## Federal Geographic Data Committee Public Review Draft - Digital Cartographic Standard for Geologic Map Symbolization

		9—LINEATION		
REF NO	DESCRIPTION	SYMBOL	CARTOGRAPHIC SPECIFICATIONS	NOTES ON USAGE
9.1	Lineation—Showing bearing and direction of plunge	$\rightarrow$	lineweight .15 mm 25° → ← 1.5 mm	May be used separate- ly or in combination with other symbols. For single, unidirection- al arrow symbols, the point of observation may either be in the middle, at the tip, or at the tail end of the ar- row; whichever is pre- ferred, it is important to specify in the symbol explanation which method has been used. For combined symbols, the point of observation is at the tail end of the arrow, the junction point common to all symbols. In general, A lineations are in the direction of slip; B lineations are parallel to minor folds.
9.2	Lineation—Showing bearing and plunge	<i>→20</i>	→20 <i>HI-6</i>	
9.3	Horizontal lineation—Showing bearing	$\leftrightarrow$	⇒ ⇒5.0 k	
9.4	Vertical lineation	+	lineweight .15 mm ↓ 4.5 45 ↓ mm 1.375 mm	
9.5	Mineral lineation indicated by aligned streaks on foliation surface (A lineation)—Showing bearing and direction of plunge	_M	H-7 M	
9.6	Slip lineation, groove, or striations on foliation surface (A lineation)—Showing bearing and direction of plunge	_S→	_s ∼ <sup>H-7</sup>	
9.7	Flow lineation in direction of flow on foliation surface (A lineation)—Showing bearing and direction of plunge	_F,	⊭ H-7 F→	
9.8	Lineation indicating axes of minor folds formed by flow (B lineation)—Showing bearing and direction of plunge	<b>→→</b>	dot diameter .75 mm 2.0 mm ⊰ ⊨	
9.9	Lineation indicated by aligned elongate minerals on foliation surface parallel to minor folds (B lineation)— Showing bearing and direction of plunge	M	M <sup>≪ H-7</sup>	
9.10	Lineation indicated by aligned mineral grains in cumulate rocks—Showing bearing and direction of plunge	M_→	M ∠ H-7 1.375 mm → k→ 1.0 mm → k→ 1.5 mm	
9.11	Lineation indicated by trough banding in cumulate rocks—Showing bearing and direction of plunge		⊺ <i>⊭</i> H-7 -=>	
9.12	Lineation indicating flow direction at base of ash deposits formed in surges—Showing bearing and direction of plunge	$\leftrightarrow$	radius 1.5 mm; dash .75 mm; space .375 mm ,	
9.13	Lineation indicating flow direction in ash-flow tuff—Showing bearing and direction of plunge	-0-→	all lineweights 1.375 mm→ ← .15 mm circle diameter 1.0 mm	
9.14	Lineation indicating minor folds normal to flow in ash-flow tuff—Showing bearing and direction of plunge	- <b>+</b> ->	↓ dot diameter 1.0 mm	
9.15	Lineation at intersection of bedding and cleavage—Showing bearing and direction of plunge	$\rightarrow$	$\begin{array}{c c} 1.875 \text{ mm} \xrightarrow{>} & & \text{all lineweights} \\ 1.375 \text{ mm} & \xrightarrow{\frac{1}{4}} & & .15 \text{ mm} \end{array}$	
9.16	Lineation at intersection of foliation and cleavage—Showing bearing and direction of plunge	-# <b>&gt;</b>	$\begin{array}{c c} 1.75 \ \text{mm} \ \overrightarrow{\rightarrow} \ \overrightarrow{\leftarrow} \\ 1.375 \ \text{mm} \ \overrightarrow{\uparrow} \ \overrightarrow{\neg} \\ \overrightarrow{\wedge} \ \overrightarrow{\land} \\ .5 \ \text{mm} \end{array} \qquad all \ lineweights \\ 1.5 \ \text{mm} \end{array}$	
9.17	Lineation on cleavage surface—Showing bearing and direction of plunge	-□->	$1.0 \text{ mm} \xrightarrow{\frac{\sqrt{3}}{K}}_{1.5 \text{ mm}} \xrightarrow{\text{all lineweights}}_{1.5 \text{ mm}} 1.5 \text{ mm}$	-
9.18	Penetrative lineation—Showing bearing and direction of plunge in combination with foliation symbol	- <b>*</b> >	$\begin{array}{c} 2.0 \text{ mm} \\ 1.25 \text{ mm} \\ \hline \end{array} \xrightarrow{2} \ \times \\ \hline \\ 90^{\circ} \\ \end{array} \qquad \qquad$	
9.19	Flow direction—Showing bearing and direction of plunge	•	$\begin{array}{c} \text{lineweight} \\ .15 \text{ mm} \end{array} \xrightarrow{\begin{array}{c} 30^{\circ} \\ \end{array}} \begin{array}{c} \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \end{array} \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	
9.20	Slip lineation or slickenside on a fault or shear surface—Showing bearing and direction of plunge of offset	S	S + H-7	