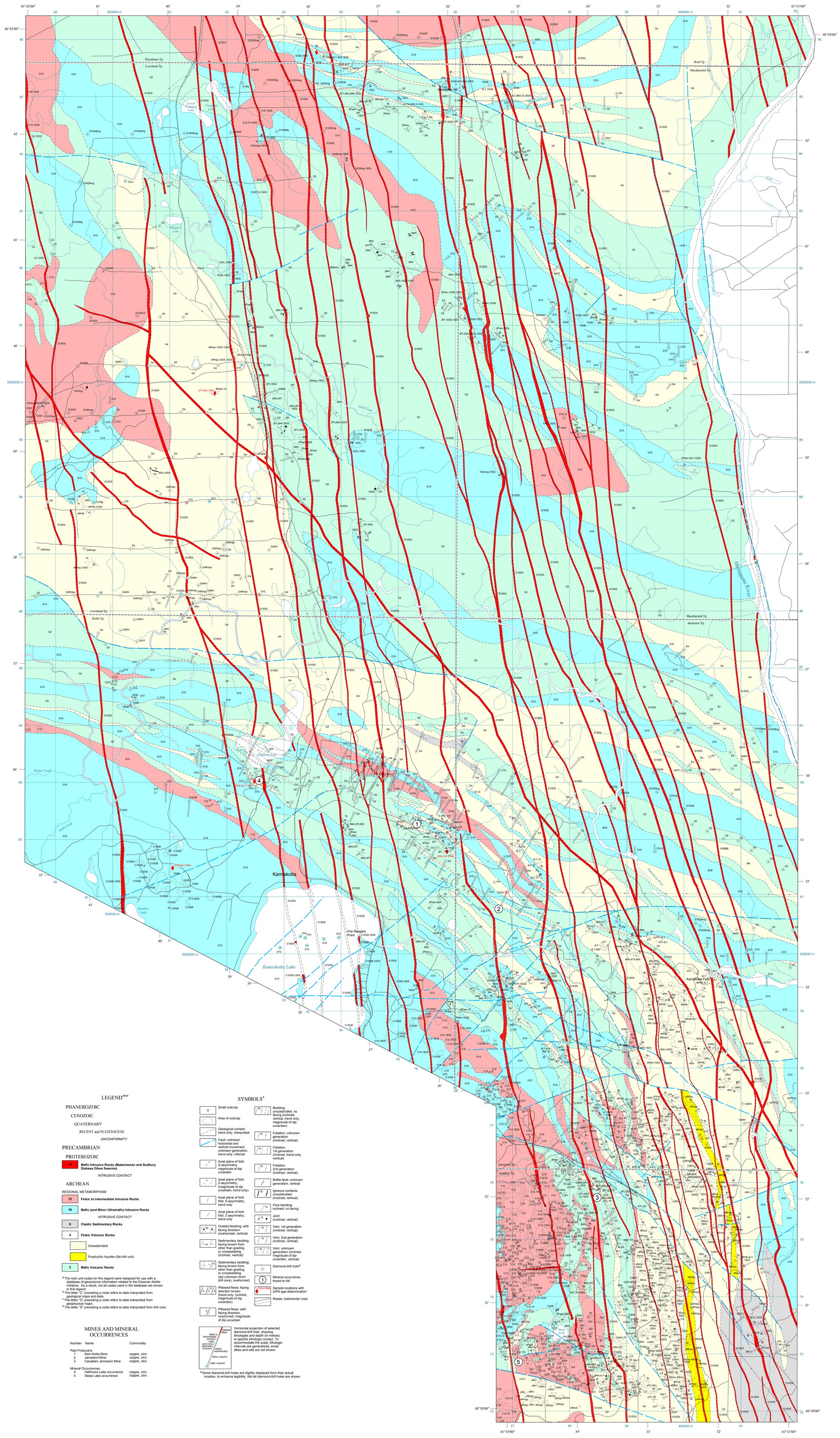

Ontario

Ontario Geological Survey

MAP P.3556

PRECAMBRIAN GEOLOGY

PARTS OF GODFREY, ROBB, JAMIESON, LOVELAND, MACDIARMID AND THORBURN TOWNSHIPS

Scale 1:20 000

500 m 0 0.5 1 km

NTS Reference: 42 A/5, 12, 13

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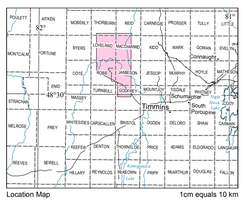

This geologic map represents one of the products of the Greenstone Architecture project of the Discover Abitibi Initiative, which was designed to stimulate mineral exploration in the Ontario portion of the Abitibi greenstone belt and has components that range from geophysical surveying to deposit-scale mapping (*see* Ayer et al. 2003). This map presents results from the second year of Base Metal Subproject 1 as summarized in Hathway et al. (2004).

Cette carte géologique représente un des produits découlant du projet relatif à la ceinture de roches vertes architecturale, lequel s'inscrit dans le cadre de l'initiative *Découvrons l'Abitibi*, conçue pour stimuler l'exploration minérale dans la section ontarienne de la ceinture de roches vertes de l'Abitibi et constituée de diverses composantes, depuis les levés géophysiques jusqu'aux cartes à l'échelle du gisement (voir Ayer et al. 2003). Cette carte présente les résultats de la deuxième année de l'étude portant sur le sous-projet 1 relatif aux métaux communs, résumée dans Hathway et al. 2004.

Ayer, J.A., Thurston, P.C., Dubé, B., Fowler, A.D., Gibson, H.L., Hudak, G., Lafrance, B., Lesher, C.M., Piercey, S.J., Reed, L.E. and Thompson, P.H. 2003. Overview of the Discover Abitibi Greenstone Architecture project: subprojects, goals and results; *in* Summary of Field Work and Other Activities 2003, Ontario Geological Survey, Open File Report 6120, p.32-1 to 32-12.

Hathway, B., Hudak, G. and Hamilton, M.A. 2004. Discover Abitibi. Base Metal Subproject 1. Geological setting of volcanogenic massive sulphide mineralization in the Kamiskotia area; *in* Summary of Field Work and Other Activities 2004, Ontario Geological Survey, Open File Report 6145, p.38-1 to 38-8.

EXPLANATION OF ROCK CODES

This map uses codes that are to be read from left to right.

① ③ ①
4RHpo,12MD
② ④

① The lithology (rock unit) code (4) identifies the main lithologic unit within a polygon or outcrop. Lithology codes correspond to units listed in LEGEND, above. The letters "C", "G" or "D" preceding a lithology code refer to, respectively, information compiled from previously published sources, information interpreted from geophysical data, and information derived from drill-hole logs.

② The primary rock type code (RH) identifies subdivisions of the main lithologic unit. Explanations of rock type codes are listed below under "Rock Type".

③ The texture code (po) supplies additional information about the texture of the rock. Explanations of texture codes are listed below under "Textural Description".

④ The secondary codes (12MD), where present, identify a second, less abundant lithologic unit and rock type within the polygon or outcrop. These codes are the same as those listed under LEGEND, "Rock Type" and, where applicable, "Textural Description".

Using the explanations listed below, therefore, 4RHpo,12MD indicates a polygon or outcrop of felsic volcanic rock composed of porphyritic rhyolite with secondary felsic to intermediate intrusive rocks composed of microdiorite.

4RHpo,12MD

Rock Type		Textural Description	
AG	Argillite	am	amygdaloidal
AK	Arkose	ap	aphyric
AP	Aplite	ax	alteration breccia
AT	Ash Tuff	bd	bedded
BK	Basaltic Komatiite	bx	brecciated
BT	Block Tuff	cb	cross bedded
BX	Breccia	cf	cooling fractures
CC	Carbonate	cg	coarse grained
CF	Carbonate Fuchsite Schist	cl	clast supported
CG	Conglomerate	cu	cumulate
CH	Chert	cy	cyclic
CP	Clinopyroxenite	db	diabasic
CS	Chlorite Schist	ec	elongated clasts
CT	Cherty Tuff	ep	elongated pillows
CU	Cumulate	ey	eyes
DA	Dacite	fb	flow banding
DI	Diorite	fc	flattened clasts
DN	Dunite	fg	fine grained
DS	Dikes, Sills	fl	finely laminated
EX	Exhalite	fp	flattened pillows
FL	Flow	ft	fluidal texture
FP	Feldspar Porphyry	fx	fractured
FX	Flow Breccia	gp	glomeroporphyritic
GB	Gabbro	hu	hummocky cross-stratified
GD	Granodiorite	ib	intrusive breccia
GH	Hornblende Gabbro	ig	inverse grading
GL	Leucogabbro	lm	laminated
GM	Melanogabbro	mg	medium grained
GN	Gabbronorite	mm	monomictic
GP	Graphitic Phyllite	mx	matrix supported
GR	Granite	my	mylonite
GS	Graphitic Shale	ng	normal grading
GT	Graphitic Tuff	op	ophitic
GW	Greywacke	pg	pegmatitic
HY	Hyaloclastite	pj	polygonal joints
IF	Iron Formation	pm	polymictic
JA	Jasper	po	porphyritic
KI	Kimberlite	ps	polysutured
KO	Komatiite	re	reworked
LA	Litharenite	sc	schistose
LG	Leucogranite	sh	sheared
LM	Lamprophyre	sp	spherulitic
LS	Lapillistone	ss	soft-sediment deformation
LT	Lapilli Tuff	sx	spinifex
LX	Lobe and Microbreccia	tb	turbidite
MA	Massive	tc	trachytic
MD	Microdiorite	tf	tuffaceous
MU	Mudstone	tx	tectonic breccia
MZ	Monzonite	va	varioitic
NO	Norite	ve	vesicular
PD	Peridotite	vf	aphanitic
PG	Porphyritic Granite	xl	xenoliths
PI	Pillows		
PL	Parallel Laminated		
PP	Peperite		
PR	Pyroxenite		
PT	Crystal Tuff		
PX	Pillow Breccia		
PY	Pyroclastic Rock		
QD	Quartz Diorite		
QM	Quartz Monzonite		
QP	Quartz Porphyry		
QS	Quartz Syenite		
QZ	Quartzite		
RH	Rhyolite		
SE	Serpentinite		
SL	Sandstone-Siltstone		
SP	Spinifex		
SS	Sandstone		
ST	Siltstone		
SY	Syenite		
TA	Trachyandesite		
TB	Trachybasalt		
TC	Talc Chlorite Schist		
TF	Tuff		
TN	Tonalite		
TR	Trachyte		
TS	Talc Schist		
TX	Tuff Breccia		
VB	Volcaniclastic Breccia		
VC	Volcaniclastic Rock		
VS	Volcaniclastic Sandstone		
VX	Volcanic Breccia		
WA	Wacke		
WT	Welded Tuff		
YX	Pyroclastic Breccia		
ZD	Monzodiorite		
ZG	Monzogabbro		
ZP	Quartz Feldspar Porphyry		

SOURCES OF INFORMATION

Base map information derived from the Ontario Land Information Warehouse, Land Information Ontario, Ontario Ministry of Natural Resources, scale 1:20 000. Universal Transverse Mercator (UTM) co-ordinates are in North American Datum 1983 (NAD83), Zone 17N.

Assessment files, Resident Geologist's office, Timmins.

Mineral deposit information derived from the Mineral Deposit Inventory (MDI2), maintained by the Ontario Geological Survey, Resident Geologist Program.

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Middleton, R.S. 1973. Magnetic survey of Robb and Jamieson townships, District of Cochrane; Ontario Division of Mines, Geophysical Report 1, 56p.

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Middleton, R.S. 1976. Turnbull and Godfrey townships, Cochrane District; Ontario Division of Mines, Map 2330, scale 1:31 680.

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Ontario Geological Survey 2003. Ontario airborne geophysical surveys, magnetic and electromagnetic data, Kamiskotia area MEGATEM® II Survey; Ontario Geological Survey, Geophysical Data Set 1042.

Magnetic declination for the centre of the map area 10°44'W in 2004.

Geology not tied to surveyed lines.

CREDITS

Geology and digital map preparation by B. Hathway, 2004.

Cartographic production by A. Evers.

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Contract management, project management by Robert Calhoun, Project Manager, Discover Abitibi Initiative.

Overall project management by Timmins Economic Development Corporation.

LEGEND[abcd]

PHANEROZOIC

CENOZOIC

QUATERNARY

RECENT and PLEISTOCENE

UNCONFORMITY

PRECAMBRIAN

PROTEROZOIC

15 **Mafic Intrusive Rocks (Matachewan and Sudbury Diabase Dikes Swarms)**

INTRUSIVE CONTACT

ARCHEAN

REGIONAL METAMORPHISM

12 **Felsic to Intermediate Intrusive Rocks**

10 **Mafic (and Minor Ultramafic) Intrusive Rocks**

INTRUSIVE CONTACT

6 **Clastic Sedimentary Rocks**

4 **Felsic Volcanic Rocks**

Unsubdivided

Porphyritic rhyolite (Ski-Hill unit)

2 **Mafic Volcanic Rocks**

[a] The rock unit codes for this legend were designed for use with a database of geoscience information related to the Discover Abitibi Initiative. As a result, not all codes used in the database are shown in this legend.
[b] The letter "C" preceding a code refers to data interpreted from geological maps and data.
[c] The letter "G" preceding a code refers to data interpreted from geophysical maps.
[d] The letter "D" preceding a code refers to data interpreted from drill core.

SYMBOLS[a]

- Small outcrop
- Area of outcrop
- Geological contact; trend only, interpreted
- Fault; unknown horizontal and vertical movement, unknown generation, trend only, inferred
- Axial plane of fold; S-asymmetry, magnitude of dip uncertain
- Axial plane of fold; Z-asymmetry, (magnitude of dip uncertain, trend only)
- Axial plane of kink fold; S-asymmetry, trend only
- Axial plane of kink fold; Z-asymmetry, trend only
- Graded bedding; with facing direction (overturned, vertical)
- Sedimentary bedding; facing known from other than grading or crossbedding (inclined, vertical)
- Sedimentary bedding; facing known from other than grading or crossbedding (dip unknown (from drill core), overturned)
- Pillowed flows; facing direction known (trend only, inclined, magnitude of dip uncertain)
- Pillowed flows; with facing direction, overturned, magnitude of dip uncertain
- Bedding; unsubdivided, no facing (inclined, vertical, trend only, magnitude of dip uncertain)
- Foliation; unknown generation (inclined, vertical)
- Foliation; 1st generation (inclined, trend only, vertical)
- Foliation; 2nd generation (inclined, vertical)
- Brittle fault; unknown generation, vertical
- Igneous contacts; unsubdivided (inclined, vertical)
- Flow banding; inclined, no facing
- Joint (inclined, vertical)
- Vein; 1st generation (inclined, vertical)
- Vein; 2nd generation (inclined, vertical)
- Vein; unknown generation (inclined, magnitude of dip uncertain, vertical)
- Diamond-drill hole[a]
- Mineral occurrence, keyed to list
- Sample locations with U/Pb age determination
- Roads, trails/winter road

Horizontal projection of selected diamond-drill hole, showing lithologies and depth (in metres) to specific lithologic contact. To accommodate the scale, lithologic intervals are generalized, small dikes and sills are not shown.

[a] Some diamond-drill holes are slightly displaced from their actual location, to enhance legibility. Not all diamond-drill holes are shown.

MINES AND MINERAL OCCURRENCES

Number	Name	Commodity
Past Producers		
1	Kam-Kotia Mine	copper, zinc
2	Jameland Mine	copper, zinc
3	Canadian Jamieson Mine	copper, zinc
Mineral Occurrences		
4	Halfmoon Lake occurrence	copper, zinc
5	Steep Lake occurrence	copper, zinc

Issued 2005.

Information from this publication may be quoted if credit is given. It is recommended that reference to this map be made in the following form:

Hathway, B. 2005. Precambrian geology, parts of Godfrey, Robb, Jamieson, Loveland, Macdiarmid and Thorburn townships; Ontario Geological Survey, Preliminary Map P.3556, scale 1:20 000.

Timmins

Discover Abitibi
A project of innovation, coopération and revitalization
Découvrons l' Abitibi
Un projet d' innovation, de coopération et de renouvellement

Discover Abitibi Initiative
The Discover Abitibi Initiative is a regional, cluster economic development project based on geoscientific investigations of the western Abitibi greenstone belt. The initiative, centred on the Kirkland Lake and Timmins mining camps, will complete 19 projects developed and directed by the local stakeholders. FedNor, Northern Ontario Heritage Fund Corporation and private sector investors have provided the funding for the initiative.

Initiative Découvrons l'Abitibi
L'initiative *Découvrons l'Abitibi* est un projet de développement économique régional dans une grappe d'industries, projet fondé sur des études géoscientifiques de la ceinture de roches vertes de l'Abitibi occidental. Cette initiative, centrée sur les zones minières de Kirkland Lake et de Timmins, mènera à bien 19 projets élaborés et dirigés par des intervenants locaux. FedNor, la Société de gestion du Fonds du patrimoine du Nord de l'Ontario et des investisseurs du secteur privé ont fourni les fonds de cette initiative.

Ontario
Northern Ontario Heritage Fund
Fonds du patrimoine du Nord de l'Ontario

FedNor
Canada

To enable the rapid dissemination of information, this map has not received a technical edit. Discrepancies may occur for which the Ontario Ministry of Northern Development and Mines does not assume liability. Users should verify critical information.