TERRAIN INVENTORY LEGEND

SYMBOL	NAME (AGE)	NATURE OF MATERIAL AND THICKNESS	DISTRIBUTION AND STRATIGRAPHY	GEOMORPHOLOGY AND DRAINAGE	PERMAFROST	OTHER ENGINEERING CHARACTERISTICS
I1, I2, Is	Ice, valley glacier cirque glacier, cliff glacier (Neoglacial or modern)	Glacier ice with veneer or thin blanket of snow and firn. Valley glaciers 50 to 150 m thick, cliff glaciers 2 to 40 m thick.	Common in Kluane Ranges northwest of Kathleen Lakes, Alsek Ranges, and Coast Mountains. Generally overlies glacially scoured bedrock. Terminates in ice-cored moraines.	Flat to steeply sloping as indicated by slope modifiers. Characterized by crevasses, moulins, inclined meltwater channels, ice bridges, and thaw lakes. Avalanches common on cliff glaciers. Some valley glaciers periodically surge. Well drained due to surface and subsurface stream network developed by meltwater.	Glaciers may be at the pressure-melting point at their base; small glaciers are probably at freezing temperature throughout their thickness. Ablation characterizes lower parts of all glaciers during summer.	Unstable surfaces due to ablation, crevasses, continued downwasting of glacier movement, and glacier surges on many valley glaciers. Avalanches pose hazard on cliff glaciers.
Ap-A, fAp-A gAp-A, sAp-A	Active Floodplain (Modern)	Generally gravel (Ap, gA), rarely sand (sA) or silt (fA); gravel is coarse on floodplains of high-gradient alpine streams; rare lenses of silt and clay; probably averages 3 to 10 m thick under large streams.	Active floodplains are broad along most major streams flowing out of St. Elias Mountains; small streams originating in mountains have narrow active floodplains bordered by vegetated floodplains, low terraces, or stream-cut scarps. Small floodplains are underlain by colluvium or drift; large ones probably extend to bedrock.	Channel and bars form braided patterns that are constantly shifting; main scarps to 1.5 m high with ripple marks, ellipsoidal scours, and silt volcanoes; no vegetation; inundated by water during spring flood, times of high precipitation, and intense glacier melt.	Aufeis may form along floodplains and persist until late spring. Permafrost absent except under small floodplains at high elevations.	Flooding is a constant hazard. In places sediments are "quick" near surface. Sand and silt floodplains vulnerable to minor channelling if disturbed, and liquefaction if subjected to intense ground motions associated with earthquakes. Aggregate source.
Ap, fAp, sAp, gAp	Floodplain	Generally gravel with veneer of sand and silt; veneer commonly has significant organic content and cap of peat; in places, gravel with fine textured veneer (fA, sA, gA); fA places primarily silt and sand (fA), probably averages 3 to 10 m thick adjacent to large streams.	Borders most streams. Bordered by active floodplains, low terraces, or stream-cut scarps. May include some unmapped areas of active floodplain and low terraces in small valleys. Floodplains underlain by colluvium, drift, or bedrock.	Flat to gently sloping as indicated by slope modifiers. Characterized by crevasses, moulins, incised meltwater channels, ice bridges, and thaw lakes. Avalanches common on cliff glaciers. Some valley glaciers periodically surge. Well drained due to surface and subsurface stream network developed by meltwater.	Permafrost absent except under small floodplains at high elevations and under floodplains consisting of silt (fA), especially those marked by thermokarst.	Annual flooding probable. Veneer vulnerable to minor channelling if disturbed. Coarse textured facies generally has stable surface and is aggregate source. Fine textured facies (fA) vulnerable to thermokarst subsidence (where underlain by ice rich frozen sediments) and channelling if disturbed.
aAf, gAf, bAf, Af, fAf, sAf, AF-A, aAF-A, gAF-A, gAf	Alluvial fan (A - Modern; N - Neoglacial; otherwise Postglacial, rarely Late Wisconsinan)	Generally gravel and sand with veneer of sand and silt; veneer commonly has significant organic content and cap of peat; in places, sand or gravel (aA), gravel (gA), or boulder gravel (bA) without veneer of sand and silt; in places fine textured sediments (fA) or gravel and sand interbedded with fine textured sediments (aA). Fans with steep slopes in alpine areas consist of coarse bouldery gravels. Probably averages 3 to 35 m thick.	Common along edges of glaciated valleys. Largest fans present along truck valleys. Toes of fans generally impinge on floodplains and stream terraces; includes small unmapped areas of floodplain.	Gently to moderately sloping. Generally moderately well to well drained; gently sloping fans with thick veneers or blankets of fine textured sediment may be imperfectly drained. Channels, bars, and small scarps to 1.5 m high on active fans (A-A).	Most alluvial fans having no or negligible veneers of fine textured sediment are free of permafrost. Permafrost common in fans along southern edge of valleys and those having a significant cover or content of fine textured sediment. Moderate to high ice contents present in peat and fine textured materials, but low in coarse textured materials. Water under artesian pressure in talks and below permafrost.	Surface vulnerable to moderate thermokarst subsidence and erosion if disturbed where icy sediments cap fans. Rapid shifts in stream position (avulsions) occur across surface of some alluvial fans, especially young fans ($_{A}^{Y}$fy). Flooding constant hazard in low areas adjacent stream channels, especially young and modern fans ($_{A}^{Y}$, A-A). Debris flows common on small alpine fans and at the apex of large fans. Aggregate source.
At, Ad, fAt, xAt, gAt, $_{A}^{Y}$gAt	Stream terrace, delta (N - Neoglacial; otherwise Postglacial)	Generally gravel with veneer of sand and silt; veneer commonly has significant organic content and cap of peat; veneer thickest on high terraces. In places gravel (gA) lacks fine textured peat veneer. In places fine textured sediments (fA) or interbedded coarse and fine textured sediments (xA). Gravel coarse on narrow terraces adjacent to alpine streams. Generally between 3 and 15 m thick but ranges between 1.5 and 50 m.	Borders all streams. Bordered by active floodplains, low terraces, or stream-cut scarps; includes unmapped floodplains in small valleys; underlain by colluvium, drift, or bedrock.	Stands from 1.5 to 30 m above streams. Surface generally flat except for minor terrace scarps and rare channel traces. Terraces with fine textured veneer generally well to moderately well drained. Veneered terraces moderately well drained; channels and low swales poorly drained.	Permafrost irregularly distributed, but common in terraces in northern part of Slim, especially those with significant content of fine textured sediment. Ground ice absent except in peat blankets and silty sandy sediments. Water under artesian pressure in taliks and below permafrost.	Stable surface except where terrace capped by thick peat or ice-rich silt and sand lead to moderate thermokarst subsidence and erosion. Outer edge of terrace generally not favorable location for development. Aggregate source.
Ab, fAb	Alluvial blanket (Postglacial)	Interbedded gravel, sand, silt, commonly capped by peat; in places mainly fine textured sediment (fA).	Common along edges of valleys. Blanket commonly overlies drift or coarse alluvial deposits.	Gently to moderately sloping. Generally imperfectly to moderately well drained. Surface water may cross blanket in form of numerous small rills.	Permafrost common, but irregularly distributed. Ground ice contents generally moderate to low.	Surface vulnerable to moderate erosion if disturbed. Surface water may need controlling in case of development. Icings possible.
Er	Sand dunes (Postglacial)	Sand; 2 to 30 m thick.	Generally overlies outwash and lacustrine deposits and less commonly, morainal, colluvial, alluvial deposits, and bedrock.	Mainly parabolic and linear ridges standing 5 to 30 m above surrounding terrain. Ridges well drained. Depressions moderately well drained. Active blowouts occur on dunes.	Permafrost generally absent; low ground ice contents.	Vulnerable to erosion on slopes and deflation if disturbed.
Eb	Eolian blanket (Postglacial)	Fine sand and silt.	Common in areas adjacent to Dezadeash Lake and valley; forms primarily on flat to moderately sloping surfaces. Generally overlies lacustrine, glaciofluvial, or morainal deposits.	Slopes reflect morphology of underlying unit; occurs on flat to moderate slopes. Drainage good to moderately good.	Irregular permafrost distribution. Low ground ice contents, but ice lenses common in silty facies.	Vulnerable to erosion on steep slopes and deflation if disturbed.
Ev	Eolian veneer (Postglacial)	Mainly sand and silt; may contain thin layers of peat.	Common in areas adjacent to Dezadeash Lake and valley. Generally overlies lacustrine, glaciofluvial, or morainal deposits. Areas of discontinuous thin loess not mapped, but are present throughout most of area.	Slopes reflect morphology of underlying unit; occurs on flat to moderate slopes. Drainage good to moderately good.	Irregular permafrost distribution. Ice lenses common in silty facies of unit.	Vulnerable to erosion on steep slopes and deflation if disturbed.
Op, Ob, Ov	Organic deposit (Postglacial)	Peat and organic silts; may contain wood and wood fragments; up to 8 m thick.	Present in swales, depressions, and on broad flat areas in valleys throughout area. Underlain by pond sediments, drift, or less commonly by alluvium.	Generally flat surface with some scattered thermokarst lakes; imperfect to poor drainage; often marshy.	Irregular permafrost distribution and high ground ice contents common in northern part of area; permafrost commonly absent in southern parts of area.	Vulnerable to thermokarst subsidence. Highly compressible in thawed state.
Gk, Gh, hGh, Gk-G, Gh-G, Gh-V	Kame, kame terrace, kame and kettle complex (Late Wisconsinan)	Primarily gravel and sand with few beds of silt; rarely coarse bouldery gravel (bG); generally 15 to 60 m thick. Depressions commonly have thin covers of silt and peat.	Most common in valleys but occurs rarely on uplands. Generally adjacent to outwash plains, valley trains, lacustrine and morainal landforms; stream terraces and floodplains commonly are incised within this unit. In places contains small unmapped areas of till or glaciolacustrine deposits. Commonly underlain by till, lacustrine deposits, alluvium, and more rarely by bedrock.	Hummocky (Gh) to undulating or rolling (Gk); in places channelled by meltwater. Well to moderately well drained except for depressions and broad flat areas having veneers or thin blankets of silt or peat.	Discontinuous permafrost probable in outwash north of Dezadeash River valley. Permafrost rare south of Dezadeash valley except at high elevations. Little ground ice except in silt and peat, which may have moderate to high ice content.	Vulnerable to moderate erosion on steep slopes if disturbed. Source of aggregate.
Gr, Gr-G	Esker (Late Wisconsinan)	Gravel, little sand. May have thin veneer of silt or peat. Usually 10 to 50 m thick.	Isolated occurrences throughout glaciated lowlands; generally found within glaciofluvial or morainal deposits. Commonly underlain by till, more rarely by bedrock.	Individual or parallel ridges standing 10 to 50 m above surrounding terrain; in places occurs as aligned mounds of gravel or sand. Few kettles. Well drained except in depressions.	Permafrost generally absent. Negligible ground ice.	Stable surface. Source of aggregate.
Gp, sGp, bgGp, Gt, Gf, Gd, sGd, Gb, bGb, Gp-G, Gp-V, Gf-G, Gm-G, sGd-V	Outwash plain, outwash fan, valley train, kame delta (Late Wisconsinan)	Primarily sand and gravel with veneer or thin blanket of silt and peat; some areas primarily sand (sG); rarely bouldery gravel (bgG) or boulders (bG). Probably averages 6 to 15 m thick but varies between 3 and 60 m.	Occurs predominantly in valleys. Commonly incised into morainal landforms; commonly stream terraces and floodplains incised within outwash. Generally underlain by till, lacustrine deposits, and more rarely by bedrock.	Flat to gently sloping; in places imperfectly, rarely channelled. Generally well to moderately well drained; imperfectly to poorly drained in channels, depressions, and on areas with veneer or thin blanket of silt and peat.	Permafrost rare in all outwash except where overlying veneer is thick. Little ground ice except in overlying silt and peat, which have moderate to high ice contents where frozen.	If frozen, veneer or thin blanket of silt and peat may be vulnerable to moderate thermokarst subsidence or erosion. Most outwash stable. Source of aggregate.
Gv, sGv	Glaciofluvial blanket or veneer (Late Wisconsinan)	Primarily gravel, some sand with veneer or thin blanket of silt and peat; bouldery in places.	Occurs along valley slopes.	Gently to moderately steeply sloping. Generally moderately well to well drained, imperfectly drained on gentle slopes having veneer or thin blanket of silt and peat.	Permafrost present at high elevations; active layer thick where unit well drained. Little ground ice except in overlying silt and peat, which have moderate ice contents.	Blanket of silt and peat may be vulnerable to moderate thermokarst subsidence or erosion on steep slopes at high elevation. Potential source of aggregate.
Lp, fLp, sLp, slp, gLp, Ls, fLs, Ln, Lh, sLh, Lp-V, Ln-V, Lh-V, Lp-P, fLp-P	Lacustrine plain (N - Neoglacial; otherwise Late Wisconsinan)	Primarily silt and silty clay (L, fL), with some fine sand and lenses of sand and gravel; in places interbedded clay, silt, and fine sand (fL), sand or gravel (sL), gravel (gL), or interbedded clay, silt, sand and gravel (xL).	Covers large area in Takhini valley; also present along upper part of Dezadeash valley and its tributaries that were deglaciated prior to the establishment of postglacial drainage patterns. Commonly underlain by other types of drift.	Commonly flat to gently sloping (Lp, ln) but rarely has moderately steep slopes (Lh). Usually moderately well drained but in places imperfectly drained, especially near the base of north-facing steep valley walls. In areas of high ground ice content, thermokarst depressions are common. In isolated areas unit may be intensely gullied.	Permafrost generally discontinuous and thin with low ice content in well drained areas having a southern aspect and lacking thermokarst depressions; permafrost typically continuous with moderate to high ice content in imperfectly drained areas having northern aspect and thermokarst depressions. Thermokarst depressions common in areas of high ice content, in places resulting in rolling (Ln) or hummocky (Lh) topography.	Vulnerable to thermokarst subsidence and erosion where sediment contains high ice content. Slumps and flows may follow disturbance on steep slopes. Surface may be vulnerable to liquefaction in poorly drained areas where permafrost is absent. Vulnerable to gullying on steep slopes if disturbed.
Lb, fLb, sLb, xLb, fLb	Lacustrine blanket or veneer (N - Neoglacial; otherwise Late Wisconsinan)	Primarily silty clay, silt, or sand (L, fL); in places contain lenses and layers of sand and gravel (xL). Flow areas predominantly cobbles and boulders (aL).	Found in valleys that were deglaciated prior to the establishment of postglacial drainage patterns; large areas present in Shakwak Trench. Usually underlain by drift but in places, by colluvium and bedrock.	Gently to moderately sloping. Generally imperfectly to moderately well drained. Surface water may cross blanket in form of numerous small rills.	Permafrost discontinuous; most common under imperfectly drained and north-facing slopes. Ground ice content generally moderate to high where permafrost present.	Vulnerable to thermokarst subsidence and erosion where permafrost present. Slumps and flows may follow disturbance on steep slopes.
Lr, sLr	Lake strandlines (N - Neoglacial; otherwise Late Wisconsinan)	Sand and gravel. Generally 1 to 4 m thick.	Locally present at the margins of former lakes. See L, lp,Ln, Lh, Lb for distribution of lakes. Usually underlain by drift but in places, by bedrock.	Narrow, gently sloping benches or low narrow ridges. Well to moderately well drained.	Permafrost generally absent.	Gravel and sand beaches potential source of small volumes of aggregate.
Mb, bMb, aMb, aMh	Disintegration moraine (N - Neoglacial; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; commonly crudely sorted and low in fines (aMc); may contain high proportion of boulders and cobbles (bM). Between 3 and 40 m thick.	Locally present in valleys throughout area; bouldery facies (bM) restricted to alpine valleys. Unit commonly contains unmapped patches of outwash and, rarely, lacustrine deposits. Fine grained pond sediments and peat in many depressions. Generally underlain by drift, alluvium, and bedrock.	Surface hummocky with gentle to moderately steep slopes. Drainage good on hills and ridges, imperfect to poor in swales and depressions.	Permafrost generally absent or sporadic except in alpine valleys. Ground ice content low to medium where permafrost present.	Locally, areas with moderate ground ice content vulnerable to thermokarst subsidence. Snow patches accelerate mass wastage as indicated by presence of nivation terraces. Locally, a source of construction material, including aggregate, especially when processed (e.g. crushed, screened).

TERRAIN INVENTORY LEGEND

SYMBOL	NAME (AGE)	NATURE OF MATERIAL AND THICKNESS	DISTRIBUTION AND STRATIGRAPHY	GEOMORPHOLOGY AND DRAINAGE	PERMAFROST	OTHER ENGINEERING CHARACTERISTICS
Mr, aMr, bMr, $_{M}^{Y}$, aM$_{M}^{Y}$, bM$_{M}^{Y}$	Morainal ridge (N - Neoglacial; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; locally contains crudely sorted material; low in fines (aM); in places contains high proportion of boulders and cobbles (bM). Generally 10 to 50 m thick, rarely to 100 m.	Individual ridges and groups of ridges common along limit of Late Wisconsinan and Neoglacial glaciations. Small morainic ridges (similar to DeGeer moraines or washboard moraine) present adjacent to Alaska Highway southeast of Kloo Lake. Till and colluvial blanket common upslope from ridges, disintegration moraine and till blanket downslope. Underlain by drift, colluvium, and rarely by bedrock.	Ridge(s) having moderate to steep slopes, well drained.	Permafrost absent in moraines at low elevations but present at high elevations. Thick active layer on some south-facing slopes. Negligible ground ice content.	At high elevations, snow patches accelerate mass wastage as indicated by presence of nivation terraces. locally, a source of construction material, including aggregate, especially when processed.
Mm, tMm, aMm, gMm, $_{M}^{Y}$gMm, aM$_{M}^{Y}$, bM$_{M}^{Y}$, tMm-G	Till plain, disintegration moraine (N - Neoglacial; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; till known or assumed to have low stone content (tM); in places may be crudely sorted and low in fines (aM, gM, rM) or contain a high proportion of boulders and cobbles (bM). Probably ranges from 3 to 40 m thick.	Common throughout valleys; usually associated with other glacial deposits. Unit commonly contains unmapped patches of outwash and less commonly, lacustrine deposits. Fine grained pond sediments and peat in many depressions. Discontinuous thin veneer of silt and peat on Wisconsinan moraines. Generally underlain by drift or alluvium.	Surface generally rolling to undulating with gentle to moderate slopes; in places fluted or drumlinized. Drainage moderately good to good; in swales and on broad flat areas drainage may be imperfect to moderately good.	Permafrost generally absent or sporadic except in alpine valleys. Ground ice contents low to medium where permafrost present.	Areas with moderate ground ice contents vulnerable to thermokarst subsidence. Snow patches accelerate mass wastage as indicated by presence of nivation hollows, hills and ridges generally stable surfaces. Locally a source of construction material, including aggregate, especially when processed.
Mp, tMp, bMp, Mo, tMo, aMo, bMo, $_{M}^{Y}$bMo, $_{M}^{Y}$bMp, tMp-G, tMo-G, aMo-G, bMo-G	Till plain (N - Neoglacial; 2 - Early(?) Wisconsinan; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; texture of basal part reflects underlying material; till known or assumed to have low stone content (tM); in places has high sand and stone contents (aM); at high elevations till has high proportion of boulders and cobbles (bM). Averages 3 to 10 m thick, varies between 1 and 50 m.	Common in Shakwak Trench and along axis of small valleys. Usually associated with other glacial deposits, and underlain by drift or alluvium. Discontinuous thin veneer of silt overlying till commonly present; unit may contain small unmapped areas of outwash and lacustrine deposits.	Flat to gently sloping; in places fluted or with low broad drumlins. In areas of permafrost, drainage moderately good to imperfect; in areas free of permafrost, drainage moderately good to good.	Permafrost generally absent or sporadic except at high elevations and under some slopes having a north aspect. Ground ice content generally low to medium where permafrost present.	Slopes underlain by permafrost with moderate ice contents may be vulnerable to shallow slope failures, i.e. active layer detachment flows. Generally good source of fill and road building material; potential source of aggregate, but requires processing (e.g. crushing, screening).
Mb, tMb, aMb, bMb, $_{M}^{Y}$bMb, aM$_{M}^{Y}$, bM$_{M}^{Y}$, tMb-V, aMb-V	Till blanket (N - Neoglacial; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; till known or assumed to have low stone content (tM); in places till has high sand and stone contents (aM, aM); at high elevations till has high proportion of boulders and cobbles (bM).	Common on slopes throughout area. Other morainal deposits common downslope from till blanket and colluvium upslope. Usually underlain by bedrock, rarely by colluvium. Unit contains unmapped patches of outwash, colluvium, alluvium, and bedrock.	Gentle to steep slopes (as indicated on map). Generally well drained; gentle slopes underlain by permafrost moderately well to, less commonly, imperfectly drained. Rare active layer detachment flow. Nivation terraces and hollows, and ephemeral snow patches present at high elevations (as indicated on map), especially in Dezadeash Ranges and Coast Mountains adjacent to Kusawa Lake.	Permafrost present at high elevations, although locally absent under south-facing slopes. Moderate to high ground ice content in upper part of unit on gentle slopes where permafrost present.	Areas with moderate to high ground ice contents vulnerable to thermokarst subsidence and erosion. Snow patches accelerate mass wastage as indicated by presence of nivation terraces.
Mr, stMr, gtMr, aMr, bMr, aM$_{M}^{Y}$, aMr-G, bMr-V	Till veneer (N - Neoglacial; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; locally contains crudely sorted material, low in fines or high in rubble or boulder content (stM, gtM, aM); commonly till has high proportion of boulders and cobbles (bM).	Common on glaciated slopes. Morainal deposits common downslope from till veneer and colluvium upslope. Bedrock interspersed. Usually underlain by bedrock; unit locally contains unmapped patches of outwash, colluvium, alluvium, and bedrock.	Gentle to steep slopes as indicated by slope modifiers. Generally well drained; may be rilled and gullied on steep slopes. Creep and solifluction common forms of mass movement in active layer on steep slopes.	Permafrost present under north-facing slopes and at high elevations, but usually absent under south-facing slopes.	Vulnerable to gullying and thermokarst erosion on steep slopes. Mass movement may be a hazard to development.
IID	Rock glacier (Neoglacial)	Primarily bouldery rubble, rarely substantial content of sand or fines. Generally 10 to 30 m thick.	Common throughout Kluane and Alsek ranges; rare in Icefield Ranges and Coast Mountains; isolated occurrences in Yukon Plateau. Commonly bordered by talus aprons and rock cliffs. Core may contain glacier ice, otherwise underlain by bedrock; lower part may overlie drift, alluvium, or colluvium.	Varies from tongue-shaped to lobate-shaped to spatulate-shaped. Surface either gently to moderately sloping or with many ridges and furrows. Distal edge generally marked by steep slope. Young rock glaciers subject to continuous downslope movement.	Permafrost present. Moderate to high ice content in frozen sediments.	Mass movement may be a problem to development. Potential source of construction material, including aggregate; crushing probably required.
$_{M}^{I}$, aM$_{I}^{M}$, bM$_{I}^{M}$	Ice-cored moraine and debris-covered glacier (Neoglacial)	Primarily rubble, generally bouldery, over glacier ice. Ice-cored moraines commonly coarse textured diamicton (aM) or with high proportion of boulders and cobbles (bM). Debris thickness over ice ranges from negligible to 5 m, rarely thicker.	Common in Icefield and Alsek ranges. Located on lower reaches or termini of glaciers in alpine valleys. Contains patches of unmapped outwash and, less commonly, glaciolacustrine deposits. Underlain by older drift, colluvium, or bedrock.	Large ice-cored moraines characterized by chaotic topography including unstable slopes, ice-thaw lakes, ice cliffs; topography generally hummocky or ridged. Debris-covered glaciers and small ice-cored moraines characterized by a gently to moderately sloping surface interrupted by ridges and furrows, rare ice-thaw lakes, and incised streams. Distal edge generally marked by steep slope.	Portion of underlying ice may be at pressure-melting point, remainder at subfreezing temperature. Ice subject to ablation where exposed or where overlying debris is thin. Permafrost present in overlying debris except where debris is thin and active layer intersects upper surface of glacier ice.	Development hazardous because of continued ablation and slope instability; also risk of disturbance due to glacier surge or advance. Potential source of construction material, including aggregate; crushing probably required.
$_{L}^{R}$, $_{L}^{Q}$b, $_{L}^{T}$, bRh	Landslide, debris flow (Postglacial; rarely Late Wisconsinan)	Landslide debris; extremely variable textures; large blocks of shattered bedrock and unsorted coarse textured diamicton most common; may contain drift and alluvium, either as distinct blocks or mixed with colluvium and shattered bedrock. Clasts generally angular to semi-angular. Variable thicknesses to 30 m.	Rare throughout area; generally associated with glacially overdeepened valleys or stream-cut escarpments. Generally overlies bedrock, drift, or coarse textured alluvium. May include small patches of unmapped alluvium.	Surface may be hummocky, ridged, or may mirror underlying slopes; ridges may be transverse or parallel to general slope. Generally well to moderately well drained.	Permafrost present in slides at high elevations with ground ice contents negligible to small.	Landslides remain a hazard in areas where landslides have occurred previously.
R1, R2, Rs, Rs-V	Bedrock outcrop	Varied bedrock types; mainly igneous and metamorphic rocks on Yukon Plateau; mixed igneous, volcanic, metamorphic, and sedimentary rocks in St. Elias and Coast mountains. See marginal notes for more information re bedrock lithologies.	Large areas of bedrock outcrop common in St. Elias and Coat mountains; small areas common in Kluane Plateau and Ruby Range. Bedrock also present along some scarps and ravines cut in valley bottoms.	Cliffs, arêtes, horns, and glacially scoured valley walls and hillocks common in glaciated areas. Stream-cut scarps in alpine valleys in places are cut in bedrock. Slopes generally steep or precipitous except in areas of glacially scoured hillocks. Rock falls and svalanches common in areas of steep bedrock. Well drained, except in depressions in areas of glacially scoured hillocks.	Rock at high elevations, especially on north-facing slopes, may contain ice veins in fractures.	Rock generally a hinderance to economic development. Certain rock types may be potential sources of construction materials, including aggregate, if crushed.
Op, Ob, Ov	Organic deposit (Postglacial)	Peat and organic silts; may contain wood and wood fragments; up to 8 m thick.	Present in swales, depressions, and on broad flat areas in valleys throughout area. Underlain by pond sediments, drift, or less commonly by alluvium.	Generally flat surface with some scattered thermokarst lakes; imperfect to poor drainage; often marshy.	Irregular permafrost distribution and high ground ice contents common in northern part of area; permafrost commonly absent in southern parts of area.	Vulnerable to thermokarst subsidence. Highly compressible in thawed state.
Gk, Gh, hGh, Gk-G, Gh-G, Gh-V	Kame, kame terrace, kame and kettle complex (Late Wisconsinan)	Primarily gravel and sand with few beds of silt; rarely coarse bouldery gravel (bG); generally 15 to 60 m thick. Depressions commonly have thin covers of silt and peat.	Most common in valleys but occurs rarely on uplands. Generally adjacent to outwash plains, valley trains, lacustrine and morainal landforms; stream terraces and floodplains commonly are incised within this unit. In places contains small unmapped areas of till or glaciolacustrine deposits. Commonly underlain by till, lacustrine deposits, alluvium, and more rarely by bedrock.	Hummocky (Gh) to undulating or rolling (Gk); in places channelled by meltwater. Well to moderately well drained except for depressions and broad flat areas having veneers or thin blankets of silt or peat.	Discontinuous permafrost probable in outwash north of Dezadeash River valley. Permafrost rare south of Dezadeash valley except at high elevations. Little ground ice except in silt and peat, which may have moderate to high ice content.	Vulnerable to moderate erosion on steep slopes if disturbed. Source of aggregate.
Gr, Gr-G	Esker (Late Wisconsinan)	Gravel, little sand. May have thin veneer of silt or peat. Usually 10 to 50 m thick.	Isolated occurrences throughout glaciated lowlands; generally found within glaciofluvial or morainal deposits. Commonly underlain by till, more rarely by bedrock.	Individual or parallel ridges standing 10 to 50 m above surrounding terrain; in places occurs as aligned mounds of gravel or sand. Few kettles. Well drained except in depressions.	Permafrost generally absent. Negligible ground ice.	Stable surface. Source of aggregate.
Gp, sGp, bgGp, Gt, Gf, Gd, sGd, Gb, bGb, Gp-G, Gp-V, Gf-G, Gm-G, sGd-V	Outwash plain, outwash fan, valley train, kame delta (Late Wisconsinan)	Primarily sand and gravel with veneer or thin blanket of silt and peat; some areas primarily sand (sG); rarely bouldery gravel (bgG) or boulders (bG). Probably averages 6 to 15 m thick but varies between 3 and 60 m.	Occurs predominantly in valleys. Commonly incised into morainal landforms; commonly stream terraces and floodplains incised within outwash. Generally underlain by till, lacustrine deposits, and more rarely by bedrock.	Flat to gently sloping; in places imperfectly, rarely channelled. Generally well to moderately well drained; imperfectly to poorly drained in channels, depressions, and on areas with veneer or thin blanket of silt and peat.	Permafrost rare in all outwash except where overlying veneer is thick. Little ground ice except in overlying silt and peat, which have moderate to high ice contents where frozen.	If frozen, veneer or thin blanket of silt and peat may be vulnerable to moderate thermokarst subsidence or erosion. Most outwash stable. Source of aggregate.
Gv, sGv	Glaciofluvial blanket or veneer (Late Wisconsinan)	Primarily gravel, some sand with veneer or thin blanket of silt and peat; bouldery in places.	Occurs along valley slopes.	Gently to moderately steeply sloping. Generally moderately well to well drained, imperfectly drained on gentle slopes having veneer or thin blanket of silt and peat.	Permafrost present at high elevations; active layer thick where unit well drained. Little ground ice except in overlying silt and peat, which have moderate ice contents.	Blanket of silt and peat may be vulnerable to moderate thermokarst subsidence or erosion on steep slopes at high elevation. Potential source of aggregate.
Lp, fLp, sLp, slp, gLp, Ls, fLs, Ln, Lh, sLh, Lp-V, Ln-V, Lh-V, Lp-P, fLp-P	Lacustrine plain (N - Neoglacial; otherwise Late Wisconsinan)	Primarily silt and silty clay (L, fL), with some fine sand and lenses of sand and gravel; in places interbedded clay, silt, and fine sand (fL), sand or gravel (sL), gravel (gL), or interbedded clay, silt, sand and gravel (xL).	Covers large area in Takhini valley; also present along upper part of Dezadeash valley and its tributaries that were deglaciated prior to the establishment of postglacial drainage patterns. Commonly underlain by other types of drift.	Commonly flat to gently sloping (Lp, ln) but rarely has moderately steep slopes (Lh). Usually moderately well drained but in places imperfectly drained, especially near the base of north-facing steep valley walls. In areas of high ground ice content, thermokarst depressions are common. In isolated areas unit may be intensely gullied.	Permafrost generally discontinuous and thin with low ice content in well drained areas having a southern aspect and lacking thermokarst depressions; permafrost typically continuous with moderate to high ice content in imperfectly drained areas having northern aspect and thermokarst depressions. Thermokarst depressions common in areas of high ice content, in places resulting in rolling (Ln) or hummocky (Lh) topography.	Vulnerable to thermokarst subsidence and erosion where sediment contains high ice content. Slumps and flows may follow disturbance on steep slopes. Surface may be vulnerable to liquefaction in poorly drained areas where permafrost is absent. Vulnerable to gullying on steep slopes if disturbed.
Lb, fLb, sLb, xLb, fLb	Lacustrine blanket or veneer (N - Neoglacial; otherwise Late Wisconsinan)	Primarily silty clay, silt, or sand (L, fL); in places contain lenses and layers of sand and gravel (xL). Flow areas predominantly cobbles and boulders (aL).	Found in valleys that were deglaciated prior to the establishment of postglacial drainage patterns; large areas present in Shakwak Trench. Usually underlain by drift but in places, by colluvium and bedrock.	Gently to moderately sloping. Generally imperfectly to moderately well drained. Surface water may cross blanket in form of numerous small rills.	Permafrost discontinuous; most common under imperfectly drained and north-facing slopes. Ground ice content generally moderate to high where permafrost present.	Vulnerable to thermokarst subsidence and erosion where permafrost present. Slumps and flows may follow disturbance on steep slopes.
Lr, sLr	Lake strandlines (N - Neoglacial; otherwise Late Wisconsinan)	Sand and gravel. Generally 1 to 4 m thick.	Locally present at the margins of former lakes. See L, lp,Ln, Lh, Lb for distribution of lakes. Usually underlain by drift but in places, by bedrock.	Narrow, gently sloping benches or low narrow ridges. Well to moderately well drained.	Permafrost generally absent.	Gravel and sand beaches potential source of small volumes of aggregate.
Mb, bMb, aMb, aMh	Disintegration moraine (N - Neoglacial; otherwise Late Wisconsinan)	Diamicton; high sand, silt, and stone contents; commonly crudely sorted and low in fines (aMc); may contain high proportion of boulders and cobbles (bM). Between 3 and 40 m thick.	Locally present in valleys throughout area; bouldery facies (bM) restricted to alpine valleys. Unit commonly contains unmapped patches of outwash and, rarely, lacustrine deposits. Fine grained pond sediments and peat in many depressions. Generally underlain by drift, alluvium, and bedrock.	Surface hummocky with gentle to moderately steep slopes. Drainage good on hills and ridges, imperfect to poor in swales and depressions.	Permafrost generally absent or sporadic except in alpine valleys. Ground ice content low to medium where permafrost present.	Locally, areas with moderate ground ice content vulnerable to thermokarst subsidence. Snow patches accelerate mass wastage as indicated by presence of nivation terraces. Locally, a source of construction material, including aggregate, especially when processed (e.g. crushed, screened).
Db, aDb, bDb, Db-V aDb-V	Drift blanket (Late Wisconsinan)	Undifferentiated till, outwash, and glaciolacustrine sediment; predominantly till. Generally has high sand and stone content (aD) or boulder and cobble content (bD), especially at high elevations.	Common on slopes throughout area. Glacial deposits common downslope from drift blanket; colluvium upslope. Usually underlain by bedrock, rarely by colluvium. Unit contains unmapped patches of colluvium, alluvium, and bedrock.	Gentle to moderately steep slopes. Generally well drained; gentle slopes underlain by permafrost moderately well to, less commonly, imperfectly drained. Rare active layer detachment flow. Nivation terraces and hollows, and ephemeral snow patches present at high elevations (as indicated on map), especially in Dezadeash Ranges and Coast Mountains adjacent to Kusawa Lake. Some areas are intensely gullied.	Permafrost usually present at high elevations, although locally absent under south-facing slopes. Moderate to high ground ice content in upper part of unit on gentle slopes where permafrost present.	Further investigation required to determine exact composition of unit. On steep slopes mass movement may be a hazard to development. Disturbance may initiate active layer detachment flows if thermal regime altered on slopes underlain by permafrost. Snow patches accelerate mass wastage as indicated by presence of nivation terraces.
Dv, aDv, rDv, bDv	Drift veneer (Late Wisconsinan)	Undifferentiated till, outwash, and glaciolacustrine sediment; generally has high rubble and boulder content (aD, rD, bD).	Isolated occurrences on glaciated slopes. Morainal deposits common downslope from drift veneer, colluvium upslope, bedrock interspersed. Usually underlain by bedrock. Unit locally contains unmapped patches of colluvium, alluvium, and bedrock.	Gentle to steep slopes. Generally well drained. Creep and solifluction common forms of mass movement in active layer on steep slopes.	Permafrost usually present under north-facing slopes at high elevations but absent under south-facing slopes.	Vulnerable to gullying and erosion on steep slopes. Mass movement may be a hazard to development. Further investigation required to determine exact composition of unit.
Ca, aCa, rCa, bCa	Talus apron (Neoglacial, mainly modern)	Angular cobbles and boulders having a relatively narrow size range in any one area; colluvium loose or cemented to consist of cobble-sized rubble (aC, rC) or blocks (bC). Lithology of rock fragments same as adjacent rock cliffs. Thickness greater than 6 m, except near edges.	Common in mountains below steep bedrock cliffs. Toe of apron generally overlies drift and alluvium. Toe of apron may grade into protalus ramparts and rock glaciers.	Moderate to steep slopes. Well drained. Rock falls and slides and debris flows common.	Permafrost present, but due to coarseness of materials, talus not bound by ice.	Looseness of talus and mass movement a hazard to development. Potential source of aggregate, but probably will require crushing.
Cb, aCb, rCb, bCb	Colluvial blanket (Undifferentiated Pleistocene)	Poorly sorted diamicton with a significant proportion of cobbles and boulders; matrix primarily silt and sand, little clay. Thin lenses and layers of peat and gravel common. Layers of morainal, glaciofluvial, and glaciolacustrine sediments may be interlayered with material resulting from disintegration of bedrock. In places colluvium composed primarily of cobble-sized rubble (aC, rC) or blocks of local bedrock (bC). See marginal notes for information re bedrock lithologies.	Ubiquitous on slopes underlain by bedrock in unglaciated terrain. Common on moderate to steep slopes in glaciated terrain. Usually overlies bedrock. In places interlayered with drift on slopes. May contain small unmapped areas of drift and alluvium.	Variable slope as indicated by modifier. Some gentle to moderate slopes are characterized by solifluction lobes, patterned ground, and nivation terraces. Creep and solifluction common forms of mass movement in active layer. Isolated active layer detachment flows. Generally well to moderately well drained; some gentle slopes imperfectly drained.	Permafrost common, although it may be absent under south-facing slopes. Ground ice contents probably low to moderate, rarely high on gentle to moderate slopes.	Surface unstable as indicated by modifier. May be prone to active layer detachment flow if disturbed. Mass movement may be a hazard to development. Disturbance may initiate active layer detachment flows if drainage or thermal regime altered