North Dakota Geological Survey
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Locations of Sand and Gravel Sites in North Dakota

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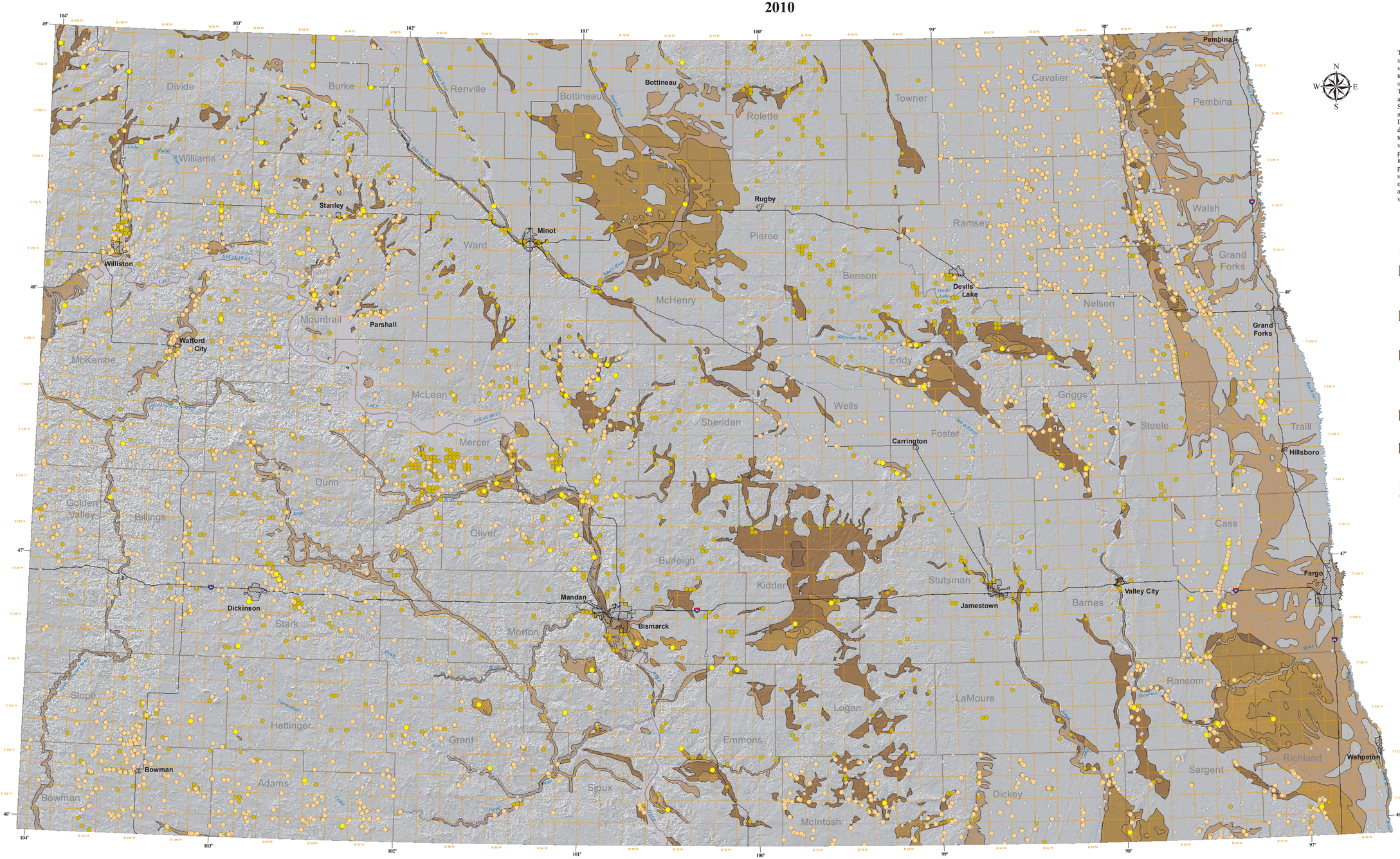

DISCUSSION

This map presents a compilation of previously identified sand and gravel resources and borrow sites identified throughout the state. The locations depicted here were compiled from previous topographic and geologic mapping along with contemporary geologic studies conducted by the North Dakota Geological Survey (NDGS). The locations of sand and gravel extraction operations reported in the annual Surface Mining Report (SMR) compiled by the North Dakota State Soil Conservation Committee Service (NDSSCC) are included, along with locations compiled from databases of the North Dakota Department of Transportation (NDDOT) and borrow pit locations digitized from Digital Raster Graphics (DRG) of 1:24,000 scale topographic maps covering the state of North Dakota. Selected sampling locations, where identified as potentially suitable for use as proppants for the hydraulic fracturing of oil and gas wells, are also included. The identification and delineation of sands that may be present within individual Tertiary age formations in western and southwestern North Dakota are not included on this map. The intent of this map is as an exploratory tool, in support of the identification and characterization of sands for use as proppants and other industrial sand uses.

EXPLANATION

Sand Deposits

Fluvial Sand

Cross-bedded sand; as thick as 30 feet (10 meters); originally deposited on flood plains. Commonly found within channels of modern streams and rivers.

Eolian Sand

Windblown, well sorted, fine grained sand up to 30 feet (10 meters) thick, occurring in localized dune deposits.

Eolian Sand

Windblown, up to 10 feet (3 meters) in thickness, commonly found bounding areas of localized sand dunes.

Sand and Gravel Deposits

Sand & Gravel

Well sorted sand and gravel up to 15 feet (5 meters) in thickness.

Sand & Gravel

Moderately well-sorted sand and gravel up to 100 feet (30 meters) in thickness.

Locations of Inactive Sand and Gravel Pits & Recent Sampling Sites

DMR - NDGS

Locations of prospective sand and gravel sites where reconnaissance-level sampling was completed by geologists and field technicians of the Geological Survey Division of the North Dakota Department of Mineral Resources during the 2009 and 2010 field seasons. These locations were identified as *potential* candidates for use as proppant sands based on previous geologic mapping and contemporary understanding of sedimentological and mineralogical maturity and depositional extent of sand resources in North Dakota.

DRG

Locations of inactive sand and gravel pit locations and borrow sites digitized from digital raster graphics (DRG) of USGS 7.5' series topographic quadrangles for the state of North Dakota.

SMR

Locations of historic and recent sand and gravel extraction operations reported in annual Surface Mining Reports (SMR) compiled by the North Dakota State Soil Conservation Committee (NDSSCC). Reported locations were digitally converted from tabular location data reported in traditional Public Land Survey System (i.e. Township, Range, and Section, etc.) descriptions.

NDDOT

Locations of prospective sand and gravel borrow sites, previously identified and characterized for road construction uses by the North Dakota Department of Transportation (NDDOT) and included in the annual SMR.

SELECTED MAP REFERENCES

Clayton, L., Moran, S.R., Bluemle, J.P., and Carlson, C.G., 1980, Geologic Map of North Dakota, U.S. Geological Survey - N.D. Geological Survey, 1:500,000 scale geologic map.

NDGS, 2000, Sand and Gravel Resources in North Dakota; North Dakota Geological Survey GIS Map Library, 1:100,000 scale derivative map.

NDGS (1962-1985), Geology of Selected North Dakota Counties, NDGS County Bulletin Series, North Dakota Geological Survey.

NDSSCC (1977-2007), Surface Mining Report For Minerals Other Than Coal. N.D. State Soil Conservation Committee, Bismarck, ND.

USGS (1947-1998), 7.5' Topographic Quadrangles Covering the State of North Dakota, 1:24,000 scale map series.

Misc

- Water
- River/Creek
- County Boundaries
- Township Boundaries
- Highways
- Cities/Towns

Cartographic Compilation: Elroy L. Kadrmas