Soil Survey Data for the LYV GWMA Target Area

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Summary of NRCS Soil Testing in the LYV

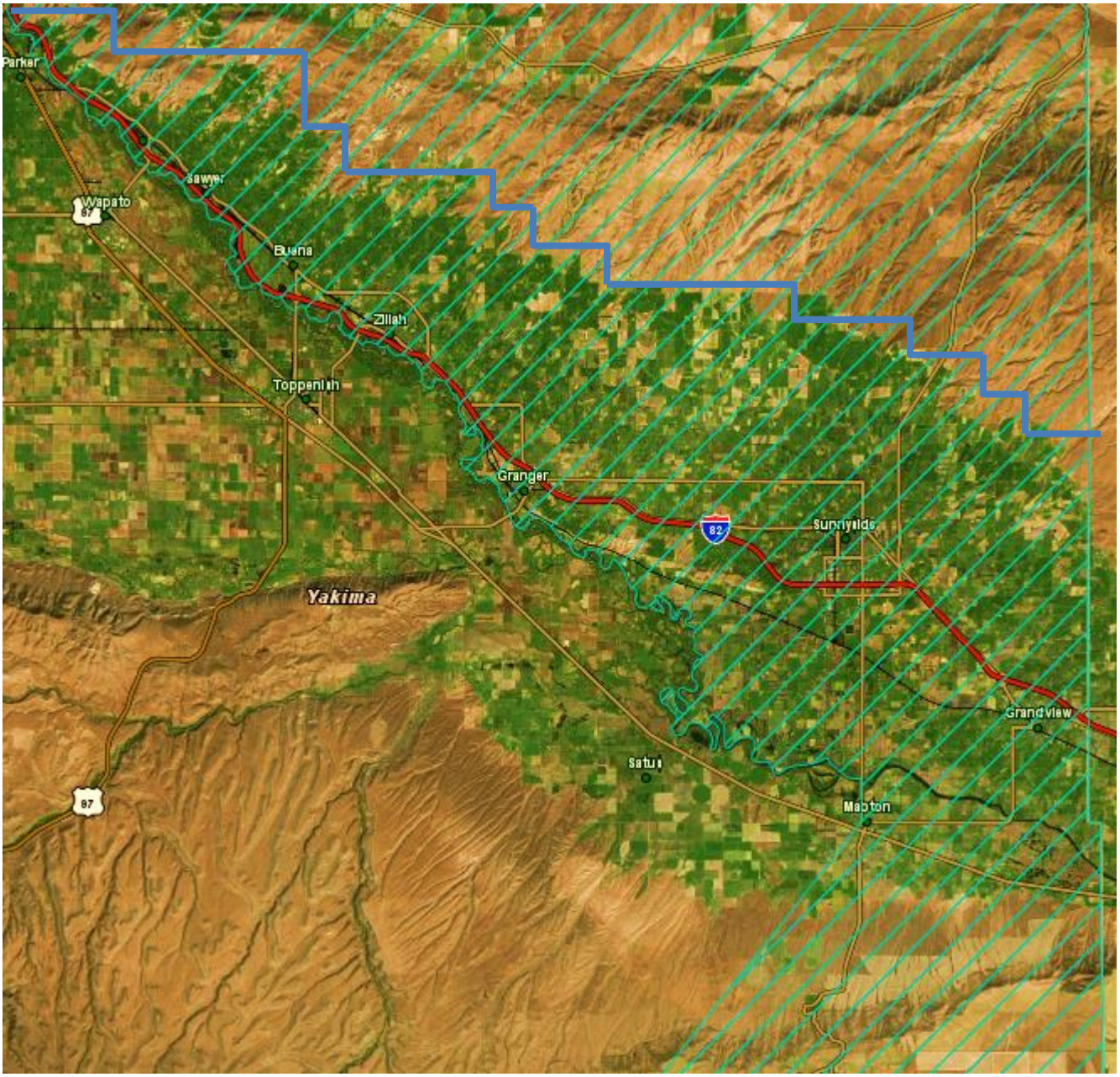
This information has been gathered from the Natural Resources Conservation Services Soil Survey website at https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey/

We have copied some of the most important maps for the GWMA target area in order to explain and display the characteristic of the land and water regarding: nitrate leaching, application of manures and food processing wastes, disposal of wastewater by irrigation, calcium carbonate levels, cation exchange capacity, electrical conductivity, soil pH, available water capacity, available water storage, available water supply, % organic matter, % clay, % sand, % silt, saturated hydraulic conductivity, water content, depth to any soil restrictive area, drainage class, hydrologic soil group, depth to water table and compaction potential.

The NRCS definitions for these parameters and descriptions of the soils found in the LYV GWMA target area follow.

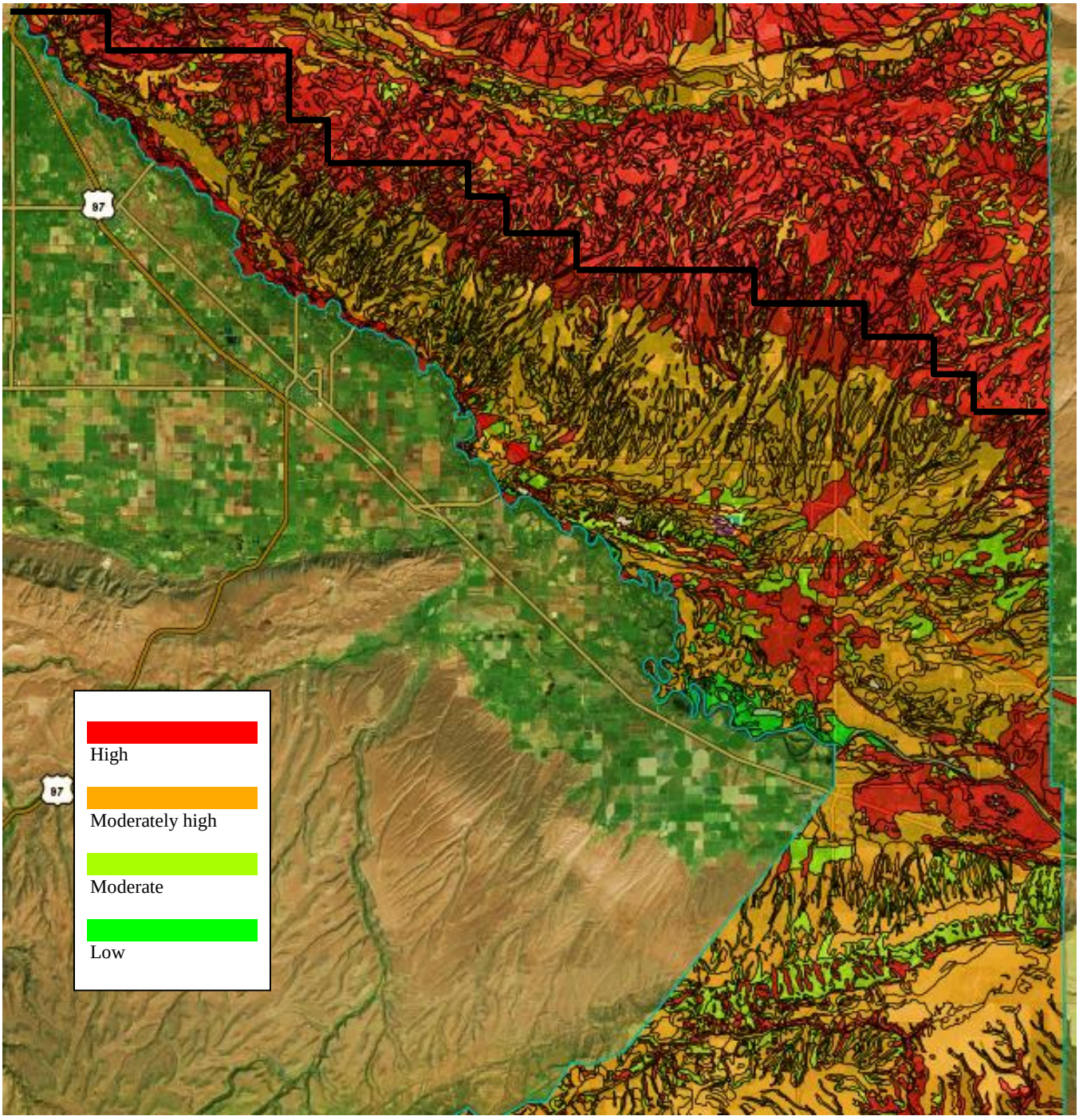
Map of the Area

GWMA



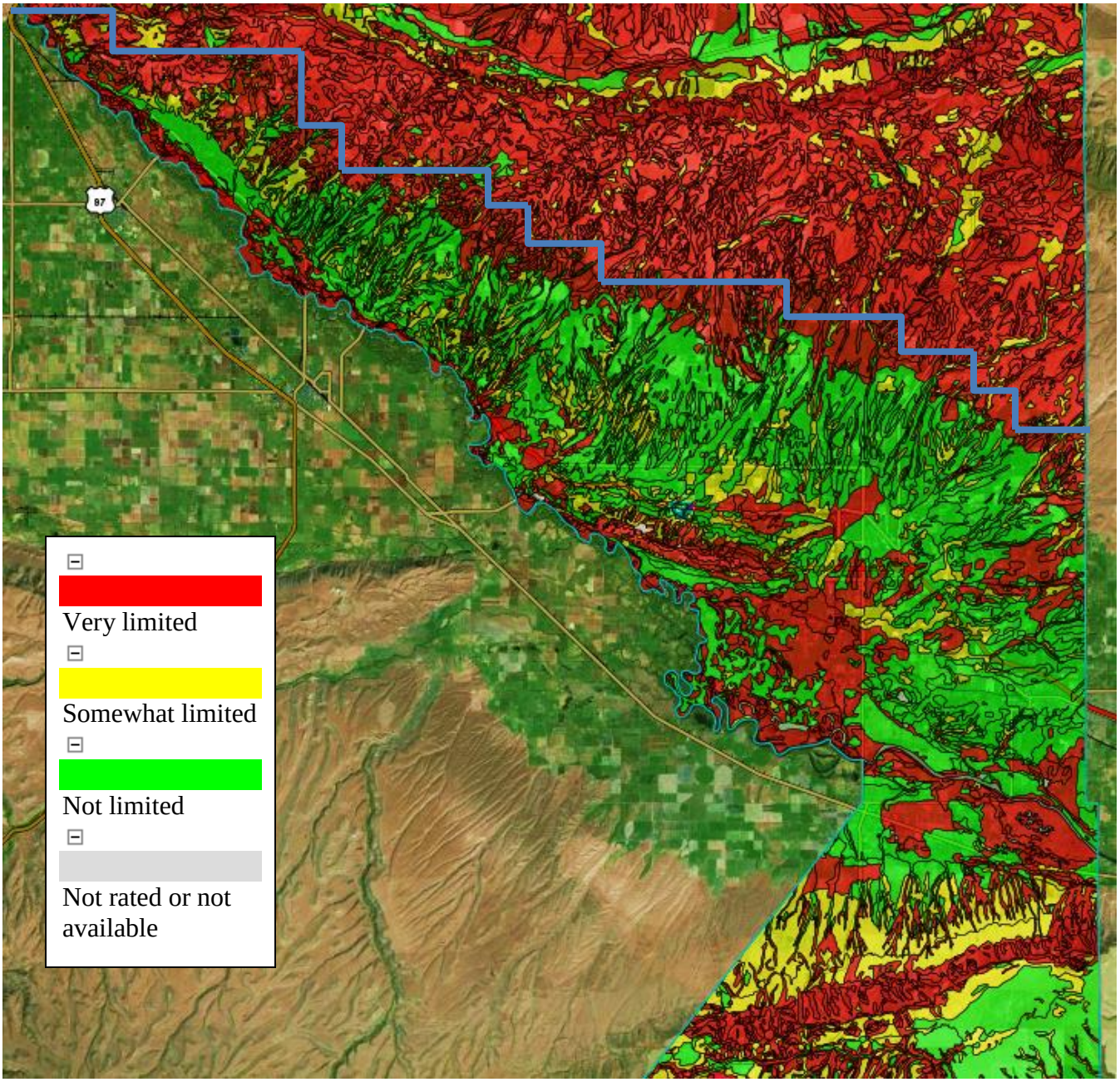
Nitrate Leaching Potential

GWMA



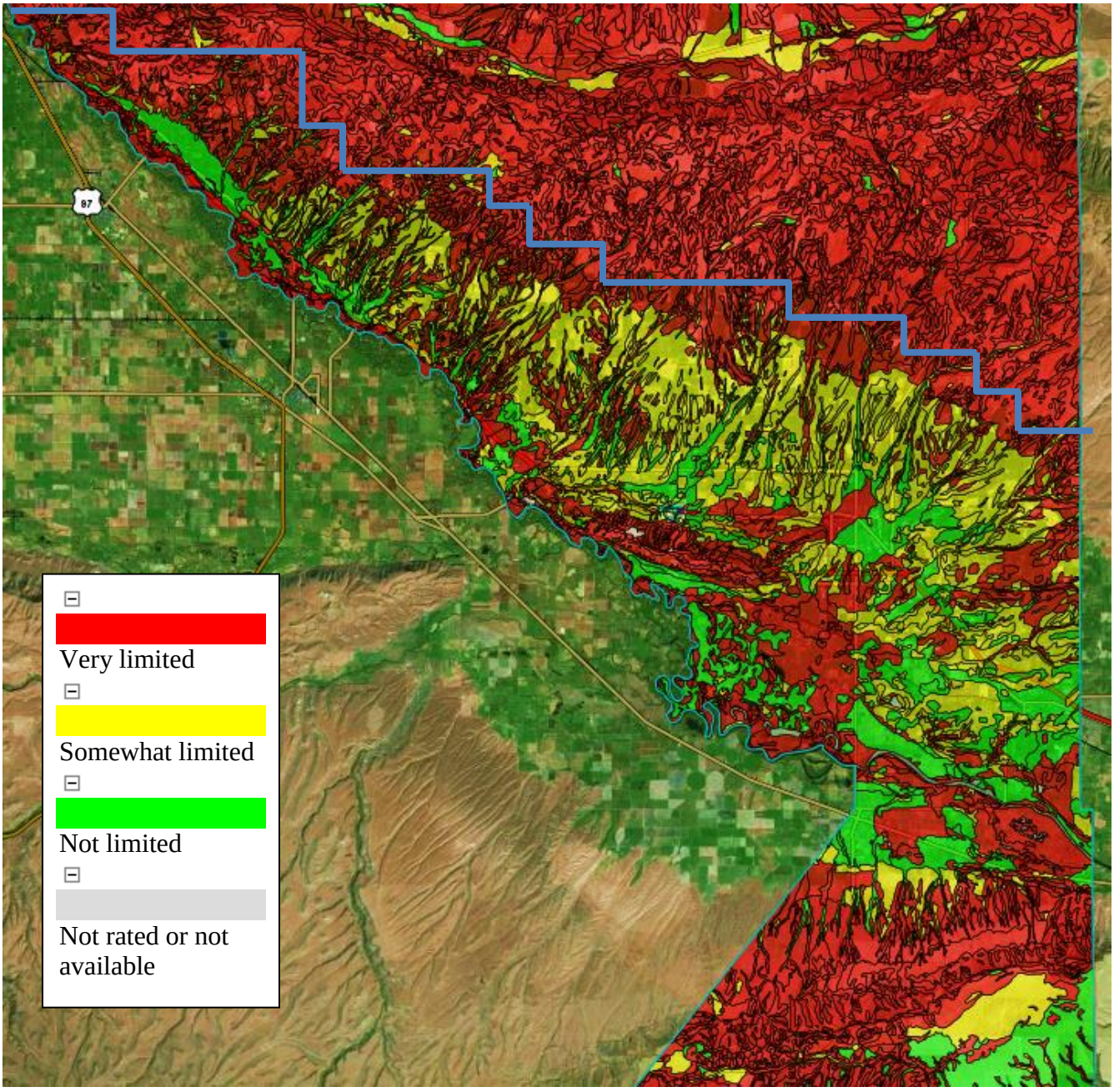
Manure & Food Processing Waste

GWMA



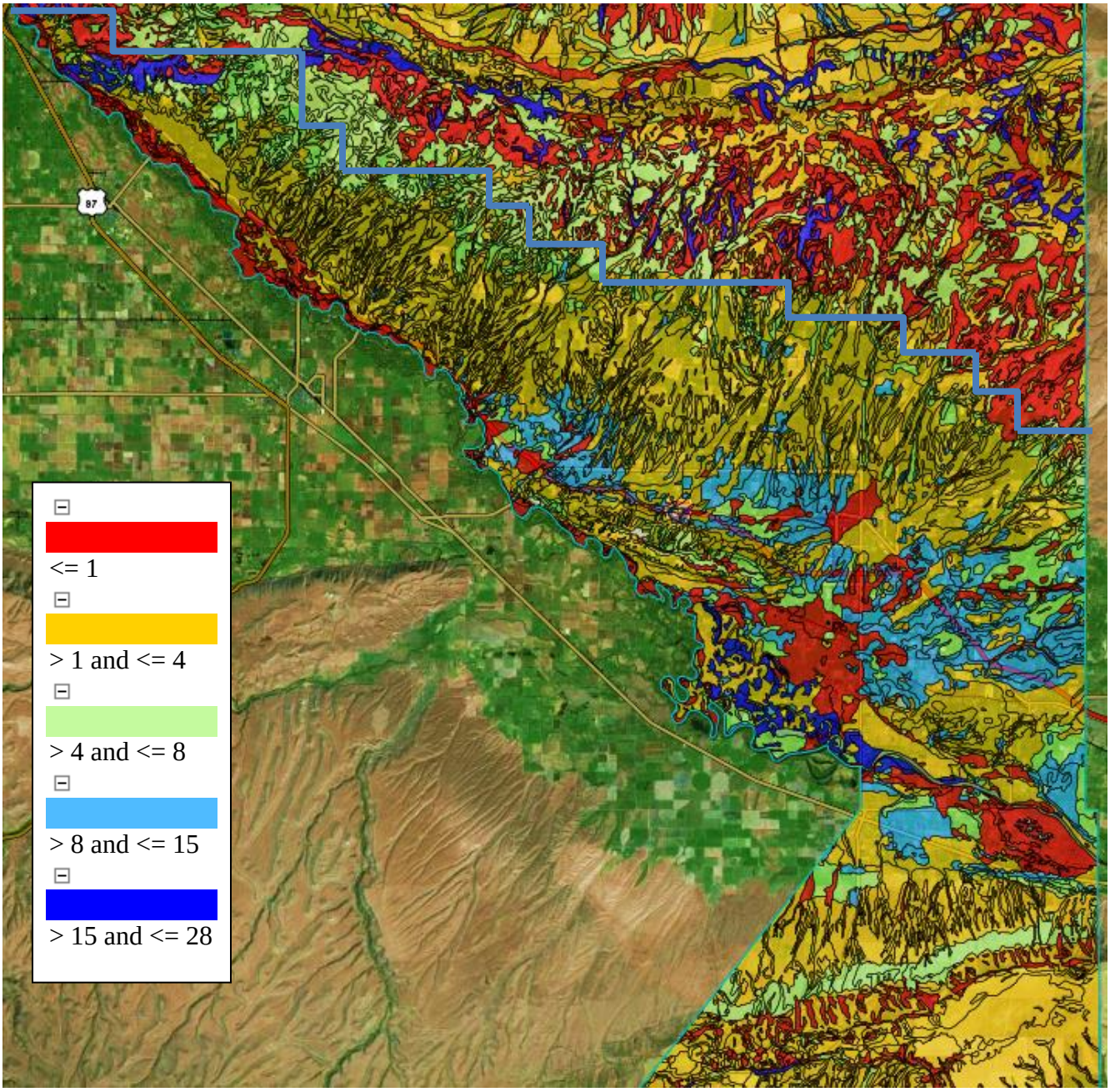
Disposal of Wastewater by Irrigation

GWMA



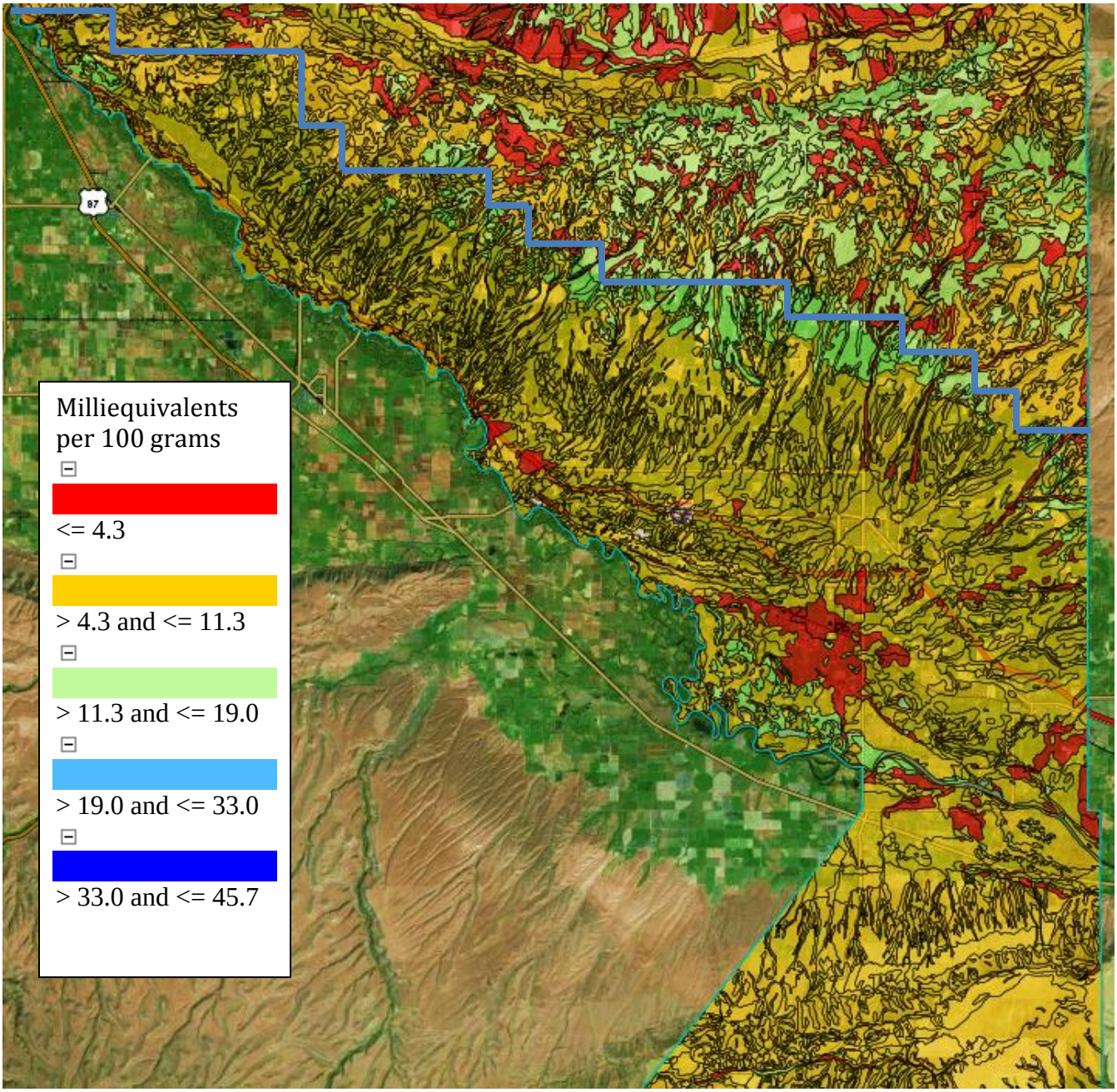
Calcium Carbonate

GWMA



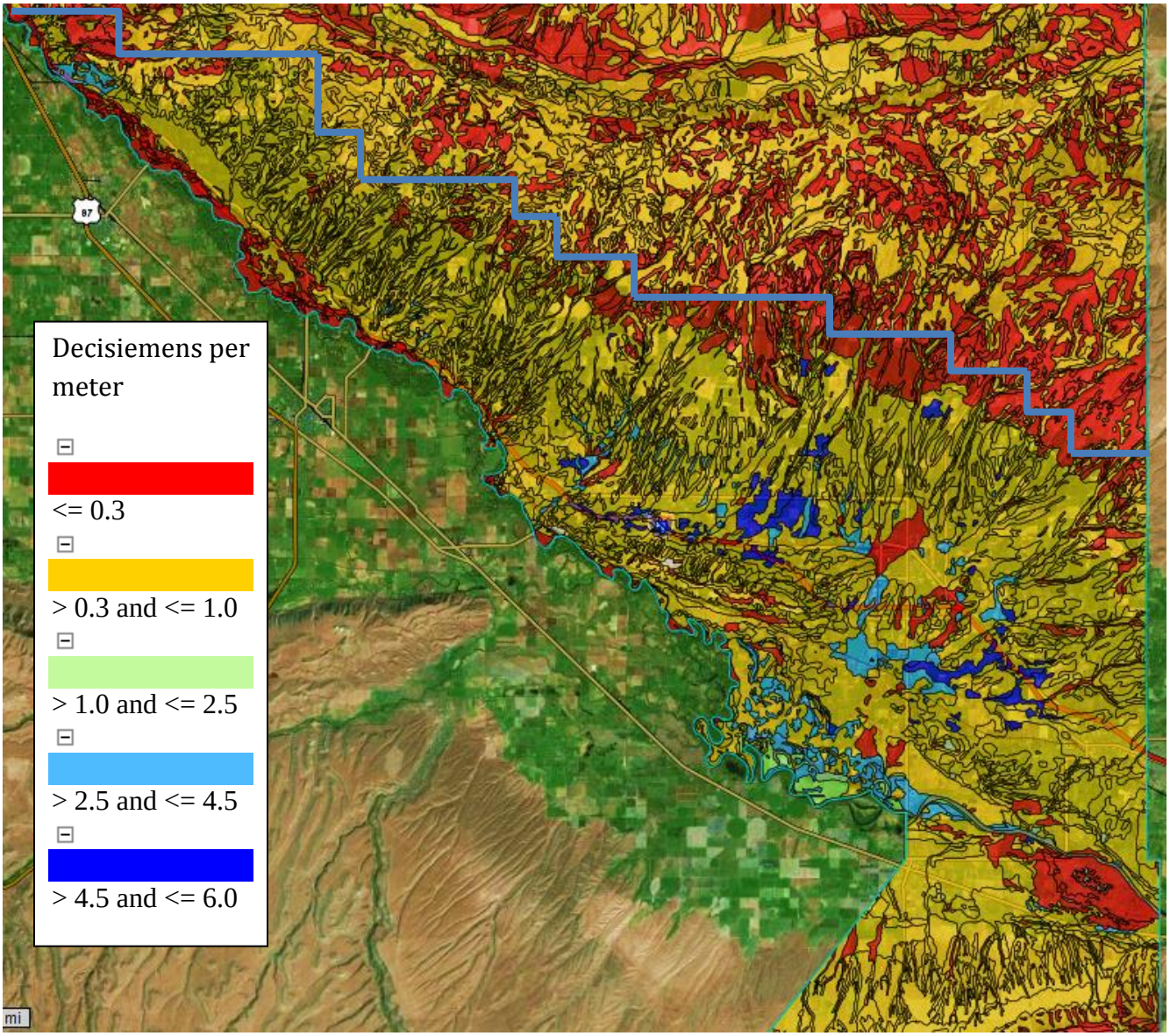
Cation Exchange Capacity

GWMA



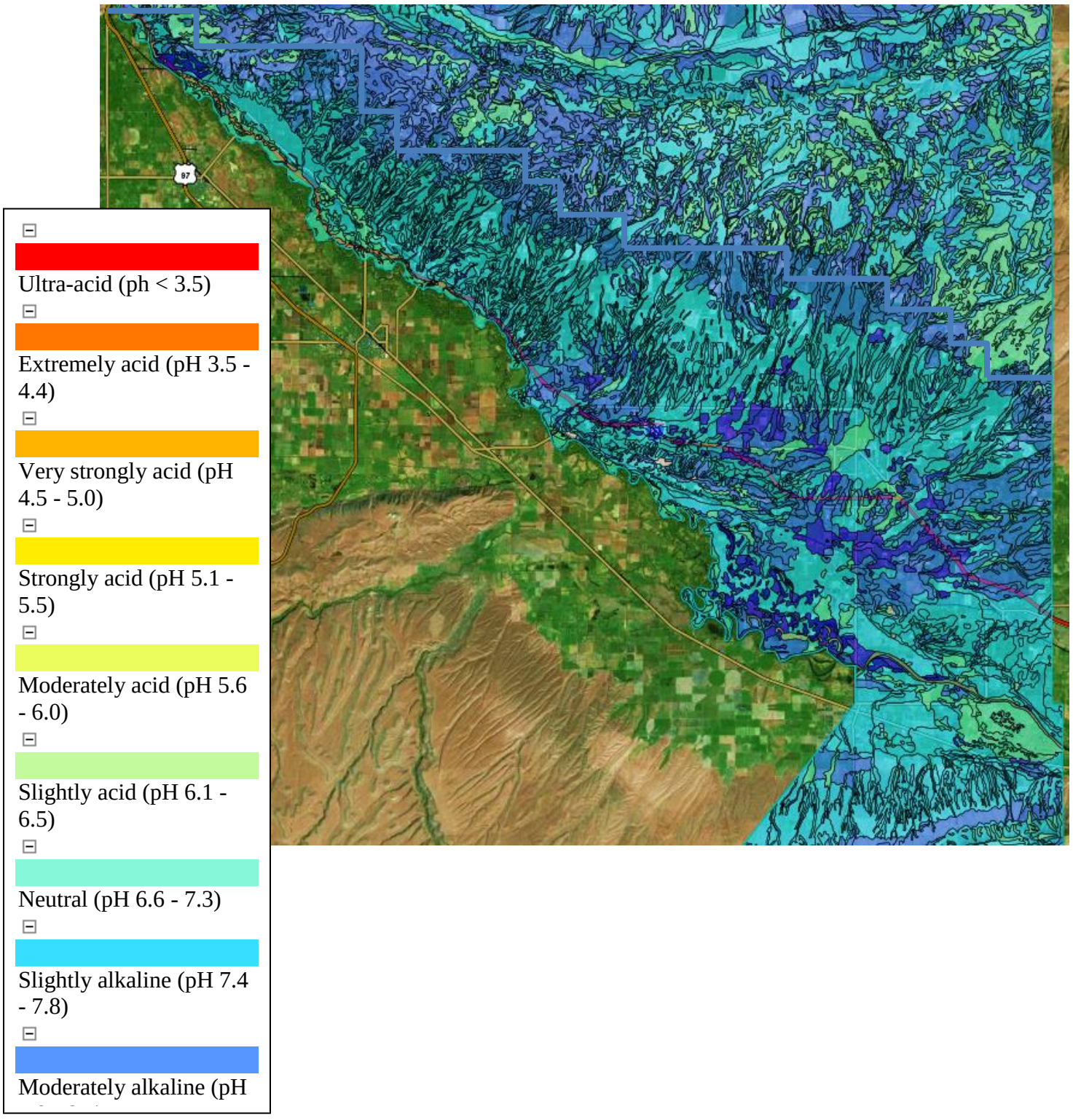
Electrical Conductivity

GWMA



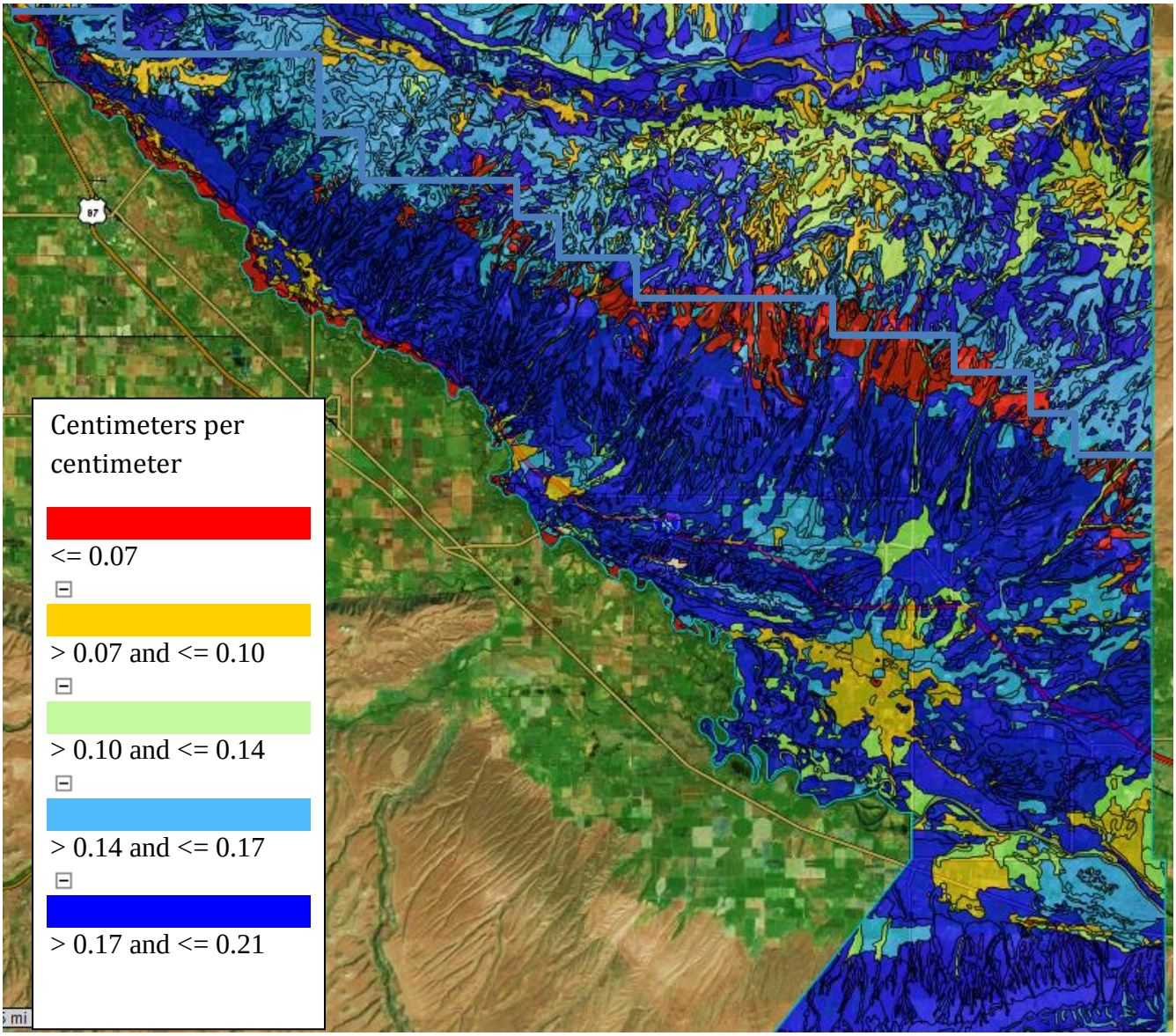
pH

GWMA


87
Ultra-acid (ph < 3.5)
Extremely acid (pH 3.5 - 4.4)
Very strongly acid (pH 4.5 - 5.0)
Strongly acid (pH 5.1 - 5.5)
Moderately acid (pH 5.6 - 6.0)
Slightly acid (pH 6.1 - 6.5)
Neutral (pH 6.6 - 7.3)
Slightly alkaline (pH 7.4 - 7.8)
Moderately alkaline (pH

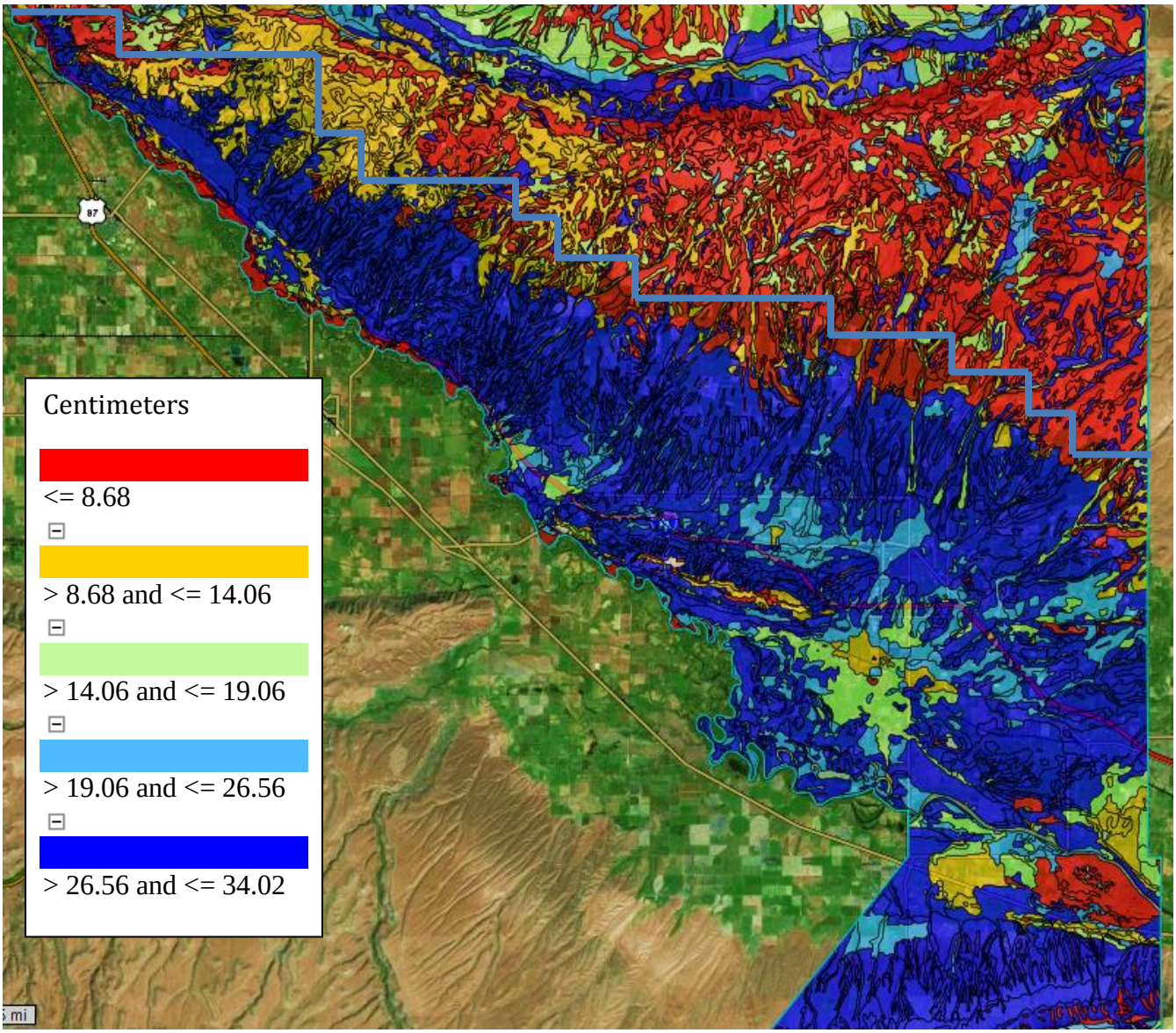
Available Water Capacity

GWMA



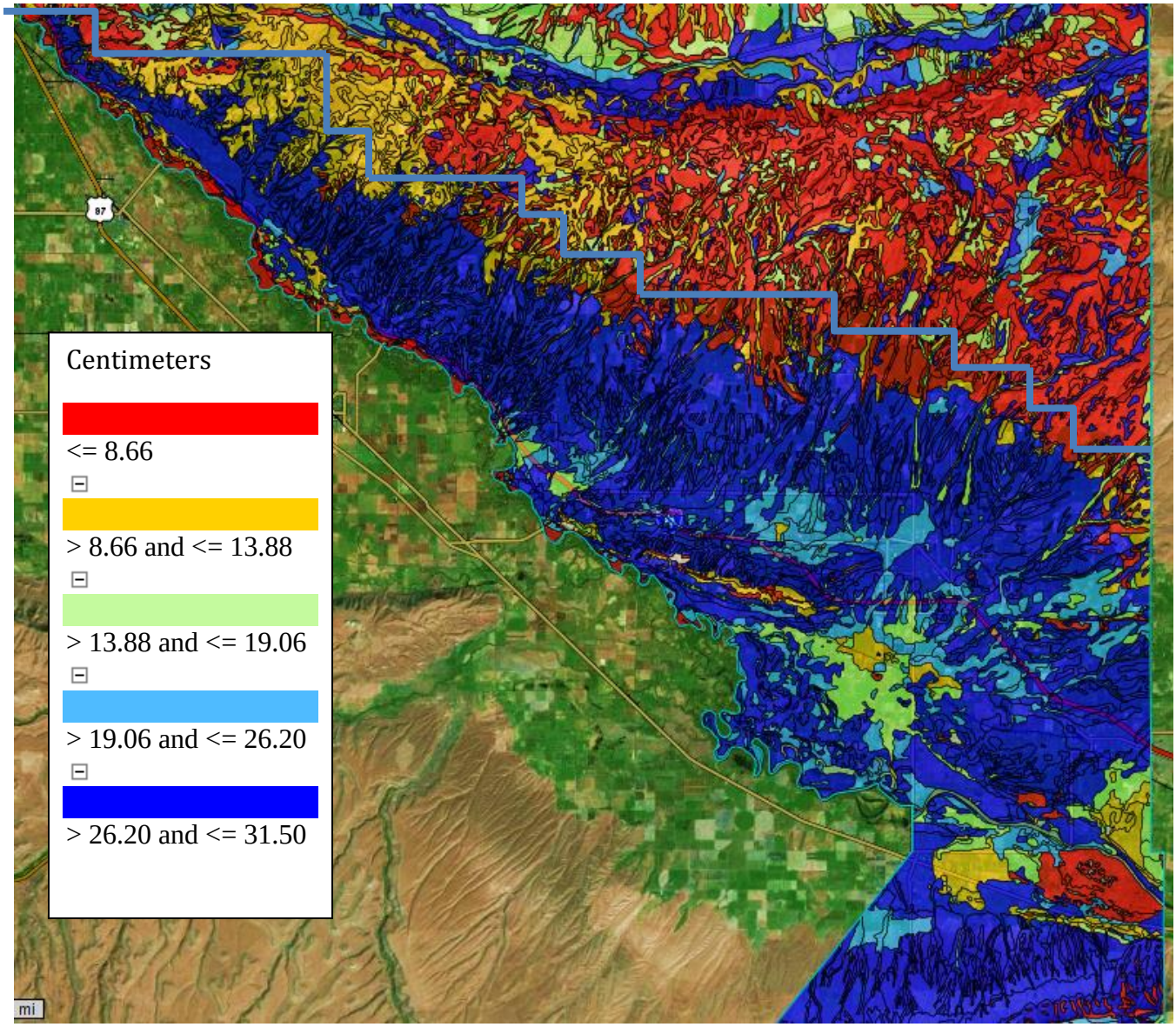
Available Water Storage

GWMA



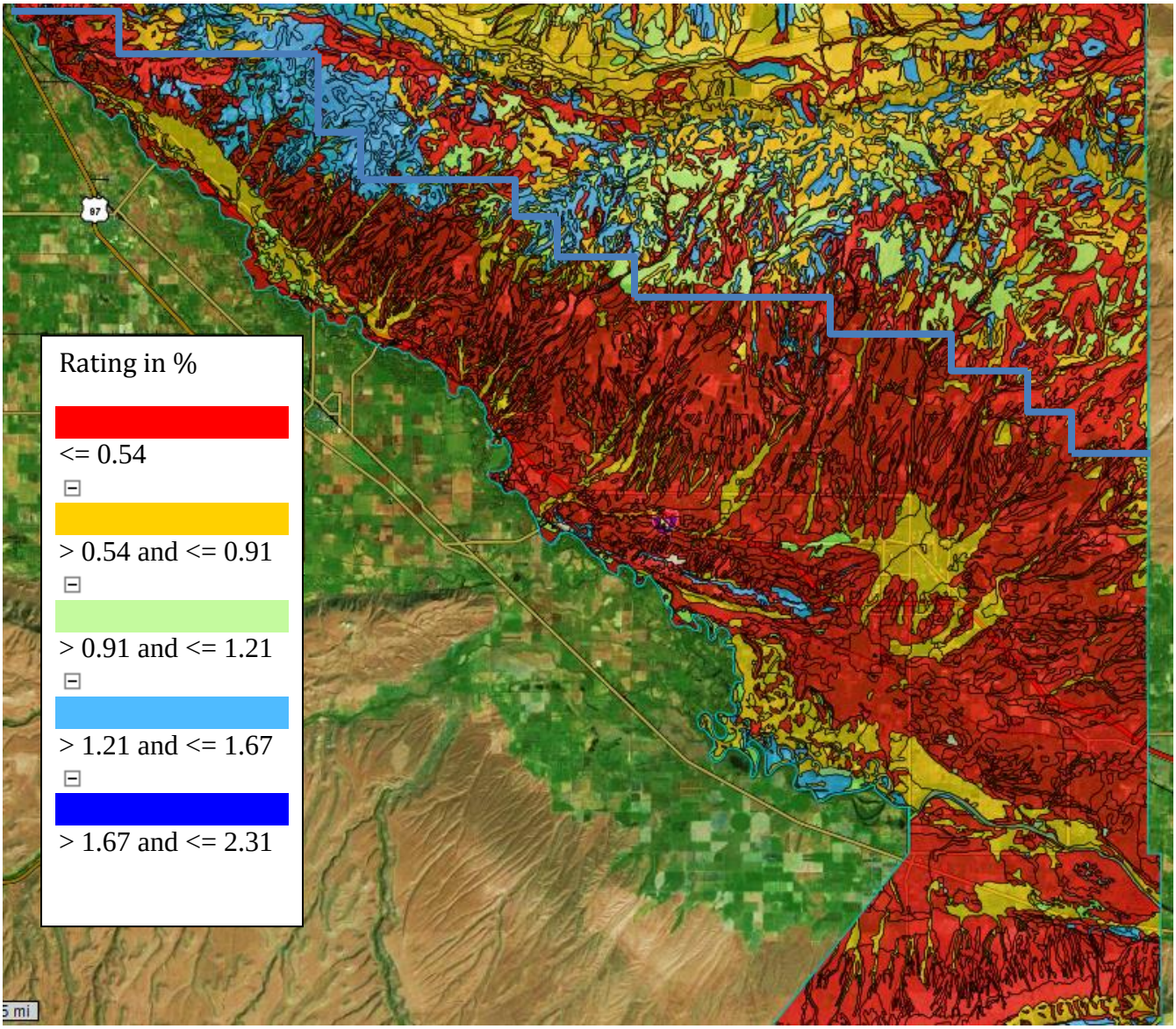
Available Water Supply – 0 to 150 cm

GWMA



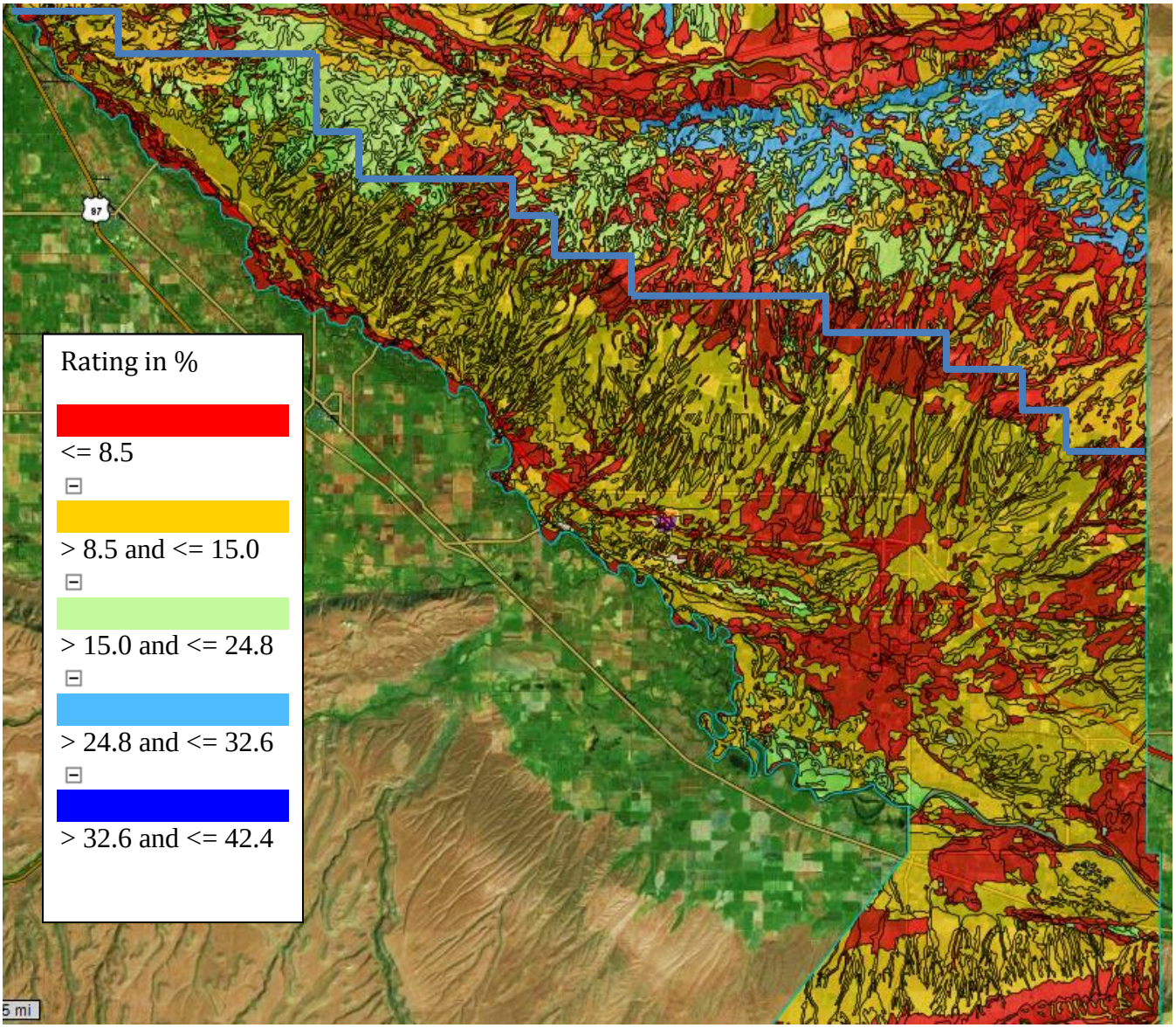
Organic Matter

GWMA



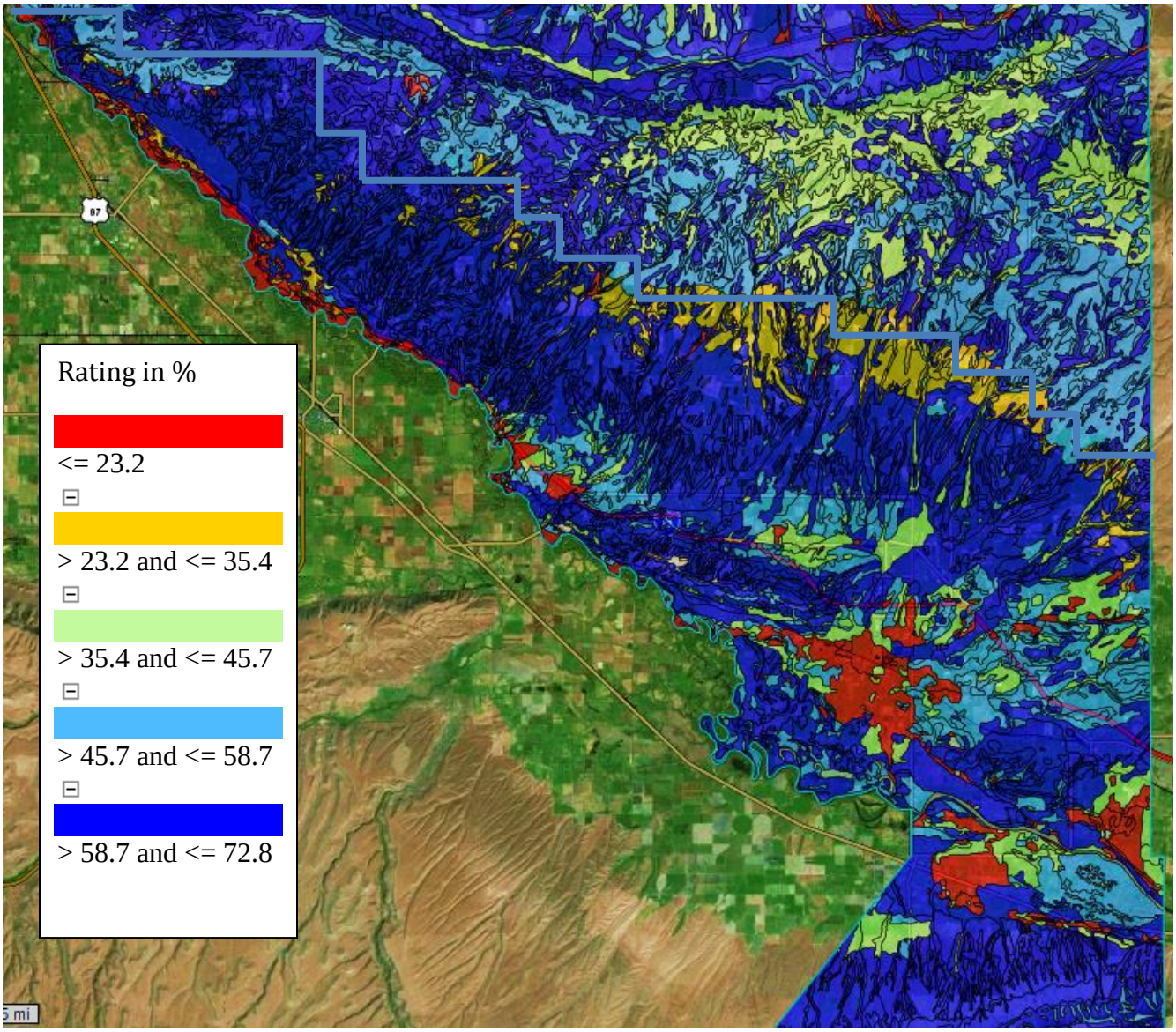
Percent Clay

GWMA



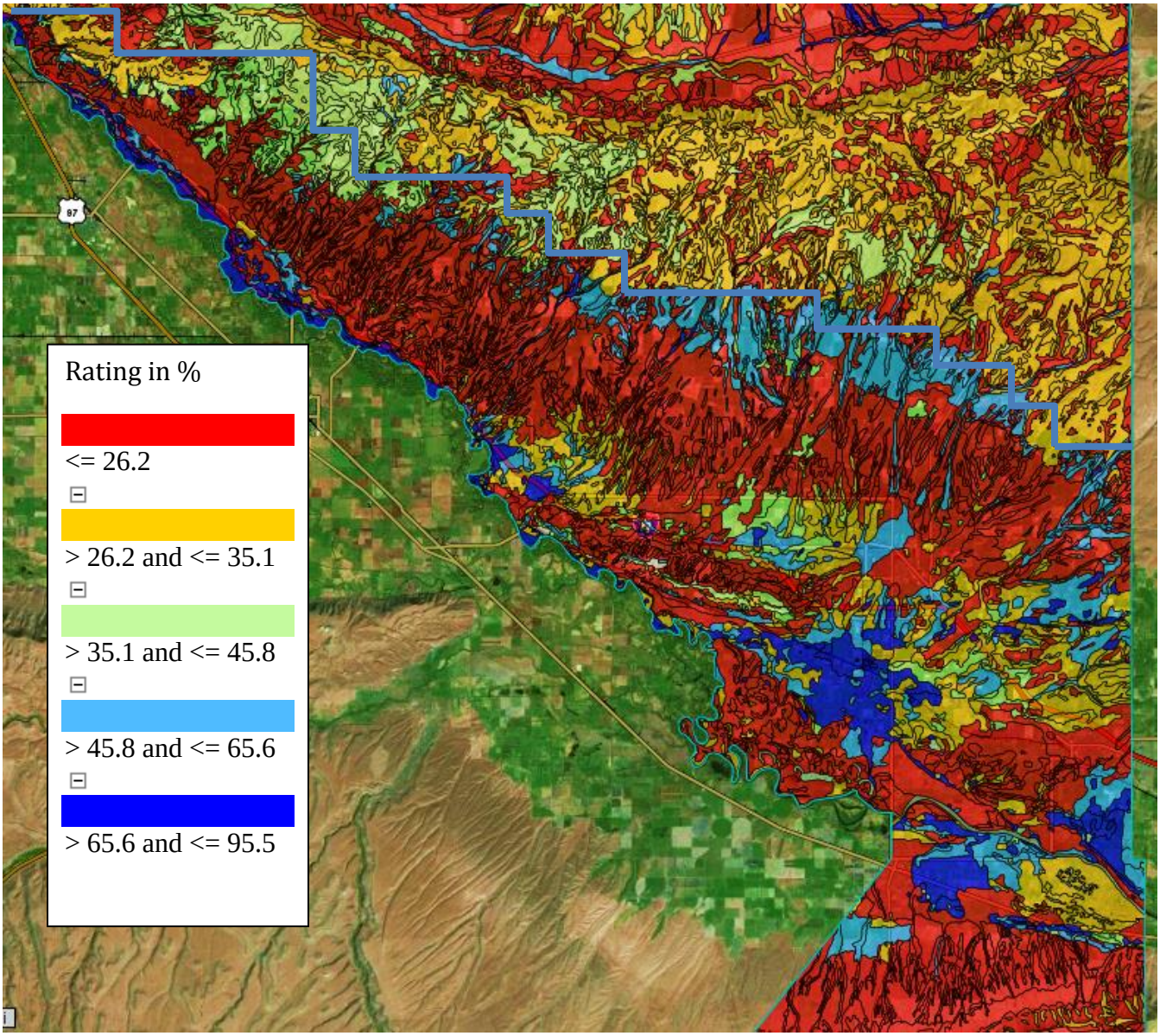
Percent Silt

GWMA



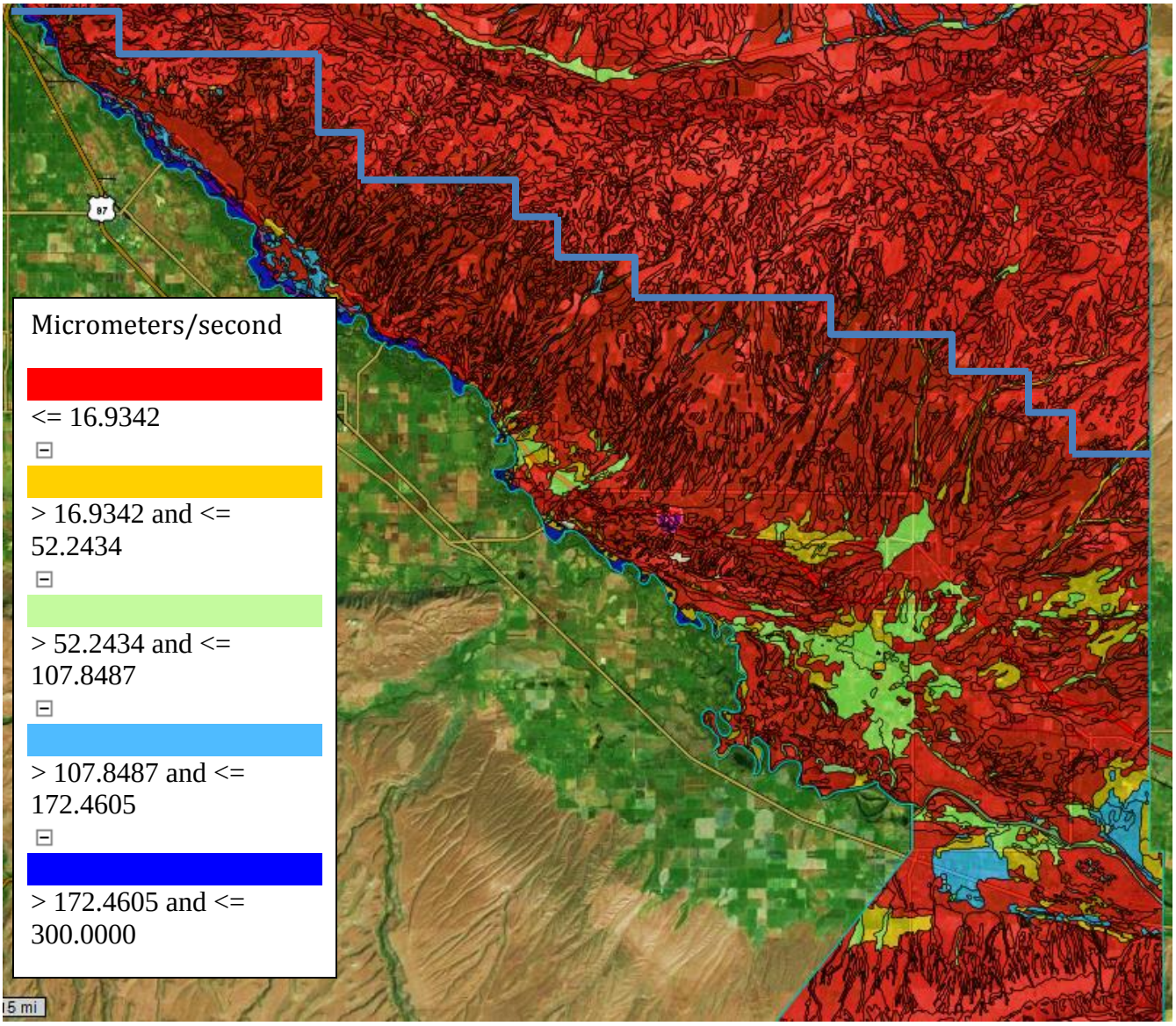
% Sand

GWMA



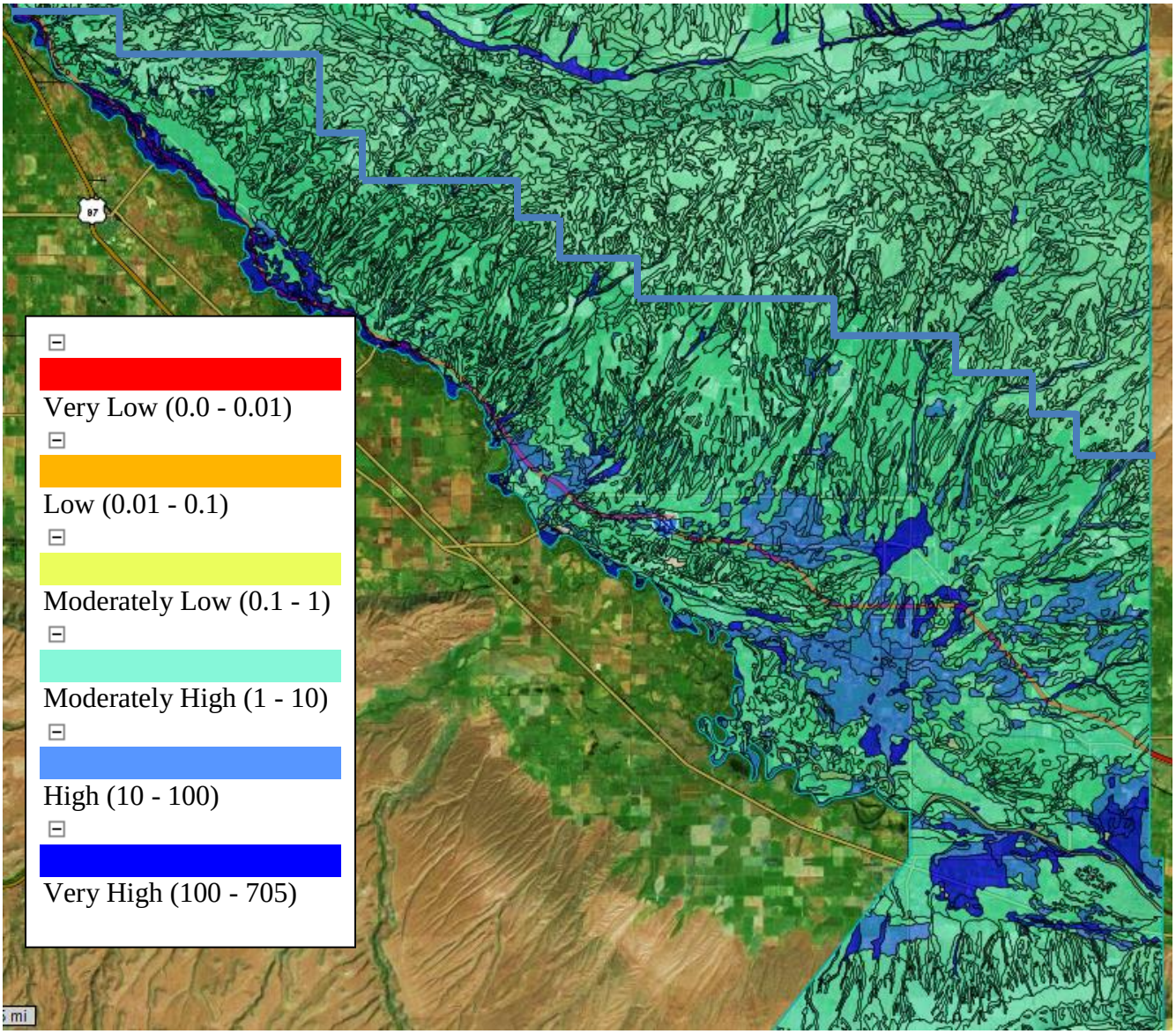
Saturated Hydraulic Conductivity - Ksat

GWMA



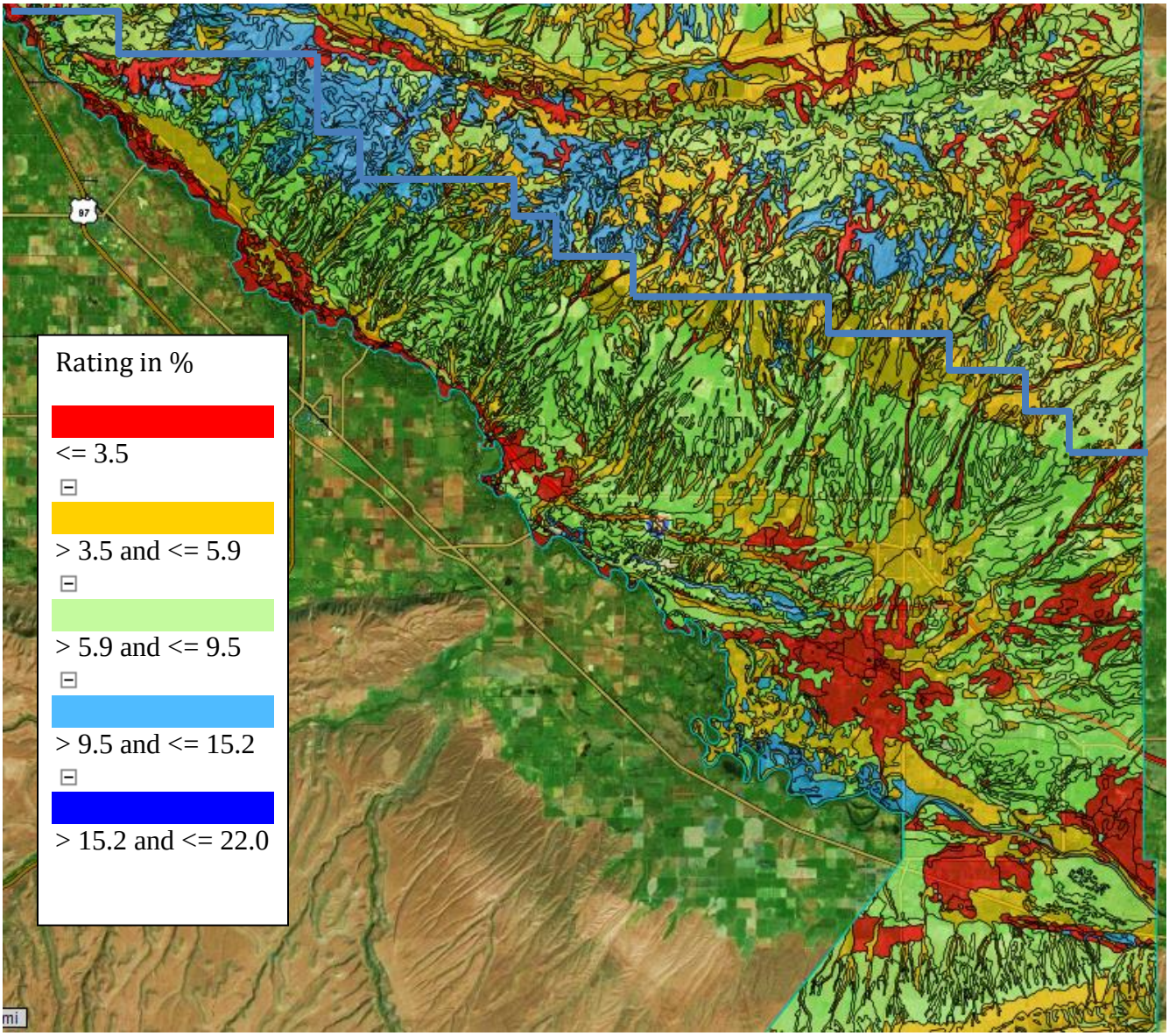
Ksat Classes

GWMA



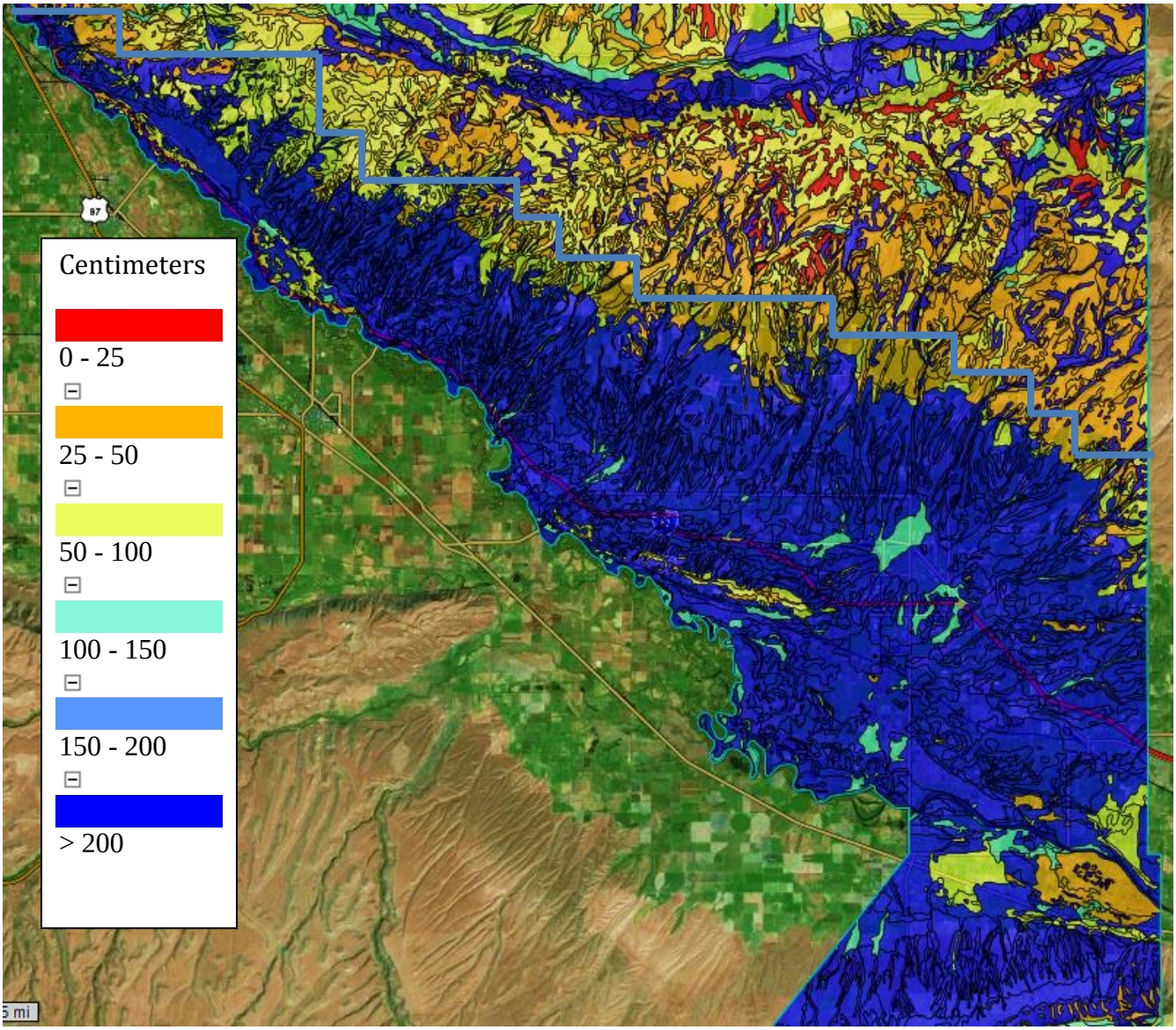
Water Content – 15 Bar

GWMA



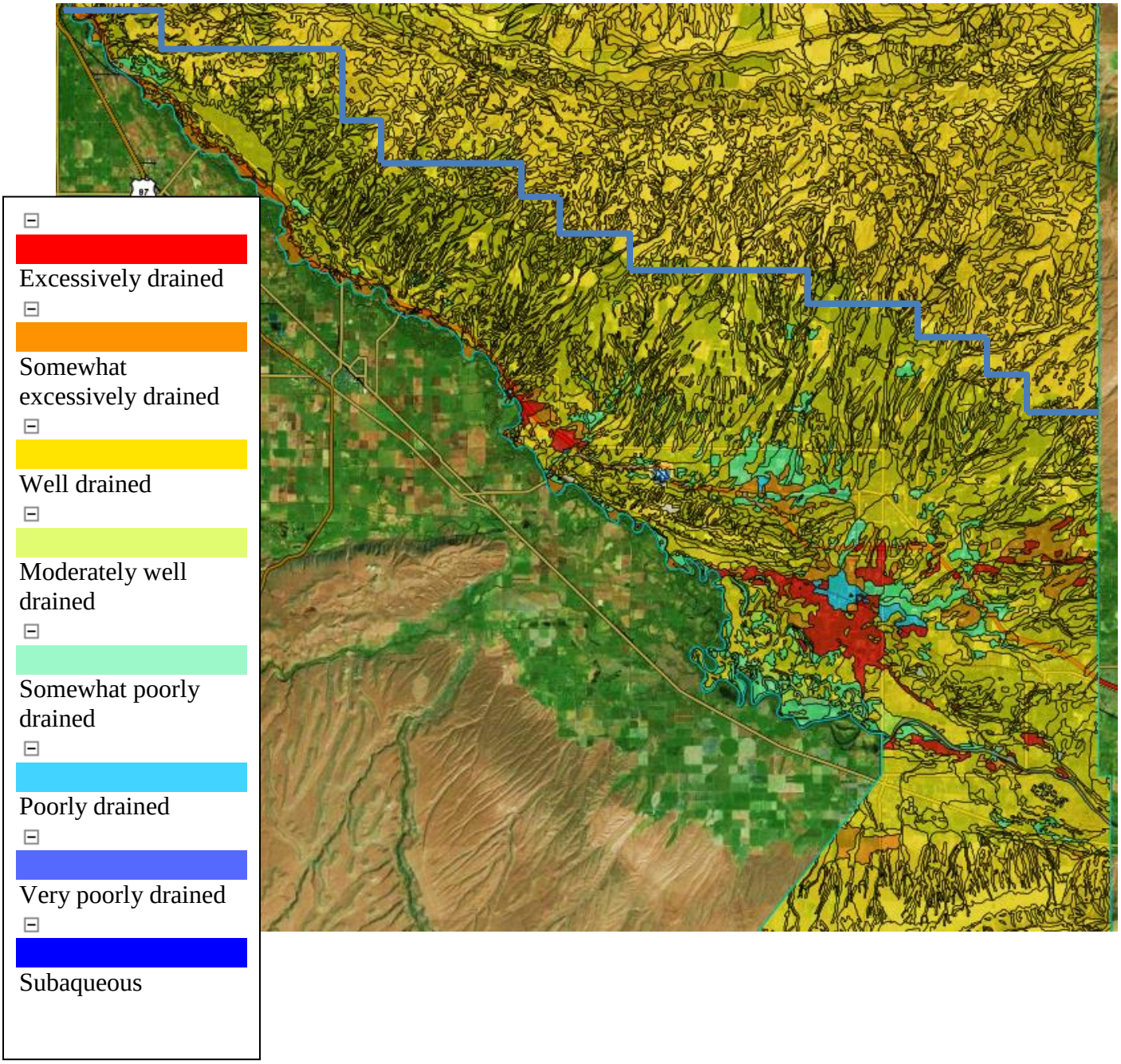
Depth to Any Soil Restrictive Layer

GWMA



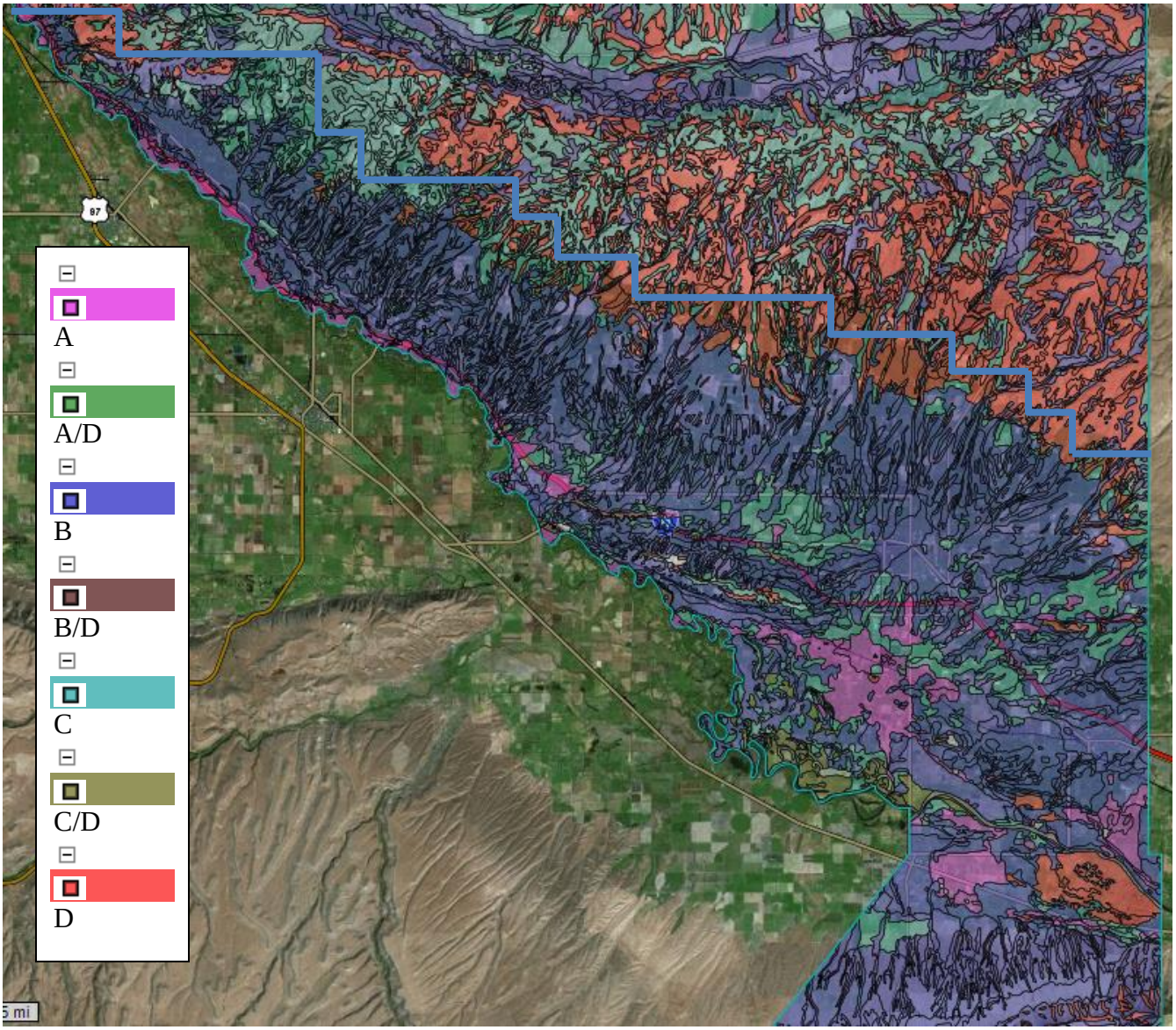
Drainage Class

GWMA



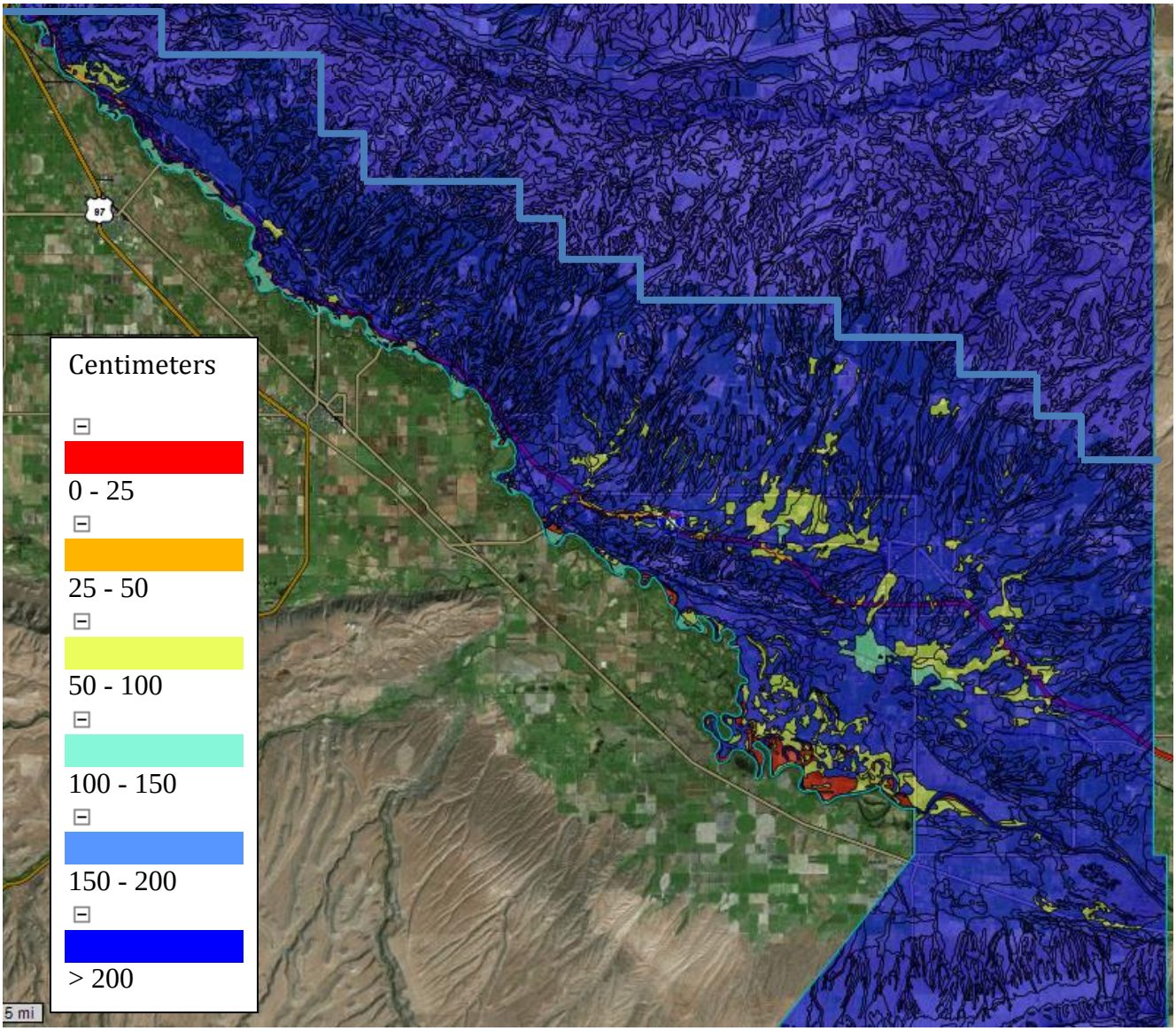
Hydrologic Soil Group

GWMA



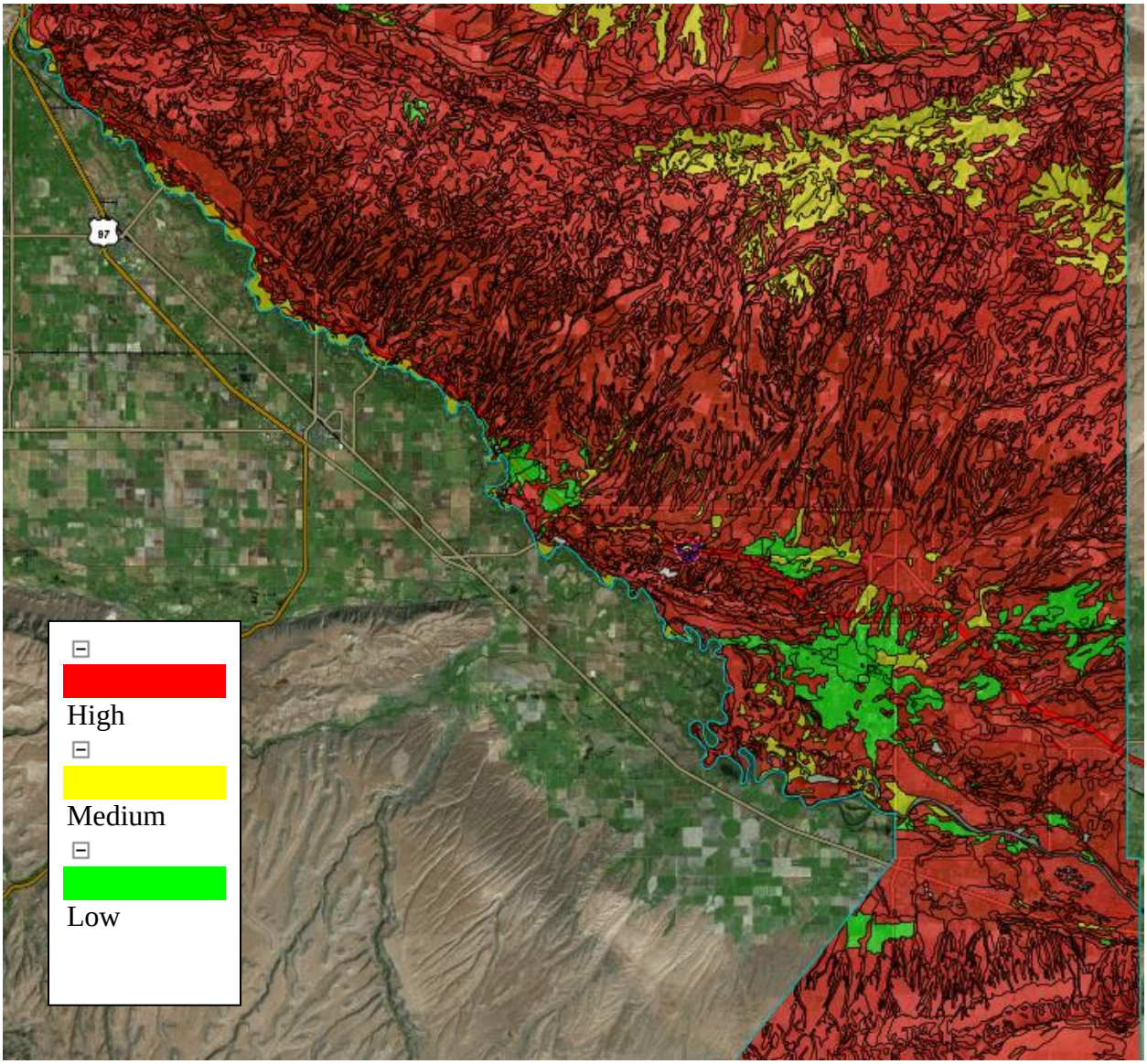
Depth to Water Table

GWMA



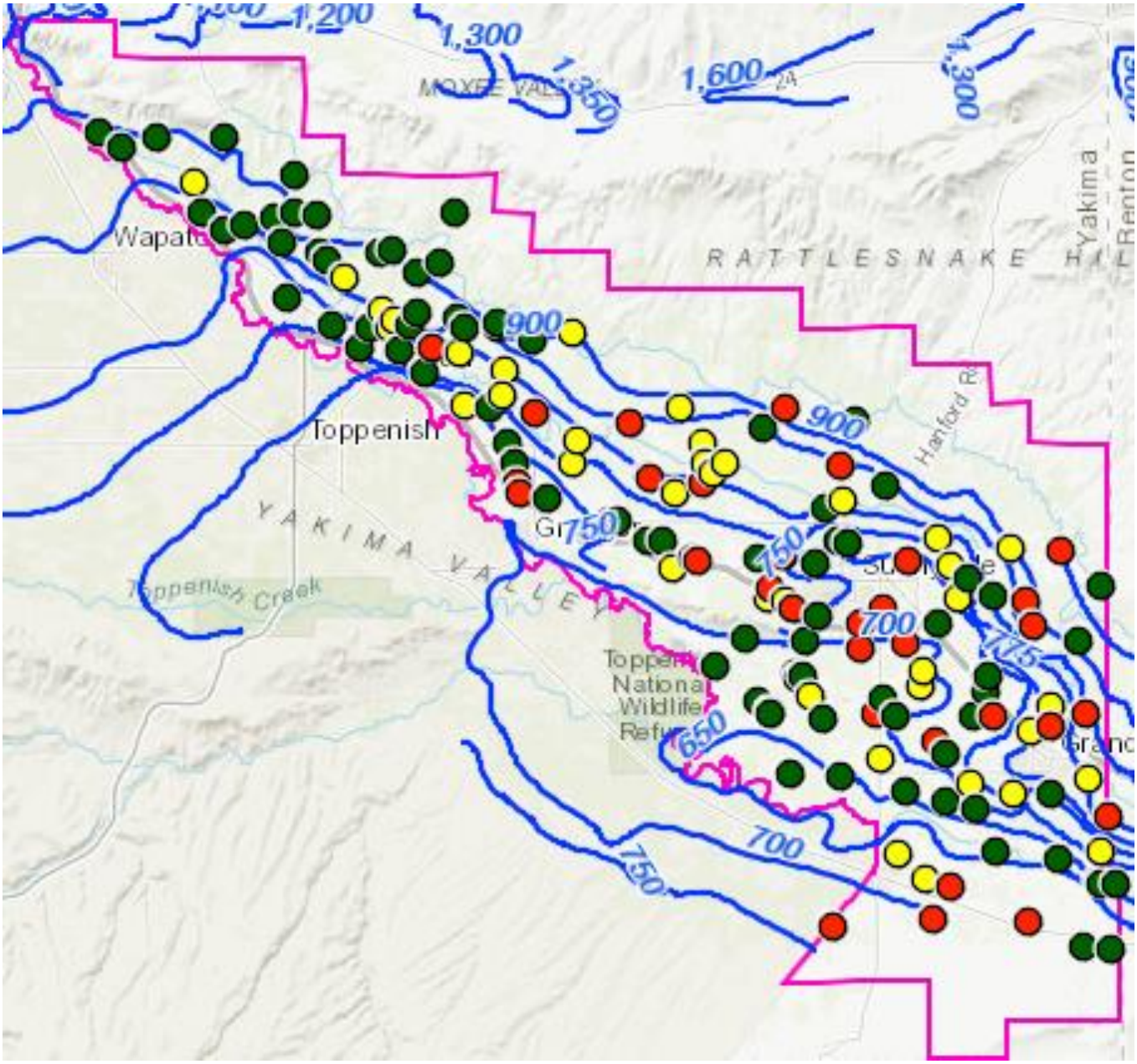
Compaction Potential

GWMA

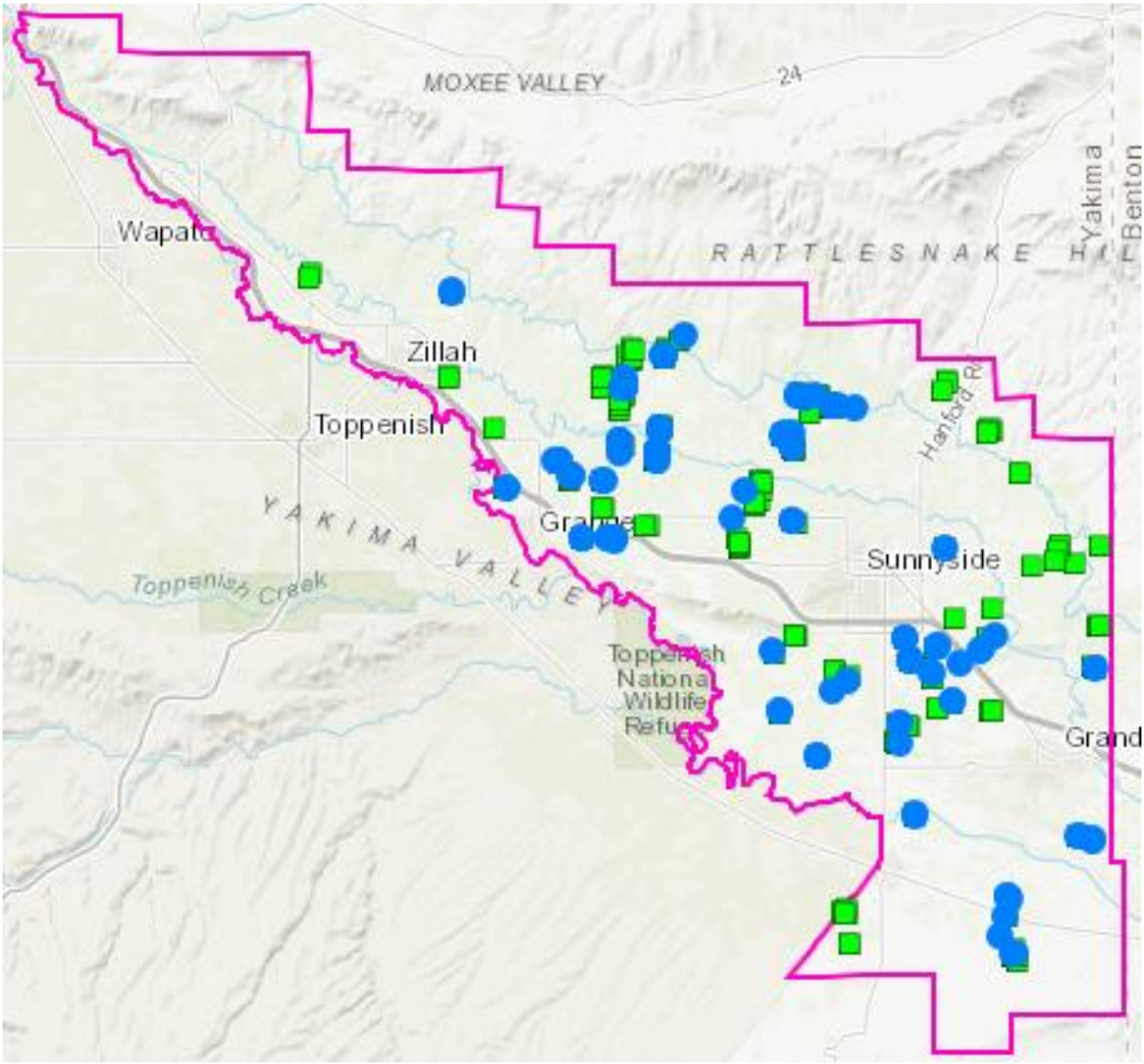


From GWMA GIS - http://arcg.is/1ie9mP

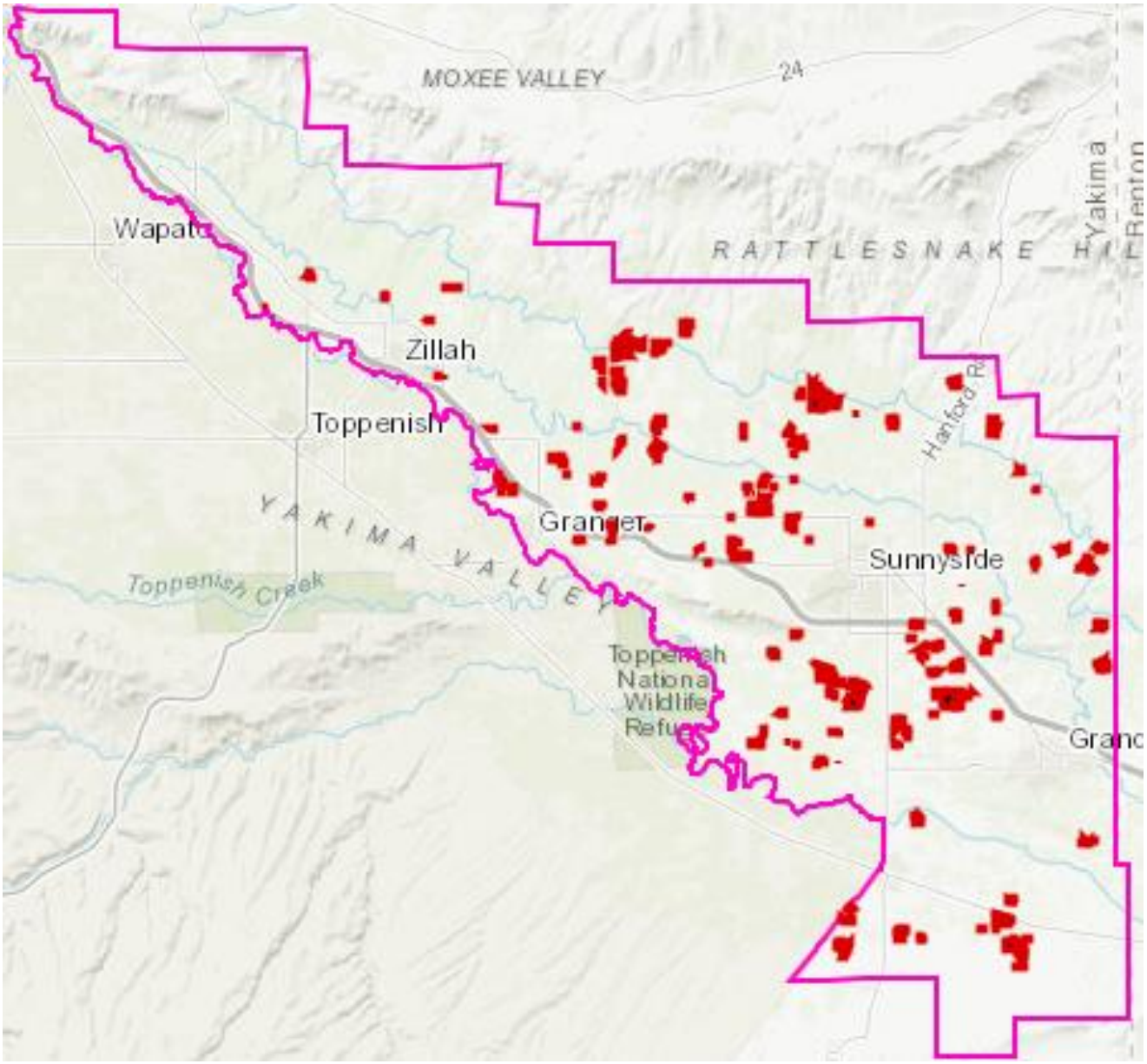
2017 USGS Well Testing



Lagoons & Ponds



CAFO Pens, Corrals & Compost



Here are descriptions of the NRCS soil parameters:

Nitrate Leaching

This interpretation is designed to evaluate the potential for nitrate-nitrogen to be transmitted through the soil profile below the root zone by percolating water under irrigated conditions. Leaching nitrates have the potential to contaminate shallow and deep aquifers used for drinking water. The ratings are based on inherent soil and climate properties that affect nitrate leaching and do not account for management practices, such as crop rotation, rates and timing of nitrogen fertilizer applications, and management of irrigation water.

The following soil and climate factors are used in the interpretation criteria:

1. Mean annual precipitation minus potential evapotranspiration.-This factor provides an estimate of the amount of water that is available to move through the soil profile on an annual basis from precipitation. Potential evaporation is estimated from mean annual air temperature using an algorithm (developed by the National Soil Survey Center) that employs the Hamon potential evapotranspiration method.

2. Water travel time through the entire soil profile.-This factor uses the saturated hydraulic conductivity (Ksat) and thickness of each soil horizon to estimate the number of hours that would be required for a given volume of water to move through the entire soil profile. One advantage of this method for estimating the rate of water movement is that the properties and thickness of each soil horizon are accounted for instead of using an average saturated hydraulic conductivity for the entire profile. This method accounts for subtle differences between soils in texture, structure, horizon thickness, and depth to water-restricting layers.

3. Available water capacity.-This factor accounts for the cumulative amount of water available to plants that the entire soil profile can hold at field capacity to a depth of 150 cm. The more water the soil profile can hold, the less water is available for deep leaching.

4. Depth to and duration of a water table.-This factor uses a water table index based on the minimum average depth to a water table and the number of months that the water table is present during the period from April through October. The factor is used to account for the loss of nitrates to the atmosphere as nitrous oxide or nitrogen gas due to denitrification under anaerobic conditions caused by water saturation. The higher the water table and the longer its duration, the larger the quantity of nitrates that would potentially be lost to the atmosphere and therefore would not be available for deep leaching.

5. Slope gradient adjusted for hydrologic soil group.-The steeper the slope gradient, the higher the potential for surface runoff and the lower the amount of water available to move through the soil profile. The following adjustments are made to the slope gradient by hydrologic group to account for differences in potential for surface runoff:

Hydrologic group A-slope % x 0.75

Hydrologic group B-slope % x 0.85
Hydrologic group C-slope % x 0.95
Hydrologic group D-no adjustment

The ratings are both verbal and numerical. The ratings for Nitrate Leaching Potential, Irrigated Areas, are calculated as follows:

1. The Water Travel Time subrule is weighted by multiplying by 0.60.
2. The Available Water Capacity subrule is weighted by multiplying by 0.40.
3. The sum of these two weighted subrules results in a value between 0.00 and 1.00.
4. Adjustments are then made for water table depth and duration and for slope gradient adjusted for hydrologic group. The sum of the values from these subrules is subtracted from the sum in step 3 above. The maximum reduction is 0.50 for the water table index subrule and 0.30 for the slope gradient subrule.
5. A final positive adjustment is made for the Mean Annual Precipitation minus Potential Evapotranspiration subrule. The maximum addition is 0.60.

The ratings for Nitrate Leaching Potential, Nonirrigated Areas, are calculated with different weighting factors from those listed for the irrigated interpretation.

The following rating classes for Nitrate Leaching Potential, Irrigated Areas, are assigned based on the final calculation from the factors above:

Low: 0.00 to 0.25
Moderate: 0.26 to 0.50
Moderately high: 0.51 to 0.75
High: 0.76 to 1.00

The ratings indicate the potential for nitrate leaching below the root zone, based on inherent soil and climate properties and application of irrigation water. A "low" rating indicates a low potential for leaching of nitrates below the root zone. A "high" rating indicates a high potential for leaching of nitrates below the root zone. The "moderate" and "moderately high" ratings indicate intermediate potential.

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.

Application of Manure & Food Processing Waste

The application of manure and food-processing waste not only disposes of waste material but also can improve crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include saturated hydraulic conductivity (Ksat), depth to a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, soil erosion factor K, and slope are considered in estimating the likelihood that wind erosion or water erosion will transport the waste material from the application site. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste. Permanently frozen soils are unsuitable for waste treatment.

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 agricultural waste management. "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).

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Disposal of Waste Water by Irrigation

Wastewater includes municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. The effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 milligrams per liter. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 milligrams per liter. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also can improve crop production by increasing the amount of water available to crops. The ratings are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, depth to a water table, ponding, available water capacity, saturated hydraulic conductivity (Ksat), slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, depth to a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals. Permanently frozen soils are not suitable for disposal of wastewater by irrigation.

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 agricultural waste management. "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.

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Calcium Carbonate

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Cation Exchange Capacity

Cation-exchange capacity (CEC-7) is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Electrical Conductivity

Electrical conductivity (EC) is the electrolytic conductivity of an extract from saturated soil paste, expressed as decisiemens per meter at 25 degrees C. Electrical conductivity is a measure of the concentration of water-soluble salts in soils. It is used to indicate saline soils. High concentrations of neutral salts, such as sodium chloride and sodium sulfate, may interfere with the absorption of water by plants because the osmotic pressure in the soil solution is nearly as high as or higher than that in the plant cells.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

pH

Soil reaction is a measure of acidity or alkalinity. It is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion. In general, soils that are either highly alkaline or highly acid are likely to be very corrosive to steel. The most common soil laboratory measurement of pH is the 1:1 water method. A crushed soil sample is mixed with an equal amount of water, and a measurement is made of the suspension.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Available Water Capacity

Available water capacity (AWC) refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in centimeters of water per centimeter of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure, with corrections for salinity and rock fragments. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. It is not an estimate of the quantity of water actually available to plants at any given time.

Available water supply (AWS) is computed as AWC times the thickness of the soil. For

example, if AWC is 0.15 cm/cm, the available water supply for 25 centimeters of soil would be 0.15 x 25, or 3.75 centimeters of water.

For each soil layer, AWC is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Available Water Storage

Available water storage (AWS) is the total volume of water (in centimeters) that should be available to plants when the soil, inclusive of rock fragments, is at field capacity. It is commonly estimated as the amount of water held between field capacity and the wilting point, with corrections for salinity, rock fragments, and rooting depth. AWS is reported as a single value (in centimeters) of water for the specified depth of the soil. AWS is calculated as the available water capacity times the thickness of each soil horizon to a specified depth.

For each soil layer, available water capacity, used in the computation of AWS, is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For the derivation of AWS, only the representative value for available water capacity is used.

The available water storage for each map unit component is computed as described above and then aggregated to a single value for the map unit by the process described below.

A map unit typically consists of one or more "components." A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated (e.g., available water storage), the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the process is to derive a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for the map units can be generated. Aggregation is needed because map units rather than components are delineated on the soil maps.

The composition of each component in a map unit is recorded as a percentage. A composition of 60 indicates that the component typically makes up approximately 60 percent of the map unit.

For the available water storage, when a weighted average of all component values is computed, percent composition is the weighting factor.

Available Water Supply

Available water supply (AWS) is the total volume of water (in centimeters) that should be available to plants when the soil, inclusive of rock fragments, is at field capacity. It is

commonly estimated as the amount of water held between field capacity and the wilting point, with corrections for salinity, rock fragments, and rooting depth. AWS is reported as a single value (in centimeters) of water for the specified depth of the soil. AWS is calculated as the available water capacity times the thickness of each soil horizon to a specified depth.

For each soil layer, available water capacity, used in the computation of AWS, is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For the derivation of AWS, only the representative value for available water capacity is used.

The available water supply for each map unit component is computed as described above and then aggregated to a single value for the map unit by the process described below.

A map unit typically consists of one or more "components." A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated (e.g., available water supply), the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the process is to derive a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for the map units can be generated. Aggregation is needed because map units rather than components are delineated on the soil maps.

The composition of each component in a map unit is recorded as a percentage. A composition of 60 indicates that the component typically makes up approximately 60 percent of the map unit.

For the available water supply, when a weighted average of all component values is computed, percent composition is the weighting factor.

% Organic Matter

Organic matter is the plant and animal residue in the soil at various stages of decomposition. The estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms. An irregular distribution of organic carbon with depth may indicate different episodes of soil deposition or soil formation. Soils that are very high in organic matter have poor engineering properties and subside upon drying.

For each soil layer, this attribute is actually recorded as three separate values in the

database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

% Clay

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Most of the material is in one of three groups of clay minerals or a mixture of these clay minerals. The groups are kaolinite, smectite, and hydrous mica, the best known member of which is illite.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

% Sand

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the database, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

% Silt

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the database, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil

hydrologic qualities, and for soil classification

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Saturated Hydraulic Conductivity – Ksat

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

The numeric Ksat values have been grouped according to standard Ksat class limits. The classes are:

Very low: 0.00 to 0.01
Low: 0.01 to 0.1
Moderately low: 0.1 to 1.0
Moderately high: 1 to 10
High: 10 to 100
Very high: 100 to 705

Water Content – 15 Bar

Water content, 15 bar, is the amount of soil water retained at a tension of 15 bars, expressed as a volumetric percentage of the whole soil material. Water retained at 15 bars is significant in the determination of soil water-retention difference, which is used as the initial estimation of available water capacity for some soils. Water retained at 15 bars is an estimation of the wilting point.

Water content varies between soil types, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure.

For each soil layer, water content is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A

"representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Depth to Any Soil Restrictive Area

A "restrictive layer" is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers.

This theme presents the depth to any type of restrictive layer that is described for each map unit. If more than one type of restrictive layer is described for an individual soil type, the depth to the shallowest one is presented. If no restrictive layer is described in a map unit, it is represented by the "> 200" depth class.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Drainage Class

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist

chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Depth to Water Table

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Compaction Potential

This interpretation is designed to predict the potential for soil compaction from operation of ground-based equipment for forest harvesting and site preparation activities when soils are moist. Soil compaction reduces porosity and increases bulk density by reducing the interaggregate pore space.

Compacted soils are less favorable for good plant growth because of high soil bulk density and hardness, reduced pore space, and poor aeration and drainage. Root penetration and growth is decreased in compacted soils because the hardness or strength of these soils prevents the expansion of roots. Supplies of air, water, and nutrients that roots need are also less favorable when compaction decreases soil porosity and drainage.

Interpretation ratings are based on soil properties in the upper 12 inches of the profile.

Factors considered are soil texture, soil structure, and rock fragment content. Initial ratings are based on the following soil texture groups:

Low compaction potential: loamy sand, loamy fine sand, loamy coarse sand, sand, fine sand, coarse sand

Moderate compaction potential: silty clay, clay, sandy clay, sandy clay loam, sandy loams with less than 15 percent clay

High compaction potential: loam, silt, silt loam, silty clay loam, very fine sandy loam, sandy loams with 15 percent or more clay.

Ratings are reduced by one class, such as from "high" to "medium" for strong soil structure grade. Ratings are reduced by one class for rock fragment content of 35 to 60 percent by volume, and are reduced by two classes for rock fragment content of greater than 60 percent.

The ratings are both verbal and numerical. Rating class terms indicate the soil compaction potential.

A "High" rating indicates that the potential for compaction is significant. The growth rate of seedlings will be reduced following compaction. After initial compaction, this soil is still able to support standard equipment, but will continue to compact with each subsequent pass. The soil is moisture sensitive, exhibiting large changes in density with changing moisture content.

A "Medium" rating indicates that the potential for compaction is significant. The growth rate of seedlings may be reduced following compaction. After the initial compaction (i.e., the first equipment pass), this soil is able to support standard equipment with only minimal increases in soil density. The soil is intermediate between moisture insensitive and moisture sensitive.

A "Low" rating indicates that the potential for compaction is insignificant. This soil is able to support standard equipment with minimal compaction. The soil is moisture insensitive, exhibiting only small changes in density with changing moisture content.

Numerical ratings indicate the soil compaction potential The ratings are shown in decimal fractions ranging from 1.00 to 0.00. They indicate gradations between the point where compaction potential is highest (1.00) and the point at which compaction potential is lowest (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. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Soils Common to the GWMA target area:

- Burke silt loam
- Cleman sandy loam
- Esquatzel silt loam
- Finley sandy loam
- Finley silt loam
- Harwood loan
- Harwood-Burke-Wiehl silt loam
- Hezel loamy find sand
- Outlook sandy loam
- Outlook silt loam
- Roza clay loam
- Scoon silt loam
- Scooteney silt loam
- Shano silt loam
- Simcoe silt loam
- Sinloc silt loam
- Starbuck silt loam
- Starbuck-Rock outcrop
- Toppenish silt loam
- Umapine silt loam
- Warden sandy loam
- Warden silt loam
- Weirman sandy loam
- Zillah silt loam
- Zillah sandy loam

Soil Descriptions

10—Burke silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29nz
- Elevation: 650 to 1,600 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Burke and similar soils: 100 percent

- Estimates are based on observations, descriptions, and transects of the map unit.

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

11—Burke silt loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29pb
- Elevation: 650 to 1,600 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Burke and similar soils: 100 percent

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

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

12—Burke silt loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29pp
- Elevation: 650 to 1,600 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Burke and similar soils: 100 percent

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

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

18—Cleman very fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29rt
- Elevation: 400 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Cleman and similar soils: 100 percent

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

Description of Cleman

Setting

- Landform: Alluvial fans, flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 10 inches: very fine sandy loam
- H2 - 10 to 40 inches: stratified loamy fine sand to silt loam
- H3 - 40 to 60 inches: stratified sand to loamy sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

- Land capability classification (irrigated): 2e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: B
- Ecological site: LOAMY BOTTOM 6-10 PZ (R007XY402WA)
- Hydric soil rating: No

19—Cleman very fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29s5
- Elevation: 400 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Cleman and similar soils: 100 percent

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

Description of Cleman

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 10 inches: very fine sandy loam
- H2 - 10 to 40 inches: stratified loamy fine sand to silt loam
- H3 - 40 to 60 inches: stratified sand to loamy sand

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

- Land capability classification (irrigated): 2e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: B
- Ecological site: LOAMY BOTTOM 6-10 PZ (R007XY402WA)
- Hydric soil rating: No

20—Cleman very fine sandy loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29sc
- Elevation: 400 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Cleman and similar soils: 100 percent

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

Description of Cleman

Setting

- Landform: Alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 10 inches: very fine sandy loam
- H2 - 10 to 40 inches: stratified loamy fine sand to silt loam
- H3 - 40 to 60 inches: stratified sand to loamy sand

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: B
- Ecological site: LOAMY BOTTOM 6-10 PZ (R007XY402WA)
- Hydric soil rating: No

21—Cleman very fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29sd
- Elevation: 400 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches

- Mean annual air temperature: 48 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Cleman and similar soils: 100 percent

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

Description of Cleman

Setting

- Landform: Alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 10 inches: very fine sandy loam
- H2 - 10 to 40 inches: stratified loamy fine sand to silt loam
- H3 - 40 to 60 inches: stratified sand to loamy sand

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: B
- Ecological site: LOAMY BOTTOM 6-10 PZ (R007XY402WA)
- Hydric soil rating: No

32—Esquatzel silt loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29ss
- Elevation: 300 to 2,900 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 54 degrees F
- Frost-free period: 130 to 200 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Esquatzel and similar soils: 100 percent

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

Description of Esquatzel

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 17 inches: silt loam
- H2 - 17 to 60 inches: silt loam
- H3 - 60 to 64 inches: stratified fine sandy loam to silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Very high (about 12.6 inches)

Interpretive groups

- Land capability classification (irrigated): 2c
- Land capability classification (nonirrigated): 3c
- Hydrologic Soil Group: B

- Hydric soil rating: No

33—Esquatzel silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29st
- Elevation: 300 to 2,900 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 54 degrees F
- Frost-free period: 130 to 200 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Esquatzel and similar soils: 100 percent

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

Description of Esquatzel

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 17 inches: silt loam
- H2 - 17 to 60 inches: silt loam
- H3 - 60 to 64 inches: stratified fine sandy loam to silt loam

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Very high (about 12.6 inches)

Interpretive groups

- Land capability classification (irrigated): 2e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: B
- Hydric soil rating: No

34—Fiander silt loam

Map Unit Setting

- National map unit symbol: 29sv
- Elevation: 700 to 900 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 50 to 52 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Fiander, drained, and similar soils: 85 percent
- Minor components: 15 percent

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

Description of Fiander, Drained

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 2 inches: silt loam
- H2 - 2 to 25 inches: silty clay loam
- H3 - 25 to 50 inches: silt loam
- H4 - 50 to 60 inches: loamy very fine sand

Properties and qualities

- Slope: 0 to 3 percent
- Depth to restrictive feature: More than 80 inches
- Natural 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 6 to 36 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 35 percent
- Gypsum, maximum in profile: 5 percent
- Salinity, maximum in profile: Moderately saline to strongly saline (8.0 to 16.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 15.0
- Available water storage in profile: Moderate (about 8.2 inches)

Interpretive groups

- Land capability classification (irrigated): 4w
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C/D
- Ecological site: ALKALI BOTTOM 6-10 PZ (R007XY401WA)
- Hydric soil rating: Yes

Minor Components

Kittitas

- Percent of map unit: 5 percent
- Landform: Flood plains
- Hydric soil rating: Yes

Toppenish

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Fiander, undrained

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

35—Finley fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29sw

- Elevation: 300 to 1,800 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Finley and similar soils: 100 percent

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

Description of Finley

Setting

- Landform: Terraces, alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 4 inches: fine sandy loam
- H2 - 4 to 14 inches: fine sandy loam
- H3 - 14 to 30 inches: very gravelly loam
- H4 - 30 to 60 inches: extremely gravelly sand

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 3.3 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: A
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

36—Finley cobbly fine sandy loam, 0 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29sx
- Elevation: 300 to 1,500 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Finley, cobbly, and similar soils: 100 percent

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

Description of Finley, Cobbly

Setting

- Landform: Alluvial fans, terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 4 inches: cobbly fine sandy loam
- H2 - 4 to 14 inches: fine sandy loam
- H3 - 14 to 30 inches: very gravelly loam
- H4 - 30 to 60 inches: extremely gravelly loamy sand

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 3.2 inches)

Interpretive groups

- Land capability classification (irrigated): 4s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: A
- Ecological site: SANDY 6-10 PZ (R007XY501WA)
- Hydric soil rating: No

37—Finley silt loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29sy
- Elevation: 300 to 1,800 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Finley and similar soils: 100 percent

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

Description of Finley

Setting

- Landform: Terraces, alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: silt loam
- H2 - 12 to 30 inches: very gravelly loam
- H3 - 30 to 60 inches: extremely gravelly sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None

- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: A
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

38—Finley silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29sz
- Elevation: 300 to 1,800 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Finley and similar soils: 100 percent

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

Description of Finley

Setting

- Landform: Terraces, alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: silt loam
- H2 - 12 to 30 inches: very gravelly loam
- H3 - 30 to 60 inches: extremely gravelly sand

Properties and qualities

- Slope: 2 to 5 percent

- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: A
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

39—Finley silt loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29t0
- Elevation: 300 to 1,800 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Finley and similar soils: 100 percent

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

Description of Finley

Setting

- Landform: Terraces, alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: silt loam

- H2 - 12 to 30 inches: very gravelly loam
- H3 - 30 to 60 inches: extremely gravelly sand

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: A
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

40—Finley silt loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29t2
- Elevation: 300 to 1,800 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Finley and similar soils: 100 percent

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

Description of Finley

Setting

- Landform: Terraces, alluvial fans
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: silt loam
- H2 - 12 to 30 inches: very gravelly loam
- H3 - 30 to 60 inches: extremely gravelly sand

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: A
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

46—Harwood loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29t8
- Elevation: 1,200 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 50 degrees F
- Frost-free period: 135 to 150 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Harwood and similar soils: 100 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 3s
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

47—Harwood loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29t9
- Elevation: 1,200 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 50 degrees F
- Frost-free period: 135 to 150 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Harwood and similar soils: 100 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

48—Harwood loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29tb
- Elevation: 1,200 to 2,000 feet

- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 50 degrees F
- Frost-free period: 135 to 150 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Harwood and similar soils: 100 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

49—Harwood loam, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29tc
- Elevation: 1,200 to 2,000 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 50 degrees F
- Frost-free period: 135 to 150 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Harwood and similar soils: 100 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 6e

- Land capability classification (nonirrigated): 4e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

50—Harwood-Burke-Wiehl silt loams, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29tf
- Elevation: 400 to 6,200 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Harwood and similar soils: 30 percent
- Burke and similar soils: 30 percent
- Wiehl and similar soils: 20 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 3s
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

Description of Wiehl

Setting

- Landform: Terraces
- Parent material: Eolian deposits over residuum weathered from sandstone and siltstone

Typical profile

- H1 - 0 to 3 inches: silt loam
- H2 - 3 to 21 inches: silt loam
- H3 - 21 to 27 inches: gravelly silt loam
- H4 - 27 to 37 inches: weathered bedrock

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

51—Harwood-Burke-Wiehl silt loams, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29tg
- Elevation: 400 to 6,200 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days

- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Harwood and similar soils: 30 percent
- Burke and similar soils: 30 percent
- Wiehl and similar soils: 20 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

Description of Wiehl

Setting

- Landform: Terraces
- Parent material: Eolian deposits over residuum weathered from sandstone and siltstone

Typical profile

- H1 - 0 to 3 inches: silt loam
- H2 - 3 to 21 inches: silt loam
- H3 - 21 to 27 inches: gravelly silt loam
- H4 - 27 to 37 inches: weathered bedrock

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

52—Harwood-Burke-Wiehl silt loams, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29th
- Elevation: 400 to 6,200 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Harwood and similar soils: 30 percent
- Burke and similar soils: 30 percent
- Wiehl and similar soils: 20 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained

- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

Description of Wiehl

Setting

- Landform: Terraces
- Parent material: Eolian deposits over residuum weathered from sandstone and siltstone

Typical profile

- H1 - 0 to 3 inches: silt loam
- H2 - 3 to 21 inches: silt loam
- H3 - 21 to 27 inches: gravelly silt loam
- H4 - 27 to 37 inches: weathered bedrock

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

53—Harwood-Burke-Wiehl silt loams, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29tj
- Elevation: 400 to 6,200 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Harwood and similar soils: 30 percent
- Burke and similar soils: 30 percent
- Wiehl and similar soils: 20 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained

- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 4e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 6e

- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

Description of Wiehl

Setting

- Landform: Terraces
- Parent material: Eolian deposits over residuum weathered from sandstone and siltstone

Typical profile

- H1 - 0 to 3 inches: silt loam
- H2 - 3 to 21 inches: silt loam
- H3 - 21 to 27 inches: gravelly silt loam
- H4 - 27 to 37 inches: weathered bedrock

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

54—Harwood-Burke-Wiehl silt loams, 30 to 60 percent slopes

Map Unit Setting

- National map unit symbol: 29tk

- Elevation: 400 to 6,200 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 54 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Harwood and similar soils: 30 percent
- Burke and similar soils: 30 percent
- Wiehl and similar soils: 20 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 30 to 60 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 7e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)

- Hydric soil rating: No

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 30 to 40 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 15 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

Description of Wiehl

Setting

- Landform: Terraces
- Parent material: Eolian deposits over residuum weathered from sandstone and siltstone

Typical profile

- H1 - 0 to 3 inches: silt loam

- H2 - 3 to 21 inches: silt loam
- H3 - 21 to 27 inches: gravelly silt loam
- H4 - 27 to 37 inches: weathered bedrock

Properties and qualities

- Slope: 30 to 60 percent
- Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 7e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

55—Harwood-Burke-Wiehl very stony silt loams, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29tl
- Elevation: 1,280 to 2,460 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 135 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Harwood and similar soils: 30 percent
- Burke and similar soils: 30 percent
- Wiehl and similar soils: 20 percent

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

Description of Harwood

Setting

- Landform: Terraces
- Parent material: Loess and old alluvium

Typical profile

- H1 - 0 to 8 inches: loam
- H2 - 8 to 26 inches: loam
- H3 - 26 to 30 inches: gravelly loam
- H4 - 30 to 34 inches: cemented material

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

Description of Burke

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 25 inches: silt loam
- H3 - 25 to 29 inches: cemented material

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to duripan
- Natural drainage class: Well drained
- 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
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 5.0 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

Description of Wiehl

Setting

- Landform: Terraces
- Parent material: Eolian deposits over residuum weathered from sandstone and siltstone

Typical profile

- H1 - 0 to 3 inches: very stony silt loam
- H2 - 3 to 21 inches: silt loam
- H3 - 21 to 27 inches: gravelly silt loam
- H4 - 27 to 37 inches: weathered bedrock

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

57—Hezel loamy fine sand, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29tn
- Elevation: 400 to 2,500 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 52 to 54 degrees F
- Frost-free period: 150 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Hezel and similar soils: 100 percent

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

Description of Hezel

Setting

- Landform: Terraces
- Parent material: Eolian sands over silty lacustrine deposits

Typical profile

- H1 - 0 to 6 inches: loamy fine sand
- H2 - 6 to 22 inches: loamy fine sand
- H3 - 22 to 60 inches: stratified fine sandy loam to silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

58—Hezel loamy fine sand, 2 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29tp
- Elevation: 400 to 2,500 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 52 to 54 degrees F
- Frost-free period: 150 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Hezel and similar soils: 100 percent

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

Description of Hezel

Setting

- Landform: Terraces
- Parent material: Eolian sands over silty lacustrine deposits

Typical profile

- H1 - 0 to 6 inches: loamy fine sand
- H2 - 6 to 22 inches: loamy fine sand
- H3 - 22 to 60 inches: stratified fine sandy loam to silt loam

Properties and qualities

- Slope: 2 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Ecological site: SANDS 6-10 PZ (R007XY502WA)
- Hydric soil rating: No

91—Outlook fine sandy loam

Map Unit Setting

- National map unit symbol: 29vw
- Elevation: 300 to 2,000 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 52 degrees F
- Frost-free period: 130 to 160 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Outlook, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Outlook, Drained

Setting

- Landform: Flood plains

- Parent material: Alluvium

Typical profile

- H1 - 0 to 8 inches: fine sandy loam
- H2 - 8 to 60 inches: silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 12 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 25 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 5.0
- Available water storage in profile: High (about 10.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3w
- Land capability classification (nonirrigated): 4s
- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Sinloc

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Outlook, undrained

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

92—Outlook silt loam

Map Unit Setting

- National map unit symbol: 29vx
- Elevation: 300 to 2,000 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 50 to 52 degrees F
- Frost-free period: 130 to 160 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Outlook, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Outlook, Drained

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 8 inches: fine sandy loam
- H2 - 8 to 60 inches: silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 12 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 25 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 5.0
- Available water storage in profile: High (about 10.5 inches)

Interpretive groups

- Land capability classification (irrigated): 3w
- Land capability classification (nonirrigated): 4s

- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Sinloc

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Outlook, undrained

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

95—Quincy loamy fine sand, 0 to 10 percent slopes

Map Unit Setting

- National map unit symbol: 29w0
- Elevation: 200 to 4,500 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 46 to 54 degrees F
- Frost-free period: 100 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Quincy and similar soils: 100 percent

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

Description of Quincy

Setting

- Landform: Terraces
- Parent material: Eolian sands

Typical profile

- H1 - 0 to 20 inches: loamy fine sand
- H2 - 20 to 60 inches: sand

Properties and qualities

- Slope: 0 to 10 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 3 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 4e
- Hydrologic Soil Group: A
- Hydric soil rating: No

111—Roza clay loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29pd
- Elevation: 1,100 to 4,600 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 110 to 165 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Roza and similar soils: 100 percent

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

Description of Roza

Setting

- Parent material: Alluvium and/or residuum derived from fine textured sediments

Typical profile

- H1 - 0 to 2 inches: clay loam
- H2 - 2 to 19 inches: silty clay
- H3 - 19 to 60 inches: clay loam

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: 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: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: CALCAREOUS LOAM 10-16" pz (R008XY701WA)
- Hydric soil rating: No

112—Roza clay loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29pf
- Elevation: 1,100 to 4,600 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 110 to 165 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Roza and similar soils: 100 percent

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

Description of Roza

Setting

- Parent material: Alluvium and/or residuum derived from fine textured sediments

Typical profile

- H1 - 0 to 2 inches: clay loam
- H2 - 2 to 19 inches: silty clay
- H3 - 19 to 60 inches: clay loam

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: 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: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: CALCAREOUS LOAM 10-16" pz (R008XY701WA)
- Hydric soil rating: No

113—Roza clay loam, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29pg
- Elevation: 1,100 to 4,600 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 110 to 165 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Roza and similar soils: 100 percent

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

Description of Roza

Setting

- Parent material: Alluvium and/or residuum derived from fine textured sediments

Typical profile

- H1 - 0 to 2 inches: clay loam
- H2 - 2 to 19 inches: silty clay
- H3 - 19 to 60 inches: clay loam

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: 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: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 4e
- Hydrologic Soil Group: C
- Ecological site: CALCAREOUS LOAM 10-16" pz (R008XY701WA)
- Hydric soil rating: No

114—Roza clay loam, 30 to 60 percent slopes

Map Unit Setting

- National map unit symbol: 29ph
- Elevation: 1,100 to 4,600 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 110 to 165 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Roza and similar soils: 100 percent

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

Description of Roza

Setting

- Parent material: Alluvium and/or residuum derived from fine textured sediments

Typical profile

- H1 - 0 to 2 inches: clay loam
- H2 - 2 to 19 inches: silty clay
- H3 - 19 to 60 inches: clay loam

Properties and qualities

- Slope: 30 to 60 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: 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: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 7e
- Hydrologic Soil Group: C
- Ecological site: CALCAREOUS LOAM 10-16" pz (R008XY701WA)
- Hydric soil rating: No

120—Scoon silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29pq
- Elevation: 1,000 to 4,900 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 100 to 210 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Scoon and similar soils: 100 percent
- Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scoon

Setting

- Landform: Alluvial fans, terraces
- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 16 inches: gravelly very fine sandy loam
- H3 - 16 to 60 inches: cemented material

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: 10 to 20 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 5 percent
- Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

- Land capability classification (irrigated): 6s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

Collapse Report — Map Unit Description

Yakima County Area, Washington

121—Scoon silt loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29pr
- Elevation: 1,000 to 4,900 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 100 to 210 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Scoon and similar soils: 100 percent

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

Description of Scoon

Setting

- Landform: Alluvial fans, terraces
- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 16 inches: gravelly very fine sandy loam
- H3 - 16 to 60 inches: cemented material

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: 10 to 20 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 5 percent
- Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

- Land capability classification (irrigated): 6s
- Land capability classification (nonirrigated): 6s

- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

122—Scoon silt loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29ps
- Elevation: 1,000 to 4,900 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 100 to 210 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Scoon and similar soils: 100 percent

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

Description of Scoon

Setting

- Landform: Alluvial fans, terraces
- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 16 inches: gravelly very fine sandy loam
- H3 - 16 to 60 inches: cemented material

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: 10 to 20 inches to duripan
- Natural drainage class: Well drained
- 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

- Calcium carbonate, maximum in profile: 5 percent
- Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

- Land capability classification (irrigated): 6s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No


Collapse Report — Map Unit Description

Yakima County Area, Washington

123—Scoon silt loam, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29pt
- Elevation: 1,000 to 4,900 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 100 to 210 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Scoon and similar soils: 100 percent

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

Description of Scoon

Setting

- Landform: Alluvial fans, terraces
- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 16 inches: gravelly very fine sandy loam

- H3 - 16 to 60 inches: cemented material

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 10 to 20 inches to duripan
- Natural drainage class: Well drained
- 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
- Calcium carbonate, maximum in profile: 5 percent
- Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

- Land capability classification (irrigated): 6s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

124—Scooteney silt loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29pv
- Elevation: 400 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 170 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Scooteney and similar soils: 100 percent

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

Description of Scooteney

Setting

- Landform: Terraces

- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 22 inches: silt loam
- H3 - 22 to 33 inches: gravelly fine sandy loam
- H4 - 33 to 60 inches: very gravelly fine sandy loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 10 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

- Land capability classification (irrigated): 2s
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

125—Scooteney silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29pw
- Elevation: 400 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 170 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Scooteney and similar soils: 100 percent

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

Description of Scooteney

Setting

- Landform: Terraces
- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 22 inches: silt loam
- H3 - 22 to 33 inches: gravelly fine sandy loam
- H4 - 33 to 60 inches: very gravelly fine sandy loam

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 10 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

- Land capability classification (irrigated): 2e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

126—Scooteney silt loam, 5 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29px
- Elevation: 400 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches

- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 170 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Scooteney and similar soils: 100 percent

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

Description of Scooteney

Setting

- Landform: Terraces
- Parent material: Loess

Typical profile

- H1 - 0 to 6 inches: silt loam
- H2 - 6 to 22 inches: silt loam
- H3 - 22 to 33 inches: gravelly fine sandy loam
- H4 - 33 to 60 inches: very gravelly fine sandy loam

Properties and qualities

- Slope: 5 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 10 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

127—Scooteney cobbly silt loam, 0 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29py
- Elevation: 400 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 170 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Scooteney, cobbly, and similar soils: 100 percent

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

Description of Scooteney, Cobbly

Setting

- Landform: Terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 6 inches: cobbly silt loam
- H2 - 6 to 22 inches: silt loam
- H3 - 22 to 33 inches: gravelly fine sandy loam
- H4 - 33 to 60 inches: very gravelly sandy loam

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 10 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: B
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

133—Shano silt loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29q5
- Elevation: 500 to 2,300 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 46 to 54 degrees F
- Frost-free period: 125 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Shano and similar soils: 100 percent

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

Description of Shano

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 4 inches: silt loam
- H2 - 4 to 30 inches: silt loam
- H3 - 30 to 60 inches: silt loam

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None

- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

134—Shano silt loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29q6
- Elevation: 500 to 2,300 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 46 to 54 degrees F
- Frost-free period: 125 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Shano and similar soils: 100 percent

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

Description of Shano

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 4 inches: silt loam
- H2 - 4 to 30 inches: silt loam
- H3 - 30 to 60 inches: silt loam

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

135—Shano silt loam, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29q7
- Elevation: 500 to 2,300 feet
- Mean annual precipitation: 6 to 10 inches
- Mean annual air temperature: 46 to 54 degrees F
- Frost-free period: 125 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Shano and similar soils: 100 percent

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

Description of Shano

Setting

- Landform: Hillslopes
- Parent material: Loess

Typical profile

- H1 - 0 to 4 inches: silt loam
- H2 - 4 to 30 inches: silt loam
- H3 - 30 to 60 inches: silt loam

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

136—Simcoe silt loam, 5 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29q8
- Elevation: 1,280 to 2,850 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 degrees F
- Frost-free period: 120 to 170 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Simcoe and similar soils: 100 percent

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

Description of Simcoe

Setting

- Parent material: Loess and small amount volcanic ash and residuum weathered from basalt

Typical profile

- H1 - 0 to 8 inches: silt loam
- H2 - 8 to 37 inches: silty clay loam
- H3 - 37 to 41 inches: unweathered bedrock

Properties and qualities

- Slope: 5 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to lithic bedrock
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

136—Simcoe silt loam, 5 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29q8
- Elevation: 1,280 to 2,850 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 degrees F
- Frost-free period: 120 to 170 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Simcoe and similar soils: 100 percent

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

Description of Simcoe

Setting

- Parent material: Loess and small amount volcanic ash and residuum weathered from basalt

Typical profile

- H1 - 0 to 8 inches: silt loam
- H2 - 8 to 37 inches: silty clay loam
- H3 - 37 to 41 inches: unweathered bedrock

Properties and qualities

- Slope: 5 to 15 percent
- Depth to restrictive feature: 20 to 40 inches to lithic bedrock
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 3e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

137—Simcoe silt loam, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29q9
- Elevation: 1,180 to 3,440 feet
- Mean annual precipitation: 8 to 12 inches
- Mean annual air temperature: 48 degrees F
- Frost-free period: 120 to 170 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Simcoe and similar soils: 100 percent
- Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simcoe

Setting

- Parent material: Loess and small amount volcanic ash and residuum weathered from basalt

Typical profile

- H1 - 0 to 8 inches: silt loam
- H2 - 8 to 37 inches: silty clay loam
- H3 - 37 to 41 inches: unweathered bedrock

Properties and qualities

- Slope: 15 to 30 percent
- Depth to restrictive feature: 20 to 40 inches to lithic bedrock
- Natural drainage class: Well drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: Moderate (about 6.8 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 4e
- Hydrologic Soil Group: C
- Ecological site: LOAMY 10-16 PZ (R008XY102WA)
- Hydric soil rating: No

138—Sinloc fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29qb
- Elevation: 500 to 1,200 feet

- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 136 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Sinloc, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Sinloc, Drained

Setting

- Landform: Terraces
- Parent material: Lacustrine deposits with a mantle of loess

Typical profile

- H1 - 0 to 3 inches: fine sandy loam
- H2 - 3 to 15 inches: silt loam
- H3 - 15 to 45 inches: silt loam
- H4 - 45 to 60 inches: loamy fine sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 12 to 42 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Gypsum, maximum in profile: 5 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 10.0
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3w
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C

- Hydric soil rating: Yes

Minor Components

Outlook

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

Sinloc, undrained

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

139—Sinloc silt loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29qc
- Elevation: 500 to 1,200 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 136 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Sinloc, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Sinloc, Drained

Setting

- Landform: Terraces
- Parent material: Lacustrine deposits with a mantle of loess

Typical profile

- H1 - 0 to 3 inches: silt loam
- H2 - 3 to 15 inches: silt loam

- H3 - 15 to 45 inches: silt loam
- H4 - 45 to 60 inches: loamy fine sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 12 to 42 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Gypsum, maximum in profile: 5 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 10.0
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3w
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Outlook

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

Sinloc, undrained

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

140—Sinloc silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29qf

- Elevation: 500 to 1,200 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 136 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Sinloc, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Sinloc, Drained

Setting

- Landform: Terraces
- Parent material: Lacustrine deposits with a mantle of loess

Typical profile

- H1 - 0 to 3 inches: silt loam
- H2 - 3 to 15 inches: silt loam
- H3 - 15 to 45 inches: silt loam
- H4 - 45 to 60 inches: loamy fine sand

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 12 to 42 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Gypsum, maximum in profile: 5 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 10.0
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3w
- Land capability classification (nonirrigated): 6s

- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Outlook

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

Sinloc, undrained

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

141—Sinloc silt loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29qg
- Elevation: 500 to 1,200 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 136 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Sinloc, drained, and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Sinloc, Drained

Setting

- Landform: Terraces
- Parent material: Lacustrine deposits with a mantle of loess

Typical profile

- H1 - 0 to 3 inches: silt loam

- H2 - 3 to 15 inches: silt loam
- H3 - 15 to 45 inches: silt loam
- H4 - 45 to 60 inches: loamy fine sand

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 12 to 42 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 20 percent
- Gypsum, maximum in profile: 5 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 10.0
- Available water storage in profile: High (about 9.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6w
- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Sinloc, undrained

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

142—Starbuck silt loam, 2 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29qh
- Elevation: 400 to 2,700 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 115 to 210 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Starbuck and similar soils: 100 percent
- Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Starbuck

Setting

- Landform: Structural benches, hillslopes
- Parent material: Loess and residuum derived from basalt

Typical profile

- H1 - 0 to 9 inches: silt loam
- H2 - 9 to 16 inches: gravelly silt loam
- H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

- Slope: 2 to 15 percent
- Depth to restrictive feature: 12 to 20 inches to lithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.8 inches)

Interpretive groups

- Land capability classification (irrigated): 6s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

143—Starbuck-Rock outcrop complex, 0 to 45 percent slopes

Map Unit Setting

- National map unit symbol: 29qj
- Elevation: 400 to 2,700 feet

- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 115 to 210 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Starbuck and similar soils: 50 percent
- Rock outcrop: 25 percent

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

Description of Starbuck

Setting

- Landform: Hillslopes, structural benches
- Parent material: Loess and residuum derived from basalt

Typical profile

- H1 - 0 to 9 inches: silt loam
- H2 - 9 to 16 inches: gravelly silt loam
- H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

- Slope: 0 to 45 percent
- Depth to restrictive feature: 12 to 20 inches to lithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.8 inches)

Interpretive groups

- Land capability classification (irrigated): 7e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

Description of Rock Outcrop

Properties and qualities

- Slope: 0 to 45 percent
- Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

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

144—Starbuck-Rock outcrop complex, 45 to 60 percent slopes

Map Unit Setting

- National map unit symbol: 29qk
- Elevation: 400 to 2,700 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 115 to 210 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Starbuck and similar soils: 45 percent
- Rock outcrop: 35 percent

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

Description of Starbuck

Setting

- Landform: Hillslopes, structural benches
- Parent material: Loess and residuum derived from basalt

Typical profile

- H1 - 0 to 9 inches: silt loam
- H2 - 9 to 16 inches: gravelly silt loam
- H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

- Slope: 45 to 60 percent

- Depth to restrictive feature: 12 to 20 inches to lithic bedrock
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.8 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 7e
- Hydrologic Soil Group: D
- Ecological site: STONY 6-10 PZ (R007XY202WA)
- Hydric soil rating: No

Description of Rock Outcrop

Properties and qualities

- Slope: 45 to 60 percent
- Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

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

163—Toppenish silt loam

Map Unit Setting

- National map unit symbol: 29r7
- Elevation: 700 to 1,800 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 50 to 52 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Prime farmland if protected from flooding or not frequently flooded during the growing season

Map Unit Composition

- Toppenish, drained, and similar soils: 80 percent

- Minor components: 20 percent

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

Description of Toppenish, Drained

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 4 inches: silt loam
- H2 - 4 to 50 inches: silt loam, silty clay loam
- H2 - 4 to 50 inches: extremely gravelly sand
- H3 - 50 to 60 inches:

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
- Natural drainage class: Somewhat poorly drained
- Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
- Depth to water table: About 24 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 10.0
- Available water storage in profile: Very high (about 12.8 inches)

Interpretive groups

- Land capability classification (irrigated): 2w
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Wenas

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Track

- Percent of map unit: 5 percent
- Landform: Flood plains
- Hydric soil rating: Yes

Fiander

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Kittitas

- Percent of map unit: 3 percent
- Landform: Flood plains
- Hydric soil rating: Yes

Toppenish, undrained

- Percent of map unit: 2 percent
- Landform: Depressions
- Hydric soil rating: Yes

168—Umapine silt loam, 0 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29rd
- Elevation: 250 to 3,500 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 110 to 195 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Umapine and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Umapine

Setting

- Landform: Flood plains, terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 60 inches: silt loam

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 6 to 42 inches
- Frequency of flooding: Occasional
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 20.0
- Available water storage in profile: High (about 11.9 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Ecological site: ALKALI BOTTOM 6-10 PZ (R007XY401WA)
- Hydric soil rating: No

Minor Components

Toppenish

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

169—Umapine silt loam, drained, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29rf
- Elevation: 250 to 3,500 feet

- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 130 to 195 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Umapine, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Umapine, Drained

Setting

- Landform: Flood plains, terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 60 inches: silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 24 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 20.0
- Available water storage in profile: High (about 11.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Hydric soil rating: No

Minor Components

Toppenish

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Kittitas

- Percent of map unit: 5 percent
- Landform: Flood plains
- Hydric soil rating: Yes

170—Umapine silt loam, drained, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29rh
- Elevation: 250 to 3,500 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 130 to 195 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Umapine, drained, and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Umapine, Drained

Setting

- Landform: Flood plains, terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 7 inches: silt loam
- H2 - 7 to 60 inches: silt loam

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat poorly drained
- 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: About 24 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
- Sodium adsorption ratio, maximum in profile: 20.0
- Available water storage in profile: High (about 11.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: C
- Hydric soil rating: No

Minor Components

Toppenish

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

171—Wanser loamy fine sand

Map Unit Setting

- National map unit symbol: 29rj
- Elevation: 300 to 1,200 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 120 to 190 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Wanser, drained, and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Wanser, Drained

Setting

- Landform: Terraces
- Parent material: Sandy alluvium and eolian sands

Typical profile

- H1 - 0 to 6 inches: loamy fine sand
- H2 - 6 to 60 inches: sand, fine sand, loamy fine sand
- H2 - 6 to 60 inches:
- H2 - 6 to 60 inches:

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Poorly drained
- Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
- Depth to water table: About 42 to 60 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
- Available water storage in profile: Very high (about 13.6 inches)

Interpretive groups

- Land capability classification (irrigated): 3s
- Land capability classification (nonirrigated): 6s
- Hydrologic Soil Group: A
- Hydric soil rating: Yes

Minor Components

Wanser, undrained

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

172—Warden fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29rk
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: fine sandy loam
- H2 - 5 to 19 inches: very fine sandy loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 2e

- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: SANDY 6-10 PZ (R007XY501WA)
- Hydric soil rating: No

173—Warden fine sandy loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29rl
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Warden and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: fine sandy loam
- H2 - 5 to 19 inches: very fine sandy loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None

- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 2e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: SANDY 6-10 PZ (R007XY501WA)
- Hydric soil rating: No

Minor Components

Outlook

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

174—Warden fine sandy loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29rm
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: fine sandy loam
- H2 - 5 to 19 inches: very fine sandy loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 3e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: SANDY 6-10 PZ (R007XY501WA)
- Hydric soil rating: No

175—Warden fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29rn
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: fine sandy loam
- H2 - 5 to 19 inches: very fine sandy loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 30 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.4 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: SANDY 6-10 PZ (R007XY501WA)
- Hydric soil rating: No

176—Warden silt loam, 0 to 2 percent slopes

Map Unit Setting

- National map unit symbol: 29rp
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Prime farmland if irrigated

Map Unit Composition

- Warden and similar soils: 100 percent
- Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: silt loam
- H2 - 5 to 19 inches: silt loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.7 inches)

Interpretive groups

- Land capability classification (irrigated): 2c
- Land capability classification (nonirrigated): 6c
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

177—Warden silt loam, 2 to 5 percent slopes

Map Unit Setting

- National map unit symbol: 29rq
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: silt loam
- H2 - 5 to 19 inches: silt loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 2 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.7 inches)

Interpretive groups

- Land capability classification (irrigated): 2e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

178—Warden silt loam, 5 to 8 percent slopes

Map Unit Setting

- National map unit symbol: 29rr
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of statewide importance

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: silt loam
- H2 - 5 to 19 inches: silt loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 5 to 8 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.7 inches)

Interpretive groups

- Land capability classification (irrigated): 3e

- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

179—Warden silt loam, 8 to 15 percent slopes

Map Unit Setting

- National map unit symbol: 29rs
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: silt loam
- H2 - 5 to 19 inches: silt loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 8 to 15 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None

- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.7 inches)

Interpretive groups

- Land capability classification (irrigated): 4e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

180—Warden silt loam, 15 to 30 percent slopes

Map Unit Setting

- National map unit symbol: 29rv
- Elevation: 600 to 1,300 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 135 to 200 days
- Farmland classification: Farmland of unique importance

Map Unit Composition

- Warden and similar soils: 100 percent

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

Description of Warden

Setting

- Landform: Terraces
- Parent material: Loess over lacustrine deposits

Typical profile

- H1 - 0 to 5 inches: silt loam
- H2 - 5 to 19 inches: silt loam
- H3 - 19 to 60 inches: stratified very fine sandy loam to silt loam

Properties and qualities

- Slope: 15 to 30 percent

- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Well drained
- 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: None
- Frequency of ponding: None
- Calcium carbonate, maximum in profile: 5 percent
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: High (about 11.7 inches)

Interpretive groups

- Land capability classification (irrigated): 6e
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: B
- Ecological site: LOAMY 6-10 PZ (R007XY102WA)
- Hydric soil rating: No

181—Weirman sandy loam, channeled

Map Unit Setting

- National map unit symbol: 29rw
- Elevation: 400 to 2,200 feet
- Mean annual precipitation: 6 to 14 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Weirman and similar soils: 100 percent

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

Description of Weirman

Setting

- Landform: Terraces, flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 8 inches: sandy loam
- H2 - 8 to 21 inches: loamy fine sand
- H3 - 21 to 60 inches: very gravelly loamy sand

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: About 36 to 60 inches
- Frequency of flooding: Frequent
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 4w
- Hydrologic Soil Group: A
- Ecological site: LOAMY BOTTOM 6-10 PZ (R007XY402WA)
- Hydric soil rating: Yes

182—Weirman fine sandy loam

Map Unit Setting

- National map unit symbol: 29rx
- Elevation: 400 to 2,500 feet
- Mean annual precipitation: 7 to 14 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Weirman and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Weirman

Setting

- Landform: Flood plains, terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 8 inches: fine sandy loam
- H2 - 8 to 21 inches: loamy fine sand
- H3 - 21 to 60 inches: very gravelly loamy sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4s
- Land capability classification (nonirrigated): 4s
- Hydrologic Soil Group: A
- Hydric soil rating: No

Minor Components

Zillah

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

183—Weirman gravelly fine sandy loam

Map Unit Setting

- National map unit symbol: 29ry
- Elevation: 400 to 2,500 feet
- Mean annual precipitation: 7 to 14 inches
- Mean annual air temperature: 48 to 50 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Weirman and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Weirman

Setting

- Landform: Flood plains, terraces
- Parent material: Alluvium

Typical profile

- H1 - 0 to 8 inches: gravelly fine sandy loam
- H2 - 8 to 21 inches: loamy fine sand
- H3 - 21 to 60 inches: very gravelly loamy sand

Properties and qualities

- Slope: 0 to 5 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: More than 80 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4s
- Land capability classification (nonirrigated): 4s
- Hydrologic Soil Group: A
- Hydric soil rating: No

Minor Components

Zillah

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

184—Weirman fine sandy loam, wet

Map Unit Setting

- National map unit symbol: 29rz
- Elevation: 400 to 2,500 feet
- Mean annual precipitation: 7 to 14 inches
- Mean annual air temperature: 50 to 52 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Weirman and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Weirman

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 8 inches: fine sandy loam
- H2 - 8 to 21 inches: loamy fine sand
- H3 - 21 to 60 inches: very gravelly loamy sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: More than 80 inches
- Natural drainage class: Somewhat excessively drained
- Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
- Depth to water table: About 0 to 24 inches
- Frequency of flooding: Occasional
- Frequency of ponding: None
- Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

- Land capability classification (irrigated): 4w
- Land capability classification (nonirrigated): 6w
- Hydrologic Soil Group: A/D

- Hydric soil rating: No

Minor Components

Zillah

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

191—Zillah sandy loam

Map Unit Setting

- National map unit symbol: 29s7
- Elevation: 600 to 1,000 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 46 to 50 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

- Zillah, drained, and similar soils: 90 percent
- Minor components: 10 percent

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

Description of Zillah, Drained

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: sandy loam
- H2 - 12 to 42 inches: silt loam
- H3 - 42 to 60 inches: loamy sand

Properties and qualities

- Slope: 0 to 2 percent

- Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
- Natural drainage class: Somewhat poorly drained
- 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: About 24 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

- Land capability classification (irrigated): 2w
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Hydric soil rating: Yes

Minor Components

Toppenish

- Percent of map unit: 5 percent
- Landform: Depressions
- Hydric soil rating: Yes

Weirman

- Percent of map unit: 3 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes

Zillah

- Percent of map unit: 2 percent
- Landform: Alluvial cones
- Hydric soil rating: No

192—Zillah silt loam

Map Unit Setting

- National map unit symbol: 29s8
- Elevation: 600 to 1,000 feet
- Mean annual precipitation: 6 to 9 inches
- Mean annual air temperature: 46 to 50 degrees F

- Frost-free period: 130 to 180 days
- Farmland classification: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

- Zillah and similar soils: 100 percent

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

Description of Zillah

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: silt loam
- H2 - 12 to 42 inches: silt loam
- H3 - 42 to 60 inches: loamy sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification
- Natural drainage class: Somewhat poorly drained
- 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: About 24 to 48 inches
- Frequency of flooding: None
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

- Land capability classification (irrigated): 2w
- Land capability classification (nonirrigated): 6e
- Hydrologic Soil Group: C
- Hydric soil rating: No

Minor Components

Toppenish

- Percent of map unit:
- Landform: Depressions
- Hydric soil rating: Yes

Weirman

- Percent of map unit:
- Landform: Alluvial cones
- Hydric soil rating: Yes

193—Zillah silt loam, channeled

Map Unit Setting

- National map unit symbol: 29s9
- Elevation: 600 to 1,500 feet
- Mean annual precipitation: 6 to 12 inches
- Mean annual air temperature: 48 to 52 degrees F
- Frost-free period: 130 to 180 days
- Farmland classification: Not prime farmland

Map Unit Composition

- Zillah and similar soils: 95 percent
- Minor components: 5 percent

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

Description of Zillah

Setting

- Landform: Flood plains
- Parent material: Alluvium

Typical profile

- H1 - 0 to 12 inches: silt loam
- H2 - 12 to 42 inches: silt loam
- H3 - 42 to 60 inches: loamy sand

Properties and qualities

- Slope: 0 to 2 percent
- Depth to restrictive feature: 40 to 60 inches to strongly contrasting textural stratification

- Natural drainage class: Somewhat poorly drained
- 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: About 0 to 12 inches
- Frequency of flooding: Frequent
- Frequency of ponding: None
- Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
- Available water storage in profile: Moderate (about 8.4 inches)

Interpretive groups

- Land capability classification (irrigated): None specified
- Land capability classification (nonirrigated): 5w
- Hydrologic Soil Group: B/D
- Ecological site: LOAMY BOTTOM 10-16 PZ (R008XY402WA)
- Hydric soil rating: Yes

Minor Components

Weirman

- Percent of map unit: 5 percent
- Landform: Alluvial cones
- Hydric soil rating: Yes