	NAME	NATURE OF MATERIAL	TERRAIN INVENT	ORY LEGEND  GEOMORPHOLOGY		OTHER ENGINEERING		NAME	NATURE OF MATERIAL	TERRAIN INVEN	ITORY LEGEND  GEOMORPHOLOGY		OTHER ENGINEERING
SYMBOL	(AGE)	AND THICKNESS	STRATIGRAPHY	AND DRAINAGE	PERMAFROST	CHARACTERISTICS	SYMBOL		AND THICKNESS	STRATIGRAPHY	AND DRAINAGE	PERMAFROST	CHARACTERISTICS
I I <sub>b</sub> I <sub>v</sub>	Ice, valley glacier cirque glacier, cliff glacier (Neoglacial or modern)	Glacier ice with veneer or thin blanket of snow and firn. Large valley and outlet glaciers are probably up to 450 m thick; small valley glaciers range between 50 and 100 m thick; cliff glaciers 2 to 40 m thick.	Common to Icefield Ranges; few small valley glaciers, cirque glaciers, and cliff glaciers in Kluane Ranges southeast of Duke River. Generally overlies glacially scoured bedrock. Terminates in ice-cored moraines.	Flat to steeply 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.	Glaciers may be at the pressure- melting point at their base; small glaciers probably at freezing tem- perature throughout their thickness. Ablation characterizes lower parts of all glaciers during summer.	Unstable surfaces due to ablation crevasses, continued downvalley glacier movement and glacier surges on many valley glaciers. Avalanches pose hazard on cliff glaciers.	* * 2	Morainic ridge (Late Wisconsinan; otherwise 2-Early(?) Wisconsinan, N-Neoglacial)	Diamicton; high sand, silt, and stone contents; locally contains crudely sorted material and is low in fines (aM). Generally 10 to 50 m thick, rarely to 100 m thick.	Groups of ridges common near upper reaches of Hazel Creek and west of Jarvis River. Individual ridge common along limit of Early(?) Wisconsinan, Late Wisconsinan, and Neoglacial glaciations. Till and colluvial blanket common upslope from ridges. Underlain by drift, colluvium, and rarely, bedrock.	Ridge(s) having moderate to steep slopes; moderately well to well drained.	Permafrost throughout unit. Thick active layers on some south-facing slopes. Negligible ice contents. Locally, ice wedges present.  ZMCITATOM TIMU I	Trenches will develop over ice wedges if exposed. Locally, a source of construction material, including aggregate.  MXOGGMAL TO MOITAMALTX3
g A A g A A s A A A A A A A A A A A A A	(nrebom)  Prive Notes  Wellesley Ba	Generally gravel (g), rarely sand (s), or silt (f); gravel coarse on floodplains of high-gradient alpine streams; rare lenses of silt and clay; probably averages 3 to 10 m thick, but up to 50 m thick under large streams.		Channel and bars form braided patterns that are constantly shifting; small scarps to 1.5 m high with ripple marks, ellipsoidal scours and silt volcanoes; no vegetation; inundated with 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.	places sediments are "quick" near	M <sub>m</sub> M <sup>2</sup> m a <sup>M</sup> m a <sup>M</sup> <sup>2</sup> a <sup>M</sup> m	Till plain, disintegration moraine (Late Wisconsinan; otherwise 2-Early(?) Wisconsinan, N-Neoglacial)	Diamicton; high sand, silt and stone contents; locally may be crudely sorted and low in fines (M). Probably between 3 and 40 m thick.	Common in many valleys in Kluane Ranges, Kluane Plateau, Ruby Range, and in Duke Depression, Wellesley Basin, and Shakwak Trench. 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 older disinte- gration moraine (M <sup>2</sup> ) thicker than on younger moraine (M). Generally under-		Permafrost throughout unit north and west of Kluane Lake; sporadic	
g <sup>A</sup> p		Generally gravel with veneer of sand and silt; veneer commonly has significant organic content and cap of peat; in places without fine textured veneer (gA); probably averages 3 to 10 m thick adjacent to large streams.  Interbedded sand, silt, clayey silt,	Border 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. Small floodplains are underlain by alluvium or drift; large ones probably extend to bedrock.  Common in valleys of unglaciated Yukon	Few channels are present on surface; generally well drained except in channels and on the inner parts of broad floodplains where pools of water may be present; inundated with water during high floods; shallow water table.  Flat to gently sloping. Generally	Permafrost absent except under small floodplains at high elevations.  Permafrost established throughout	Annual flooding probable. Veneer vulnerable to minor channelling if disturbed. Generally stable surface. Aggregate source.  Surface vulnerable to moderate and	M <sub>p</sub>	Till plain (Late Wisconsinan; otherwise 2-Early(?) Wisconsinan)	Diamicton; high sand, silt, and stone contents; texture of basal part reflects underlying materials. Varies between 1 and 50 m thick, averages 3 to 10 m thick.	Common in base of Shakwak Trench, Wellesley Basin, and on flat surfaces of Duke Depression. Older till plain (M²) also present in southern part of Klondike Plateau. Usually associated with other glacial deposits and underlain by drift or alluvium. Discontinuous thin veneer	Flat to gently sloping. In places fluted or with low broad drumlins. In areas of permafrost, drainage imperfect to poor; in areas free of permafrost drainage moderately good.	Continuous permafrost north and west of Kluane Lake; permafrost absent or sporadic in Shakwak Trench southeast of Kluane Lake. Ground ice contents locally high in upper part of unit, especially on older till plain (M <sup>2</sup> ); ground ice	
f <sup>A</sup> ap f <sup>A</sup> ap f <sup>A</sup> p x <sup>A</sup> p	alluvial fan, alluvial apron (Undifferentiated Pleistocene, mainly Postglacial)	commonly high in organic content; contains lenses of peat and much wood; veneer or blanket of peat covers surface. Rarely contains high content of tephra ( <sub>x</sub> A). Deposits up to 60 m thick and thin towards edges.	Plateau, but not limited to this physiographic province. May include small areas of stream terrace and floodplain. Generally underlain by colluvium or bedrock, and in some places by drift or coarse alluvium.	imperfectly or poorly drained, in some places moderately well drained.	unit; taliks under thermokarst lakes.		M <sub>b</sub>	Till blanket (Late Wisconsinan;	Diamicton; high sand, silt, and stone contents; locally may be crudely sorted, low in fines, or high in	of silt and peat overlying till on older till plain (M²) generally thicker than on younger till plain (M).  Common on slopes throughout glaciated parts of Yukon Plateau and St. Elias Mountains. Other morainal deposits	Gentle to moderately steep slopes. Generally well drained; gentle slopes underlain by permafrost moderately	in the form of ice lenses and wedges.  JAIDA JOTZOG V 18A3  A.8 21890 00  Permafrost present north and west	
A <sub>f</sub> g <sup>A</sup> f x <sup>A</sup> f g <sup>A</sup> f	Alluvial fan (Postglacial, rarely Late Wisconsinan; otherwise N-Neoglacial)	Generally gravel with veneer of sand and silt; veneer commonly has significant organic content and cap of peat; in places gravel covered by thick blanket of interbedded volcanic tephra and fine textured sediments ( $_XA_f$ ); in places gravel is without veneer or blanket ( $_ZA_f$ ). Fans with steep slopes in alpine areas consist of coarse bouldery gravels. Probably average between	Common along edges of glaciated valleys. Largest fans present along trunk valleys. Toe of fan generally impinges on flood- plain and stream terraces. May include small unmapped areas of floodplain.	Gently to moderately sloping. Generally moderately well to well drained; gently sloping fans with thick veneers or blankets may be imperfectly drained.	North and west of Kluane Lake permafrost common in fans, except rarely in those lacking a veneer or blanket. South and east of Kluane Lake most alluvial fans having no or negligible veneers of fine textured sediment are free of permafrost. Moderate to high ice contents present in peat and fine textured materials. Water under artesian pressure in taliks and below permafrost.		a <sup>M</sup> b a <sup>M</sup> b a <sup>M</sup> b	otherwise N-Neoglacial, 2-Early(?) Wisconsinan)  Till veneer (Late	Diamicton; high sand, silt, and stone	common downslope from till blanket and colluvium upslope. Discontinuous thin veneer of silt and peat on older till blanket (M²) thicker than on younger till blanket (M). Usually underlain by bedrock rarely colluvium. Unit contains unmapped patches of outwash, colluvium, alluvium, and bedrock.  Common on glaciated slopes of St. Elias	well to, less commonly, imperfectly drained. Rare active layer detachment flow.  Gentle to steep slopes as indicated	slopes near Kluane Lake and to south- east of Kluane Lake. Moderate to high ground ice contents in upper part of unit on gentle slopes where permaffrost present; ice wedges common.  Permafrost present in thick veneer	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.  Vulnerable to gullying and thermokarst
	Stream terrace (Postglacial; otherwise N-Neoglacial)	Generally gravel with veneer of sand and silt; veneer commonly has significant organic content and cap of peat; veneer thickest on higher	Border all streams. Bordered by active floodplains, low terraces, or stream-cut scarps. May include unmapped floodplains in small valleys. Underlain by alluvium, drift, or bedrock.	Stand from 1.5 to more than 30 m above streams. Surfaces generally flat except for minor terrace scarps and rare channel traces. Terraces without veneer generally well to moderately well drained. Veneered	Permafrost established under most terraces north and west of Kluane Lake; permafrost thickest on veneered high terraces. Ground ice absent except in peat blanket and silty sandy			Wisconsinan)	contents; locally may be crudely sorted, low in fines, or high in rubble or boulder content.	Mountains, Shakwak Trench, Ruby Range, and Kluane Plateau. 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.	by modifier. 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.	on northerly facing slopes north and west of Kluane Lake and at high elevations. Permafrost present in underlying materials north and west of Kluane Lake and at high elevations except for southerly facing slopes.	erosion on steep slopes. Mass,movement may be a hazard to development.
$f^{A}t$	Attod grand land grand land grand land grand land grand land grand land land land land land land land l	Generally between 3 and 15 m thick, but ranges between 1.5 and 50 m  Silt and silty clay capped by thin peat; estimated 3 to 10 m thick.		terraces moderately well drained; poorly drained in channels and low swales.  Stand 1.5 to 10 m above streams. Surface flat except for terrace scarps and channel traces. Moderately well to poorly drained.	in taliks and below permafrost.  Moderate to high ice contents probable in continuous permafrost.	Aggregate source.	MR MR <sup>L</sup>	Rock glacier (Neoglacial; otherwise L-Late Wisconsinan or Early Postglacial)	Primarily bouldery rubble, rarely substantial content of sand or fines. Generally 10 to 30 m thick.	Common throughout Kluane Ranges; few in Icefield Ranges; isolated occurrences in Ruby Range. Older rock glaciers (MR <sup>L</sup> ) located along Duke Depression. 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.	Vary from tongue-shaped to lobate-shaped to spatulate-shaped. Surfaces 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.	bound by ice at depth because of its coarse nature.  Despir coaping the coarse nature.	
se of steep north-facing a department of the confidence of the con	Alluvial blanket (Postglacial)	Interbedded silt, sand, and gravel	Common along edges of glaciated valleys. Blanket commonly overlies drift or coarse alluvial deposits.	Gently to moderately sloping.  Moderately well drained. Surface water may cross blanket in the form of numerous small rills.  Gently to moderately sloping.	Permafrost common. Ground ice contents generally low to moderate.  Permafrost common. Ground ice	Surface water may need controlling in case of development. Icings possible.  Surface vulnerable to moderate	$\frac{M}{I}, \frac{a^{M}}{I}$ $\frac{a^{M}h}{I}, \frac{x^{M}h}{I}$ $\frac{a^{M}r}{I}, \frac{x^{M}r}{I}$	Ice-cored moraine and debris-covered glacier (Neoglacial)	Primarily rubble, generally bouldery, over glacier ice. Ice-cored moraines of Natazhat and Klutlan glaciers locally tephra-rich (_M); Klutlan ice-cored moraines commonly coarse textured diamicton (_M). Debris thicknesses over ice range from negligible to 5 m, rarely thicker.	Common along northeastern edge of Icefield Ranges; few occurrences in Kluane Ranges. Located on lower reaches or terminii 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 intervented by ridges and foreverse.	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	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.
A.	(Postglacial, mainly Neoglacial) Sand dunes	sand, and peat; few lenses of gravel.  Volcanic tephra mainly coarse sand and fine gravel size.	is thickest and along edges of glaciated valleys. Blanket usually overlies drift or coarse alluvial deposits.	Generally imperfectly to moderately well drained. Surface water may cross blanket in the form of numerous small rills.  Mainly parabolic and linear ridges	contents generally moderate, locally high.  Permafrost present in Donjek River	thermokarst subsidence and erosion if disturbed. Surface water may need controlling in case of development. Icings possible.  Vulnerable to thermokarst erosion	aMp I	Hummocky drift (Late Wisconsinan)	Undifferentiated till, outwash, glaciolacustrine sediment. Variable	Locally present in valleys of Kluane Plateau.	Surface hummocky with gentle to moderately steep slopes. Drainage	Permafrost ubiquitous. Ground ice contents generally low; in upper	
$\frac{x^{E}v}{E_{r}}$	Eolian blanket (Postglacial,	Unit is 2 to 30 m thick. X V  Tephra blanket (vE) consists of sand- to fine gravel-sized material; may	outwash, less commonly morainal, colluvial, alluvial, and lacustrine deposits.  Tephra blanket located along line projecting from Natazhat Glacier north-	standing 5 to 30 m above surrounding terrain. Ridges moderately well drained; depressions imperfectly to poorly drained.  Slopes reflect morphology of underlying unit; tephra blanket	Permafrost ubiquitous. Ground ice contents moderate to high, mainly	on slopes and thermokarst subsidence in depressions.  Vulnerable to thermokarst subsidence and erosion. Tephra has extremely	Dp	Drift plain (Late	Undifferentiated till, outwash, glaciolacustrine sediment; predom-	Common in glaciated valleys and basins throughout area; usually associated with	good on hills and ridges, imperfect to poor in swales and depressions.  Flat (p) to undulating or rolling (m) Slopes gentle to moderate. Drainage	part of unit in swales and on broad flat areas, ground ice contents moderate to high. Ice wedges common.  Permafrost ubiquitous. Ground ice contents locally high in upper part	Further investigation required to determine exact composition of unit.
v <sup>E</sup> b	mainly Neoglacial)	contain thin layers of silt, fine sand, or peat. Rarely, blanket consists of fine sand and silt with extremely high organic contents (fE). Tephra blanket thickest near Natazhat Glacier and thins to northeast.	Trench. Blanket overlies various materials.	generally on flat to moderate slopes; organic sandy silt blanket on variable slopes, including steep slopes. Drainage moderately good; imperfectly to poorly drained on some gentle slopes.	in the form of ice lenses. Ice wedges noted in highly organic silty sand, even on steep slopes.		D <sub>p</sub> D <sub>m</sub> D <sub>m</sub> D <sub>b</sub>	Wisconsinan; otherwise 2-Early(?) Wisconsinan)  Drift blanket (Late	Undifferentiated till, outwash, glaciolacustrine sediment;	other glacial deposits. Discontinuous thin veneer of silt and peat thicker on older drift plain (D²) than younger drift plain (D).  Common on slopes throughout Kluane Ranges, Duke Depression, and Yukon	moderately good on hills, ridges, and slopes; imperfect to poor drainage in swales and on broad flat areas.  Gentle to moderately steep slopes. Generally well drained; gentle slopes	Permafrost present north and west	ponding to be expected if disturbed.  Further investigation required to
v <sup>E</sup> v x <sup>E</sup> v		Mainly tephra, sand- and silt-sized; may contain thin layers of silt, fine sand, or peat.	Veneer adjacent to tephra blanket between Natazhat Glacier and juncture of Edith Creek and Shakwak Trench; extends east to near mouth of Kluane River; primarily on flat to moderately sloping surfaces. Veneer overlies various materials. Patches and very thin layer of tephra present throughout much of area, especially on gentle slopes near mapped eolian veneer. Loessal veneer common throughout and adjacent to glaciated areas, but distribution sporadic and not mapped.	Slopes reflect morphology of underlying unit; tephra veneer on flat to moderate slopes. Drainage usually moderately good; imperfectly to poorly drained on some gentle slopes.	Permafrost ubiquitous in underlying materials. Ground ice contents variable.	Tephra has extremely low angle of repose in thawed state.	D <sub>b</sub> <sup>2</sup>	Wisconsinan; otherwise 2-Early(?) Wisconsinan)	Undifferentiated till, outwash,	Plateau. Glacial deposits common downslope from drift blanket, and colluvium upslope. Discontinuous thin veneer of silt and peat on older drift blanket (D²) thicker than on younger drift blanket (D). Usually underlain by bedrock, rarely colluvium. Unit contains unmapped patches of colluvium, alluvium, and bedrock.  Isolated occurrences on glaciated slopes.	underlain by permafrost moderately well to, less commonly, imperfectly drained. Rare active layer detachment flow.  Gentle to steep slopes. Generally well	Locally absent on southerly facing slopes near Kluane Lake and to southeast of Kluane Lake. Moderate to high ground ice contents in upper part of unit on gentle slopes where permafrost present; ice wedges common.	vulnerable to thermokarst subsidence and erosion. 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.
		Peat and organic silts; in places contains wood and wood fragments; varies between 1.5 and 6 m thick where mapped; not mapped if less than 1.5 m thick.	Common in swales, depressions, and on broad flat areas in valleys throughout area; less common south and east of Kluane Lake in areas where permafrost is absent. Along Donjek River valley peaty organic silt draped over undulating surface. Usually underlain by pond sediments, drift, or less commonly alluvium.	Generally flat surface with some scattered thermokarst lakes and ice-wedge troughs; imperfect to poor drainage; commonly marshy. Along Donjek River valley gently to moderately sloping; moderately well drained.	Permafrost ubiquitous. High ground ice contents.	Vulnerable to thermokarst subsidence. Highly compressible in thawed state.	D <sub>V</sub>	(Late Wisconsinan; otherwise 2-Early(?) Wisconsinan)	and glaciolacustrine sediment; probably high in rubble and boulder content.  Interbedded till, outwash, and	Morainal deposits common downslope from drift veneer, colluvium upslope; bedrock interspersed. Usually underlain by bedrock. Unit locally contains unmapped patches of outwash, colluvium, alluvium and bedrock.  Subsurface unit mapped under colluvial,	drained. Creep and solifluction common forms of mass movement in active layer on steep slopes.  Slope indicated by modifier; generally	northerly facing slopes north and west of Kluane Lake and at high elevations. Permafrost present in underlying materials northwest of Kluane Lake and at high elevations, except for southerly facing slopes.  Permafrost present north and west	erosion on steep slopes. Mass movement may be a hazard to development. Further investigation is required to determine exact composition of unit.  Further investigation is required to
$G_{m}$ , $G_{h}$ $g^{G}_{m}$ , $g^{G}_{h}$ $G_{t}$ , $G_{t}^{2}$	Kame, Kame terrace, Kame and kettle complex (Late Wisconsinan;	Primarily gravel, some sand with veneer or thin blanket of silt and peat; usually gravel has negligible capping of silt and peat ( <sub>g</sub> G).  Varies between 13 and 60 m thick.	Covers large areas in Wellesley Basin; common in Shakwak Trench and valleys of Kluane Plateau. Generally adjacent to outwash plains, valley trains, and morainal land forms; stream terraces and floodplains commonly are incised within	Hummocky (h) to undulating or rolling (m). Well to moderately well drained except for depressions and broad flat areas having veneers or thin blankets of silt or peat.	Permafrost in outwash north and west of Kluane Lake. Thick active layer in well drained outwash. Little ground ice except in overlying silt and peat, which have moderate to high ice contents.	peat may be vulnerable to moderate thermokarst subsidence or erosion.	D <sup>2</sup>	(Late Wisconsinan; otherwise 2-Early(?) Wisconsinan)  Talus apron (Neoglacial,	glaciolacustrine sediment; till probably major component.  Angular cobbles and boulders having relatively narrow size range in any	eolian, alluvial, morainal, and lacustrine blankets in valleys and basins throughout area.  Common in mountains below steep bedrock cliffs. Toe of apron generally overlies	gentle to moderate. Drainage - see description for overlying unit.  Moderate to steep slopes. Well drained.	of Kluane Lake and at high elevations. Ground ice contents variable, high contents probable in upper part of unit and in fine textured drift.  Permafrost present, but due to	determine exact composition of unit.  Also, see comments for overlying unit.  Looseness of talus and potential for
$G_{m}^{2}$ , $G_{h}^{2}$		J. ml / Sitt (0-2m) / Gravel sility, squdy (till?) G. ml / Gravel, sand; J. ml / Sitt (0.3 ml / Gravel pebbly, sitty (till?) (2.1 ml / Gravel, sand)	(m rarely, bedrock.				C <sub>t</sub>	mainly modern)  Altiplanation terrace	one area. Lithology of rock fragments same as adjacent rock cliffs. Greater than 6 m thick except near edges.  Rubble, mixed size, angular boulders and cobbles in finer grained matrix.	drift and alluvium. Toe of apron may grade into protalus ramparts and rock glaciers. Rock falls and slides and debris flows common.  Common near crest of hills and ridges in unglaciated parts of Yukon Plateau and	Benches having gentle slopes are separated by 3 to 30 m high steep	Permafrost established in terraces. Ground ice contents low to moderate.	mass movement are hazards to development. Potential source of aggregate.  Negligible thermokarst subsidence; possible minimal thermokarst erosion.
m) / Gr. 7 g  / silt (0.3-0.9 m) / Gravel / silt, pebbly 10.3 m) / Gr  , organic Jenses (2.1+m) , silty, moderately lev  stely lev (4 m) / Gravel, se				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 in eskers north and west of Kluane Lake. Thick active layer. Negligible ground ice.	Stable surface. Source of aggregate.	b <sup>C</sup> t	(Pleistocene)  Colluvial blanket (Undifferentiated	Unconsolidated material probably averages 1 to 3 m thick; few areas of exposed fractured bedrock.  Poorly sorted diamicton with a significant proportion of cobbles	Kluane Ranges. Generally underlain by bedrock.  Ubiquitous on slopes underlain by bedrock in unglaciated terrain. Common on	Variable slope as indicated by modifier. Blanket may be gullied and rilled,	Permafrost common, although it may be absent on southerly facing slopes	thermokarst erosion on moderate
G P g G P G P G P P G P P G P P G P P G P P G P P G P P G P P G P P G P P G P P G P P G P	Outwash plain, outwash fan, valley train (Late Wisconsinan; otherwise 2-Early(?) Wisconsinan)	Generally sand and gravel with veneer or thin blanket of silt and peat, with latter thicker on older (G <sup>2</sup> ) features; commonly sand and gravel deposit has negligible capping of silt and peat (gG). Probably averages 6 to 15 m thick, but varies between 3 and 60 m thick.	Covers large areas in Wellesley Basin; significant areas along valleys and basins of Kluane Plateau, Shakwak Trench, and St. Elias Mountains. Usually incised into morainal landforms; similarly stream terraces and floodplains commonly are incised within outwash. Usually underlain by till, lacustrine deposits, alluvium, and more rarely, bedrock.	Flat to gently sloping, in places terraced, more rarely channelled; pitted as indicated by symbols, pits generally 3 to 30 m deep. 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 in all outwash north and west of Kluane Lake. Thick active layer in well drained outwash. Water under artesian pressure in taliks and below permafrost. Little ground ice except in overlying silt and peat, which have moderate to high ice contents.	peat may be vulnerable to moderate thermokarst subsidence or erosion.  Most outwash stable. Source of aggregate.	b°b g°Cb	Pleistocene)	and boulders; matrix primarily silt and sand, little clay. 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 blocks of local bedrock (bC), rarely of gravel (gC). See marginal notes for information re bedrock lithologies.	moderate to steep slopes in glaciated terrain. Usually overlies bedrock. In places is interlayered with drift on slopes. May contain small unmapped areas of drift and alluvium.	especially on steep slopes. Some gentle to moderate slopes are characterized by solifluction lobes and patterned ground. Creep and solifluction common forms of mass movement in active layer. Isolated active layer detachment flows noted. Generally well to moderately well drained; some gentle slopes imperfectly drained.	south and east of Kluane Lake. Ground ice contents probably low to moderate, rarely high on gentle to moderate slopes where ground ice is usually in the form of ice lenses and wedges.	slopes; on gentle slopes thermokarst subsidence may also be a factor if disturbed. Mass movement may be a hazard to development. Disturbance may initiate active layer detachment flows if drainage or thermal regime altered. Bedrock blocks potential source of aggregate.
	Wisconsinan)	Primarily gravel, some sand with veneer or thin blanket of silt and peat; commonly gravel has negligible capping of silt and peat (G). May be up to 20 m thick.  Primarily silt and silty clay;	Occur along slopes of glaciated valleys in Kluane Plateau and St. Elias Mountains.  Common in valleys in Kluane Plateau	Gently to moderately steeply sloping. Generally moderately well to well drained, imperfectly drained on gentle slopes with veneer or thin blanket of silt and peat.  Flat to gently sloping. Usually	Thick active layer 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. Potential source of aggregate.  Vulnerable to thermokarst subsidence	C <sub>V</sub> b <sup>C</sup> v	Colluvial veneer (Undifferentiated Pleistocene)	Poorly sorted diamicton with significant proportion of cobbles and boulders; matrix primarily silt and sand, little clay. Thin lenses and layers of peat and gravel common; few layers of drift and alluvium. In places colluvium composed primarily of blocks of local bedrock (bC). See marginal notes for information re	Common on steep alpine slopes; commonly covers glacially scoured rock. Usually overlies bedrock. May contain small unmapped areas of drift and alluvium.	Variable slope as indicated by modifier. May be rilled and gullied on steep slopes. Creep and solifluction common forms of mass movement in active layer. Generally well to moderately well drained.	Permafrost present in thick veneer on northerly facing slopes north and west of Kluane Lake and at high elevations. Permafrost present in underlying materials north and west of Kluane Lake and at high elevations except on southerly facing slopes.	to development. Snow and ice avalanches a hazard on some slopes.
L <sup>2</sup> L <sup>N</sup> L <sub>m</sub> L <sub>h</sub>	plain (Late Wisconsinan; otherwise 2-Early Wisconsinan N-Neoglacial)  Lacustrine blanket	Usually silty clay, silt, or sand;	that were deglaciated before their present drainage outlets were free of ice or incised to present levels. Locally present in Duke Depression, Kluane Ranges, and along southern edge of Klondike Plateau. Usually underlain by other types of drift.  Common in valleys in Kluane Plateau, Kluane Pages, Duke Depression, and	Gently to moderately sloping.	elevations south of Kluane Lake. Ground ice contents variable. Thermokarst depressions common, in places leading to rolling (L <sub>m</sub> ) or hummocky (L <sub>h</sub> ) topography.  Permafrost ubiquitous. Ground ice	follow disturbance on steep slopes.  Vulnerable to thermokarst subsidence and			Landslide debris extremely variable, 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 common.	in St. Elias Mountains. Most common in areas of poorly indurated Tertiary sediments and volcanic pyroclastics, especially if rocks have been tectonically	Surface may be hummocky or ridged or may mirror underlying slopes; ridges may be transverse or parallel to general slopes. Few landslides characterized by scarps, some lacking vegetation and indicating recent or active movement of a slump block. Generally well to moderately well drained.	Permafrost present in slides north and west of Kluane Lake and at high elevations. Ground ice contents negligible to small.	where landslides have occurred. A few landslides show signs of continued
S 1890 CAL SUPPLY CAL SUPPLY ST GEOLA GIOUF	(Late Wisconsinan)	Sand and gravel. Generally 1 to 4 m thick.	Kluane Ranges, Duke Depression, and along southern edge of Klondike Plateau where valleys were deglaciated prior to the establishment of postglacial drainage patterns. Usually underlain by drift and less commonly by colluvium.  Locally present at the margins of former lakes. See L, L, Lm, Lh, for distribution of lakes. Usually underlain by drift.	Usually imperfectly drained, but commonly poorly or moderately well drained. Slumps and flows common along stream-cut scarps and disturbed areas.  Narrow gently sloping benches or low narrow ridges. Well to moderately well drained.	Permafrost common but is absent south of Kluane Lake. Ground ice contents low except in beaches	Fine sand beaches possibly vulnerable to thermokarst erosion. Gravel and sand beaches potential source of small	R	Bedrock outcrop	Varied bedrock types; mainly igneous and metamorphics in Yukon Plateau; mixed igneous, volcanic, metamorphic and sedimentary rocks in St. Elias Mountains. See marginal notes for more information re bedrock lithologies.	Large areas of bedrock outcrop common in St. Elias Mountains; smaller areas common in Kluane Plateau and Ruby Range. Bedrock confined to few scarps in Wellesley Basin and Klondike Plateau.	Arêtes, horns, glacially scoured valley walls and hillocks common in glaciated areas of St. Elias Mountains, Kluane Plateau, and Ruby Range. Cliffs and stream-cut scarps common in St. Elias Mountains; isolated occurrences throughout Wellesley Basin and Klondike Plateau. Slopes generally		Rock generally an impediment to economic development. Certain
M <sub>h</sub> a <sup>M</sup> h aMh	Disintegration moraine (Late Wisconsinan; otherwise N-Neoglacial)	Diamicton; high sand, silt, and stone contents; commonly crudely sorted and low in fines ( <sub>a</sub> M). Between 3 and 40 m thick.	Common in Duke Depression, Wellesley Basin, valleys in northwestern part of Kluane Ranges, and Kluane Plateau. Usually associated with other glacial deposits. Unit commonly contains unmapped patches of outwash and rarely, lacustrine deposits. Fine grained pond sediments and peat in many depressions. Generally underlain by drift and alluvium.	Surface hummocky with gentle to moderately steep slopes. Drainage good on hills and ridges, imperfect to poor in swales and depressions.	Permafrost established throughout unit. Ground ice contents low except in upper part of unit in swales and on broad flat areas where ground ice contents moderate to high. Ice wedges common.	Locally, areas with moderate to high ground ice contents vulnerable to thermokarst subsidence. Trenches will develop over ice wedges if		Castled bedrock outcrop; tor	Varied bedrock types, but primarily igneous and metamorphic. See marginal notes for more information re bedrock lithologies.	Common on crests of ridges and hills of Klondike and Kluane plateaus. Scattered outcrops above glacial limits throughout remainder of area.	steep or precipitous except in areas of glacially scoured hillocks. Rock falls and avalanches common in areas of steep bedrock. Well drained, except in depressions in areas of glacially scoured hillocks.  Steep-sided and well drained.	Veins of ice in fractured rock at high elevations, especially on north-facing slopes.	Potential source of construction material including aggregate.