

Surface Geology

Orr Quadrangle, North Dakota

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EXPLANATION

Gr Gravel Pit (Abandoned and/or reclaimed)

QUATERNARY

HOLOCENE

OAHE FORMATION

Sand, silt, clay, gravel, and organic debris; all postglacial sediment deposited on the landscape; includes river sediment, windblown sediment, lake sediment, and slopewash.

Hor Alluvium And Overbank Sediment

Sand, silt, clay and disseminated organic debris; obscurely bedded; dark colored; in many places associated with sand and gravel of older river-channel sediment; commonly more than three feet (1 meter) thick.

Hop Pond and slough sediment

Organic debris, clay, and silt; obscurely bedded; dark colored; generally more than three feet (1 meter) thick; deposited in poorly drained depressions in the landscape.

SHERACK FORMATION

Clay, silty clay, silt, and sand; thinly laminated; clayey in the central part of the lake plain and silty toward the margins; light gray where unoxidized and yellowish gray to olive-brown where oxidized; wood fragments common at the base; offshore, nearshore, shoreline and deltaic sediment deposited south of ice that occupied the Red River lowland during the Emerson Phase of Glacial Lake Agassiz.

Hso Offshore Lake Sediment

Laminated clay, clayey silt, silty clay, silt, and sand; clayey in the central part of the Red River Valley and siltier towards the margins; laminations are generally only a few millimeters thick but some of the silty beds are locally several centimeters thick; bedding deformed in places into folds a few feet high and several feet across; light gray when unoxidized and yellowish gray to olive brown when oxidized; wood fragments common in the lower few feet of the formation; as much as 100 feet (33 meters) thick.

Hsn Nearshore Sediment

Moderately well sorted; flat bedded to cross-bedded; light gray when unoxidized and yellowish gray to olive brown when oxidized; as much as 15 feet (5 meters) thick; deposited in shallow water.

Hss Shoreline Sediment

Silt, sand, and gravel; moderately to well-sorted; plane-bedded; to cross-bedded; as much as 18 feet (6 meters) thick; deposited along the shoreline of Lake Agassiz, commonly on eroded till; gravel occurs in beach ridges that are flanked by low-relief, lakeward-sloping areas of silt, sand, and wave-eroded till; beach ridges, spits, and offshore sand bars are shown as line symbols.

Hsd Deltaic sediment - sand and gravel

Moderately well-sorted; low-angle flat-bedded to high-angle cross-bedded grayish brown and yellowish red silt, sand, and gravel deposited in fluvial channels by meltwater streams flowing onto the Elk Valley delta; flat to gently undulating surface commonly with braided channel scars, oxbows, and other relict markings; up to 70 feet (21 meters) thick.

PLEISTOCENE

COLEHARBOR GROUP

The Coleharbor Group includes all sediments in North Dakota associated with deposition by Pleistocene glaciers.

GOOSE RIVER FORMATION (UNDIFFERENTIATED)

Sediment deposited by a glacier as a result of a readvance from the northwest (Riding Mountain provenance) of the generally retreating Late Wisconsinan ice sheet into the Red River lowland.

Qgrm Clay-Loam, pebbly

Unsorted; unbedded; contains cobbles and boulders; shale pebbles abundant; as much as 80 feet (24 meters) thick; deposited by glacial ice on an ice-cored glaciated landscape; collapsed glacial sediment with less than 30 feet (10 meters) of relief.

Qgrh Clay-loam, pebbly

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Qgrw Clay-loam, pebbly

Unsorted; unbedded; as much as 80 feet (24 meters) thick; flat to gently undulating surface, very bouldery in places; a thin veneer of shoreline, nearshore, or offshore sediment is commonly present; glacial sediment eroded (washed) by lake waves.

Qgrf Sand and gravel, shaly

Moderately well-sorted, light to dark grayish brown, low-angle flat-bedded to high-angle cross-bedded silt, sand, and gravel deposited as outwash by the ancestral Park River and other meltwater streams flowing off the Pembina Escarpment onto the Elk Valley delta; flat to gently undulating surface commonly with braided channel scars, oxbows, and other relict markings; up to 70 feet (21 meters) thick.

OLDER LAKE SEDIMENT

Lake sediment deposited in the glacial Lake Agassiz basin south of glacial ice that occupied the Red River lowland during a pre-Emerson high-water event.

Qlo Offshore lake sediment

Clay; obscurely laminated to unbedded; dark gray to black.

Geologic Symbols

- Known contact between two geologic units
- - - Approximate contact between two geologic units
- Other lineations

Established from aerial photographs; line marks the dimension of the feature; located in glacial sediment and thinly veneered glacial sediment; interpreted as disintegration trenches, streamlined bedforms associated with the movement of glacial ice, or lineations of unknown origin; generally difficult to discern on topographic maps and on the ground.

— Beach ridges, spits and offshore bars

Established from aerial photographs; line indicates the crest of the ridge; interpreted as beach ridges or offshore bars deposited along the margin of Lake Agassiz; discernible on topographic maps and on the ground.

— Sharp scarp

Established from aerial photographs and LIDAR; line indicates the crest of the scarp and the hachures point downslope; easily discernible on topographic maps and on the ground.

Other Features

- Paved Road
- - - Unpaved Road

