



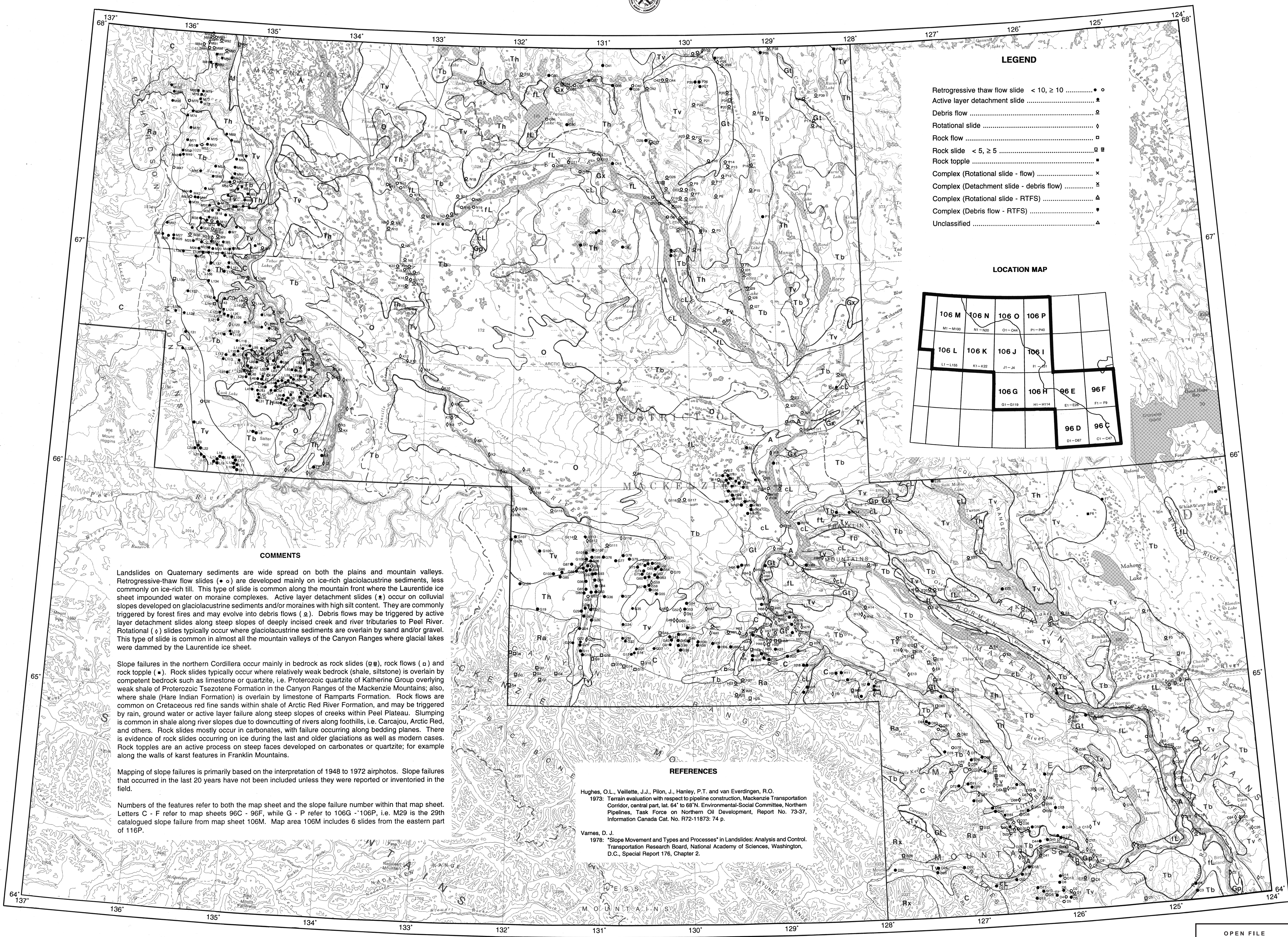
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GEOLOGICAL SURVEY OF CANADA



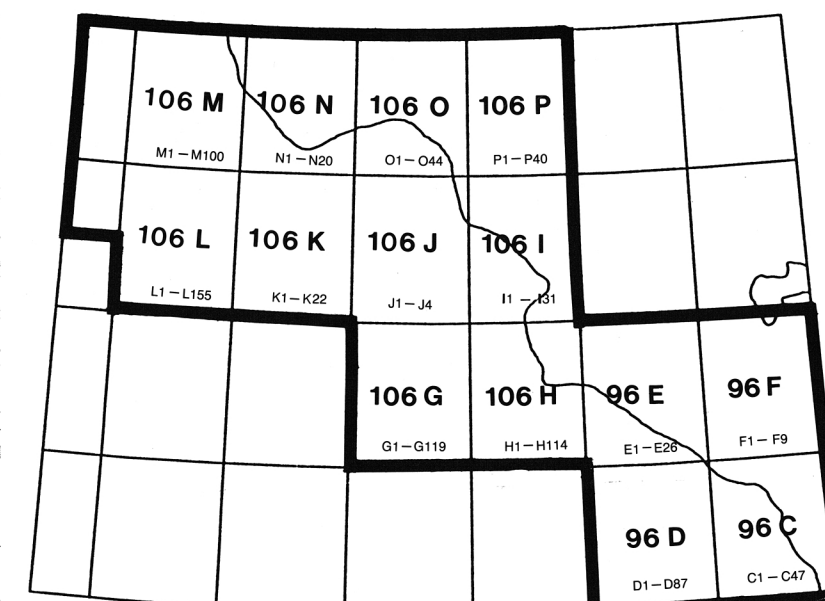
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### LEGEND

- Retrogressive thaw flow slide < 10, ≥ 10 ..... ● ○
- Active layer detachment slide ..... ▲
- Debris flow ..... ▽
- Rotational slide ..... ◇
- Rock flow ..... □
- Rock slide < 5, ≥ 5 ..... ▣ ▤
- Rock topple ..... ▢
- Complex (Rotational slide - flow) ..... ×
- Complex (Detachment slide - debris flow) ..... ⋈
- Complex (Rotational slide - RTFS) ..... △
- Complex (Debris flow - RTFS) ..... ▼
- Unclassified ..... ▲

### LOCATION MAP



### COMMENTS

Landslides on Quaternary sediments are wide spread on both the plains and mountain valleys. Retrogressive-thaw flow slides (● ○) are developed mainly on ice-rich glaciolacustrine sediments, less commonly on ice-rich till. This type of slide is common along the mountain front where the Laurentide ice sheet impounded water on moraine complexes. Active layer detachment slides (▲) occur on colluvial slopes developed on glaciolacustrine sediments and/or moraines with high silt content. They are commonly triggered by forest fires and may evolve into debris flows (▽). Debris flows may be triggered by active layer detachment slides along steep slopes of deeply incised creek and river tributaries to Peel River. Rotational (◇) slides typically occur where glaciolacustrine sediments are overlain by sand and/or gravel. This type of slide is common in almost all the mountain valleys of the Canyon Ranges where glacial lakes were dammed by the Laurentide ice sheet.

Slope failures in the northern Cordillera occur mainly in bedrock as rock slides (▣ ▤), rock flows (□) and rock topple (▢). Rock slides typically occur where relatively weak bedrock (shale, siltstone) is overlain by competent bedrock such as limestone or quartzite, i.e. Proterozoic quartzite of Katherine Group overlying weak shale of Proterozoic Tsezotene Formation in the Canyon Ranges of the Mackenzie Mountains; also, where shale (Hare Indian Formation) is overlain by limestone of Ramparts Formation. Rock flows are common on Cretaceous red fine sands within shale of Arctic Red River Formation, and may be triggered by rain, ground water or active layer failure along steep slopes of creeks within Peel Plateau. Slumping is common in shale along river slopes due to downcutting of rivers along foothills, i.e. Carcajou, Arctic Red, and others. Rock slides mostly occur in carbonates, with failure occurring along bedding planes. There is evidence of rock slides occurring on ice during the last and older glaciations as well as modern cases. Rock topples are an active process on steep faces developed on carbonates or quartzite; for example along the walls of karst features in Franklin Mountains.

Mapping of slope failures is primarily based on the interpretation of 1948 to 1972 airphotos. Slope failures that occurred in the last 20 years have not been included unless they were reported or inventoried in the field.

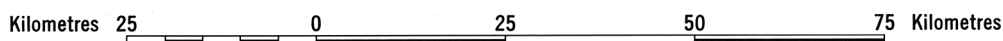
Numbers of the features refer to both the map sheet and the slope failure number within that map sheet. Letters C - F refer to map sheets 96C - 96F, while G - P refer to 106G - 106P, i.e. M29 is the 29th catalogued slope failure from map sheet 106M. Map area 106M includes 6 slides from the eastern part of 116P.

### REFERENCES

- Hughes, O.L., Vaillette, J.J., Pilon, J., Hanley, P.T. and van Everdingen, R.O.  
1973: Terrain evaluation with respect to pipeline construction, Mackenzie Transportation Corridor, central part, lat. 64° to 68°N. Environmental-Social Committee, Northern Pipelines, Task Force on Northern Oil Development, Report No. 73-37, Information Canada Cat. No. R72-11873: 74 p.
- Varnes, D. J.  
1978: "Slope Movement and Types and Processes" in Landslides: Analysis and Control. Transportation Research Board, National Academy of Sciences, Washington, D.C., Special Report 176, Chapter 2.

GSC Open File 3916

## Landslide Inventory - Mackenzie Corridor (central part) Northwest Territories



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