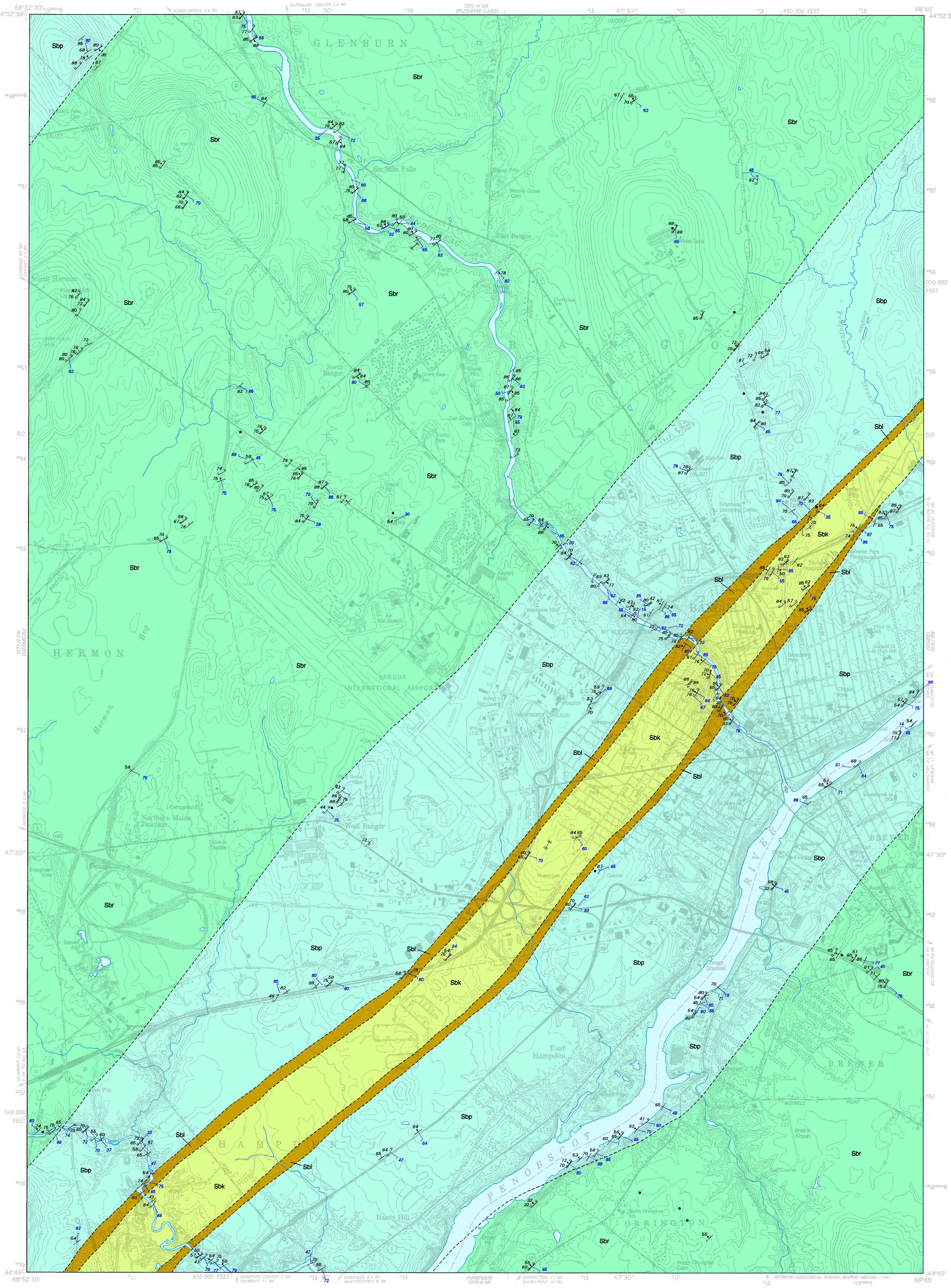

Bedrock Geology of the Bangor Quadrangle, Maine

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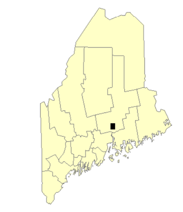
For additional information, see Open-File Report 11-147. This map supersedes a portion of Open-File Map 76-23.



Quadrangle Location

TRUE NORTH

SCALE 1 : 24,000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET

SOURCES OF INFORMATION

Field work conducted by S. G. Pollock during 2004.

Topographic base from U.S. Geological Survey Bangor quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

EXPLANATION OF UNITS

Stratified Rocks

Silurian(?)

VASSALBORO GROUP

Bangor Formation (new name). Dominated by thick-bedded feldspathic metawacke. Divided into three members.

Sbk — **Kenduskeag Stream Member** (new name). Medium greenish gray to dark greenish gray very fine-grained to fine-grained feldspathic metawacke and greenish gray slate. Muscovite is locally a common accessory mineral in the metawackes. Metawacke beds are of variable thickness ranging from 30 cm to 1.5 m. Sedimentary structures are uncommon. Metawacke beds may exhibit textural gradations from very fine-grained to fine-grained sandstone.

Sbl — **Lover's Leap Member** (new name). Dark gray to grayish black siltstone slate with laminae and very thin beds of very fine-grained quartz-rich sandstone. Rusty weathering, calcareous, very fine-grained, quartz-rich metasandstone is locally common. Sedimentary structures in the sandstones typically include ripple cross-lamination and/or parallel lamination. Named for the cliff known as Lover's Leap on the northwest bank of Kenduskeag Stream, west of St. Joseph's Hospital, Bangor.

Sbp — **Penobscot River Member** (new name). Medium gray to dark gray, medium-grained to very fine-grained feldspathic metawacke. Muscovite is locally a common accessory mineral. Siltstone and claystone slate is a minor lithology. Beds of metawacke are of variable thickness ranging from 15 cm to in excess of 2 meters. Thinner metawacke beds may exhibit singly, or in combination, parallel lamination, ripple cross-lamination, or convolute lamination. Thicker metawacke beds are commonly texturally graded. Thicker metawacke beds may exhibit load structures or parallel lamination, and may contain slate rip-up clasts. Flute and/or groove casts on the soles of metawacke beds are rare.

Sbr — **Brewer Formation** (new name). Dominantly dark gray to black, siltstone and claystone slate. Slate beds are commonly less than 30 cm thick. Locally common within the slates are thin, discontinuous, parallel laminae of quartz-rich metasiltstone. Slaty cleavages are typically folded, but may occur as regular planar structures or irregular phacoidal planes with a pronounced rusty stain. Medium to thick beds of fine-grained feldspathic and/or quartz metawacke are common. Beds may exhibit grading. The unit also contains thin beds of slightly calcareous, rusty weathering, very fine-grained sandstone. Sedimentary structures are common in this rock type. Thin to very thin beds of dark gray to grayish black micritic metalimestone are uncommon to rare. The metalimestone is commonly deeply weathered in shades of dark brown and brownish black.

EXPLANATION OF SYMBOLS

• **Outcrop, no structural information shown.** Symbols showing bedding, cleavage, and joint orientations also indicate bedrock outcrop locations.

20 20 — **Strike and dip of bedding, topping direction known.** Primary topping direction is recognized conclusively by current-generated sedimentary structures such as ripple marks, ripple cross-lamination, sole marks (flute or groove casts) or unequivocal textural grading. (Upright, Overturned, Vertical - tops toward ball)

20 — **Strike and dip of bedding, topping direction not determined.** Sedimentary younging direction is inconclusive or not determined. There is an absence of conclusively recognizable current-generated sedimentary structures or unequivocal textural grading. (Inclined, Vertical)

20 — **Strike and dip of joint set.** The most prominent or dominant joint set at the outcrop. (Inclined, Vertical)

20 — **Strike and dip of slaty cleavage.** A representative slaty cleavage orientation for the outcrop shown. In most instances, the cleavages are warped or broadly folded. The measurement shown may be an average of 3 or more measurements, or may be one measurement that "represents" the general strike and dip of cleavage at that specific outcrop. A second deformation is present at many outcrops. This second deformation has produced numerous small folds in cleavage. Care was taken not to use values from the limbs of the small, second-generation folds. (Inclined, Vertical)

Note on combined symbols:

For bedding and cleavage symbols, the center of the strike line is at the point of observation. For joints, the observation point is at the end of the strike line opposite the dip mark. Where two or three measurements were made at the same place, the symbols intersect accordingly. In the case of combined bedding and cleavage symbols, the dip mark of the bedding symbol points to the bedding dip angle. The cleavage dip angle is placed near the double tick marks at one end of the cleavage symbol.

EXPLANATION OF LINES

Stratigraphic contact between map units.

ADDITIONAL SOURCES OF INFORMATION

Griffin, John R., 1976, Reconnaissance bedrock geology of the Bangor [15-minute] quadrangle: Maine Geological Survey, Open-File Map 76-23 (scale 1:62,500).

Pollock, Stephen G., 2011, Stratigraphy and structural geology of the Bangor and Veazie 7.5' quadrangles, Maine: Maine Geological Survey, Open-File Report 11-147, 8 p.

GEOLOGIC TIME SCALE

Geologic Age		Absolute Age*
Cenozoic Era		0-65
Mesozoic Era	Cretaceous Period	65-142
	Jurassic Period	142-200
	Triassic Period	200-253
Paleozoic Era	Permian Period	253-300
	Carboniferous Period	300-360
	Devonian Period	360-418
	Silurian Period	418-443
	Ordovician Period	443-489
	Cambrian Period	489-542
Precambrian time		Older than 542

* In millions of years before present. (Okulitch, A. V., 2004, Geological time chart, 2004: Geological Survey of Canada, Open File 3040 (National Earth Science Series, Geological Atlas) - REVISION.)