

PRELIMINARY STORM DRAINAGE REPORT

for

**The Rush Funplex
Lot 10A-Summit Orchards West
Lee's Summit, MO 64081**

SK Project No. 25-194

13 March 2026

Containing Pages:
See Table of Contents

Prepared for:

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**The Rush Funplex
Lot 10A- Summit Orchards West
Lee's Summit, MO 64081
Preliminary Storm Drainage Report
March 2026**

Project Description

SK Design Group has been hired in conjunction with Slaggie Architects Inc. to provide civil-site design services for The Rush Funplex. The proposed project site is located in the Summit Orchards West development, north of the intersection of NW Chipman Road and NW Ward Road in Lee's Summit, Missouri (See Exhibits 1 &2) within Section 36, Township 32 North, Range 32 West. It is bound by NW Ward Road to the North and East, a large office building to the West, and varying commercially developed land to the South. This project consists of a new, freestanding indoor entertainment center, and flex office buildings with associated parking and sidewalks (See Exhibit 6). The site area is approximately 10.2 acres. The proposed development will disturb the entire site. The impervious area will increase by 279,872 square feet.

Methodology

The Rational method was used to determine the effects of the project. A CN value of 74 (C = 0.30) was used for grassed areas, and a CN value of 98 (C = 0.90) was used for all impervious surfaces.

Federal Emergency Management Agency

From the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) information, no part of the project property is within the FEMA 100-year flood plain (See Exhibit 3).

Soils

From information obtained from the NRCS Soil Survey of Jackson County, Missouri, the site soils consist of Udarents-Urban land-Sampsel complex, Arisburg-Urban land Complex, Snead-Rock outcrop complex, and Urban land upland. (See Exhibit 4 & Appendix A) Soils are in the Hydrological Soils Group "C/D", which generally have a slow infiltration rate and are moderately well drained to well drained soils. These soils have moderately coarse texture and a moderate rate of water transmission.

Existing Conditions

The existing site generally drains north toward an existing area inlet on site. This inlet then carries the flow further north towards an existing detention basin.

The overall existing site was a grassy area located in the center of a previously developed commercial area. The existing site to be disturbed in this project contains 10.2 acres. The existing site has a "C" value of 0.30, a CN of 74.0, and is 0.0% impervious (see Exhibit 5 and Table 1). The existing site generally drains north toward an existing storm sewer system where it is distributed further north to an existing basin. The proposed site is in the Little Blue River Watershed.

Proposed Conditions

The proposed site includes the construction of a new free-standing indoor entertainment center and two office buildings with associated parking areas and sidewalks. New turning lanes will be constructed as a part of this project. The project will increase the impervious area by 279,872 square feet. With the proposed improvement, the site will have an overall "C" value of 0.68, CN value of 89.2, and will be 63.1% impervious (See Exhibit 6).

The existing detention basin off site will be used to hold and treat stormwater runoff. Curbs and gutters will be used to carry water from proposed parking areas to existing storm sewers which will carry the flows to the detention basin off site. Drainage from the site will either sheet flow or be collected in an adequate enclosed storm sewer system, per current design standard, and connected to the adjacent storm drainage facilities. The drainage basin to the north of the proposed site was designed by others to be an adequate size to treat stormwater from the larger developed area and therefore is sufficient to detain peak flows from the 1%, 10%, and 100% design storms.

Summary

The proposed improvements consisting of a new indoor entertainment center, office buildings, associated sidewalks, and parking areas will increase the impervious area by 279,872 square feet. The existing detention basin constructed as a part of the surrounding developed area and has adequate storage to hold stormwater runoff from the proposed construction.

Conclusions and Recommendations

The proposed development will have no adverse impacts on the downstream system, the overall drainage characteristics and patterns of the site will not change. It is therefore recommended that the site be developed as proposed.

EXHIBITS



NTS

 <p>4600 College Blvd. Suite 100 Overland Park, KS. 66211 913-451-1818</p>	<p>GENERAL LOCATION</p>	<p>EXHIBIT</p>
	<p>THE RUSH FUNPLEX</p>	<p>1</p>
		<p>MAR 2026</p>



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES

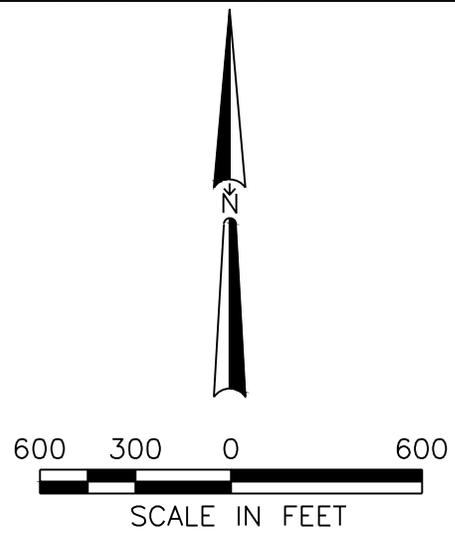
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- Cross Sections with 1% Annual Chance Water Surface Elevation: 20.2, 17.5
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

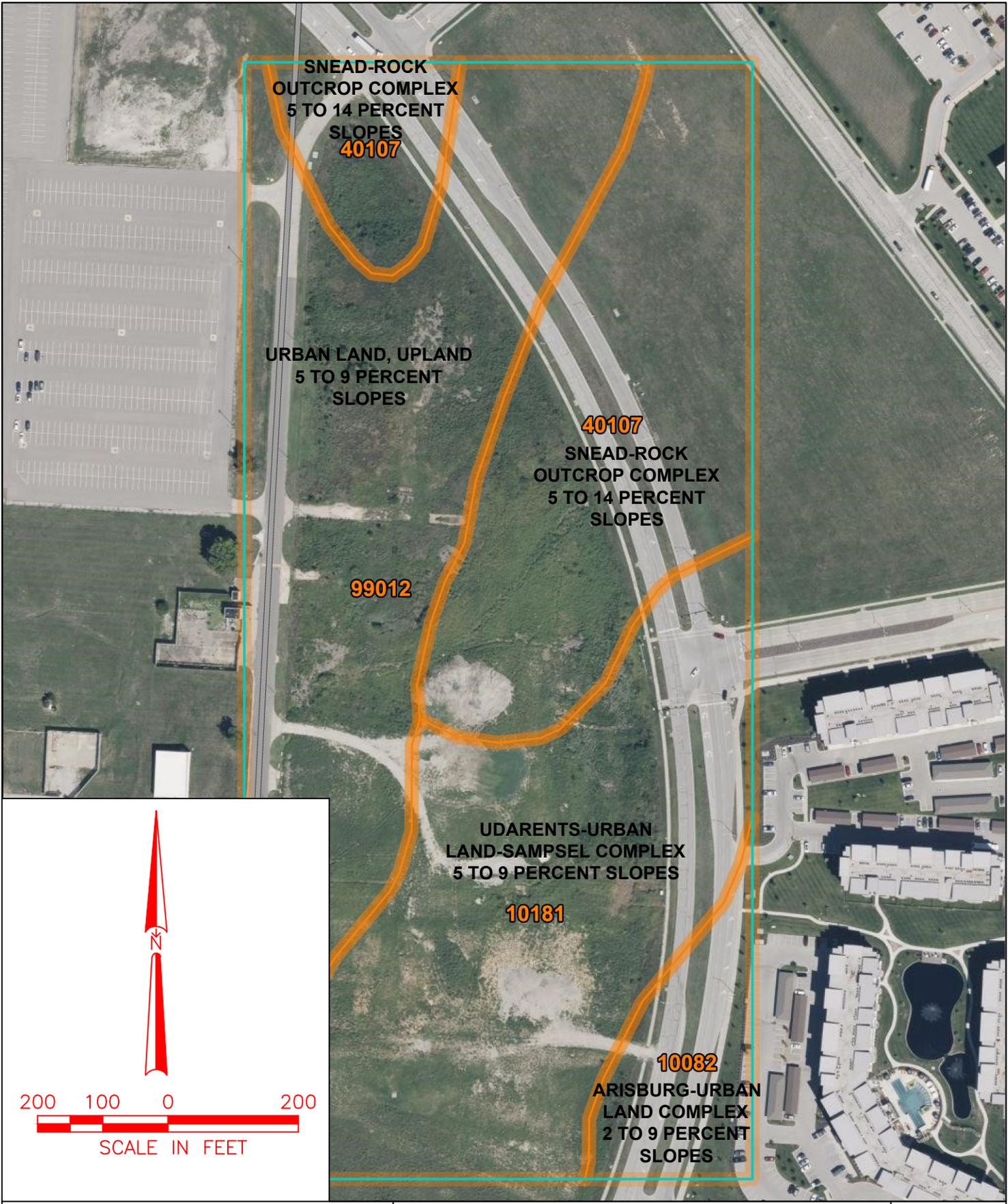
- Digital Data Available
- No Digital Data Available
- Unmapped



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 Overland Park, KS. 66211
 913-451-1818

FEMA MAP
THE RUSH FUNPLEX

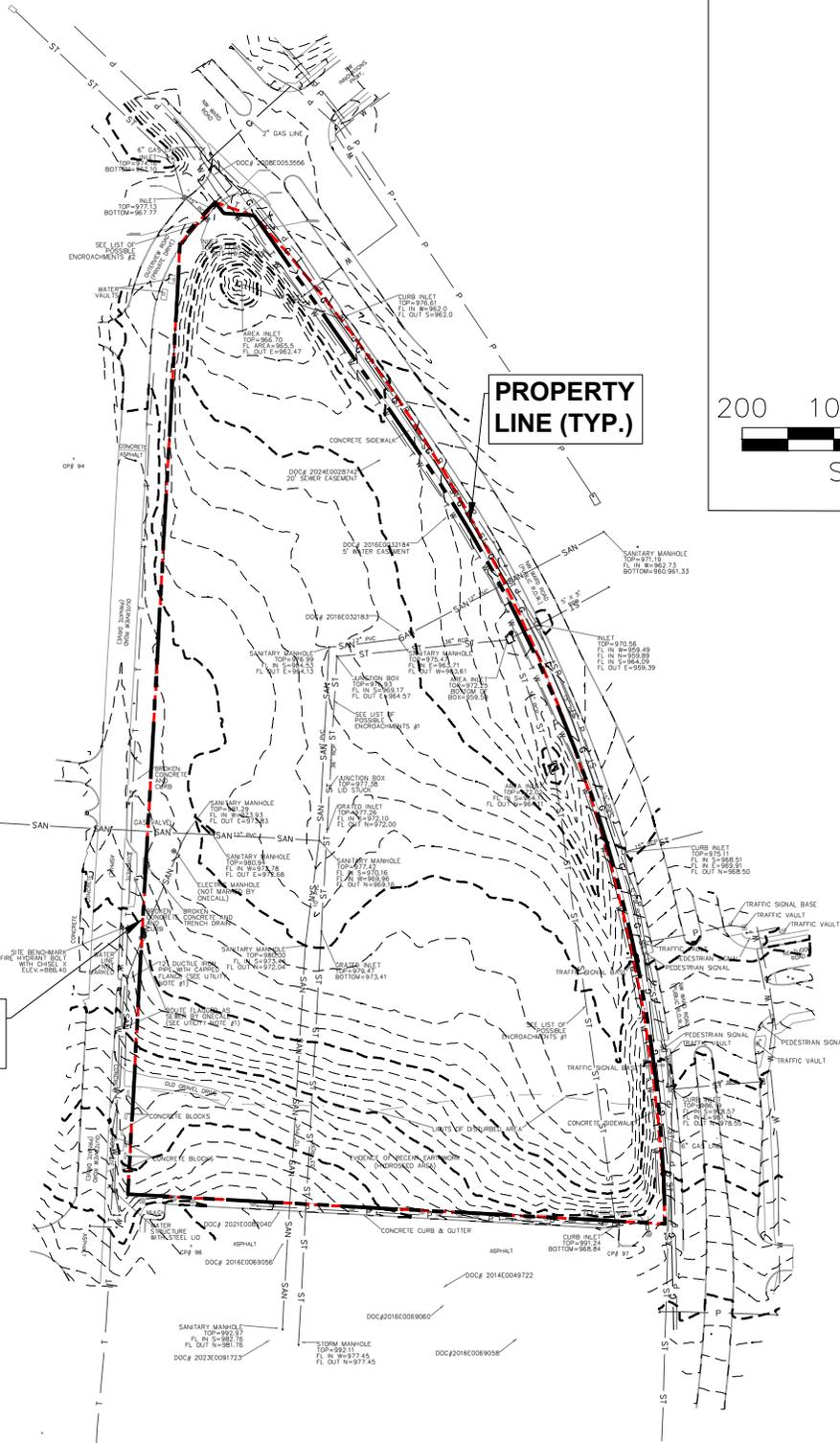
EXHIBIT
3
 MAR 2026



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SOILS MAP
THE RUSH FUNPLEX

EXHIBIT
4
MAR 2026



EXISTING SITE:
AREA: 10.2 AC
CN: 74.0
C: 0.30
% IMP: 0.0%

PROPERTY LINE (TYP.)

PROPERTY LINE (TYP.)

LEGEND:

 **IMPERVIOUS AREA**

 **PROPERTY LINE**

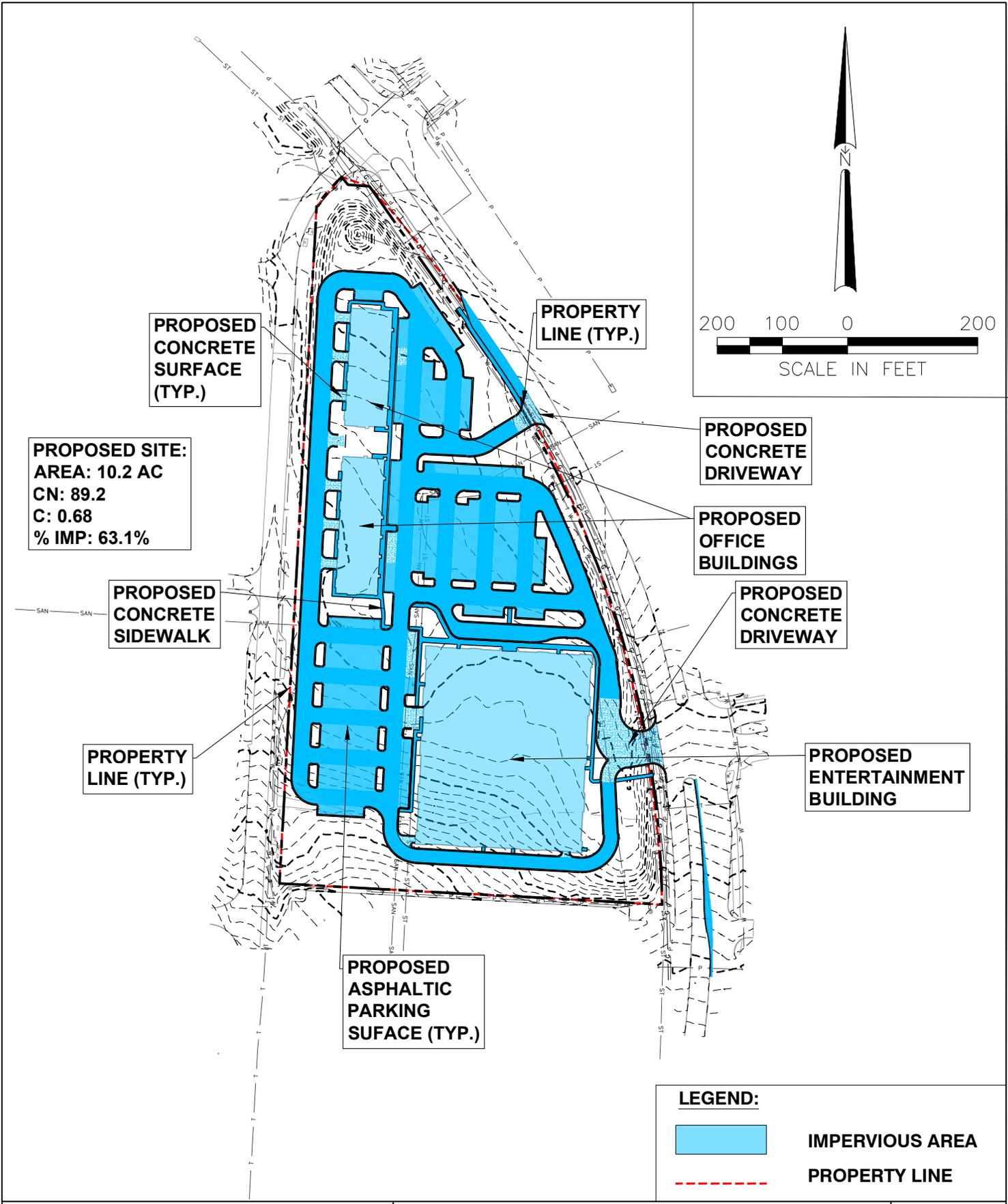
EXISTING CONDITIONS

THE RUSH FUNPLEX

EXHIBIT

5

MAR 2026



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PROPOSED CONDITIONS

THE RUSH FUNPLEX

EXHIBIT

6

MAR 2026

Tables and Exhibits

Table 1: Existing vs Proposed Conditions

SUB Area	Total Sub Area sf	Pervious Area sf	Impervious Area sf	Impervious %	Pervious %	Composite C	Impervious %
EXISTING	443271	443271	0	0.00	100.00	0.30	0.0
PROPOSED	443271	163399	279872	63.14	36.86	0.68	63.1

APPENDIX A



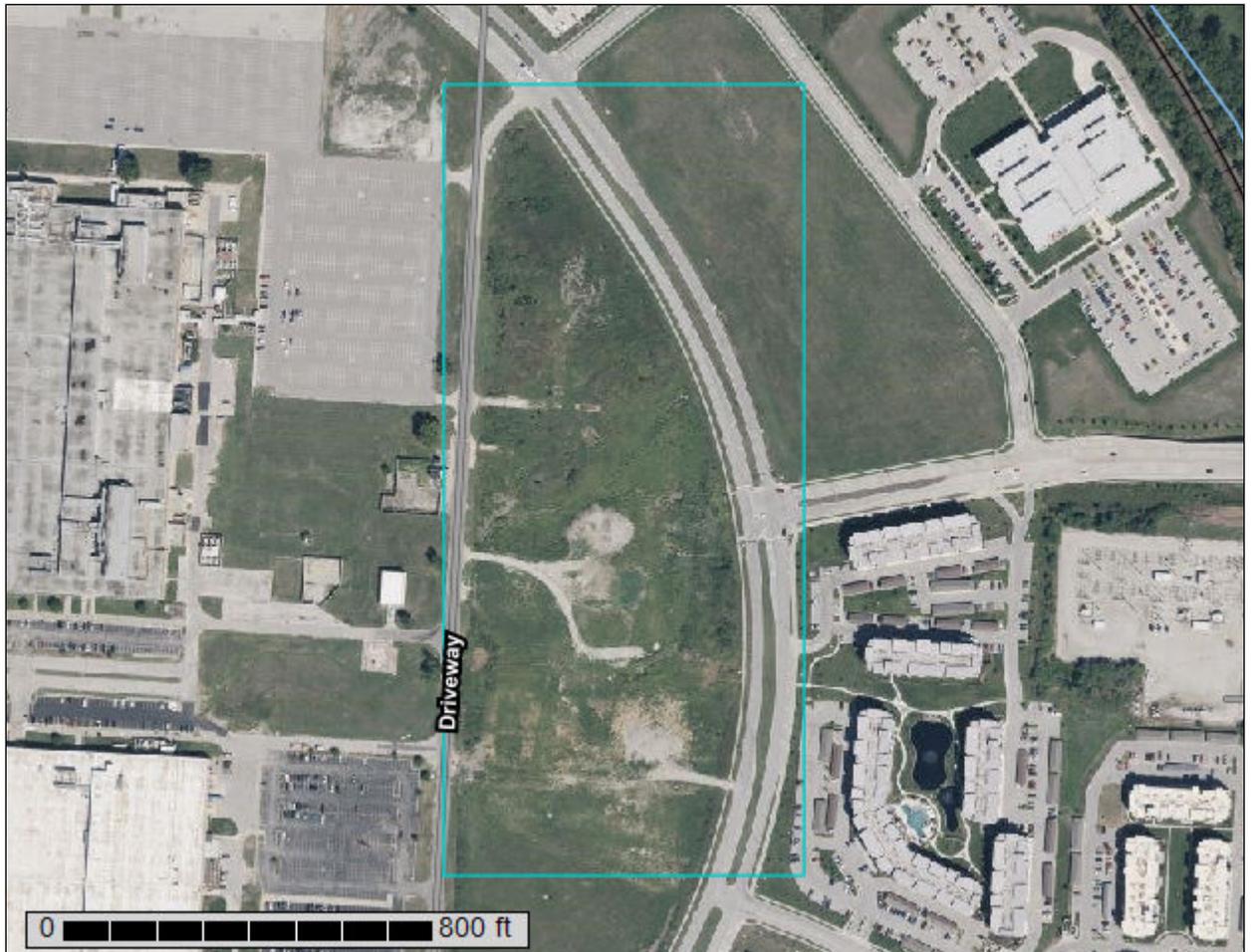
United States
Department of
Agriculture

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 **Jackson County, Missouri**



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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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

Custom Soil Resource Report

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

Custom Soil Resource Report

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

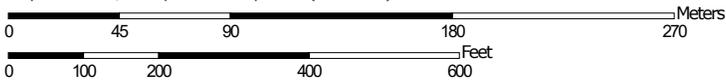
Soil Map

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



Map Scale: 1:3,050 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N 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: Jackson County, Missouri
 Survey Area Data: Version 28, Sep 2, 2025

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

Date(s) aerial images were photographed: Aug 30, 2022—Sep 8, 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
10082	Arisburg-Urban land complex, 1 to 5 percent slopes	1.8	6.0%
10181	Udarents-Urban land-Sampsel complex, 5 to 9 percent slopes	9.2	30.0%
40107	Snead-Rock outcrop complex, warm, 5 to 14 percent slopes	8.9	29.0%
99012	Urban land, upland, 5 to 9 percent slopes	10.7	35.1%
Totals for Area of Interest		30.6	100.0%

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 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.

Custom Soil Resource Report

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.

Jackson County, Missouri

10082—Arisburg-Urban land complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2w7ld
Landscape: Hills
Elevation: 750 to 1,130 feet
Mean annual precipitation: 39 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 177 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Arisburg and similar soils: 61 percent
Urban land: 30 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arisburg

Setting

Landscape: Hills
Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
A - 6 to 13 inches: silt loam
Bt - 13 to 19 inches: silty clay loam
Btg - 19 to 56 inches: silty clay loam
BCg - 56 to 79 inches: silty clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 30 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 supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R107XB007MO - Loess Upland Prairie
Hydric soil rating: No

Description of Urban Land

Setting

Anthropogenic Feature: Urban land

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydric soil rating: No

Minor Components

Sharpsburg

Percent of map unit: 3 percent

Landscape: Uplands

Landform: Ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Interfluve

Down-slope shape: Linear

Across-slope shape: Linear

Ecological site: R109XY002MO - Loess Upland Prairie

Hydric soil rating: No

Greenton

Percent of map unit: 3 percent

Landscape: Hills

Landform: Hillslopes

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Convex

Ecological site: R109XY002MO - Loess Upland Prairie

Hydric soil rating: No

Sampsel

Percent of map unit: 3 percent

Landscape: Uplands

Landform: Hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope

Down-slope shape: Convex

Across-slope shape: Concave

Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna

Hydric soil rating: Yes

10181—Udarents-Urban land-Sampsel complex, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 1n85g

Custom Soil Resource Report

Elevation: 600 to 900 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 175 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Udarents and similar soils: 46 percent
Urban land: 39 percent
Sampsel and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udarents

Setting

Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Anthropogenic Feature: Urban land
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mine spoil or earthy fill

Typical profile

C1 - 0 to 5 inches: silt loam
C2 - 5 to 80 inches: silty clay loam

Properties and qualities

Slope: 5 to 9 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 low to moderately high (0.14 to 0.57 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 supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R107XB002MO - Deep Loess Upland Prairie
Hydric soil rating: No

Description of Urban Land

Setting

Landscape: Hills
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Across-slope shape: Convex

Interpretive groups

Land capability classification (irrigated): None specified

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Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Sampsel

Setting

Landscape: Hills
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from shale

Typical profile

Ap - 0 to 13 inches: silty clay loam
Bt - 13 to 80 inches: silty clay

Properties and qualities

Slope: 5 to 9 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 18 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 supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna
Hydric soil rating: No

40107—Snead-Rock outcrop complex, warm, 5 to 14 percent slopes

Map Unit Setting

National map unit symbol: 2zccr
Landscape: Plains
Elevation: 660 to 1,130 feet
Mean annual precipitation: 39 to 43 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 185 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Snead, warm, and similar soils: 70 percent

Rock outcrop: 20 percent

Minor components: 10 percent

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

Description of Snead, Warm

Setting

Landscape: Plains

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 limestone and shale

Typical profile

A - 0 to 10 inches: silty clay loam

Bw - 10 to 20 inches: silty clay

BC - 20 to 24 inches: silty clay

C - 24 to 35 inches: silty clay

Cr - 35 to 45 inches: bedrock

Properties and qualities

Slope: 5 to 14 percent

Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Drainage class: Moderately well drained

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: About 24 to 30 inches

Frequency of flooding: None

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: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: D

Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna

Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 79 inches: bedrock

Properties and qualities

Slope: 5 to 14 percent

Depth to restrictive feature: 0 inches to lithic bedrock

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified

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Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Oska

Percent of map unit: 4 percent
Landscape: Plains
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R106XY075NE - Loamy Upland
Hydric soil rating: No

Kennebec, occasionally flooded

Percent of map unit: 3 percent
Landscape: Plains
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R109XY028MO - Loamy Upland Drainageway Savanna
Hydric soil rating: No

Sampsel

Percent of map unit: 3 percent
Landscape: Plains
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Concave
Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna
Hydric soil rating: Yes

99012—Urban land, upland, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: 2q0qh
Mean annual precipitation: 36 to 43 inches
Frost-free period: 170 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 90 percent
Minor components: 10 percent

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

Description of Urban Land

Setting

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Anthropogenic Feature: Urban land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 5 percent
Landform position (three-dimensional): Tread
Anthropogenic features: Spoil piles
Down-slope shape: Convex
Across-slope shape: Concave
Ecological site: R107XB002MO - Deep Loess Upland Prairie
Hydric soil rating: No

Harvester

Percent of map unit: 5 percent
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Anthropogenic features: Urban land
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F115XB061MO - Anthropoc Deep Loess Upland
Hydric soil rating: No

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