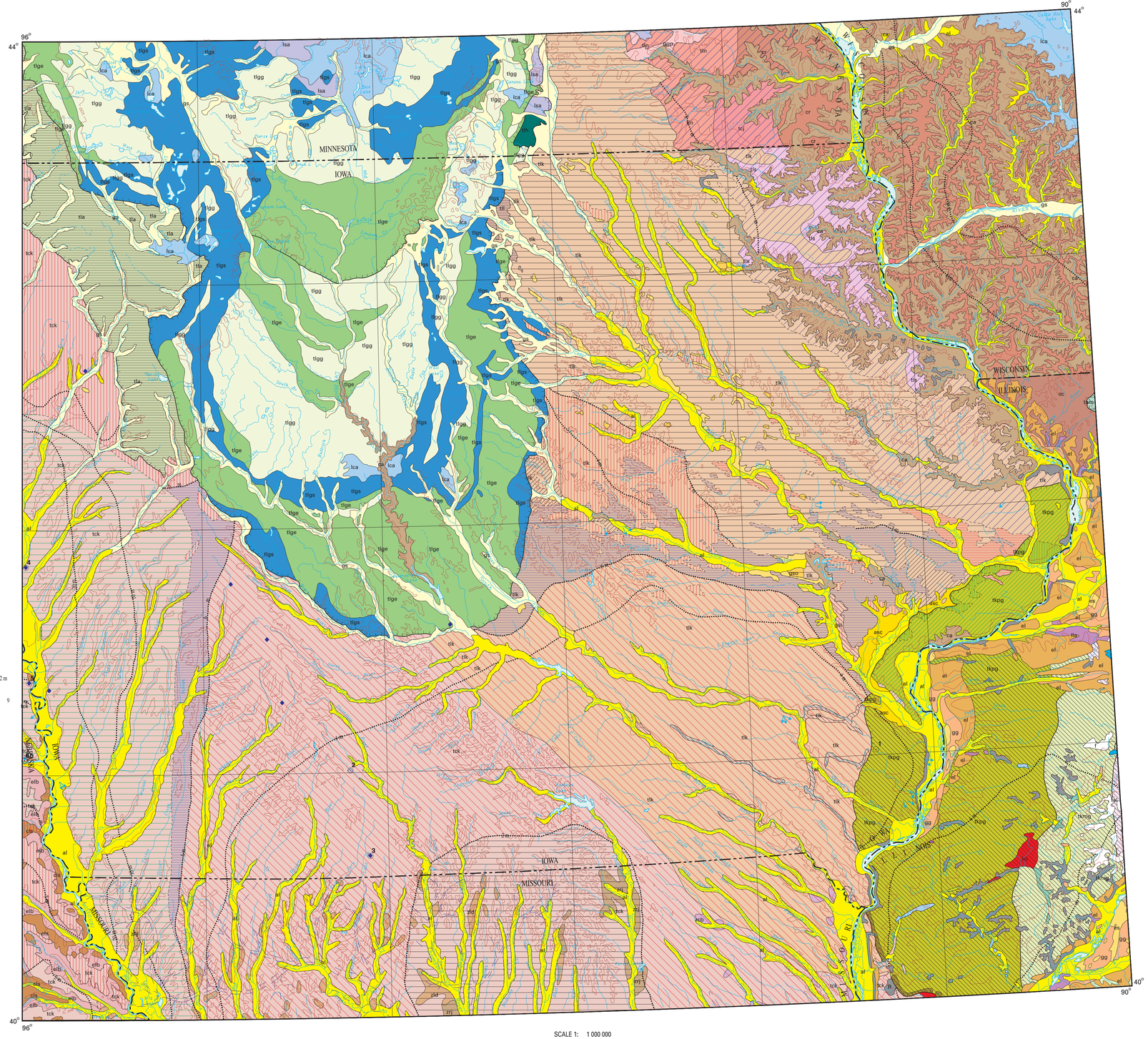

SCALE 1: 1 000 000

25 0 25 50 MILES

25 0 25 50 KILOMETERS

LIST OF MAP UNITS

al	ALLUVIUM
asc	ALLUVIAL SILT AND SAND
es	EOLIAN SHEET SAND
el	LOESS
ca	COLLUVIUM AND SHEETWASH ALLUVIUM
cls	CHERT-CLAST CLAYEY SILT TO SILTY CLAY LOAM COLLUVIUM
cc	COLLUVIUM
lsa	LAKE SAND
lca	LAKE SILT AND CLAY
lla	SLACKWATER LAKE SILT, CLAY, SAND, AND GRAVEL
gg	OUTWASH SAND AND GRAVEL
gs	OUTWASH SAND
tlgg	LOAMY TILL--Ground moraine
tlgs	LOAMY TILL--Stagnation moraine
tlge	LOAMY TILL--End moraine
tlh	LOAMY TILL
tla	LOAMY TILL
lcd	LAKE SILT AND CLAY
tll	LOAMY TILL
cr	COLLUVIUM
elb	LOESS
lci	LAKE SILT AND CLAY
gsi	OUTWASH SILT, SAND, AND GRAVEL
kgi	ICE-CONTACT SAND AND GRAVEL
tal	CLAYEY TILL
tkmg	LOAMY TILL--Ground moraine
tkme	LOAMY TILL--End moraine
tam	CLAYEY TILL
tkpg	LOAMY TILL--Ground moraine
tkpe	LOAMY TILL--End moraine
ggp	OUTWASH SAND AND GRAVEL
tlk	LOAMY TILL
gso	SAND AND GRAVEL
tck	CLAY LOAM TILL
tln	DISCONTINUOUS LOAMY TILL
tls	DISCONTINUOUS LOAMY AND CLAYEY TILL
gsq	OUTWASH SAND AND GRAVEL
tlt	LOAMY TILL
tcj	DISCONTINUOUS CLAYEY TILL
zld	CLAYEY SILT TO SILTY CLAY DECOMPOSITION RESIDUUM
zrj	SANDY TO SILTY CLAY DECOMPOSITION RESIDUUM AND CLAY SOLUTION RESIDUUM
rcb	THIN CHERTY CLAY SOLUTION RESIDUUM
R	BEDROCK
	LAKE OR RIVER
f	MANMADE FILL--Chiefly open pit coal mine waste. Mapped only in Illinois

CONTACT--Dashed where inferred

LOESS ISOPACH--In meters

OUTER LIMIT OF SIGNIFICANT GLACIAL ADVANCE--Marked by distal edge of end moraine or outer limit of till; ticks on side of advance

BURIED PLEISTOCENE RIVER CHANNEL--Mapped only in Missouri

STRIATIONS--Showing direction of glacier movement

LOCATION OF SIGNIFICANT STRATIGRAPHIC SECTION--May be combined with volcanic ash bed symbol

VOLCANIC ASH BEDS--Lava Creek B (Pearlette O) volcanic ash bed

VOLCANIC ASH BEDS--Huckleberry Ridge (Pearlette B) volcanic ash bed

LOESS STRATIGRAPHY AND THICKNESS ON WISCONSIN, ILLINOIAN, AND PRE-ILLINOIAN TILLS--Wisconsin loess is an informal stratigraphic name in Iowa

Late Wisconsin loess less than 2 m thick over older late Wisconsin and early Wisconsin(?) or Illinoian(?) till

"Wisconsin" loess and eolian sand over Sangamon or late Sangamon paleosol developed in Illinoian till or other Illinoian deposit --Loess and sand more than 6 m thick'

"Wisconsin" loess and eolian sand over Sangamon or late Sangamon paleosol developed in Illinoian till or other Illinoian deposit--Loess and sand 2-6 m thick'

"Wisconsin" loess and eolian sand over Sangamon or late Sangamon paleosol developed in Illinoian till or other Illinoian deposit--Loess and sand 2-6 m thick--Sangamon paleosol generally absent'

"Wisconsin" loess more than 6 m thick over Sangamon paleosol in 2-6 m of Loveland Loess (Illinoian) over Yarmouth paleosol developed in pre-Illinoian till'

"Wisconsin" loess and eolian sand over "Yarmouth-Sangamon" to late Sangamon paleosol developed in pre-Illinoian till--Loess more than 6 m thick'

"Wisconsin" loess and eolian sand over "Yarmouth-Sangamon" to late Sangamon paleosol developed in pre-Illinoian till--Loess and sand 2-m thick'

"Wisconsin" loess and eolian sand over "Yarmouth-Sangamon" to late Sangamon paleosol developed in pre-Illinoian till--Loess 2-6 m thick'

"Wisconsin" loess and eolian sand over "Yarmouth-Sangamon" to late Sangamon paleosol developed in pre-Illinoian till--Loess 2-4 m thick, locally more than 6 m thick, with or without underlying paleosol'

"Wisconsin loess and eolian sand or loamy sediment over extensive erosion surface on pre-Illinnoian till--Paleosol generally absent --Loess and minor sand more than 6 m thick'

"Wisconsin loess and eolian sand or loamy sediment over extensive erosion surface on pre-Illinnoian till--Paleosol generally absent --Loess 2-6 m thick'

"Wisconsin loess and eolian sand or loamy sediment over extensive erosion surface on pre-Illinnoian till--Paleosol generally absent --Loess or sand less than 6 m thick or loamy sediment less than 1 m thick'

Plot of digital database for

QUATERNARY GEOLOGIC MAP OF THE DES MOINES 4° x 6° QUADRANGLE, UNITED STATES