



- Legend**
- Sedimentary rocks**
- M1 Conglomerate, pebbly sandstone, sandstone
  - M2 Phymic conglomerate, sandstone
  - M3 Pebbly sandstone, pebble conglomerate, sandstone
- Burntwood group**
- B1 Mudsstone, greywacke, derived gneisses and migmatites
  - B2 Crinoidal, siliceous, mudstone
  - B3 Graphic, sulfidic mudstone, sulfidic facies formation, minor greywacke
  - B4 Garnet-schist gneiss, siliceous or arkosic, local scarnite, biotite gneiss
- Tectonites**
- West Reed - North Star Shear zone
- T1 Mafic tectonite, +/- variably mylonitized, felsic intrusive sheets
- Shear zones**
- T2 Mafic tectonite: chlorite schist, a carbonate, brittle/ductile shears
  - T3 Felsic tectonite: a mylonitized flow and dykes of felsic volcanic rocks
  - T4 Felsic tectonite: strongly foliated to mylonitic felsic plutonic rocks
- Juvenile-Arc rocks**
- West Reed volcanic package
- J15 Felsic crystal tuff, lapilli tuff and tuff breccia; minor quartz-plagioclase-phyric dacitic to rhyolitic flows
  - J14 Mafic volcanoclastic rocks (tuff breccia, lapilli tuff and tuff); minor basalt massive flows and pillow
- Fourmile Island assemblage**
- J13 Tonaltite-granodiorite
  - J16a Granodiorite
  - J16b Basalt; minor quartz diorite
  - J12 Gabbro, diorite, diabase
  - J11 Volcano-derived sediments: laminated mudstone, siltstone and fine grained sandstone
  - J10 Rhyolite, dacite
  - J10a Coherent flow, massive flows, tabular, lobate; facies and subordinate felsic volcanoclastic rocks
  - J10b Dacite to rhyolite crystal and lapilli tuff, subordinate tuff breccia, minor flows
  - J10c Felsic and mafic flow and dike, strongly foliated to mylonitic
  - J9 Basaltic andesite, andesite; massive to pillowed flows, minor amonobed pillow breccia
  - J8a Phyritic and aphyritic felsic breccia, felsic dikes
  - J8b Heterolithic breccia with intermediate-mafic and felsic clasts
  - J8c Mafic volcanoclastic rocks
  - J8d Aphyric, amonobed pillow breccia, subordinate pillow flow
  - J8e Heterolithic breccia with myelite clasts
  - J8f Plagioclase aphyric mafic breccia
  - J8g Plagioclase-phyric amonobed pillow breccia
  - J5 Rhyolite, dacite
  - J5a Quartz-felsophy-phyric rhyolite, subvolcanic breccia with myelite clasts
  - J5b Rhyolite dike
  - J4 Aphyric and porphyritic pillowed and massive basalt, basaltic andesite, andesite
- Snow Lake arc assemblage**
- J3 Volcanic conglomerate, paragonglomerate, minor greywacke, and mudstone
  - J2 Heterolithic breccia, dominantly mafic fragments
  - J1 Pillowed and massive flows
- Subphanerozoic units: not exposed**
- J14a Mafic basalt and andesite with weak arc signature; massive flows and pillow, subordinate subvolcanic facies, minor subvolcanic mudstone
  - J14b Undivided bimodal juvenile-arc volcanic rocks, not exposed
- Ocean-Floor rocks**
- Reed Lake mafic-ultramafic complex
- F2 Layered mafic-ultramafic complex
  - F2a Layered gabbro, weopeloid, anorthosite
  - F2b Layered melagabbro, gabbro, pyroxenite
  - F2c Layered pyroxenite, peridotite, subordinate gabbro
  - F1 N-type basalts
  - F1a Northwest Reed pillowed and massive basalt
  - F1b Woosley Lake Fls Lake basalt, pillowed and massive basalt, diabase, derived scoriae
  - F1c Amphibolite, volcanic derived enclave in Reed Lake Pluton
- Plutonic Rocks**
- P6 Granite to granodiorite
  - P6a Granite
  - P6b Quartz-granodiorite
  - P6c Agranite with P2b inclusions
  - P5 Granodiorite to tonalite
  - P5a Granodiorite
  - P5b Granodiorite to tonalite
  - P5c Felsite to gneiss; granodiorite-tonalite, commonly with amphibole screens and inclusions
  - P5d Tonalite breccia
  - P5e Quartz-porphyric hornblende-biotite to biotite-hornblende granodiorite
  - P5f Quartz-porphyric hornblende-biotite granodiorite with abundant small tabular inclusions of P2g and P2h
  - P4 Tonalite to quartz diorite
  - P4a Tonalite
  - P4b Quartz-diorite
  - P4c Leucotonalite
  - P4d Tonalite to quartz diorite
  - P4e Tonalite to quartz diorite with abundant sandstone
  - P4f Felsite to gneiss; tonalite to quartz diorite, gneiss, leucotonalite, migmatite, commonly with amphibole screens and inclusions
  - P4g Granodiorite, foliated to weakly gneissic, coarse grained, low magnetic signature
  - P4h Felsite to gneiss; biotite-hornblende tonalite, commonly with amphibole screens and late tonalite-granodiorite dikes, moderate to high magnetic signature
  - P3 Compositionally layered gabbro sills and intrusions (Jostland sills)
  - P3a Gabbro-tonalite, gabbro
  - P3b Ferrugabro
  - P3c Quartz ferrodiorite, ferrotonalite, leucotonalite
  - P2 Gabbro, melagabbro, diorite
  - P2a Melagabbro
  - P2b Gabbro
  - P2c Leucogabbro
  - P2d Diorite
  - P2e Diorite to quartz diorite
  - P2f Fine-grained equigranular quartz diorite
  - P2g Hornblende gabbro
- Jostland sills**
- P3 Compositionally layered gabbro sills and intrusions (Jostland sills)
- Jostland sills**
- P3a Gabbro-tonalite, gabbro
  - P3b Ferrugabro
  - P3c Quartz ferrodiorite, ferrotonalite, leucotonalite
- P2 Gabbro, melagabbro, diorite**
- P2a Melagabbro
  - P2b Gabbro
  - P2c Leucogabbro
  - P2d Diorite
  - P2e Diorite to quartz diorite
  - P2f Fine-grained equigranular quartz diorite
  - P2g Hornblende gabbro
- Scale 1:30 000**

- Symbols**
- Geological Boundaries**
- Contact
  - Fault
  - Thrust fault
  - West Reed-North Star shear zone
  - Precambrian-Paleozoic boundary
- Mineral Deposits**
- Base metals
  - Ni-Cu-Co-PGE
- Geochronology**
- Sample Site
  - Diamond-drill Holes
  - Examined
  - Not Examined
- Bedding: upright, overturned, tops unknown**
- Cleavage: generation unknown, 1, 2, 3**
- Creulation cleavage, sinistral: generation unknown, 2**
- Clast, dyke, joint**
- Fold axial plane: F<sub>1</sub>, F<sub>2</sub>, generation unknown**
- Fold axis: F<sub>1</sub> symmetry unknown, F<sub>2</sub>-Z-fold, F<sub>3</sub>-S-fold, generation unknown**
- Flow contact: upright, overturned, tops unknown**
- Foliation: F<sub>1</sub>, F<sub>2</sub>, generation unknown**
- Schistosity: S<sub>1</sub>, generation unknown**
- Igneous layering: top known, tops unknown**
- Stretching lineation: generation 1, generation 2, generation unknown**
- Intersection lineation: mineral lineation, rodding**
- Pillows: upright, overturned, tops unknown**
- Fault: sinistral, sense unknown**
- Shear zone: sinistral, dextral, sense unknown, generation and sense unknown**

**Geology of the exposed basement in the Reed Lake area, Flin Flon belt, west-central Manitoba (parts of NTS 63K9, 10, 15, 16)**

Compilation by S. Gagne (2017)

Geology of supracrustal rocks by E.C. Syme, A.H. Balles and S.D. Lucas (1995), S. Gagne (2013), S. Gagne and S.D. Lucas (2014)

Compiled geology was modified using total and vertical gradient aeromagnetic maps (Assessment File Report 2005, Manitoba Growth, Enterprise and Trade, Winnipeg) and observations from examined drill core (Gagne 2015-2017). Lithologies in the Reed Lake mafic-ultramafic complex are after Young (1992), Williamson (1992, 1993) and Williamson and Eckstrand (1995).

**Recommended references:**

Gagne, S., Syme, E.C., Anderson, S.D. and Balles, A.H. 2017. Geology of the exposed basement in the Reed Lake area, Flin Flon belt, west-central Manitoba (parts of NTS 63K9, 10, 15, 16), Manitoba Growth, Enterprise and Trade, Manitoba Geological Survey, Preliminary Map PMAP2017-1, scale 1:30 000.

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

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Copies of this map can be obtained from: Manitoba Growth, Enterprise and Trade, Manitoba Geological Survey, Publication Sales, 300-1395 Ellice Avenue, Winnipeg, MB, R5G 2P2

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Available for free download at www.manitoba.ca/minerals

**Sources of geochronological information:**

Gagne, S. and Anderson, S.D. 2014. Biotite geology west of Reed Lake, Flin Flon greenstone belt, Manitoba (parts of NTS 63K10, 10, 15, 16). Manitoba Geological Survey, Preliminary Map PMAP2014-5, scale 1:30 000.

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