

SURFICIAL GEOLOGIC MATERIALS OF THE BERTRAM QUADRANGLE, IOWA

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LEGEND

Description of Map Units

- HOLOCENE**
- Qds** ALLUVIUM (DeForest Formation) - One to three meters of massive to weakly stratified, dark grayish brown to brown loam, silt loam, clay loam, or loamy sand overlying more than three meters of poorly to moderately well sorted, massive to moderately well stratified, coarse to fine feldspathic quartz sand, pebbly sand, and gravel. Unit also includes colluvial deposits derived from adjacent map units. Seasonally high water tables occur in this map unit.
 - Qdi** ALLUVIUM (DeForest Formation) - Two to four meters of massive to moderately well stratified dark grayish brown to brown loam, silt loam, clay loam, or loamy sand overlying more than three meters of poorly to moderately well sorted, massive to well stratified, coarse to fine feldspathic pebbly sand and gravel of the Noah Creek Formation or unfractionated pre-Wisconsin sand and gravel. Seasonally high water tables occur in this map unit.
 - Qdb** MUCK AND PEAT (DeForest Formation, Woden Member) - One to six meters of black to brown muck and peat, and other organic-rich deposits in fens and marshes. Massive to well stratified at depth. Overlies silt and gravel and/or massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations. High water tables occur in this map unit.
- LATE WISCONSIN**
- Qpt** LOESS AND INTERCALATED EOLIAN SAND (Peoria Formation) - Two to seven meters of yellowish brown to gray, massive, fractured, calcareous or noncalcareous, silt loam and intercalated fine to medium, well sorted, feldspathic quartz sand. Grains downward to poorly to moderately well sorted, moderately to well stratified, coarse to fine feldspathic quartz sand, loam, or silt loam alluvium, or in some places the eolian sediments bury the clayey Farmdale-Sangamon Geosol developed in pre-Wisconsin alluvium.
 - Qps1** LOESS AND INTERCALATED EOLIAN SAND (Peoria Formation) - Five to ten meters of yellowish brown to gray, massive, fractured, noncalcareous grading downward to calcareous silt loam and intercalated fine to medium, well sorted, feldspathic quartz sand. When present, sand is most abundant in lower part of eolian package. Overlies massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations with or without intervening clayey Farmdale-Sangamon Geosol.
 - Qps2** EOLIAN SAND (Peoria Formation - sand facies) - Five to fifteen meters of yellowish brown to gray, moderately to well stratified noncalcareous or calcareous, fine to medium, well sorted, feldspathic quartz sand. May contain interbeds of yellowish brown to gray, massive, silt loam loess. Overlies eroded, massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations.
 - Qps3** LOESS SHALLOW TO GLACIAL TILL (Peoria Formation) - Two to three meters of yellowish brown, massive, noncalcareous silt loam and intercalated fine to medium, well sorted, feldspathic quartz sand. Sand, if present, occurs in lower part of unit. Overlies 0.5 to 1.5 meters of pebbly loam erosion surface sediment which, in turn, overlies eroded, massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations. Seasonally high water table may occur in this map unit.
 - Qps4** LOESS SHALLOW TO SAND AND GRAVEL (Peoria Formation) - One to two meters of yellowish brown, massive, noncalcareous silt loam. Overlies pebbly sand and gravel erosion surface sediment that is one to four meters thick, which, in turn, overlies eroded, massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations or fractured Devonian-age carbonate bedrock. Seasonally high water table may occur in this map unit.
 - Qps5** EOLIAN SAND SHALLOW TO GLACIAL TILL (Peoria Formation - sand facies) - Two to four meters of yellowish brown, massive to well stratified, noncalcareous, fine to medium, well sorted feldspathic quartz sand. Overlies pebbly loam erosion surface sediment which, in turn, overlies eroded massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations.
 - Qps6** LOESS AND EOLIAN SAND SHALLOW TO ROCK (Peoria Formation) - One to four meters of yellowish brown, massive to well stratified, noncalcareous, fine to medium, well sorted feldspathic quartz sand or silt loam loess. May overlie one to two meters of loamy erosion surface sediment or less than two meters of eroded, massive, fractured, firm loam glacial till of the Wolf Creek or Albion formations. Fractured carbonate bedrock is less than five meters below the land surface.
 - Qwa1** SAND AND GRAVEL SHALLOW TO TILL (Unnamed erosion surface sediment) - One to three meters of yellowish brown to gray, massive to weakly stratified, calcareous, medium to coarse, poorly sorted feldspathic pebbly quartz sand with intercalated gravel and loam. Overlies eroded, massive, fractured, firm, loamy glacial till of the Wolf Creek or Albion formations. Deposits in this mapping unit are derived primarily from erosion of glacial till in the adjacent drainage basin. Seasonally high water table may occur in this map unit.
 - Qwa2** SILTY, LOAMY AND SANDY SEDIMENT SHALLOW TO GLACIAL TILL (Unnamed erosion surface sediment) - One to three meters of yellowish brown to gray, massive to weakly stratified, well to poorly sorted, silty, sandy and silty erosion surface sediment. Map unit includes some areas mantled with less than two meters of Peoria Formation (loess and eolian sand). Overlies eroded, massive, fractured, firm glacial till of the Wolf Creek and Albion formations. Seasonally high water table may occur in this map unit.
- Complexes**
- Qnw** SAND AND GRAVEL (Noah Creek and Wolf Creek formations) - More than three meters of yellowish brown to gray, poorly to well sorted, massive to well stratified, coarse to fine feldspathic quartz sand, pebbly sand and gravel. In places mantled with one to three meters of fine to medium, well sorted feldspathic quartz sand derived from wind reworking of the alluvium. The unit encompasses deposits that accumulated in river and stream valleys during the late Wisconsin as well as exhumed Pre-Illinoian Epirode deposits of the Wolf Creek and Albion formations in upland positions.
 - Qnw2** SAND AND GRAVEL SHALLOW TO ROCK (Noah Creek and Wolf Creek formations) - One to three meters of yellowish brown to gray, poorly to well sorted, massive to well stratified, coarse to fine feldspathic quartz sand, pebbly sand and gravel. In places mantled with fine to medium, well sorted feldspathic quartz sand derived from wind reworking of the alluvium. Fractured carbonate bedrock is less than five meters below the land surface. The unit encompasses deposits that accumulated in river and stream valleys during the late Wisconsin as well as exhumed Pre-Illinoian Epirode deposits of the Wolf Creek and Albion formations.
- DEVONIAN**
- Dcv** FRACTURED CARBONATE BEDROCK (Cedar Valley Group)-Zero to forty meters of fossiliferous limestone and dolostones used as a shallow bedrock aquifer.
 - Dpr** FRACTURED CARBONATE BEDROCK (Pinnac Ridge Formation) -Zero to twenty meters of fossiliferous limestone, dolostone, and shale. The hard-shaly five meters are a confining unit that retards groundwater infiltration. The upper part of the unit is prone to karst development.
 - Dbb** FRACTURED CARBONATE BEDROCK (Ots and Bertram formations, undifferentiated) - Zero to forty meters of unfossiliferous to poorly fossiliferous dolostone and limestone.
- SILURIAN**
- Sg** FRACTURED CARBONATE BEDROCK (Gower Formation)-Zero to thirty meters of laminated, unfossiliferous dolostone.
 - Ssg** FRACTURED CARBONATE BEDROCK (Scott Grove Formation)-Zero to fifty meters of fossiliferous, variably porous and cherty dolostone used as a bedrock aquifer.
- Anthropogenic Units**
- Qq** QUARRIES AND PITS - Limestone quarries and sand and gravel pits. Extent as of 1990 shown.
 - Qi** CUT AND FILL - Area of cut and fill associated with major highways, railroads, quarries, and other major land disturbances. Deposits within this map unit may be similar to those in adjacent map units but may have significant mantles of fill or deep cuts that expose underlying deposits. Extent as of 1990 shown.
 - W** WATER

Scale
1:24000

