146°30"
62°15"

146°00'
62°15'

62°00'
146°30'

62°00'
146°00'

ENGINEERING GEOLOGY

This map was based primarily upon original photo-interpretation of color infrared aerial photography and LANDSAT imagery. Published and unpublished geologic maps and reports were used as supplementary sources of information. Minimum mapping resolution is usually 40 acres; important features that could be located with accuracy on the topographic basemaps were mapped to a minimum of 10 acres.

Terrain units consist of landform types and their constituent geologic materials occurring from the ground surface to a depth of 25 feet. A simple terrain unit consists of a single landform type; layered, mosaic, and complex terrain units consist of 2 or more landform types. The terrain unit classification is based on the hierarchical catalog of landform types developed for Alaska by Brown and Lau (1980) and Kreig and Reger (1976, 1980). Landform types are identified by letter codes; uppercase letters indicate the origin of the deposit while lower case letters indicate the specific landform type within a group. See the User's Guide to the Copper River Area Resource Mapping Project for detailed descriptions of mapped units and documentation of mapping methods and sources.

UNCONSOLIDATED (SEDIMENTS) TERRAIN UNITS

C	Colluvial (gravity) Deposits
Ca	Avalanche Deposits
Cg	Rock Glacier
Cl	Landslide Deposits
Ct	Talus Deposits
El	Loess (wind deposited silt)
Es	Sand Dune
Fd	Fluvial (stream) Delta Deposits
Fda	Abandoned Fluvial (stream) Delta Deposits
Ff	Alluvial (stream) Fan Deposits
Ffg	Granular Alluvial (stream) Fan Deposits
Ffs	Silt Alluvial (stream) Fan Deposits
Fm	Mud Volcano
Fp	Floodplain (stream) Deposits
Fpb	Braided Floodplain (stream) Deposits
Fpm	Meander Floodplain (stream) Deposits
Fpa	Abandoned Floodplain (stream) Deposits
Fs	Retransposted (slopewash) Deposits
Ft	Fluvial (stream) Terrace Deposits
Fto	Old Fluvial (stream) Terrace Deposits
Gg	Glacier (ice)
GL	Glacial Lacustrine (glacial lake) Deposits
Gm	Glacial Moraine (hilly) Deposits
Gt	Glacial Till (nearly level) Deposits
Gtd	Glacial Drumlin Till Deposits
Gtf	Glacial Fluted Till Deposits
Gto	Older Glacial Till Deposits
Gty	Younger Glacial Till Deposits
GF	Glaciofluvial (meltwater) Deposits, Undifferentiated
GFe	Glaciofluvial (meltwater) Esker Deposits
GFk	Glaciofluvial (meltwater) Kame Deposits
GFl	Lowland Glaciofluvial (meltwater) Deposits
GFo	Glaciofluvial (meltwater) Outwash Deposits
L	Lacustrine (lake) Deposits
Lb	Lacustrine (lake) Beach Deposits
Lt	Lacustrine Thaw Basin/Lake Deposits
Mb	Marine Beach Deposits
Mt	Marine Tidal (mud flat) Deposits
O	Organic Deposits
Wb	Water Body: Bay
Wf	Water Body: Fjord
Wg	Water Body: Lagoon
Wl	Water Body: Lake
Wt	Water Body: Strait

CONSOLIDATED (BEDROCK) TERRAIN UNITS

Ib	Extrusive Igneous Bedrock (lava flows)
Iba	Extrusive Acidic Bedrock (lava flows)
Ibb	Extrusive Basic Bedrock (lava flows)
Ig	Intrusive Igneous Bedrock
Iga	Intrusive Acidic Bedrock (granitic rocks)
Igb	Intrusive Basic Bedrock (gabbroic rocks)
Igu	Intrusive Ultrabasic Bedrock
Ip	Pyroclastic Deposits (ash, cinder)
Nl	Slate, Phyllite
Nm	Marble
Np	Serpentinite
Nq	Quartzite
Ns	Schist
S	Sedimentary Bedrock, Undifferentiated
Sc	Conglomerate
Sh	Shale, Siltstone
Sl	Limestone
Ss	Sandstone

CONNECTIVES

— Layered terrain unit; one landform type overlying another.

\+ Mosaic terrain unit; dominant component listed first. A mosaic terrain unit is composed of 2 discrete components, each of which comprises greater than 25% of the area of the polygon and which are too small and intricately mixed to separate.

EXAMPLES

Layered terrain unit:

Organic Deposits overlying Glacial Till Deposits

O / Gt

Mosaic terrain unit, dominant component listed first:

Floodplain Deposits and Fluvial Terrace Deposits

Fp + Ft

Complex terrain units:

Slate Bedrock and Colluvial Deposits overlying Slate Bedrock

Nl + C / Nl

A mosaic of Glacial Till and Colluvial Deposits overlying Slate Bedrock

Gt + C / Nl

This document is intended only for general land management and planning purposes. There has been no field verification of the interpretation other than recourse to published and unpublished maps and reports. Projects which require site-specific data will require additional on-site investigation to verify terrain units, their characteristics, and their geotechnical properties.

STATE OF ALASKA
Jim McLaughlin Brown
AA-10
REGISTERED PROFESSIONAL GEOLOGIST

PREPARED FOR THE

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

BY AGRA

ARCTIC GEO RESOURCE ASSOCIATES

PHOTO-INTERPRETED BY

ARCTIC GEO—TERRAIN CONSULTING
1984

SCALE 1:63,360

1 0 1 2 3 4 MILES

1 0 1 2 3 4 5 KILOMETERS

GULKANA (A-5) QUADRANGLE

ENGINEERING GEOLOGY

This document has not received official DGGS review and publication status, and should not be quoted as such.