

Note: This map accompanies the YGS Open File 2023-1 report, which should be referred to for a complete description of the mapping methodology and definitions of polygon label codes.

This map serves as a general guide to surficial materials only, as it is primarily based on remote interpretation with limited field verification, and significant variation may occur within a polygon. Geotechnical field investigations such as test pitting and/or drilling would be required to fully characterize surficial materials prior to site specific activities.

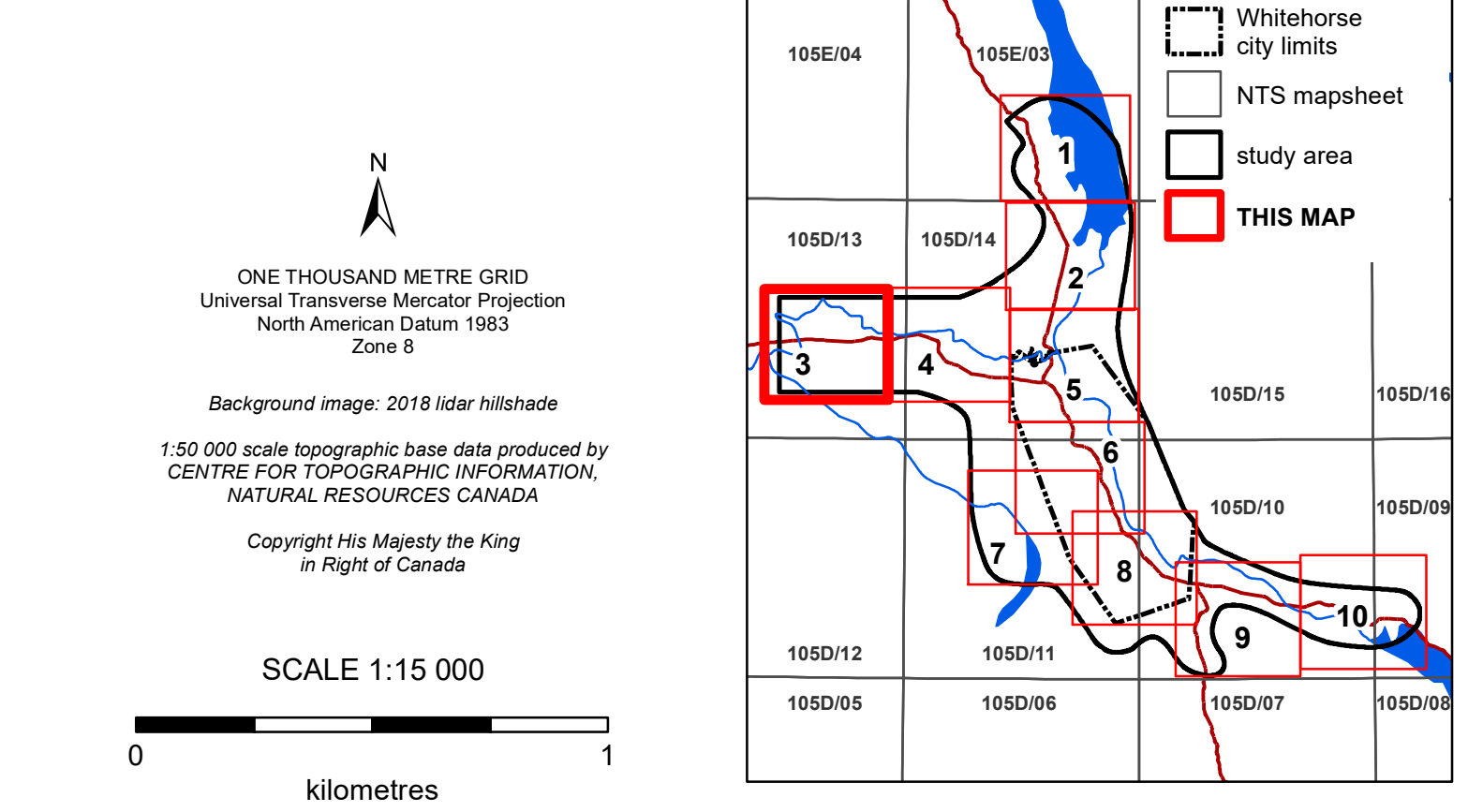
Surficial material polygon map units were classified using the Terrain Classification System for British Columbia (Howes and Ken, 1997) with minor modifications developed for Yukon Geological Survey's mapping standards to include a wider variety of permafrost features and age classifications.

A sample polygon map label or terrain unit is shown below. Surficial material forms the core of the polygon map labels and is represented by the first single upper case letter in each terrain unit. Up to 3 textural codes are written in lower case to the left of each surficial material (listed in order of decreasing dominance), and up to 3 surface expression codes are written in lower case to the right. An upper case activity qualifier (A = active; I = inactive) may be shown immediately following the surficial material. Alternatively, the surficial material "CS" may be written immediately following the surficial material to indicate materials that were deposited in close proximity to glaciers. Age is indicated by an upper case letter that follows the surface expression but precedes any geomorphological processes (upper case letters) and subclasses (lower case letters) always follow a dash ("-") symbol. Detailed definitions for the polygon map label codes are provided in subsequent sections.

Up to 4 terrain units may be combined in a complex polygon map label if they could not be differentiated at the scale of mapping. Each terrain unit is separated by a delimiter that either indicates relative proportions between the components ("*", "*", "*", "*") or stratigraphic relationships ("^").

zclGpIM-Xt		
TEXTURE	SURFICIAL MATERIAL	SURFACE EXPRESSION
Specific clastic textures	Surficial Material (i = lacustrine)	Surface Expression
a blocks (>256 mm, angular)	A Anorthogenic	a apron
b boulders (>256 mm, rounded)	B Colluvium	b blotch (>2m thick)
k cobble (64-256 mm, rounded)	E Eolian	d depression(s)
p pebbles (2-64 mm, rounded)	F Fluvial	f fan(s)
s sand (<0.062 - 2 mm)	FA Active Floodplain	h hummock(s)
r silt (<0.002 - 0.062 mm)	FG Glaciofluvial	i delta
c clay (<0.002 mm)	GL Lacustrine	m rolling
Grouped clastic textures	L Lacustrine	p plain
d mixed fragments (>2 mm, rounded and angular)	LG Glaciolacustrine	r ridge(s)
x angular fragments (>2 mm, mix of r & s)	MG Melanitic (gill)	t terrace(s)
g gravel (>2 mm, rounded, mix of b, k, p)	O Organic	u undulating
r rubble (2-256 mm, angular particles)	R Bedrock	w wear (0.1 - 1 m thick)
m mud (mix of silt and clay)		w wedge of variable thickness
y shells (shell or shell fragments)		
n salt (evaporite crystals)		
Organic terms		
o thick organic (poorly decomposed)		
u mesic organic (intermediate decomposition)		
Geomorphological Process		
Mass movement process subclasses (follows -F, -L or -R)		
- initiation zone		
c soil creep		
g rock creep		
k tension crack		
l lateral spread in bedrock		
j lateral spread in surficial material		
Rapid mass movement (follows -R)		
b rockfall		
d debris flow		
f debris fan		
t debris torrent		
Slow or rapid mass movement (follows -F, -L or -R)		
m slump - in bedrock		
u slump - in surficial material		
x slump - earthflow		
s debris slide		
r rockslide		
-S soilfluction		
X permafrost		
Periglacial processes		
p permafrost mounds (lithalia, palsas, peat plateaus)		
t thermokarst subsidence		
-E channelled by glacial meltwater		
-H kettle(s)		
-T ice-contact		
Hydrological process subclasses (follows -U)		
b beaver dam		
Composite Symbol Delimiters		
terrain unit(s) on either side of the symbol are of approximately equal proportion.		
terrain unit(s) before symbol is more extensive than the following one(s).		
(Also denotes partial/discontinuous cover if located at front of label.)		
terrain unit(s) before symbol is much more extensive than the following one(s).		
terrain unit(s) before the symbol stratigraphically overlies the following one(s).		

SYMBOLS	
Geological Boundaries:	Other Symbols:
— defined	✕ ground observation site
- - - approximate	○ stratigraphic section
⋯ assumed	⊗ gravel pit, active or recently active
- · - · - limit of mapping	⊗ gravel pit, historical
Geological Features:	○ open pit mine
— berm or dyke	○ drill hole
⋯ cross section profile, ERT transect	○ water well (from Yukon water well registry; overburden depth in m)
⋯ cross section profile, unclassified	○ spring
⋯ escarpment, unclassified	○ kettle
— gravel pit	○ permafrost mound
— lineament	○ thermokarst depression
— meltwater channel, minor, direction known	○ sand dune, cliff-top
— meltwater channel, minor, direction unknown	★ landslide, active layer detachment
— meltwater channel, major	★ landslide, debris flow
— meltwater channel, major, flow direction	★ landslide, retrogressive blow slump
— moraine ridge	★ landslide, unclassified
— sand dunes	
— shoreline (Holocene)	
— glacial lake shoreline	
— streamlined landform	
— water track	
LANDSLIDES:	
— old	
— recent	
— direction of movement	
— headwall scarp	
	— Whitehorse city limits
	— legal survey parcel
	— First Nation Settlement Land



REFERENCES
Howes, D.E. and Ken, E., 1997. Terrain classification system for British Columbia, Version 2. B.C. Ministry of Environment and BC Ministry of Crown Lands, Victoria, BC.

RECOMMENDED CITATION
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Any revisions or additional geological information known to the user would be welcomed by the Yukon Geological Survey. Paper copies of this map may be obtained from Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, Room 102 - 300 Main St., Whitehorse, Yukon, Y1A 2B5. E-mail: geology@yukon.ca. A digital PDF file of this map may be downloaded free of charge from the Yukon Geological Survey website: <https://yukon.ca/en/science-and-natural-resources/geology>.

Yukon Geological Survey
Energy, Mines and Resources
Government of Yukon

Open File 2023-1
Sheet 3

Surficial geology of the greater Whitehorse area

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