

Geology of the Millrock Hill area, Flin Flon, Manitoba (parts of NTS 63K13SW and 63K12NW)

Legend

PALEOPROTEROZOIC < 1.845 GA INTRUSIVE ROCKS AND TECTONITES

TECTONITES

T1	Mafic tectonite (age unknown)
T1a	mylonite
T1b	phyllonite

POST-MISSI INTRUSIVE ROCKS (<1.845 GA ROCKS)

Z2	Boundary intrusions:
Z2a	melagabbro, pyroxenite
Z2b	monzonite-syenite
Z2c	intrusion breccia
Z1	Phantom Lake intrusions:
Z1a	fine- to medium-grained quartz-feldspar porphyry, massive to banded
Z1b	granodiorite, quartz diorite

FLIN FLON ARC ASSEMBLAGE (>1.88 GA ROCKS)

SYNVOLCANIC INTRUSIVE ROCKS (includes intrusions of uncertain age)

D4	Gabbro dikes and sills
D4a	fine to medium grained
D4b	aphanitic, aphyric to sparsely porphyritic
D3	Aphanitic intermediate dikes and sills
D3a	amphibole-phyric andesite
D2	Aphanitic rhyolite-rhyodacite dikes and sills
D2a	aphyric
D2b	quartz (feldspar) phyric
D1	Aphanitic to medium-grained mafic dikes and sills
D1a	aphanitic, aphyric to sparsely feldspar porphyritic (<5% phenocrysts), massive to amygdaloidal (<5% amygdules)
D1b	flow banded, aphanitic, aphyric to sparsely feldspar phyric (<5% phenocrysts), massive to amygdaloidal (<5% amygdules)
D1c	aphanitic, aphyric, magnetite-bearing
D1d	aphanitic to medium grained, feldspar phyric (8-15%, 2-10mm)
D1e	aphanitic to medium grained mega-feldspar phyric (15-30%, 5-15mm)
D1f	medium grained to aphanitic, pyroxene (feldspar) phyric
D1g	massive to flow banded, fine to medium grained, equigranular (possible sill of massive flow)

HIDDEN FORMATION

O2	Mafic volcaniclastic rocks
O2a	thin-bedded basaltic-andesite tuff with local interbeds of quartz crystal rhyolite tuff
O2b	lapilli tuff to lapillistone containing quartz-phyric rhyolite clasts
O2c	lapillistone to lapilli tuff containing andesite to basaltic clasts and scoria
O2d	plane bedded, thin- to thick-bedded mafic tuff
O2e	amoeboid breccia, rare clasts of peperite
O1	Mafic flows, includes cryptoflows and peperite
O1a	aphyric to sparsely feldspar phyric (<5%), massive, quartz amygdaloidal; includes megapillows, feeders and cryptoflows
O1b	aphyric to sparsely feldspar phyric (<5%), pillowed, quartz amygdaloidal, may contain prominent radial pipe vesicles
O1c	feldspar phyric (15%, <4mm), massive
O1d	feldspar phyric (15%, <4mm), pillowed
O1e	in situ brecciated to clast-rotated breccia a bedded tuff
O1f	peperite
O1g	feldspar phyric (15%, <4mm), amoeboid breccia
O1h	unsubdivided

FLIN FLON FORMATION

M6	Monolithic mafic volcaniclastic rocks
M6a	massive to thin-bedded tuff, local basalt scoria, rusty weathering
M6b	lapilli tuff to lapillistone containing quartz-phyric rhyolite clasts
M5	Heterolithic mafic volcaniclastic rocks; dominant clast types are subrounded to angular, aphanitic, sparsely amygdaloidal to scoriaceous, aphyric to feldspar phyric mafic types ranging from 2 mm to 0.8 m in size; matrix may contain sparse feldspar phenocrysts
M5a	basalt tuff, massive or thick bedded to laminated
M5b	lapilli tuff, massive to thick bedded
M5c	lapillistone, massive to thick bedded
M5d	tuff breccia, massive
M4	Heterolithic volcaniclastic rocks
M4a	rhyolite-dominated lapillistone to tuff breccia; clast types include quartz- (z feldspar) phyric rhyolite and sparsely amygdaloidal to scoriaceous aphyric basalt (clasts range from cm to m in size)
M4b	basalt-dominated heterolithic lapilli tuff to tuff breccia; clast types include sparsely amygdaloidal and scoriaceous aphyric basalt and quartz phyric (z feldspar) rhyolite
M4c	quartz-bearing intermediate to felsic wacke, local rhyolite clasts
M3	Monolithic felsic volcaniclastic rocks
M3a	massive to bedded quartz-phyric lapillistone to blocky breccia; clasts are subangular to angular, scoriaceous to pumiceous and framework supported; may include up to 5% basalt clast
M3b	massive to bedded aphyric to sparsely quartz-phyric lapillistone to blocky breccia; clasts are subangular to angular, scoriaceous to pumiceous and framework supported; may include up to 5% basalt clast
M2	Coherent rhyolite flows, domes and cryptodomes
M2a	quartz (feldspar) phyric, massive to in situ brecciated, may be flow banded
M2b	aphyric to sparsely quartz (feldspar) phyric, massive to in situ brecciated, may be flow banded
M2c	quartz (feldspar) phyric monolithic autoclastic breccia, pumiceous clasts
M2d	aphyric to sparsely quartz (feldspar) phyric monolithic autoclastic breccia, pumiceous clasts
M1	Basalt flows and cryptoflows
M1a	pillowed, aphanitic, sparsely amygdaloidal
M1b	massive, aphanitic, amygdaloidal, possible cryptoflow
M1c	pillowed, plagioclase-phyric, sparsely amygdaloidal

Creighton Formation

A2	Monolithic mafic volcaniclastic rocks
A2a	amoeboid breccia characterized by irregular aphyric to sparsely feldspar-phyric (<5%) fragments with distinct chilled margins (less than 5% are broken); fragments are typically scoriaceous (>25% quartz amygdules but range from 5 to 50%)
A1	Aphyric to sparsely (<5%) feldspar-phyric basalt flows
A1a	pillowed, aphanitic, amygdaloidal
A1b	massive, aphanitic, amygdaloidal
A1c	autoclastic breccia (flow top), angular to amoeboid fragments of amygdaloidal to scoriaceous basalt (framework to matrix supported)

Symbols

Contacts	
defined	—
approximate	- - - -
assumed	- · - · -
Fault	- - - -
approximate	- · - · -
Outcrop	— · — · —
Bedding: tops overturned, tops unknown	↖ ↗
Pillows: tops upright	↖ ↗
Flow contact: tops upright	↖ ↗
Foliation: generation 1, generation 2	↖ ↗
Lineation: generation 2, generation unknown	↖ ↗
Intersection lineation: generation 2	↖ ↗
Shear zone: sense unknown, dextral, sinistral	↖ ↗
quartz vein	□

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This map is a provisional summary of work carried out during the summer field season and is produced directly from the geologist's manuscript. It is not to be regarded as a final interpretation of the geology of the area.

Suggested Reference:
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