Part 627 – Legend Development and Data Collection

Subpart B – Exhibits

627.10 Miscellaneous Areas

Miscellaneous areas have essentially no soil or are bodies of soil that are heavily disturbed. They can result from active erosion and deposition, flooding and ponding, unfavorable edaphic conditions, or human activities. Some miscellaneous areas can be made productive, but only after major reclamation efforts. The paragraphs below discuss the 20 miscellaneous areas that are approved for use as component names. No other miscellaneous area names are used. See section 627.4P(2) for the process to revise the list of areas. Phase terms are not populated in the component name column of the database. Map unit names can consist of the concatenated miscellaneous area name and the local phase term (e.g., “Water, saline”). Local phase terms are developed as needed and have no finite limit or national approval process.

Badland is moderately steep to very steep barren land that is dissected by many intermittent drainage channels. Ordinarily, the areas are not stony. Badland is most common in semiarid and arid regions where streams and surface runoff have cut into soft bedrock such as shale. Local relief generally ranges from 10 to 200 meters in height. Potential runoff is very high and erosion is active.

Beaches are sandy, gravelly, or cobbly shores that are washed and rewashed by waves. The areas may be partly covered with water during high tides or storms.

Chutes are elongated areas on steep mountain slopes. The vegetation has been removed by avalanche or mass movement processes. Chutes consist of exposed bedrock, rock fragments, and large woody debris. Their slopes are parallel to the slope of the mountain and their lengths are at least ten times their widths.

Cinder land is composed of loose cinders and other scoriaceous tephra. The water-holding capacity of the tephra is very low and the trafficability is poor. Cinder land is commonly associated with cinder cone volcanoes, but not all cinder land occurs on the flanks of volcanic hills or mountains.

Dams are artificial structures, oriented across a watercourse or natural drainage area, for the purpose of impounding or diverting water.

Dumps are areas of smoothed or uneven accumulations or piles of waste rock and general refuse. Some dumps that are closely associated with pits are mapped as a complex map unit of dumps and pits.

Dune land consists of sand in ridges and intervening troughs that shift with the wind.

Glaciers are large masses of ice that formed, at least in part, on land by the compaction and recrystallization of snow. They may be moving slowly downslope or outward in all directions because of the stress of their own weight, they may be retreating, or they may be stagnant. Rocks and some earthy material may be on the surface of or imbedded within the ice. Permanent snowfields are associated with glaciers in some regions.

Gullied land consists of areas where erosion has cut a network of V-shaped or U-shaped channels. The areas resemble miniature badlands. Generally, gullies are so deep that extensive reshaping is necessary.
for most uses. Small areas can be shown by spot symbols. Phases that indicate the kind of material remaining may be useful for some areas.

Lava flows are areas covered with barren lava. In most humid regions, the flows are of Holocene age, but in arid and very cold regions they may be older. Some flows have sharp, jagged surfaces, crevices, and angular blocks that are characteristic of slow-moving viscous lava. The Hawaiian term for a basaltic lava flow with these features is named “aa.” Other lava flows are relatively smooth and have a ropy, glazed surface due to hotter eruption temperatures, lower viscosity, and rapid flow rates. The Hawaiian term for this form of lava flow is “pahoehoe.” A little earthy material, ash, cinders, or accumulations of fresh organic material may be in a few fractures and sheltered pockets, but the flows are virtually devoid of soil. Lava flows have no vegetation other than lichens or other plant life growing in small pockets.

Mined land is areas which are significantly altered by mining activities. Soil material and rock has been moved into, out of, or within the areas designated. Because access to mined land may be limited by permissions or hazardous materials, identification of soil components can be difficult or impossible. Mined land may also have associated small excavations which could be correlated and delineated as pits if needed.

Oil-waste land consists of areas where liquid oily wastes, principally of salt water and oil, have accumulated. It includes slush pits and adjacent areas that are affected by the liquid wastes. The land is barren, although some of it can be reclaimed at high cost.

Pits are open excavations from which soil and commonly underlying material have been removed, exposing either rock or other material. Common kinds of pits are those that result from mining, gravel operations, and quarries. Pits are often closely associated with dumps.

Playas are barren flats in closed basins in arid regions. The largest playas occupy the dry beds of ancient, pluvial lakes. The sediments in playas are mainly fine-grained lacustrine deposits that accumulate from silt and clay particles settling in still water. Many playas are subject to removal of sediments by wind action and are a local source of fine particulate matter. Many playas are saline, sodic, or both and may have mineral crusts of soluble salts. Some nearly level playas are subject to intermittent ponding following periods of heavy precipitation, snowmelt, or both. The water table may be near the surface at times, or it may remain at depth.

Riverwash is unstabilized sandy, silty, clayey, or gravelly sediment that is flooded, washed, and reworked frequently by rivers or streams that little or no vegetation can become established. The recent deposition of fresh alluvium precludes soil development.

Rock outcrop consists of exposures of barren bedrock, other than lava flows, chutes, and rock-lined pits. Some areas are large and are only broken by small areas of soil. Most rock outcrops are hard rock, but some are soft rock such as thin beds of weakly cemented shale interbedded with thick beds of strongly cemented sandstone.

Rubble land consists of areas of cobbles, flagstones, stones, and boulders in unstable deposits of sufficient thickness to significantly limit the establishment of vegetation. Rubble land is commonly at the base of mountains but in some areas consists of deposits of large rock fragments left on mountain slopes by glaciation or by periglacial processes.

Slickens are accumulations of fine textured material, such as that separated in placer mine and ore mill operations. Slickens from ore mills consist largely of freshly ground rock that commonly has undergone

chemical treatment during the milling process. Slickens are usually confined in specially constructed basins and are often contaminated by metallic compounds.

**Urban land** is land covered by pavement, buildings, storage tanks, bridges, and other impervious, human-manufactured surfaces and structures. Pavement is a hard-layered surface of concrete or asphalt that forms a walkway, road, street, highway lane, runway, parking lot, or similar paved area. Urban land can occur in urban areas such as large cities and industrial centers as well as in suburban neighborhoods and rural towns. If correlated properly, urban land consists of 100-percent manufactured surface. Older soil surveys correlating urban land with a less strict concept may consist of as little as 75-percent manufactured surface. Some modern soil surveys require identification of the materials below urban land. Urban land is an anthropogenic type of miscellaneous area that does not necessarily represent a permanent condition.

**Water** includes streams, lakes, ponds, and estuaries more than about 2.5 meters deep or less than 2.5 meters deep and lacks either distinguishable horizons or rooted vegetation in the bottom sediment. These areas are covered with water in most years, at least during the period that is warm enough for plants to grow. Many areas are covered throughout the year. Pits and playas that contain water most of the time are mapped as water.
627.11 Example of Form NRCS-SOI-1, “Soil-Crop Yield Data”

<table>
<thead>
<tr>
<th>SOIL-CROP YIELD DATA</th>
</tr>
</thead>
</table>
| SAMPLE NUMBER | 1 | LOCATION | OTHER DESCRIPTION | AGENCY
| HEIGHT | WIDTH | LENGTH | MO | DATE | MO | YR | VR |
| CO | ID |

<table>
<thead>
<tr>
<th>SOIL MAP SYMBOL</th>
<th>SOIL MAP UNIT NAME</th>
<th>SOIL IDENT AT SITE Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SOIL INTERFACE NUMBER</th>
<th>USDA TEXTURE</th>
<th>SLOPE (PCT)</th>
<th>FLOODING</th>
<th>OTHER PHASE CRITERIA</th>
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</thead>
<tbody>
<tr>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>COLOR</th>
<th>THICKNESS (IN)</th>
<th>ORGANIC MATTER (PCT)</th>
<th>ROCK DEPTH (IN)</th>
<th>SLOPE LENGTH ABOVE SIZE (FT)</th>
<th>SLOPE LENGTH BELOW SIZE (FT)</th>
<th>SLOPE KIND</th>
<th>SLOPE SHAPE ASPECT</th>
<th>K FACTOR</th>
<th>SURFACE ACCRETION</th>
<th>EDGE ROUGHNESS HEIGHT (IN)</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
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<tr>
<th>MOISTURE OBSERVES</th>
<th>GROWING DEGREE DAYS</th>
<th>WEATHER QUAL.</th>
<th>SOURCE</th>
<th>PREDICTION BY MONTH</th>
<th>DAMAGE</th>
<th>FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R %</td>
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</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>CURRENT CROP</th>
<th>CURRENT CULTIVAR (VARIETY)</th>
<th>CROP HISTORY DATA</th>
<th>PREVIOUS YEARS</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>FIRST</td>
<td>SECOND</td>
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<table>
<thead>
<tr>
<th>DRY</th>
<th>WET</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>C</td>
</tr>
</tbody>
</table>

| DATE | PLANTING INFORMATION RATE | UNITS OF MEASURE | PLANTING SPACING | COVER \(m^{2}\) (PCT) | DATE | MO | YR |
|      |                             |                  |                  |                       | Date |     |

<table>
<thead>
<tr>
<th>HARVEST INFORMATION</th>
<th>CROP YIELD</th>
<th>UNITS OF MEASURE</th>
<th>TAC</th>
<th>RESIDUE ORIENTATION</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>SOIL TEST</th>
<th>N P K</th>
<th>KIND</th>
<th>ORGANIC MATERIALS</th>
<th>CROP RESIDUE</th>
<th>WEED CONTROL</th>
<th>INSECT (DISEASE) CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB/AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER DAMAGE</th>
<th>CONSERVATION PRACTICE CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSERV</td>
<td>PRACTICE CODES</td>
</tr>
<tr>
<td>CONSERV 1</td>
<td>CONSERV 2</td>
</tr>
</tbody>
</table>

This form was electronically prepared by Natural Resources Conservation Service.

Clear Form
627.12 Instructions for Completing Form NRCS-SOI-1, “Soil-Crop Yield Data”

(a) Line 1
   (1) Sample number.
      (i) State code. Use the two-character alphabetic Federal Information Processing Standards (FIPS) code, for example, VA.
      (ii) County code. Use the three-character numerical FIPS code.
      (iii) Site identification number within county. Set up a sequence of two-digit numbers for each field and another sequence of two-digit numbers for each site within the field. Keep a log of these numbers as a record for testing at the same sites in subsequent years.
   (2) Kind of plot.
      Enter one of the following codes:
      1 = Yield measurements in commercial farm fields.
      2 = Yield measurements in field trials of special treatment practices (fertilizer field trials, variety trials, conservation tillage trials).
      3 = Yield measurements of small research plots at experiment stations (variety tests, fertilizer tests).
      4 = Yield estimates.
   (3) Size of plot.
      Enter width x length in feet, for example, 4 x 10.9
   (4) Location.
      Use a map such as a 7½° quad, aerial photograph or soil survey to record the location.
      (i) X coordinate. Enter latitude north. Separate degrees, minutes, and seconds by a hyphen, for example, 25-05-03.
      (ii) Y coordinate. Enter longitude west, for example 108-25-49.
      (iii) Other location description, for example NE¼ sec. 12, T. 31 N., R. 11 W.
   (5) Agency.
      Enter the abbreviation of the agency entering the data.
   (6) Date.
      Enter the date the form is filled out, for example, 8/14/81.

(b) Line 2
   (1) Soil symbol.
      Enter the soil symbol of the area at the sample site (if known).
   (2) Soil name.
      Enter the name of the soil identified at the sample site or through reference to the soil survey, for example, NORFOLK FINE SANDY LOAM, 3-5 PERCENT SLOPE.
   (3) Soil identified at site?
      Indicate whether soil scientists identified the site. Enter Y for yes or N or no.

(c) Line 3
   (1) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
   (2) USDA texture.
      Enter the codes for texture class and texture modifier of the surface layer, for example, GR-L for gravelly loam. Use only the approved codes shown in the Part 618, Subpart B, Section 618.94, “Texture Class, Texture Modifier, and Terms Used in Lieu of Texture.”
   (3) Slope.
      Enter the percent slope gradient to the nearest whole number on slopes of 1 percent or more; enter to the nearest 0.1 percent for slopes less than 1 percent.
   (4) Flooding.
      Enter the flooding frequency (see part 618 of this handbook) that most nearly represents sample site. Use NONE, VERY RARE, RARE, OCCASIONAL, FREQUENT, or VERY FREQUENT.
(5) Other phase criteria.
Enter phases used to name soil map unit components (see section 627.6), other than surface texture, slope, or flooding, that are needed to select the correct capability and yield interpretations for the component, for example, SEVERELY ERODED.

(d) Line 4
(1) Erosion.
Enter the code that most nearly represents the estimate of erosion:
1 = Slight
2 = Moderate
3 = Severe

(2) Color of A horizon.
Enter the color (Munsell notation) of the A horizon.

(3) Thickness of A horizon (inches).
Enter the thickness of the A horizon.

(4) Organic matter.
Enter an estimate or measurement of the percent of organic matter (organic carbon x 1.72) in the A horizon.

(5) pH.
Enter the pH of the surface 4 inches at the time of harvest, for example, 6.7.

(6) Rooting depth (inches).
Measure the depth to fragipan, bedrock, gravel, or other root-impeding layer. If greater than 60 inches, enter >60.

(7) Slope length.
(i) Through site (ft.). Enter the length of slope through the sample site, in feet. On terraced land enter the distance between terraces. Slope length is the distance from the point of origin of overland flow to either (a) the point where the slope decreases to the extent that deposition begins or (b) the point where runoff enters an area of concentrated flow or channel.
(ii) Above site (ft). Enter the length of slope from point or origin of overland flow to the sample point in feet.

(8) Slope.
(i) Kind.
Enter the code that most nearly represents kind of slope at the sample site:
1 = Summit
2 = Shoulder
3 = Back slope
4 = Foot slope

(ii) Shape.
Enter the code that most nearly represents the slope shape:
1 = Convex
2 = Plane
3 = Concave
4 = Undulating
5 = Complex

(9) Aspect.
On slopes where aspect is important, enter one of the 8 points of the compass that the slope faces, for example, NE.

(10) K factor.
Enter the soil erodibility (Kf) factor.

(e) Line 5
(1) Moisture reserve at planting time.
Enter one of the following codes:
1 = Above normal  
2 = Normal  
3 = Below normal 

(2) Moisture reserve at beginning of spring growing season following fall planting (winter wheat, and rye).  
Enter one of the following codes: 
1 = Above normal  
2 = Normal  
3 = Below normal 

(3) Precipitation during the growing season.  
   (i) Qualitative. Enter the code that represents qualitative judgment:  
       1 = Above normal  
       2 = Normal  
       3 = Below normal  
   (ii) By month. If monthly records are available, enter to the nearest inch the precipitation for each month. 

(4) Drought damage.  
Enter the code that represents the judgment of the amount of crop damage caused by drought:  
1 = None  
2 = Slight  
3 = Moderate  
4 = Severe 

(5) Water damage.  
Enter the code that describes the amount of crop damage caused by excessive wetness:  
1 = None  
2 = Slight  
3 = Moderate  
4 = Severe 

(6) R factor.  
Enter the R (rainfall) factor. 

(f) Line 6  
(1) Multiple-cropped.  
Is the site double or triple cropped? Enter Y for yes, or N for no.  
(2) Current crop.  
Enter the crop name or code from the crop name and units of measure list in the NASIS-related metadata at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/tools/?cid=nrcs142p2_053548 http://soils.usda.gov/technical/nasis/documents/metadata/. Then follow the link to the “NASIS Version 76.x” index webpage. On the NASIS Version index webpage see the file named “Domains.pdf” for the most current list of crop names and crop yield units. 

(3) Cultivar (variety).  
Enter the name or identification of the crop variety. 
(4) Previous crops.  
Enter the names or codes of the crops grown in first, second, and third previous crop seasons. 

(g) Line 7  
(1) Planting information.  
   (i) Date.  
Enter the date of planting (month/day/year) if known, for example 5/15/86.  
   (ii) Timing.  
Enter the code that describes timeliness of planting:  
1 = Early  

2 = Normal
3 = Late
(iii) Crop yield.
Enter the amount of harvested crop per acre, for example, 110. Use standard procedures for measuring yield.
(iv) Unit of measure.
Enter the unit of measure (see part 618 of this handbook) for the crop, for example, bu/acre.
(v) Residue yield (t/acre).
Enter the air-dry tons per acre of crop residue (estimate if necessary).

(h) Line 8
(1) Commercial fertilizer.
   (i) NPK
   Enter the pounds of elemental nitrogen, phosphorus, and potassium applied per acre.
   (ii) Other fertilizer materials (excluding lime).
        (A) Specify kind, for example, ZINC.
        (B) Enter the pounds per acre applied.
(2) Organic materials
   (i) Enter tons of manure applied per acre.
   (ii) Enter the code representing the kind of manure:
        1 = Cattle
        2 = Poultry
        3 = Hog
        4 = Horse
        5 = Sludge (human)
        6 = Other
(3) Crop residues returned.
Enter Y for yes, or N for no.
(4) Tillage.
Enter the code that represents the kind of tillage practice at the sample site:
1 = No till (slot tillage)
2 = Strip till
3 = Other conservation tillage
4 = Nonconservation tillage (moldboard, disk plow, lister)
(5) Weed control.
   (i) Were herbicides used for this crop?
Enter Y for yes, or N for no.
   (ii) Enter the number of cultivations used primarily or partly for weed control.
   (iii) Enter the code that represents the extent of weed damage on this crop:
        0 = None
        1 = Slight
        2 = Moderate
        3 = Severe
(6) Insect and disease control.
   (i) Were chemicals used to control insects or disease?
Enter Y for yes, or N for no.
   (ii) If chemical control was used, enter the code that represents the kind of treatment:
        1 = Foliage
        2 = Seed
        3 = Soil
        4 = Two or more of the above treatments
   (iii) If foliage treatment, enter the number of chemical applications.
(iv) Enter the code that represents the extent of insect or disease damage on this crop:
0 = None
1 = Slight
2 = Moderate
3 = Severe

(i) Line 9

(1) Other damage.
Enter the code that represents the extent of damage from other causes such as hail, wind, lodging, and freezing:
0 = None
1 = Slight
2 = Moderate
3 = Severe

(2) Conservation practices, other than tillage and cropping sequence.
Enter one of the following conservation practices codes. If more than one used, enter the code listed first:
0 = None
1 = Terraces
2 = Stripcropping, contour
3 = Stripcropping, field
4 = Stripcropping, wind
5 = Contour farming

(3) Irrigation.
(i) Was irrigation water applied to this crop?
Enter Y for yes, or N for no.
(ii) Type:
1 = Furrow
2 = Sprinkle
3 = Drip
4 = Flood
(iii) Enter the code that represents the adequacy of the irrigation in meeting crop moisture requirements:
1 = Good
2 = Fair
3 = Poor

(4) Drainage.
(i) Is this soil artificially drained?
Enter Y for yes, or N for no.
(ii) Enter the code that represents the damage to the crop caused by inadequate drainage system:
0 = None
1 = Slight
2 = Moderate
3 = Severe

(5) Factors.
(i) C factor. Enter the C factor (cover-management factor used in the Revised Universal Soil Loss Equation) applicable to the site.
(ii) P factor. Enter the P factor (support practices factor used in the Revised Universal Soil Loss Equation) applicable to the site.

(6) Conservation Practice Codes
Enter the practice code applicable to the site.
(7) Recorder Name. The name of the individual recording the data.
### 627.13 Identification Legend of Map Unit Symbols and Names

Example of an alphabetic map unit legend for Alpha County, Any State:

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AaA</td>
<td>Alpha silt loam, 0 to 3 percent slopes</td>
</tr>
<tr>
<td>AaB</td>
<td>Alpha silty clay loam, 3 to 6 percent slopes</td>
</tr>
<tr>
<td>AAE</td>
<td>Alpha association, moderately steep</td>
</tr>
<tr>
<td>AAG</td>
<td>Alpha association, very steep</td>
</tr>
<tr>
<td>Ab</td>
<td>Alpha-Beta complex</td>
</tr>
<tr>
<td>AbA</td>
<td>Alpha, rarely flooded-Beta, occasionally flooded complex</td>
</tr>
<tr>
<td>ABG</td>
<td>Alpha-Beta association, very steep</td>
</tr>
<tr>
<td>BTF</td>
<td>Beta-Gamma association, steep</td>
</tr>
<tr>
<td>GE</td>
<td>Gamma and Beta soils</td>
</tr>
<tr>
<td>ROF</td>
<td>Rock outcrop</td>
</tr>
<tr>
<td>STC</td>
<td>Sigma and Gamma soils, rolling</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
</tr>
<tr>
<td>ZAB</td>
<td>Zeta association, rolling</td>
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</tbody>
</table>

Example of an alphanumeric map unit legend for Beta County, Any State:

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<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>12A</td>
<td>Alpha silt loam, 0 to 2 percent slopes</td>
</tr>
<tr>
<td>12B</td>
<td>Alpha silt loam, 2 to 4 percent slopes</td>
</tr>
<tr>
<td>12B2</td>
<td>Alpha silt loam, 2 to 4 percent slopes, eroded</td>
</tr>
<tr>
<td>13</td>
<td>Beta silty clay loam</td>
</tr>
<tr>
<td>14</td>
<td>Beta silty clay loam, stony</td>
</tr>
<tr>
<td>17</td>
<td>Water, fresh</td>
</tr>
<tr>
<td>20</td>
<td>Water, saline</td>
</tr>
<tr>
<td>21</td>
<td>Gamma muck</td>
</tr>
<tr>
<td>23</td>
<td>Rock outcrop</td>
</tr>
<tr>
<td>27A</td>
<td>Sigma sandy loam, 0 to 2 percent slopes</td>
</tr>
<tr>
<td>29A</td>
<td>Sigma sandy loam, saline, 0 to 2 percent slopes</td>
</tr>
<tr>
<td>51D2</td>
<td>Zeta loamy sand, 8 to 15 percent slopes, eroded</td>
</tr>
<tr>
<td>52B</td>
<td>Zeta fine sandy loam, 2 to 5 percent slopes</td>
</tr>
<tr>
<td>52C</td>
<td>Zeta fine sandy loam, 5 to 8 percent slopes</td>
</tr>
</tbody>
</table>

Example of a numeric map unit legend for Gamma County, Any State:

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
</tr>
</thead>
<tbody>
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<td>10</td>
<td>Alpha silt loam, 0 to 2 percent slopes</td>
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<tr>
<td>11</td>
<td>Alpha silt loam, 2 to 4 percent slopes</td>
</tr>
<tr>
<td>12</td>
<td>Alpha silt loam, 2 to 4 percent slopes, eroded</td>
</tr>
<tr>
<td>14</td>
<td>Zeta fine sandy loam, 2 to 5 percent slopes</td>
</tr>
<tr>
<td>15</td>
<td>Zeta fine sandy loam, 5 to 8 percent slopes</td>
</tr>
<tr>
<td>16</td>
<td>Zeta loamy fine sand, 8 to 15 percent slopes</td>
</tr>
<tr>
<td>17</td>
<td>Rock outcrop</td>
</tr>
<tr>
<td>20</td>
<td>Beta silty clay loam</td>
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<tr>
<td>21</td>
<td>Beta silty clay loam, stony</td>
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<tr>
<td>60</td>
<td>Sigma sandy loam, 0 to 2 percent slopes</td>
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<td></td>
<td>Description</td>
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</tr>
<tr>
<td>62</td>
<td>Sigma sandy loam, saline, 0 to 2 percent slopes</td>
</tr>
<tr>
<td>99</td>
<td>Water</td>
</tr>
<tr>
<td>145</td>
<td>Gamma muck</td>
</tr>
</tbody>
</table>
Title 430 – National Soil Survey Handbook

627.14 Form NRCS-SOI-37A, “Feature and Symbol Legend for Soil Survey”

Electronic version: [https://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcs142p2_050696.jpg](https://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcs142p2_050696.jpg)
### DESCRIPTIONS FOR STANDARD LANDFORM AND MISCELLANEOUS SURFACE FEATURES

<table>
<thead>
<tr>
<th>LABEL</th>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLO</td>
<td>Blowout</td>
<td>A saucer, cup, or trough-shaped depression formed by wind erosion on a pre-existing dune or other sand deposit, especially in an area of shifting sand or loose soil where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>BPI</td>
<td>Barrow pit</td>
<td>An open excavation from which soil and underlying material have been removed, usually for construction purposes. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>CLA</td>
<td>Clay spot</td>
<td>A spot where the surface texture is a light gray or clayey material with a surface layer of the soils in the surrounding map unit is sandy loam, loam, or silt loam. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>DEP</td>
<td>Depression, closed</td>
<td>A large, shallow, non-outlet area that is slightly deeper than the surrounding area and that does not have a natural outlet for surface drainage. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>ESB</td>
<td>Escarpment, nonbedrock</td>
<td>A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.</td>
</tr>
<tr>
<td>ESO</td>
<td>Escarpment, bedrock</td>
<td>A relatively continuous and steep slope or cliff, which generally is produced by erosion but can be produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed material is hard or very shallow soil.</td>
</tr>
<tr>
<td>GIP</td>
<td>Gravel pit</td>
<td>An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>GRA</td>
<td>Gravelly spot</td>
<td>A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>GUL</td>
<td>Gully</td>
<td>A small, deep, closed channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distance between a gully and a fill is one of depth. A gulley generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a fill is of lesser depth and can be smoothed over by ordinary tillage.</td>
</tr>
<tr>
<td>LDF</td>
<td>Landfill</td>
<td>An area of accumulated waste products of human habitation, either above or below natural ground level. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>LAV</td>
<td>Lava flow</td>
<td>A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>LVS</td>
<td>Levée</td>
<td>An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lands.</td>
</tr>
<tr>
<td>MAR</td>
<td>Marsh or swamp</td>
<td>A water saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominate vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>MPI</td>
<td>Mine or quarry</td>
<td>An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>MIS</td>
<td>Miscellaneous water</td>
<td>Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>WAT</td>
<td>Perennial water</td>
<td>Small, natural or constructed lakes, ponds, or pits that contain water most of the year. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>ROC</td>
<td>Rock outcrop</td>
<td>An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where &quot;Rock outcrop&quot; is a named component of the map unit. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>SAL</td>
<td>Salmi spot</td>
<td>An area where the surface layer has an electrical conductivity of 0.01 millimho/m or more than the surface layer of the named soil in the surrounding map unit. The surface layer of the surrounding soil has an electrical conductivity of 0.01 millimho/m or less. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>SAN</td>
<td>Sandy spot</td>
<td>A spot where the surface layer is very sandy soil or coarser and is less than 10 inches in diameter. Not used in map units in which &quot;sandy&quot; or &quot;sandy fine sand&quot; is part of the map unit name. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>ERO</td>
<td>Severe erosion spot</td>
<td>An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which &quot;severely eroded&quot; is part of the map unit name. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>SLP</td>
<td>Short, steep slope</td>
<td>A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.</td>
</tr>
<tr>
<td>SNP</td>
<td>Sinkhole</td>
<td>A closed, circular or elliptical depression, commonly funnel-shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrains are the main components of karst topography. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>SLD</td>
<td>Slide or slip</td>
<td>A prominent landsliding scar or ridge caused by failure of an earth or rock mass movement or movement of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>SOD</td>
<td>Sodic spot</td>
<td>An area where the surface layer has a sodium adsorption ratio that is at least 16 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soil has a sodium adsorption ratio of 5 or less. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>SPO</td>
<td>Spoil area</td>
<td>A pile or heap of earth materials, either smoothed or uneven, resulting from human activity. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>STN</td>
<td>Stony spot</td>
<td>A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>STV</td>
<td>Very stony spot</td>
<td>A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 3 inches in diameter in areas where the surrounding soil is covered by less than 0.01 percent stones. Typically ___ to ___ acres.</td>
</tr>
<tr>
<td>WET</td>
<td>Wet spot</td>
<td>A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit. Typically ___ to ___ acres.</td>
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### DESCRIPTION FOR AD HOC FEATURES

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</table>
627.15 Ecological Site and Soil Correlation Checklist

(Use to Supplement Soil Survey Quality Assurance Worksheet)

1. Name of area (including county, State and MLRA(s)) ________________________________
   ____________________________________________________________________________

2. Level of detail for vegetative data (indicate rangeland ecological site, forestland ecological site,
   rangeland similarity index, or other special studies)

3. Has soil survey memo of understanding been reviewed in regard to vegetative (rangeland,
   forestland, etc. (management needs)? Yes ___, No _____.

4. Do soil survey project members and field office staff have copies of site descriptions being used?
   Yes ____, No _____.

5. Is a site assigned to each soil component in the identification legend? Yes _____, No _____.

6. Are all sections of the ecological site descriptions written? Yes _____, No _____.

7. Does documentation for each site support all soils correlated to the site? Yes _____, No _____.

8. Field notes (how kept, by whom). ________________________________________________

9. Are soil-plant relationships adequately described and documented? Yes ___, No _____.

10. Is the range of characteristics of the site description adequate? (Note kinds of deficiencies)

    a. Site Characteristics:
       1. Physiographic features
       2. Climatic features
       3. Influencing water features
       4. Representative soil features

    b. Plant Communities
       1. Description of the vegetation dynamics of the site
       2. State and transition model diagram
       3. Description of the common states that occur on the site and the transitions between the
          states. If needed, describe the plant communities and community pathways within the
          state.
       4. Plant community composition
       5. Ground cover and structure
       6. Annual production
       7. Growth curves
       8. Photos of each state or community

11. Are interpretations for the ecological site description adequate? (Note kinds of deficiencies)
Site Interpretations:
1. Animal community
2. Hydrology functions
3. Recreation uses
4. Wood products
5. Other products
6. Other information

12. Is the supporting information for the site description adequate? (Note kinds of deficiencies)

Supporting Information:
1. Associate sites
2. Similar sites
3. Inventory data references
4. State correlation
5. Type locality
6. Relationship to other established classification systems

13. Is the supporting information for the site description adequate to separate this site from other sites?
Yes ____, No ____.

14. List of sites reviewed and status. (Indicate soils correlated to each site during this review.)

15. Have sites been correlated with existing site descriptions? Yes___No___

16. Have sites been correlated to adjoining soil survey areas? Yes___No___

17. Have sites been named and numbered correctly? Yes___No___

18. Have appropriate Federal and State agencies reviewed or assisted in writing site descriptions? Yes___No___

19. Have field office staff provided input or reviewed site descriptions? Yes___No___

20. Deficiencies noted and recommended actions. (Be specific and provide dates for completion)

21. Scheduled dates for completion of the vegetation inventory are compatible with the scheduled dates of the soil survey? Yes _____. No _____.

Date: _____________________

Signature ____________________________

627.16 Ecological Site Checklist

1. Name of Area(s) _____________________________________________________________
   (County(s) State(s) MLRA(s))

2. Type of Survey(s) ___________________________________________________________
   (Level of detail - soil and vegetation)

3. Participants _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________
   _________________________________________________________________

4. Site Content (Number reviewed ________________________________)
   a. Field sheets, maps, etc.
   b. Range of characteristics for physiographic features:
   c. Climatic features:
   d. Water features:
   e. Soil features and official soil series descriptions:
      Range of soil properties for the site:
   f. Vegetation data (417s, etc., and plant association tables)
   g. Animal data:
   h. General (field notes, photographs, etc.)

5. Sites with deficiencies:

6. Recommended actions:

7. Site description completed __________________________ (date)

Date: __________________
Signature(s) ________________________________

627.17 Matrix of Investigation Intensity of Soil Surveys and Documentation

The table below is a generalized matrix showing investigation intensity of soil survey (order) by the dominant type of documentation.

Within physiographic areas, percentages for the number of delineations can be assigned to the entries to specify required documentation. (i.e., 25% would indicate 25 of 100 delineations)

| Key type of documentation to verify or identify map units in soil delineations |
|---------------------------------|-----------|-----------|-----------|-----------|
|                                 | Order 1   | Order 2   | Order 3   | Order 4   |
| Traversing                      | Primary   | Primary   | Secondary | Secondary |
| Observation                      |-----------| Secondary | Primary   | Secondary |
| Remotely sensed/ancillary data  |-----------| Secondary | Primary   | Primary   |

<table>
<thead>
<tr>
<th>Key type of documentation to determine composition of a map unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transecting</td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Primary</td>
</tr>
<tr>
<td>Primary</td>
</tr>
</tbody>
</table>

Identification or verification of soil map units with a delineation is made by one of three methods. These methods provide documentation to the survey when the method is either recorded in the database or on the map as to type. These methods are—

- **Traversing** – Describing the soil and conditions at stops selected to reference vegetation, position on the landform, photo tone, etc. This is an onsite identification of the soil and verification of the projected assignment of the map unit.

- **Observation** – Visual notation of items as geologic features, vegetation, surface conditions, disturbed areas, etc. without borings. This drive by or other sighted observation does not involve a soil examination, and instead relies on surface characteristics observed by the surveyor.

- **Remotely sensed/ancillary data** – includes photo tone on aerial photographs, three-dimensional digital elevation models, topographic maps, geology maps, vegetative maps, etc.

- **Primary** – the principal way polygons and properties are verified.
- **Secondary** – additional methods in support of primary methods.
- **No entry** – This category is generally not used in the specified order.

- **Transecting** – Describing the soils and conditions at points (or continuously as with GPR) along a fixed length at regular intervals or by selecting points to represent measured line segments of various patterns. Transecting is used to identify the composition of a delineation and to design a map unit. A very small percentage of the total number of delineations of any one map unit have transects unless there are very few delineations of the map unit. As soil order increases the length and intervals of the transect would generally increase. A transect is different from grid or line mapping used for determining line placement.