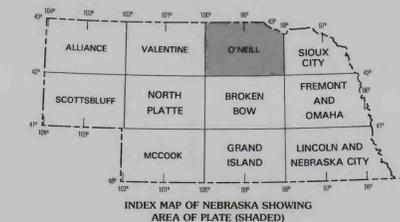


- DESCRIPTIONS OF THE SOIL GROUPS**
- 111 Silty clays to silty clay loams with (a) permeabilities less than 1.0 inch per hour, (b) nearly level to very gentle slopes (maximum slopes 1 to 3 percent), and (c) depths to seasonal high water table less than 6 feet. These soils are predominantly on larger flood plains and are represented by the Alton-Haynes and Luton-Forney associations.
  - 112 Silty clays to silty clay loams with (a) permeabilities less than 1.0 inch per hour, (b) nearly level to gentle slopes (maximum slopes 2 to 5 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are characteristic of the uplands and high terraces of the central and east-central areas of the State and are represented by the Belfore-Moody and Crete-Hastings associations.
  - 142 Silty clays to silty clay loams with (a) permeabilities less than 1.0 inch per hour, (b) very gentle to steep slopes (maximum slopes 20 to 30 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are most commonly formed in weathered shale and usually exhibit shallow soil development. They occur predominantly in the uplands of extreme northern and southeastern Nebraska and are represented by the Bufon-Orella-Norrest and Kipson-Berfield associations.
  - 152 Clays to silty clay loams with (a) permeabilities less than 1.0 inch per hour, (b) gentle to very steep slopes (maximum slopes that exceed 30 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are generally formed in weathered shale and are relatively shallow. They occur predominantly in extreme northwestern areas of the State and are represented by Labu-Sansarc and Pierre-Samsil-Kyle associations.
  - 212 Silty clay loams to silt loams with (a) permeabilities from 1.0 to 2.0 inches per hour, (b) nearly level to very gentle slopes (maximum slopes 1 to 3 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are present on well-drained terraces and uplands in the central part of the State and are represented by the Hord-Hall and Holdrege-Hell associations.
  - 222 Silty clay loams to silt loams with (a) permeabilities from 1.0 to 2.0 inches per hour, (b) nearly level to strong slopes (maximum slopes 3 to 10 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are widely distributed throughout the State and are represented by the Holdrege and Keith-Alliance-Rosebud associations.
  - 232 Silty clay loams to loams with (a) permeabilities from 1.0 to 2.0 inches per hour, (b) very gentle to moderately steep slopes (maximum slopes 10 to 20 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are widely distributed and significant within the State and are represented by the Holdrege-Coly-Uly and Ulysses-Keith-Coly associations.
  - 242 Silty clay loams to loams with (a) permeabilities from 1.0 to 2.0 inches per hour, (b) gentle to steep slopes (maximum slopes 20 to 30 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are widely distributed within the State and are represented by the Coly-Uly-Holdrege and Monona-Ida associations.
  - 311 Silt loams to fine sandy loams with (a) permeabilities from 2.0 to 5.0 inches per hour, (b) nearly level to very gentle slopes (maximum slopes 1 to 3 percent), and (c) depths to seasonal high water table less than 6 feet. These soils are present in the Platte and Missouri River flood plains and are represented by the Gbbon-Wann and Lawet-Wann-Lex associations.
  - 422 Fine sandy loams to fine sands with (a) permeabilities from 5.0 to 10 inches per hour, (b) nearly level to strong slopes (maximum slopes 3 to 10 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils occur on uplands, terraces, and footslopes in transitional areas between sandy and silty soils and are represented by the Beale-Pala-Thurman and Jayem-Sarben-Valent associations.
  - 432 Fine sandy loams to fine sands with (a) permeabilities from 5.0 to 10.0 inches per hour, (b) nearly level to steep slopes (maximum slopes 10 to 20 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils occur on uplands and high terraces in transitional areas between sandy and silty soils and are represented by the Thurman-Boelus-Nora and Moody-Thurman associations.
  - 452 Fine sandy loams to fine sands with (a) permeabilities from 5.0 to 10.0 inches per hour, (b) gentle to very steep slopes (maximum slopes exceeding 30 percent), and (c) depths to seasonal high water table exceeding 6 feet. These are principally shallow residual soils formed in sandstone on high eroded uplands in the northern Panhandle of the State and are represented by the Busher-Sarben-Tassel and Tassel-Busher associations.
  - 511 Fine sandy loams to fine sands with (a) permeabilities exceeding 10.0 inches per hour, (b) nearly level to very gentle slopes (maximum slopes 1 to 3 percent), and (c) shallow water tables with depths to seasonal high water table less than 6 feet. These soils are on flood plains and in Sand Hills valleys and are represented by the Cothenburg-Platte and Loup-Elsmere-Dunday associations.
  - 521 Loamy fine sands to fine sands with (a) permeabilities exceeding 10 inches per hour, (b) nearly level to strong slopes (maximum slopes 3 to 10 percent), and (c) shallow water tables with depths to seasonal high water table less than 6 feet. These soils occupy extensive subirrigated valleys within the Sand Hills region and are represented by the El-Valentine-Ipaga and Elsmere-Dalley associations.
  - 532 Loams to sands and gravels with (a) permeabilities exceeding 10.0 inches per hour, (b) nearly level to strong slopes (maximum slopes 3 to 10 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils occur in the uplands and are represented by the Jansen-O'Neill and O'Neill-Dunday-Meadin associations.
  - 541 Loamy fine sands to fine sands with (a) permeabilities exceeding 10.0 inches per hour, (b) nearly level to steep slopes (maximum slopes 10 to 20 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are represented by the Jansen-Meadin and Valentine-Hersh associations.
  - 542 Loamy fine sands to fine sands with (a) permeabilities exceeding 10.0 inches per hour, (b) nearly level to very steep slopes (maximum slopes 20 to 30 percent), and (c) substantial areas having depths to seasonal high water table less than 6 feet. This hydrologic soil group is rather unique in that steeply sloping dunes alternate with subirrigated valleys with shallow water tables and seasonal ponding. The Valentine-El and Valentine-Elsmere-Gannett associations represent these soils.
  - 543 Loamy fine sands to fine sands with (a) permeabilities exceeding 10.0 inches per hour, (b) nearly level to very steep slopes (maximum slopes 20 to 30 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are principally found in the Sand Hills uplands and are represented by the Valentine-Tassel and Valentine-Simeon associations.
  - 552 Loamy fine sands to fine sands with (a) permeabilities exceeding 10.0 inches per hour, (b) gentle to very steep slopes (maximum slopes exceeding 30 percent), and (c) depths to seasonal high water table exceeding 6 feet. These soils are the most prevalent upland soils of the Sand Hills and are represented by the Valentine and Valentine-hilly and rolling associations.

**HYDROLOGIC CHARACTERISTICS OF THE SOIL GROUPS**

Soil group	Average permeability of 60-inch soil profile (inches per hour)	Average permeability of least permeable horizon (inches per hour)	Average available water capacity (inches per inch)	Average maximum soil slope (percent)	Depth to seasonal high water table (feet)
111	0.80	0.44	.16	2	<6
112	.76	.41	.19	5	>6
142	.67	.54	.15	25	>6
152	.56	.46	.12	33	>6
212	1.23	1.14	.20	3	>6
222	1.23	1.09	.20	5	>6
232	1.28	1.21	.19	15	>6
242	1.37	1.31	.20	23	>6
311	3.61	.93	.16	2	<6
422	6.85	4.15	.13	8	>6
432	6.56	2.94	.14	13	>6
452	7.54	4.00	.15	36	>6
511	12.90	3.99	.09	3	<6
521	12.86	10.53	.07	8	<6
522	12.37	3.32	.10	6	>6
532	12.46	5.21	.09	14	>6
541	12.67	11.38	.08	27	<6
542	12.20	7.57	.08	27	>6
552	12.38	10.67	.07	50	>6



**HYDROLOGIC SOIL GROUPS IN THE O'NEILL QUADRANGLE, NEBRASKA**

Map based on "General Soil Map of O'Neill area, Nebraska," U.S. Department of Agriculture Soil Conservation Service and Conservation and Survey Division, University of Nebraska-Lincoln, 1938-42. Hydrologic characteristics derived from soil properties data (U.S. Department of Agriculture Soil Conservation Service, 1978).