

INTERPRETED GEOLOGICAL CHARACTERISTICS CHART

LEVEL II (1:63,360)

LANDFORM TYPE SYMBOL	LANDFORM TYPE NAME	TOPOGRAPHY AND AREAL DISTRIBUTION	INTERPRETED ENGINEERING SOIL TYPES	SLOPE CLASS	DRAINAGE AND PERMEABILITY IF UNFROZEN	EROSION POTENTIAL	GROUND-WATER TABLE	PERMAFROST DISTRIBUTION	FROST HEAVE POTENTIAL	THAW SETTLEMENT POTENTIAL	LIQUEFACTION POTENTIAL	BEARING STRENGTH	SLOPE STABILITY	SAND & GRAVEL BORROW SOURCE SUITABILITY
Various I--, N--, S--	all bedrock types	river bluffs, valley walls, hill tops, and alpine areas	not applicable	moderate to steep	NA	low	shallow to deep	NA	low to high	nil to moderate	low	high to very high	moderate to high (Sh low)	poor
C Ca Ct	colluvial deposits avalanche deposits talus deposits	lower parts of steep slope debris cones at base of steep slopes	GW, GM, SW, SM, ML and coarse debris	moderate to steep	poor to good/ low to high	moderate to low (Ct)	deep	unfrozen near Valdez discontinuous to continuous elsewhere	moderate to high	low to moderate	low	low to high	moderate	poor to fair
Cl	landslide	elongate tongues on steep slopes and base of slopes	GW, GM, SW, SM, ML and coarse debris	moderate to steep	poor to good/ low to high	moderate to high	shallow to deep	unfrozen near Valdez discontinuous to continuous elsewhere	moderate to high	low to high	low to moderate	low	very low	poor to good
El	loess (wind-blown silt)	thin blankets mantling tops of river bluffs	ML	gentle	good/ high	high	deep	discontinuous	high	high	low	low (unfrozen) to high (frozen)	low	poor
Es	sand dune	dunes at tops of river bluffs	SP, SW	moderate	good/ high	high	deep	unfrozen or dry-frozen	low	low	low	moderate	moderate	good for sand
Fd Fda	delta deposits abandoned delta deposits	margins of lakes and bays stream terraces within the Copper River Basin	GW, SW	flat to gentle	good/ high	moderate	shallow (Fd) to deep (Fda)	unfrozen (Fd) to continuous (Fda)	low	low	high	high	low (Fd) to high (Fda)	good to excellent poor where frozen
Ff Ffg	alluvial fan deposits granular alluvial fan deposits	fan-shaped cones at toes of slopes and at mouths of tributary streams	GW, SW, and coarse debris	gentle to moderate	good/ high	low to moderate	shallow to intermediate	unfrozen near Valdez discontinuous to continuous elsewhere	low	low	low	high	high (low if oversteepened)	excellent
Ffs Fs	silty alluvial fan deposits retransported deposits	fans on river terraces at mouths of tributary streams and widespread thin blankets	SM, ML, CL, and possible MH, CH	gentle to moderate flat to gentle	poor/ low	high	very shallow to shallow	continuous	high	high	low	low (unfrozen) to high (frozen)	high	nil
Fp Fpa Fpb Fpm	all floodplain deposits	flat areas adjacent to streams	GW, GP, SW, SP, SM, ML	flat to gentle	poor to good/ high	high	shallow	unfrozen (may be sporadically frozen in Copper Basin)	low in sand & gravel high in silt	usually low but can be high	high	usually high, low in silts	high	good to excellent
Ft Fto	terrace deposits old terrace deposits	flat bench area near and above streams	GW, GP, SW, SP, SM, ML	flat	good/ high	low (Fto) to high (Ft)	intermediate to deep	unfrozen near Valdez discontinuous to continuous elsewhere	low in sand & gravel high in silt	usually low but can be high	low to moderate	high	high	good to excellent
GM Gt Gtd	glacial moraine deposits glacial till deposits drumlin till deposits	cirques, lower mountain slopes, valley floors of major rivers and parts of the Copper River Basin	GW, GM, SW, SM, ML, CL	gentle to steep	low to moderate/ low to moderate	low to moderate	shallow to deep	unfrozen near Valdez discontinuous to continuous elsewhere	moderate to high	high	low	very low (unfrozen) to high (frozen)	low to moderate	poor to fair
Gcf Gco Gcy	fluted till deposits older till deposits younger till deposits	cirques, lower mountain slopes, valley floors of major rivers and parts of the Copper River Basin	GW, GM, SW, SM, ML, CL	gentle to steep	low to moderate/ low to moderate	low to moderate	shallow to deep	unfrozen near Valdez discontinuous to continuous elsewhere	moderate to high	high	low	very low (unfrozen) to high (frozen)	low to moderate	poor to fair
GF GFl	glaciofluvial deposits (undifferentiated) glaciofluvial lowland deposits	parts of the Copper River Basin and floors of major valleys	GW, GP, SW, SP some cobbles and boulders	gentle to steep	good/ high	low	shallow to deep	continuous	low	low	low	high	high	excellent but poor when frozen
GFe GFk GFo	esker deposits kame deposits outwash deposits	parts of the Copper River Basin and floors of major valleys	GW, GP, SW, SP some cobbles and boulders	gentle to steep	good/ high	low	shallow to deep	unfrozen near Valdez discontinuous to continuous elsewhere	low	low	low where frozen high where unfrozen	high	high	excellent
GL	glaciolacustrine deposits	blankets most of the Copper River Basin and valley floors of Copper, Chitina, and Nizina Rivers	SM, SH, ML, CL	flat to gentle	poor/ low	low	very shallow	continuous	high	high	low	very low (unfrozen) to high (frozen)	high	poor
L Lt	lacustrine deposits thaw basin & thaw lake deposits	adjacent to lakes occupying old lake basins	M., C., PT, OL	flat	poor/ low	low	very shallow	continuous	high	high	low	very low (unfrozen) to high (frozen)	NA	poor
Lb Lb	lacustrine beach deposits marine beach deposits	shoreslines of lakes and Port of Valdez	GW, GP, SW, SP	flat to gentle	good/ high	moderate	very shallow	unfrozen	low	low	high	moderate	moderate	fair to good
Mt	marine tidal deposits	intertidal zones along Port of Valdez and Shoup Bay	SM, ML, CL, MH, CH	flat	poor/ low	moderate	above surface	unfrozen	NA	NA	high	low	NA	poor
O	organic deposits	swamp areas throughout entire project area	PT, OL, OH	flat	poor/ low	low	at surface	unfrozen near Valdez discontinuous to continuous elsewhere	high	high	Pt - NA others - high	very low	NA	nil