

## **Appendix 2 Soil Descriptions**

This section provides detailed soil descriptions of each soil association and characteristics of each soil type on the HLD.<sup>1</sup>

### **7107 ¾ Sawmill silty clay loam, rarely flooded.**

This nearly level, poorly drained soil is on flood plains that are protected by levees; as a result, it is subject to rare flooding. Included with this soil in mapping are small areas of the poorly drained Moundprairie soils. These soils have free carbonates throughout the profile. They are in landscape positions similar to those of the Sawmill soil. They make up 5 to 10 percent of the unit.

Water and air move through the Sawmill soil at a moderate rate. Surface runoff is slow. The seasonal high water table is within a depth of 2 feet during spring. Available water capacity is very high. Organic matter content is high. The shrink-swell potential is moderate, and the potential for frost action is high. It is well suited for cultivated crops. It is generally unsuited for dwelling because of the wetness and the flooding. It is generally unsuited for septic tank absorption because of the wetness.

In areas where this soil is used for cultivated crops, the seasonal high water table is a limitation. Measures that maintain or improve the drainage system are needed. Subsurface drains function satisfactorily if suitable outlets are available. Ditches also help remove excess water. Keeping tillage at a minimum and incorporating crop residue into the surface layer help to minimize crusting and maintain tilth and fertility.

### **7302 ¾ Ambraw silty clay loam, rarely flooded.**

This nearly level, poorly drained soil is on floodplains that are protected by levees. It is subject to rare flooding. Individual areas are irregular in shape and range from 5 to 100 acres in size. Included with this soil in mapping are small areas of the poorly drained Moundprairie soils. These soils are calcareous. They are in frequently flooded areas on the flood plains. They make up 2 to 10 percent of the unit.

Water and air move through the Ambraw soil at a moderate slow rate. Surface runoff is slow. The seasonal high water table is within a depth of 2 feet during spring. Available water capacity is high. Organic matter content is moderate. The shrink-swell potential is moderate, and the potential for frost action is high.

It is well suited for cultivated crops. It is generally unsuited for dwelling because of the wetness and the flooding. It is generally unsuited for septic tank absorption because of the wetness and the moderately slow permeability.

In areas where this soil is used for cultivated crops, the seasonal high water table is a limitation. Measures that maintain or improve the drainage system are needed. Subsurface drains function satisfactorily if suitable outlets are available. Ditches also help remove excess water. Keeping tillage at a minimum and incorporating crop residue into the surface layer help to minimize crusting and maintain tilth and fertility.

#### **8304 ¾ Landes fine sandy loam, occasionally flooded.**

This nearly level, well drained soil is on floodplains. It is occasionally flooded for brief periods from March through June. Individual areas are elongated and range from 15 to 150 acres in size. Included with this soil in mapping are small areas of the poorly drained Moundprairie and Sawmill soils are slightly lower on the landscape than the Landes soil. Also, they have more clay throughout.

Water and air move through the Landes soil at a moderately rapid rate. Surface runoff is slow. Available water capacity is moderate. Organic matter content is moderately low. The shrink-well potential is low, and the potential for frost action is moderate.

In most areas this soil is cultivated. In some areas it is used for pasture and hay. It is well suited to cultivated crops and to pasture and hay. It generally is unsuited to dwellings because of the flooding and to septic tank absorption fields because of the flooding and a poor filtering capacity.

#### **1480 ¾ Moundprairie silty clay loam, wet.**

This nearly level, poorly drained soil is on floodplains. It is saturated throughout the growing season and is frequently flooded from March through June. Individual areas are

elongated and range from 20 to 1,000 acres in size. Included with this soil in mapping are small areas of water and small areas where the soil is calcareous. Included areas make up 10 to 15 percent of the unit.

Water and air move through the Moundprairie soil at a moderate rate. Surface runoff is slow to ponded. The seasonal high water table is 1 foot above the surface to 3 feet below during most of the year. Available water capacity is high. Organic matter content is moderate. The shrink-swell potential is moderate, and the potential for frost action is high.

In most areas this soil is for wildlife habitat. It is well suited to habitat for wetland wildlife. It is moderately suited to woodland. It generally is unsuited to cultivated crops, to pasture and hay, to dwellings, and septic tank absorption fields because of the wetness and the flooding.

In areas where this soil is used as woodland, the seasonal high water table limits the use of equipment and plant competition, seedling mortality, and windthrow are management concerns. The use of equipment is limited to periods when the soil is firm and dry. The undesirable vegetation in openings where timber has been harvested can be controlled by chemical or mechanical means. The seedling mortality rate can be reduced by selecting planting stock that is larger than is typical or by mulching. Some replanting may be needed. Harvesting methods that do not isolate the remaining trees or leaves them widely spaced reduce the windthrow hazard. Only high-value trees should be removed from a strip 50 feet wide along the west and south edges of the woodland. Excluding livestock from the woodland helps to prevent destruction of the leaf mulch and of desirable young trees, compaction of the soil, and damage to tree roots. Measures that protect the woodland from fire are needed.

In areas used as wetland wildlife habitat, the naturally occurring plant species furnish good food and cover for waterfowl and many other wildlife species. Measures that protect the habitat from fire and from grazing by livestock are essential. Constructing irregularly shaped areas of open water 2 to 4 feet deep can improve the habitat. About two-thirds of the area should remain vegetated with wetland plants. Erosion control in the adjacent areas minimizes sedimentation on the wetlands.

**93E ¾ Rodman gravelly sandy loam, 12 to 30 percent slopes.**

This very steep, excessively drained soil is on stream terrace escarpments. Individual areas are elongated and range from 5 to 80 acres in size.

Water and air move through this soil at a very rapid rate. Surface runoff is medium. Available water capacity is very low. Organic matter content is moderate. The shrink-well potential and the potential for frost action are low. In most areas this soil is used as woodland or pasture. It is poorly suited to woodland. It generally is unsuited to cultivated crops and hay because of the slope and the very low available water capacity. It generally is unsuited to pasture, to habitat for woodland wildlife, and to dwellings and septic tank absorption fields.

In areas where this soil is used as woodland, the slope limits the use of equipment and measures that control erosion are needed. Erosion can be controlled by building logging roads and skid trails on or nearly on the contour, skidding logs or trees uphill with a cable and winch on the steeper slopes, establishing grass firebreaks, and seeding bare areas to grass or to a grass-legume mixture after logging activities have been completed. The use of machinery is limited to periods when the soil is firm. Seedling mortality is high because of the very low available water capacity. Planting mature nursery stock and clearing all competing vegetation within 2 feet of the planted seedlings reduce the seedling mortality rate. Excluding livestock from the woodland helps to prevent destruction of the leaf mulch and of desirable young trees, compaction of the soil, and damage to tree roots. Measures that protect the woodland from fire are needed.

In areas used as pasture, the very low available water capacity is a limitation and measures that control soil blowing and water erosion are needed. Seeding, rotation grazing, deferred grazing, and applications of fertilizer help to keep the pasture in good condition and help to control soil blowing and water erosion. A no-till method of pasture renovation and seeding on the contour help to control water erosion. Irrigation systems may be needed because of the very low available water capacity. Orchardgrass, bromegrass, timothy, alfalfa, and red clover are suitable forage species.

The development of woodland wildlife habitat on this soil depends on the maintenance of the naturally occurring plant species. The greatest diversity of wildlife

species can be achieved by managing for a variety of tree and shrub species. Establishing wildlife food plots and additional cover is difficult because of the slope. Planting on the contour and maintaining a ground cover help to control erosion. Dead trees, fallen logs, and brush piles should be left for cover and nesting sites. Measures that protect the habitat from fire and from grazing by livestock are essential.

If this soil is used as a site for dwellings, the slope is a limitation and measures that control erosion are needed. Land shaping may be needed. Keeping the disturbance of natural vegetation to a minimum and maintaining a cover of mulch until plants are established in newly seeded disturbed areas help to control erosion. Because of the very low available water capacity, periodic watering is needed to establish and maintain lawns.

The slope and a poor filtering capacity are limitations on sites for septic tank absorption fields. The soil readily absorbs but does not adequately filter the effluent. The poor filtering capacity can result in the pollution of ground water. Installing a sealed sand filter and a disinfection tank and leveling the site help to ensure that the septic tank system functions properly.

#### **93G ¾ Rodman gravelly sandy loam, 30 to 60 percent slopes.**

This very steep, excessively drained soil is on stream terrace escarpments. Individual areas are elongated and range from 5 to 80 acres in size.

Water and air move through this soil at a very rapid rate. Surface runoff is medium. Available water capacity is very low. Organic matter content is moderate. The shrink-well potential and the potential for frost action are low. In most areas this soil is wooded. It is poorly suited to woodland and to habitat for woodland wildlife. It generally is unsuited to cultivated crops, to pasture and hay, to dwellings and to septic tank absorption fields because of the slope.

In areas where this soil is used as woodland, the slope limits the use of equipment and measures that control erosion are needed. Erosion can be controlled by building logging roads and skid trails on or nearly on the contour, skidding logs or trees uphill with a cable and winch on the steeper slopes, establishing grass firebreaks, and seeding bare areas to grass or to a grass-legume mixture after logging activities have been completed. The use of machinery is limited to periods when the soil is firm. Seedling mortality is high because of

the very low available water capacity. Planting mature nursery stock and clearing all competing vegetation within 2 feet of the planted seedlings reduce the seedling mortality rate. Excluding livestock from the woodland helps to prevent destruction of the leaf mulch and of desirable young trees, compaction of the soil, and damage to tree roots. Measures that protect the woodland from fire are needed.

The development of woodland wildlife habitat on this soil depends on the maintenance of the naturally occurring plant species. The greatest diversity of wildlife species can be achieved by managing for a variety of tree and shrub species. Establishing wildlife food plots and additional cover is difficult because of the slope. Planting on the contour and maintaining a ground cover help to control erosion. Dead trees, fallen logs, and brush piles should be left for cover and nesting sites. Measures that protect the habitat from fire and from grazing by livestock are essential.

Table A2-1 compares physical and chemical properties of each soil type occurred on the HLD. It provides comprehensive information when applying soil consideration in restoration design on the HLD (Section 3.1 and 4.1).

*Table A2-1 Physical and chemical properties of the soil<sup>2</sup>*

<b>Soil symbol</b>	<b>Depth (In)</b>	<b>Clay (%)</b>	<b>Moist Bulk Density (g / cc)</b>	<b>Permeability (In / hr)</b>	<b>Available water capacity (In / in)</b>	<b>Soil reaction (pH)</b>	<b>Organic matter (%)</b>
<b>7107</b>	0-23	27-35	1.20-1.40	0.6-2.0	0.21-0.23	6.1-7.8	4-5
	23-32	27-35	1.20-1.40	0.6-2.0	0.21-0.23	6.1-7.8	
	32-60	18-35	1.35-1.50	0.6-2.0	0.15-0.19	6.1-8.4	
<b>7302</b>	0-16	27-35	1.40-1.60	0.6-2.0	0.20-0.23	5.6-7.3	2-3
	16-36	30-42	1.45-1.65	0.2-0.6	0.09-0.11	5.1-7.3	
	36-46	24-35	1.45-1.65	0.2-2.0	0.15-0.19	5.1-7.3	
	46-60	18-30	1.50-1.70	0.2-2.0	0.11-0.22	6.1-8.4	
<b>8304</b>	0-9	7-20	1.40-1.60	2.0-6.0	0.13-0.20	6.1-8.4	1-2
	9-38	5-18	1.60-1.70	2.0-6.0	0.10-0.15	6.1-8.4	
	38-60	5-18	1.60-1.80	6.0-20	0.05-0.15	6.1-8.4	
<b>1480</b>	0-13	28-35	1.30-1.40	0.6-2.0	0.18-0.22	7.4-7.8	2-3
	13-60	18-335	1.35-1.45	0.6-2.0	0.18-0.22	7.4-7.8	
<b>93 E, G</b>	0-6	5-20	1.10-1.40	2.0-6.0	0.09-0.12	6.6-7.8	2-4
	6-19	5-25	1.10-1.50	2.0-6.0	0.09-0.12	6.6-8.4	
	19-60	0-10	1.60-1.70	>20	0.02-0.04	7.4-8.4	

<sup>1</sup> USDA, 1992. Soil Survey of Putnam County.

<sup>2</sup> Adapted from USDA, 1992.. Soil Survey of Putnam County.