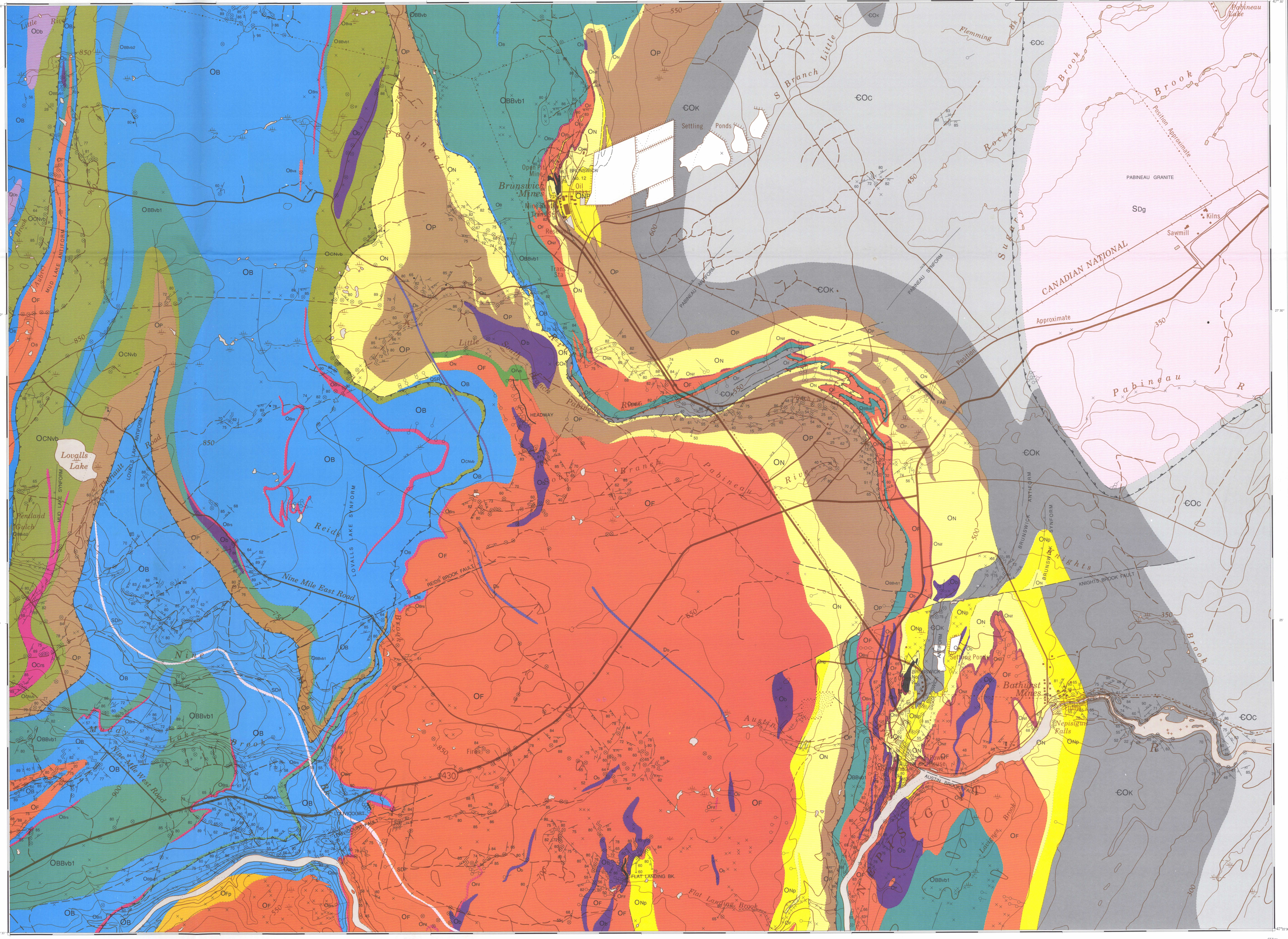
Natural Resources Canada / Ressources naturelles Canada

GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA



Copies of this map may be obtained
from the Geological Survey of Canada:
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7

LEGEND

This legend is common to all maps in this project area. Not all map units appear on this map

Geological boundaries are in part determined on interpretation of aeromagnetic and available ground magnetic maps

Lithologies of rocks in the legend are protoliths; most rocks are foliated and where rich in phyllosilicates, have been transformed into phyllites. Sloping lines in some legend blocks depict basaltic units of different chemical compositions. The stratigraphic and tectonic relationships of the units are imperfectly understood, because the original stratigraphic succession has in part been obscured by thrusting and folding

CARBONIFEROUS

C — *Grey and red conglomerate, sandstone, and shale*

DEVONIAN OR YOUNGER

Db — *Diabase dykes*

SILURIAN AND/OR DEVONIAN

SDg / SDp — *Biotite granite and granodiorite (SDg) : pink to grey, massive, mainly medium grained, equigranular to locally porphyritic, includes quartz and/or feldspar porphyry (SDp)*

SDs — *Sandstone, shale, minor conglomerate, limestone, and volcanic rocks*

ORDOVICIAN TO DEVONIAN

ODb / ODbd — *Green to brown, generally subophitic fine- to coarse-grained, mainly gabbro (ODb) and mainly diabase (ODbd), probably middle Ordovician or Silurian/early Devonian. Some bodies may contain multiple intrusions of different ages*

ODg — *Fine- to medium-grained microgranite and granodiorite, probably middle Ordovician or Silurian/early Devonian*

ORDOVICIAN

Ob / Obd — *Pale green to brownish-green, generally metamorphosed, mainly gabbro (Ob) and mainly diabase (Obd); may locally include some basalt. The gabbro in places includes ultramafic and anorthositic phases*

Og — *Foliated to massive, mainly medium grained, equigranular, pink, mafic-poor biotite-muscovite granite*

MIDDLE ORDOVICIAN

FOURNIER GROUP (OSLvb - OM)

OM, OMl, OMr — *MILLSTREAM FORMATION (OM undivided): mainly thick bedded lithic and feldspathic wacke and grey shale. Includes lenses of black shale, mélange, conglomerate, arkose, of limestone and calcareous siltstone (OMl), and minor rhyolite (OMr)*

OSLvb, OSAvb, OSMvb, OSbd, OSb — *SORMANY FORMATION (OS): basalt, mainly pillowed and massive flows, minor hyaloclastite (includes contemporaneous gabbro (OSb) and diabase dykes and sills (OSbd). The basalts have been divided into three suites on the basis of geochemistry: Murray Brook alkali basalts (OSMvb), Armstrong Brook tholeiite (OSAvb), and Lincour basalt (OSLvb)*

TETAGOUCHE GROUP (OP - OB)
(Some formations are partly or completely facies equivalents)

OB, OBrs, OBva, OBBvb2, OBBvb1 — *BOUCHER BROOK FORMATION (OB undivided): mainly laminated to very thin-bedded grey and black shale interstratified with fine grained feldspathic sandstone and siltstone, commonly pyritic. Includes lenses of red, green and black Fe/Mn-rich shale and chert (OBrs), black shale, rare limestone, alkali pillow and hyaloclastite basalt, and interlayered felsic volcanic rocks (OBva) consisting of trachyandesite, comendite, and rhyolite. The alkali basalts have been divided into two suites on the basis of geochemistry: Brunswick alkali basalt (OBBvb1) and Beresford alkali basalt (OBBvb2)*

OCCvb, OCrs, OCva, OCNvb — *CANOE LANDING LAKE FORMATION: mainly pillowed and massive basalt flows, minor pillow breccia and basaltic pyroclastic rocks. Basalts are typically intercalated with red Fe/Mn-rich shale and multicoloured chert as interpillow sediment and in beds (OCrs). Includes contemporaneous basalt dykes and sills, and rare felsic volcanic rocks (OCva) consisting of comendite and rhyolite. Basalts have been divided into two suites on the basis of geochemistry: Nine Mile tholeiite (OCNvb) and Canoe Landing alkali basalt (OCCvb)*

OF, OFp, OFif, OFs, OFrs, OFOvb, OFvb, OFFvb — *FLAT LANDING BROOK FORMATION (OF undivided): silicic volcanic rocks, mainly aphyric and feldspar phyric rhyolite flows, domes and sills, with minor quartz and feldspar phyric rhyolite sills, dykes, and/or flows (OFp), breccia, agglomerate, and lapilli and ash tuff. Includes intercalated massive sulphide lenses and iron-formation (OFif); red shale (OFrs), basalt (OFvb) and greyish chlorite-rich shale (OFs). Where possible basalts have been divided into two suites on the basis of geochemistry: Otter Brook tholeiite flows, sills, agglomerate and lapilli tuff (OFOvb) with associated diabase and gabbro, and Forty Mile tholeiite of mainly pillowed flows with associated diabase and gabbro (OFFvb)*

ON, ONp, ONif, ONrs, ONFvb — *NEPISIGUIT FALLS FORMATION (ON undivided): mainly thick- to very thick-bedded felsic volcanilithic sandstone and shale, tuffite and intercalated pyroclastic rocks; and quartz and feldspar phyric rhyolite sills, dykes and/or flows (ONp). Includes intercalated iron-formation and massive sulphide (ONif), red, green and black Fe/Mn-rich shale (ONrs) and basalt flows, sills, and dykes of the Forty Mile tholeiite suite with associated diabase and gabbro (ONFvb)*

OV — *VALLEE LOURDES FORMATION: Calcsiltite and calcarenite with minor pebble-grade conglomerate, locally fossiliferous*

OP — *PATRICK BROOK FORMATION: Dark grey to black shale interstratified with thick beds of green to black quartz-rich and/or feldspathic sandstone characterized by abundant dark quartz grains, commonly pyritic*

CAMBRIAN(?) AND ORDOVICIAN

UPPER CAMBRIAN(?) AND LOWER ORDOVICIAN

MIRAMICHI GROUP (€Oc-€OK)

€OK — *KNIGHTS BROOK FORMATION: mainly thin- to medium-bedded, light greenish-grey, quartz-rich sandstone and/or siltstone rhythmically interstratified with dark grey to black shale. Includes lenses of orthoquartzite and rare feldspathic sandstone*

€Oc — *CHAIN OF ROCKS FORMATION: mainly greenish-grey, very fine- to fine-grained, thin- to very thick-bedded quartz-rich sandstone interstratified with thin lenses of light greenish-grey shale and siltstone*

LITHOLOGIES

Conglomerate	**cg**	*Pillow lava*	**p**
Comendite	**c**	*Rhyolite*	**r**
Diabase	**d**	*Sandstone and/or shale*	**s**
Limestone	**l**	*Trachyandesite*	**tr**

MINERALS

Copper	**Cu**	*Manganese*	**Mn**
Gold	**Au**	*Pyrite (massive or semi-massive)*	**py**
Iron	**Fe**	*Silver*	**Ag**
Lead	**Pb**	*Zinc*	**Zn**

Rock outcrop, area of rock outcrop mapped by author and assistants
Rock outcrop mapped by previous workers
Geological boundary (defined, approximate, assumed)
Fault (defined, approximate, assumed)
Bedding S_0, tops known, tops unknown (inclined, overturned), generally parallel to S_1 or S_0
Direction of younging of strata
Stretching and mineral lineation L_1
Penetrative joint or fracture set with dip
S_1 foliation or composite foliation (S_0) of S_1 and S_2
Foliation S_1 or S_0 in pillow lava, inclined (tops known, overturned, tops unknown)
Fold hinge, F_1
Trace of F_1 axial plane (antiform, synform)
Foliation S_2 and fold hinge F_2 or intersection lineation L_2
Trace of F_2 axial plane (antiform, synform)
Foliation S_3 and fold hinge F_3 or intersection lineation L_3
Trace of F_3 axial plane (antiform or synform)
Foliation S_4 and fold hinge F_4 or intersection lineation L_4 (A predates B)
Trace of F_4 axial plane (antiform or synform) (A predates B)
Trend of bedding-parallel foliation S_1 or S_0 with average dip
Asymmetry of F_1 or F_2 folds
Asymmetry of F_4 chevron folds; kinkbands
Conjugate F_4 kinkbands
Sense of shear
Layer-parallel thrust boundary generally characterized by phyllonite and mylonite and/or mélange and breccia
Zone of tectonites with blueschist mineral assemblages between lines of symbols
Metamorphic mineral isograd, cordierite-andalusite
Mineral prospect, occurrence — Cu
Massive sulphide deposit
Fossil locality (with GSC locality number) — 96061 F
Trench
Drill hole

Note: S_4 and F_4 comprise more than one generation of structures, which commonly cannot be separated due to lack of overprinting relationships

MAP 1836A

GEOLOGY

BRUNSWICK MINES

NEW BRUNSWICK

Scale 1:20 000 - Échelle 1/20 000

Metres 400 0 400 800 1200 1600 Mètres

Universal Transverse Mercator Projection — Projection transverse universelle de Mercator

Geology by C.R. van Staal, with contributions by J.P. Langton and D. Rutledge, and assistance (1985-1991) by C. Beaumont-Smith, A. Brewer, and S. Marston

Additional outcrop data compiled from Davies (1981), McAllister and Smith (1956), Skinner (1974), van Staal (1985), geological files of Brunswick Mining and Smelting Corporation and staff and geological assessment files from Department of Natural Resources and Energy (New Brunswick)

Digital cartography by the Geological Survey of Canada

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base map assembled by the Geological Survey of Canada from part of map 21-P/5 (1978), published at 1:50 000 scale by the Surveys and Mapping Branch. Roads were revised by the Geological Survey of Canada

Copies of the topographical edition of this map may be obtained from the Canada Map Office, Department of Natural Resources Canada, Ottawa, Ontario, K1A 0E9

Mean magnetic declination 1994, 21°11′ W, decreasing 4.2′ annually.

Elevations in feet above mean sea level

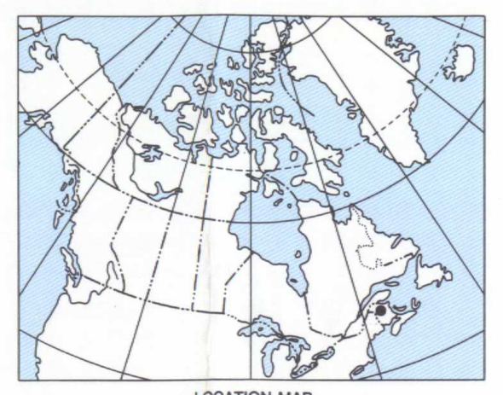
COOPERATION

COOPERATION AGREEMENT ON MINERAL DEVELOPMENT — ENTENTE DE COOPÉRATION SUR L'EXPLOITATION MINÉRALE

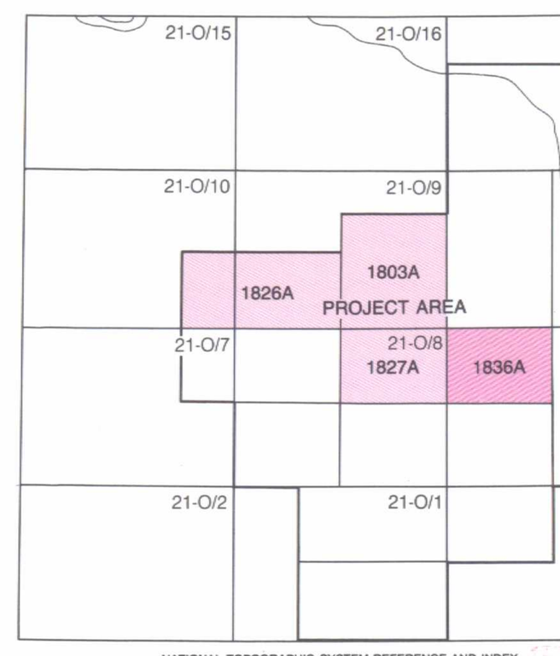
Contribution to Canada-New Brunswick Cooperation Agreement on Mineral Development (1990-1995), a subsidiary agreement under the Economic and Regional Development Agreement.

Contribution à l'Entente de coopération Canada-Nouveau-Brunswick sur l'exploitation minérale (1990-1995), entente auxiliaire négociée en vertu de l'Entente Canada/Nouveau-Brunswick de développement économique et régional.

Canada — New Brunswick / Nouveau Brunswick



LOCATION MAP



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

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van Staal, C.R.
1985 Structure and Metamorphism of the Brunswick Mines Area, Bathurst, New Brunswick, Canada; Ph.D. thesis, University of New Brunswick, Fredericton, New Brunswick, 484 p.

Recommended citation:
van Staal, C.R. (comp.)
1994: Geology, Brunswick Mines, New Brunswick; Geological Survey of Canada, Map 1836A, scale 1:20 000