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 Jefferson County, Missouri

Gabby

October 16, 2020

Preface

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).

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.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

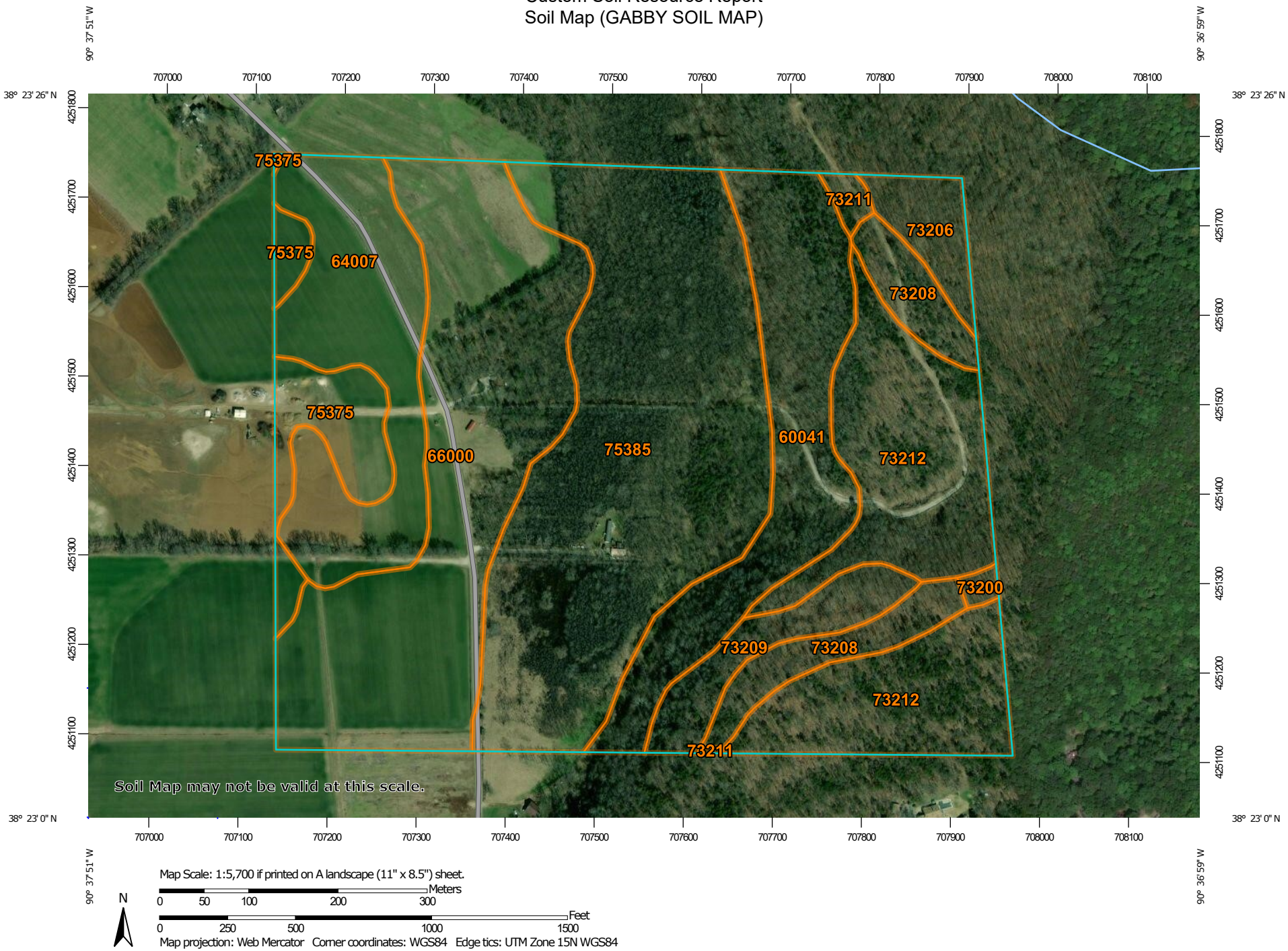
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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 (GABBY SOIL MAP)



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: Jefferson County, Missouri
Survey Area Data: Version 24, May 29, 2020

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

Date(s) aerial images were photographed: Feb 6, 2015—Sep 21, 2017

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 (GABBY SOIL MAP)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60041	Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony	14.5	11.2%
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded	14.0	10.7%
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	27.2	20.9%
73200	Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony	0.4	0.3%
73206	Useful silt loam, 15 to 40 percent slopes	2.7	2.1%
73208	Caneyville silt loam, 8 to 15 percent slopes	5.9	4.5%
73209	Caneyville silt loam, 15 to 30 percent slopes	4.2	3.2%
73211	Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly	0.6	0.5%
73212	Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly	20.3	15.6%
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded	5.3	4.1%
75385	Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded	35.0	26.9%
Totals for Area of Interest		**130.0**	**100.0%**

Map Unit Descriptions (GABBY SOIL MAP)

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 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.

Jefferson County, Missouri

60041—Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2qp13
Elevation: 800 to 1,100 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Not prime farmland

Map Unit Composition

Brussels and similar soils: 60 percent
Rock outcrop: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brussels

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Slope alluvium

Typical profile

A - 0 to 5 inches: very channery silty clay loam
Bw1 - 5 to 35 inches: very channery silty clay
Bw2 - 35 to 60 inches: extremely channery silty clay

Properties and qualities

Slope: 35 to 90 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
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 capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: F116AY022MO - Talus Footslope Forest
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hillslopes
Parent material: Limestone

Typical profile

R - 0 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 35 to 90 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

64007—Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2qp7n
Elevation: 350 to 1,400 feet
Mean annual precipitation: 37 to 47 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 184 to 228 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Freeburg and similar soils: 85 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Freeburg

Setting

Landform: Flood-plain steps
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 8 inches: silt loam
E - 8 to 18 inches: silt loam
Bt - 18 to 37 inches: silty clay loam
Btg - 37 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: OccasionalRare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F115BY025MO - Wet Terrace Forest
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Moniteau

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: Yes

Gabriel

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Grass/Prairie (Herbaceous Vegetation)
Hydric soil rating: Yes

66000—Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2x426
Elevation: 360 to 850 feet
Mean annual precipitation: 31 to 47 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 160 to 228 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Moniteau

Setting

Landform: Flood-plain steps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Silty alluvium

Typical profile

Ap - 0 to 7 inches: silt loam
E - 7 to 15 inches: silt loam
Btg1 - 15 to 52 inches: silty clay loam
Btg2 - 52 to 79 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very high (about 12.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F115BY025MO - Wet Terrace Forest
Hydric soil rating: Yes

Minor Components

Freeburg

Percent of map unit: 10 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F115BY025MO - Wet Terrace Forest
Hydric soil rating: No

73200—Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2vxqw
Elevation: 550 to 1,050 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Not prime farmland

Map Unit Composition

Sonsac and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sonsac

Setting

Landform: Ridges, interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from cherty limestone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: gravelly silt loam
E - 3 to 6 inches: very gravelly silt loam
Bt1 - 6 to 10 inches: very gravelly silty clay loam
2Bt2 - 10 to 32 inches: very gravelly clay
2R - 32 to 79 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 2.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: D
Ecological site: F116AY044MO - Chert Dolomite Upland Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Gatewood
Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F116AY016MO - Chert Dolomite Protected Backslope Forest, F116AY048MO - Chert Dolomite Exposed Backslope Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Gasconade
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R116AY020MO - Shallow Dolomite Upland Glade/Woodland
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Rock outcrop
Percent of map unit: 0 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Unranked

73206—Useful silt loam, 15 to 40 percent slopes

Map Unit Setting
National map unit symbol: 2qq1j
Elevation: 500 to 900 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Not prime farmland

Map Unit Composition

Useful and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Useful

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over residuum weathered from dolomite

Typical profile

Ap - 0 to 7 inches: silt loam
Bt - 7 to 31 inches: silty clay loam
2Bt1 - 31 to 39 inches: very gravelly silty clay
2Bt2 - 39 to 53 inches: silty clay
2R - 53 to 80 inches: bedrock

Properties and qualities

Slope: 15 to 40 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: F115BY006MO - Loamy Protected Backslope Forest, F115BY044MO - Loamy Exposed Backslope Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

73208—Caneyville silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2vxr2
Elevation: 400 to 700 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Caneyville and similar soils: 86 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Caneyville

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from dolomite

Typical profile

Ap - 0 to 8 inches: silt loam
2Bt1 - 8 to 18 inches: clay
2Bt2 - 18 to 34 inches: clay
2R - 34 to 79 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Ecological site: F116AY018MO - Loamy Dolomite Upland Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Bucklick

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F116AY030MO - Loamy Protected Backslope Forest, F116AY046MO - Loamy Exposed Backslope Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Crider

Percent of map unit: 6 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F116AY032MO - Loamy Footslope Forest
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Rock outcrop

Percent of map unit: 0 percent
Landform: Hillslopes, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Unranked

73209—Caneyville silt loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 2vxr3
Elevation: 550 to 1,050 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Not prime farmland

Map Unit Composition

Caneyville and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Caneyville

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from dolomite

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 4 inches: silt loam
2Bt1 - 4 to 11 inches: silty clay
2Bt2 - 11 to 34 inches: silty clay

2R - 34 to 79 inches: bedrock

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F116AY051MO - Loamy Dolomite Exposed Backslope Woodland, F116AY019MO - Loamy Dolomite Protected Backslope Forest
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Minor Components

Bucklick

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F116AY008MO - Loamy Upland Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Crider

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F116AY032MO - Loamy Footslope Forest
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

Gasconade

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R116AY020MO - Shallow Dolomite Upland Glade/Woodland
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

73211—Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly

Map Unit Setting

National map unit symbol: 2qpk1
Elevation: 300 to 900 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Not prime farmland

Map Unit Composition

Gasconade and similar soils: 60 percent
Rock outcrop: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gasconade

Setting

Landform: Ridges, hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 10 inches: very channery silty clay
Bw - 10 to 13 inches: channery silty clay
R - 13 to 80 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 35.0 percent
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Ecological site: R115BY009MO - Shallow Limestone/Dolomite Upland Glade/ Woodland
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Description of Rock Outcrop

Setting
Landform: Ridges, hillslopes
Parent material: Limestone

Typical profile
R - 0 to 80 inches: unweathered bedrock

Properties and qualities
Slope: 3 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

73212—Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly

Map Unit Setting
National map unit symbol: 2q0qx
Elevation: 300 to 900 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Not prime farmland

Map Unit Composition
Gasconade and similar soils: 55 percent
Rock outcrop: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gasconade

Setting
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 10 inches: very channery silty clay
Bw - 10 to 13 inches: channery silty clay
R - 13 to 80 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Surface area covered with cobbles, stones or boulders: 35.0 percent
Depth to restrictive feature: 4 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very low (about 1.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R115BY009MO - Shallow Limestone/Dolomite Upland Glade/ Woodland
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hillslopes
Parent material: Limestone

Typical profile

R - 0 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 50 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

75375—Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2qpzw
Elevation: 400 to 1,200 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Horsecreek and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Horsecreek

Setting

Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

Ap - 0 to 9 inches: silt loam
A - 9 to 18 inches: silt loam
Bt - 18 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 (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalRare
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F116AY034MO - Loamy Terrace Forest
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Minor Components

Moniteau

Percent of map unit: 5 percent
Landform: Flood-plain steps
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: Yes

Racket

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F116AY039MO - Loamy Floodplain Step Forest
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Pomme

Percent of map unit: 2 percent
Landform: Strath terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F116BY013MO - Loamy Footslope Woodland
Other vegetative classification: Trees/Timber (Woody Vegetation)
Hydric soil rating: No

75385—Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2qq09
Elevation: 400 to 1,200 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Gabriel

Setting

Landform: Flood-plain steps

Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium

Typical profile

Ap - 0 to 14 inches: silt loam
Btg1 - 14 to 29 inches: silty clay loam
Btg2 - 29 to 79 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 12 to 30 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 11.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F116AY035MO - Wet Terrace Forest
Other vegetative classification: Grass/Prairie (Herbaceous Vegetation)
Hydric soil rating: Yes

Minor Components

Racket

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F116AY039MO - Loamy Floodplain Step Forest
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Sacville

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Other vegetative classification: Grass/Prairie (Herbaceous Vegetation)
Hydric soil rating: Yes

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Water Management

Water Management interpretations are tools for evaluating the potential of the soil in the application of various water management practices. Example interpretations include pond reservoir area, embankments, dikes, levees, and excavated ponds.

Excavated Ponds (Aquifer-Fed) (GABBY Excavated Ponds Map)

Excavated ponds (aquifer-fed) are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, saturated hydraulic conductivity (Ksat) of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

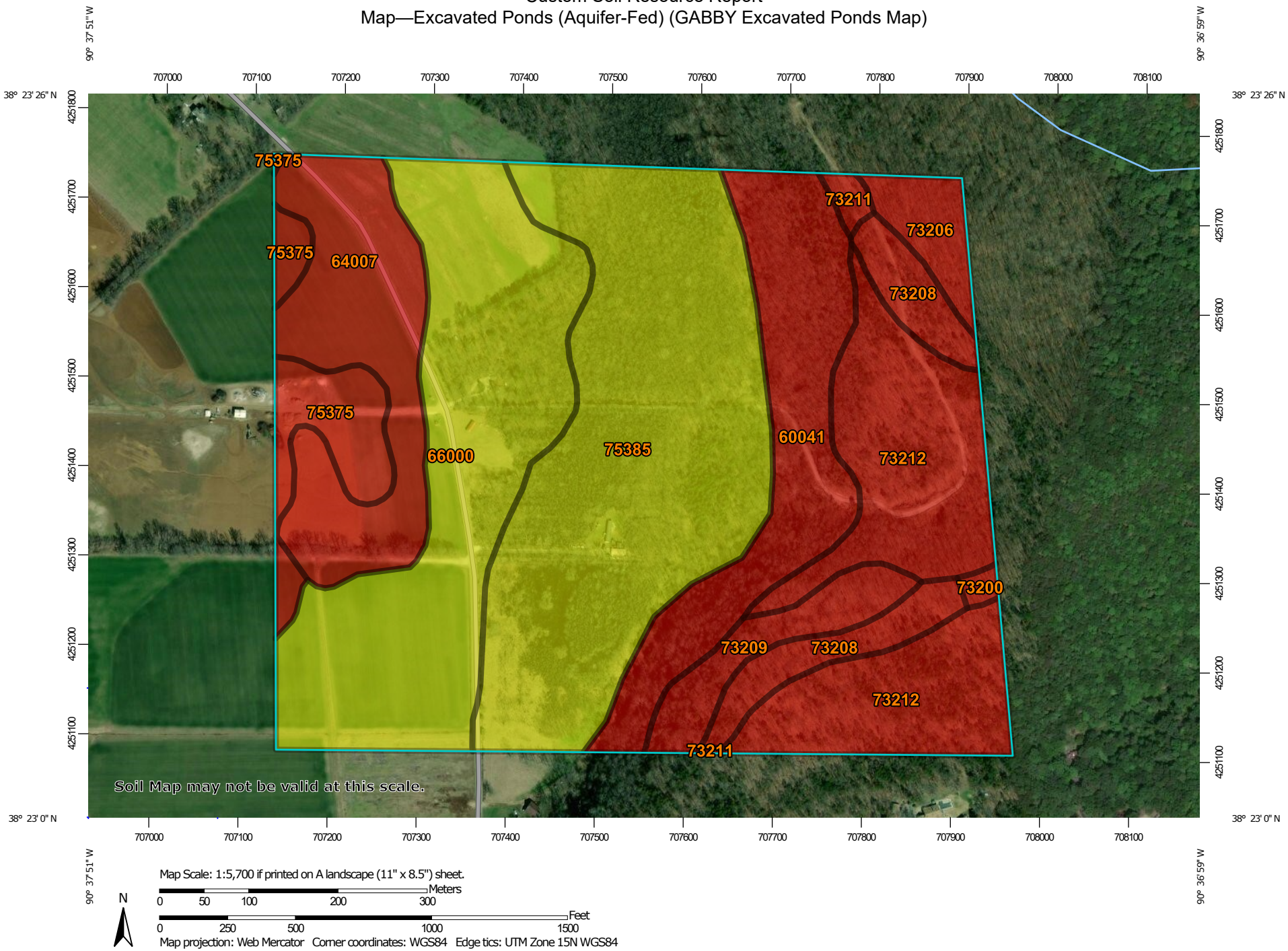
The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Map—Excavated Ponds (Aquifer-Fed) (GABBY Excavated Ponds Map)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

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: Jefferson County, Missouri
Survey Area Data: Version 24, May 29, 2020

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

Date(s) aerial images were photographed: Feb 6, 2015—Sep 21, 2017

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.

Tables—Excavated Ponds (Aquifer-Fed) (GABBY Excavated Ponds Map)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
60041	Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony	Very limited	Brussels (60%)	Depth to water (1.00)	14.5	11.2%
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded	Very limited	Freeburg (85%)	Depth to water (1.00)	14.0	10.7%
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Moniteau (90%)	Slow refill (0.30)	27.2	20.9%
				Unstable excavation walls (0.10)		
73200	Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony	Very limited	Sonsac (85%)	Depth to water (1.00)	0.4	0.3%
			Gatewood (10%)	Depth to hard bedrock (1.00)		
				Slow refill (1.00)		
				Unstable excavation walls (0.50)		
				Depth to saturated zone (0.02)		
			Gasconade (5%)	Depth to water (1.00)		
73206	Useful silt loam, 15 to 40 percent slopes	Very limited	Useful (85%)	Depth to water (1.00)	2.7	2.1%
73208	Caneyville silt loam, 8 to 15 percent slopes	Very limited	Caneyville (86%)	Depth to water (1.00)	5.9	4.5%
			Bucklick (8%)	Depth to water (1.00)		
			Crider (6%)	Depth to water (1.00)		
73209	Caneyville silt loam, 15 to 30 percent slopes	Very limited	Caneyville (80%)	Depth to water (1.00)	4.2	3.2%
			Bucklick (10%)	Depth to water (1.00)		
			Crider (5%)	Depth to water (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Gasconade (5%)	Depth to water (1.00)		
73211	Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly	Very limited	Gasconade (60%)	Depth to water (1.00)	0.6	0.5%
73212	Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly	Very limited	Gasconade (55%)	Depth to water (1.00)	20.3	15.6%
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded	Very limited	Horsecreek (88%)	Depth to water (1.00)	5.3	4.1%
			Racket (5%)	Depth to water (1.00)		
			Pomme (2%)	Depth to water (1.00)		
75385	Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Gabriel (90%)	Slow refill (0.95)	35.0	26.9%
				Unstable excavation walls (0.10)		
Totals for Area of Interest					**130.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	67.8	52.2%
Somewhat limited	62.2	47.8%
Totals for Area of Interest	**130.0**	**100.0%**

Rating Options—Excavated Ponds (Aquifer-Fed) (GABBY Excavated Ponds Map)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Embankments, Dikes, and Levees (GABBY Embankments, dikes map)

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. The soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It

is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the suitability of the undisturbed soil for supporting the embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

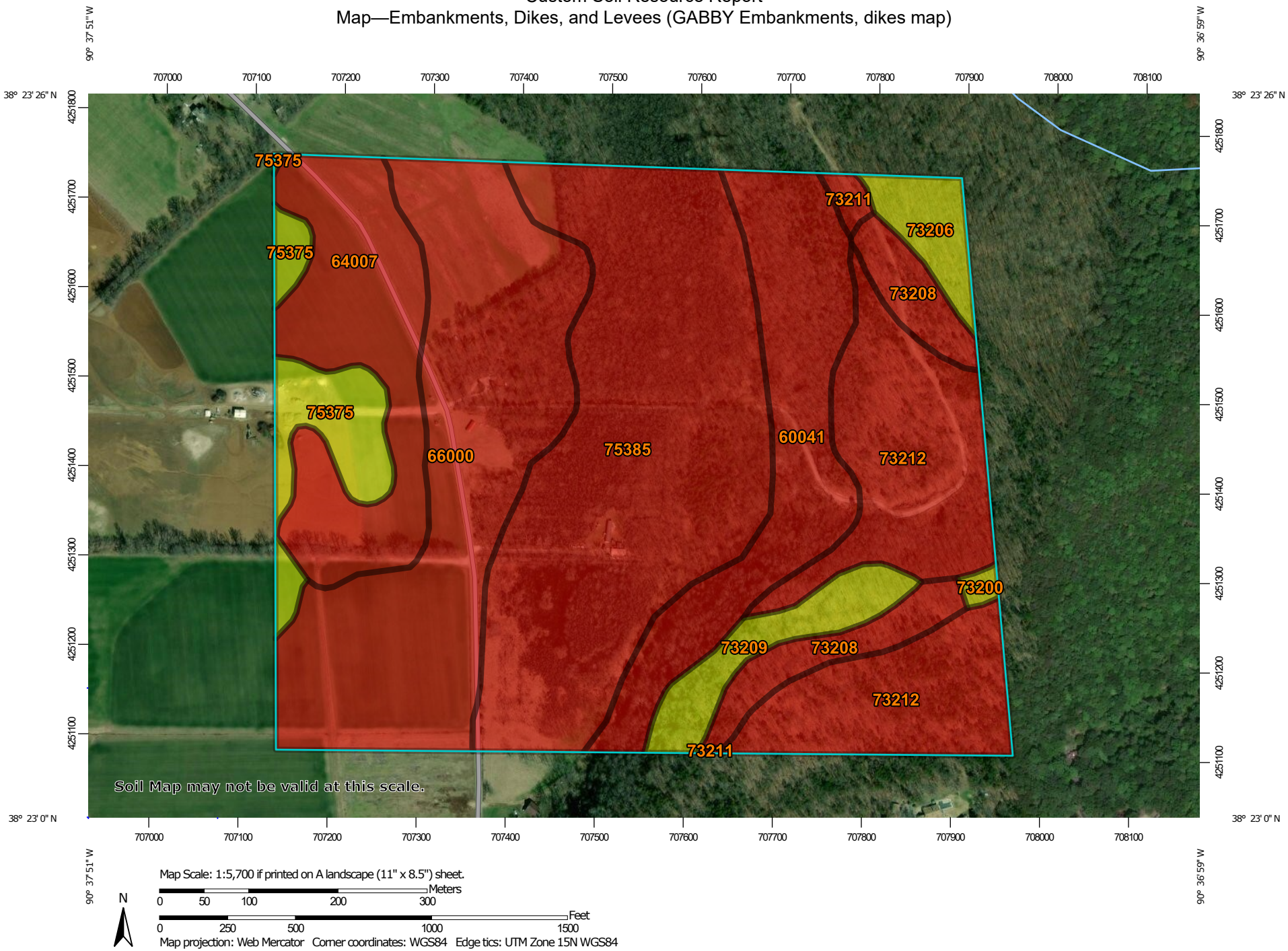
The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Map—Embankments, Dikes, and Levees (GABBY Embankments, dikes map)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

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: Jefferson County, Missouri
Survey Area Data: Version 24, May 29, 2020

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

Date(s) aerial images were photographed: Feb 6, 2015—Sep 21, 2017

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.

Tables—Embankments, Dikes, and Levees (GABBY Embankments, dikes map)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
60041	Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony	Very limited	Brussels (60%)	Large stones (1.00)	14.5	11.2%
				Hard to pack (0.50)		
				Dusty (0.07)		
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded	Very limited	Freeburg (85%)	Depth to saturated zone (1.00)	14.0	10.7%
				Dusty (0.07)		
			Gabriel (5%)	Depth to saturated zone (1.00)		
				Dusty (0.07)		
			Moniteau (5%)	Depth to saturated zone (1.00)		
				Dusty (0.07)		
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	Very limited	Moniteau (90%)	Depth to saturated zone (1.00)	27.2	20.9%
				Dusty (0.10)		
			Freeburg (10%)	Depth to saturated zone (1.00)		
				Dusty (0.07)		
73200	Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony	Somewhat limited	Sonsac (85%)	Thin layer (0.83)	0.4	0.3%
				Dusty (0.07)		
73206	Useful silt loam, 15 to 40 percent slopes	Somewhat limited	Useful (85%)	Depth to saturated zone (0.68)	2.7	2.1%
				Hard to pack (0.54)		
				Dusty (0.07)		
				Thin layer (0.04)		
73208	Caneyville silt loam, 8 to 15 percent slopes	Very limited	Caneyville (86%)	Hard to pack (1.00)	5.9	4.5%
				Thin layer (0.74)		
				Dusty (0.07)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
73209	Caneyville silt loam, 15 to 30 percent slopes	Somewhat limited	Caneyville (80%)	Hard to pack (0.98)	4.2	3.2%
				Thin layer (0.77)		
				Dusty (0.07)		
			Bucklick (10%)	Hard to pack (0.88)		
				Thin layer (0.22)		
				Dusty (0.07)		
			Crider (5%)	Dusty (0.07)		
73211	Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly	Very limited	Gasconade (60%)	Thin layer (1.00)	0.6	0.5%
				Dusty (0.07)		
73212	Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly	Very limited	Gasconade (55%)	Thin layer (1.00)	20.3	15.6%
				Dusty (0.07)		
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Horsecreek (88%)	Piping (0.50)	5.3	4.1%
				Dusty (0.07)		
			Racket (5%)	Dusty (0.05)		
			Pomme (2%)	Dusty (0.06)		
75385	Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded	Very limited	Gabriel (90%)	Depth to saturated zone (1.00)	35.0	26.9%
				Dusty (0.07)		
			Sacville (5%)	Depth to saturated zone (1.00)		
				Hard to pack (0.43)		
				Dusty (0.07)		
Totals for Area of Interest					**130.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	117.4	90.3%
Somewhat limited	12.6	9.7%
Totals for Area of Interest	**130.0**	**100.0%**

Rating Options—Embankments, Dikes, and Levees (GABBY Embankments, dikes map)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Pond Reservoir Areas (GABBY pond reservoir area)

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

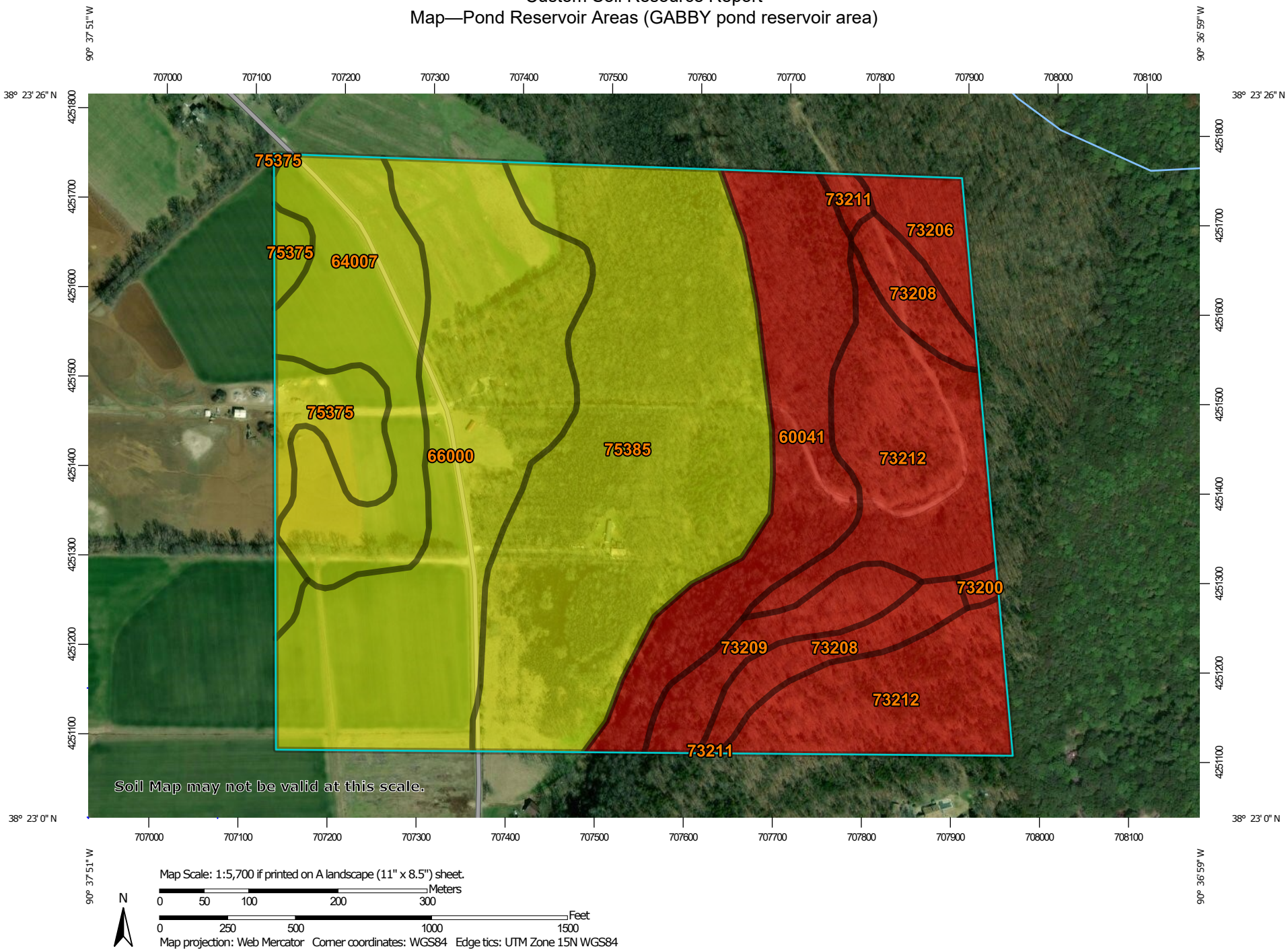
The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report
Map—Pond Reservoir Areas (GABBY pond reservoir area)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Lines
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

Soil Rating Points
- Very limited
- Somewhat limited
- Not limited
- Not rated or not available

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: Jefferson County, Missouri
Survey Area Data: Version 24, May 29, 2020

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

Date(s) aerial images were photographed: Feb 6, 2015—Sep 21, 2017

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.

Tables—Pond Reservoir Areas (GABBY pond reservoir area)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
60041	Brussels-Rock outcrop complex, 35 to 90 percent slopes, extremely stony	Very limited	Brussels (60%)	Slope (1.00)	14.5	11.2%
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Freeburg (85%)	Seepage (0.05)	14.0	10.7%
			Gabriel (5%)	Seepage (0.05)		
			Moniteau (5%)	Seepage (0.05)		
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Moniteau (90%)	Seepage (0.03)	27.2	20.9%
			Freeburg (10%)	Seepage (0.05)		
73200	Sonsac gravelly silt loam, 3 to 15 percent slopes, very stony	Very limited	Sonsac (85%)	Slope (1.00)	0.4	0.3%
				Depth to bedrock (0.81)		
			Gatewood (10%)	Slope (1.00)		
				Depth to bedrock (0.66)		
			Gasconade (5%)	Depth to bedrock (1.00)		
				Slope (1.00)		
73206	Useful silt loam, 15 to 40 percent slopes	Very limited	Useful (85%)	Slope (1.00)	2.7	2.1%
				Depth to bedrock (0.04)		
73208	Caneyville silt loam, 8 to 15 percent slopes	Very limited	Caneyville (86%)	Slope (1.00)	5.9	4.5%
				Depth to bedrock (0.74)		
				Seepage (0.03)		
			Bucklick (8%)	Slope (1.00)		
				Seepage (0.70)		
				Depth to bedrock (0.19)		
			Crider (6%)	Slope (1.00)		
				Seepage (0.70)		
73209	Caneyville silt loam, 15 to 30 percent slopes	Very limited	Caneyville (80%)	Slope (1.00)	4.2	3.2%
				Depth to bedrock (0.74)		
				Seepage (0.05)		
			Bucklick (10%)	Slope (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Seepage (0.70)		
				Depth to bedrock (0.22)		
			Crider (5%)	Slope (1.00)		
				Seepage (0.70)		
			Gasconade (5%)	Slope (1.00)		
				Depth to bedrock (1.00)		
73211	Gasconade-Rock outcrop complex, 3 to 15 percent slopes, rubbly	Very limited	Gasconade (60%)	Depth to bedrock (1.00)	0.6	0.5%
				Slope (1.00)		
73212	Gasconade-Rock outcrop complex, 15 to 50 percent slopes, rubbly	Very limited	Gasconade (55%)	Slope (1.00)	20.3	15.6%
				Depth to bedrock (1.00)		
75375	Horsecreek silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Horsecreek (88%)	Seepage (0.70)	5.3	4.1%
			Moniteau (5%)	Seepage (0.05)		
			Pomme (2%)	Seepage (0.70)		
75385	Gabriel silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Gabriel (90%)	Seepage (0.05)	35.0	26.9%
			Sacville (5%)	Seepage (0.05)		
Totals for Area of Interest					**130.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Somewhat limited	81.5	62.7%
Very limited	48.5	37.3%
Totals for Area of Interest	**130.0**	**100.0%**

Rating Options—Pond Reservoir Areas (GABBY pond reservoir area)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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