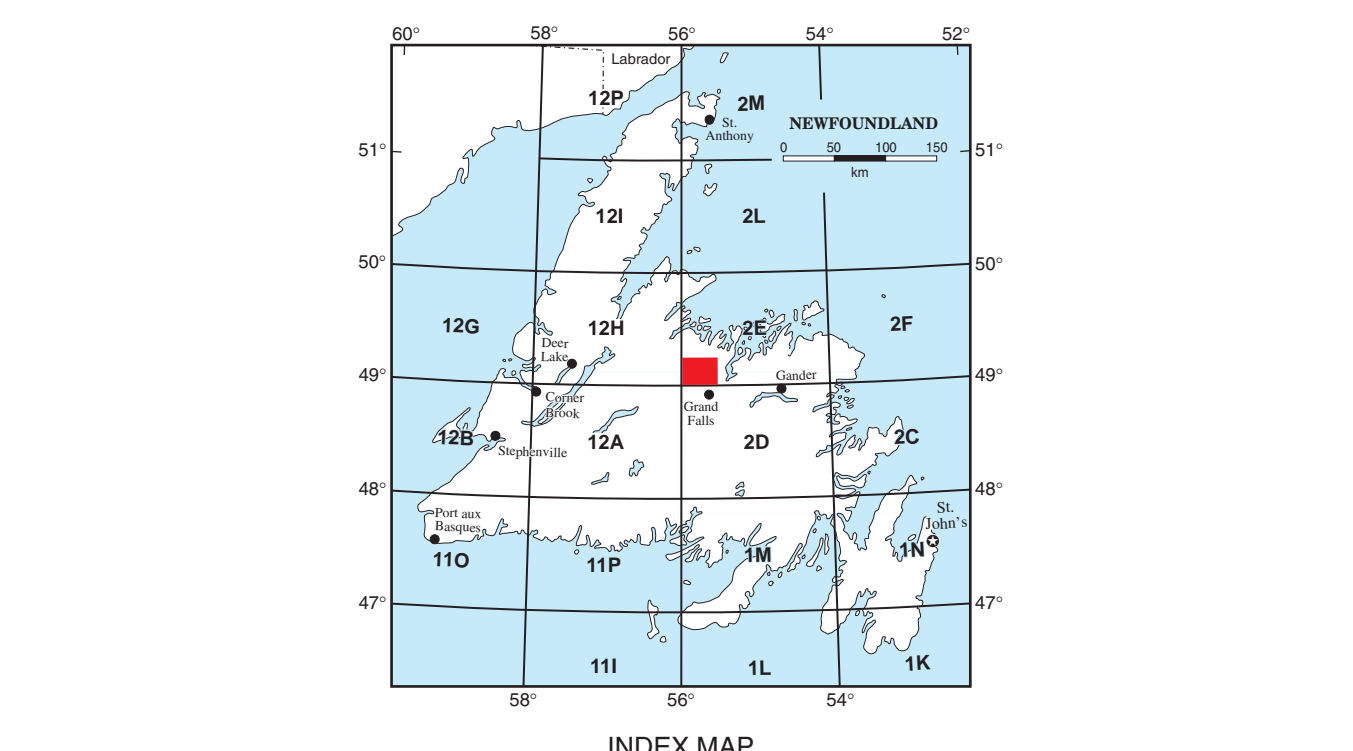


- SILURIAN TO DEVONIAN**
- SDs Massive, fine- to medium-grained, equigranular to coarsely plagioclase-porphyrictic grey diabase dykes
- EARLY TO LATE SILURIAN**
- HODGES HILL INTRUSIVE SUITE (SH)**
- Shp Massive, coarse- to medium-grained, equigranular, pink, red, and purple, 1-feldspar (perthite), hornblende + pyroxene + biotite granite
 - Shpg Massive, fine-grained, equigranular, pink to red, 2-feldspar biotite granite
 - Shm Massive, medium-grained, equigranular to K-feldspar-porphyrictic, buff to pink, 2-feldspar biotite + hornblende + pyroxene + biotite granite; minor tonalite associated with Shgp
 - Shg Massive, medium-grained, equigranular, pyroxene-plagioclase gabbro containing steeply dipping layers of relatively pyroxene-rich and pyroxene-poor gabbro
 - Shf Massive, fine- to medium-grained, rarely coarse-grained, grey to locally black, pyroxene + hornblende + biotite gabbro and minor quartz diorite and tonalite commonly veined by thin granodiorite veins; locally displays layering; minor areas of pyroxene-rich, medium- to coarse-grained gabbro
- BOTWOOD GROUP (SB)**
- Sbw Wapineq Formation: Massive to weakly cleaved, medium-grained, medium- to thick-bedded red sandstone and minor siltstone and conglomerate, locally displaying cross-bedding, cross- and parallel lamination, grading, scours and rippled surfaces
 - Sbl Lawrenceton Formation: Massive, fine-grained, equigranular to coarsely plagioclase-porphyrictic, locally amygdaloidal, very thick, black basalt flows locally interbedded with thin red sandstone units; fine-grained, grey to pink laminated felsic tuff and quartz-feldspar crystal-litic tuff; minor medium-bedded, grey sandstone
- EARLY SILURIAN - WENLOCK**
- CHARLES LAKE VOLCANICS (SC) - (NOTE: boundaries between units SC1 and SC2 are undefined)**
- Sc1 Massive, very fine-grained, quartz - feldspar porphyritic, commonly flow-layered, pink to purple gneissite, very fine-grained, quartz-porphyrictic, yellow rhyolite, massive fine grained pink felsic tuff; locally associated with volcanic clast-rich cobble conglomerate, interbedded with SC2 basaltic gneissite dated by U/Pb (Zr) at 429 ± 2 Ma
 - Sc2 Massive to locally highly sheared, very fine- to medium grained, equigranular to rarely plagioclase-porphyrictic, commonly epidotized, grey to black, very thick basalt flows; rare interbedded grey sandstone; rare massive pillow lava, interbedded with SC1 felsic volcanic rocks
- MIDDLE ORDOVICIAN (CARADOCCIAN) TO EARLY SILURIAN**
- BADGER GROUP (OSB)**
- OSBn Highly migmatized, medium- to thin bedded, grey to black, biotite semi-pelite; migmatite equivalent of Unit OSBn
 - OSBm Contact metamorphosed, thin- to medium-bedded, grey to buff, locally rusty, biotite psammite and semi-pelite commonly displaying parallel-lamination, cross-lamination, grading and locally scours; locally interbedded with chert-pebble conglomerate and very coarse-grained, chert-clast-rich sandstone
 - OSBs Massive to weakly cleaved, chert + rhyolite + granite + limestone + quartz pebble and cobble, thick- to very thick bedded, chert-supported conglomerate and lesser very coarse- to coarse-grained chert-rich sandstone all commonly displaying normal and reverse grading, scours and cross-lamination
 - OSBc Massive, medium- to thick-bedded, uniform, medium-grained, grey sandstone
 - OSBd Schistose and folded, medium- to thin-bedded, grey biotite psammite, semipelite, migmatite and minor felsic tuff; all probably contact metamorphosed by the Hodges Hill intrusive suite
 - OSBe Point Leamington Formation: Massive to weakly cleaved, medium- to very thick-bedded, grey to buff, fine- to very coarse-grained felspathic sandstone, pebbly sandstone and pebble conglomerate, commonly displaying parallel and cross-lamination, grading and scours; larger clasts are most commonly grey chert, Jasper, basalt, plagioclase and quartz; interbedded with the Shoal Harbour Formation at base of sequence
- MIDDLE ORDOVICIAN - CARADOCCIAN**
- SHOAL ARM FORMATION (OS)**
- OSs Strongly cleaved, thin- to medium-bedded, locally laminated, commonly pyritic, locally gypsiferous siltstone and sandstone; minor interbedded grey sandstone; locally displays tight, steeply plunging folds
 - OSm Massive, thin- to medium-bedded, red (jasper), maroon, grey, white and purple (manganiferous) chert locally interbedded with very thin grey slate partings
- EARLY TO MIDDLE ORDOVICIAN INTRUSIVE ROCKS**
- MARY ANN GRANITE (mOAG)**
- mOAG Weakly to strongly foliated, medium-grained, white to buff, equigranular, 2-feldspar, biotite granite and granodiorite commonly containing psammite, semipelite and amphibole xenoliths; commonly rust coloured where biotite-rich psammite xenoliths are abundant; granite dated by U/Pb (Zr) at 453-6-4 Ma
 - OAG Massive, medium- to coarse-grained, equigranular, grey pyroxene gabbro sills
- EARLY TO MIDDLE ORDOVICIAN**
- WILD BIGHT GROUP (OW)**
- OWn Massive to weakly cleaved, extremely thick-bedded, green to grey, mafic agglomerate containing fine- and medium-grained, equigranular and plagioclase-porphyrictic, uniform and amygdaloidal basalt fragments; rare massive basalt flows and mafic tuffaceous horizons; variably foliated and epidotized
 - OWm Massive to cleaved, medium- to very thick-bedded, grey sandstone, pebble sandstone and pebble conglomerate, thin- to medium-bedded, grey sandstone and siltstone, yellow and cream, thin-bedded chert and siltstone; minor intraformational, chert-clast breccia and slumped chert units
 - OWs Massive, very thick-bedded, fine-grained, green basalt flows, pillow lava, pillow breccia, hyaloclastite; minor coarse-grained poorly sorted, polymict conglomerates at the top of the succession
 - OWf Massive to weakly cleaved, medium- to coarse-grained, green to buff, coarse-grained, poorly sorted, subangular, tuffaceous sandstone and pebble breccia, minor laminated, thick-bedded sandstone and quartz-rich sandstone
 - OWi Massive to weakly cleaved, massive basalt flows and pillow lava
 - OWj Massive, fine-grained, flow-layered pink, quartz-feldspar porphyritic rhyolite and coarse-grained leucite tuff
 - OWk Massive, very fine-grained, equigranular or feldspar-porphyrictic, cream to yellow, rhyodacite locally associated with minor fine-grained, weakly foliated, biotite granite
 - OWl Massive to locally sheared, very thick units of massive fine-grained, equigranular to plagioclase-porphyrictic basalt, pillow lava, basalt breccia and pillow breccia
- SYMBOLS**
- Geological contacts (defined, approximate, assumed, transitional)
 - Bedding with dip (dip known, unknown, overturned)
 - Cleavage with dip
 - Igneous layering with dip
 - Shear foliation with dip
 - Intense jointing with dip
 - Fault (strike-slip direction, if known)
 - Thrust fault - teeth on hanging wall
 - Diabase dyke (Unit SDs)
 - Granite vein or dyke
 - Quartz vein
 - Fold trace (anticline, syncline)
 - Minor fold axis with plunge (first, second generation)
 - Outcrop examined
 - Graptolite locality
 - Dimension-stone quarry
 - Mineral occurrence (pyrite, manganese chert)
 - Forest access roads (updated from 1983 aerial photographs and field observations (1988))
 - U/Pb age
 - Geochemical sample site and number
- Note: Structural symbols are offset from their outcrop location



This Open File map is subject to revision.
Published August, 2004.
Approximate magnetic declination 2000 for centre of map is 24° 28' decreasing 11.5 annually.
Geology by W. Lawson Dickson P. Geo., Regional Geology Section (1998, 1999); field assistance by Barry N. Wheaton.
Digital cartography by Tony Paltanavaga.
Stratigraphic nomenclature from a report by B.H. O'Brien (1993) New Bay Pond area and petrographic data from a report by A. Kerr (1995) Hodges Hill area are included in this map.
Radiometric ages for the Charles Lake volcanics and the Mary Ann granite were determined under contract, in March 2000, by G.R. Dunning of Memorial University, St. John's, NL.
North American Datum (NAD) 1927.
Universal Transverse Mercator Projection (UTM) Zone 21

MAP 2003-13
Accompanies OPEN FILE 002E/04/1238
**GEOLOGY OF THE HODGES HILL MAP AREA (NTS 2E/4)
WITH GEOCHEMICAL SAMPLE SITES,
NORTH-CENTRAL NEWFOUNDLAND**
Scale 1:50 000
0 1 2 3 4 5
kilometres

Copies of this map may be obtained from the Geoscience Publications and Information Section, Geological Survey, Department of Natural Resources, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, Newfoundland, Canada A1B 4J8.
References
Kerr, A., 1995. The Hodges Hill Granite between Grand Falls - Windsor and Badger (NTS 2D/13 and 2E/4): geology, petrology and dimension stone potential. Current Research, Newfoundland Department of Mines and Energy, Geological Survey Report 95-1, pages 237-256.
O'Brien, B.H., 1993. Geology of the region around Botwood (parts of 2E/3, 4, 6), north-central Newfoundland. Newfoundland Department of Mines and Energy, Geological Survey, Map 93-168, Open File 002E/06/69.
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