimate the maximum land slope in the field(s): \_\_\_\_\_ %

c. Type of irrigation system you propose to use (check one):  
 Center pivot      \_\_\_ Center pivot - LEPA      \_\_\_ "Big gun" sprinkler  
 \_\_\_ Gravity system (furrows)      \_\_\_ Gravity system (borders)      \_\_\_ Sideroll sprinkler  
 Other, please describe: \_\_\_\_\_

d. System design features:  
 i. Describe how you will control tailwater:  
  
 ii. For sprinkler systems:  
 (1) Estimate the operating pressure at the distribution system: \_\_\_\_\_ psi  
 (2) What is the sprinkler package design rate? \_\_\_\_\_ gpm  
 (3) What is the wetted diameter (twice the distance the sprinkler throws water) of a sprinkler on the outer 100 feet of the system? \_\_\_\_\_ feet  
 (4) Please include a copy of the sprinkler package design information.

e. Crop(s) you intend to irrigate. Please note any planned crop rotations:  
 - *Wheat*      - *Soybean*  
 - *Corn*  
 - *Grain Sorghum*

f. Please describe how you will determine when to irrigate and how much water to apply (particularly important if you do not plan a full irrigation).  
 - *Soil moisture probes*  
 - *Monitor crop water usage by using ET data*

You may attach any additional information you believe will assist in informing the Division of the need for your request.



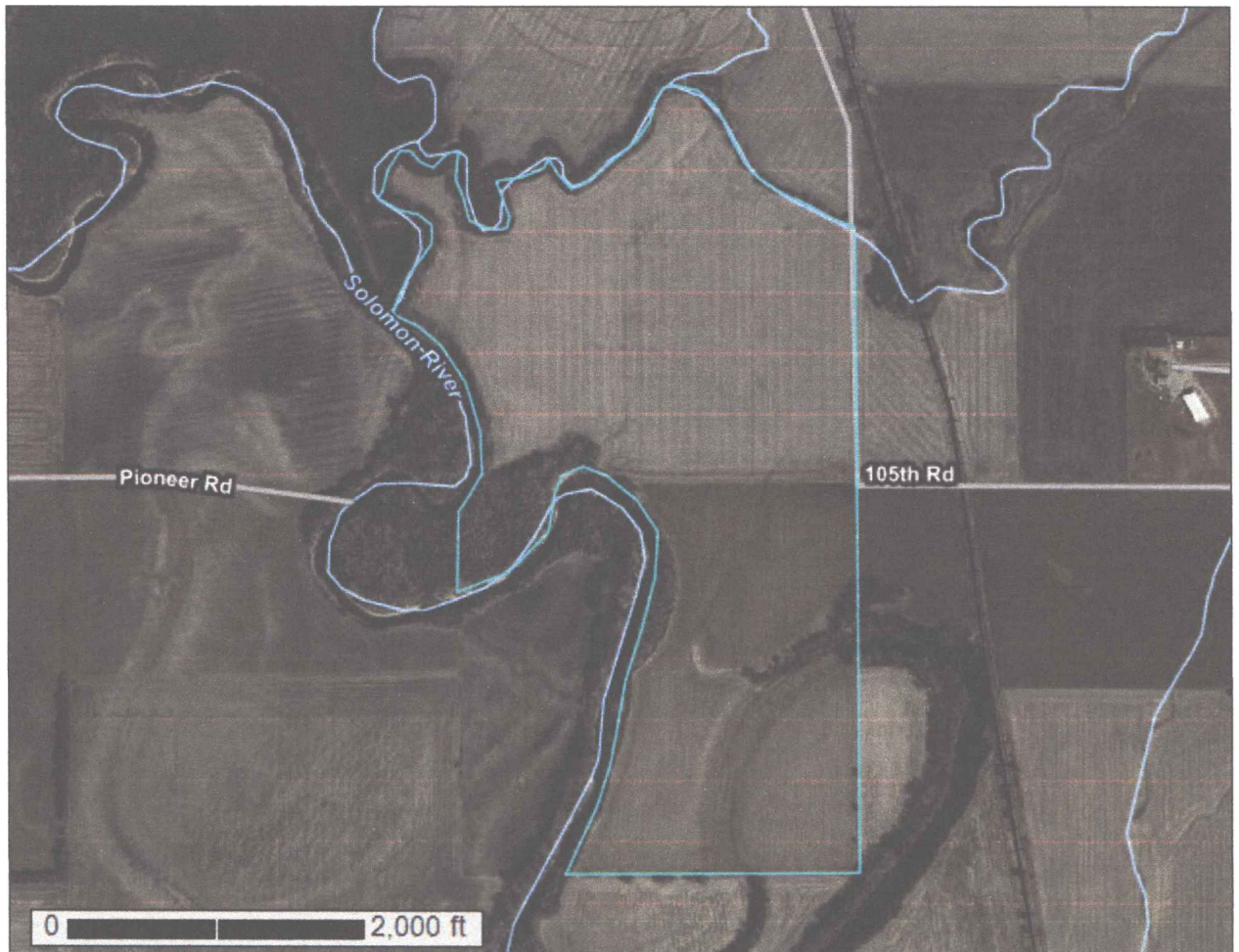
United States  
Department of  
Agriculture

**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Ottawa County, Kansas**



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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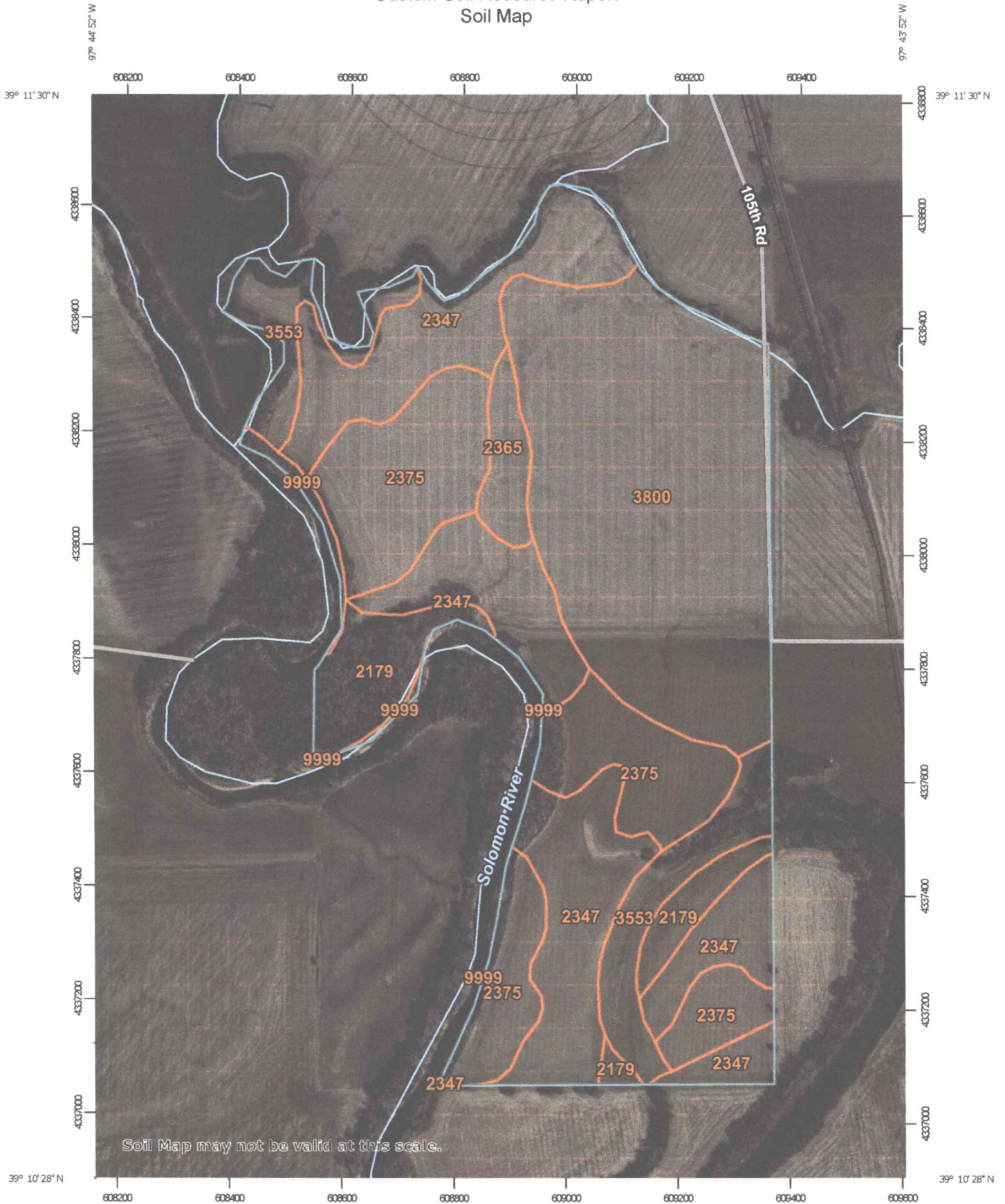
# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



Custom Soil Resource Report  
Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:9,310 if printed on A portrait (8.5" x 11") sheet.


0 100 200 400 600 Meters

0 450 900 1800 2700 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

### MAP LEGEND

**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

**Special Point Features**

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

**Water Features**

 Streams and Canals

**Transportation**

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ottawa County, Kansas  
 Survey Area Data: Version 20, Sep 13, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 16, 2022—Mar 28, 2022

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2179	McCook soils, occasionally flooded	15.7	6.6%
2347	McCook silt loam, rarely flooded	67.1	28.4%
2365	New Cambria silty clay loam, rarely flooded	5.5	2.3%
2375	Roxbury silt loam, rarely flooded	49.4	20.9%
3553	Hobbs silt loam, frequently flooded	20.2	8.5%
3800	Crete silt loam, 0 to 1 percent slopes, loess plains and breaks	76.8	32.5%
9999	Water	2.1	0.9%
<b>Totals for Area of Interest</b>		<b>236.7</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor

## Custom Soil Resource Report

components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Ottawa County, Kansas

### 2179—McCook soils, occasionally flooded

#### Map Unit Setting

*National map unit symbol:* 2xlgr  
*Elevation:* 1,310 to 1,640 feet  
*Mean annual precipitation:* 27 to 34 inches  
*Mean annual air temperature:* 54 to 57 degrees F  
*Frost-free period:* 165 to 200 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Mccook, occasionally flooded, and similar soils:* 95 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Mccook, Occasionally Flooded

##### Setting

*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium

##### Typical profile

*Ap - 0 to 6 inches:* silt loam  
*A - 6 to 14 inches:* silt loam  
*AC - 14 to 26 inches:* silt loam  
*C - 26 to 79 inches:* very fine sandy loam

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* Occasional  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

##### Interpretive groups

*Land capability classification (irrigated):* 2w  
*Land capability classification (nonirrigated):* 2w  
*Hydrologic Soil Group:* B  
*Ecological site:* R074XY113KS - Loamy Floodplain  
*Hydric soil rating:* No

#### Minor Components

##### Sutphen, occasionally flooded

*Percent of map unit:* 4 percent

## Custom Soil Resource Report

*Landform:* Flood plains  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Ecological site:* R074XY104KS - Clay Lowland  
*Hydric soil rating:* No

### **Aquolls, occasionally ponded**

*Percent of map unit:* 1 percent  
*Landform:* Depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Ecological site:* R074XY132KS - Subirrigated  
*Hydric soil rating:* Yes

## **2347—McCook silt loam, rarely flooded**

### **Map Unit Setting**

*National map unit symbol:* 2twl9  
*Elevation:* 1,660 to 3,000 feet  
*Mean annual precipitation:* 19 to 30 inches  
*Mean annual air temperature:* 48 to 57 degrees F  
*Frost-free period:* 140 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*Mccook, rarely flooded, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Mccook, Rarely Flooded**

#### **Setting**

*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium

#### **Typical profile**

*Ap - 0 to 6 inches:* silt loam  
*A - 6 to 14 inches:* silt loam  
*AC - 14 to 26 inches:* silt loam  
*C - 26 to 79 inches:* very fine sandy loam

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches

## Custom Soil Resource Report

*Frequency of flooding:* Rare  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 15 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

### **Interpretive groups**

*Land capability classification (irrigated):* 1  
*Land capability classification (nonirrigated):* 1  
*Hydrologic Soil Group:* B  
*Ecological site:* R073XY119KS - Loamy Terrace  
*Hydric soil rating:* No

### **Minor Components**

#### **Munjor, occasionally flooded**

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R073XY107KS - Sandy Floodplain  
*Hydric soil rating:* No

#### **Roxbury, frequently flooded**

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R073XY108KS - Loamy Floodplain  
*Hydric soil rating:* No

## **2365—New Cambria silty clay loam, rarely flooded**

### **Map Unit Setting**

*National map unit symbol:* 2twld  
*Elevation:* 1,660 to 3,000 feet  
*Mean annual precipitation:* 19 to 30 inches  
*Mean annual air temperature:* 48 to 57 degrees F  
*Frost-free period:* 140 to 190 days  
*Farmland classification:* All areas are prime farmland

### **Map Unit Composition**

*New cambria, rarely flooded, and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of New Cambria, Rarely Flooded**

#### **Setting**

*Landform:* Flood plains  
*Down-slope shape:* Linear

## Custom Soil Resource Report

*Across-slope shape:* Linear

*Parent material:* Alluvium

### Typical profile

*Ap - 0 to 7 inches:* silty clay loam

*A - 7 to 14 inches:* silty clay loam

*Bw1 - 14 to 31 inches:* silty clay

*Bw2 - 31 to 37 inches:* silty clay loam

*C - 37 to 79 inches:* silty clay loam

### Properties and qualities

*Slope:* 0 to 1 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Moderately well drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* Rare

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 15 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* High (about 11.2 inches)

### Interpretive groups

*Land capability classification (irrigated):* 2s

*Land capability classification (nonirrigated):* 2s

*Hydrologic Soil Group:* C

*Ecological site:* R073XY120KS - Clay Terrace

*Hydric soil rating:* No

### Minor Components

#### Bridgeport, rarely flooded

*Percent of map unit:* 7 percent

*Landform:* Flood plains

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R073XY119KS - Loamy Terrace

*Hydric soil rating:* No

#### Ness

*Percent of map unit:* 3 percent

*Landform:* Closed depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* R073XY115KS - Closed Upland Depression

*Hydric soil rating:* Yes



## 2375—Roxbury silt loam, rarely flooded

### Map Unit Setting

*National map unit symbol:* 307nn  
*Elevation:* 1,660 to 3,410 feet  
*Mean annual precipitation:* 19 to 30 inches  
*Mean annual air temperature:* 48 to 57 degrees F  
*Frost-free period:* 140 to 190 days  
*Farmland classification:* All areas are prime farmland

### Map Unit Composition

*Roxbury, rarely flooded, and similar soils:* 79 percent  
*Minor components:* 21 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Roxbury, Rarely Flooded

#### Setting

*Landform:* Terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Alluvium

#### Typical profile

*Ap - 0 to 8 inches:* silt loam  
*A - 8 to 22 inches:* silt loam  
*Bk1 - 22 to 33 inches:* silty clay loam  
*Bk2 - 33 to 56 inches:* silt loam  
*2Bk3 - 56 to 79 inches:* silt loam

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Very low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* Rare  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 10 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very high (about 13.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 1  
*Land capability classification (nonirrigated):* 2e  
*Hydrologic Soil Group:* B  
*Ecological site:* R073XY119KS - Loamy Terrace

*Hydric soil rating:* No

**Minor Components**

**Hord, rarely flooded**

*Percent of map unit:* 10 percent

*Landform:* Terraces

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R073XY119KS - Loamy Terrace

*Hydric soil rating:* No

**Munjoy, occasionally flooded**

*Percent of map unit:* 5 percent

*Landform:* Flood-plain steps

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R073XY107KS - Sandy Floodplain

*Hydric soil rating:* No

**Bridgeport, rarely flooded**

*Percent of map unit:* 5 percent

*Landform:* Terraces

*Landform position (three-dimensional):* Tread

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Ecological site:* R073XY119KS - Loamy Terrace

*Hydric soil rating:* No

**Aquolls, occasionally ponded**

*Percent of map unit:* 1 percent

*Landform:* Depressions on flood plains

*Down-slope shape:* Concave, linear

*Across-slope shape:* Concave, linear

*Ecological site:* R073XY103KS - Subirrigated

*Hydric soil rating:* Yes

**3553—Hobbs silt loam, frequently flooded**

**Map Unit Setting**

*National map unit symbol:* 2zt60

*Elevation:* 1,310 to 1,640 feet

*Mean annual precipitation:* 27 to 34 inches

*Mean annual air temperature:* 54 to 57 degrees F

*Frost-free period:* 165 to 200 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Hobbs, frequently flooded, and similar soils:* 80 percent

*Minor components:* 20 percent

## Custom Soil Resource Report

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Hobbs, Frequently Flooded**

#### **Setting**

*Landform:* Drainageways  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Alluvium

#### **Typical profile**

*A - 0 to 7 inches:* silt loam  
*C1 - 7 to 24 inches:* silt loam  
*C2 - 24 to 39 inches:* silt loam  
*C3 - 39 to 79 inches:* silt loam

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Runoff class:* Low  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high  
(0.60 to 2.00 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* Frequent  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 2 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Very high (about 13.2 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 5w  
*Hydrologic Soil Group:* B  
*Ecological site:* R074XY113KS - Loamy Floodplain  
*Hydric soil rating:* No

### **Minor Components**

#### **Muir, very rarely flooded**

*Percent of map unit:* 7 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R074XY114KS - Loamy Terrace  
*Hydric soil rating:* No

#### **Detroit, rarely flooded**

*Percent of map unit:* 5 percent  
*Landform:* Stream terraces  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R074XY114KS - Loamy Terrace  
*Hydric soil rating:* No

**Tobin, occasionally flooded**

*Percent of map unit:* 5 percent  
*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R074XY113KS - Loamy Floodplain  
*Hydric soil rating:* No

**Mccook, occasionally flooded**

*Percent of map unit:* 2 percent  
*Landform:* Flood plains  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Ecological site:* R074XY113KS - Loamy Floodplain  
*Hydric soil rating:* No

**Aquolls, occasionally ponded**

*Percent of map unit:* 1 percent  
*Landform:* Depressions  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Ecological site:* R074XY132KS - Subirrigated  
*Hydric soil rating:* Yes

**3800—Crete silt loam, 0 to 1 percent slopes, loess plains and breaks**

**Map Unit Setting**

*National map unit symbol:* 2r9c8  
*Elevation:* 1,310 to 1,640 feet  
*Mean annual precipitation:* 27 to 34 inches  
*Mean annual air temperature:* 52 to 57 degrees F  
*Frost-free period:* 165 to 200 days  
*Farmland classification:* All areas are prime farmland

**Map Unit Composition**

*Crete and similar soils:* 90 percent  
*Minor components:* 10 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Crete**

**Setting**

*Landform:* Interfluves  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Loess

## Custom Soil Resource Report

### Typical profile

*Ap* - 0 to 6 inches: silt loam  
*BA* - 6 to 15 inches: silty clay loam  
*Bt1* - 15 to 25 inches: silty clay  
*Bt2* - 25 to 33 inches: silty clay  
*Bk* - 33 to 40 inches: silty clay loam  
*C* - 40 to 79 inches: silty clay loam

### Properties and qualities

*Slope*: 0 to 1 percent  
*Depth to restrictive feature*: More than 80 inches  
*Drainage class*: Moderately well drained  
*Runoff class*: Low  
*Capacity of the most limiting layer to transmit water (Ksat)*: Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table*: More than 80 inches  
*Frequency of flooding*: None  
*Frequency of ponding*: None  
*Calcium carbonate, maximum content*: 5 percent  
*Maximum salinity*: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches*: High (about 10.7 inches)

### Interpretive groups

*Land capability classification (irrigated)*: 2s  
*Land capability classification (nonirrigated)*: 2s  
*Hydrologic Soil Group*: C  
*Ecological site*: R074XY107KS - Clay Hills  
*Hydric soil rating*: No

### Minor Components

#### Hastings

*Percent of map unit*: 5 percent  
*Landform*: Interfluves  
*Landform position (two-dimensional)*: Summit  
*Landform position (three-dimensional)*: Interfluve  
*Down-slope shape*: Linear  
*Across-slope shape*: Linear  
*Ecological site*: R074XY115KS - Loamy Hills  
*Hydric soil rating*: No

#### Butler

*Percent of map unit*: 3 percent  
*Landform*: Swales  
*Down-slope shape*: Concave  
*Across-slope shape*: Linear  
*Ecological site*: R074XY107KS - Clay Hills  
*Hydric soil rating*: No

#### Geary

*Percent of map unit*: 1 percent  
*Landform*: Interfluves  
*Landform position (two-dimensional)*: Summit  
*Landform position (three-dimensional)*: Interfluve  
*Down-slope shape*: Linear  
*Across-slope shape*: Linear

## Custom Soil Resource Report

*Ecological site:* R074XY115KS - Loamy Hills

*Hydric soil rating:* No

### **Aquolls, occasionally ponded**

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* R074XY132KS - Subirrigated

*Hydric soil rating:* Yes

## **9999—Water**

### **Map Unit Setting**

*National map unit symbol:* 1hd7h

*Elevation:* 600 to 1,300 feet

*Mean annual precipitation:* 24 to 31 inches

*Mean annual air temperature:* 50 to 54 degrees F

*Frost-free period:* 190 to 210 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Water:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

# References

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American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_054262](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262)

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053577](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577)

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053580](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580)

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2\\_053374](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374)

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

## Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)



**DATA ENTRY SYSTEM ID NUMBER SHEET**

**FILE NUMBER** 51104

<b>APPLICANT PERSON ID &amp; SEQ #</b>	<b>PDIV ID</b>	<b>BATTERY ID</b>
<u>66170</u>	<u>90547</u>	

<b>LANDOWNER PERSON ID &amp; SEQ #</b>	<b>PUSE ID</b>
<u>66170</u>	<u>71526</u>
	<u>71527</u>

**WATER USE CORRESPONDENT  
PERSON ID & SEQ #**

66170