

PRELIMINARY
BASIC ENVIRONMENTAL DATA

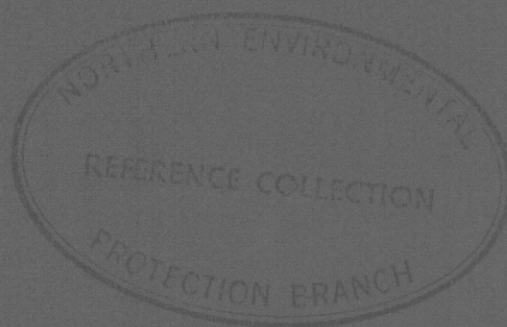
SALINE RIVER
BRIDGE

REFERENCE MILE 521 MACKENZIE HIGHWAY

DEPARTMENT OF PUBLIC WORKS
EDMONTON, CANADA



January , 1973



F. F. SLANEY & COMPANY LIMITED
Vancouver, Canada

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**BASIC ENVIRONMENTAL DATA
SALINE RIVER BRIDGE
REFERENCE MILE 521**

**MACKENZIE HIGHWAY
NORTHWEST TERRITORIES**

**DEPARTMENT OF PUBLIC WORKS
EDMONTON, CANADA**

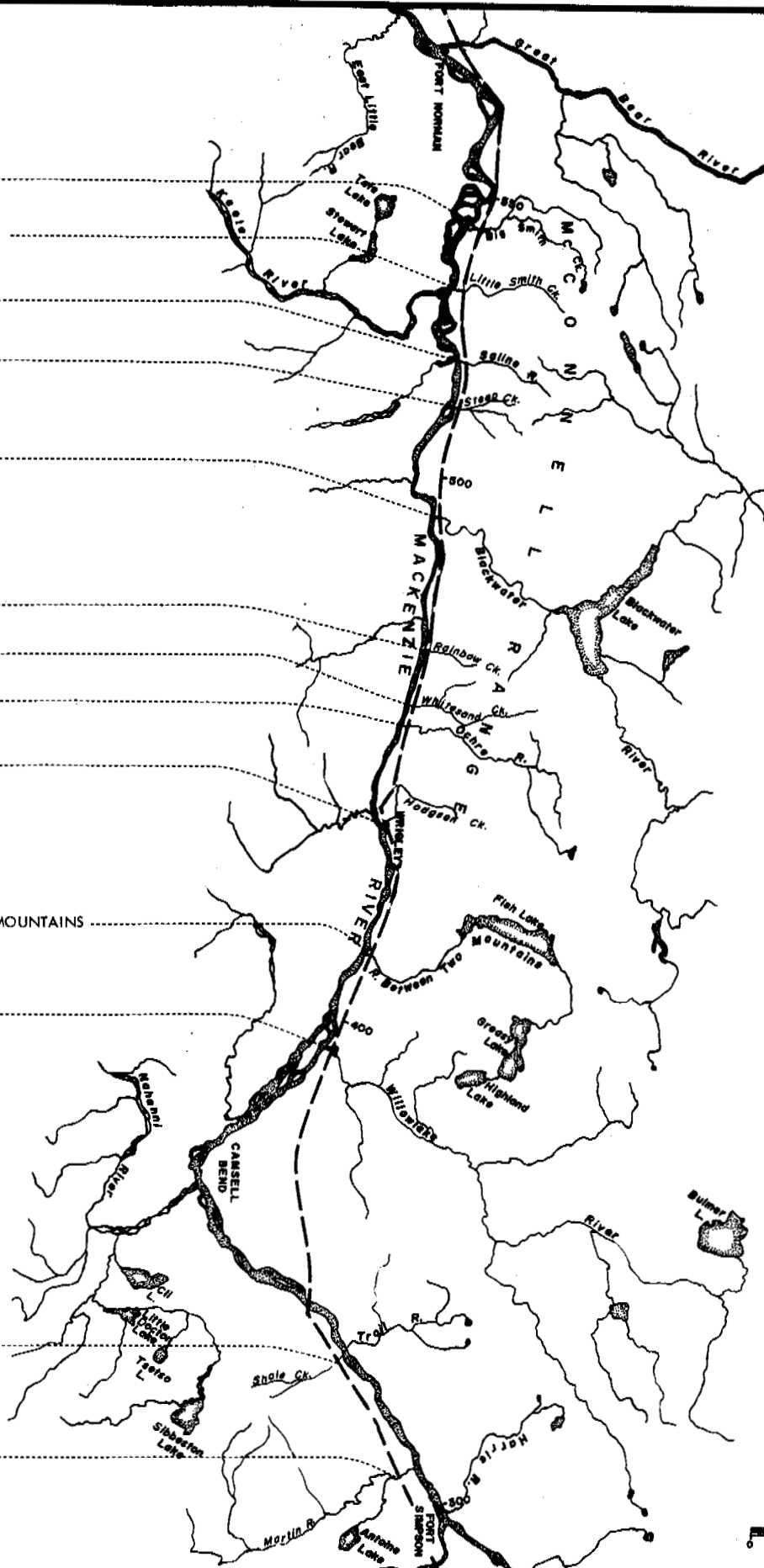
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BRIDGE SITES

KEY MAP
BRIDGES
MACKENZIE HIGHWAY
MILE 300 TO 550

- BIG SMITH CREEK
- LITTLE SMITH CREEK
- SALINE RIVER
- STEEP CREEK
- BLACKWATER RIVER
- RAINBOW CREEK
- WHITESAND CREEK
- OCHRE RIVER
- HODGSON CREEK
- RIVER BETWEEN TWO MOUNTAINS
- WILLOWLAKE RIVER
- SHALE CREEK
- MARTIN RIVER



PART 1

BASIC ENVIRONMENTAL DATA

1.1 SURFICIAL GEOLOGY

Cuts for bridge approaches may be susceptible to mass movement and thermal erosion. Colluvial slope on north side appears well drained and stable but could be susceptible to shallow solifluction flows.

At the bridge site, each side of the bridge is on narrow alluvial terraces which appear to have stable banks with no unusual evidence of erosion.

Fill for bridge encroaches on active channel which increases erosion potential.

Drainage at base of fill on north side must be controlled to prevent gully erosion and siltation of river. Groundwater drain may be required also.

1.2 SOILS

The silts and clays on the approach cuts will be difficult soils to stabilize and extra precautions are required to insure that slopes are cross-ditched and disturbed soils are seeded during the first season of growth.

1.3 VEGETATION

The primary forest type is white spruce. Special care should be taken to avoid disturbing the vegetative mat over these relatively unstable soils.

1.4 WILDLIFE

No specific impact on wildlife is anticipated.

1.5 FISH

The proposed approach fills encroach on the active channel. Velocities, already high in this stream, may well form a barrier to fish movement during periods of high water. Consideration should be given to lengthening the total span.

The Saline River substrate consists of cobble to boulder gravel. The discharge appears to fluctuate dramatically, as indicated by the difference between low levels and the apparent freshet size. No data have been obtained regarding populations of fish or other aquatics in this stream. It is assumed to support several species during the summer months at least.

Precautions should be taken to prevent siltation of the river from surface runoff along the grade.

1.6 ARCHAEOLOGY

There is a moderately high probability of finding artifacts in the locality of the bridge fills. The area should be surveyed before and during initial clearing operations.

1.7 LANDSCAPE - RECREATION

The crossing is not a particularly attractive site apart from interesting geologic formations upstream from the crossing. Off highway access should be restricted to the north shore.

1.8 AESTHETICS

The bridge would not particularly improve or detract from the aesthetic quality of the site.

The single pier bridge is preferred.

1.9 SOCIO-ECONOMIC

Possible mineral exploration and development in this area should be anticipated.

1.10 CONSTRUCTION

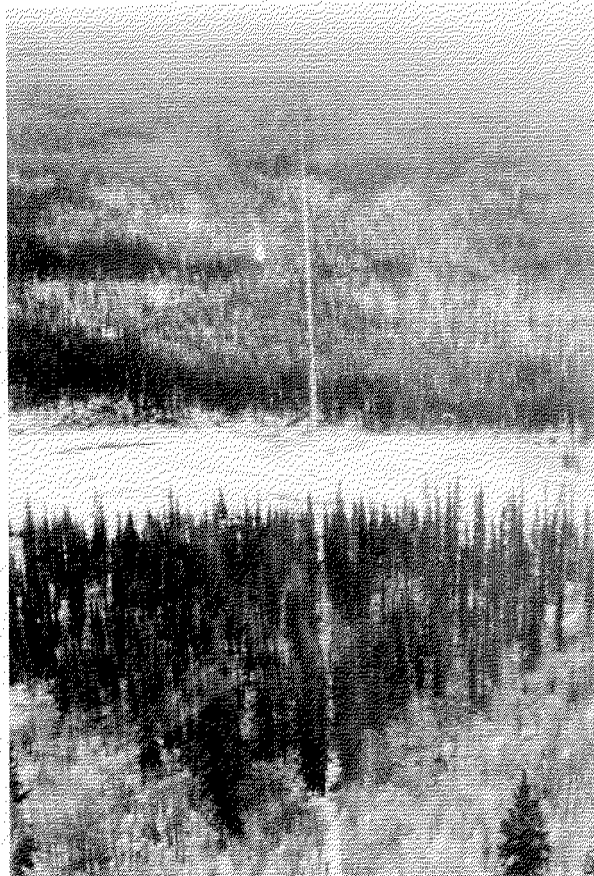
This is a particularly unstable area and the construction camp should be set up away from the crossing to avoid further disturbance in the area.

Pier construction should be scheduled for the winter months.

PART 2

ASSESSMENT

Increased stream velocities are the primary concern at this site and calculations of water velocities at peak flows should be made to ensure that velocity barriers to fish would not develop.



29.10.72. Saline River looking south at bridge site. Footings of proposed bridge in active channel; fill may restrict channel; high erosion hazard potential.



26.10.72. Saline River looking southerly. CNT landline shown in upper left corner. Winter road in foreground. Both banks are steep, south bank composed of glaciolfluvial silt and clay with possible old slump material; north side is in same material but banks appear well drained and stable. Crossing will have low to moderate impact on fish. Drainage and subsequent erosion has developed along road in foreground. Adequate measures to accommodate this have not been accounted for in bridge design.



