

# Surface Geology

## Pleasant Valley Quadrangle, North Dakota

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### EXPLANATION

#### QUATERNARY SYSTEM

##### RECENT

##### OAHE FORMATION

**Qor** Alluvium

River and stream sediment. Dark obscurely bedded clay and silt (mainly overbank sediment); generally overlying cross-bedded sand (channel sediment); on plains of modern streams.

**Qos** Pond and Slough Sediment

Dark, obscurely bedded clay and silt; in modern ephemeral ponds.

##### PLEISTOCENE

##### COLEHARBOR GROUP

##### Silt Facies

Lake sediment. Laminated silty clay, clayey silt, and fine sand of glacier-dammed lakes; yellowish-brown to dark gray in exposures depending on weathering intensity.

**Qes** Shoreline Sediment

Well-sorted sand and gravel of beach-ridge complexes (individual ridges shown by line symbols); as thick as 15 feet.

**Qcof** Proglacial Lake Sediment

Flat-bedded lake sediment on low lying plains.

##### Sand and Gravel Facies

River sediment. Moderately well-sorted, cross bedded sand and plane-bedded gravel, including sediment of meltwater rivers.

**Qcrf** Flat Fluvial Plains

Flat-bedded sediment of nearly level plains and river terraces, commonly with braided channel scars, oxbows, and other relief markings; relief of 1 to 10 feet. Northern end of Elk Valley Delta complex.

**Qcic** Ice-Contact Deposits

Mainly gravel and sand with cobbles and boulders common; inclusions of glacial sediment common; local relief up to 50 feet; eskers and kames.

##### Till Facies

Glacial sediment. Unsorted, unbedded mixture of angular, subangular, and rounded blocks of rock, gravel, and sand, generally in a stiff matrix of silt and clay; yellowish-brown to olive-gray in exposures depending on weathering intensity; contains discontinuous lenses of gravel and sand.

**Qcew** Wave Eroded Glacial Sediment

Glacial sediment with flat to gently undulating topography resulting from wave erosion along the shore of Glacial Lake Agassiz.

**Qccu** Collapsed Glacial Sediment-Undulating

Gently undulating to undulating surface with poorly integrated drainage; local relief less than 10 feet.

**Qccr** Rolling surface with kettles

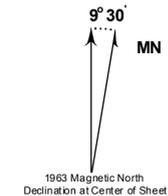
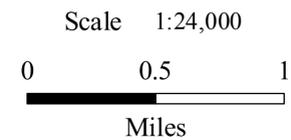
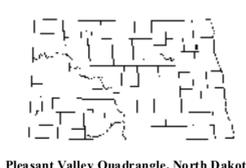
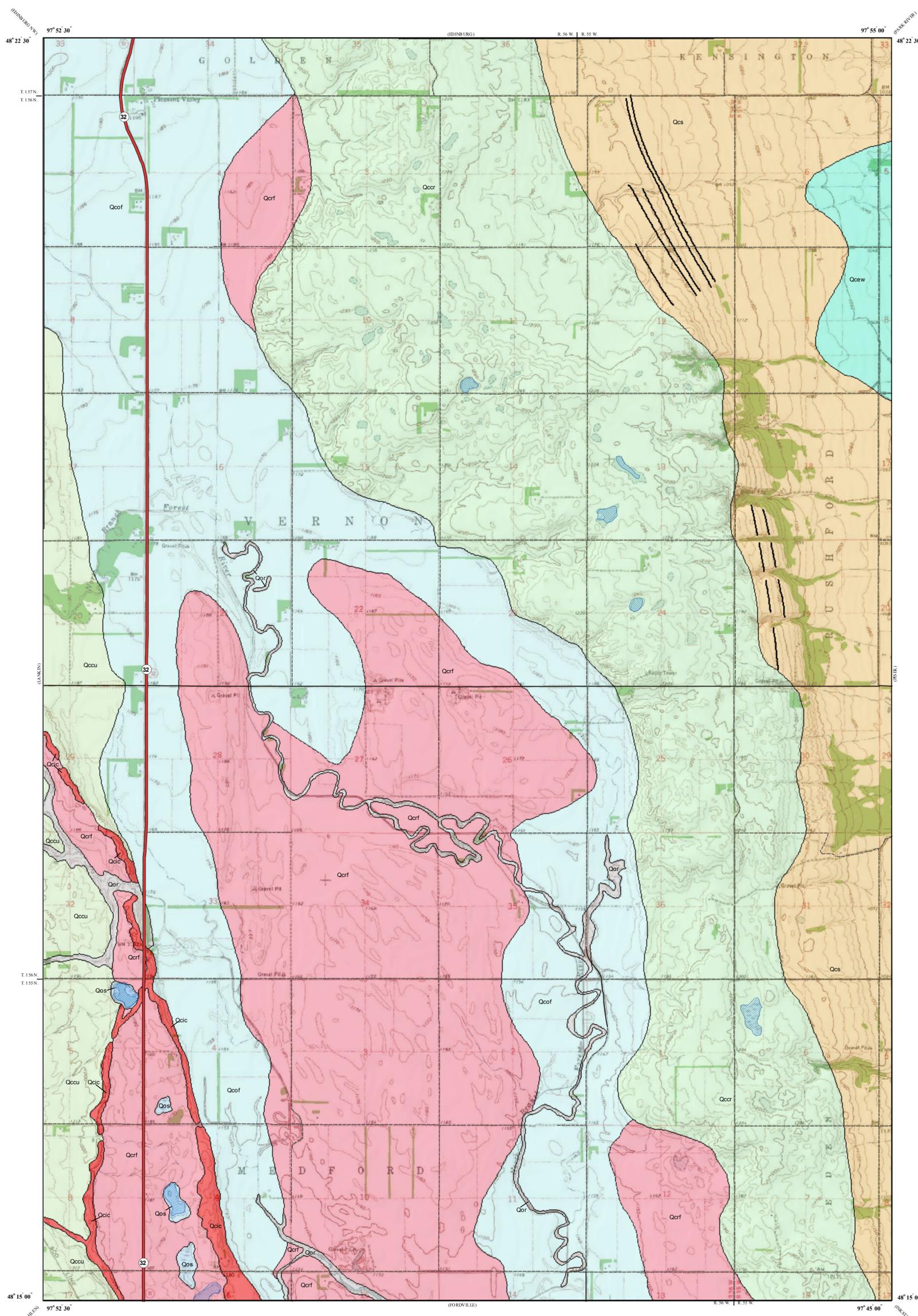
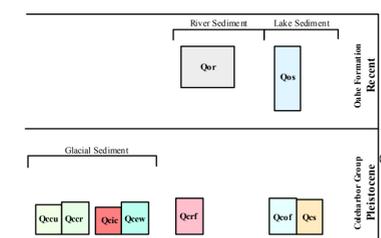
Partially to nonintegrated drainage, and numerous ice-disintegration features; "Edinburg moraine".

#### Geologic Symbols

- Known contact between two geologic units
- - - Approximate contact between two geologic units
- Individual beach - crest ridges

#### Other Features

- Water - Intermittent
- State Highway
- Paved Road
- Unpaved Road



Pleasant Valley Quadrangle, North Dakota

Scale 1:24,000  
Lambert Conformal Conic Projection Standard Parallels 48° 15' 00" and 48° 22' 30"  
1927 North American Datum NGVD 1929  
USGS 7.5 Minute Topographic Map Contour Interval 10 Feet  
Road and Hydrologic Layers Rectified to 2003 NAIP Digital Orthophoto

1963 Magnetic North  
Declination at Center of Sheet