

EXPLANATION



**Alluvium**  
(Floodplain deposits of silt, sand, and gravel in valleys of present streams.)



**Eolian Deposits**  
(Wind-blown deposits of sand and loess on uplands.)



**Quaternary Deposits**  
(undifferentiated)  
(Deposits of alluvium, colluvium, lake deposits and dune sand which were not differentiated in mapping.)



**Sand Hills Formation**  
(Fine to medium grained unconsolidated wind blown sand characterized by grass stabilized dunes and blowouts; as much as 100 feet thick.)



**Terrace Deposits**  
(lower)  
(Stream deposits of gravel and finer materials above the present floodplain.)



**Terrace Deposits**  
(upper)  
(Stream deposits of gravel and finer materials at least 75 feet above the level of the present floodplain.)



**Ash Hollow Formation**  
(Greyish-brown calcareously cemented to unconsolidated medium to fine sand with some volcanic ash, clay and mineralized plant rootlets. Maximum thickness 200 feet.)



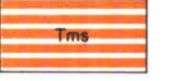
**Rosebud Formation**  
(Reddish-buff to brown interbedded sands, silts, and clays; concretions abundant and varied in size and shape; light pink clayballs of montmorillonite present; siliciously cemented puffy reddish-brown clays at various levels. Maximum thickness 235 feet.)



**Harrison Formation**  
(Grey massive moderately consolidated silty fine to very fine sand; layers of concretionary material and greyish white bedded marl. Maximum thickness 160 feet.)

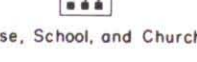
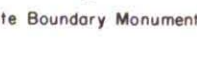
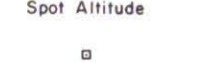
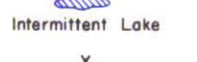


**Monroe Creek Formation**  
(Greyish-buff compact massive sandy and clayey silts; cliff forming tendencies. Maximum thickness 120 feet.)



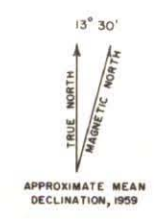
**Sharps Formation**  
(Pinkish-tan massive poorly consolidated compact silt; many small grey calcareous concretions. Maximum thickness exposed 200 feet.)

Geologic Contact (dashed where approximately located)



PORCUPINE BUTTE QUADRANGLE

Geology by J.C. Harksen, 1963  
Assisted by Joe Kulick  
Vertical and horizontal control surveyed from triangulation and level lines of Federal surveys  
Drafted by Nat Lufkin and D.W. Johnson, 1966-67



Vermillion, South Dakota 1967

