

# Cement Rock Mineral Resources Shawnee - McCanna Area Grand Forks County, North Dakota

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## CEMENT ROCK MINERAL RESOURCES SURFICIAL GEOLOGY

Cement rock mineral resources and relationships of the surficial geologic units in the vicinity of the Shawnee - McCanna areas, Grand Forks County, North Dakota are depicted on this map at a scale of 1:24,000. The prospect boundary area, as outlined by Carlson (1964), is delineated in blue and covers an area of approximately 17,280 acres (27 square miles). The geologic contacts of surficial units were compiled from previous small scale (1:250,000) geologic mapping and were modified and generalized for use on this map at a scale of 1:24,000. The locations of drillholes are shown in their approximated locations as obtained from Carlson (1964). A set of modified glacial drift thickness contours is also shown which delineates areas of uniform glacial drift thickness across the study area. These glacial drift thickness contours have been extended outside of the traditional prospect area as defined by Carlson (1964) and are shown as dashed lines in those areas in order to visualize the continued possible extents and thicknesses of glacial sediments.

The surface geology consists of Quaternary age unconsolidated sedimentary units deposited by the actions of the advance and retreat of glacial ice. Quaternary alluvium (Qal) consisting of sands and gravels associated with current drainages is mapped across 5,989 acres (9.4 square miles). Quaternary Glacial Sediment (Qcg) of the Coleharbor Formation consisting of sands, silts, and pebbly clays deposited in a subglacial environment is mapped across 19,699 acres (30.8 square miles). Sand and Gravel (Qg) sediments are mapped across 1,709 acres (2.7 square miles) and are located adjacent to alluvial sediments along the South Branch of the Turtle River. Existing sand and gravel operations are depicted on the topographic base maps within the mapped areas. Glaciolacustrine sediment (Qlno) is mapped in the eastern portion of the map area and marks the western boundary of the Agassiz Lake Plain District. Sands, Silts, and Clays deposited by Glacial Lake Agassiz cover 15,153 acres (23.7 square miles).

Within the map area the advance and retreat of glacial ice resulted in the deposition of Coleharbor Formation sediments and sediments associated with Glacial Lake Agassiz. Modern drainages have continued to erode, rework, and redeposit these sediments as alluvial materials into the present configuration that we see today. The thickness of glacial sediments (glacial drift) as depicted by the drift thickness contours thickens to the east from a thickness of greater than 50 feet to as low as eight feet in depth as a result of the transition between depositional environments when crossing from the Drift Prairie District to the Agassiz Lake Plain District.

### EXPLANATION

#### GENERALIZED SURFICIAL GEOLOGY

- Qal Alluvium**  
Gravel, sand, silt, and clay; undifferentiated, reworked and deposited in existing rivers and creeks.
- Qcg Glacial Sediment**  
Sand, silt, and clay; pebbly, unsorted, unbedded, contains abundant cobbles and boulders, deposited by glacial ice.
- Qg Sand and Gravel**  
Gravel, sand, and silt; moderately to well sorted, coarse to fine, deposited along the shoreline of Glacial Lake Agassiz.
- Qlno Glaciolacustrine Sediment**  
Sand, silt, and clay; moderately to well sorted, flat bedded to cross bedded, fines commonly laminated, deposited in near and offshore environments of Glacial Lake Agassiz.

#### Geologic Symbols

- Approximate contact between two geologic units in subcrop.
- A—A' Line of geologic cross-section.
- 50— Glacial drift thickness isopach delineates areas of equal drift thickness. Contour interval is equal to five feet.
- S-1 ● Drill hole location.  
S-1: Drillhole ID number.  
60: Glacial drift thickness (in feet).

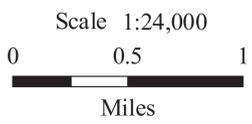
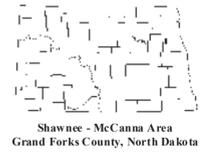
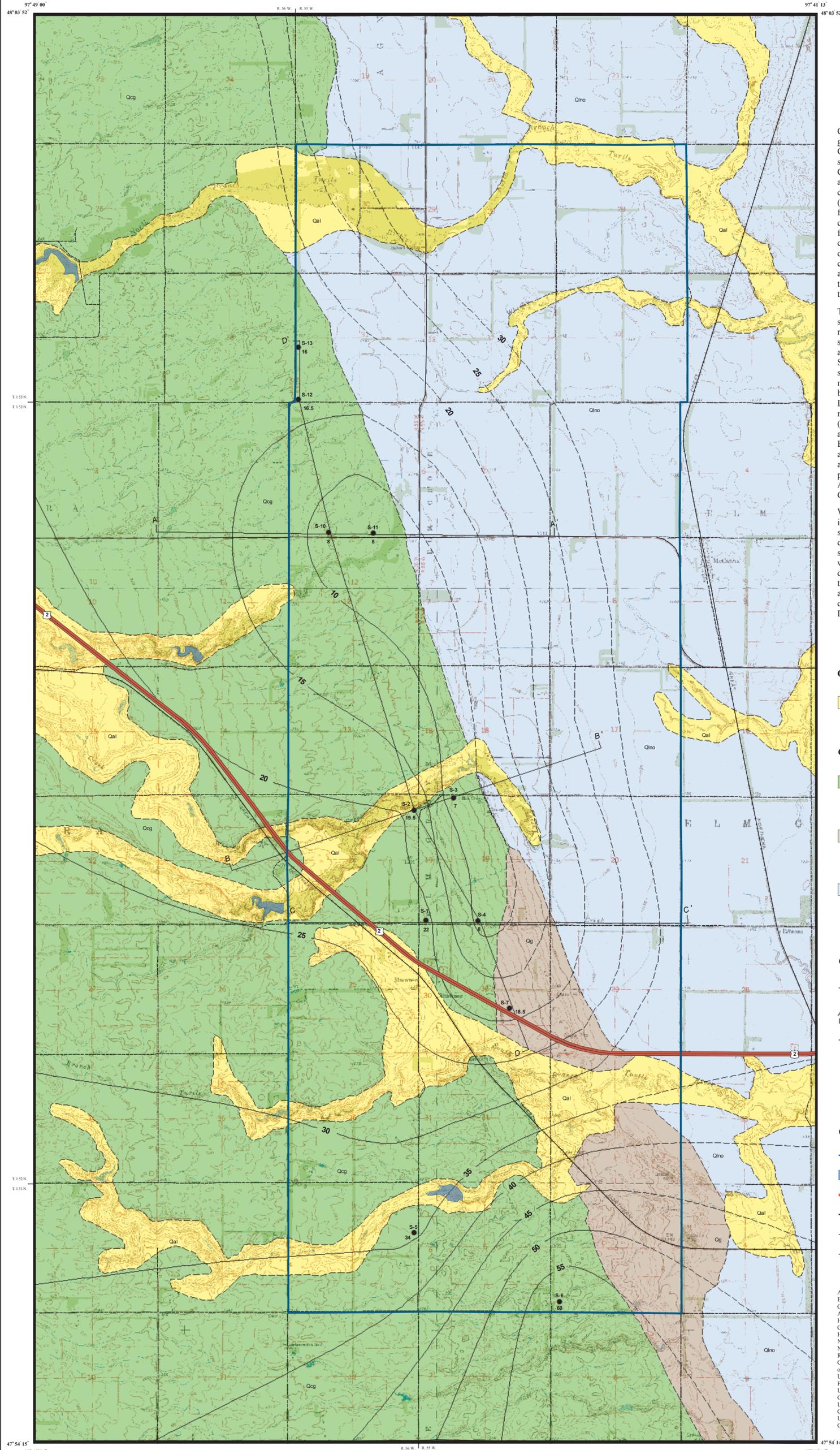
#### Other Features

- Extent of prospect area as defined by Carlson, 1964.
- Water
- 2 US Highway
- Paved Road
- Unpaved Road
- Railroad

#### REFERENCES

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Scale 1:24,000  
Miles



Shawnee - McCanna Area  
Grand Forks County, North Dakota

Lambert Conformal Conic Projection  
1927 North American Datum  
Standard Parallels 47° 52' 30" and 48° 07' 30"