

DESCRIPTION OF SURFICIAL-GEOLOGIC MAP UNITS

This map shows the distribution of unconsolidated deposits and undifferentiated bedrock exposed at the surface along the Alaska Highway corridor from the southern Big Delta Quadrangle to the eastern edge of the Nabesna Quadrangle at the Canada border. Units were mapped by interpreting false-color infrared ~1:65,000-scale aerial photographs taken in July 1978, August 1980, August 1981, and July 1983, and verified by field checking in 2006–2010.

Map units are identified by the symbols described below. Symbols shown in parentheses, such as (Qcf), indicate combined map units consisting of bedrock overlain by thin or discontinuous deposits of the map unit. Map units with (e) such as Qfb(e) indicate zones of groundwater emergence in the mapped unit. Map units with a question mark such as Qca? indicate an uncertain identification. Detailed unit descriptions are included in Appendix A.

NOTE: Not all map units appear on each sheet

UNCONSOLIDATED DEPOSITS

Estimated contents of sand and silt, based on field observations, are indicated by the terms "trace" and "some." "Trace" implies a general composition of 4 to 12 percent. "Some" implies a general composition of 12 to 30 percent. Estimated composition <4 percent are not recorded in the field. Terms used to describe the estimated percentages of cobbles and boulders are "numerous", "scattered", and "rare." "Numerous" implies that drilling through the deposit would encounter two cobbles or boulders in an interval of 0.6 m; "scattered" implies that drilling would encounter two cobbles or boulders in an interval of 3 to 4.5 m; "rare" implies that drilling would encounter two cobbles or boulders in an interval of >4.5 m.

ALLUVIAL DEPOSITS

- Qa UNDIFFERENTIATED FLOODPLAIN ALLUVIUM
- Qaa ACTIVE-FLOODPLAIN ALLUVIUM
- Qai INACTIVE-FLOODPLAIN ALLUVIUM
- Qab ABANDONED-FLOODPLAIN ALLUVIUM
- Qaf ALLUVIAL-FAN DEPOSITS
- Qat STREAM-TERRACE ALLUVIUM
- Qtb UNDIFFERENTIATED FLOOD DEPOSITS
- Qtbe DELTA FLOOD DEPOSITS
- Qthy DONNELLY FLOOD DEPOSITS
- Qts SLACKWATER FLOOD DEPOSITS
- Qti TERRACE DEPOSITS OF TOK RIVER ALLUVIAL FAN

COLLUVIAL DEPOSITS

- Qc UNDIFFERENTIATED COLLUVIUM
- Qca SNOW-AVALANCHE DEPOSIT
- Qcd DEBRIS-FLOW DEPOSIT
- Qcf MIXED COLLUVIUM AND ALLUVIUM
- Qcfi TECTONICALLY DEFORMED COLLUVIAL-FLUVIAL
- Qcg ROCK-GLACIER DEPOSITS
- Qcl LANDSLIDE DEPOSITS
- Qcr ROCK-FALL DEPOSITS
- Qct TALUS

EOLIAN DEPOSITS

- Qe UNDIFFERENTIATED EOLIAN DEPOSITS
- Qel LOESS
- Qer RETRANSPORTED SILT AND SAND COMPLEXLY MIXED WITH LOWLAND LOESS
- Qes EOLIAN SAND

GLACIAL DEPOSITS

- Qgth TILL AND ASSOCIATED MORAINAL DEPOSITS OF HOLOCENE GLACIATION
- Qgdy TILL AND ASSOCIATED MORAINAL DEPOSITS OF DONNELLY GLACIATION
- Qgdo TILL AND ASSOCIATED MORAINAL DEPOSITS OF DELTA GLACIATIONS
- Qgtgp UNDIFFERENTIATED GLACIAL DRIFT OF PRE-DELTA GLACIATIONS

GLACIOFLUVIAL DEPOSITS

- Qgh OUTWASH OF HOLOCENE GLACIATION
- Qgly OUTWASH OF LATE DONNELLY GLACIATION
- Qgy OUTWASH OF DONNELLY GLACIATION
- Qgley ESKER-KAME COMPLEX OF DONNELLY GLACIATION
- Qglo OUTWASH OF DELTA GLACIATION
- Qgleo ESKER-KAME COMPLEX OF DELTA GLACIATION

MANMADE DEPOSITS

- Qnf ARTIFICIAL FILL

LACUSTRINE DEPOSITS

- Qlb LAKE-BOTTOM DEPOSITS
- Qld DELTA DEPOSITS
- Qlr DEPOSITS OF ICE-SHOVED RIDGES

PALUDAL DEPOSITS

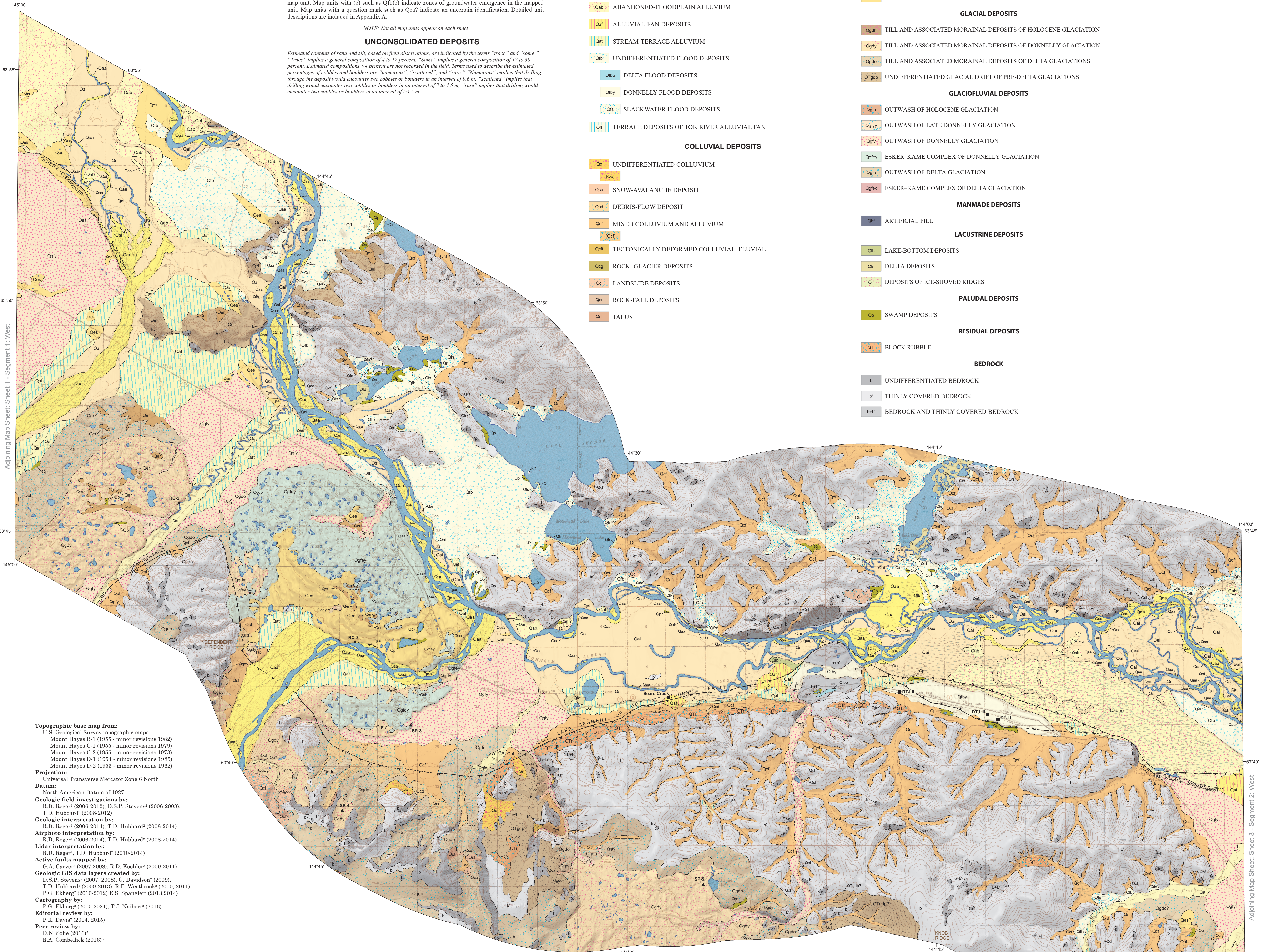
- Qsw SWAMP DEPOSITS

RESIDUAL DEPOSITS

- Qtr BLOCK RUBBLE

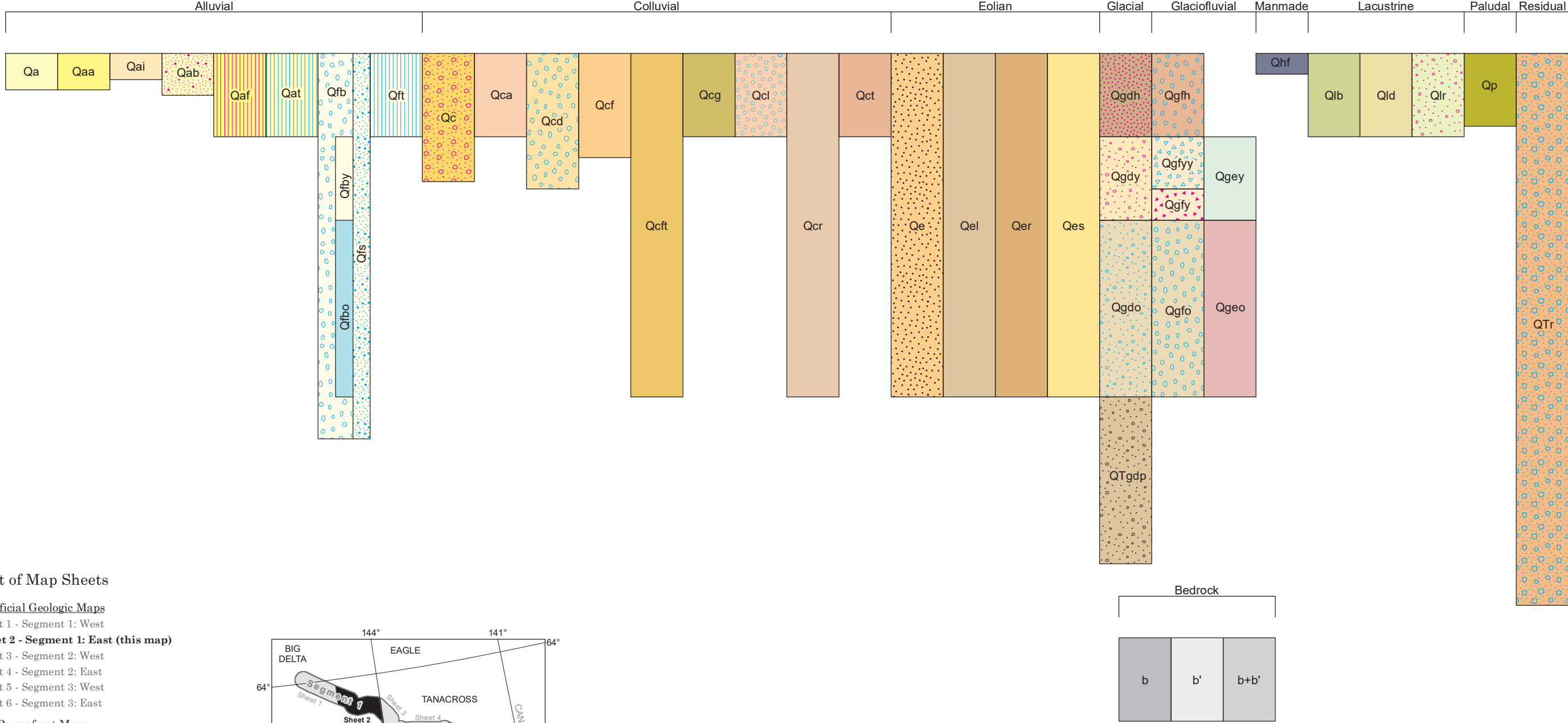
BEDROCK

- b UNDIFFERENTIATED BEDROCK
- b' THINLY COVERED BEDROCK
- b+b' BEDROCK AND THINLY COVERED BEDROCK



Topographic base map from:
U.S. Geological Survey topographic maps
Mount Hayes B-1 (1955 - minor revisions 1982)
Mount Hayes C-1 (1955 - minor revisions 1979)
Mount Hayes C-2 (1955 - minor revisions 1973)
Mount Hayes D-1 (1954 - minor revisions 1985)
Mount Hayes D-2 (1955 - minor revisions 1962)
Projection:
Universal Transverse Mercator Zone 6 North
Datum:
North American Datum of 1927
Geologic field investigations by:
R.D. Reger¹ (2006-2012), D.S.P. Stevens² (2006-2008),
T.D. Hubbard³ (2008-2012)
Geologic interpretation by:
R.D. Reger¹ (2006-2014), T.D. Hubbard³ (2008-2014)
Airphoto interpretation by:
R.D. Reger¹ (2006-2014), T.D. Hubbard³ (2008-2014)
Lidar interpretation by:
R.D. Reger¹, T.D. Hubbard³ (2010-2014)
Active faults mapped by:
G.A. Carver⁴ (2007-2008), R.D. Koehler⁵ (2009-2011)
Geologic GIS data layers created by:
D.S.P. Stevens² (2007, 2008), G. Davidson⁶ (2009),
T.D. Hubbard³ (2009-2013), R.E. Westbrook⁷ (2010, 2011),
P.G. Ekberg⁸ (2010-2012), E.S. Spangler⁹ (2013, 2014)
Cartography by:
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Editorial review by:
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Peer review by:
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CORRELATION OF MAP UNITS



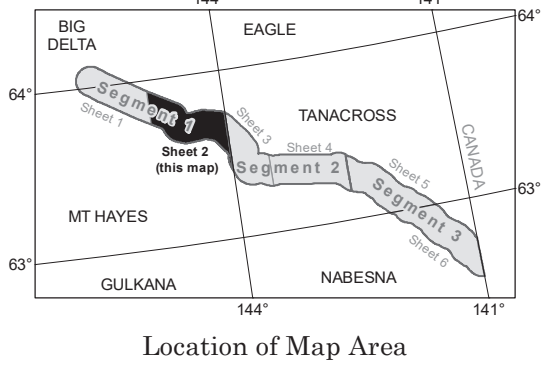
EXPLANATION OF MAP SYMBOLS

NOTE: Map symbols below might not all appear on this sheet

- PHOTOINTERPRETED CONTACT—Identity and existence certain; location approximate
- STRIKE-SLIP FAULT, LEFT-LATERAL, OFFSET—Identity or existence certain, location accurate. Arrows show relative motion
- STRIKE-SLIP FAULT, LEFT-LATERAL, OFFSET—Identity or existence certain, location approximate. Arrows show relative motion
- THRUST FAULT—Identity and existence certain, location accurate. Sawteeth on upper (tectonically higher) plate
- THRUST FAULT—Identity and existence certain, location approximate. Sawteeth on upper (tectonically higher) plate
- THRUST FAULT—Identity or existence questionable, location inferred. Sawteeth on upper (tectonically higher) plate
- THRUST FAULT—Identity and existence certain, location concealed. Sawteeth on upper (tectonically higher) plate
- THRUST FAULT—Identity or existence questionable, location concealed. Sawteeth on upper (tectonically higher) plate
- LINEAMENT
- ANTICLINE—Identity and existence certain, location accurate.
- ANTICLINE—Identity and existence certain, location inferred.
- ANTICLINE—Identity and existence certain, location concealed.
- ANTICLINE—Identity or existence questionable, location concealed.
- POSSIL LOCALITY
- RADIOCARBON LOCALITY
- SOIL PIT LOCALITY
- VENTIFACT LOCALITY
- TRENCH LOCALITY
- TEPHRA LOCALITY DISCUSSED IN REPORT (Schaefer, 2002)
- MAP LOCALITY DISCUSSED IN TEXT

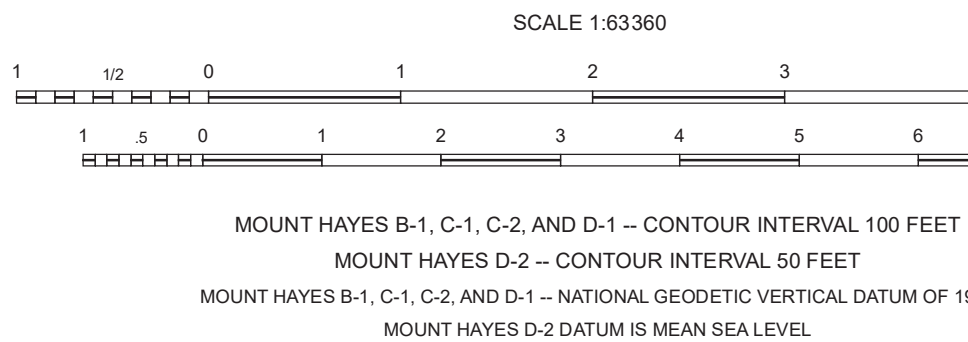
List of Map Sheets

Surficial Geologic Maps
Sheet 1: Segment 1: West
Sheet 2: Segment 1: East (this map)
Sheet 3: Segment 2: West
Sheet 4: Segment 2: East
Sheet 5: Segment 3: West
Sheet 6: Segment 3: East
Permafrost Maps
Sheet 7: Segment 1: West
Sheet 8: Segment 1: East
Sheet 9: Segment 2: West
Sheet 10: Segment 2: East
Sheet 11: Segment 3: West
Sheet 12: Segment 3: East
Engineering Geologic Maps
Sheet 13: Segment 1: West
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Sheet 15: Segment 2: West
Sheet 16: Segment 2: East
Sheet 17: Segment 3: West
Sheet 18: Segment 3: East



SURFICIAL-GEOLOGIC MAP, ALASKA HIGHWAY CORRIDOR, DELTA JUNCTION, ALASKA, TO THE CANADA BORDER: SEGMENT 1 EAST

by
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