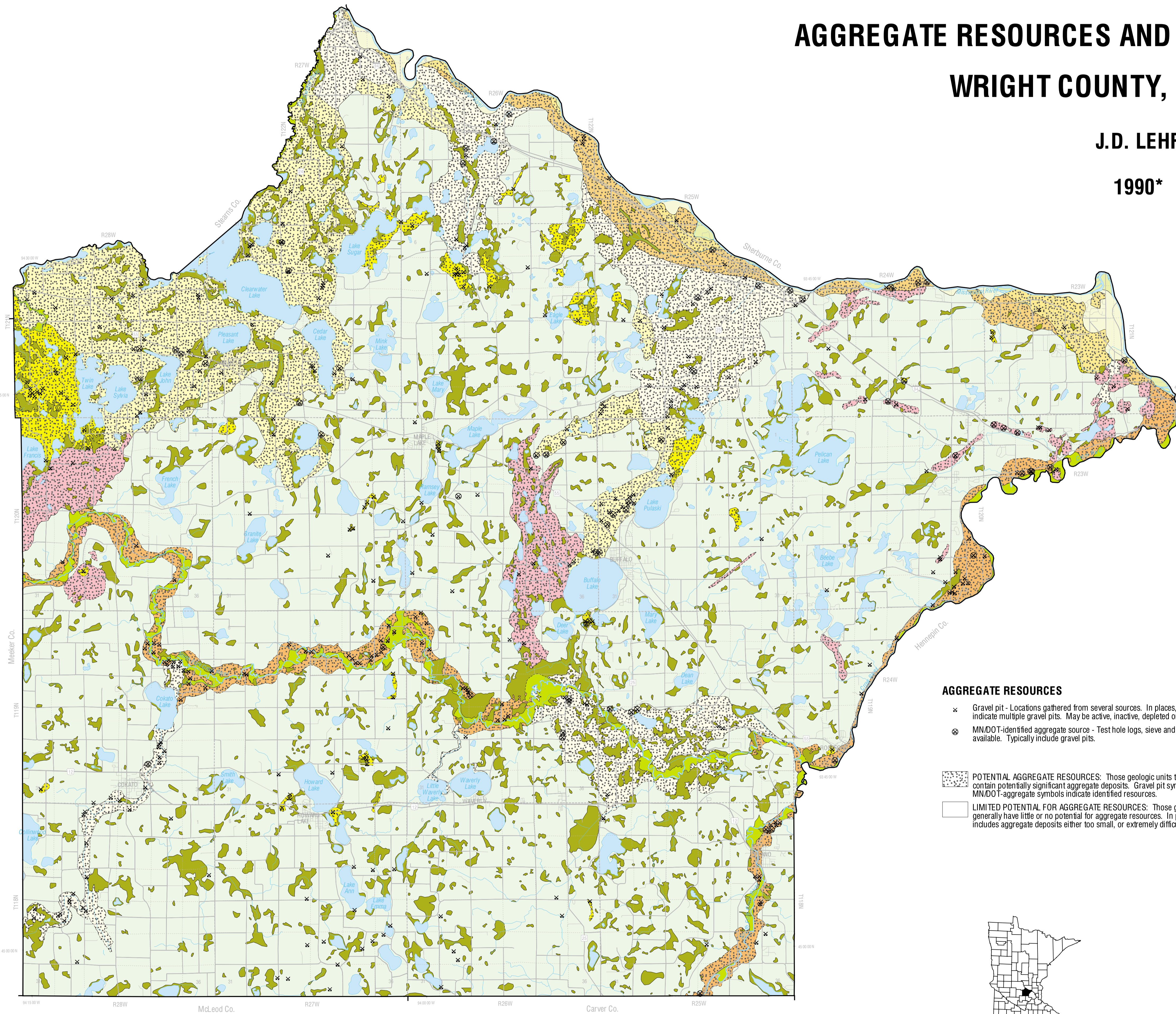


AGGREGATE RESOURCES AND QUATERNARY GEOLOGY

WRIGHT COUNTY, MINNESOTA

J.D. LEHR

1990*



QUATERNARY GEOLOGY

HOLOCENE

- ORGANIC DEPOSITS:** Peat and organic-rich silt and clay, ranging from 3 to greater than 20 feet thick, overlying surrounding or immediately adjacent unit(s). In places includes small bodies of water.
- ALLUVIUM:** Primarily, stratified very-fine to medium sand, but ranging from silty clay loam to sand, containing variable amounts of organic matter. Contact between alluvium and organic deposits is arbitrary in many places. Mapped only along the floodplains of the Clearwater and Crow Rivers, also occurs along smaller streams.
- ALLUVIUM - FINE FACIES:** Silty clay loam to fine sand. Mapped only along the floodplain of the Mississippi River.
- ALLUVIUM - COARSE FACIES:** Silty sand, sand and sandy pebble- gravel, locally overlain by 3 to 4 feet of fine alluvium. Mapped only along the floodplain of the Mississippi River.

PLEISTOCENE - LATE WISCONSINAN

Des Moines Lobe and Grantsburg Sublobe Deposits

- LOWER-TERRACE OUTWASH:** Sand and gravel, ranging from silty very-fine sand to sandy pebble-gravel, moderately to poorly sorted, stratified and cross-bedded. Forms lower terraces along the Mississippi River.
- UPPER TERRACE OUTWASH:** Sand and gravel, ranging from very-fine sand to sandy pebble-gravel, moderately to poorly sorted, stratified and cross-bedded. Forms upper terraces along the Mississippi River.
- TERRACE OUTWASH:** Sand and gravel, ranging from silty very-fine sand to sandy pebble-gravel, moderately to poorly sorted, stratified and cross-bedded. Commonly contains abundant shale clasts. Locally interbedded with or overlain by Des Moines lobe till and supraglacial sediment, 5 to 10 feet thick, displaying collapsed bedding. Forms terraces along the Crow River and its tributaries.
- OUTWASH:** Sand and gravel, ranging from very-fine sand to sandy pebble-gravel, moderately to very-poorly sorted, stratified and cross-bedded, locally collapsed. Characterized by the presence of fairly continuous low-gradient surfaces. Forms outwash plains and valley trains, locally pitted. Broadly gradational with Des Moines lobe collapsed outwash.
- COLLAPSED OUTWASH:** Sand and gravel, ranging from silty very-fine sand to sandy pebble-gravel, locally cobbly and bouldery, generally poorly to very-poorly sorted, stratified, locally interbedded with diamicton and sorted silt and clay. Characterized by collapsed bedding and a somewhat concordant land surface that is extensively pitted. Forms pitted and collapsed outwash plains. Broadly gradational with Des Moines lobe outwash and ice-contact deposits.
- ICE-CONTACT DEPOSITS:** Sand, gravel and silt, ranging from sandy silt to sandy pebble- and cobble-gravel, complexly interbedded, boulders common, generally poorly to very-poorly sorted, but in places moderately to well sorted, commonly interbedded with diamicton and sorted sand, silt and clay, shale content highly variable. Characterized by collapsed bedding. Forms eskers, kames and irregular hummocks surrounded by, or in close proximity to till plains.
- TILL AND SUPRAGLACIAL SEDIMENT:** Loam to clay loam diamicton, gray (yellowish-brown (10 YR) to olive-brown (2.5 Y) where oxidized), calcareous, includes small, discontinuous beds and lenses of silt, sand and gravel, ranging from very-poorly sorted to well sorted. In places, complexly interbedded with reddish-brown (5 YR) Superior lobe drift, where thoroughly mixed, dark-brown (7.5 YR) sand loam till is present. Characterized by the presence of shale. Forms hummocky and rolling till plains with variable relief.

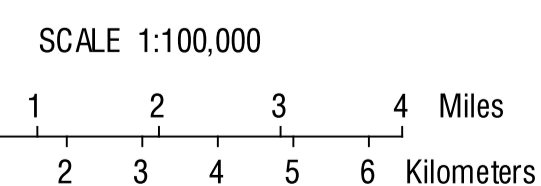
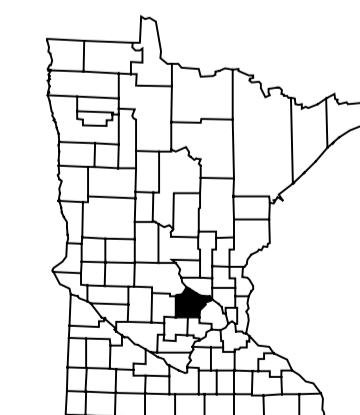
Superior Lobe Deposits

- ICE-CONTACT SAND AND GRAVEL:** Sand and gravel ranging from fine sand to sandy pebble-gravel, locally cobbly, reddish-brown (5 YR) to dark-brown (7.5 YR), generally poorly to very-poorly sorted, but in places moderately to well sorted, commonly interbedded with reddish-brown diamicton. Characterized by collapsed bedding. Distinguished from Des Moines lobe ice-contact deposits by reddish brown color, paucity or lack of shale, and abundant Lake Superior-basin rock types. Forms kames, eskers and irregular hummocks commonly overlain by 3 to greater than 10 feet of Des Moines lobe till and supraglacial sediment.

- Geologic contact
- Geologic contact - inferred, gradational, or approximately located

AGGREGATE RESOURCES

- Gravel pit - Locations gathered from several sources. In places, single symbols indicate multiple gravel pits. May be active, inactive, depleted or reclaimed.
- MN/DOT-identified aggregate source - Test hole logs, sieve and quality test data available. Typically include gravel pits.
- POTENTIAL AGGREGATE RESOURCES:** Those geologic units that are inferred to contain potentially significant aggregate deposits. Gravel pit symbols and MN/DOT-aggregate symbols indicate identified resources.
- LIMITED POTENTIAL FOR AGGREGATE RESOURCES:** Those geologic units that generally have little or no potential for aggregate resources. In places, includes aggregate deposits either too small, or extremely difficult to map.



Geology: Aerial photo interpretation and field mapping by J.D. Lehr, 1988-1989
 Base map: Roads and hydrography from U.S. Geological Survey, 1:100,000 Digital Line Graphs (DLGs)
 Public Land Survey lines from Land Management Information Center, annotation from MN Department of Natural Resources

*Note: to make this map available in a digital format, it was redrafted in 1997.