

# Surficial Geology of the Stanwood (Iowa) 7.5' Quadrangle

## LEGEND

### Cenozoic Quaternary System

#### HUDSON EPISODE

- Qo** - **Depressions and Fens** (DeForest Formation-Woden Mbr.) Generally 2.5 to 6 meters (8 to 16.5 feet) of black to very dark gray, calcareous, muck, peat and silty clay loam colluvium and organic sediments in drained and undrained closed and semi-closed depressions. Overlies Noah Creek Fm. sand and gravel in larger stream valleys or may be associated with seeps and springs along valley walls. Usually, associated with stream valley side slopes and areas of exhausted inter-till gravels. Supports wetland vegetation and can be permanently covered by water. High water table.
- Qal** - **Alluvium** (De Forest Formation) One to four meters (3.3 to 13 feet) of massive to weakly stratified, grayish brown to brown loam, silt loam, clay loam, or loamy sand overlying less than three meters of poorly to moderately well stratified, coarse to fine feldspathic quartz sand, pebbly sand, and gravel and more than three meters of pre-Wisconsin or late Wisconsin Noah Creek Formation sand and gravel. Unit also includes colluvial deposits derived from adjacent map units. Seasonally high water tables occur in this map unit.
- Qal2** - **Stream Valley Thick Alluvium** (DeForest Formation-Undifferentiated) Variable thickness of 2 to 6 meters (6.6 to 20 feet) of very dark gray to brown, noncalcareous, massive to stratified silt clay loam, loam, sandy loam alluvium and colluvium associated with Pioneer and Walnut Creek stream valleys. Alluvium overlies an unusually thick, from 6 to 18 m (20 to 60 ft) sequence of medium sand to pebbly sand outwash of the Noah Creek Formation. Occupies low-relief modern floodplain. Seasonal high water table and potential for frequent flooding.

#### HUDSON and WISCONSIN EPISODE

- Qe** - **Sand Dunes and Sand Sheets** (Peoria Formation-sand facies) Generally less than 3 meters (10 feet) of yellowish brown, massive, calcareous loamy sand to fine sand. It may overlie yellowish-brown sand and gravel (Noah Creek Fm.) or reworked unmineralized loamy sediments associated with the Iowan Erosion Surface and/or it may overlie yellowish to grayish brown, often calcareous and fractured clay loam to loam diamicton (Wolf Creek and Alburtz Formations).
- Qrw2** - **Sand and Gravel** (Noah Creek Formation) Two to eighteen meters (6.6 to 60 feet) of yellowish brown to gray, poorly to well sorted, massive to well stratified, coarse to fine feldspathic quartz sand, pebbly sand and gravel with few intervening layers of silty clay. Along Pioneer and Walnut Creek valleys a thin mantle of loess, reworked loess, fine-grained alluvium (Qal2) may be present. This unit includes silty colluvial deposits derived from the adjacent map units. In places this unit is mantled with one to three meters of fine to medium, well sorted medium to fine sand derived from wind reworking of the alluvium. This unit encompasses deposits that accumulated in low-relief stream valley floors during the Wisconsin Episode and Hudson Episode. Seasonal high water table and some potential for flooding.

#### WISCONSIN EPISODE

- Qps1** - **Loess and Intercalated Eolian Sand** (Peoria Formation-silt facies) Two to ten meters (6.6 to 33 feet) of yellowish brown to gray, massive, fractured, noncalcareous grading downward to calcareous silt loam and intercalated fine to medium, well sorted, sand. Sand is most abundant in lower part of the loess package. Overlies massive, fractured, loamy glacial till of the Wolf Creek or Alburtz formations with or without intervening clayey Farmdale-Sangamon Geosol.
- Qps1b** - **Thick Loess and Intercalated Eolian Sand** (Peoria Formation-silt facies) Five to fifteen meters (16 to 50 feet) of yellowish brown to gray, massive, noncalcareous grading downward to calcareous silt loam and intercalated fine to medium, well sorted, sand. Minimum thickness of five meters on uplands. Maximum thickness of two to seven meters (6.6 to 23 feet) of loess occurs on adjacent slopes. Overlies massive, fractured, loamy glacial till of the Wolf Creek or Alburtz formations with or without intervening clayey Farmdale-Sangamon Geosol.
- Qps2** - **Eolian Sand and Intercalated Silt** (Peoria Formation-sand facies) Five to fifteen meters (16 to 50 feet) of yellowish brown to gray, moderately to well stratified noncalcareous or calcareous, fine to medium, well sorted, eolian sand. May contain interbeds of yellowish brown to gray, massive, silt loam loess. Overlies eroded, massive, fractured, loamy glacial till of the Wolf Creek or Alburtz formations or fractured Devonian-age carbonate bedrock.
- Qwa1** - **Sand and Gravel Shallow to Till** (Unnamed erosion surface sediment) One to three meters (3.3 to 10 feet) of yellowish brown to pale brown, massive to weakly stratified, noncalcareous, medium to coarse, poorly sorted pebbly to cobbly sand with intercalated gravel and loam. Overlies massive, fractured, firm, loamy glacial till of the Wolf Creek or Alburtz 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. Moderate flood potential.
- Qwa2** - **Loamy and Sandy Sediment Shallow to Glacial Till** (Unnamed erosion surface sediment) One to six meters (3.3 to 20 feet) of yellowish brown to gray, massive to weakly stratified, well to poorly sorted loamy, sandy and silty erosion surface sediment. Map unit includes some areas mantled with less than two meters of Peoria Silt (loess). Overlies massive, fractured, firm glacial till of the Wolf Creek and Alburtz formations. Seasonally high water table may occur in this map unit.

#### PRE-ILLINOIS EPISODE

- Qwa3** - **Till** (Wolf Creek or Alburtz Formations) Generally 10 to 35 meters (33 to 115 feet) of very dense, massive, fractured, loamy glacial till of the Wolf Creek or Alburtz Formations with or without a thin loess mantle (Peoria Formation—less than 2 meters or 6.6 feet) or thin loamy sediment mantle (unnamed erosion surface sediment) may overlie intervening clayey Farmdale-Sangamon Geosol. This mapping unit can be buried by unnamed erosion surface sediments, loess or alluvium and is shown only in the cross-section.

### Paleozoic Silurian System

- Su** - **Bedrock Exposures** (Silurian Gowar and Scotch Grove Formations) Fossiliferous dolostones with lime packstone, wackestone to mudstone fabrics. This unit is the primary bedrock aquifer and aggregate resource for Stanwood Quadrangle area. The Gowar can range from 0 to 30 meters (0 to 100 feet) in thickness. It includes laminated unfossiliferous and fossiliferous mounded facies. Underlying the Gowar is the Scotch Grove Formation. The Scotch Grove includes cherty units, dolostone and mounded facies. The maximum thickness of the Silurian bedrock is approximately 137 meters (450 feet).

- Qpq** - **Pits and Quarries** Sand and gravel pits and rock quarries. Extent mapped as shown in county soil surveys.

- Water Features** Rivers, lakes and small ponds formed by blockage of drainage and river channels.

- Drill Holes**

#### Adjacent 7.5' Quadrangles



#### Quadrangle Location



Base map from USGS Stanwood 7.5' Digital Raster Graphic (IGS GIS file DRGN45C.TIF) which was scanned from the Stanwood 7.5' Topographic Quadrangle map, published by US Geological Survey in 1965. Topographic contours and land features based on 1963 aerial photography, field checked in 1965. Land elevation contours (10' interval) based on NGVD 1929.

Iowa Geological Survey digital cartographic file StanwoodQuad07.mxd, version 7/30/07 (ArcGIS 9.1). Map projection and coordinate system based on Universal Transverse Mercator (UTM) Zone 15, datum NAD83.

The map and cross section are based on interpretations of the best available information at the time of mapping. Map interpretations are not a substitute for detailed site specific studies.

## COOPERATIVE MAPPING WITH THE NATURAL RESOURCES CONSERVATION SERVICE (NRCS) SURFICIAL GEOLOGIC MAPS OF THE STANWOOD AND CEDAR BLUFF 1:24,000 QUADRANGLES Phase 2

Iowa Geological Survey  
Open File Map 2007-3  
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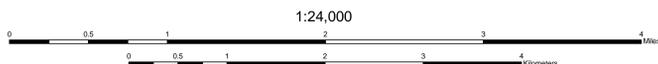
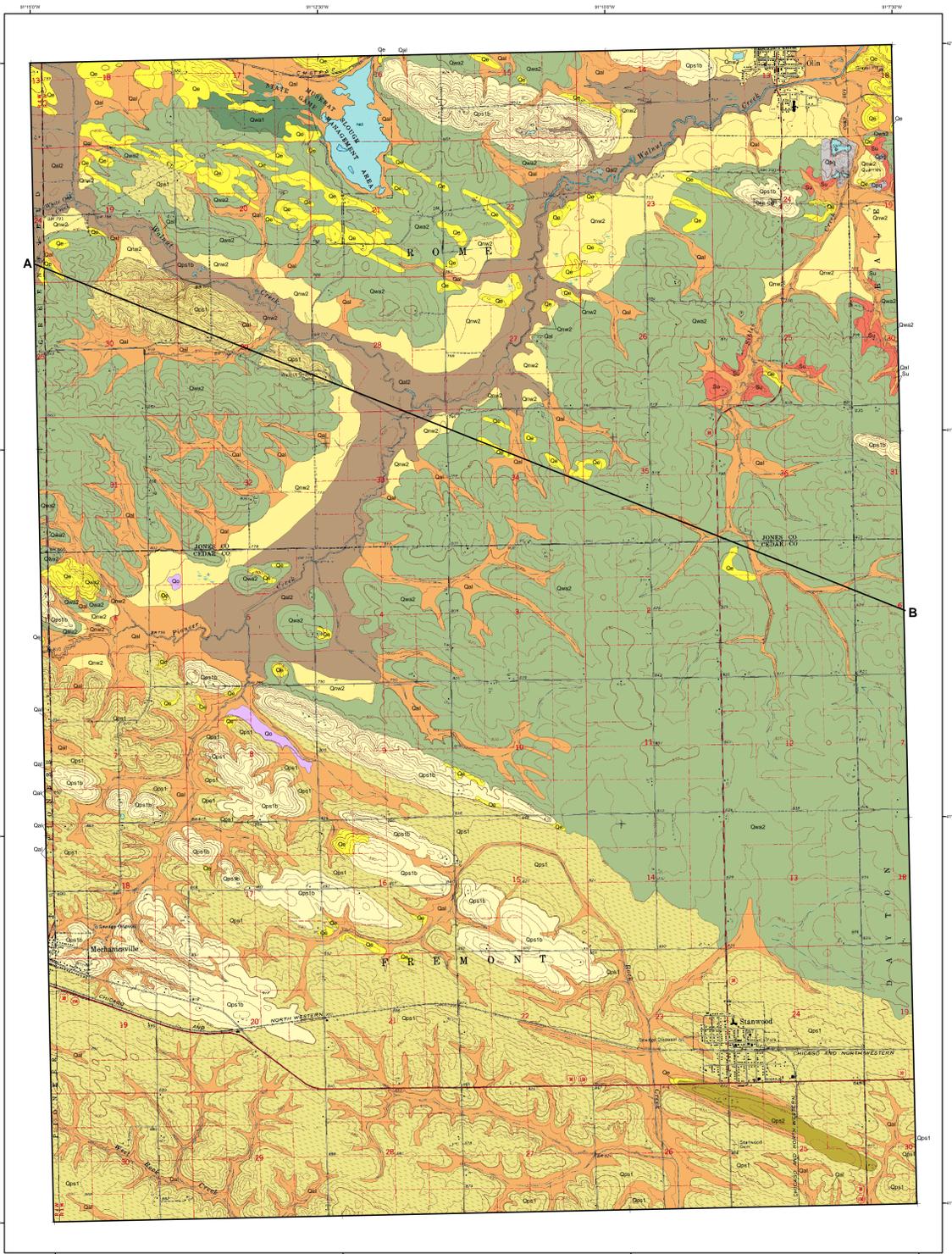


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Geologic Cross Section A-B

