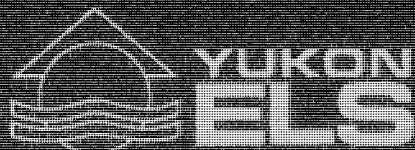




**PRELIMINARY
FISHERIES REPORT
for
North Canal Road**



GOVERNMENT OF YUKON
GOVERNMENT OF CANADA

**PRELIMINARY
FISHERIES REPORT
for
North Canal Road**

Prepared for

THE NORTHERN ROADS AND AIRSTRIPS DIVISION
DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

By

D. J. DAVIES AND C. D. SHEPARD
RESOURCE PLANNING AND MANAGEMENT BRANCH
DEPARTMENT OF RENEWABLE RESOURCES
GOVERNMENT OF YUKON

WHITEHORSE

DECEMBER 1981

ACKNOWLEDGEMENTS

Acknowledgements are due to the following for their various contributions to this project. Alan Baer and Karen Regehr for data gathering; Michael Hawkes for editing; Gemma Laska for drafting; and Kathy Romanchuk for cover design.

CONTENTS

| | <u>PAGE</u> |
|-------------------------------|-------------|
| Acknowledgements | i |
| Introduction | 1 |
| Methods | 2 |
| Fisheries | 4 |
| List of Streams | 5 |
| Stream Information | 7 |
| Recommendations | 44 |
| References | 45 |
| Appendix 1 - Map Legend | 46 |

INTRODUCTION

A preliminary fisheries survey of the river systems along the North Canal Road was undertaken in the summer of 1981. The study area extended from the town of Ross River to the Yukon - North West Territories border.

This study was commissioned by the Northern Roads and Airstrips Division, Department of Indian Affairs and Northern Development, as part of their initial environmental evaluation of the impacts of upgrading the North Canal Road. The main objectives of the survey were to determine fish species composition and distribution; to examine stream utilization by various life stages of fish for spawning, rearing or migration; to evaluate existing road crossing structures in terms of their effect on fish movement and stream habitat; and to identify areas where additional studies may be required to complete a timetable for instream construction.

A large portion of the information contained in this report was collected through an Ecological Land Survey covering the north half of map sheet 105 J and the south half of map sheet 105 O. The Ecological Land Survey (E.L.S.) is a jointly funded program between the Department of Indian and Northern Affairs, the Department of Regional Economic Expansion and the Yukon Territorial Government. Additional funds were provided by the Northern Roads and Airstrips Division, to extend the study area along the entire length of the North Canal Road.

METHODS

Thirty-seven road crossings were examined along the North Canal Road. Any streams not sampled were assumed to be of little or no fisheries significance. Five streams which appeared to be of no fisheries significance were sampled to verify such habitat evaluations. In addition, 15 of the watershed systems between the North West Territories border and Caribou Creek (Km 95 of the North Canal Road) were flown by helicopter to evaluate habitat and potential fish use above and below the road crossings. This information, supplementary to the present study, is available through the Resource Planning Branch, Department of Renewable Resources, Yukon Territorial Government.

Fisheries and habitat information was collected using methodology developed by the Aquatic Studies Branch, Provincial Government of British Columbia (Chamberlin and Humphries, 1977). Streams were sampled for fish by electroshocking, angling and swim surveys where appropriate. In the area of the road crossing a representative section of the stream was selected and physical and biological parameters were measured as described here. Additional habitat information, not included in this report, is available through the Resource Planning Branch, Yukon Territorial Government.

Data was recorded on "Reach", "Point Sample" and "Fish Sample" field cards (figs. 1 - 4). Reach information was derived from air photo interpretation and low level helicopter flight. A reach is defined as a repetitious sequence of physical processes and habitat types in a system. The reach descriptions average physical parameters over these relatively homogenous sections of river. Reach information was collected for 15 of the streams in the study area.

Specific ground information was recorded on the "Point Sample" cards (fig. 2). A card was completed for all road crossings investigated. All

major crossings were sampled at least twice during the field season. If a stream was resampled, only those parameters which change (eg. flow and temperature) were remeasured.

The parameters for the fish information was recorded on the "Fish Sample" card (fig. 3). A card was completed each time a stream was sampled for fish.

The flow rates presented on the stream information pages were measured using the "floating chip" method and are approximations only. It was beyond the scope of this survey to determine precise flow. With the "floating chip" method, pieces of floating debris placed at regular intervals across the stream channel are timed over a measured distance to provide an average surface velocity.

The potential fisheries habitat was evaluated and given a relative rating of nil, low, moderate or high significance primarily based on the measurements or descriptions of % pools, overhanging vegetation, debris, flow character, substrate and invertebrates.

REACH

Reach No. _____

| | | | | | |
|-----------------------------------|-----------|-------------------------|-----------------------|---|-----------|
| C ACTIVE VALLEY WALL PROC. | | TOTAL POOLS (%) | | System Name _____ | |
| Avalanche | Nil L M H | Bedrock control (%) | | No. _____ | |
| Debris flow/torrent | Nil L M H | BED MATERIAL (%) | | Survey Date _____ Compiling Agency _____ Field Obs. _____ | |
| Slump | Nil L M H | Fines | clay silt sand | yr mo day | |
| Slide | Nil L M H | Gravel (2-64 mm) | | Access _____ Weather _____ | |
| Gully | Nil L M H | Large (64 mm+) | | Field Photo Init. _____ Photo Nos. _____ | |
| Periglacial | Nil L M H | Bedrock | | Photo Interp. Init. _____ NTS Sheets _____ | |
| BAR PRESENCE | | CHANNEL COVER | | FISH SUMMARY | |
| Side / Point | Nil L M H | Level | % Area | Distr. | C |
| Mid Channel | Nil L M H | Crown | | Species | Use |
| Transverse | Nil L M H | Overhang | | Ref | Map |
| Junction | Nil L M H | RIPARIAN VEG. | | F | Type Code |
| Diamond / Braiding | Nil L M H | Storey | Sp | Distr. | Ht (m) |
| Lee | Nil L M H | Coniferous | | Length (m) | |
| Dunes | Nil L M H | Deciduous | | | |
| Islands | Nil L M H | Understorey | | | |
| LATERAL CHANNEL MOVEMENT | | CHAN. WIDTH (m) | | | |
| Apparently Stable | Yes No | Stage | Dry L M H Fld | | |
| Bar Veg. Progressions | Nil L M H | Flow Char. | P S R B T | Channel Debris | Nil L M H |
| Cut-Offs / Ox Bows | Nil L M H | Valley:Chan | 0-2 2-5 5-10 10+ N/A | Floodplain Debris | Nil L M H |
| Meander Scars | Nil L M H | Confinement | Ent Conf Fr Oc Un N/A | Stable Debris (%) | |
| Avulsions | Yes No * | Pattern | St Sin Ir Im Rm Tm | Turbidity Nil L M H | |
| Terraces | Yes No * | Vert. Stab. | Deg ? Agr N/A | (Fish) | |
| Constrictions | Yes No * | Side Chan | Nil L M H | | |
| Unstable Banks (%) | | | | (Width) (Val:Chan) (Slope) (Bed Material) | |

R 5 80

Fig. 1. Reach card.

POINT SAMPLE

Point No. _____ of _____

| | | | | | |
|----------------------|----------------|----------------------------|---|--|--|
| C L BANK R C | | BED MATERIAL | | System Name _____ | |
| Form | Genetic Mat. | Ice Scouring | Y ? N C | No. _____ | |
| Texture % | Texture % | Imbric | Nil L M H | Site Location _____ | |
| Org. | Org. | Compac | Nil L M H | Reach No. _____ | |
| Clay .004 | Clay .004 | Lag | Nil L M H | Date _____ Time _____ Access _____ | |
| Silt .062 | Silt .062 | D ₉₀ (cm) | | yr mo day | |
| Sand 2 | Sand 2 | HYDRAULICS | | NTS Map _____ Agency _____ Crew _____ | |
| S. Gr. 16 | S. Gr. 16 | Valley W (m) | Meth | Field Photo Init. _____ Photo Nos. _____ | |
| L. Gr. 84 | L. Gr. 84 | Chan W (m) | S. Gr. | Weather _____ Fish Sample No. _____ | |
| Cob. 256 | Cob. 256 | Wet W (m) | L. Gr. | Air Temp. °C _____ Water Sample No. _____ | |
| Boul. | Boul. | Slope (%) | Cob. | C WATER Water temp. Turbidity TDS D. O. pH | |
| Bedr. | Bedr. | Max Depth (cm) | Boul. | QUAL. °C m cm | |
| Distr. Sp | VEG. Sp Distr. | Avg. Depth (cm) | Bedr. | FISH SPECIES PRESENT: | |
| Conif. | Conif. | Wet X-sec area | L STREAM CROSS-SECTION R (looking downstream) | | |
| Decid. | Decid. | Velocity (m/sec) | | | |
| Under | Under | Flow (m ³ /sec) | | | |
| Ground | Ground | Bank Height (m) | | | |
| CHANNEL COVER | | Fld. Signs (Ht. / Type) | | | |
| Distr. % Area | Level % Area | Bank Ice Scour | Y ? N | | |
| Crown | Crown | Stage | Dry L M H Fld | | |
| Over. | Over. | Flow Char. | P S R B T | | |
| BIOTA | | Valley:Chan | 0-2 2-5 5-10 10+ N/A | | |
| Aquatic Veg. | Sp Abun | Side Chan | Nil L M H | | |
| Invertebrates | | Channel | Nil L M H | | |
| Algae | | Stable % | | | |
| | | Floodplain | Nil L M H | | |

PS 5 80

Fig. 2. Point sample card.

FISHERIES

Five species of fish were encountered in the study area. These were chinook salmon (Oncorhynchus tshawytscha), arctic grayling (Thymallus arcticus), northern pike (Esox lucius), burbot (Lota lota) and slimy sculpin (Cottus cognatus). Of primary significance were chinook salmon, a major commercial and sport fisheries species, and arctic grayling, a popular sport fish.

Chinook salmon spawn in the area in July, August and possibly September. The exact timing varies from year to year. Spawning takes place in the rivers although larger stream are sometimes utilized. The eggs hatch in the following spring and the fry spend two years in fresh water before migrating out to sea.

Six of the streams along the North Canal Road were inhabited by juvenile chinook salmon. It is likely that these streams are used for rearing only, although spawning may occur in some of the larger systems. A more comprehensive survey would be required to establish the distribution of spawning areas in the systems examined. After spawning and fry emergence from the mainstem or large tributary streams the fry migrate to rearing areas. Rearing areas are utilized in the larger systems but the fry tend to occupy the lower portions of smaller tributaries as well. In tributaries where chinook were not encountered at the road crossing, rearing populations may still exist in lower portions of the streams. It is likely that chinook may be found rearing in most of the tributaries to the Ross River that cross the North Canal Road. The same situation probably exists for the South MacMillan River tributaries, at least as far upstream as Boulder Creek.

Arctic Grayling were found in 21 of the systems sampled. In marginal habitats they were often the only species present. This species usually spawns in small gravel or rock-bottomed streams. Spawning takes place in the spring.

Northern pike were found in three of the streams examined. Only one or two fish were found at each of these sites. This species usually spawns in lakes or slow moving rivers or streams. Spawning takes place in the spring, soon after break-up.

Burbot were encountered in three of the streams sampled. This species spawns in lakes and occasionally rivers. Spawning takes place in winter, under the ice. This species is not a popular sport fish although they are fished in some areas. As with pike they were not found in large numbers.

Slimy sculpins were commonly found in streams in the area. These small bottom-dwelling fish are of no commercial or sports significance.

LIST OF STREAMS

The following is a list of the streams crossed by the North Canal Road that were investigated in this study. The distance from Ross River along the North Canal Road is given in kilometers. Also, the page number is shown for the individual stream information.

| | <u>Stream Name</u> | <u>Km</u> | <u>Page</u> |
|----|--------------------|-----------|-------------|
| 1. | Tenas Creek | 11 | 7 |
| 2. | Deep Creek | 29 | 8 |
| 3. | Marjorie Creek | 36 | 9 |
| 4. | Gravel Creek | 52 | 10 |
| 5. | Unnamed Creek | 53 | 11 |
| 6. | Flat Creek | 54 | 12 |

| | <u>Stream Name</u> | <u>Km</u> | <u>Page</u> |
|-----|--------------------------|-----------|-------------|
| 7. | Beaver Creek | 60 | 13 |
| 8. | Unnamed Creek | 67 | 14 |
| 9. | 180 Mile Creek | 68 | 15 |
| 10. | Tay Creek | 71 | 16 |
| 11. | Blue Creek | 75 | 17 |
| 12. | Flood Creek | 78 | 18 |
| 13. | Caribou Creek | 95 | 19 |
| 14. | Pup Creek | 100 | 20 |
| 15. | Twin Creek #1 | 114 | 21 |
| 16. | Twin Creek #2 | 114.5 | 22 |
| 17. | Unnamed Creek | 119 | 23 |
| 18. | Ridde11 Creek | 125 | 24 |
| 19. | Sheldon Creek | 133 | 25 |
| 20. | Unnamed Creek | 135 | 26 |
| 21. | Moose Creek | 147 | 27 |
| 22. | Boulder Creek | 158 | 28 |
| 23. | Unnamed Creek | 166 | 29 |
| 24. | Itsi Creek | 179 | 30 |
| 25. | Wagon Creek | 181 | 31 |
| 26. | South MacMillan River #1 | 183 | 32 |
| 27. | Unnamed Creek | 188 | 33 |
| 28. | Jeff Creek | 192 | 34 |
| 29. | Hess Creek | 196 | 35 |
| 30. | Dewhurst Creek | 199 | 36 |
| 31. | South MacMillan River #2 | 209 | 37 |
| 32. | Sekie Creek #1 | 216 | 38 |
| 33. | Sekie Creek #2 | 220 | 39 |
| 34. | South MacMillan River #3 | 222 | 40 |
| 35. | South MacMillan River #4 | 229 | 41 |
| 36. | South MacMillan River #5 | 231 | 42 |
| 37. | South MacMillan River #6 | 233 | 43 |

STREAM INFORMATION

MAP NO. 105 K
SYSTEM NAME Tenas Creek KM 11

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/25 | 81/07/28 | | |
| FLOW (m ³ /sec) | * | * | | |
| TEMPERATURE (°C) | 8 | 15 | | |

FISH SPECIES

Chinook Salmon, Arctic Grayling, Burbot, Slimy Sculpin

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Habitat significantly altered below bridge crossing due to an armoring of rip rap material. Above the bridge the stream is slow moving with a high percentage of fine material.
- The most significant habitat for chinook rearing appears to be from the bridge crossing to the confluence.
- Fisheries habitat appears to be moderate to high below the road crossing and moderate above.

STREAM INFORMATION

MAP NO. 105 k

SYSTEM NAME Deep Creek KM 29

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/25 | 81/07/28 | | |
| FLOW (m ³ /sec) | 0.3 | dry | | |
| TEMPERATURE (°C) | 8 | N/A | | |

FISH SPECIES

(Arctic Grayling)

EXISTING ROAD CROSSING

Culvert

COMMENTS

- The first date sampled very small fry were observed. Exact identification was not possible at that time, but grayling were suspected. Although this stream is ephemeral, it appears to be used for spawning in the spring (by evidence of the fry). The fry probably migrate down to alternative rearing areas as flows decrease.
- The culvert in place at present has collapsed and may present a barrier to fish migration that may occur at higher flows.
- Habitat in the area of the road crossing is low.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Marjorie Creek KM 36

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/25 | 81/07/28 | | |
| FLOW (m ³ /sec) | 1.7 | 0.7 | | |
| TEMPERATURE (°C) | 13 | 17 | | |

FISH SPECIES

Arctic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Nursery stream for grayling. Some adult grayling and a high number of grayling fry were captured.
- This small section of stream which connects two lakes is probably very significant for spawning and rearing of grayling from the lakes.
- Habitat available was moderate to high with high productivity.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Gravel Creek KM 52

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/28 | | |
| FLOW (m ³ /sec) | 0.7 | 0.2 | | |
| TEMPERATURE (°C) | 4 | 8 | | |

FISH SPECIES

None captured or observed.

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat appears to be low in the vicinity of the road crossing. The habitat appeared to be significantly altered in the area of the road crossing. Habitat may be better above and below this area.

STREAM INFORMATION

MAP NO. 105 J
SYSTEM NAME Unnamed Creek KM 53

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/06/26 | | | |
| FLOW (m ³ /sec) | 0.8 | | | |
| TEMPERATURE (°C) | 4 | | | |

FISH SPECIES

None captured or observed.

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Habitat is low to moderate in vicinity of road crossing. Some fish may utilize this creek, however, none were captured or observed.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Flat Creek KM 54

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/28 | | |
| FLOW (m ³ /sec) | 1.2 | 0.4 | | |
| TEMPERATURE (°C) | 4 | 8 | | |

FISH SPECIES

Arctic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate to high fisheries habitat present in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Beaver Creek KM 60

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/28 | | |
| FLOW (m ³ /sec) | 0.9 | 0.4 | | |
| TEMPERATURE (°C) | 4 | 5 | | |

FISH SPECIES

None captured or observed.

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat present in the area of the road crossing was high, however, no fish were captured or observed. Possibility of a barrier and/or low water temperatures may be a factor.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Unnamed Creek KM 67

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/07/28 | | | |
| FLOW (m ³ /sec) | - | | | |
| TEMPERATURE (°C) | 12 | | | |

FISH SPECIES

None captured or observed.

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Fisheries habitat available at vicinity of road crossing appears to be low to nil.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME 180 Mile Creek KM 68

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/28 | | |
| FLOW (m ³ /sec) | 1.8 | 1.1 | | |
| TEMPERATURE (°C) | 6 | 10 | | |

FISH SPECIES

Arctic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate to high fisheries habitat present in vicinity of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Tay Creek KM 71

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/28 | | |
| FLOW (m ³ /sec) | 3.2 | 1.6 | | |
| TEMPERATURE (°C) | 6 | 11 | | |

FISH SPECIES

Arctic Grayling, Slimy Sculpins *(Chinook Salmon)

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat was very high. Grayling and sculpins present in large numbers, apparently high productivity in this system.
- *Chinook were not encountered but due to the size of the creek, the habitat available and the presence of rearing chinook in other similar tributaries to the Ross River, chinook are suspected in this system.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Blue Creek KM 75

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/29 | | |
| FLOW (m ³ /sec) | 2.0 | 0.7 | | |
| TEMPERATURE (°C) | 8 | 7 | | |

FISH SPECIES

Chinook Salmon, Arctic Grayling, Burbot, Slimy Sculpins

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Appears to be very productive.
- Fisheries habitat was high.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Flood Creek KM 78

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/28 | | |
| FLOW (m ³ /sec) | 1.6 | 0.4 | | |
| TEMPERATURE (°C) | 8 | 8.5 | | |

FISH SPECIES

Arctic Grayling, Slimy Sculpins

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Above culvert, the stream velocity has been reduced. Extensive settling out of fines has altered the habitat.
- Fisheries habitat was moderate to high.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Caribou Creek KM 95

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/26 | 81/07/29 | | |
| FLOW (m ³ /sec) | 1.7 | 0.3 | | |
| TEMPERATURE (°C) | 7 | 10 | | |

FISH SPECIES

Arctic Grayling, Northern Pike, Slimy Sculpins

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat is moderate to high in the vicinity of the stream crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Pup Creek KM 100

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/30 | 81/07/28 | | |
| FLOW (m ³ /sec) | 1.8 | 0.5 | | |
| TEMPERATURE (°C) | 9 | 11 | | |

FISH SPECIES

Chinook Salmon, Arctic Grayling, Slimy Sculpins

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate fisheries habitat in area of road crossing. Habitat appears to improve above and below the bridge.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Twin Creek #1 KM 114

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/19 | 81/07/29 | | |
| FLOW (m ³ /sec) | 0.3 | 0.2 | | |
| TEMPERATURE (°C) | 5 | 11 | | |

FISH SPECIES

Chinook Salmon, Arctic Grayling, Slimy Sculpin

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate fisheries habitat in area of stream crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Twin Creek #2 KM 114.5

DATES SAMPLED

FLOW (m³/sec)

TEMPERATURE (°C)

| | | | |
|----------|----------|--|--|
| 81/06/19 | 81/07/29 | | |
| 0.4 | 0.1 | | |
| 3 | 7 | | |

FISH SPECIES

Arctic Grayling, Slimy Sculpins

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Appears to be low to moderate fisheries habitat in the area of the road crossing, the stream appeared to have moderate productivity.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Unnamed Creek KM 119

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/07/29 | | | |
| FLOW (m ³ /sec) | 0.1 | | | |
| TEMPERATURE (°C) | - | | | |

FISH SPECIES

None captured or observed. Fish reportedly observed in lower part of creek near lake. Species I.D. not available.

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Low fisheries habitat available in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Riddell Creek KM 125

| DATES SAMPLED | 81/06/18 | 81/06/29 | | |
|----------------------------|----------|----------|--|--|
| FLOW (m ³ /sec) | 2.3 | 1.0 | | |
| TEMPERATURE (°C) | 5 | 9.5 | | |

FISH SPECIES

Chinook Salmon, Arctic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate fisheries habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Sheldon Creek KM 133

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/18 | 81/08/13 | | |
| FLOW (m ³ /sec) | 0.2 | 0.03 | | |
| TEMPERATURE (°C) | 4 | 6 | | |

FISH SPECIES

Slimy Sculpin

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Low fisheries habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Unnamed Creek KM 135

DATES SAMPLED

| | | | |
|----------|--|--|--|
| 81/08/13 | | | |
| 0.1 | | | |
| 5 | | | |

FLOW (m³/sec)

TEMPERATURE (°C)

FISH SPECIES

None captured or observed.

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Fisheries habitat low in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J
SYSTEM NAME Moose Creek KM 147

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/19 | 81/08/13 | | |
| FLOW (m ³ /sec) | 0.6 | 0.3 | | |
| TEMPERATURE (°C) | 7 | --- | | |

FISH SPECIES

Artic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate fisheries habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J
SYSTEM NAME Boulder Creek KM 158

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/08/13 | | | |
| FLOW (m ³ /sec) | 2.5 | | | |
| TEMPERATURE (°C) | 13 | | | |

FISH SPECIES

Chinook Salmon, Arctic Grayling, Slimy Sculpins

EXISTING ROAD CROSSING

Bridge

COMMENTS

- High fisheries habitat and apparent high productivity in the area of the bridge crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Unnamed Creek KM 166

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/08/13 | | | |
| FLOW (m ³ /sec) | 0.05 | | | |
| TEMPERATURE (°C) | 7 | | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Low to nil fisheries habitat available in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Itsi Creek KM 179

DATES SAMPLED

FLOW (m³/sec)

TEMPERATURE (°C)

| | | | |
|----------|--|--|--|
| 81/08/14 | | | |
| 0.1 | | | |
| 9 | | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Low fisheries habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Wagon Creek KM 181

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/18 | 81/08/06 | | |
| FLOW (m ³ /sec) | | 2.9 | | |
| TEMPERATURE (°C) | 5 | 9 | | |

FISH SPECIES

Arctic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate fisheries habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME South MacMillan River #1 KM 183

DATES SAMPLED

| | | | |
|----------|--|--|--|
| 81/08/06 | | | |
| | | | |
| 11 | | | |

FLOW (m³/sec)

TEMPERATURE (°C)

FISH SPECIES

Arctic Grayling, Slimy Sculpins

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate fisheries habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 J

SYSTEM NAME Unnamed Creek KM 188

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/08/14 | | | |
| FLOW (m ³ /sec) | 0.2 | | | |
| TEMPERATURE (°C) | 10 | | | |

FISH SPECIES

Arctic Grayling

EXISTING ROAD CROSSING

Three culverts

COMMENTS

- Moderate fisheries habitat in area of road crossing.
- Silting above the culverts has altered the habitat in this area.
- Stream split into several channels by three culverts at the road crossing.

STREAM INFORMATION

MAP NO. 105 0

SYSTEM NAME Jeff Creek KM 192

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/16 | 81/08/06 | | |
| FLOW (m ³ /sec) | 2.0 | 1.3 | | |
| TEMPERATURE (°C) | 8 | 11 | | |

FISH SPECIES

Arctic Grayling, Northern Pike, Burbot, Slimy Sculpin

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Moderate to high fisheries habitat in the vicinity of the bridge. Moderate to high productivity is apparent.

STREAM INFORMATION

MAP NO. 105 0

SYSTEM NAME Hess Creek KM 196

| DATES SAMPLED | 81/06/16 | 81/06/19 | 81/08/14 | |
|----------------------------|----------|----------|----------|--|
| FLOW (m ³ /sec) | 4.8 | -- | 2.5 | |
| TEMPERATURE (°C) | 5 | -- | 8.5 | |

FISH SPECIES

Arctic Grayling, Northern Pike

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Habitat appears to be excellent but extensive sampling by electroshacking, angling and swim survey established low productivity. Suspect water quality limitations.

STREAM INFORMATION

MAP NO. 105 0
SYSTEM NAME Dewhurst Creek KM 199

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/23 | 81/08/14 | | |
| FLOW (m ³ /sec) | 0.7 | 0.4 | | |
| TEMPERATURE (°C) | 3 | 6 | | |

FISH SPECIES

Arctic Grayling

EXISTING ROAD CROSSING

Bridge

COMMENTS

-Low to moderate habitat in area of road crossing.

STREAM INFORMATION

MAP NO. 105 0
SYSTEM NAME South MacMillan River #2 KM 209

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/23 | 81/08/14 | | |
| FLOW (m ³ /sec) | * | * | | |
| TEMPERATURE (°C) | 5 | 8 | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Bridge

COMMENTS

- No fish were captured or observed in the South MacMillan or tributaries above this point. Suspect water quality limitations.
- Moderate habitat in area of road crossing.

* River too swift and deep at this location to take flow measurements.

STREAM INFORMATION

MAP NO. 105 0
SYSTEM NAME Sekie Creek #1 KM 216

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/23 | 81/08/14 | | |
| FLOW (m ³ /sec) | 2.0 | -- | | |
| TEMPERATURE (°C) | 4 | 6 | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat available however fish do not appear to occupy this part of the system.

STREAM INFORMATION

MAP NO. 105 0

SYSTEM NAME Sekie Creek #2

KM 220

DATES SAMPLED

| | | | |
|----------|--|--|--|
| 81/06/23 | | | |
| 0.8 | | | |
| 6 | | | |

FLOW (m³/sec)

TEMPERATURE (°C)

FISH SPECIES

Suspect no fish

EXISTING ROAD CROSSING

Culvert

COMMENTS

- Relatively steep gradient stream with very poor fisheries habitat in area of stream crossing.

STREAM INFORMATION

MAP NO. 105 0
SYSTEM NAME South MacMillan River #3 KM 222

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/23 | 81/08/14 | | |
| FLOW (m ³ /sec) | 6.2 | 1.2 | | |
| TEMPERATURE (°C) | 5 | 8 | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat available however fish do not appear to occupy this part of the system.

STREAM INFORMATION

MAP NO. 105 0
SYSTEM NAME South MacMillan River #4 KM 229

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/23 | 81/08/14 | | |
| FLOW (m ³ /sec) | 1.8 | 0.9 | | |
| TEMPERATURE (°C) | 4 | 11 | | |

FISH SPECIES

None captured or observed.

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat available however fish do not appear to occupy this part of the system.

STREAM INFORMATION

MAP NO. 105 0

SYSTEM NAME South MacMillan River #5 KM 231

| | | | | |
|----------------------------|----------|--|--|--|
| DATES SAMPLED | 81/08/14 | | | |
| FLOW (m ³ /sec) | 0.8 | | | |
| TEMPERATURE (°C) | 8 | | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat available however fish do not appear to occupy this part of the system.

STREAM INFORMATION

MAP NO. 105 0

SYSTEM NAME South MacMillan River #6 KM 233

| | | | | |
|----------------------------|----------|----------|--|--|
| DATES SAMPLED | 81/06/23 | 81/08/14 | | |
| FLOW (m ³ /sec) | 1.4 | 0.7 | | |
| TEMPERATURE (°C) | 3 | 8 | | |

FISH SPECIES

None captured or observed

EXISTING ROAD CROSSING

Bridge

COMMENTS

- Fisheries habitat available however fish do not appear to occupy this part of the system.

RECOMMENDATIONS

1. For those creeks where fish have been identified (see maps) appropriate structures should be placed at the road crossings to accommodate migration both upstream and downstream of all life stages. Of special importance is the upstream migration of chinook fry and adult grayling in spring and summer.
2. Aerial surveys should be conducted to determine the extent of chinook spawning. Also, the exact timing for spawning, fry emergence and migration will be required in those streams where fish have been identified, to complete a timetable for any potential instream construction.

REFERENCES CITED

Chamberlin, T. and D. Humphries (eds.) 1977.
Aquatic system inventory and analysis.
Unpublished report, B.C. Resource Analysis Branch, 39 pp.

MAP LEGEND

Fish Species

SPECIES SYMBOLS

CH - Chinook Salmon

AG - Arctic Grayling

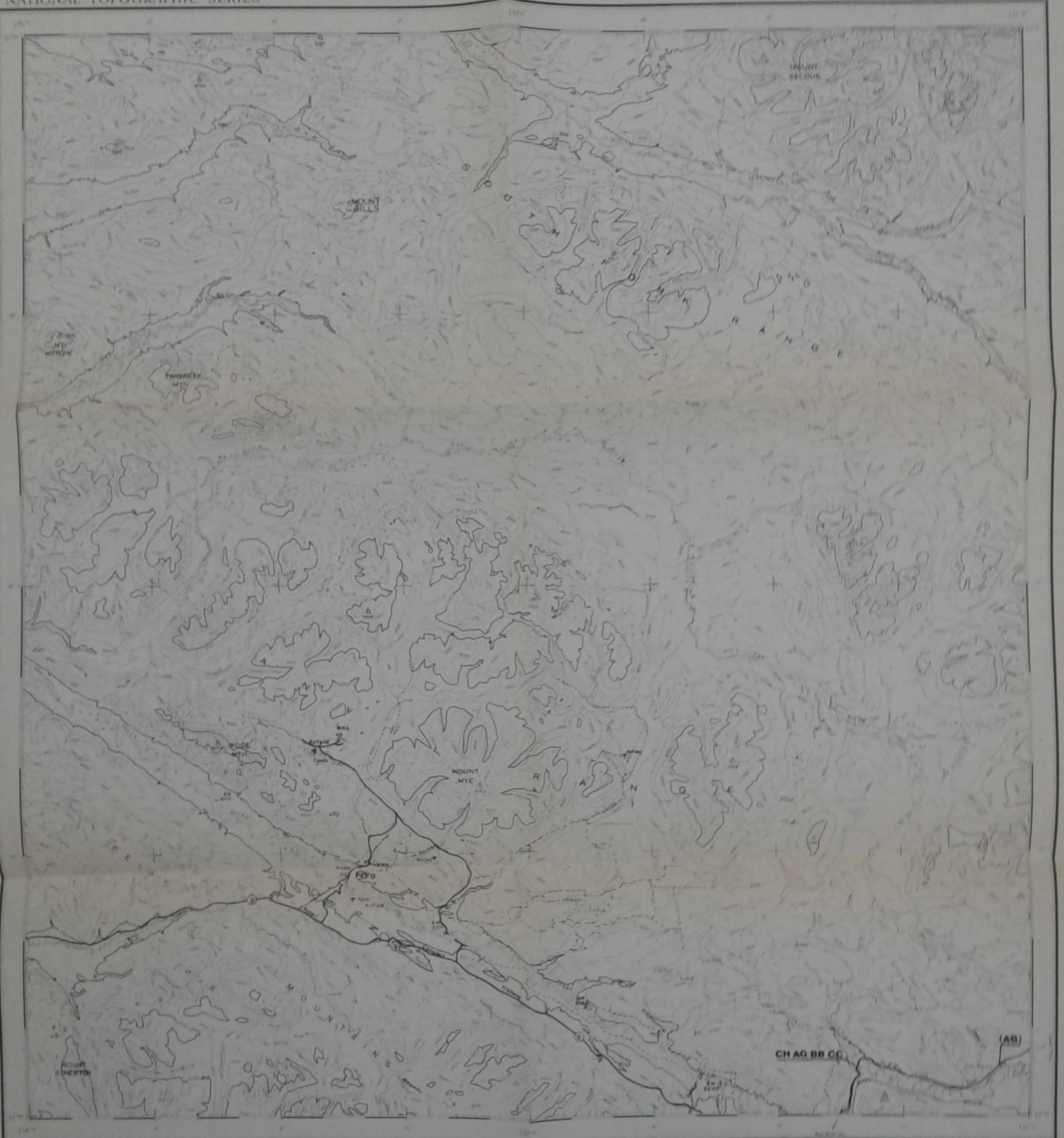
NP - Northern Pike

BB - Burbot

CC - Slimy Sculpin

∅ - indicates fish not detected at time and place of sampling

(CH) - indicates probable but unconfirmed presence



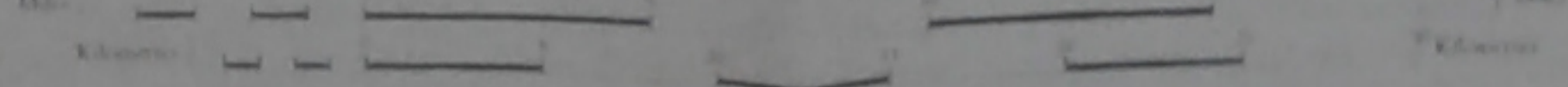
Approved for publication by the ARMY SURVEY ESTABLISHMENT R.C.E. 1960
Royal Publication No. 60 52 544

Scale 1:250,000
Approximately 1 inch = 4 Miles

Projection: Universal Transverse Mercator
Datum: Canadian Geodetic Reference System

REFERENCE

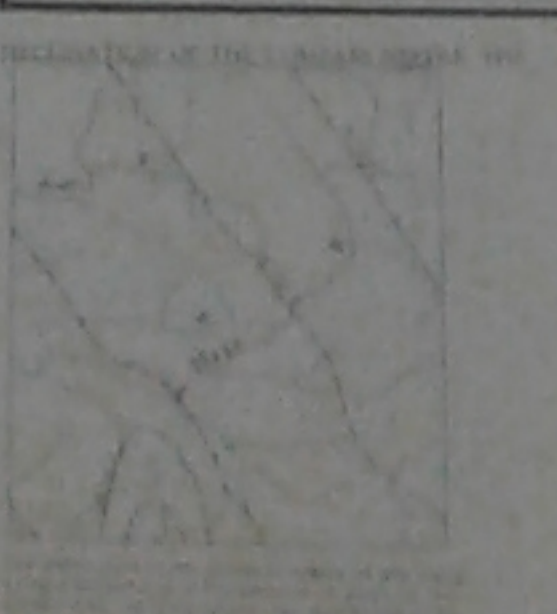
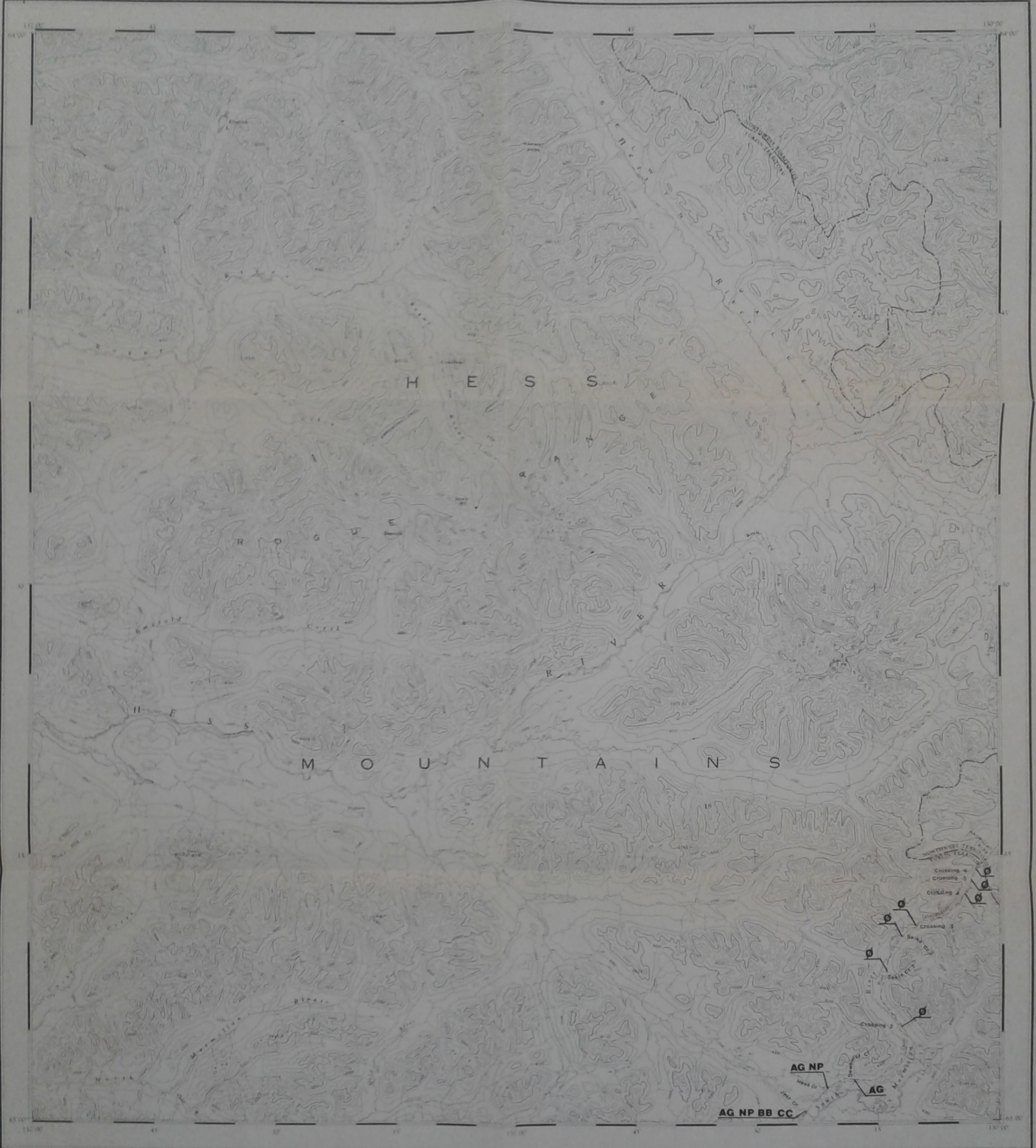
| | | |
|----------------------------|----------------------------|----------------------------|
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |



REFERENCE

| | | |
|----------------------------|----------------------------|----------------------------|
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |
| Blue lines with red dashes | Blue lines with red dashes | Blue lines with red dashes |





Produced and printed by the SURVEY AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, Ottawa, from an original file dated 1948 and 1952.

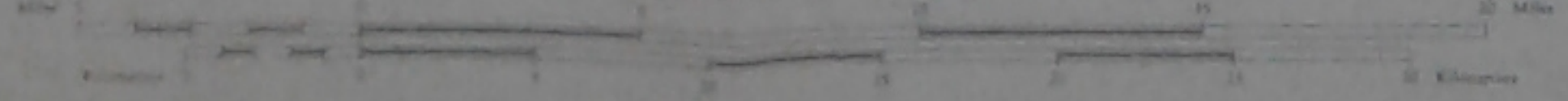
REFERENCE

| | |
|----------|----------|
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |

NIDDERY LAKE

YUKON TERRITORY, NORTHWEST TERRITORIES

Scale 1:250,000
1 inch = 4 Miles Approximately



Contours shown at 200 Foot Elevations of Feet above Mean Sea Level North American Datum 1987

Spot heights are derived from the Mean Sea Level Datum of 1987, based on the International Geodetic System of 1984.

REFERENCE

| | |
|----------|----------|
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |
| (Symbol) | (Symbol) |

