PHYSIOGRAPHY

The St. Charles quadrangle includes part of the large floodplain of the Missouri River and terraces uplands. The floodplain is up to five miles wide in this area. The quadrangle lies within the Des veneed Till Plateau Section of the Central Lowland Province of the Interior Plains Physiographic Division. With the exception of a quarry located in the southwest of the quadrangle, the lowest recorded elevation is slightly less than 430 feet mean sea level (msl) and occurs along the edge of the Missouri River near the eastern quadrangle boundary. The highest elevations are found on gently sloping terraces and range to greater than 500 feet msl in the southeast corner of the quadrangle. The oldest outcrop of the Missouri River is approximately 150 feet.

GEOLOGICAL OVERVIEW

The St. Charles quadrangle is underlain by Paleozoic formations and shale. The majority of the quadrangle is underlain by the Mississippiian-aged St. Louis and Warren Formations. The uplift area in the southeast of the St. Charles quadrangle is underlain by the Paris Group. This unit consists of sand, gravel, and conglomerate deposited by streams and rivers. The Paris Group is overlain by Quaternary deposits. These deposits consist of alluvium, loess, and terrace deposits of sand, gravel, and clay. In areas where surficial materials over the Warren Formation, the landslide potential is greatest. The Warren Formation is dominated by shale, which creates a zone of instability during high precipitation events.

DESCRIPTION OF MAP UNITS

QUATERNARY CLAY-CAPPED ALLUVIUM - This unit has been deposited by the Missouri River. The approximate age is 15 feet of deltaic deposits are composed predominantly of clay with variable amounts of fine and organic materials. The material mapping below the clay is predominantly sand and gravel and is highly permeable. The clay is highly permeable and the surcharge water level is controlled by the clay. The water table is approximately 15 feet below ground surface, resulting in no adverse of saturated sand and gravel.

QUATERNARY Silt-Capped Alluvium - This unit has been deposited by the Missouri River. The approximate age is 15 feet of siltite deposits are composed predominantly of clay with variable amounts of silt and organic materials. The material mapping below the silt is predominantly sand and gravel and is highly permeable. The silt is highly permeable and the surcharge water level is controlled by the silt. The water table is approximately 15 feet below ground surface, resulting in no adverse of saturated sand and gravel.

QUATERNARY LOESS - This unit is a very-broad deposit of loamy and sandy silt with scattered pieces of clay, sand, and gravel. The unit is composed of fine-grained layers, the loam being the major component. The water table is approximately 15 feet below ground surface, resulting in no adverse of saturated sand and gravel.

QUATERNARY TERRACE - The terrace deposits in the quadrangle are significantly different than previously mapped terrace deposits (Bill, 1991; Hamilton, 1992; and Goodell, 1993). All were deposited during the Last Glaciation and are characterized by a series of terraces. The water table is approximately 15 feet below ground surface, resulting in no adverse of saturated sand and gravel.

BIBLIOGRAPHY


