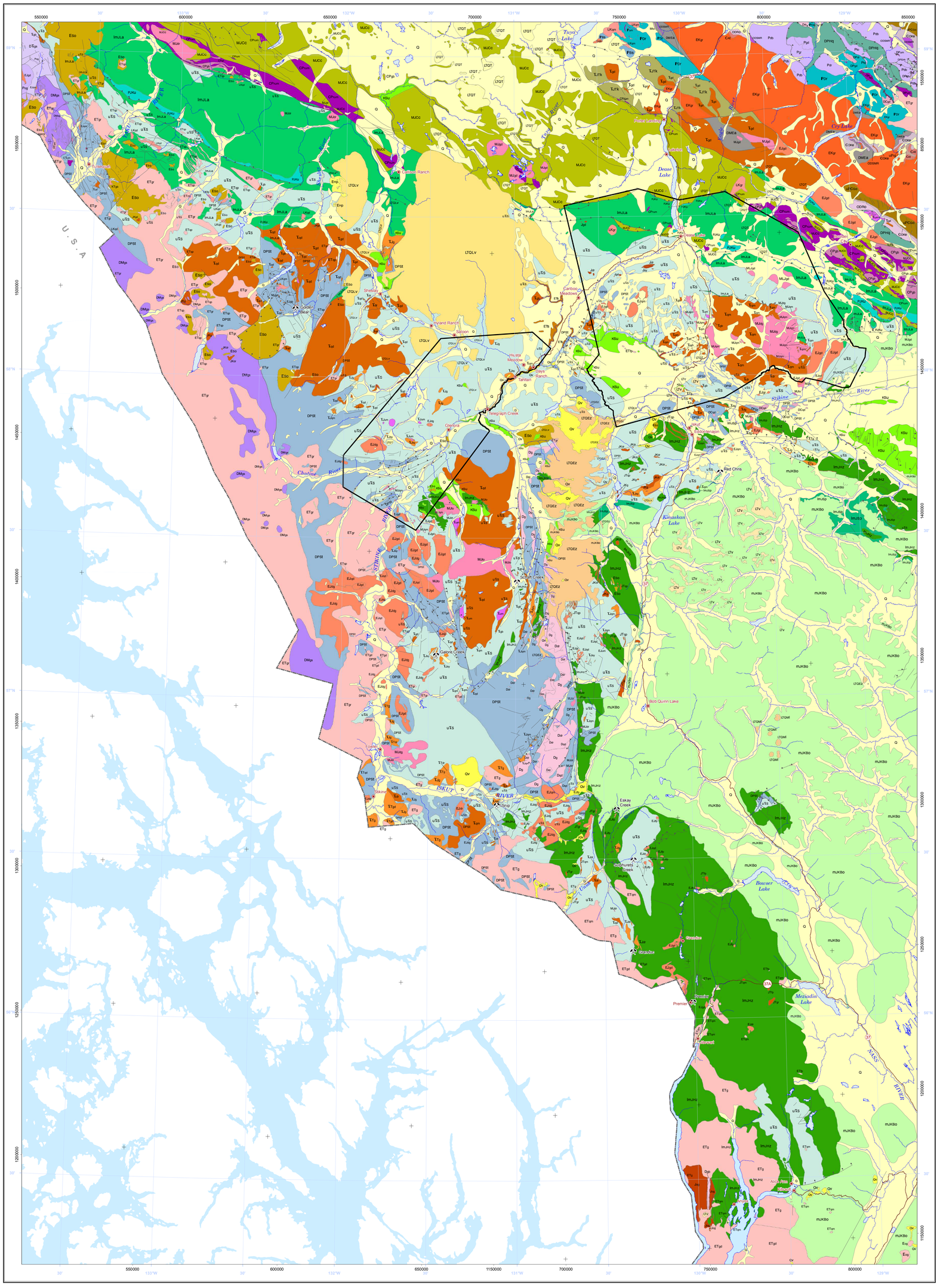
1:500 000 GEOLOGY

Geoscience BC

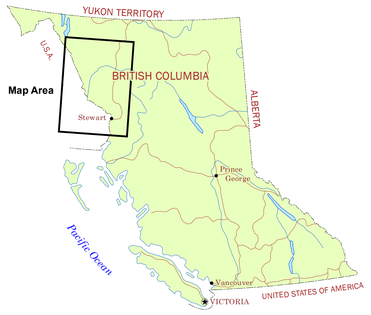
QUEST-NORTHWEST PROJECT

NTS SHEETS 104B,C,F,G,J,K
PART OF NTS SHEETS 103O,P; 104A,H,I,N,O,P

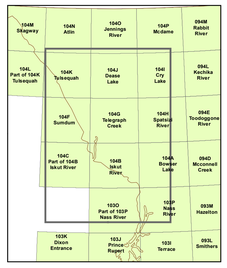


Disclaimer: While every effort has been taken to ensure the accuracy of the information in this map, the data are provided on an 'as-is' basis, without any warranty, guarantee or representation of any kind, whether expressed or implied. It is the responsibility of the user to check the facts before entering any financial or other commitment based upon this information.

Location Map



National Topographic System



Legend

- Mineral deposit (selected)
- Populated place (unclassified)
- Fault
  - Normal
  - Thrust (teeth on upper plate)
  - Extension
  - Unknown
- Road (unclassified)
- Province of British Columbia border
- QUEST-Northwest airborne geophysical survey outline

VOLCANIC AND SEDIMENTARY ROCKS

Cenozoic

Neogene to Quaternary

- **Q** — **Quaternary cover:** *Alluvium, glaciofluvial gravels and sand, till. (Note: the extensive Quaternary deposits of the Rocky Mountain foothills and the Peace River area have been omitted as they would completely cover and obscure the bedrock geology.)*
- **Qv** — **Quaternary volcanics including Blue Lake Volcanics, Lambly Creek Basalt, Lake Island and Big Raven Formations:** Basalt, olivine basalt, unconsolidated ash, scoria, agglomerate and breccia.
- **LTQEz** — **Mount Edziza Complex:** Aphyric trachyte and olivine, plagioclase and augite- phyric alkali olivine basalt, trachybasalt and hawaiite lava flows, domes and pyroclastic breccia and ash flows; includes some fluvial gravel and glacial deposits.
- **LTQLv** — **Level Mountain Group:** Alkali olivine basalt; minor trachyte and rhyolite; aphyric and olivine, plagioclase and augite- phyric, fine- grained basalt flows, in part columnar- jointed, locally vesicular or amygdaloidal; may include massive, fine- grained diabase sills.
- **LTQT** — **Tuya Formation:** Alkali olivine basalt, tuff, agglomerate, minor trachyte and rhyolite tuff and flows.
- **LTv** — **Unnamed Neogene volcanics:** Olivine basalt necks, breccia and pillow flows, conglomerate.
- **LTQMl** — **Maitland Volcanics:** Basalt breccia, vesicular basalt, volcanogenic sediments and pillow lava.

Paleogene

- **ETs** — **Paleogene sediments including Chuckanut, Kitsilano, Slatechuk, Tanzilla Canyon, Kishehn and Sophie Mountain Formations:** Conglomerate, sandstone, siltstone, shale, marl, minor coal; minor tuffs and tuffaceous siltstone; basalt.
- **Eso** — **Sloko Group:** Basal conglomerate, coarse sandstone to siltstone, locally carbonaceous; andesite to rhyolite flows, pyroclastics and derived epiclastics, minor basalt.
- **Ehp** — **Hart Peak Volcanics:** Rusty- weathering trachyte and rhyolite flows, pyroclastic flows, pyroclastic rocks, and related intrusions.

Mesozoic

Cretaceous to Tertiary

- **KSu** — **Sustut Group and unnamed equivalents:** Sandstone, siltstone, mudstone, chert and quartz- pebble conglomerate, felsic ash- tuff, minor coal.

Jurassic to Cretaceous

- **mJKBo** — **Bowser Lake Group:** Heterolithic conglomerate, sandstone, siltstone, mudstone, shale, feldspathic wacke, minor coal; minor basalt and andesite flow, breccia and tuff, dacitic lava flows, lapilli tuff.

Jurassic

Lower to Middle Jurassic

- **lmJHz** — **Hazelton Group; Griffith Creek and Hotnarko Volcanics:** Calcalkaline basalt to rhyolite pyroclastics and flows, derived volcaniclastic conglomerate, breccia, sandstone, siltstone, shale, minor limestone and marl.
- **lmJLa** — **Laberge Group:** Conglomerate, diamictite, wacke, argillite, shale, calcareous sandstone, chert- pebble conglomerate, minor limestone; andesitic breccia and tuff.
- **lmJsp** — **Spatsizi Group and Abou Formation:** Siliceous, well bedded, tuffaceous siltstone, siltstone, calcareous siltstone; tuff; calcareous to siliceous siltstone, limestone, concretionary shale.

Triassic to Jurassic

- **TJTk** — **Takla Group (may include deformed Asitka Group); Tezzaron Sequence; and unnamed equivalents:** Augite- phyric and aphyric basalt breccia, agglomerate, tuff, pillowed and massive flows; mafic to felsic tuff, ash tuff, lapilli tuff, breccia and conglomerate; tuffaceous argillite and siltite, greywacke, conglomerate, sandstone, siltstone and chert; phyllite, phyllitic schist; limestone, minor skarn.

Triassic

Upper Triassic

- **uTs** — **Stuhini Group; Mosley and Mount Moore Formations, and unnamed equivalents:** Mafic to intermediate lapilli tuff, ash, breccia and tuffite; massive, aphyric or plagioclase and augite- phyric flows and sills; felsic tuff ; tuffaceous siltstone, wacke, argillite, polymict conglomerate, limestone, shale; graphitic shale, rare black chert, ribbon chert.

Paleozoic to Mesozoic

Permian to Jurassic

- **PJKu** — **Kutcho Formation, Sitlika Assemblage and possible equivalents:** Basaltic to rhyolitic schist, greenstone, pillowed metabasalt, heterolithic breccia; slate, phyllite; banded siltstone, sandstone and conglomerate; minor limestone, marble, chert and green chloritic phyllite.

Mississippian to Jurassic

- **MJCC** — **Cache Creek Complex and equivalents:** Greenstone, amphibolite, mafic pillow lavas, volcanic breccia, agglomerate, tuff, rare felsic flows and tuffs; phyllite, siliceous phyllite, metachert, ribbon chert, chlorite schist, sandstone; micritic to clastic limestone, argillite, marble, dolomite; minor serpentinite and mafic intrusions.

Paleozoic

- **PTs** — **Big Salmon Complex, including the Teslin Tectonic Zone:** Quartzite, phyllite, biotite- muscovite schist, marble, limestone, dolomite; chert; greenstone, andesite and basalt,tuffite, tuff , wacke, rhyolite; quartz- albite- mica gneiss, albite- actinolite schist, quartz- chlorite- epidote- albite gneiss, meta- chert, calc- silicate schist, hornfels.
- **PDr** — **Dorsey Complex (includes Rapid River Tectonite):** Green magnetite- phyllite, chlorite schist, mafic schist, quartz- sericite schist, metachert, quartzite, limestone, quartz- plagioclase grit, quartz- feldspar schist, phyllite, pelitic schist, amphibolite, siliceous and gneissic tectonite.

Devonian to Permian

- **DPSm** — **Slide Mountain Complex and Antler Formation:** Massive and pillowed basalt, breccia, tuff, diabase, minor diorite, gabbro and serpentinite; chert, argillite, lithic sandstone, limestone, dacitic tuff and agglomerate, black argillite, quartz- chert sandstone, varicoloured chert, rhodonite, calcarenite, phyllite, chlorite schist.
- **DPHq** — **Nizi Formation and unnamed equivalents:** Limestone, cherty limestone, greywacke, minor conglomerate, maroon shale, siltstone; mafic to felsic volcanics, pillow basalt; black and green chert, argillite, schist, quartzite metaconglomerate.
- **DPSt** — **Stikine Assemblage:** Maroon and green tuff, lapilli tuff, volcanic conglomerate, wacke; pyroxene- phyric agglomerate, breccia, pillowed and massive basalt flows, andesite, minor rhyolite and gabbro; siltstone, sandstone and lesser chert; limestone, bioclastic limestone, calcarenite; foliated metamorphosed equivalents.

Devonian to Mississippian

- **DMEa** — **Earn Group:** Argillite, slate, shale, locally carbonaceous and pyritic; chert, cherty mudstone; chert arenite and pebble conglomerate, polymictic conglomerate; limestone; nodular and bedded barite +/- sulphides.

Ordovician to Devonian

- **ODRo** — **Road River Group (may include some undifferentiated Earn Group):** Shale, slate, siltstone, chert, minor coarse clastics, limestone, dolomite, rare tuffs.
- **ODSMR** — **Sandpile, McDame, Ramhorn and Otter Lakes Groups:** Dolostone, dolomitic sandstone, limestone, shaly dolostone, carbonate breccia, minor calcareous siltstone, shale, quartzite, alkaline volcanics.

Cambrian to Ordovician

- **COKe** — **Kechika Group; may include some undifferentiated Road River Group, Skoki Formation or Gog Group:** Limestone, argillaceous limestone, pale calcareous slate, phyllitic limestone, calcareous phyllite, pyritic and carbonaceous slate and shale; minor conglomerate, sandstone, greenstone and green tuff.

Cambrian

- **CAt** — **Atan Group:** Orthoquartzite, siltstone, shale, sandstone; limestone; minor dolostone, phyllite and conglomerate.

Proterozoic to Paleozoic

Upper Proterozoic to Cambrian

- **uPCGo** — **Gog and Boulder Creek Groups; Badshot (may include some undifferentiated Index Formation), Hota Mohican, Marsh Adams and Mount Ganier Formations, and unnamed equivalents:** Limestone, siltstone, dolomite; quartzite, pebble conglomerate; alkalic to calc- alkalic basalt, andesite and dacite; mica schist, marble, amphibolite.

Proterozoic

Upper Proterozoic

- **uPig** — **Ingenika Group:** Quartzite, micaceous quartzite, pebble conglomerate, limestone, dolomite, oolitic and pisolitic limestone, shale, sandstone, wacke, sandy limestone, phyllite, schist, gneiss, chlorite- muscovite schist, slate, argillite, micaceous crystalline limestone, marble, calcisilicate rock, amphibolite.

INTRUSIVE ROCKS

Cenozoic

- **ET** — **Early Tertiary:** granodiorite (gd), granite (gr), quartz diorite (qd), quartz monzonite (qm), quartz porphyry (qp), feldspar porphyry (fp), orthogneiss (og), migmatite (mi) and undifferentiated intrusive rocks (g).

Mesozoic

- **KT** — **Cretaceous to Tertiary:** gabbro (gb) and quartz diorite (qd).
- **LK** — **Late Cretaceous:** granite (gr), quartz diorite (qd), quartz monzonite (qm) and feldspar porphyry (fp).
- **EK** — **Early Cretaceous:** granite (gr).
- **JT** — **Jurassic to Tertiary:** granite (gr), quartz monzonite (qm), quartz porphyry (qp) and feldspar porphyry (fp).
- **JK** — **Jurassic to Cretaceous:** diorite (dr), granodiorite (gd), and undifferentiated intrusive rocks (g).
- **J** — **Jurassic:** diorite (dr), granodiorite (gd), syenite (sy) and orthogneiss (og).
- **MJ** — **Middle Jurassic:** diorite (dr), monzodiorite (dg), gabbro (gb), granodiorite (gd), quartz monzonite (qm) and tonalite (to).
- **MLJ** — **Middle to Late Jurassic:** granodiorite (gd).
- **EJ** — **Early Jurassic:** diorite (dr), monzodiorite (dg), gabbro (gb), granodiorite (gd), granite (gr), quartz diorite (qd), quartz monzonite (qm) and feldspar porphyry (fp).
- **TRT** — **Triassic to Tertiary:** diorite (dr), granodiorite (gd), quartz diorite (qd) and undifferentiated intrusive rocks (g).
- **TRJ** — **Triassic to Jurassic:** diorite (dr), monzodiorite (dg), quartz monzonite (qm), syenite (sy) and undifferentiated intrusive rocks (g).
- **TR** — **Triassic:** diorite (dr), monzodiorite (dg), gabbro (gb), granodiorite (gd), quartz diorite (qd) and quartz monzonite (qm).
- **Mesozoic:** ultramafites (um): EJum, TRJum, TRum

Paleozoic

- **P** — **Permian:** diorite (dr), granodiorite (gd), granite (gr), tonalite (to), diabase (db) and orthogneiss (og).
- **CPT** — **Carboniferous to Triassic:** diorite (dr) and gabbro (gb).
- **CP** — **Carboniferous to Permian:** gabbro (gb).
- **M** — **Mississippian:** tonalite (to).
- **DP** — **Devonian to Permian:** diorite (dr), gabbro (gb) and granodiorite (gd).
- **DC** — **Devonian to Carboniferous:** granodiorite (gd), quartz diorite (qd) and quartz monzonite (qm).
- **D** — **Devonian:** diorite (dr), gabbro (gb), quartz diorite (qd), quartz monzonite (qm) and undifferentiated intrusive rocks (g).
- **PPr** — **Paleozoic:** granite (gr).
- **Paleozoic:** ultramafites (um) and serpentinites (us): CPum, CPum, DMus, DPum, PPum

METAMORPHIC ROCKS

Paleozoic

- **Paleozoic:** greenschist to lower- amphibolite facies rocks (gs, mi) and paragneiss (pg): DMgs, DMmi, DMpg

Age Unknown

- **Age unknown or poorly constrained:** greenschist facies rocks (gs): DTgs

* The geology data on this map is from the British Columbia Geology Survey and has been cartographically prepared by Geoscience BC as part of a suite of maps for the QUEST-Northwest Project.

Mineral deposit data

MINFILE (2012): MINFILE B.C. mineral deposits database; B.C. Ministry of Energy and Mines, URL <http://minfile.ca> [January 2012]

Geology and topographic data

Massey, N.W.D, MacIntyre, D.G., Desjardins, P.J. and Cooney, R.T. (2005): Digital Geology Map of British Columbia: Whole Province; B.C. Ministry of Energy and Mines, Geofile 2005-1, URL <http://www.empr.gov.bc.ca/Mining/Geoscience/PublicationsCatalogue/GeoFiles/Pages/2005-1.aspx > [November 2007]

Acknowledgments

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Geoscience BC

Geoscience BC is an industry-led, industry-focused, not for profit society that works to attract mineral and oil and gas investment to British Columbia through collection and marketing of geoscience data

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MAP 2012-QNW-1-1

GEOLOGY

QUEST-NORTHWEST PROJECT

1:250 000 NTS SHEETS 104B,C,F,G,J,K
PART OF 1:250 000 NTS SHEETS 103O,P; 104A,H,I,N,O,P

1 : 500,000

0 5 10 15 20 25 50 km

Albers Projection, Central Meridian 126° W, Latitude of origin 45° N, First standard parallel 50° N, Second standard parallel 58.5° N, False easting 1,000,000; North American Datum 1983

Mean magnetic declination 2012, 20°45'E, decreasing 18.3' annually. Readings vary from 19°53'E in the southeast corner to 21°21'E in the northwest corner of the map.

January 2012

D R A F T

GEOSCIENCE BC - QUEST-NORTHWEST - GEOLOGY*