

## GEOLOGIC MAP SYMBOLS

### Lithologic and Stratigraphic Symbols

Qal	Quaternary alluvium (mapped only as the flat floodplain along modern rivers & streams)
Qp	Quaternary pediment surfaces and associated deposits
Qaf	Quaternary alluvial fan deposits (recognized by fan-shaped landforms)
Qls	Quaternary landslide deposits (recognized by scarp, hummocky land form and sharp toe; usually developed in Tertiary volcanics)
Qg	Quaternary glacial deposits undifferentiated
Qgl	glacial lacustrine (recognized by modern lakes and flat swampy modern meadows)
Qgt	glacial till - use dotted line to indicate position of moraines (recognized by erratic boulders and hummocky topography)

Nv	Neogene volcanic rock undifferentiated (mostly 17 - 2 Ma); some of these are mapped separately, others are included in the Anderson Ranch Member of the Sixmile Creek Formation
Nvb	Neogene basalt, includes the 6.0 +/- 0.1 Ma Timber Hill basalt
Nvr	Rhyolite - mostly pyroclastic flow, fall and surge deposits
Ts	Tertiary (Neogene) Sixmile Creek Formation undifferentiated
Tsbh	Big Hole River Member
Tsa	Anderson Ranch Member
Tss	Sweetwater Creek Member
Tr	Tertiary (Paleogene) Renova Formation
Tdv	Tertiary Dillon Volcanics undifferentiated (Mostly Paleogene - 52-30 Ma)
Tdvb	basalt (Paleogene)
Tdva	andesite (Paleogene)
Tdvr	rhyolite, includes pyroclastic flow deposits and lava flows

KTb	Cretaceous/Tertiary Beaverhead Formation/Group. Contains limestone angular conglomerate/breccia in a red sandstone matrix, red sandstone and siltstone, quartzite cobble conglomerate with red sandstone
KTi	Late Cretaceous/Early Tertiary intrusive rock (70-140 Ma) associated with the Pioneer and Boulder Batholiths. Generally mapped by lithology, a - andesite, g - granite, r - rhyolite
Kesc	Cretaceous Cold Spring Creek Volcanics (white & pink tuffs, dark fragmental volcanic breccia)
Kf	Cretaceous Frontier Formation
Kb	Cretaceous Blackleaf Formation undifferentiated
Kbv	Upper volcanoclastic/shale member of the Blackleaf Fm (valley former)
Kblc	Lower clastic member (includes Kblsh & Kbuc of Dyman) of the Blackleaf Fm
Kk	Cretaceous Kootenai Formation undifferentiated
Kkg	Gastropod Limestone Member
Kksh	Upper Clastic (Shale) Member (valley former -- red shale with ribs of sandstone)
Kkm	Middle Limestone Member
Kklc or Kkss	Lower Clastic (Sandstone) Member (ribs of ss & congl. with red shale valleys)

Jm	Jurassic Morrison Formation
TR d	Triassic Dinwoody Formation - undifferentiated
TR du	upper bedded carbonate member
TR dl	lower shale member

Pp	Permian Phosphoria Formation (includes Mead Peak Phosphatic Shale, Rex Chert, Park City Limestone, Retort Phosphatic Oil Shale, Shedhorn Sandstone)
IPq	Pennsylvanian/Permian Quadrant Sandstone (Quartzite)
MIPa	Mississippian/Pennsylvanian Amsden Formation
Mbs	Mississippian Big Snowy Formation/Group
Mm	Mississippian Madison Group undifferentiated
Mmm	Mission Canyon Limestone
Mml	Lodgepole Limestone
Dt	Devonian Three Forks Shale
Dj	Devonian Jefferson Dolomite
Ch	Cambrian Hasmark Dolomite
Cw	Cambrian Wolsey Shale
Cf	Cambrian Flathead Sandstone
pCu	Precambrian crystalline basement rocks undifferentiated. These are generally mapped using lowercase letters that designate lithologic units. g - granite, gn - gneiss, mg - mafic gneiss, m - marble, as - amphibolite schist, sh - schist, etc.; pick letters appropriate for rock type and area being mapped.

## Structural Symbols

### Normal contacts (black):

known location (+/- 10')

approximate location (+/- 25')

inferred location

### Faults (red):

Thrust fault (teeth on upper plate)

Strike-slip fault (show apparent motion in plane of map)

Normal fault (show apparent motion) or ball on hanging wall

### Folds (blue):

Axial trace of normal and overturned antiform or anticline

Axial trace of normal and overturned synform or syncline

### Strike and Dip Symbols (black):

Strike and Dip of bedding (normal, vertical, overturned)

Strike and dip of foliation (normal and vertical)

strike and dip of joints (normal and vertical)

## **Colors:**

All geologic maps and structure sections should be colored. The colors should be applied very lightly and evenly and should not obscure topographic lines or other detail on the base map. Most mistakes in coloring are made by applying colors that are too heavy or that are uneven. Following is a list of some “standard” colors found on geologic maps. For different formations of the same lithology, use different shades of the same color group. Yellow should be reserved for Quaternary units. If only one Quaternary unit is mapped it should be in yellow. If two are mapped, Qal should be yellow and the other unit light orange.

### **Colors by lithology:**

surficial deposits yellow (preferred) or light orange  
sandstone and conglomerate brown  
shale, siltstone & mudstone green  
carbonates blue  
granitic rocks red  
volcanics pink  
basalt pink or black  
metamorphic rocks use color appropriate for protolith

### **Colors by Age:**

Quaternary yellow, pale yellow, white  
Cenozoic brown, orange, rust  
Mesozoic green, olive  
Paleozoic blue, purple  
Precambrian red, pink