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FINAL REPORT ON THE FISHERY SURVEYS
ALONG NORTHWEST ALASKAN PIPELINE
COMPANY'S PROPOSED GAS PIPELINE ROUTE-
DELTA JUNCTION TO THE CANADA BORDER

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FINAL REPORT ON THE FISHERY SURVEYS ALONG
NORTHWEST ALASKAN PIPELINE COMPANY'S
PROPOSED GAS PIPELINE ROUTE - DELTA
JUNCTION TO THE CANADA BORDER

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January 1982

INTRODUCTION

This report is a summary of the stream surveys conducted by the U.S. Fish and Wildlife Service along Northwest Alaskan Pipeline Company's (NWA) proposed gas pipeline route between Delta Junction and the Canada border in 1981. The list of streams and drainages suggested for study by the Biological Working Group on February 12 - 13, 1981 served as a guideline for the minimum field effort. Additional streams were investigated throughout the open water season in an effort to fill seasonal data gaps for previously documented fish streams. Partial funding was provided by NWA to accomplish the surveys recommended by the Biological Working Group.

For each water body investigated in 1981 there is a location identifier/fisheries assessment sheet and a figure illustrating the water body's location. Each figure is a composite drawing taken from an aerial photograph and a NWA alignment sheet. Stream channel configuration and location relative to the Alaska highway, Haines pipeline right-of-way and other water bodies were taken from the Alcan Pipeline (1:25,000) color aerial photograph series of 5 and 11 June 1976. The NWA alignment, Alaska highway and NWA mileposts, section corners and numbers were taken from NWA's Ownership Alignment Sheets (full size), Revision 3, prepared March 1980. Drainage structure locations and dimensions were verified in the field.

The following abbreviations are used in this report:

- AHMP - Alaska highway milepost
- CMP - Corrugated metal pipe culvert
- EMG-RX - River crossing number taken from NWA's Environmental Master Guide Alignment Sheets, Level 1, Revision 3, prepared March 1981.
- NWA - Northwest Alaskan Pipeline Company

NWAMP - NWA alignment milepost

ROW - Right-of-way

USGS map - United States Geological Service maps are 1:63360 scale series. Quadrangle, township, range and section number at the proposed NWA pipeline crossing are indicated.

Documented fish presence is based on those fish captured or visually observed in 1981. For the purpose of this report, the following definitions given by Chihuly et al. (1980) are used:

Spring	1 May - 30 June
Summer	1 July - 31 August
Fall	1 September - 31 October

Abbreviations of fish species are as follows:

BB - Burbot (Lota lota)

CN - Slimy sculpin (Cottus cognatus)

DV - Dolly Varden (Salvelinus malma)

GR - Arctic grayling (Thymallus arcticus)

HW - Humpback whitefish (Coregonus pidschian)

LC - Lake chub (Couesius plumbeus)

LS - Longnose sucker (Catostomus catostomus)

NP - Northern pike (Esox lucius)

RW - Round whitefish (Prosopium cylindraceum)

X - Fish present but species not identified

Fish use abbreviations are those defined by Chihuly et al. (1980) as:

- R (rearing) - all waterbodies containing fish are considered rearing areas.
- S (spawning) - spawning habitat has been identified by the presence of young-of-the-year or prespawning ripe adults.
- M (migrating) - migrating is the utilization of aquatic habitat for moving between seasonal use areas and/or habitats.

All data collected in 1981 are presented in Appendices I through IV.

Appendix V is a list of new fish streams not previously documented.

Waterbody Granite Creek EMG-RX 099-1

Main Drainage Tanana River Tributary to Sawmill Creek

NWAMP ? AHMP ?

USGS Map Reference Mt. Hayes (D-3), Ak T 11S R 12E Sec. 21 or 22

FISHERIES ASSESSMENT

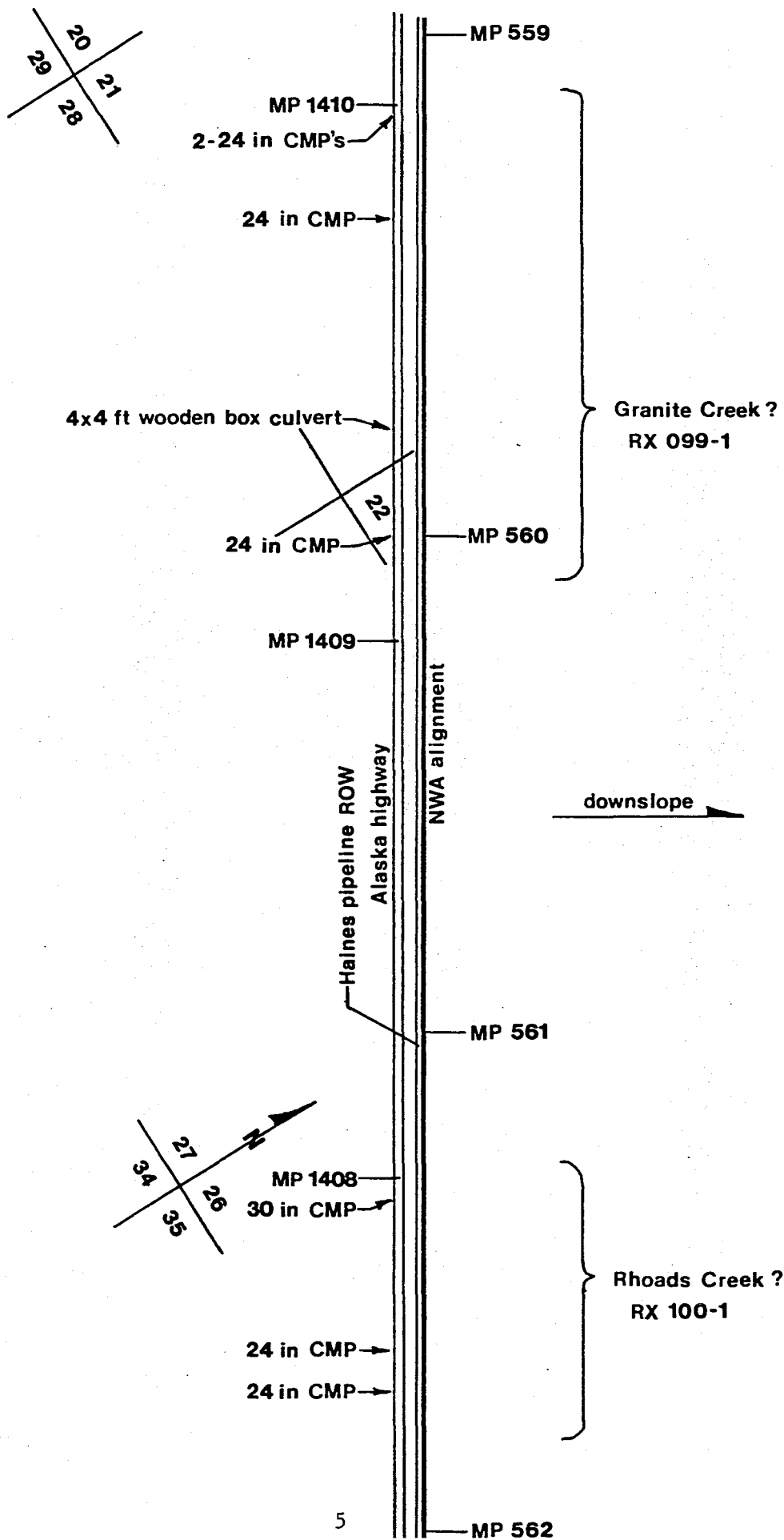
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Granite Creek is adequately described by Chihuly et al. (1980).

All "channels" in the area where this stream has been previously described are equally ambiguous. The largest drainage structure in this area is the 4x4 ft box culvert at AHMP 1409.4. No flow was observed at the Alaska highway in this area at any time in 1981.

There is no fish habitat in Granite Creek in the vicinity of the proposed NWA pipeline crossing.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Rhoads Creek EMG-RX 100-1

Main Drainage Sawmill Creek Tributary to Granite Creek

NWAMP ? AHMP ?

USGS Map Reference Mt. Hayes (D-3), AK T 11S R 12E Sec. 26

FISHERIES ASSESSMENT

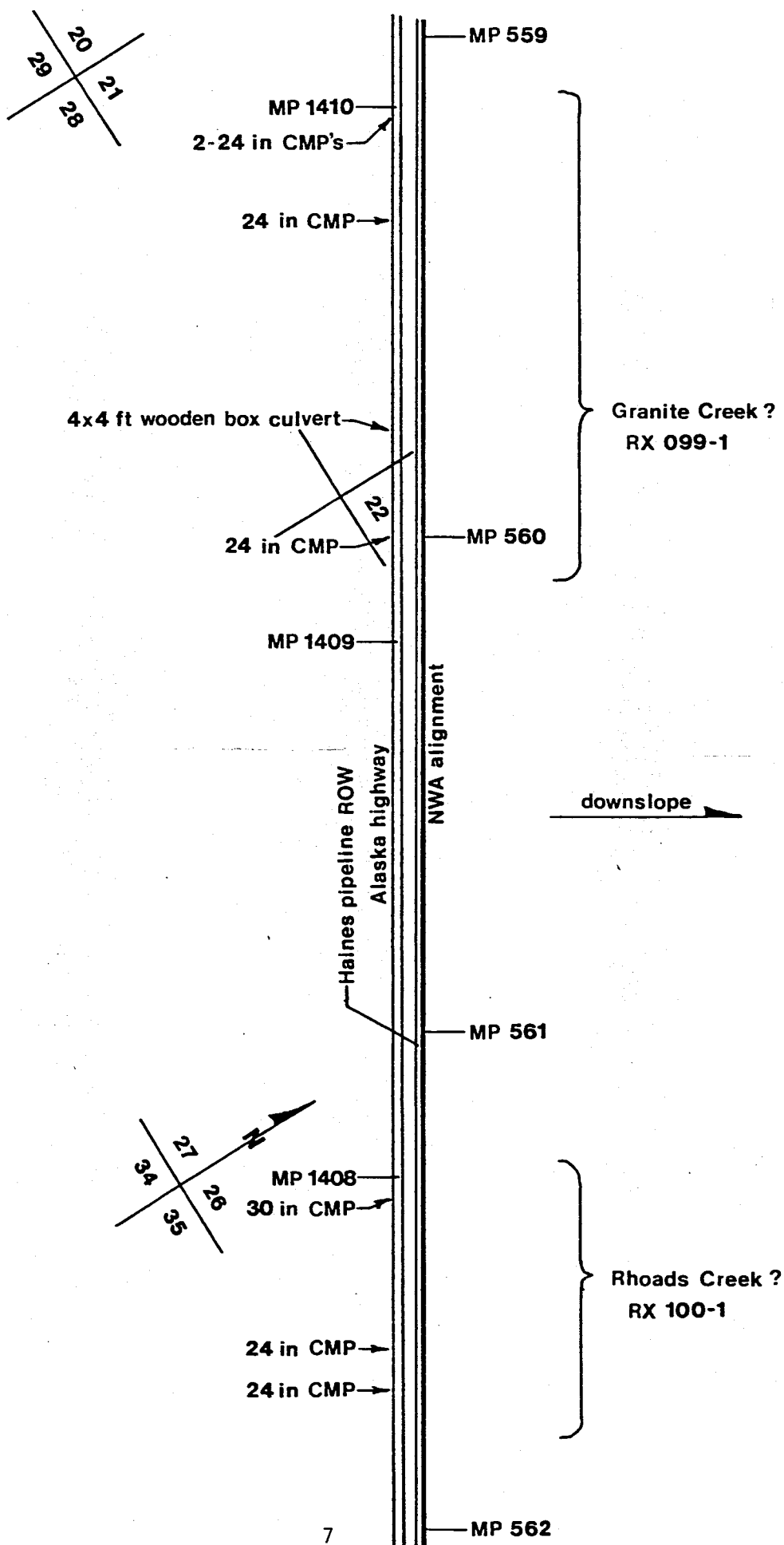
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Rhoads Creek is adequately described by Chihuly et al. (1980).

The least ambiguous channel in the area where this stream has been previously described crosses the Alaska highway at milepost 1408.0. No flow was observed at the Alaska highway in this area at any time in 1981.

There is no fish habitat in Rhoads Creek in the vicinity of the proposed NWA pipeline crossing.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Sawmill Creek EMC-RX 100-2

Main Drainage Tanana River Tributary to Clearwater Creek

NWAMP 565.42 AHMP 1403.9

USGS Map Reference Mt. Hayes (D-3), AK T 12S R 13E Sec. 5

FISHERIES ASSESSMENT

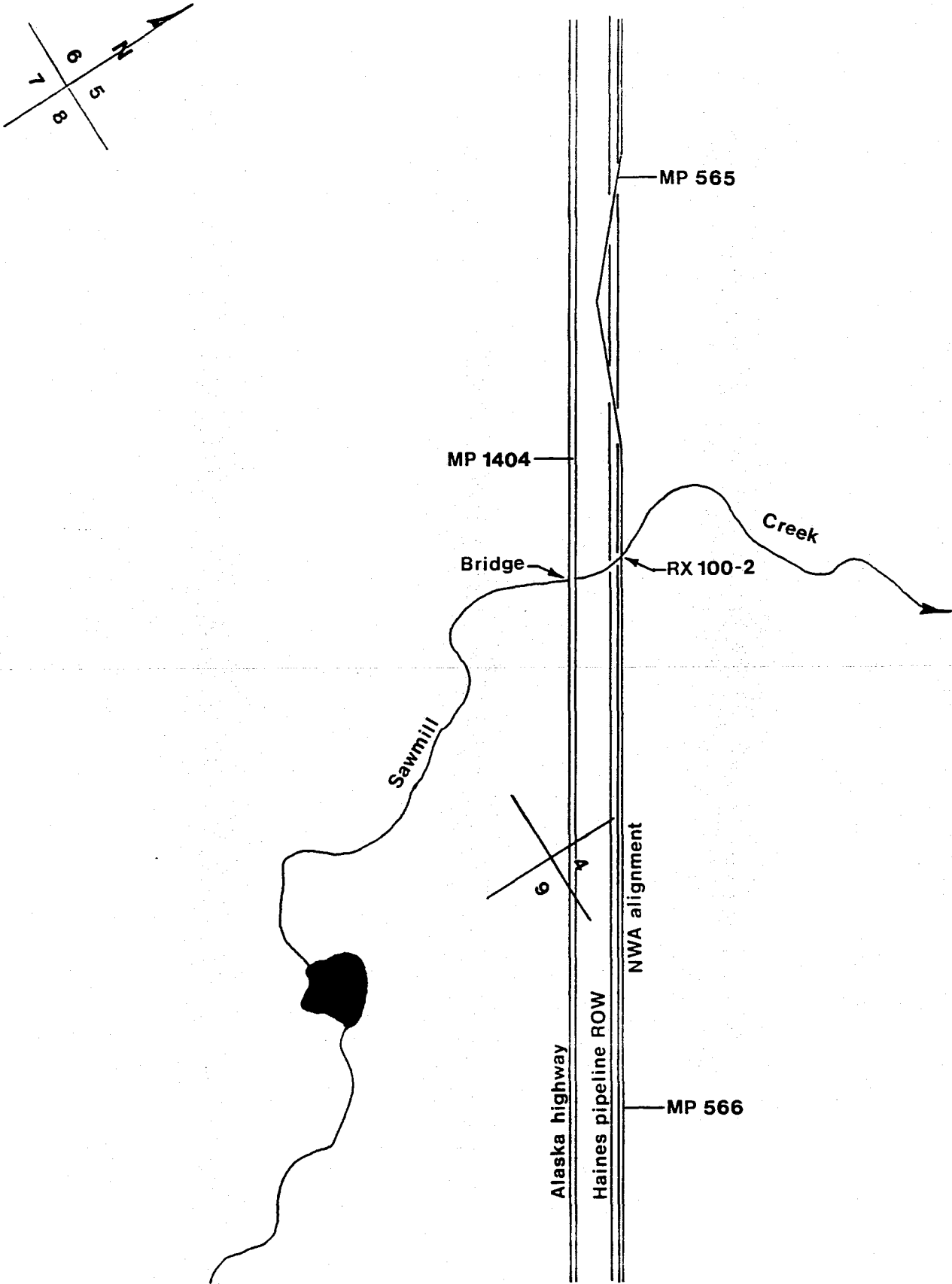
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Sawmill Creek is described by Chihuly et al. (1980).

During 1981, flowing water was observed in Sawmill Creek at the Alaska highway only after rainstorm events in late May and early June.

There is no fish habitat in the vicinity of the proposed NWA pipeline crossing due to intermittent flow.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Gerstle River EMG-RX 102-1

Main Drainage Yukon River Tributary to Tanana River

NWAMP 576.32 - 576.73 AHMP 1392.6 - 1393.0

USGS Map Reference Mt. Hayes (D-2), AK T 13S R 15E Sec. 6

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

The Gerstle River is described by Chihuly et al. (1980).

No fish were captured or observed in this stream with a limited spring and fall sampling effort in 1981. Limited fall use by grayling has been previously documented (Chihuly et al. 1980).

Data collected in 1981 are presented in Appendices I and IV.

Waterbody Dougherty Creek EMG-RX 103-1
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 578.93 AHMP 1390.4
 USGS Map Reference My. Hayes (D-2), AK T 13S R 15E Sec. 9

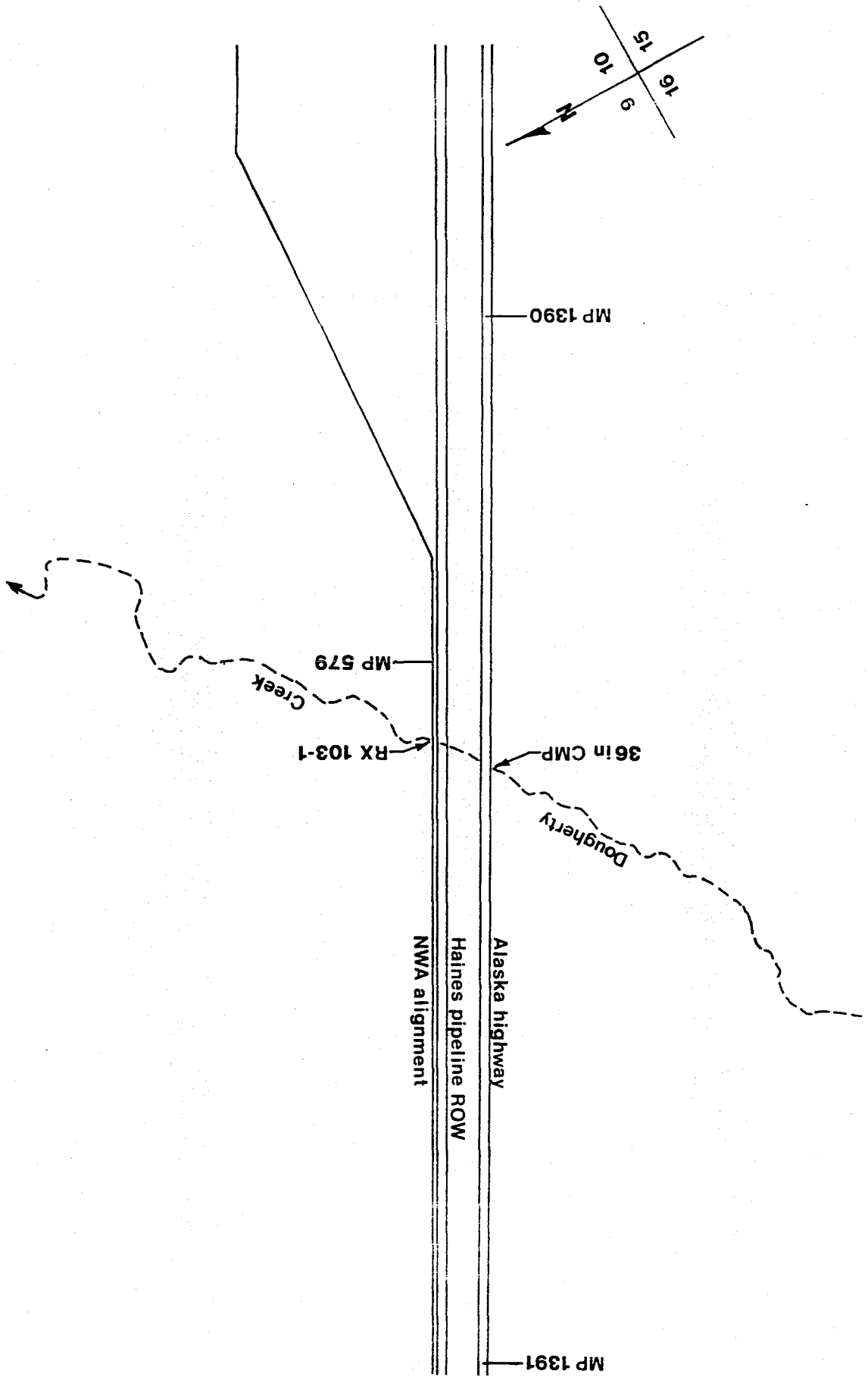
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

In the vicinity of the Alaska highway and NWA alignment, the Dougherty Creek drainage follows a well defined channel with steep banks up to 3 ft. The channel bottom is vegetated with terrestrial grass and shrubs and bordered by a spruce-aspen forest. No flow or evidence of flow was observed in this channel throughout 1981.

Dougherty Creek does not provide fish habitat in the vicinity of the proposed pipeline crossing.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Little Gerstle River EMG-RX 103-2

Main Drainage Yukon River Tributary to Tanana River

NWAMP 581.02 AHMP 1388.4

USGS Map Reference Mt. Hayes (D-2), AK T 13S R 15E Sec. 14

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>BB, CN, GR, LC, LS, RW</u>	<u>M, R, S</u>
Summer	<u>BB, CN GR, HW, LC, LS, NP, RW</u>	<u>R</u>
Fall	<u>BB, CN, GR, LS, RW</u>	<u>M, R</u>

The Little Gerstle River is described by Chihuly et al. (1980). The stream has been channelized above and below the Alaska highway. Outside the disturbed area, especially upstream, pools are well developed and fish habitat is of higher quality.

This stream is utilized as a rearing area for a diverse fishery throughout the open water period. In the vicinity of the NWA alignment, this stream serves as a migration pathway and possibly a spawning area for spring spawning species. The extent and timing of the grayling and longnose sucker runs was not documented in 1981 due to dependence on an ineffective electroshocker prior to 8 June. The presence of young-of-the-year grayling during the summer indicates spawning did occur within or upstream from the sampled reach. Although absence of surface flow during the winter has been documented in the vicinity of the Alaska highway, the presence of slimy

Waterbody Little Gerstle River

EMG-RX 103-2

sculpin in June and young-of-the-year round whitefish in July suggests proximity to overwintering areas, possibly upstream from the highway.

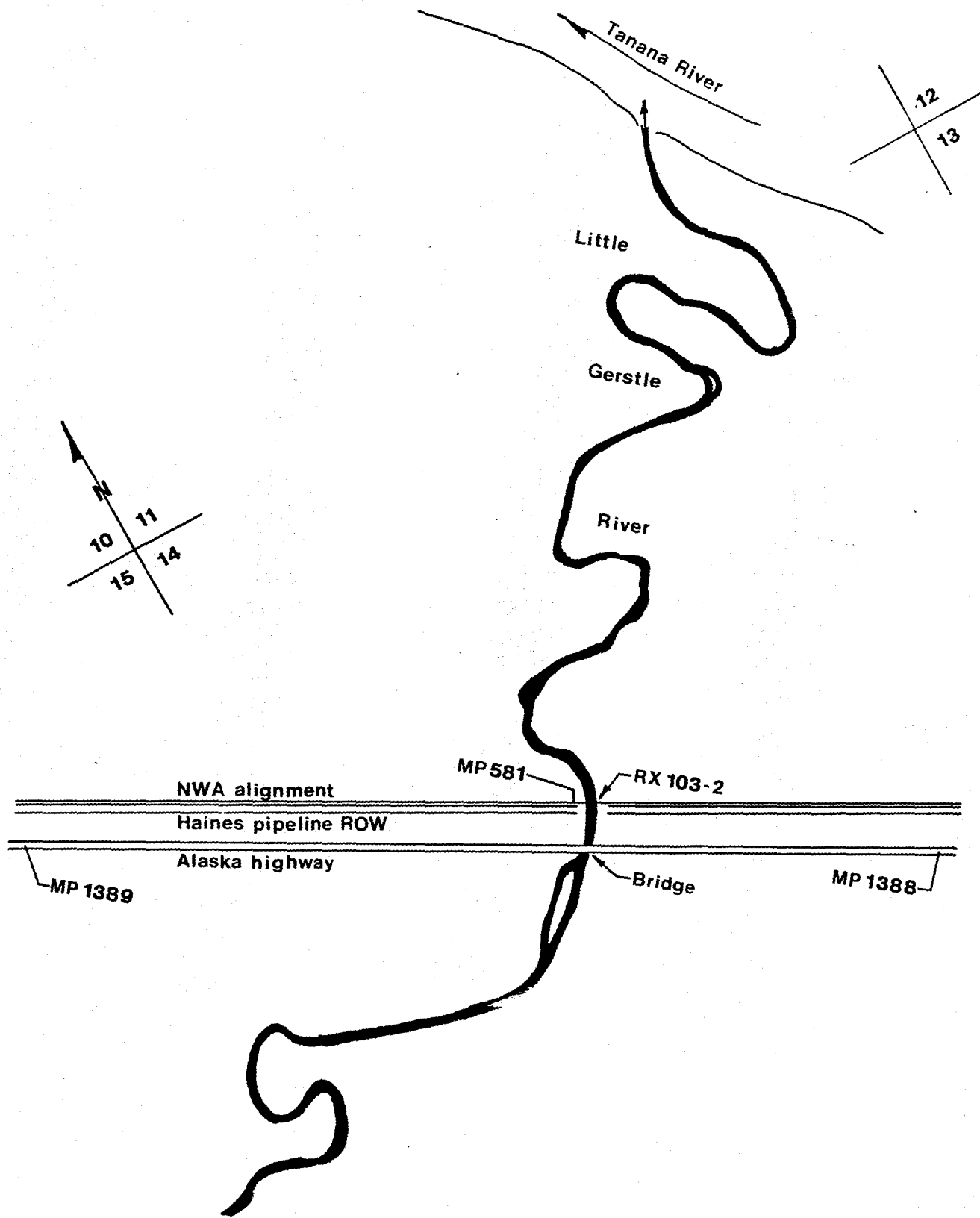
Data collected in 1981 are presented in Appendices I and IV.

Waterbody

Little Gerstle River

EMG-RX

103-2



Waterbody Johnson River EMG-RX 104-1

Main Drainage Yukon River Tributary to Tanana River

NWAMP 588.64 - 588.81 AHMP 1380.3 - 1380.6

USGS Map Reference Mt. Hayes (C-2), AK T 14S R 16E Sec. 16

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>CN, GR, LC</u>	<u>M, R</u>

The Johnson River is described by Chihuly et al. (1980).

In addition to the species documented in 1981, previous documentation in the vicinity of the NWA alignment includes fall use by juvenile round whitefish (Chihuly et al. 1980).

Although winter fish use of the Johnson River in the vicinity of the NWA alignment is thought to be low to non-existent (Chihuly et al. 1980), the presence of well oxygenated water in late winter indicates a high probability of overwintering use nearby. Instream construction during the winter has the potential of adversely impacting known overwintering habitat in the Tanana River, about 1.5 mi downstream from the proposed NWA crossing and should be prohibited.

Data collected in 1981 are presented in Appendices I and IV.

Waterbody Dry Creek EMG-RX 105-1

Main Drainage Tanana River Tributary to Johnson Slough

NWAMP 591.17 AHMP 1378.1

USGS Map Reference Mt. Hayes (C-2), AK T 14S R 16E Sec. 23, 24

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Dry Creek is adequately described by Chihuly et al. (1980).

Surface flow was observed in Dry Creek at the Alaska highway during May and early June in 1981.

A local resident described that the limit of surface flow in Dry Creek normally extends to the location of his home, several miles above the highway. He recalled catching grayling and Dolly Varden in the vicinity of his home during past summers.

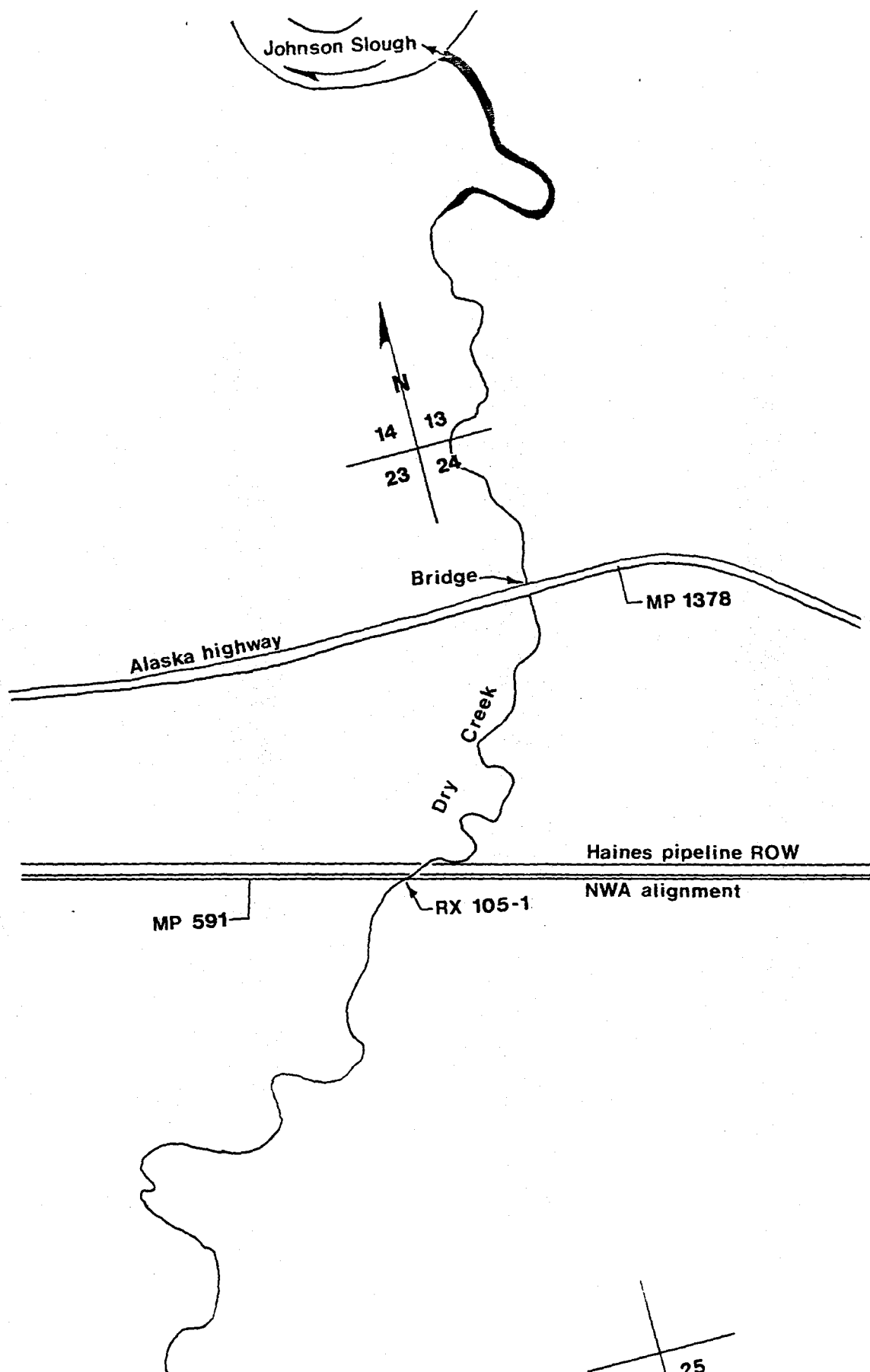
Any fish use of Dry Creek in the vicinity of the proposed NWA crossing would be migratory either to or from the isolated resident population inhabiting the upper reaches of this stream.

Data collected in 1981 are presented in Appendix IV.

Waterbody

Dry Creek

EMG-RX 105-1



Waterbody	<u>Unnamed Creek</u>	EMG-RX	<u>105-2</u>
Main Drainage	<u>Tanana River</u>	Tributary to	<u>Dry Creek &/or Johnson Slough</u>
NWAMP	<u>592.33</u>	AHMP	<u>1377.0</u>
			<u>14S 16E 24</u>
USGS Map Reference	<u>Mt. Hayes (C-2), AK</u>	T <u>22N</u>	R <u>5E</u> Sec. <u>18</u>

FISHERIES ASSESSMENT

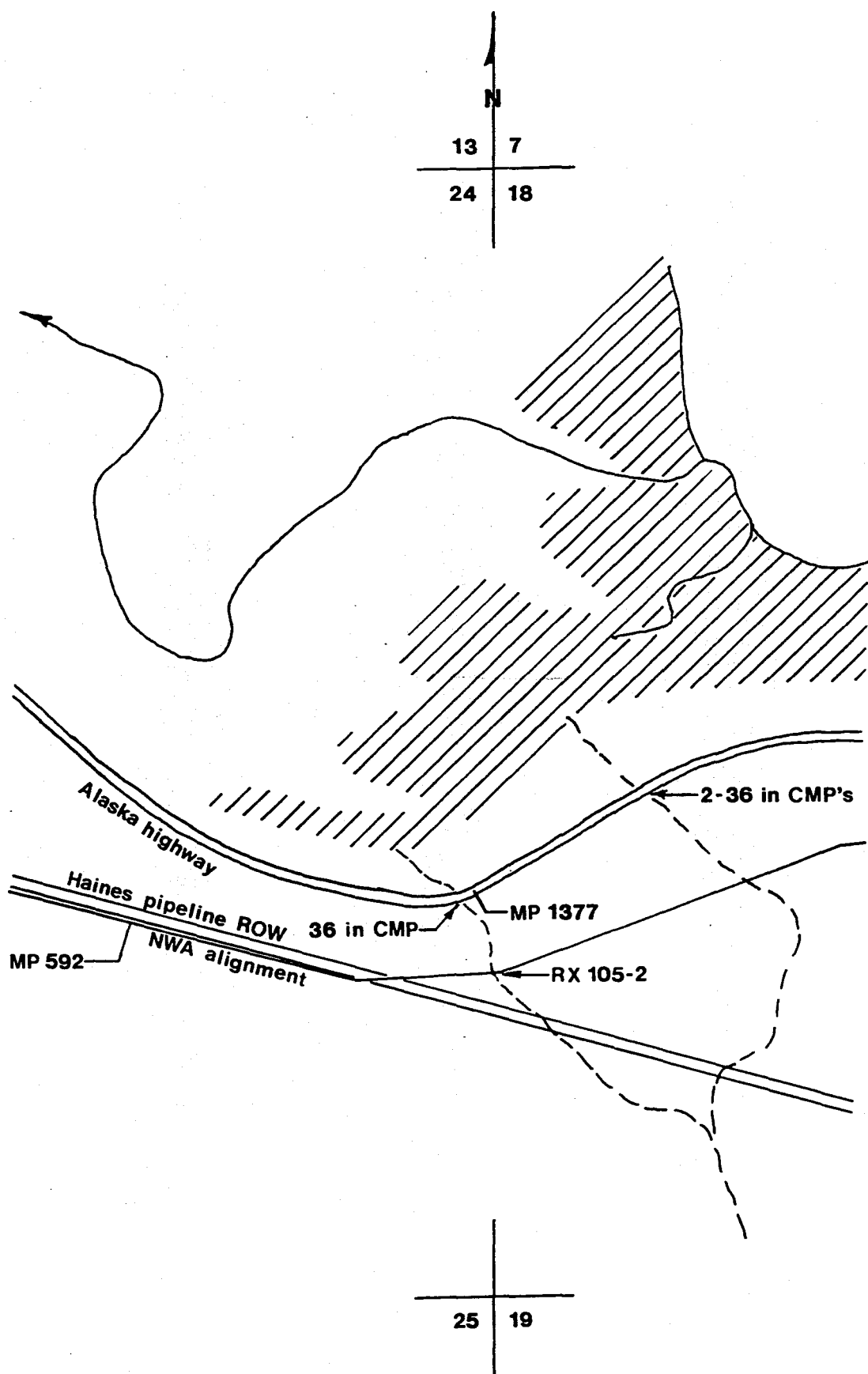
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This small stream flows northwest across the Haines pipeline, NWA alignment and under the Alaska highway to a sedge-grass marsh (diagonal lines on following figure) bordering a large pond. The lower reaches of the pond outlet are indistinct on the aerial photographs, flowing northwest to Dry Creek or Johnson Slough or both. The stream channel is indistinct at the Haines pipeline and NWA alignment crossings, forming a single channel about 200 ft above the Alaska highway. About 300 ft downstream from the highway there are debris dams producing falls up to 3 ft. No flow was observed at the Alaska highway after 19 May 1981.

The drainage crossing the highway at milepost 1376.8 is apparently a distributary from the above stream. No flow was observed there at any time in 1981.

Fish use of Unnamed Creek (RX 105-2) is not possible above the sedge-grass marsh due to falls and short duration of surface flow.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Sears Creek EMG-RX 106-1
 Main Drainage Tanana River Tributary to Johnson Slough
 NWAMP 594.79 AHMP 1374.4
 USGS Map Reference Mt. Hayes (C-1), AK T 22N R 5E Sec. 16

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>X</u>	<u>R</u>
Summer	<u>DV, GR</u>	<u>R</u>
Fall	<u>None</u>	

Stream and streamside characteristics are described by Chihuly et al. (1980).

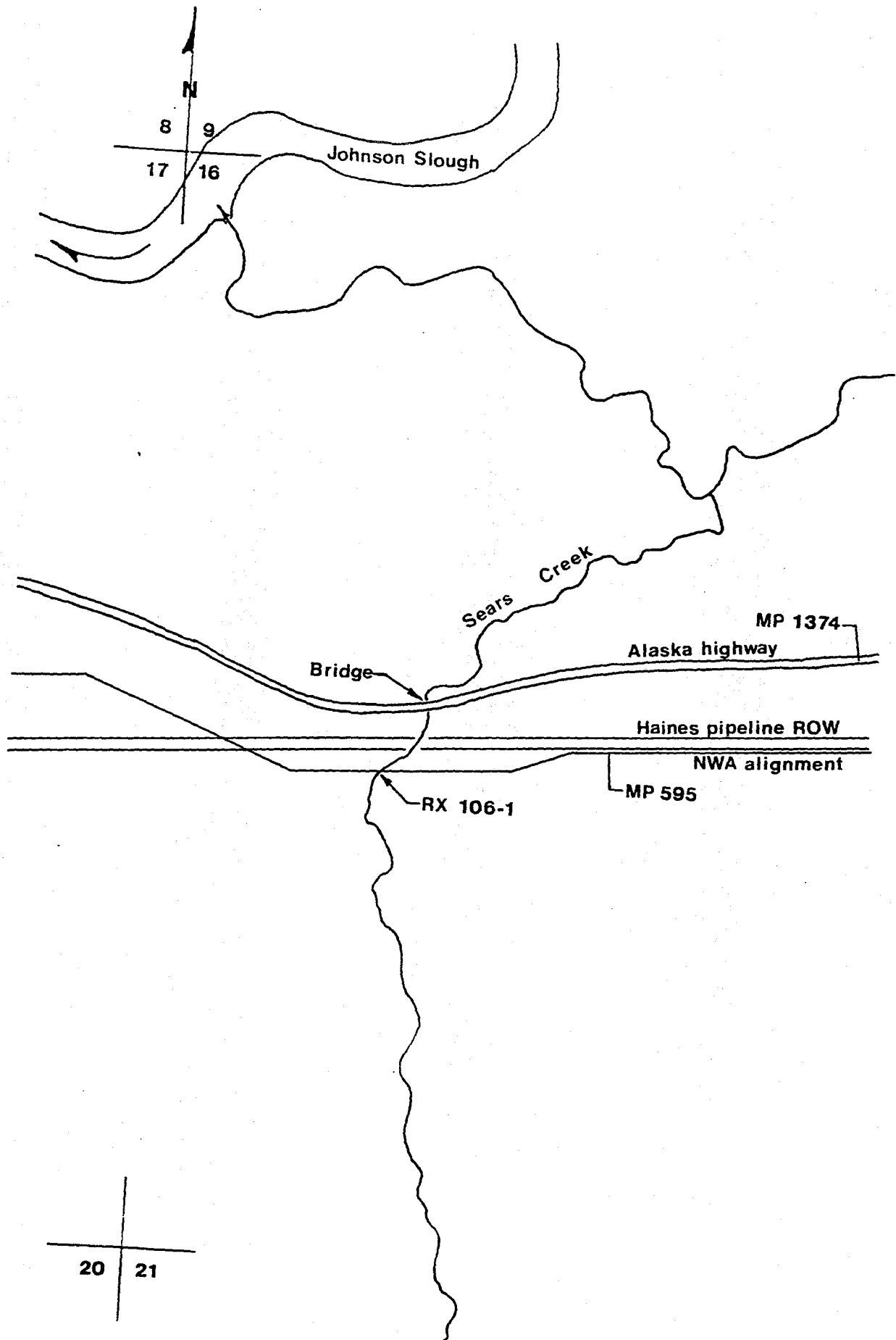
During 1981, Sears Creek provided summer rearing habitat for juvenile Arctic grayling and Dolly Varden. No fish were seen or captured upstream from any of the beaver dams found below the Alaska highway. In addition to the species documented in 1981, previous documentation includes: spring - grayling and longnose sucker; fall - grayling (Chihuly et al. 1980).

During late September, road crews tore apart the largest beaver dam just below the highway bridge and built an earthen fill detour around the bridge. The two smaller beaver dams downstream remained intact. If all the dams are removed and beaver activity is not resumed, fish will again be able to utilize this stream up to and above the NWA alignment.

Sears Creek is believed to provide winter habitat for fish (Chihuly et al. 1980). Instream construction in overwintering streams or streams that

provide water to downstream overwintering areas has the potential for maximum adverse impacts to the fishery during a critical period and should be prohibited.

Data collected in 1981 are presented in Appendix IV.



Waterbody	<u>Berry Creek</u>	EMG-RX	<u>106-2</u>
Main Drainage	<u>Tanana River</u>	Tributary to	<u>Johnson Slough</u>
NWAMP	<u>597.93</u>	AHMP	<u>1371.4</u>
USGS Map Reference	<u>Mt. Hayes (C-1), AK</u>	T	<u>22N</u> R <u>5E</u> Sec. <u>13</u>

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>BB, CN, GR, LS, RW</u>	<u>M, R, S</u>
Summer	<u>BB, CN, DV, GR, LS, RW</u>	<u>R</u>
Fall	<u>CN, GR, LS</u>	<u>M, R</u>

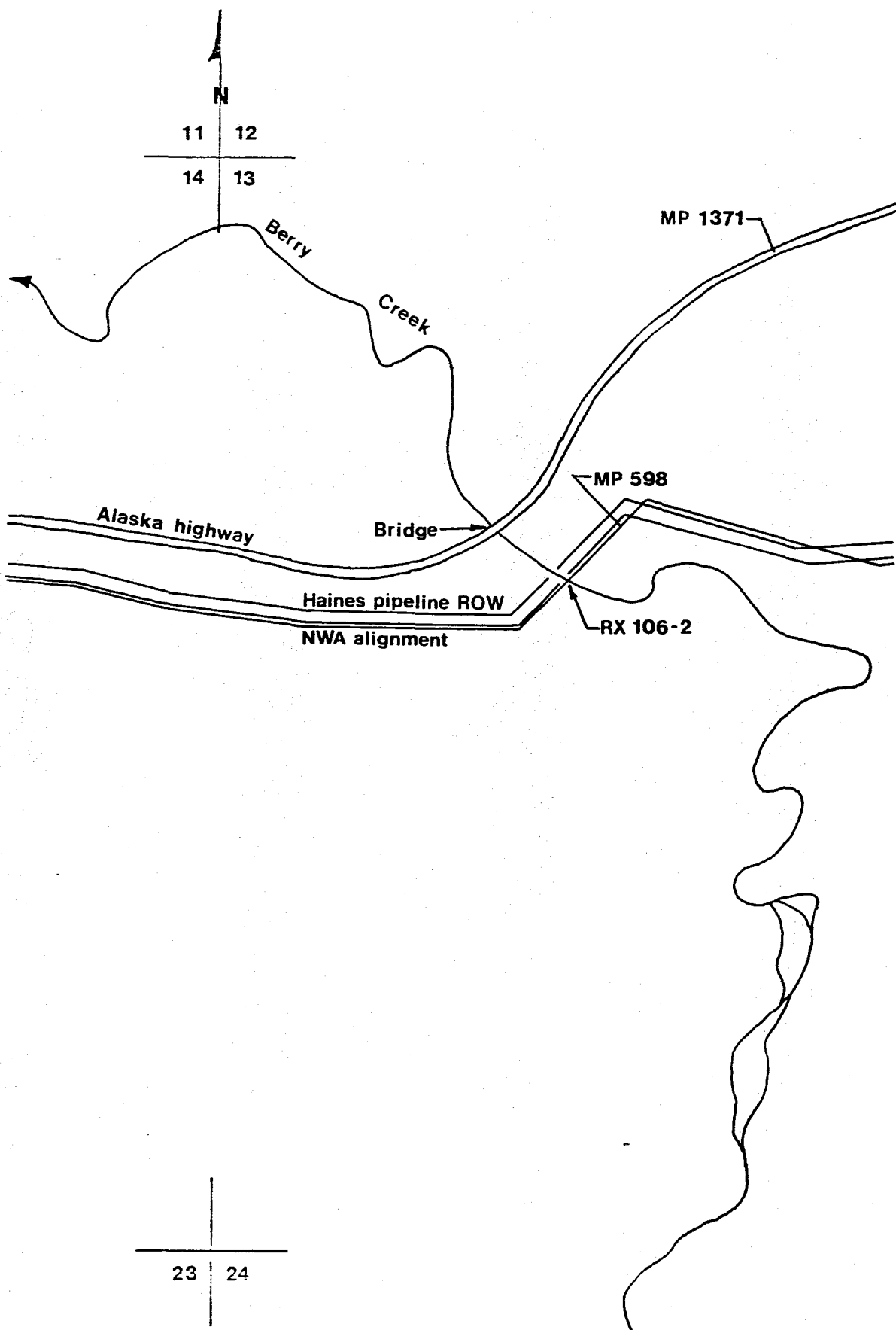
Stream and streamside characteristics are described by Chihuly et al. (1980).

The presence of a spring run of adult grayling and numerous early grayling fry in early summer indicates spawning occurs in the vicinity of or upstream from the NWA alignment. The presence of ripe longnose suckers strongly indicates spawning use by that species. This stream serves as an important summer rearing area for a diverse fishery. In addition to the species documented in 1981, previous documentation includes winter use by slimy sculpin and Dolly Varden (Chihuly et al. 1980).

Although the overwintering value of Berry Creek at the NWA alignment has been considered questionable, the presence of well oxygenated water during previous late winter investigations (Chihuly et al. 1980) indicates there is a high probability of nearby overwintering areas. Instream construction in overwintering streams or streams that provide water to down-

stream overwintering areas has the potential for maximum adverse impacts to the fishery during a critical period and should be prohibited.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Unnamed Creek EMG-RX 106-3

Main Drainage Tanana River Tributary to Sam Creek

NWAMP 600.10 AHMP 1369.1

USGS Map Reference Mt. Hayes (C-1), AK T 22N R 6E Sec. 17

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>GR</u>	<u>R, S?</u>
Summer	<u>CN, DV, GR, RW</u>	<u>R</u>
Fall	<u>GR</u>	<u>R</u>

Stream and streamside characteristics are as described by Chihuly et al. (1980) for Unnamed Creek 1369.1. The spill distance from the culvert bottom to the scour pool water surface was 2.2 ft at 3.5 cfs. There is an additional 2.0 ft drop through the last 11 ft of the culvert due to separation of the culvert top at the road grade.

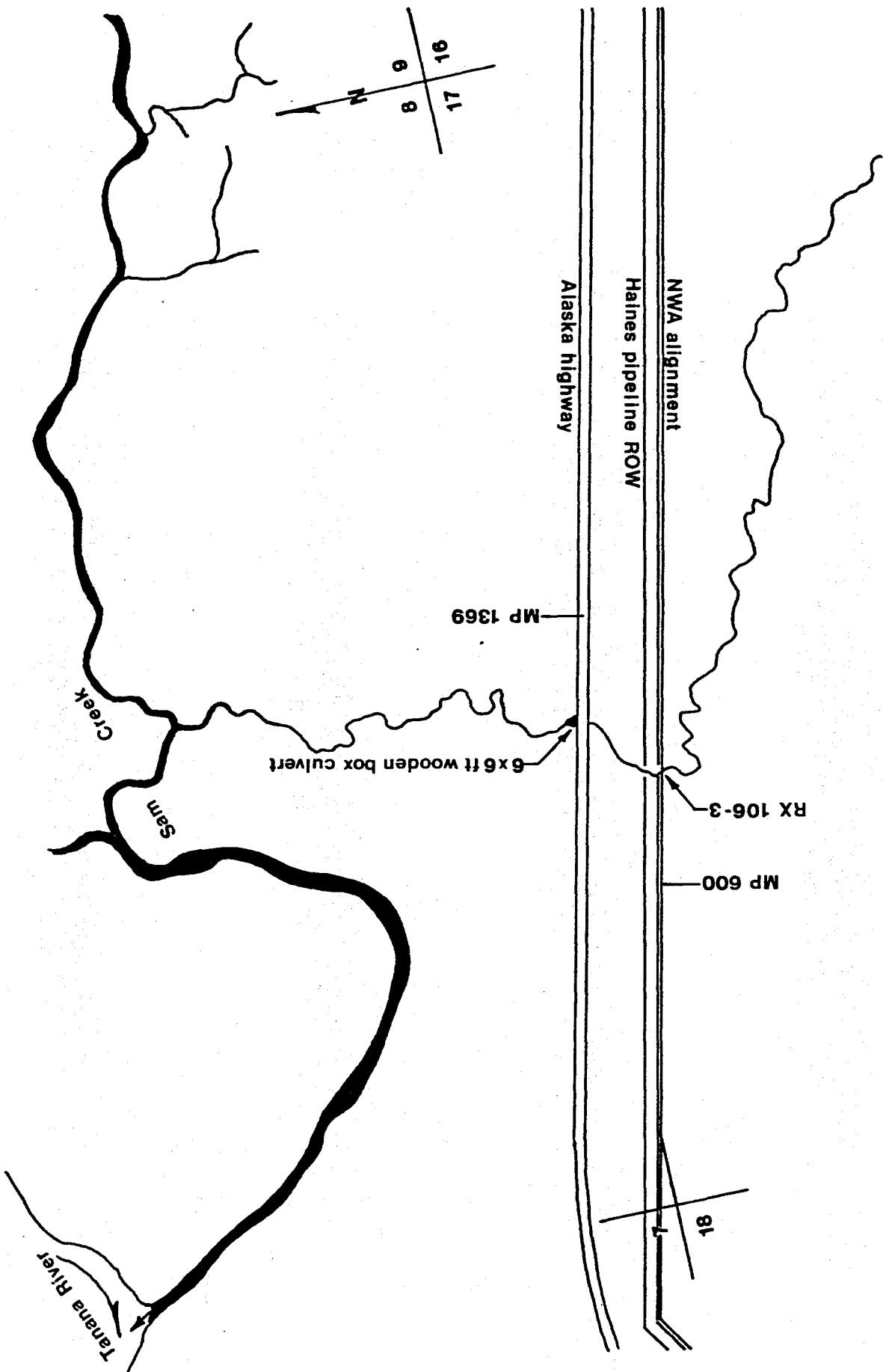
This stream provides excellent fish habitat from its mouth at least to the NWA alignment and probably for several miles above that point. When the present barrier at the Alaska highway is replaced with a structure designed to allow fish passage, all fish species present will be found in the vicinity of the proposed NWA crossing.

This stream is utilized as a summer rearing area by large numbers of adult and juvenile grayling and slimy sculpin with occasional use by round whitefish and Dolly Varden. In addition to the species documented in 1981, previous documentation includes: spring - slimy sculpin; summer - longnose

sucker; fall - slimy sculpin and round whitefish (Chihuly et al. 1980). The presence of adult-sized grayling in the spring and young-of-the-year grayling in the fall indicates spawning occurs in this stream or nearby in Sam Creek.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery.

Data collected in 1981 are presented in Appendix IV.



Waterbody Noklay Creek EMG-RX 107-2
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 604.76 AHMP 1364.4
 USGS Map Reference Mt. Hayes (C-1), AK T 22N R 6E Sec. 24

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u>S</u>
Summer	<u>NP</u>	<u>R</u>
Fall	<u>None</u>	<u></u>

This stream is described by Chihuly et al. (1980) as Unnamed Creek 1364.4. The 72 in CMP draining this stream beneath the Alaska highway is bowed down under the roadbed, producing high velocities in the upper end. The 48 in CMP is set higher than the larger CMP, and did not carry any flow in 1981.

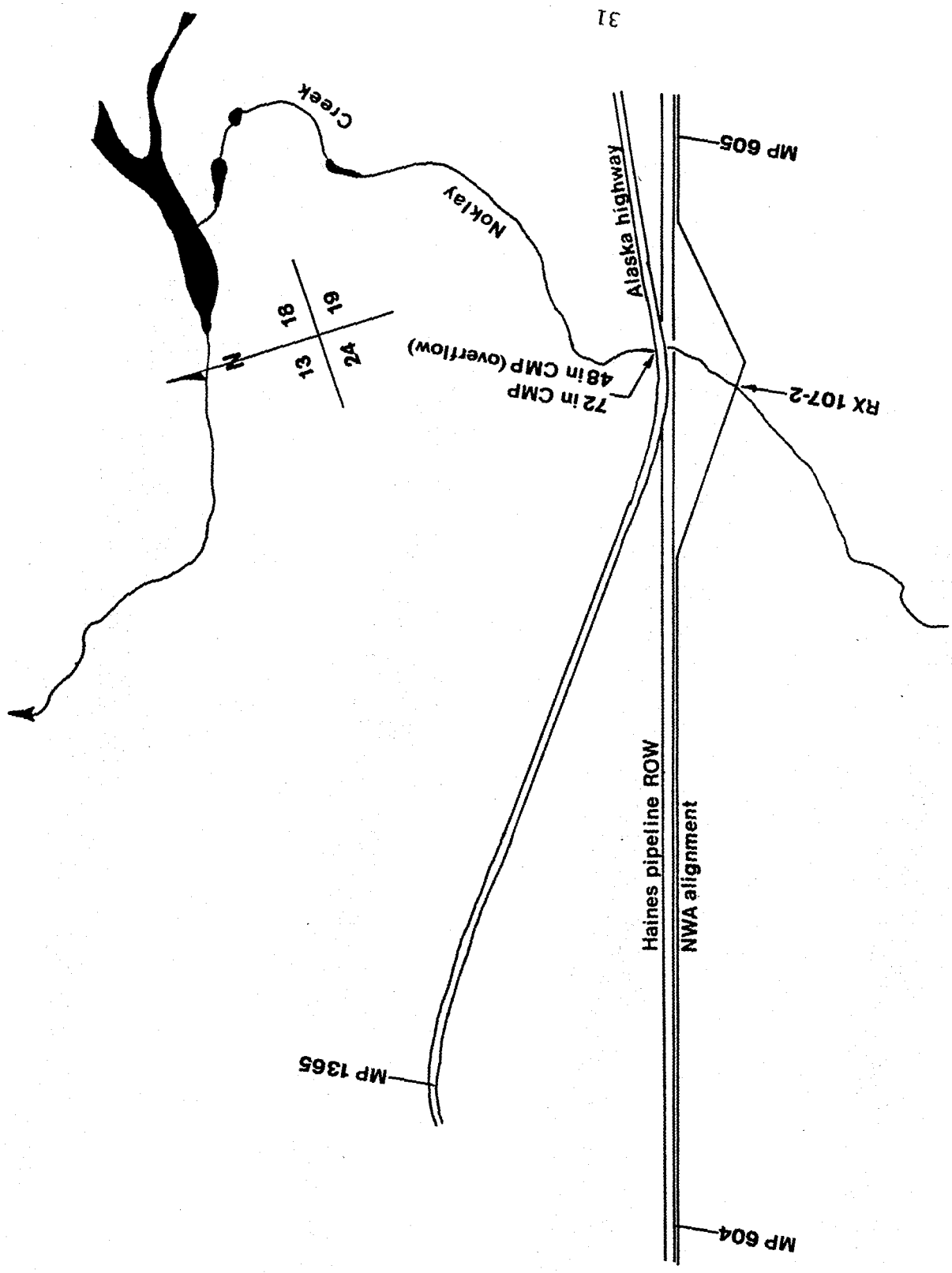
Fish use of Noklay Creek in the vicinity of the Alaska highway was limited to rearing by young-of-the-year northern pike in 1981. Their presence indicates spawning occurs in nearby downstream reaches. The highway culvert appears to be a barrier to upstream movement of small fish.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery downstream from the NWA alignment.

Data collected in 1981 are presented in Appendices I and III.

Waterbody
Noklay Creek
EMG-RX 107-2

13 24
14 23



Waterbody Chief Creek EMG-RX 108-4
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 610.32 AHMP 1358.6
 USGS Map Reference Mt. Hayes (C-1), AK T 21N R 7E Sec. 2

FISHERIES ASSESSMENT

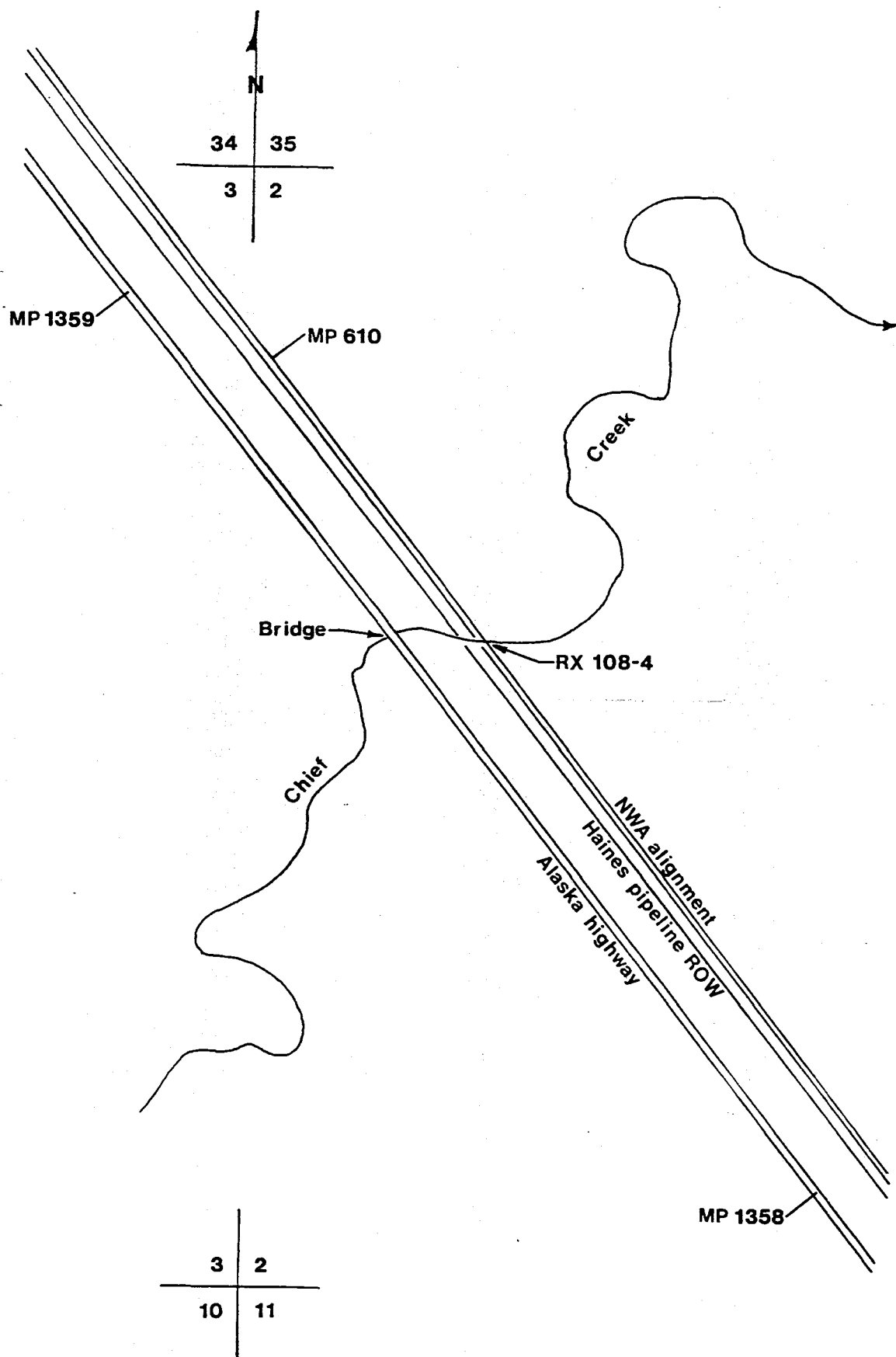
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>GR</u>	<u>R</u>
Fall	<u>None</u>	<u></u>

Chief Creek is adequately described by Chihuly et al. (1980). During 1981, stream flow was intermittent, with extreme and erratic fluctuations. Less than a week after the years' peak flow event on 9 June, the stream was dry at the Alaska highway. Flow resumed at low levels during July then ceased in early August for the remainder of the season.

Part of the Chief Creek headwaters is adjacent to the Bear Creek channel and the flow of the two streams may be interrelated. Local residents recalled past years when "the flow in Chief Creek was up while the flow in Bear Creek was down".

Fish use of Chief Creek was very low in 1981. Only one adult grayling was captured on 28 July.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Bear Creek EMG-RX 109-1

Main Drainage Yukon River Tributary to Tanana River

NWAMP 611.66 AHMP 1357.3

USGS Map Reference Tanacross (C-6), AK T 21N R 7E Sec. 11, 12

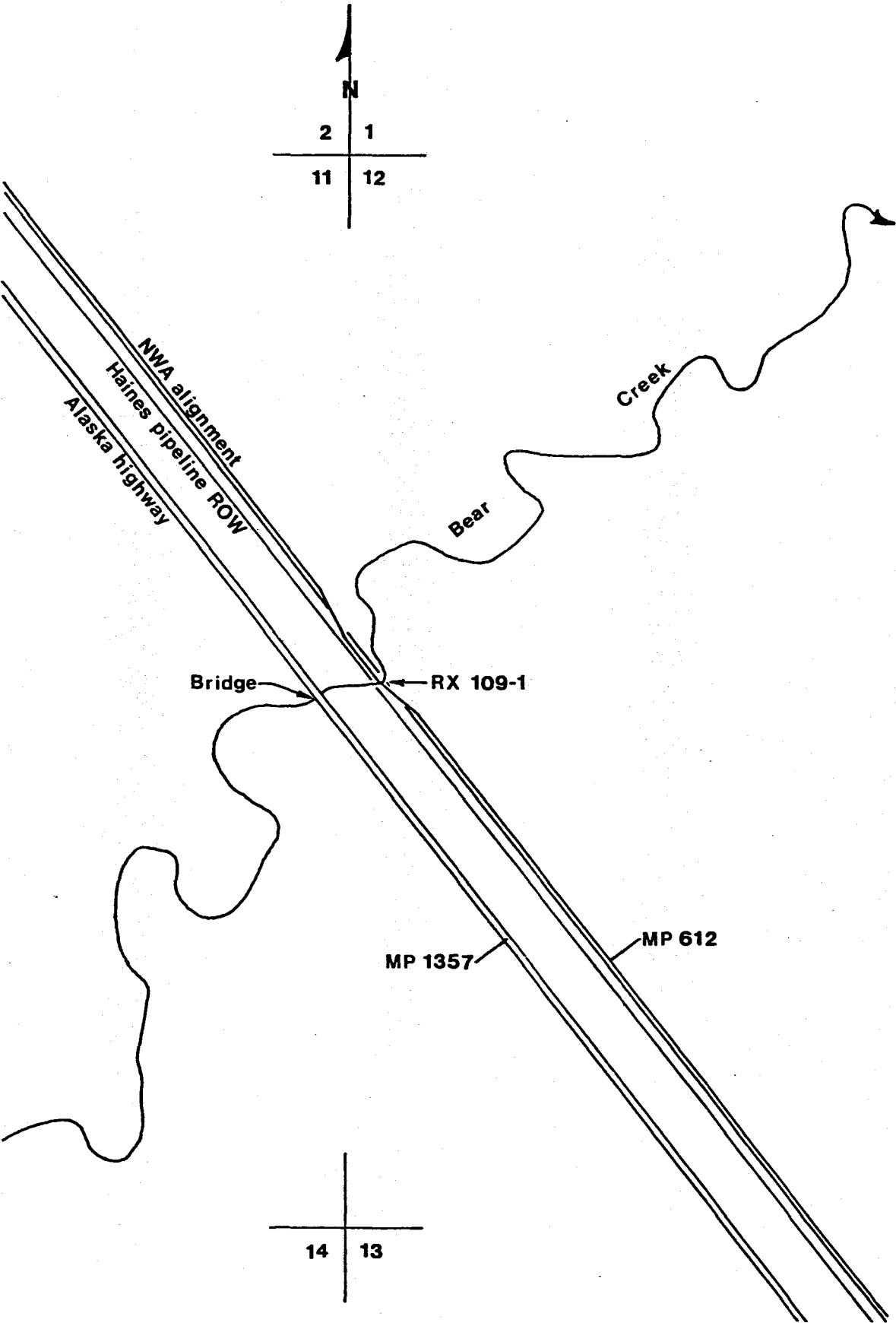
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>X</u>	<u>M, R, S</u>
Summer	<u>BB, CN, GR, LS</u>	<u>R</u>
Fall	<u>CN, GR</u>	<u>M, R</u>

Bear Creek is adequately described by Chihuly et al. (1980).

In addition to the species documented in 1981, previous documentation includes: spring - grayling; summer - Dolly Varden (Chihuly et al. 1980). An abundance of young-of-the-year grayling found in this stream in the vicinity of the proposed NWA crossing throughout the summer and fall indicates spawning use by this species within or upstream from the proposed NWA pipeline corridor.

Data collected in 1981 are presented in Appendix IV.



Waterbody Pisstrickle Creek EMG-RX 110-3
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 619.68 AHMP 1349.4
 USGS Map Reference Tanancross (C-6), AK T 20N R 8E Sec. 14

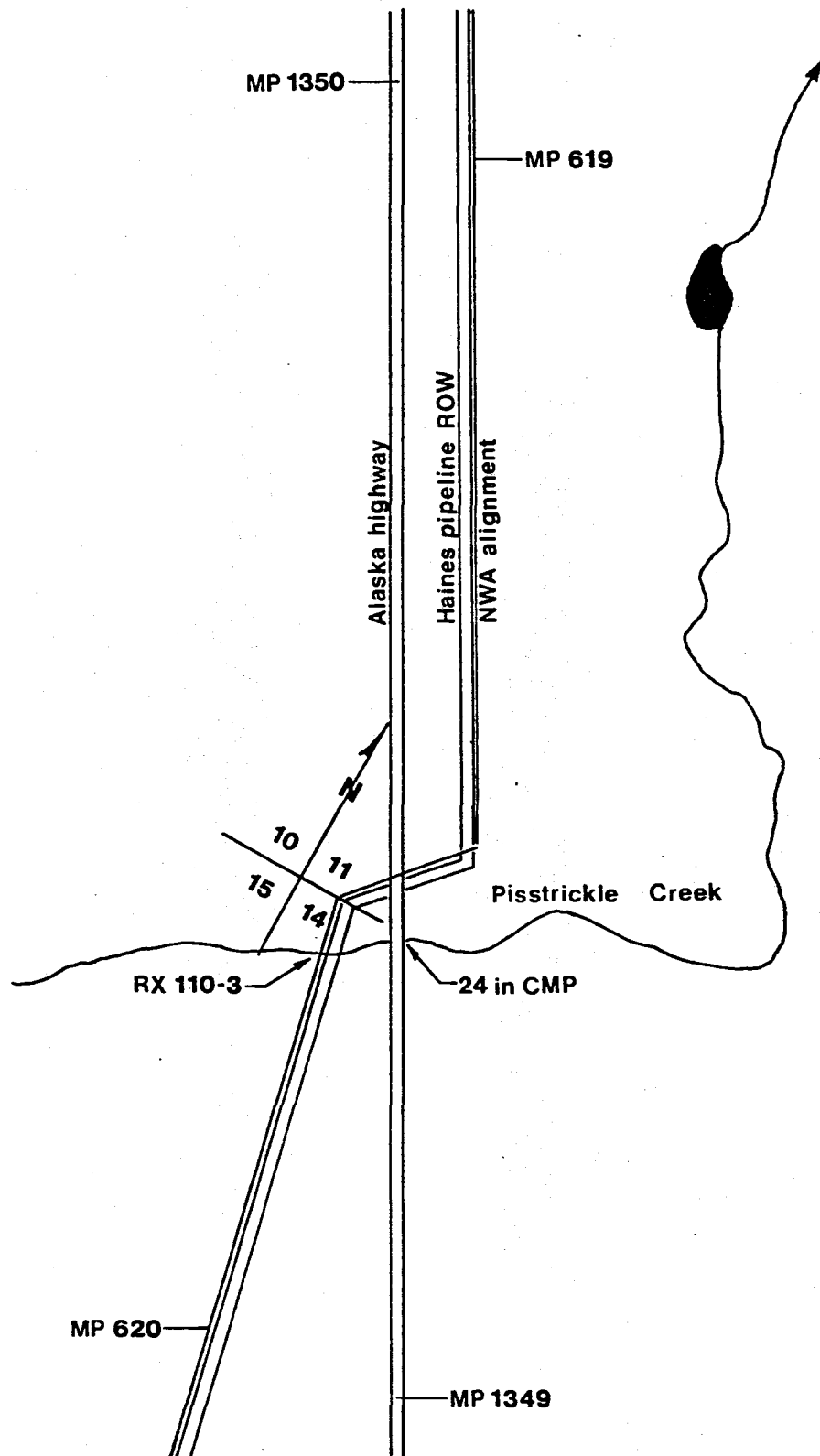
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This small stream flows northwest out of a pothole area adjacent to the Robertson River, crossing the NWA alignment and Alaska highway then turning north to the Tanana River. In the vicinity of the proposed NWA crossing the stream flows in a narrow incised channel with a moderate gradient. Stream flow peaked at less than 1 cfs after an early summer rain storm then tapered off to a trickle by mid-July. The culvert at the Alaska highway is perched about 5 ft.

Fish use of Pisstrickle Creek in the vicinity of the proposed NWA crossing is not possible due to the highway culvert barrier and very low flows.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Robertson River EMG-RX 110-4
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 621.2 - 621.5 AHMP 1347.3 - 1347.6
 USGS Map Reference Tanacross (B-6,C-6),AK T 20N R 8E Sec. 23

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>GR, LC, RW</u>	<u>M, R</u>

The Robertson River is adequately described by Chihuly et al. (1980). In addition to the species documented in 1981, they documented spring use by slimy sculpin, Arctic grayling and whitefish as well as year-round use of upstream clearwater tributaries by round whitefish, grayling and Dolly Varden. Overwintering slimy sculpin and grayling were captured in the Robertson River just below the mouth of one of these tributaries (Van Hyning 1978).

Continually flowing water during the winter at the proposed NWA crossing has been previously documented (Chihuly et al. 1980). Although winter fish use has not been documented and winter habitat is considered poor at this locality, any stream with continually flowing water of good quality during the winter should be considered an overwintering area or in close proximity to an overwintering area. Instream construction in overwintering streams or streams that provide water to downstream overwintering areas has

the potential for maximum adverse impacts to the fishery during a critical period and should be prohibited.

Data collected in 1981 are presented in Appendix IV.

Waterbody No Creek EMG-RX 111-1
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 623.54 & 623.60 AHMP 1345.3
 USGS Map Reference Tanacross (B-6), AK T 20N R 8E Sec. 34

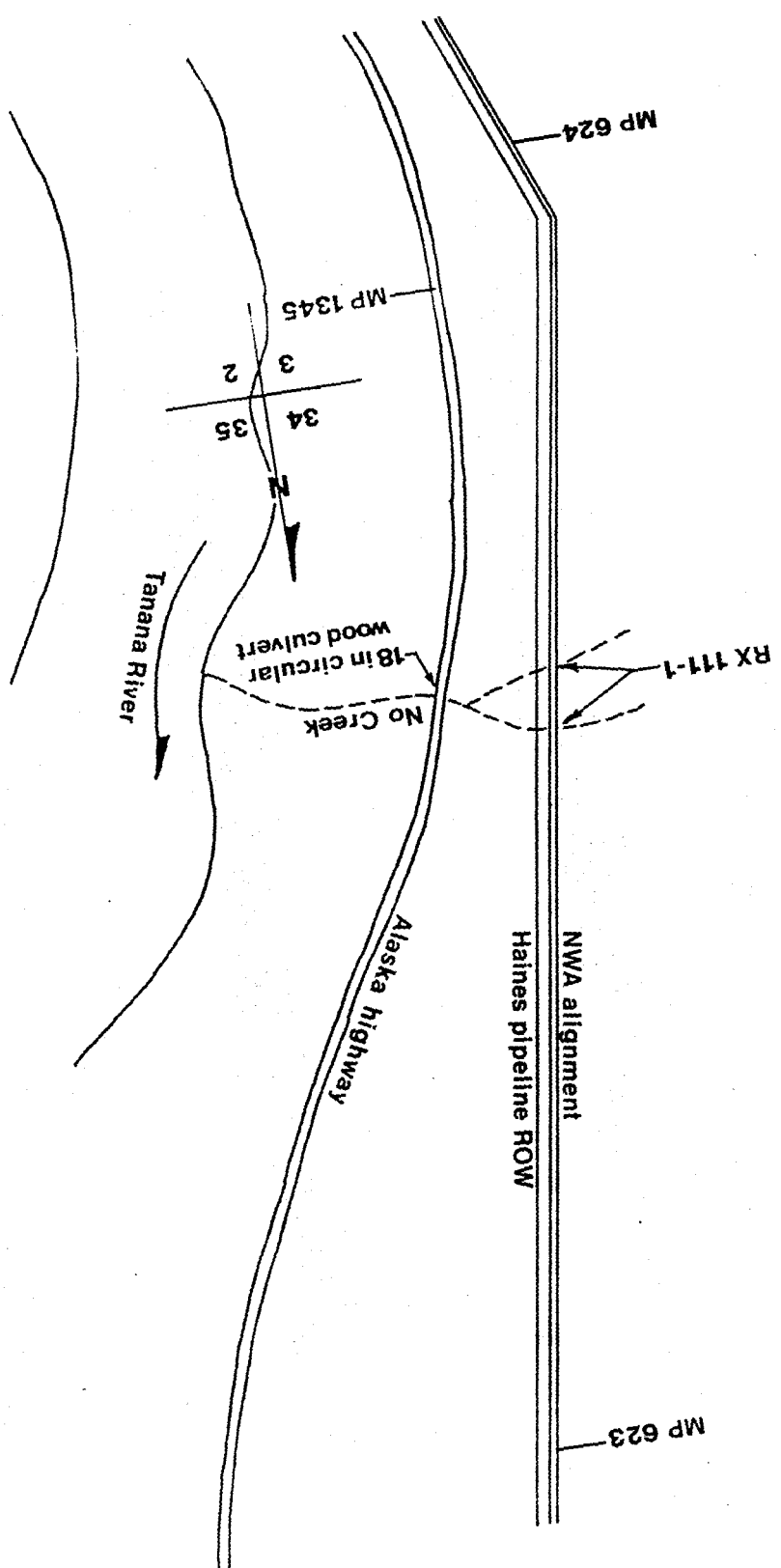
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

No Creek is as named. This short drainage crosses the NWA alignment in two locations, joining just above the Alaska highway then continuing east below the highway to the Tanana River. The drainage floor is completely overgrown with terrestrial vegetation with no sign of surface flowing water in the past. No surface flow was observed in 1981.

No Creek offers no fish habitat.

Data collected in 1981 are presented in Appendices I and III.



41

Waterbody
No Creek
EMG-RX 111-1

Waterbody Weasel Creek EMG-RX 111-2

Main Drainage Yukon River Tributary to Tanana River

NWAMP 624.87 AHMP 1344.0

USGS Map Reference Tanacross (B-6), AK T 19N R 8E Sec. 2

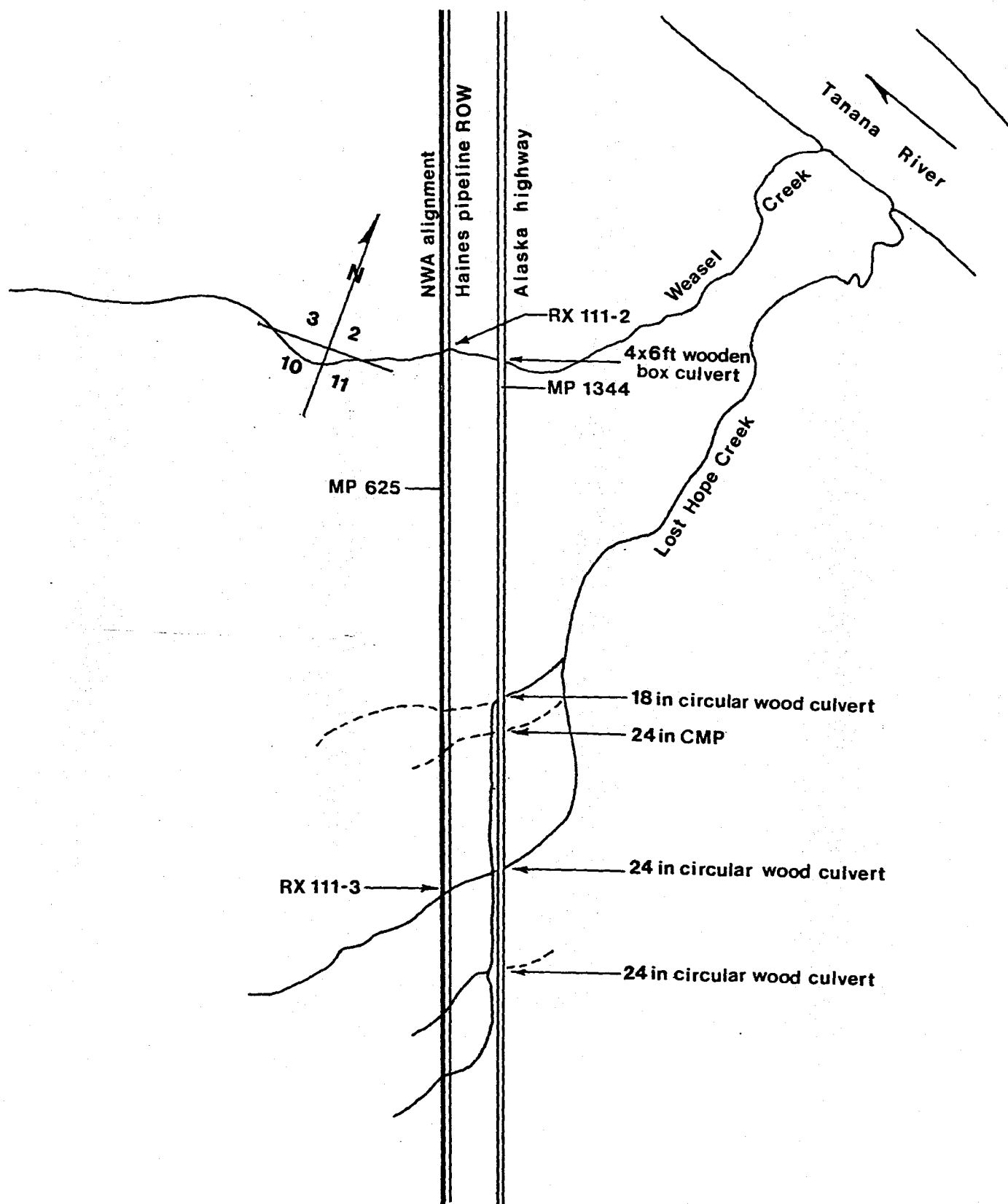
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Weasel Creek flows east out of the Alaska Range to the Tanana River. In the vicinity of the Alaska highway and the proposed NWA crossing, this small stream flows through a well-defined channel with gravel substrate. During 1981, surface flowing water was observed at the highway only during the spring.

Fish use of Weasel Creek in the vicinity of the NWA alignment is unlikely due to barriers formed by the Alaska highway culvert, debris dams below the highway and the intermittent nature of this stream.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Lost Hope Creek EMG-RX 111-3

Main Drainage Yukon River Tributary to Tanana River

NWAMP 625.39 AHMP 1343.5

USGS Map Reference Tanacross (B-6), AK T 19N R 8E Sec. 11

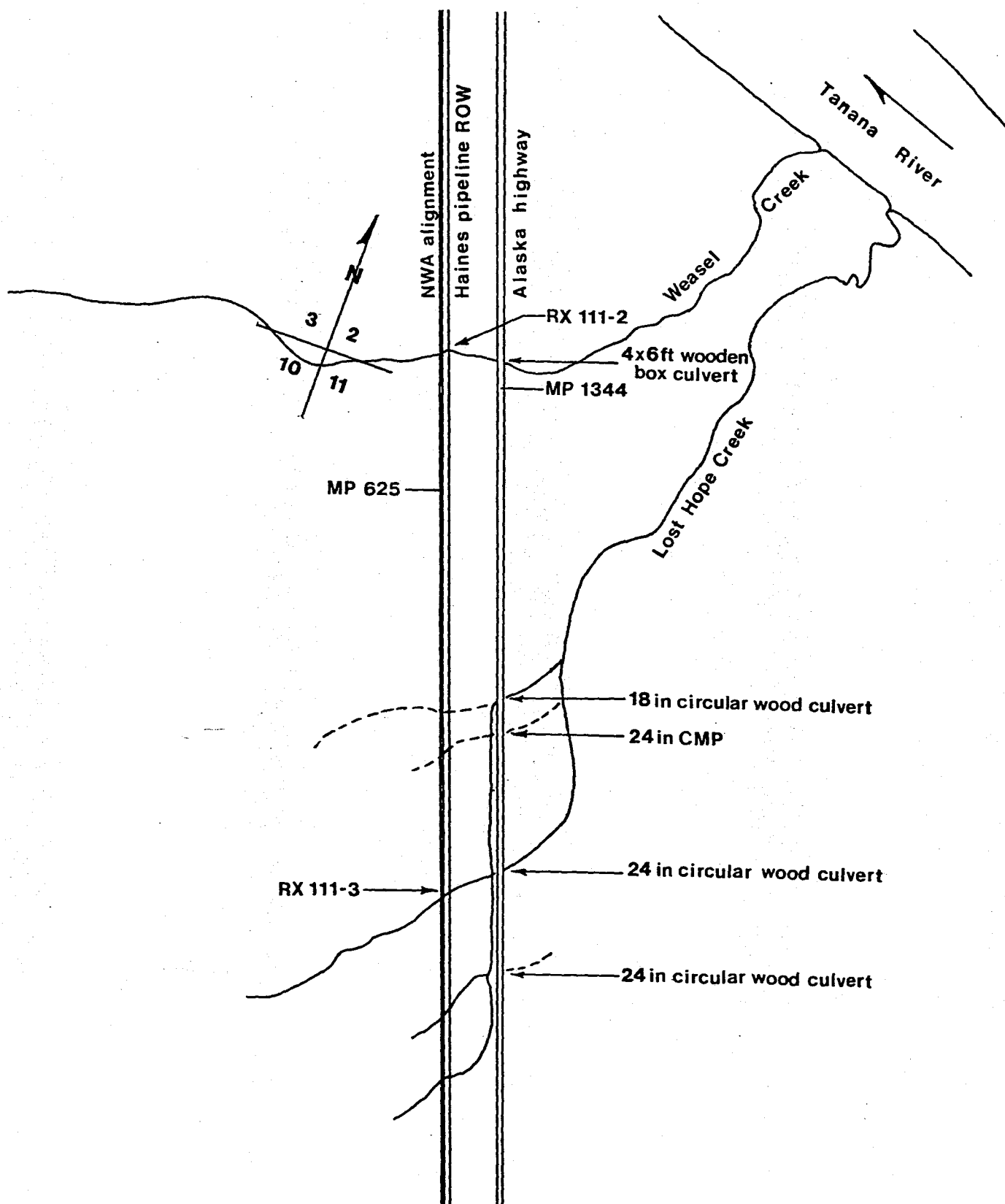
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are as described by Chihuly et al. (1980) for Unnamed Creek 1343.7. During 1981, flowing water was observed at the Alaska highway until mid-July, after which no flow was observed for the remainder of the season. At a low flow level in mid-May, surface flow went subterranean between the highway and the streams' mouth.

Fish use of Lost Hope Creek in the vicinity of the proposed NWA crossing is unlikely due to the intermittent nature of this stream.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Sheep Creek EMG-RX 111-4

Main Drainage Yukon River Tributary to Tanana River

NWAMP 626.75 - 626.96 AHMP 1342.2

USGS Map Reference Tanacross (B-6), AK T 19N R 8E Sec. 14

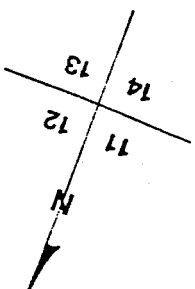
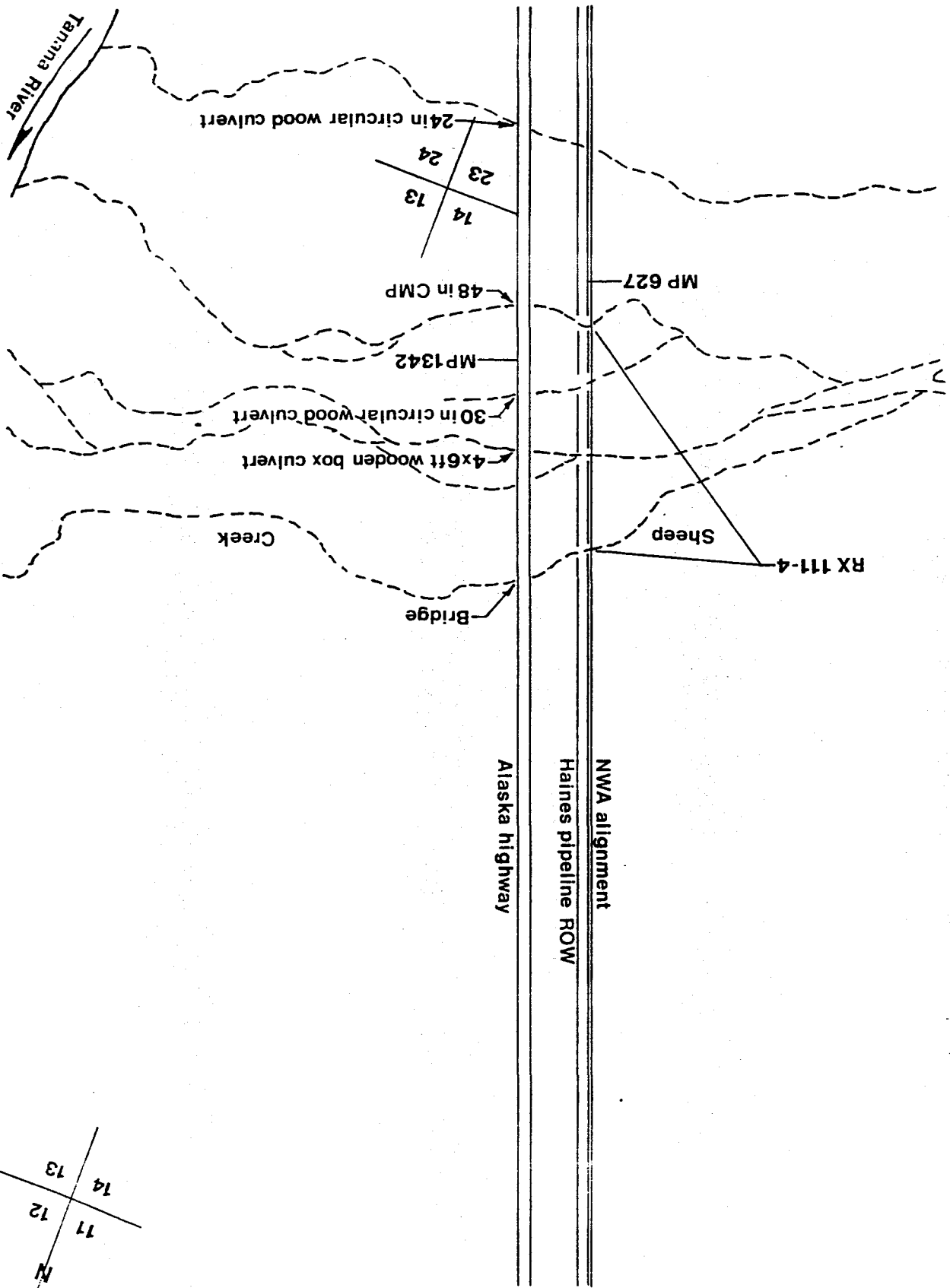
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Sheep Creek is adequately described by Chihuly et al. (1980). During 1981, surface flow was observed in this stream at the Alaska highway only in May. Local residents report a more persistent flow in the upper drainage. Several distributary channels cross the Alaska highway to the south of the Sheep Creek bridge as shown on the following figure. No flow was observed in these channels at the highway throughout the entire season in 1981.

Fish use of Sheep Creek is unlikely unless stream flow in the upper drainage persists through the winter. There is no continuous surface flow to the Tanana River during the fall emigration period.

Data collected in 1981 are presented in Appendices I and III.



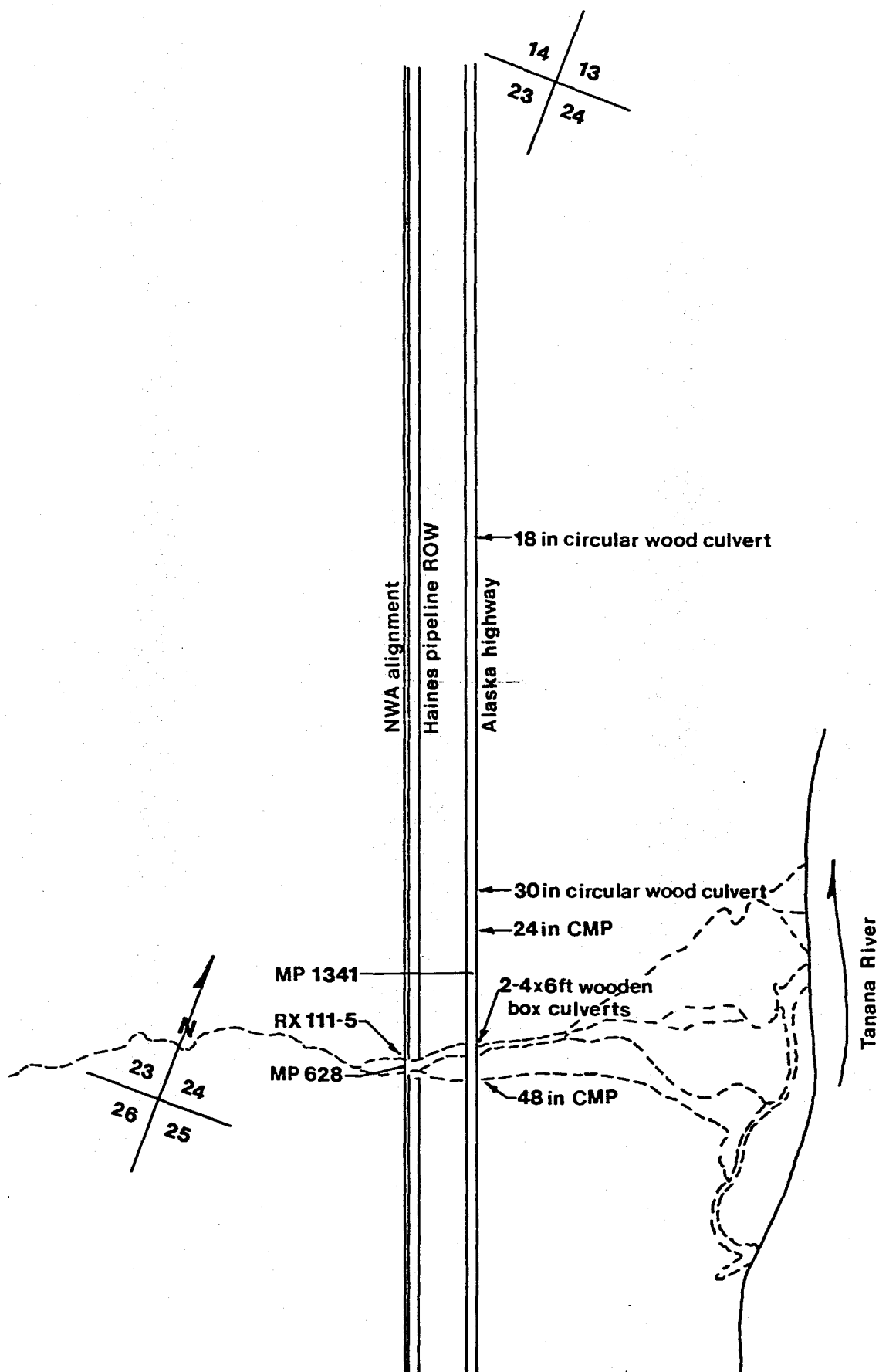
Waterbody Unnamed Creek EMG-RX 111-5
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 628.00 AHMP 1340.9
 USGS Map Reference Tanacross (B-6), AK T 19N R 8E Sec. 24

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

At the Alaska highway and the NWA alignment, this drainage is a broad gravel and cobble-filled channel. No surface flow was observed at the Alaska highway at any time during 1981. No fish habitat was present in the vicinity of the proposed NWA crossing.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Unnamed Creek EMG-RX 112-1.5

Main Drainage Yukon River Tributary to Tanana River

NWAMP 629.17 - 629.23 AHMP 1339.8

USGS Map Reference Tanacross (B-6), Ak T 19N R 8E Sec. 25

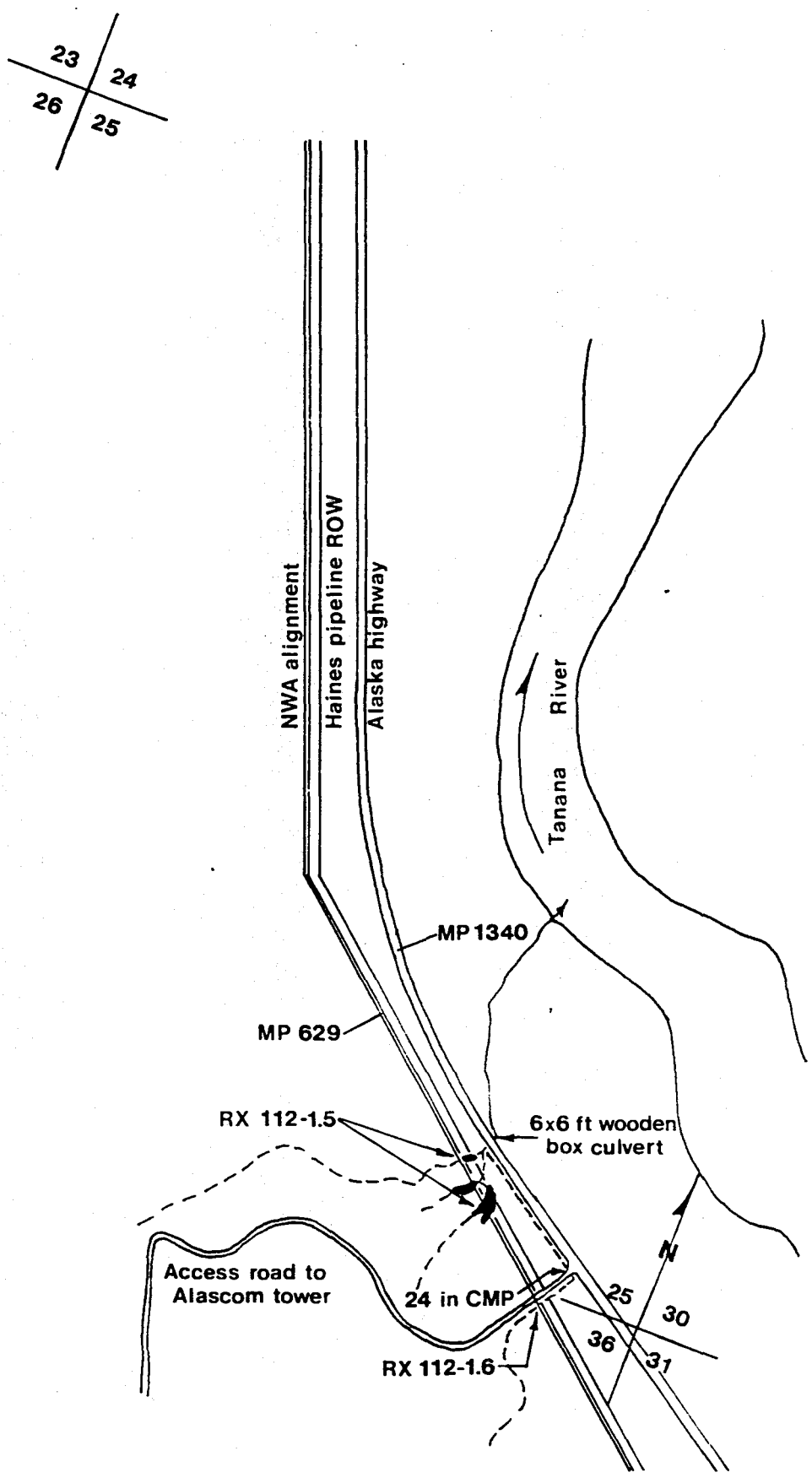
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>WF fry</u>	<u>R</u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This drainage is described as Unnamed Creek 1339.8 by Chihuly et al. (1980). Stream flow through the Alaska highway culvert occurred only during spring breakup and after storm events. A tributary channel entering from the southeast (RX 112-1.6) was observed flowing only during spring breakup.

Fish use is restricted to the slough below the Alaska highway as described by Chihuly et al. (1980). The slough is a backwater from the Tanana River and its water level depends on the river stage. When the river was high, water backed up to the highway culvert. When the river was low, no water was visible from the highway.

Data collected in 1981 are presented in Appendix IV.



Waterbody Cathedral Rapids Creeks EMG-RX 112-2 to 112-8
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 629.75 - 630.92 AHMP 1339.2 - 1338.1
 USGS Map Reference Tanacross (B-6), AK T 19N R 9E Sec. 31, 32

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

These drainages are as described by Chihuly et al. (1980). During 1981, water flow was present in these channels at the Alaska highway only after major storm events. On 7 September, about 4 cfs was observed flowing in the #2 (RX 112-7) upper drainage. The downstream limit of surface flow was about 1 mi above the Alaska highway.

Discontinuous surface flow to the Tanana River for most of the season and very steep gradient makes fish use in the upper drainages highly unlikely.

Data collected in 1981 are presented in Appendix IV.

Waterbody Unnamed Creek EMG-RX 112-9
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 632.32 - 632.48 AHMP 1336.9
 USGS Map Reference Tanacross (B-6), AK T 19N R 9E Sec. 33

FISHERIES ASSESSMENT

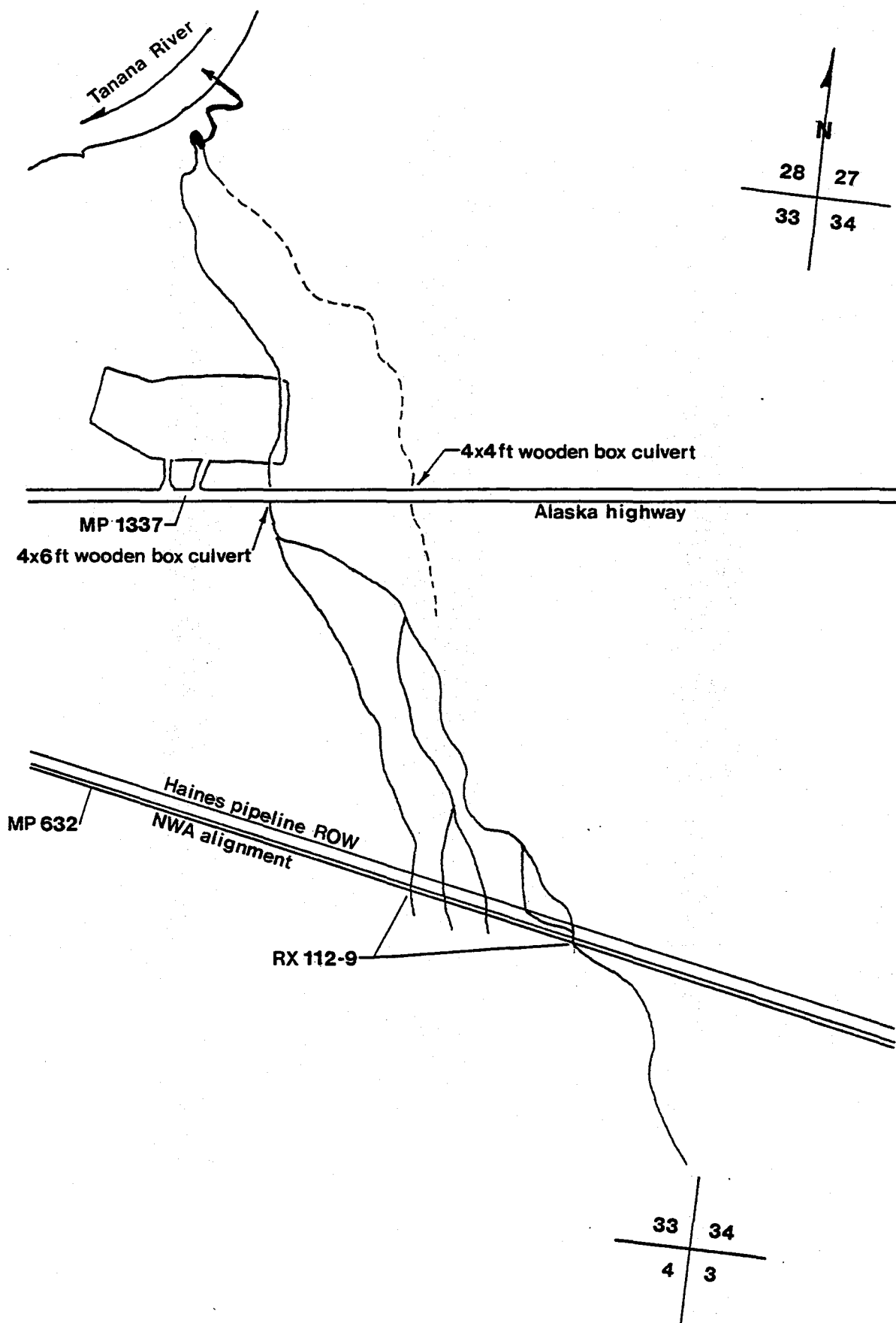
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are similar to those described for Unnamed Creek 1336.9 #2 by Chihuly et al. (1980). The northeasterly flowing branch was not found. Most of the flow in this drainage crosses the NWA alignment at NWAMP 632.48, the easternmost crossing. Most of the flow of this branch was captured by the Haines pipeline workpad, flowing through muskeg in a poorly defined channel for about 500 ft, then over a 6 ft drop before returning to its historic channel. Below that point the channel is well-defined for most of its length to its mouth at the Tanana River. Above the highway the stream substrate is sand and mud. Below the highway there are reaches with gravel and some cobble. Several minor channels enter the west side of this stream upstream from the highway. These channels are poorly defined, flowing through muskeg. Below the highway there are several drops up to 3 ft downstream from a material site.

During 1981, stream flow declined after spring rains until early August, when there was no flow at the Alaska highway. A slight flow was observed in the fall for a short period.

Fish use in this stream for more than 1000 ft upstream from the Tanana River is unlikely due to sharp drops in the channel. During periods of declining flow, fish use is probably restricted to the slough-like reach near the river.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody	<u>Yerrick Creek</u>	EMG-RX	<u>113-1</u>
Main Drainage	<u>Yukon River</u>	Tributary to	<u>Tanana River</u>
NWAMP	<u>634.71 - 634.73</u>	AHMP	<u>1333.6</u>
		18N	9E 1
USGS Map Reference	<u>Tanacross (B-6), AK</u>	T 19N	R 9E Sec. 36

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>DV, GR</u>	<u>M, R, S</u>
Summer	<u>DV, GR, RW</u>	<u>R</u>
Fall	<u>DV, GR</u>	<u>M, R, S</u>

Stream and streamside characteristics are described by Chihuly et al. (1980). There is a consistent loss of surface flow between the NWA alignment and the Alaska highway. Between these points, 28.2 and 26.9 cfs were lost to subterranean flow on 14 July and 15 September, respectively, at two different flow regimes. On 1 July, surface flow ended about 200 ft above the Alaska highway. On 14 July, 10 August and 15 September, surface flow ended at a point about 4500 ft below the highway (as indicated by the solid line on the following figure -- the dashed lines indicate the edge of the active floodplain). The discharge of Yerrick Creek was measured at a level higher than on 14 July on only one occasion, after a week of rain during the first week in June. Apparently, surface flow in Yerrick Creek reaches the Tanana River only occasionally, during high flow events.

Yerrick Creek supports high densities of Arctic grayling and Dolly Varden at the NWA alignment. The wide range of age classes of these two species suggests a resident population in this stream. The presence of ripe

adult grayling in the spring and young-of-the-year Dolly Varden indicates spring and fall spawning use as well as overwintering. In addition to the species documented in 1981, previous documentation includes: summer - slimy sculpin; fall - round whitefish; early winter - grayling (Chihuly et al. 1980).

Apparently the greatest part of the fishery in Yerrick Creek is an isolated, resident population. Recruitment from the Tanana River probably occurs during high flow events in the spring and early summer. Emigration to the Tanana River in the fall is unlikely during most years due to insufficient flow.

The downstream extent of surface flowing water apparently retreats upstream during the winter. Absence of surface flow at the NWA alignment on 24 April 1981 documented the retreat to above the alignment during the winter of 1980-81, although it is unknown if this occurrence is typical.

Instream construction should be timed to avoid critical spawning and overwintering periods.

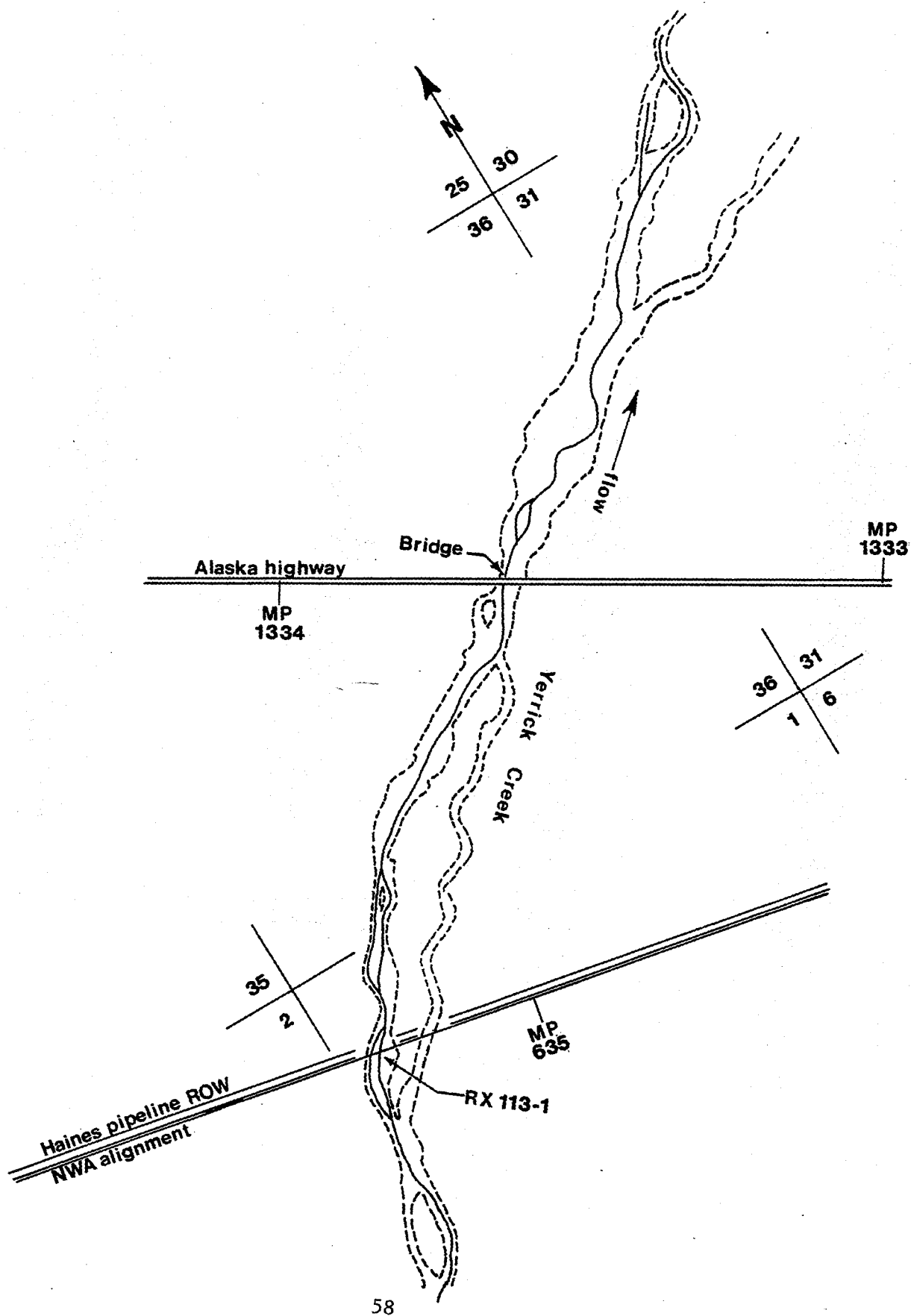
Data collected in 1981 are presented in Appendices II and IV.

Waterbody

Yerrick Creek

EMG-RX

113-1



Waterbody Moon Lake Tributaries EMG-RX 113-2

Main Drainage Tanana River Tributary to Moon Lake

NWAMP 636.88 & 636.93 AHMP 1332.0 & 1331.9

USGS Map Reference Tanacross (B-6), AK T 18N R 10E Sec. 5

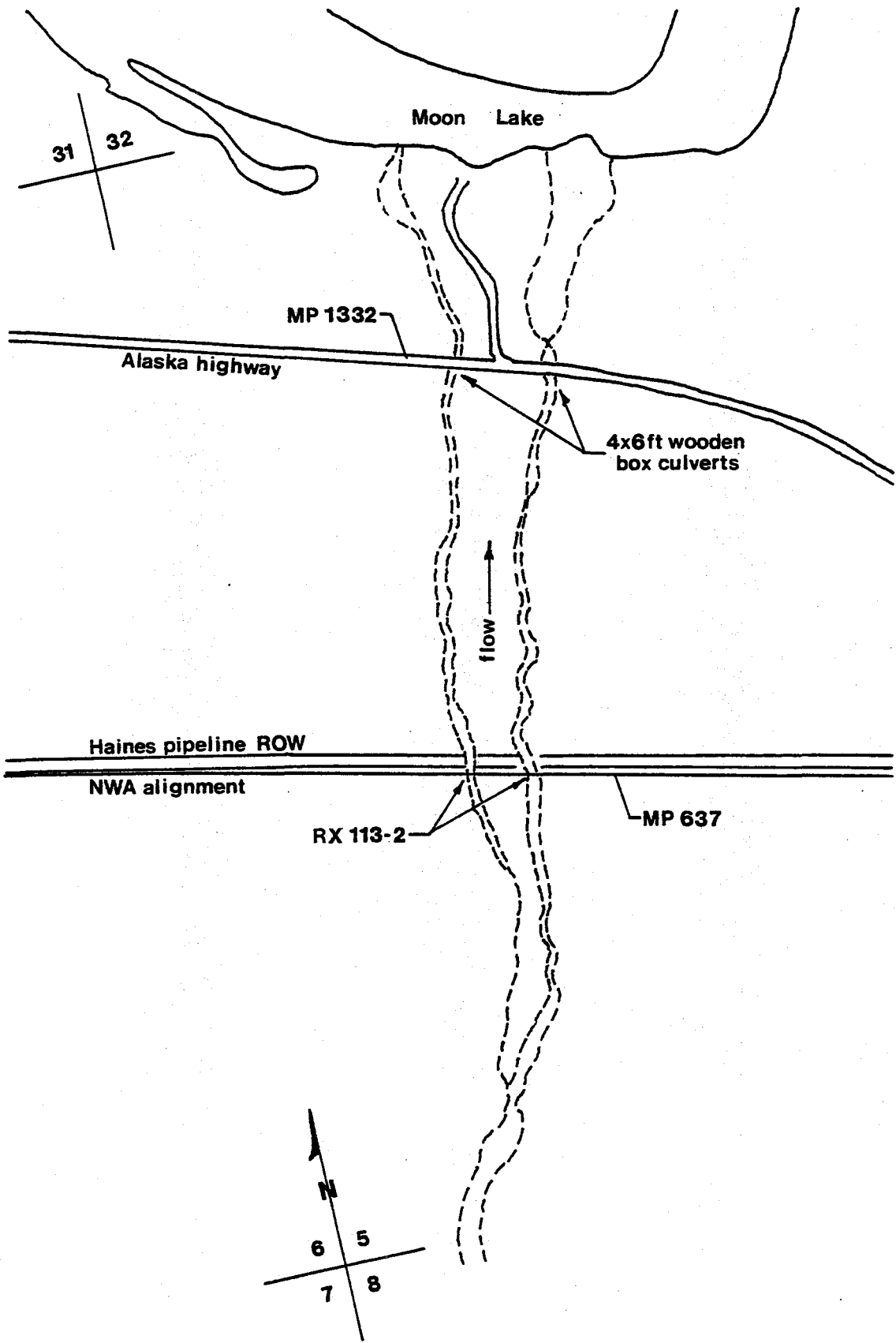
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream characteristics for both channels are described by Chihuly et al. (1980). No surface flow was observed in either channel at the Alaska highway during 1981. Surface flow was reported at the highway on the evening of 8 June (Richard Shideler - pers. comm. to Bach & McDonnell) following heavy rains, but had ceased by the following day. Apparently surface flow is present above the Alaska highway throughout the ice free season, but goes subterranean before reaching the highway. On 13 September, during a time of low and declining flows in nearby streams, surface flow was found going subterranean about 1.5 mi above the highway.

This stream provides no fish habitat at the Alaska highway and fish use above the highway is unlikely due to the steep gradient and very short duration of continuous surface flow to Moon Lake.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Boulder Creek EMG-RX 113-4

Main Drainage Yukon River Tributary to Tanana River

NWAMP 639.22-639.24 AHMP 1329.5

USGS Map Reference Tanacross (B-5), AK T 18N R 10E Sec. 10

FISHERIES ASSESSMENT

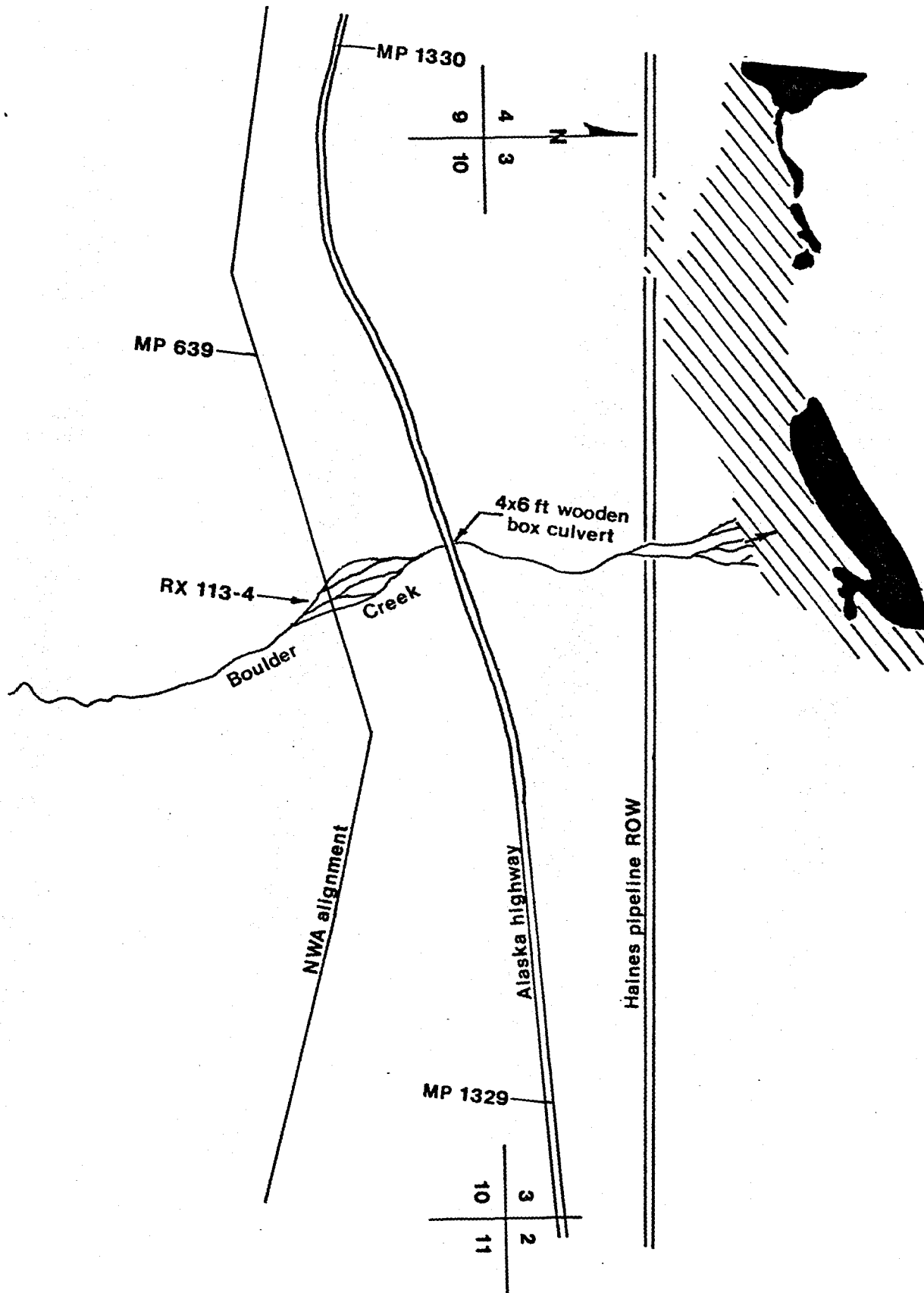
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Boulder Creek is a small high gradient stream flowing through several channels at the NWA alignment. About 300 ft above the Alaska highway it enters a single channel with a cobble and boulder substrate. About 800 ft below the highway the gradient begins to decrease and the channel begins to divide through an area of tussock tundra and dense willows. Before entering a sedge wetland (diagonal shading on following figure), its flow is spread out into many indistinct rivulets. The stream was continuously flowing at the Alaska highway throughout the spring and summer in 1981, becoming dry in September.

No fish were observed in this stream in the vicinity of the NWA alignment and the Alaska highway during the entire open water season in 1981. The sedge marsh and spread out flow in the lower reaches of this stream are probably a barrier to upstream movement.

Avoidance of instream construction during the open water season will ensure minimal impacts to any fishery that may utilize the wetland and ponds fed by this stream.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Crystal Slough Creek EMG-RX 114-1
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 640.65 AHMP 1328.1
 USGS Map Reference Tanancross (B-5), AK T 18N R 10E Sec. 2, 11

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u>S?</u>
Summer	<u>CN, GR</u>	<u>R</u>
Fall	<u>CN, GR</u>	<u>R</u>

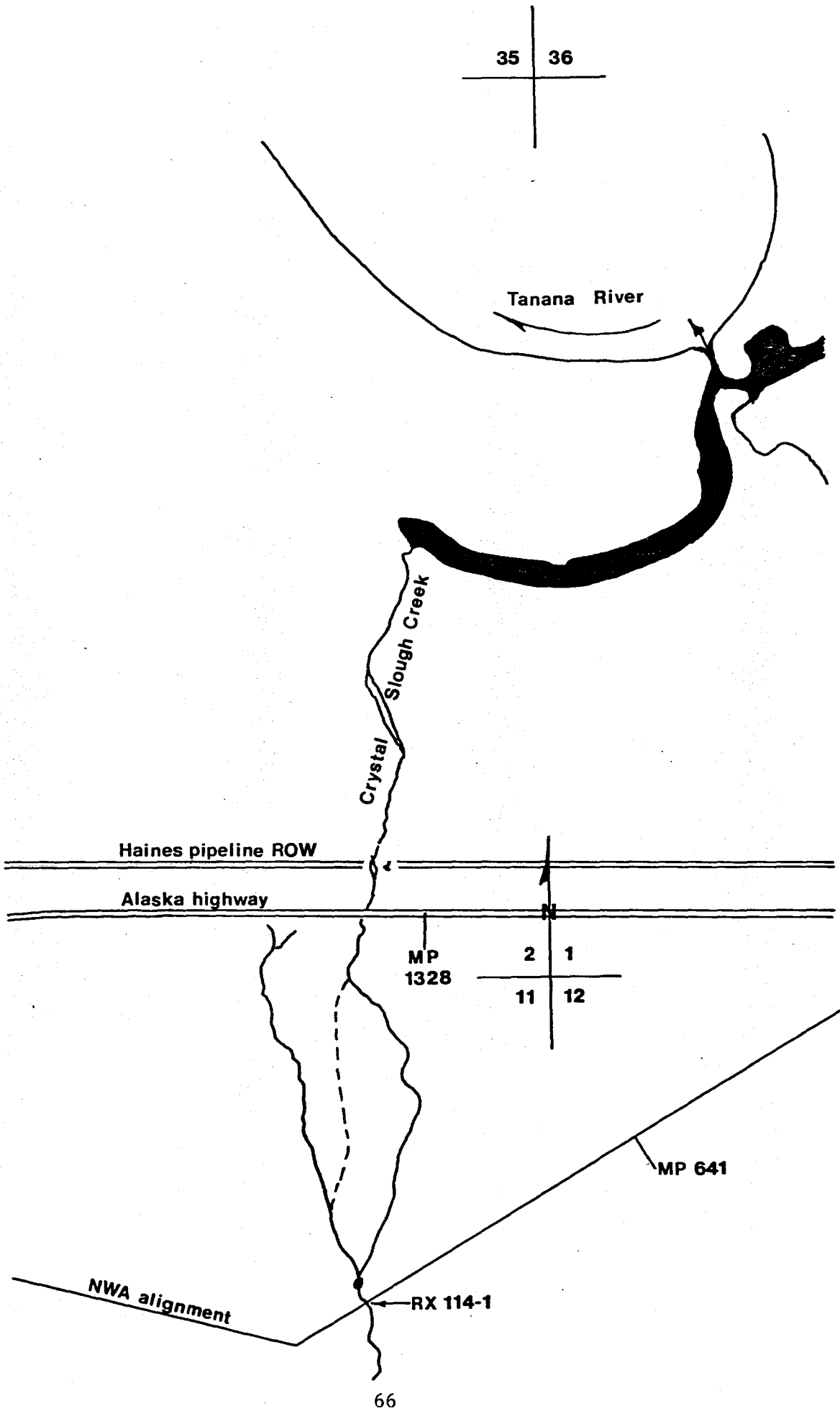
Stream and streamside characteristics are described by Chihuly et al. (1980). Two small diameter culverts -- one CMP and one circular wooden -- drain this stream under the Alaska highway.

Fish were found and caught in the vicinity of the Alaska highway on each date a sampling effort was made in this stream. Juvenile grayling were observed utilizing this stream as a rearing area both above and below the Alaska highway throughout the summer and fall. Slimy sculpin and young-of-the-year grayling were observed only below the highway. Presence of the grayling fry suggests spring spawning use in this drainage. In addition to the species documented in 1981, previous documentation includes: spring - slimy sculpin, grayling and longnose sucker; fall - northern pike (Chihuly et al. 1980). They also assumed the occurrence of spring spawning from the presence of young-of-the-year grayling in the fall.

Extensive aufeis formation both above and below the Alaska highway indicates water flow present in the winter. Good water quality during the winter has been previously documented (Chihuly et al. 1980). Although

winter fish use has not been documented in this stream, any stream with continually flowing water of good quality during the winter should be considered an overwintering area or in close proximity to an overwintering area. Instream construction in overwintering streams or streams that provide water to downstream overwintering areas has the potential for maximum adverse impacts to the fishery during a critical period and should be prohibited.

Data collected in 1981 are presented in Appendix IV.



Waterbody Unnamed Creek EMG-RX 119-1

Main Drainage Yukon River Tributary to Tanana River

NWAMP 671.43 AHMP 1297.9

USGS Map Reference Tanacross (B-4), AK T 17N R 15E Sec. 3

FISHERIES ASSESSMENT

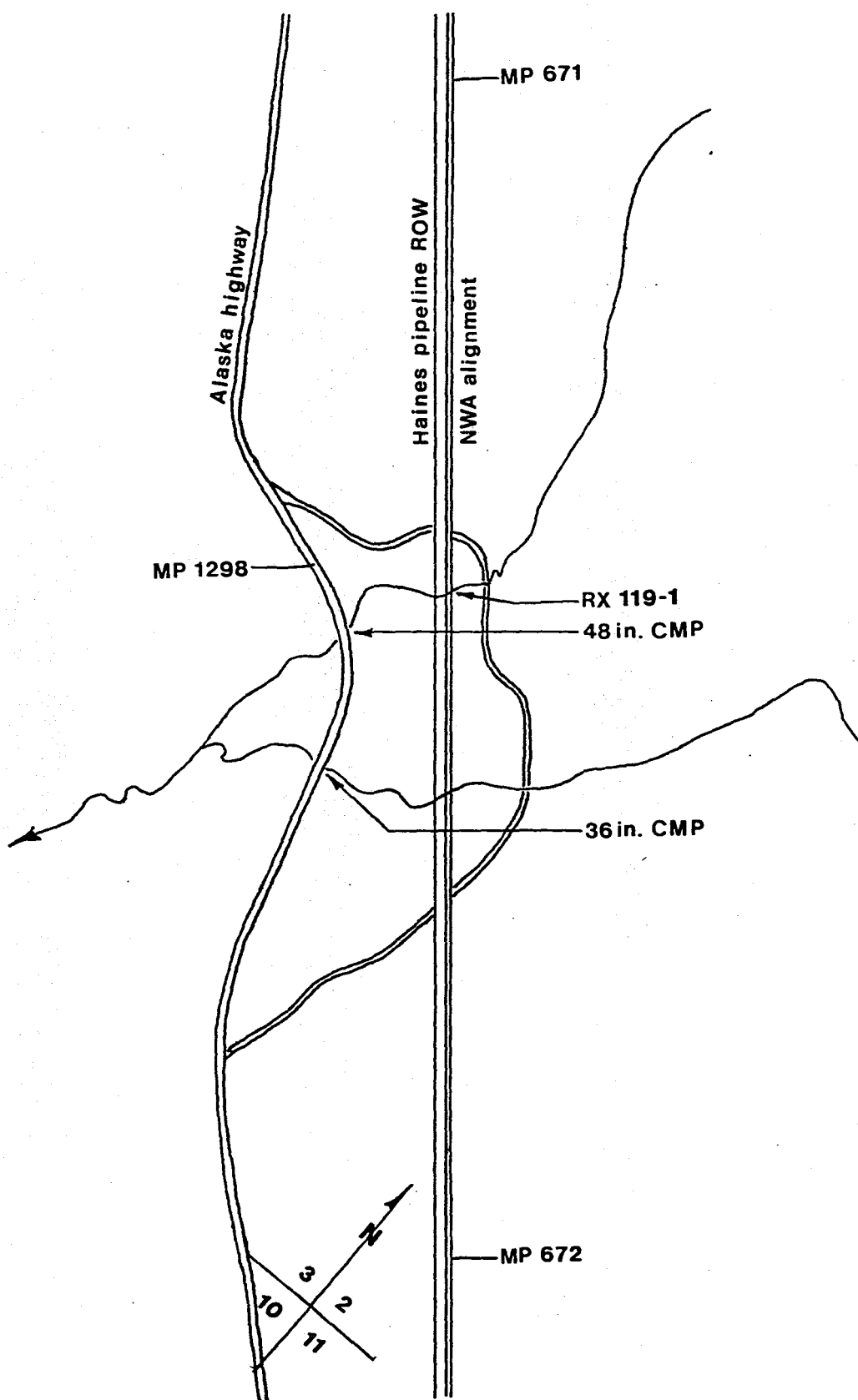
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are as described for Unnamed Creek 1297.9 by Chihuly et al. (1980).

Water flow in this drainage was limited to spring and early July during 1981. No surface flow was observed at the Alaska highway after 9 July.

Fish use of this stream in the vicinity of the NWA alignment is unlikely due to the limited period of continuous surface flow in that area.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Unnamed Creek EMG-RX 119-2

Main Drainage Yukon River Tributary to Tanana River

NWAMP 672.64 AHMP 1296.7

USGS Map Reference Tanacross (B-3), AK T 17N R 15E Sec. 11

FISHERIES ASSESSMENT

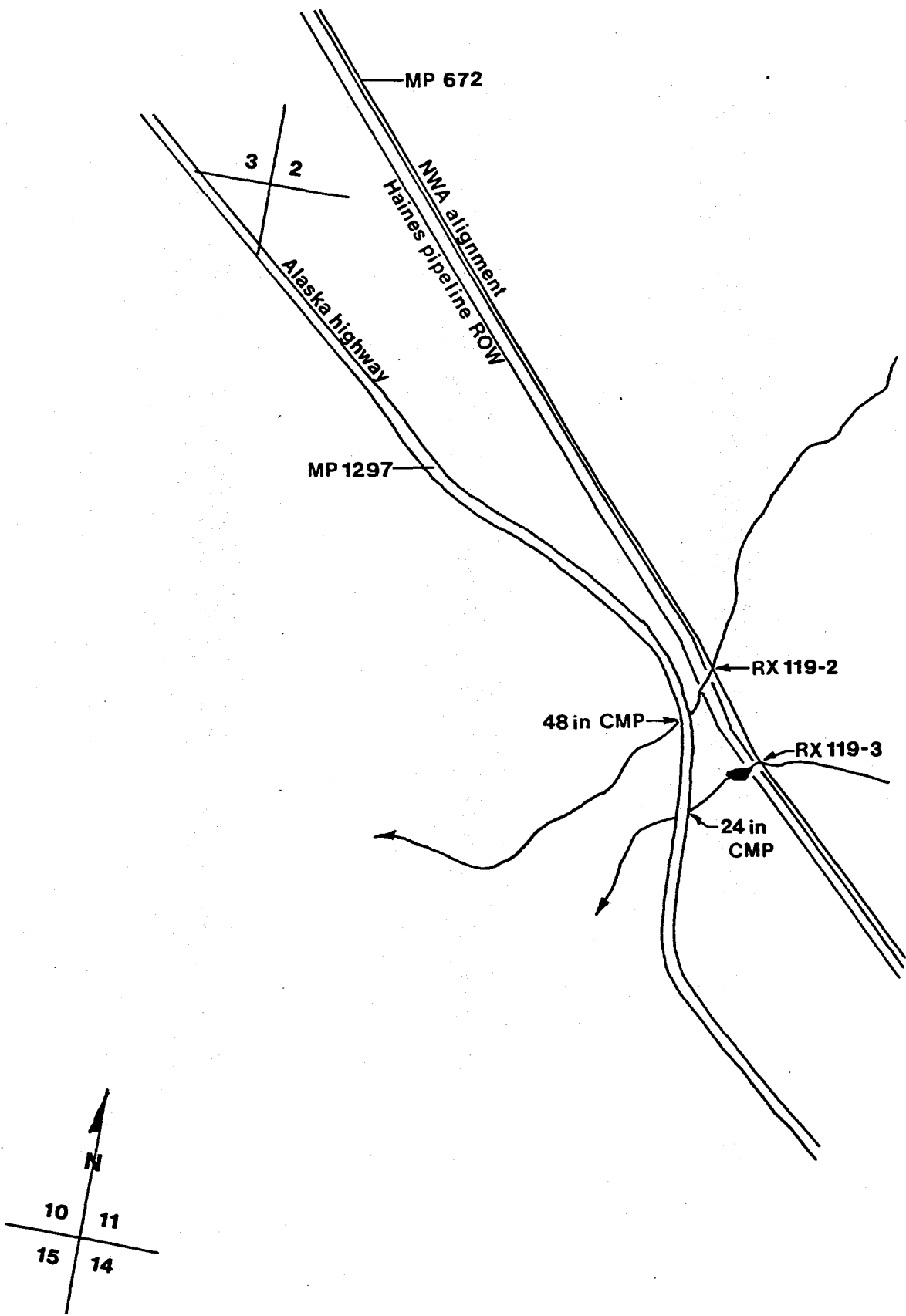
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This stream is described as Unnamed Creek 1296.7 by Chihuly et al. (1980).

Water flow in this drainage was limited to spring and early July during 1981. No surface flow was observed at the Alaska highway after 9 July.

Fish use of this stream in the vicinity of the NWA alignment is unlikely due to intermittent surface flow in the spring and absence of flow after early summer. The culvert at the Alaska highway is an effective barrier to potential fish passage when flow is present.

Data collected in 1981 are presented in Appendices I and IV.



Waterbody Unnamed Creek EMG-RX 119-3

Main Drainage Yukon River Tributary to Tanana River

NWAMP 672.73 AHMP 1296.6

USGS Map Reference Tanacross (B-3), AK T 17N R 15E Sec. 11

FISHERIES ASSESSMENT

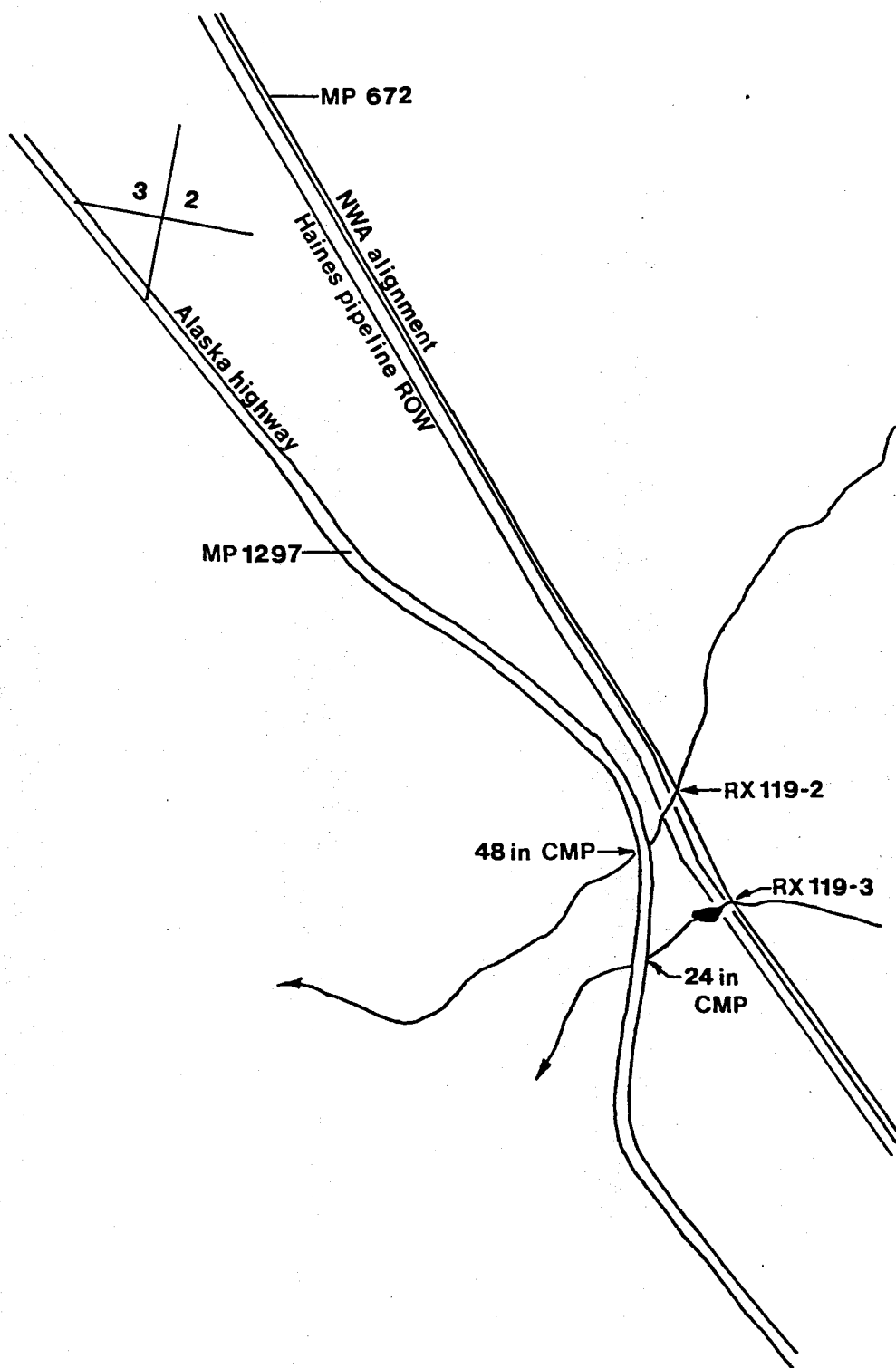
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This drainage was observed only once in 1981. A trickle flow was found while investigating the culvert at the Alaska highway on 17 June. No obvious flows were observed while driving by this culvert at any other time after this date.

This stream drainage is probably similar to Unnamed Creek (RX 119-2) in stream characteristics and stream flow patterns.

Fish use in the vicinity of the NWA alignment and Alaska highway is unlikely.

Data collected in 1981 are presented in Appendix IV.



Waterbody Nest Creek EMG-RX 121-1

Main Drainage Yukon River Tributary to Tanana River

NWAMP 683.48 AHMP 1285.4

USGS Map Reference Tanacross (A-3), AK T 17N R 17E Sec. 32

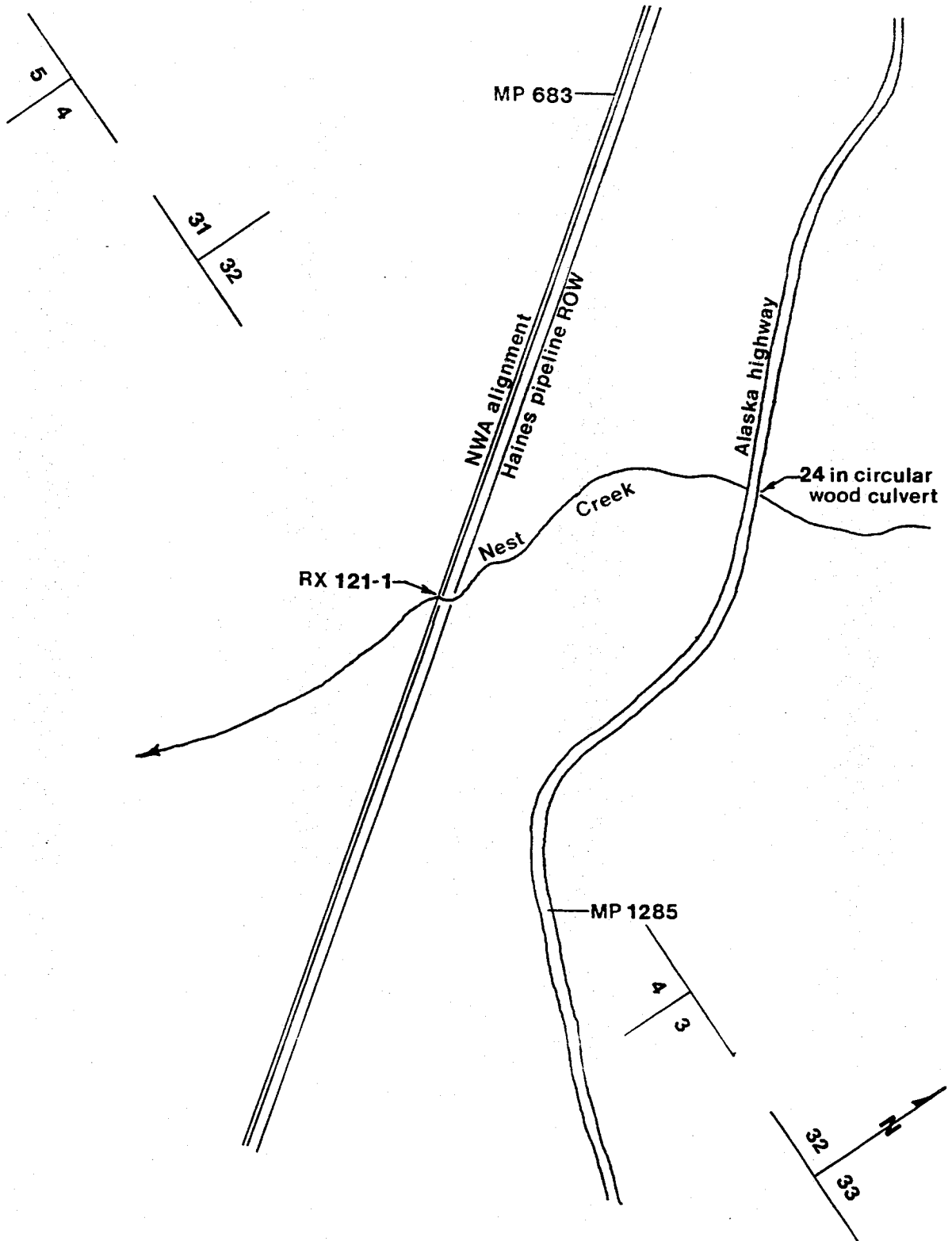
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Nest Creek is a small stream that flows south across the NWA alignment about 1700 ft downstream from the Alaska highway. In the vicinity of the proposed gasline crossing and up to the Alaska highway, this stream's channel is mostly indistinct and spread out through tussock tundra. A low flow was present during the entire open water season.

Although no fish were found in the vicinity of the NWA alignment during 1981, the steady source of water suggests there may be fish use downstream where the flow is likely to increase and form a more distinct channel. Avoidance of instream construction during the open water season will ensure minimal impacts to any fishery that may utilize this stream downstream from the proposed gasline crossing.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Unnamed Creek EMG-RX 121-2

Main Drainage Yukon River Tributary to Tanana River

NWAMP 685.41 AHMP 1283.1

USGS Map Reference Tanacross (A-3), AK T 16N R 17E Sec. 10

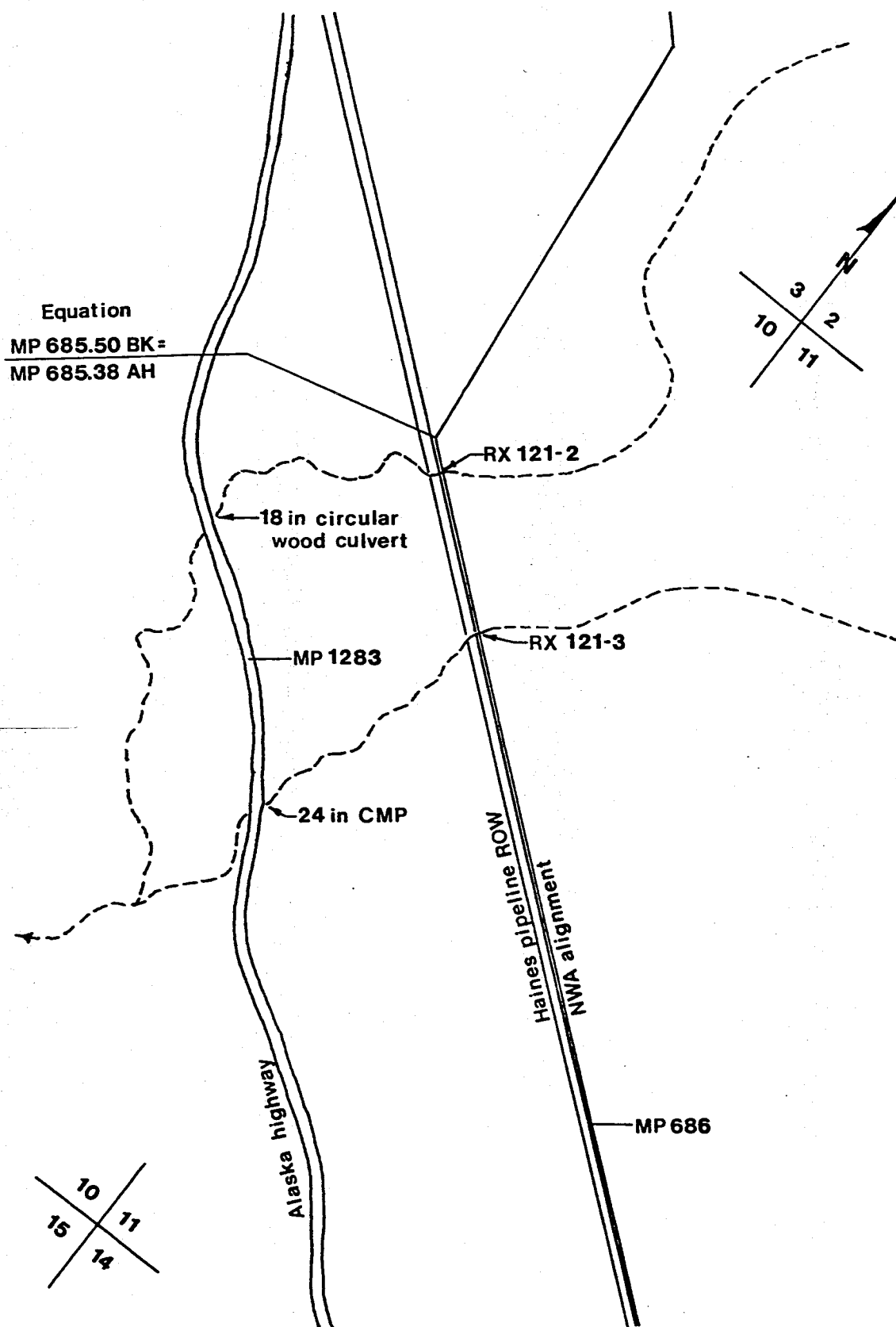
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This small stream flows south across the NWA alignment about 1500 ft upstream from the Alaska highway. In the area of the proposed crossing, the stream channel is mostly indistinct, spread out through mossy tundra that is densely vegetated with willows. There is some ponding across the Haines pipeline right-of-way, probably as a result of thermal erosion.

During 1981, surface flow reached the Alaska highway only during the spring. No surface flow was observed at that point after 15 June. Intermittent surface flow of short duration was not sufficient to support a fishery in the vicinity of the proposed gasline in 1981.

Data collected in 1981 are presented in Appendices I and III.



Waterbody Unnamed Creek EMG-RX 121-3

Main Drainage Tanana River Tributary to RX 121-2

NWAMP 685.56 AHMP 1282.9

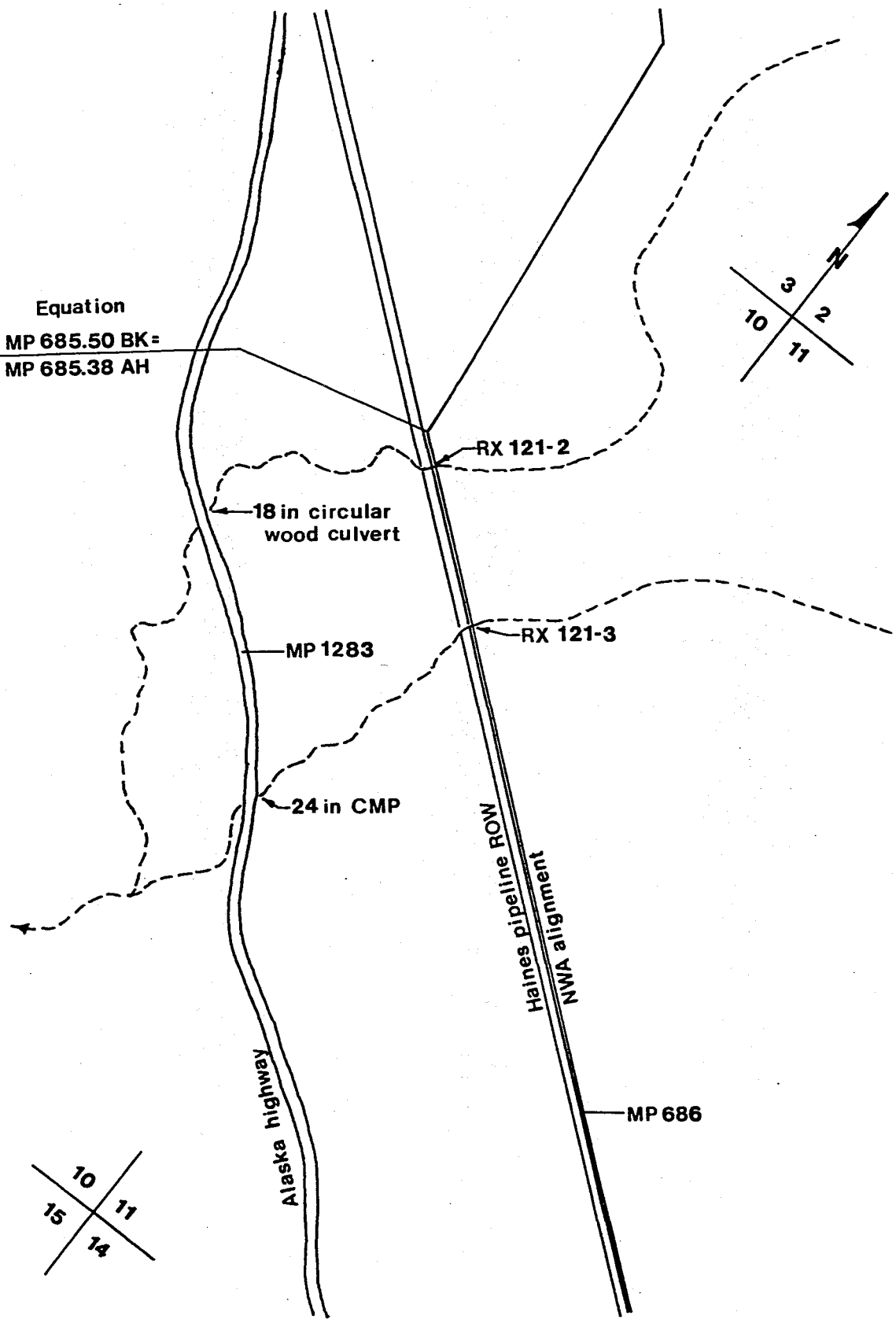
USGS Map Reference Tanacross (A-3), AK T 16N R 17E Sec. 10

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This small stream is similar to Unnamed Creek (RX 121-2) in appearance and flow pattern. It is unlikely that fish would utilize this drainage in the vicinity of the proposed gasline.

Data collected in 1981 are presented in Appendices III and IV.



Waterbody Bitters Creek EMG-RX 122-1
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 688.26 AHMP 1280.2
 USGS Map Reference Tanacross(A-3), AK T 16N R 17E Sec. 24

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>CN</u>	<u>R,S?</u>
Summer	<u>CN, GR, RW</u>	<u>R</u>
Fall	<u>CN, GR</u>	<u>R</u>

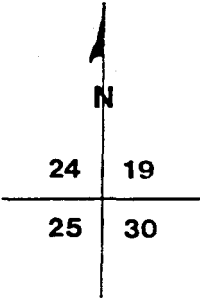
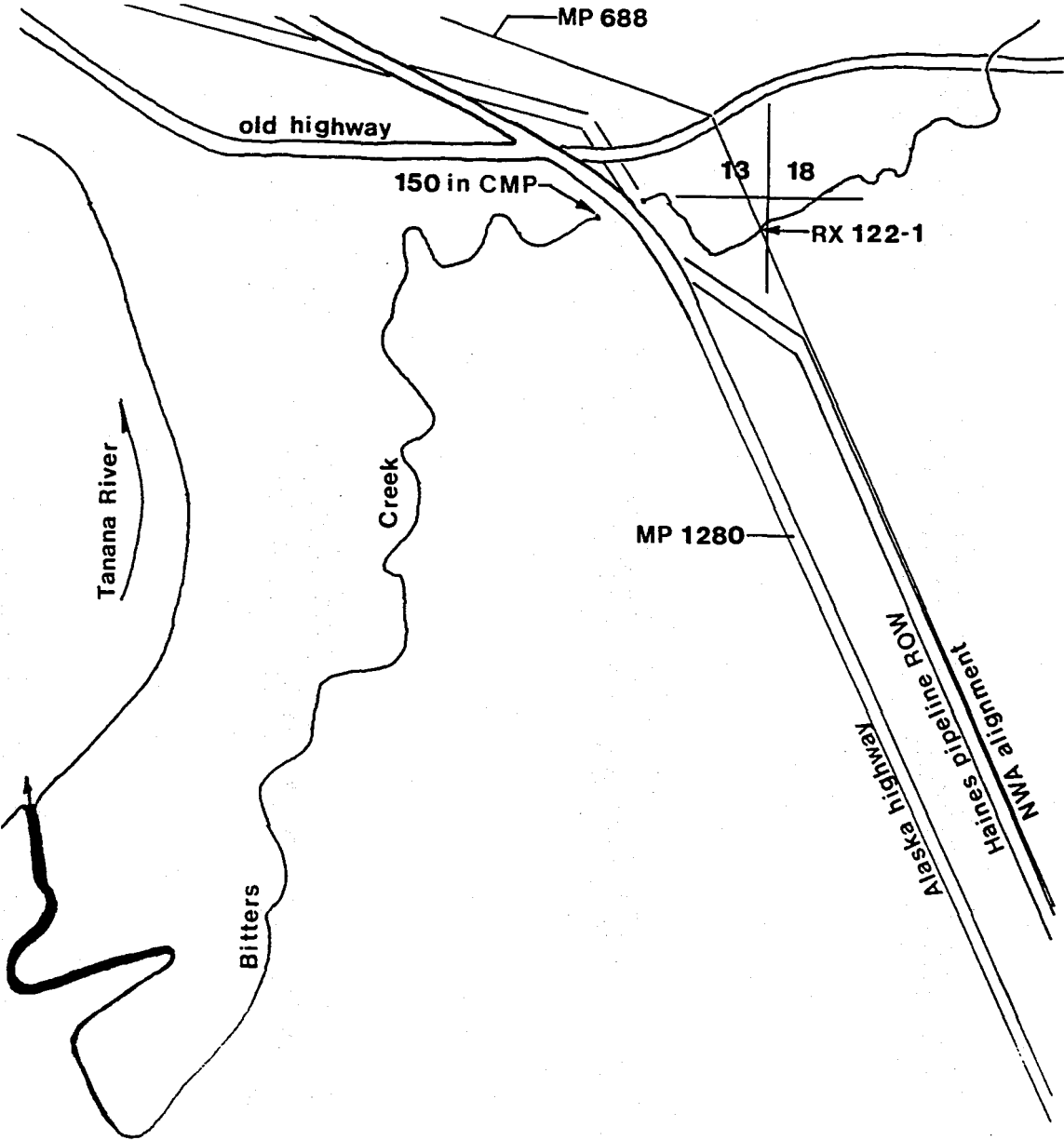
Stream and streamside characteristics are as described by Chihuly et al. (1980). The stream flows into the Tanana River about 1.5 mi downstream from the Alaska highway.

Bitters Creek provides excellent fish habitat and was utilized as a rearing area for a variety of juvenile fish throughout the open water season. In addition to the species documented in 1981, previous documentation includes: spring - juvenile grayling, longnose sucker and round whitefish; summer - northern pike (Chihuly et al. 1980). The spring sampling effort in 1981 was hampered by an ineffective electroshocker.

The Alaska highway culvert is an effective velocity barrier to upstream fish passage. No fish were found upstream from the highway. The culvert invert has a measured drop of 26.6 ft for its 300 ft length or a 8.9% slope. Measured velocity ranged from 4.4 to 11.7 ft/s at a discharge of 1.2 to 19.9 cfs respectively.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery of Bitters Creek downstream from the Alaska highway.

Data collected in 1981 are presented in Appendix IV.



Waterbody Unnamed Creek EMG-RX 122-2

Main Drainage Yukon River Tributary to Tanana River

NWAMP 690.14 AHMP 1278.3

USGS Map Reference Tanacross(A-3), AK T 16N R 18E Sec. 29,30

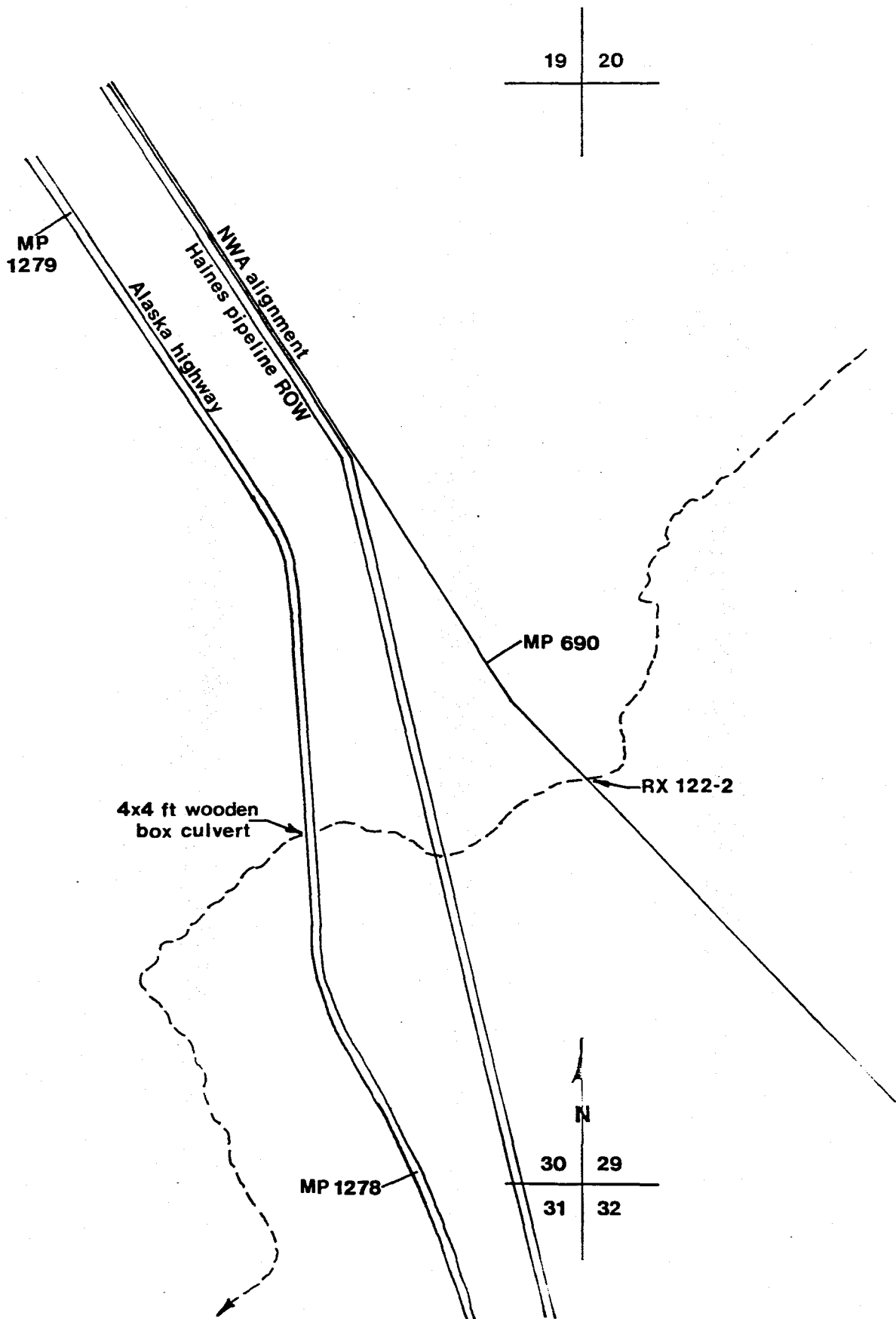
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

The characteristics of this drainage are described by Chihuly et al. (1980). Water flow was observed in this drainage only for several weeks in the spring and on 3 July after a series of storm events.

The short duration of surface flow in this drainage at the Alaska highway and NWA alignment is not sufficient to support a fishery.

Data collected in 1981 are presented in Appendices I and IV.



not ripe, there apparently is access to the excellent spawning habitat available in this stream.

The highway culvert is set at a 1.9% slope and perched up to 1.7 ft depending on discharge. The culvert is probably a barrier to all but larger, more vigorous fish.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery downstream from the proposed NWA crossing.

Data collected in 1981 are presented in Appendices III and IV.

Waterbody Bearing Tree Creek EMG-RX 123-1
 Main Drainage Yukon River Tributary to Tanana River
 NWAMP 694.61 AHMP 1273.0
 USGS Map Reference Tanacross(A-2), AK T 15N R 18E Sec. 10,15

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>GR</u>	<u>R,S?</u>
Summer	<u>GR, LC, LS, NP</u>	<u>R</u>
Fall	<u>None</u>	<u></u>

Bearing Tree Creek is a small humic stained stream flowing south to the Alaska highway then southeast to the Tanana River. The stream is in a narrow, incised channel with numerous wider and deeper pools. There are many 1 to 1.5 ft natural falls over small debris dams both above and below the highway. Near its mouth, the stream is more slough-like, with muddy banks.

Fish use up to the highway was at a very low level in 1981. Only one fish, an adult grayling, moved upstream into the weir trap on 17 June. The trap was placed 250 ft below the highway on 10 June and was in nearly continuous operation until 17 September. Young-of-the-year grayling and longnose sucker, as well as juvenile lake chub and one adult northern pike were found utilizing the lower reach of the stream, within 1000 ft of its mouth, during the summer. Apparently the debris dam falls are a barrier to all but larger fish. Although the adult grayling that entered the trap was

Waterbody

Bearing Tree Creek

EMG-RX 123-1

9
16 10
15

Tanana River

Bearing Tree Creek

MP 1273
72 in CMP

Alaska highway
Haines pipeline ROW
NWA alignment

MP 694

RX 123-1

10
15 11
14

MP 695

Waterbody In-between Creek EMG-RX 123-2

Main Drainage Yukon River Tributary to Tanana River

NWAMP 697.02 AHMP 1270.4

USGS Map Reference Tanacross (A-2), AK T 15N R 18E Sec. 24

FISHERIES ASSESSMENT

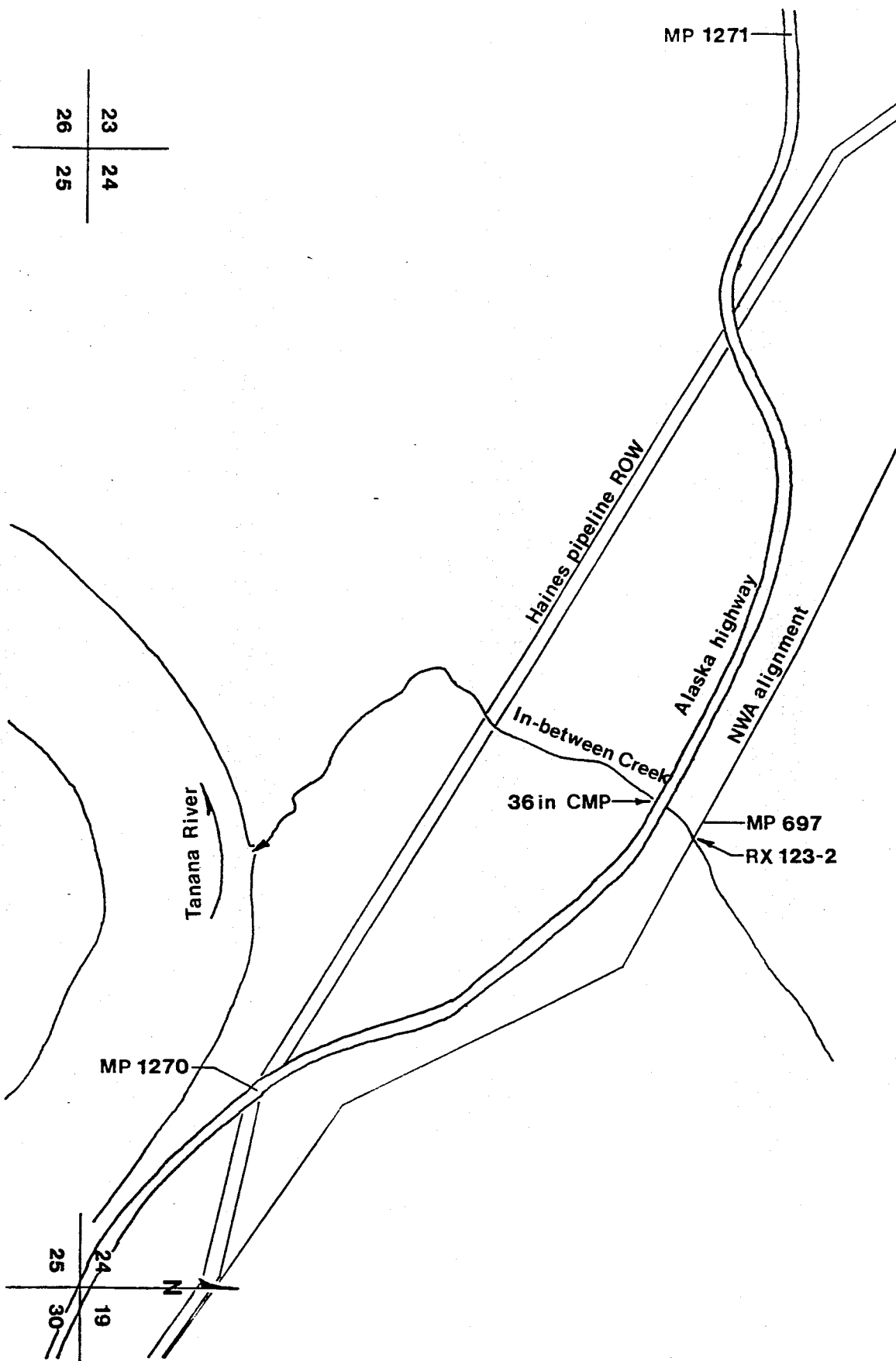
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>LS</u>	<u>R</u>
Fall	<u>LS</u>	<u>R</u>

In-between Creek is a small stream with no continuous defined channel above the Haines pipeline right-of-way. Its flow is typically spread out over, around and under moss and tussock tundra. Downstream from the Haines pipeline, the stream forms a distinct channel, flowing about 1500 ft to the Tanana River. In the first 500 ft above the river, the stream banks are mud, and vegetated with willow and grass. Above that reach the stream flows through an area heavily vegetated with alder and cottonwood with much dead wood debris in the channel. There is a 2.5 to 3 ft vertical fall about 1000 ft upstream from the stream's mouth that is an effective barrier to upstream fish passage.

Longnose sucker fry utilized the lower reach of this stream below the fall as a summer and fall rearing area. Spring use was not documented because of access restrictions.

Avoidance of instream construction during the open water season will ensure minimum impacts to the fishery downstream from the proposed NWA crossing.

Data collected in 1981 are presented in Appendix III.



Waterbody	<u>Beaver Creek</u>	EMG-RX	<u>124-1</u>
Main Drainage	<u>Yukon River</u>	Tributary to	<u>Tanana River</u>
NWAMP	<u>699.19</u>	AHMP	<u>1268.0</u>
USGS Map Reference	<u>Tanacross (A-2), AK</u>	T	<u>15N</u> R <u>19E</u> Sec. <u>29</u>

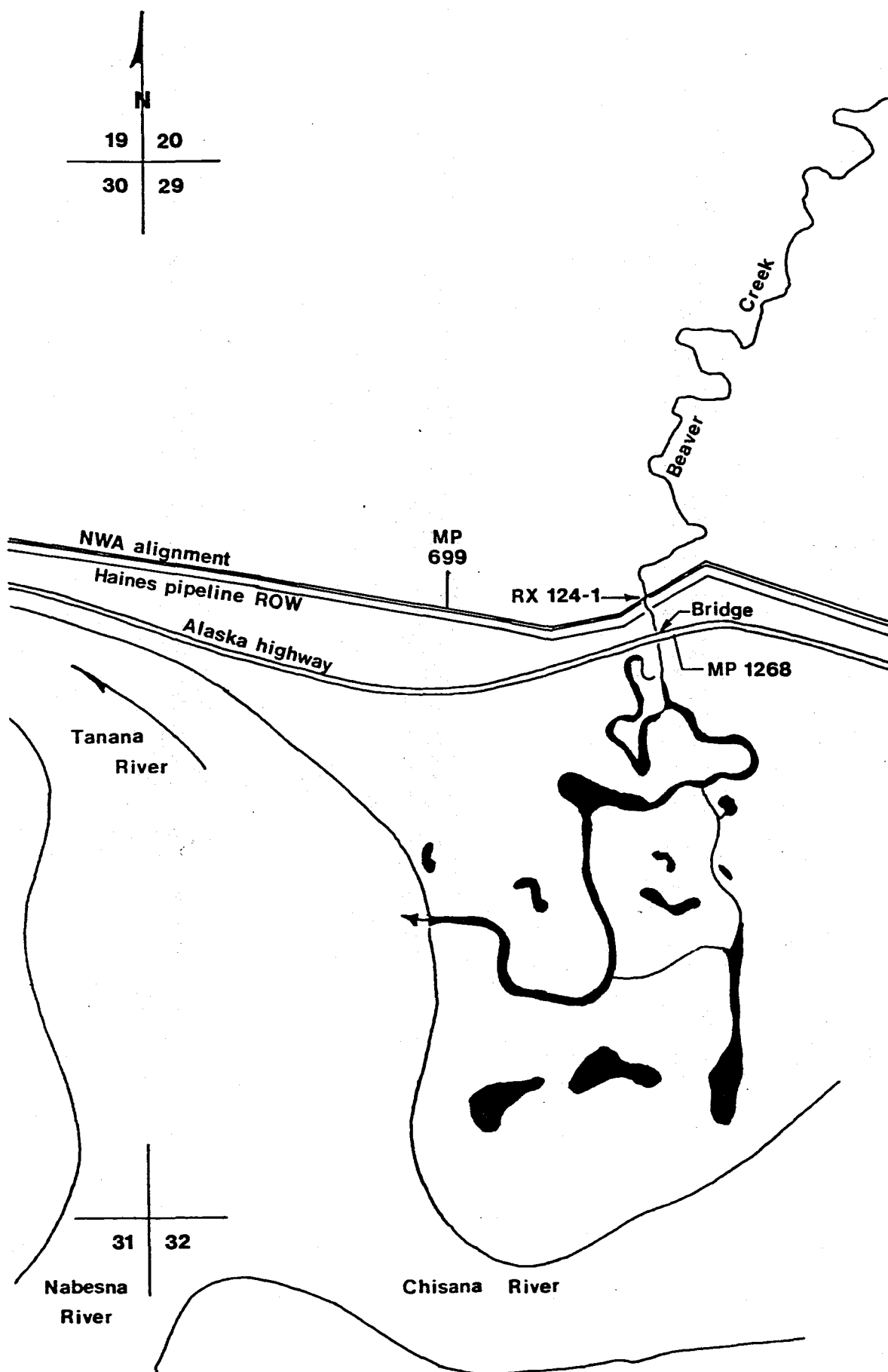
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>GR, HW, RW</u>	<u>R</u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are described by Chihuly et al. (1980). At low flows, riffles extend downstream from the highway for 300 to 400 ft and below that the stream becomes a slow moving slough to the river. During July and early August, high river levels produced a backwater to above the highway.

During August 1981, adult grayling and humpback whitefish as well as young-of-the-year round whitefish were observed using the lower reaches of Beaver Creek as a rearing area. In addition to the species documented in 1981, previous documentation includes: spring - grayling, longnose sucker and round whitefish; fall - grayling and longnose sucker (Chihuly et al. 1980). They concluded spring spawning use from the numerous young-of-the-year grayling and longnose sucker reported captured in the fall.

Data collected in 1981 are presented in Appendix IV.



Waterbody Lethe Creek EMG-RX 124-2

Main Drainage Tanana River Tributary to Chisana River

NWAMP 700.96 AHMP 1266.5

USGS Map Reference Tanacross (A-2), AK T 15N R 19E Sec. 33

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u>S?</u>
Summer	<u>BB, GR, LC, LS, NP</u>	<u>R</u>
Fall	<u>GR, LS, NP</u>	<u>R</u>

Stream and streamside characteristics in the vicinity of the NWA alignment are as described for Unnamed Creek 1266.5 by Chihuly et al. (1980). Below the Alaska highway the stream is similar except for the last 1000 ft above its mouth at the Chisana River. In this lower reach, the stream becomes increasingly wider and more slough-like, with dense emergent aquatic vegetation along its edge. During periods of high water, turbid river water was observed backed into the lower 500 ft of the stream. The present Alaska highway culvert remains an effective barrier to all upstream fish movement.

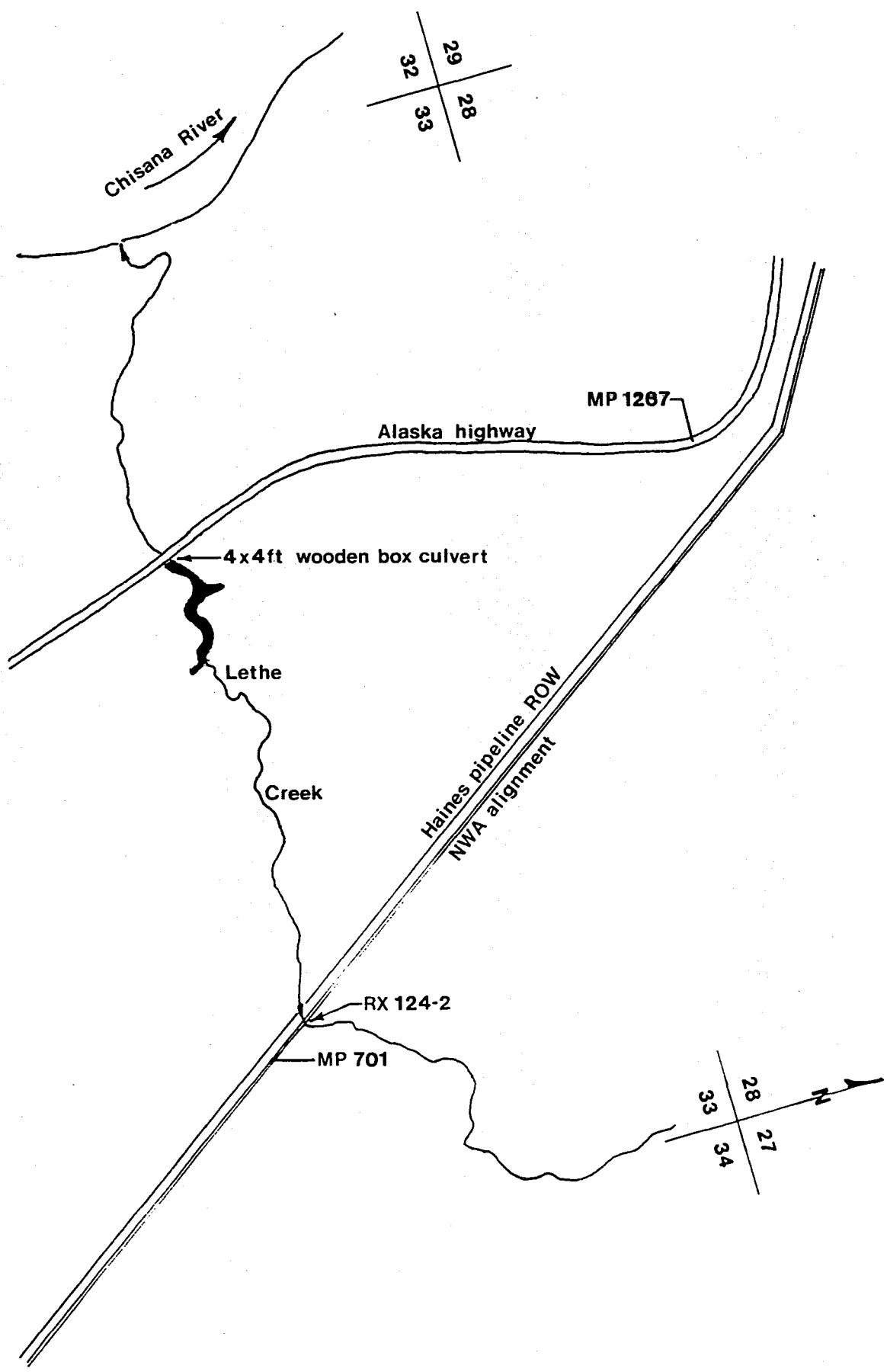
During 1981, all observed fish use was downstream from a 2.5 ft fall (at low water levels) over a debris dam imbedded in the channel, located about 500 ft downstream from the highway. Longnose sucker fry were abundant below the fall throughout the summer and fall. The small size of the early fry found in the stream indicates spawning may have occurred there in the

spring. The lower 1500 ft of this stream was also a summer and fall rearing area for lower densities of juvenile northern pike and lake chub and young-of-the-year grayling. One adult burbot was found utilizing this reach during the summer.

It is conceivable that larger fish such as adult grayling, could pass over the falls during high spring flows. In the event the present culvert is replaced with a structure that would allow for fish passage, it is possible that fish use would extend upstream to above the NWA alignment.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery downstream from the proposed NWA crossing.

Data collected in 1981 are presented in Appendix III.



Waterbody Silver Creek EMG-RX 125-1

Main Drainage Chisana River Tributary to Eliza Lake

NWAMP 706.52 AHMP 1258.7

USGS Map Reference Nabesna (D-2), AK T 14N R 20E Sec. 17, 20

FISHERIES ASSESSMENT

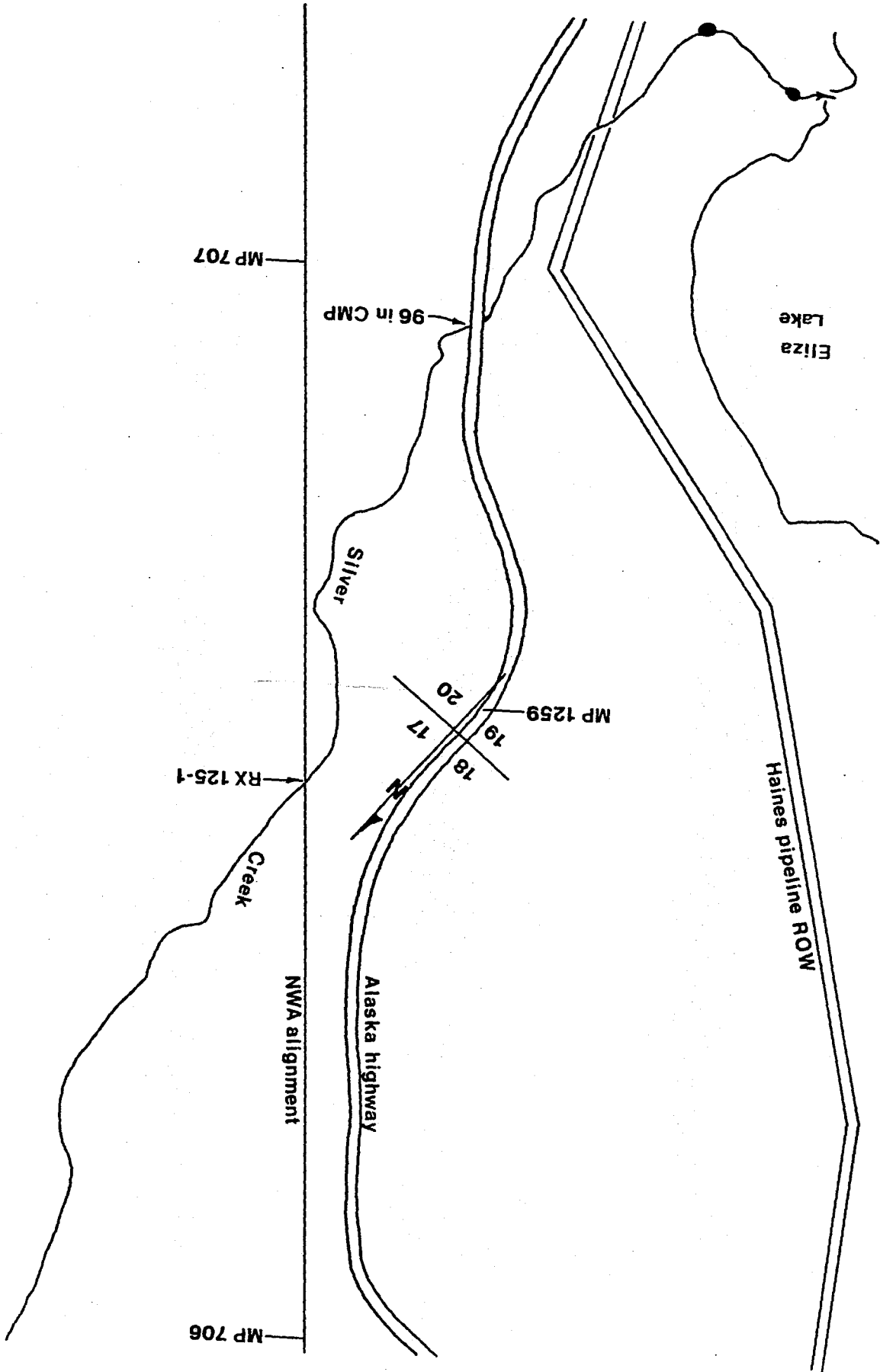
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>GR</u>	<u>R</u>
Fall	<u>GR</u>	<u>R</u>

Stream and streamside characteristics are as described by Chihuly et al. (1980).

This stream was utilized as a rearing area by low densities of young-of-the-year grayling during the summer and fall in 1981. In addition, juvenile northern pike use during the summer has been previously documented (Chihuly et al. 1980). Grayling fry were able to pass upstream through the highway culvert during low flows in August and September. No barriers to fish passage were observed between the highway and the NWA alignment.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery of Silver Creek and Eliza Lake.

Data collected in 1981 are presented in Appendix III.



Waterbody

Silver Creek

FMG-RX

125-1

Waterbody Tenmile Creek EMG-RX 126-1

Main Drainage Tanana River Tributary to Chisana River

NWAMP 712.50 AHMP 1252.8

USGS Map Reference Nabesna (D-2), AK T 13N R 20E Sec. 11

FISHERIES ASSESSMENT

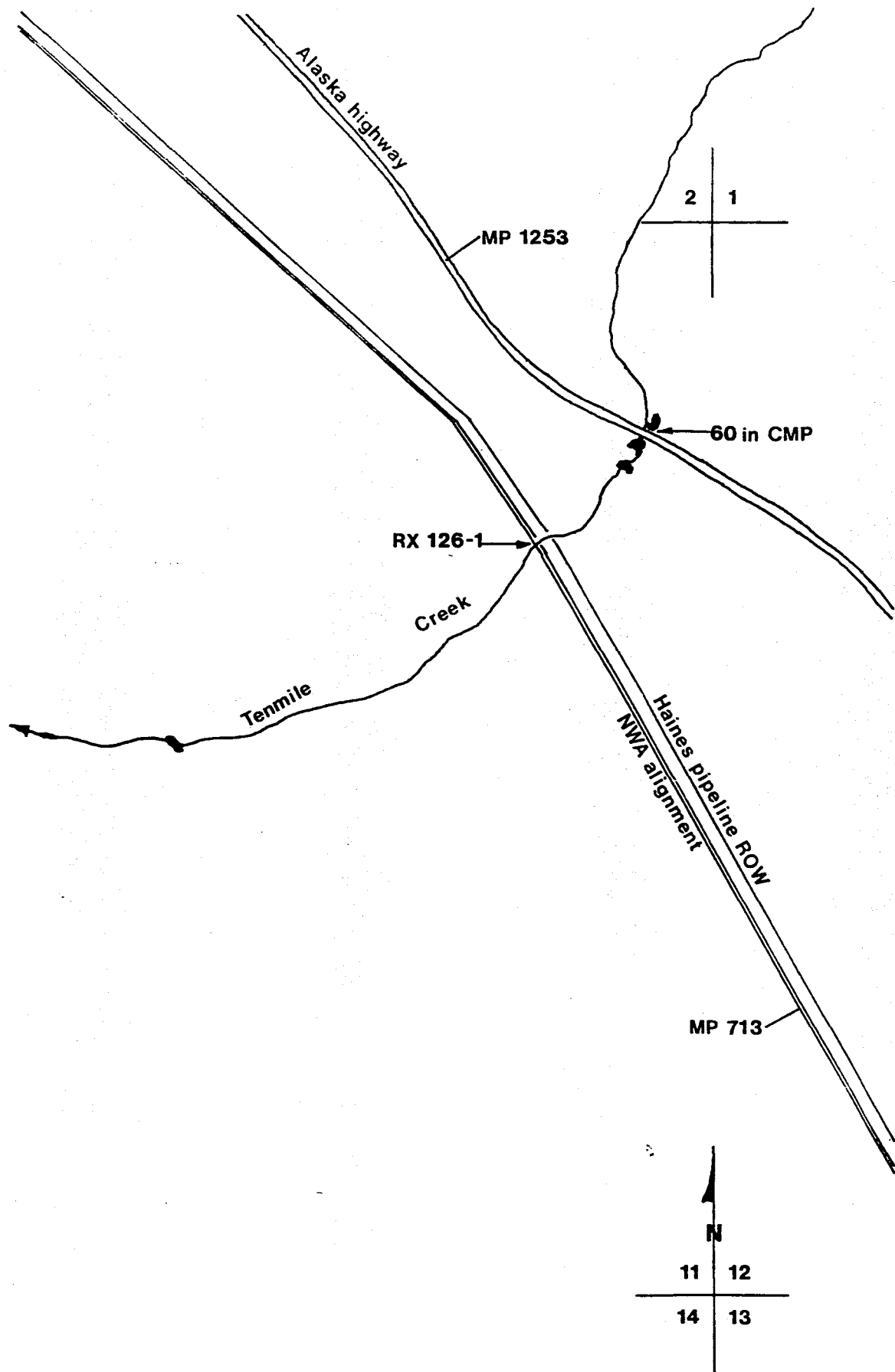
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>LS, NP</u>	<u>R</u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are described by Chihuly et al. (1980).

Above the Alaska highway, this stream was utilized by low densities of juvenile northern pike and a juvenile longnose sucker during the summer in 1981. Three northern pike and one longnose sucker were captured in a weir trap while moving upstream above the highway. The trap was in operation nearly continuously from 10 June to 9 September.

Avoidance of instream construction during the open water season will ensure minimal impacts to a larger fishery downstream from the NWA alignment.

Data collected in 1981 are presented in Appendix IV.



Waterbody Gardiner Creek EMG-RX 127-1

Main Drainage Tanana River Tributary to Chisana River

NWAMP 718.56 AHMP 1246.7

USGS Map Reference Nabesna (D-1), AK T 12N R 21E Sec. 3

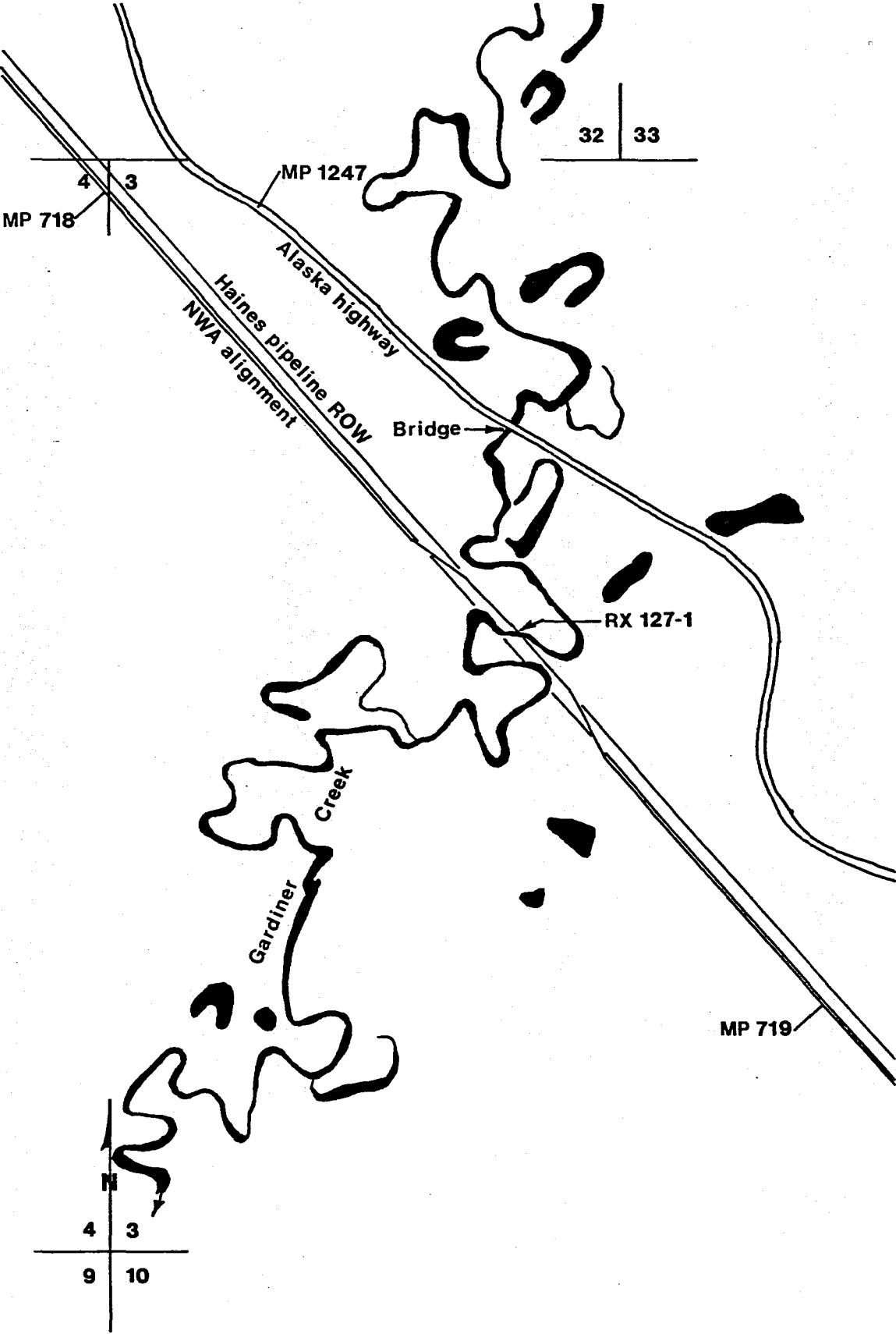
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>GR, LS</u>	<u>M, R, S</u>
Summer	<u>CN, GR, LS, NP</u>	<u>R</u>
Fall	<u>GR</u>	<u>M, R</u>

The stream and streamside characteristics of Gardiner Creek are as described by Chihuly et al. (1980). Its confluence with the Chisana River is over 6 mi downstream from the Alaska highway.

In addition to the fish species documented in 1981, previous documentation includes: spring - slimy sculpin and fall - longnose sucker (Chihuly et al. 1980). Gardiner Creek is utilized by Arctic grayling and longnose suckers for spawning and possibly by slimy sculpin. This stream provides a productive rearing area for large numbers of grayling and longnose sucker fry during the open water season as well as a rearing area for slimy sculpin and northern pike. Gardiner Creek has the most heavily utilized sport fishery for grayling in the Chisana River drainage.

Data collected in 1981 are presented in Appendix IV.



Waterbody Unnamed Creek EMG-RX 128-1

Main Drainage Chisana River Tributary to Sweetwater Creek

NWAMP 723.61 AHMP 1241.2

USGS Map Reference Nabesna (D-1), AK T 12N R 22E Sec. 20

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

No surface flow was observed in this drainage throughout the entire season in 1981. Standing water was found in the pond above the Alaska highway and at the NWA alignment but not between these points.

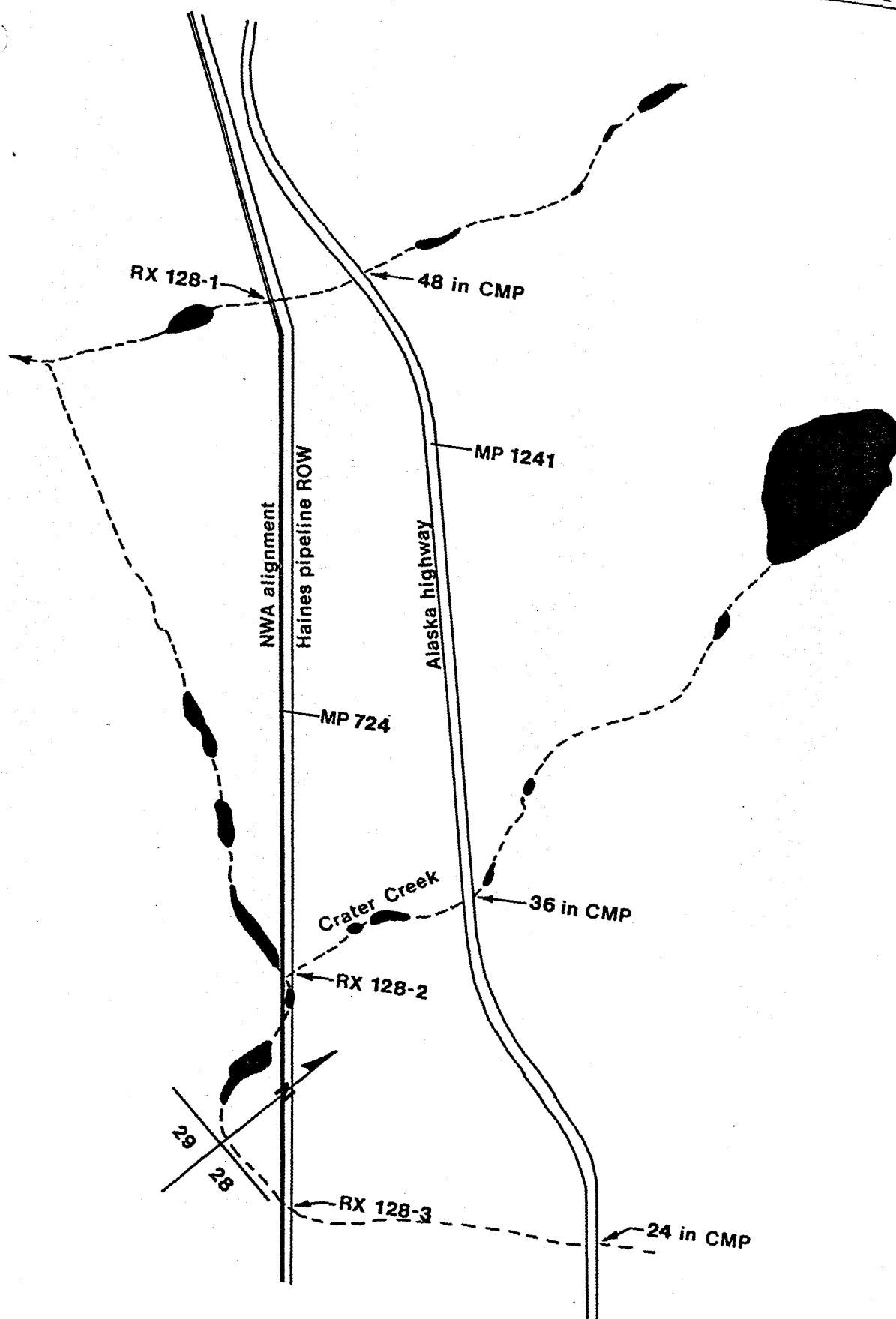
Fish use in this drainage was not possible in the vicinity of the NWA alignment in 1981 due to lack of surface flow.

Data collected in 1981 are presented in Appendices I and III.

Waterbody

Unnamed Creek

EMG-RX 128-1



Waterbody Crater Creek EMG-RX 128-2
 Main Drainage Sweetwater Creek Tributary to Unnamed Creek (RX 128-3)
 NWAMP 724.25 AHMP 1240.6
 USGS Map Reference Nabesna (D-1), AK T 12N R 22E Sec. 20

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This drainage was characterized by intermittent surface flow in 1981. No flow was observed at the Alaska highway after mid-July and no surface flow was ever observed leaving the depression halfway between the highway and the NWA alignment.

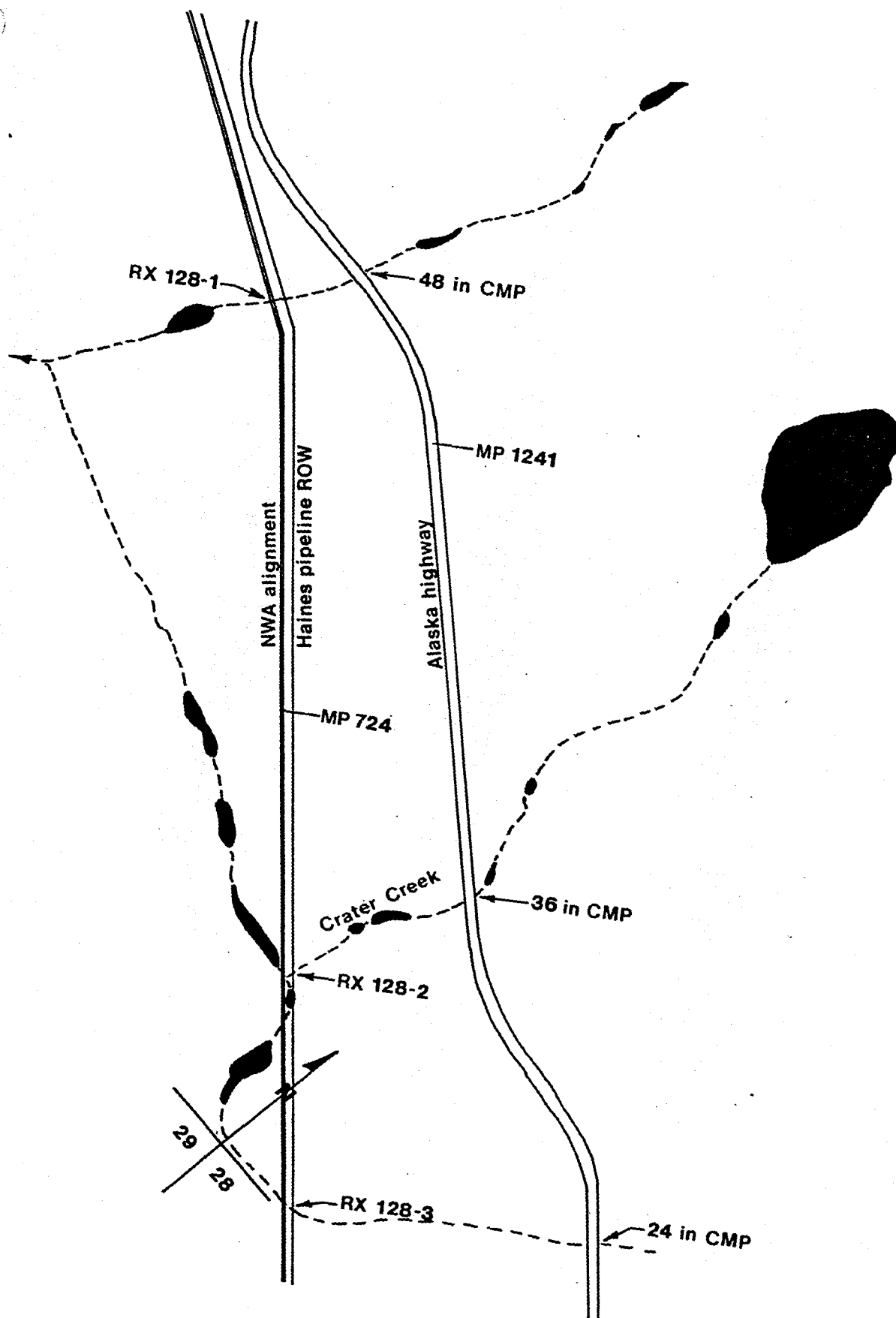
Fish use of the "stream" was not possible in 1981 due to absence of surface flow throughout the entire season in the reach immediately "upstream" from the NWA alignment.

Data collected in 1981 are presented in Appendices I and III.

Waterbody

Crater Creek

EMG-RX 128-2



Waterbody Unnamed Creek EMG-RX 128-3

Main Drainage Sweetwater Creek Tributary to Unnamed Creek (RX 128-1)

NWAMP 724.47 AHMP 1240.2

USGS Map Reference Nabesna (D-1), AK T 12N R 22E Sec. 20, 21

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This stream is a very low discharge tributary to the Unnamed Creek (RX 128-1) drainage. Slight flow was observed at the Alaska highway throughout the open water season. The drainage between the highway and the NWA alignment is characterized by tussock tundra and the stream course is undefined. Below the proposed NWA crossing, the stream drainage passes through a series of depressions that have ponded water early in the season, becoming dry in late summer. Surface flow was never observed more than 1500 ft downstream from the confluence of the Crater Creek (RX 128-2) drainage when an estimated 1 cfs was flowing past that point.

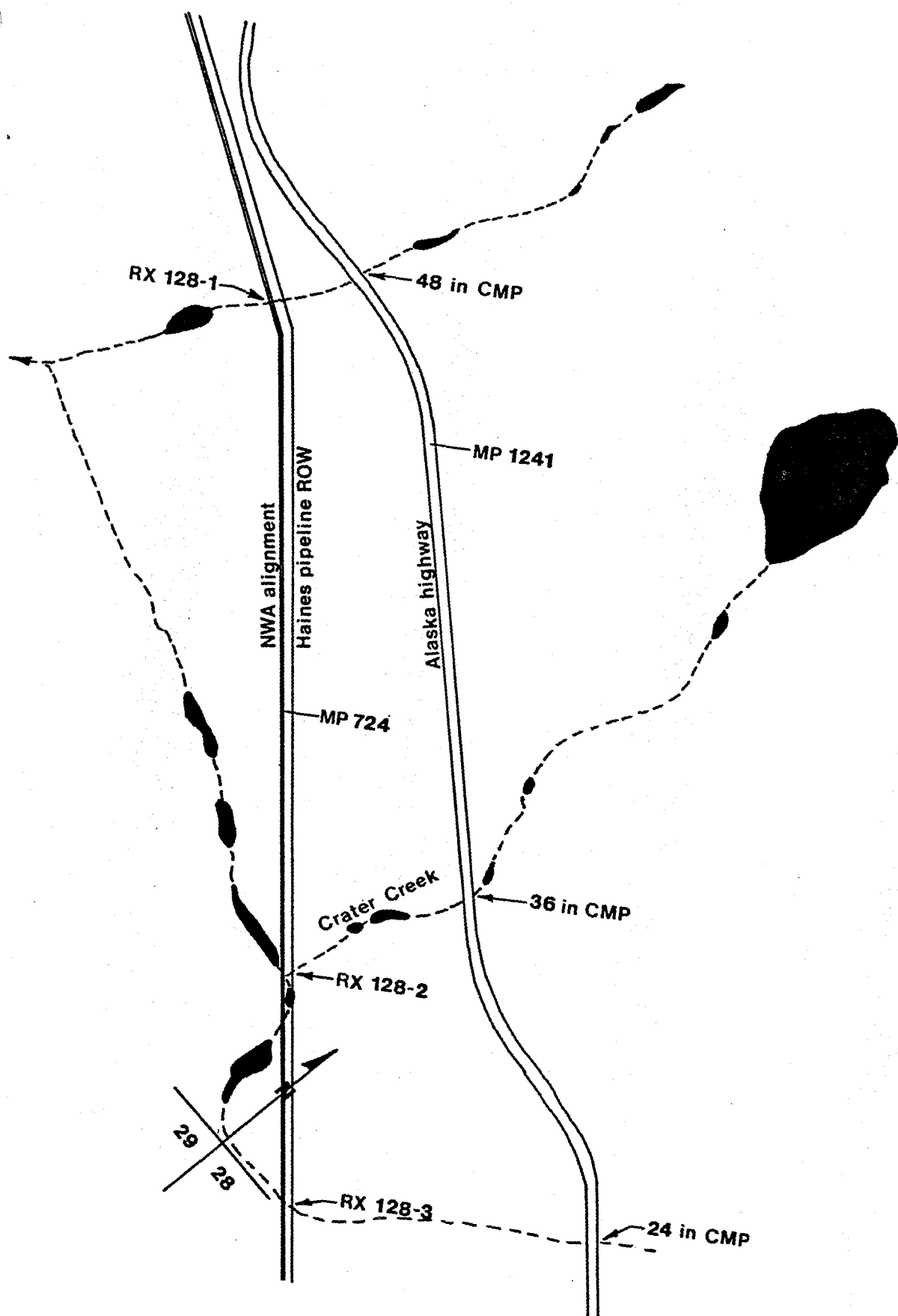
This stream had no fisheries potential in the vicinity of the NWA alignment during 1981 because of lack of surface flow to its confluence with the Unnamed Creek (RX 128-1) drainage throughout the season.

Data collected in 1981 are presented in Appendix III.

Waterbody

Unnamed Creek

EMG-RX 128-3



17 16
20 21

Waterbody Unnamed Creek EMG-RX 129-0.5

Main Drainage Sweetwater Creek Tributary to Bohemian Creek

NWAMP 727.93 AHMP 1236.8

USGS Map Reference Nabesna (D-1), AK T 11N R 22E Sec. 2

FISHERIES ASSESSMENT

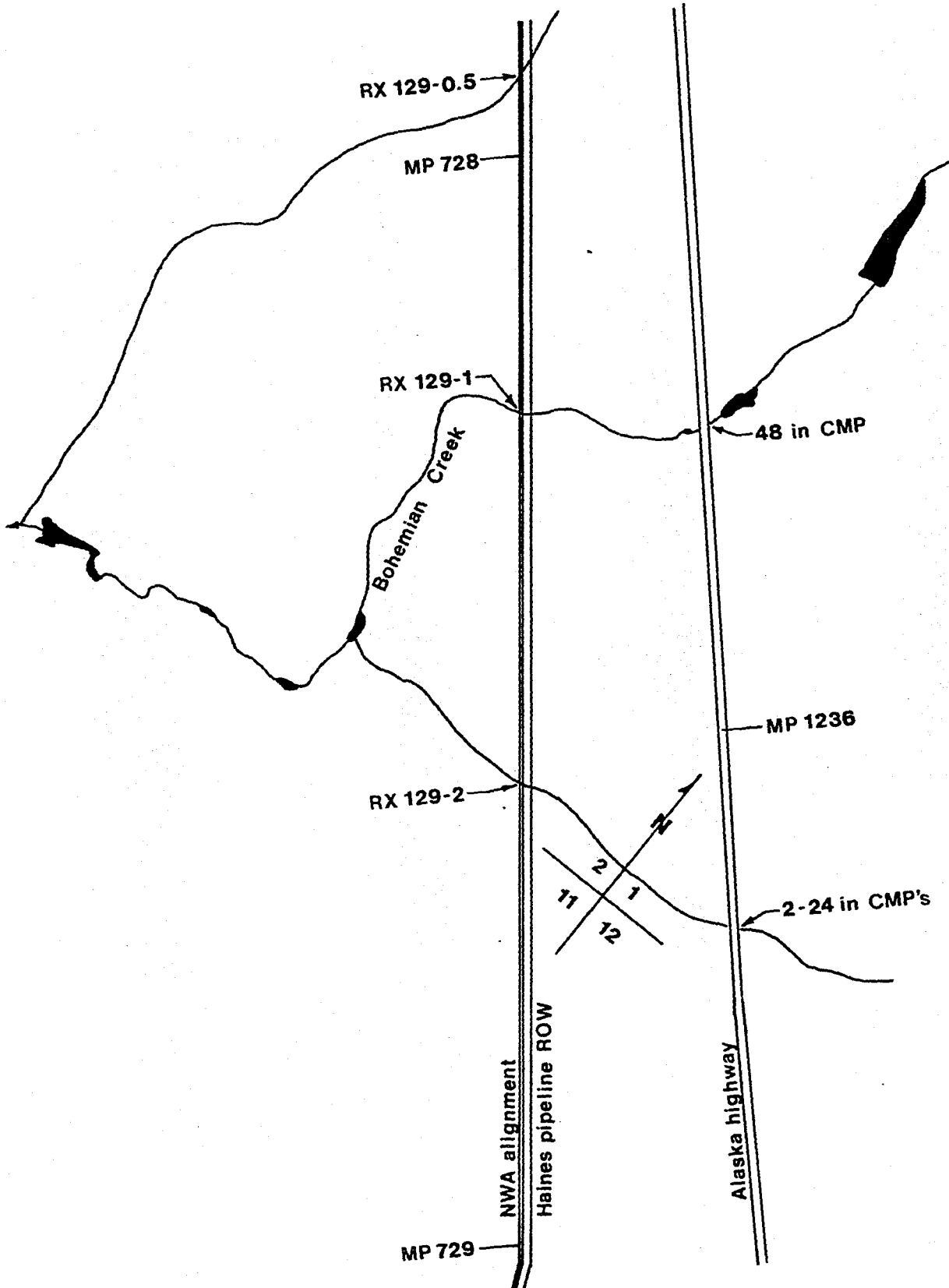
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

This stream is a low discharge tributary to Bohemian Creek. Flowing water was observed at the Alaska highway throughout the open water season. At the stream's mouth, flow is spread out through tussocks that would be a barrier to fish passage.

Waterbody

Unnamed Creek

EMG-RX 129-0.5



Waterbody Bohemian Creek EMG-RX 129-1
Main Drainage Chisana River Tributary to Sweetwater Creek
NWAMP 728.23 AHMP 1236.3
USGS Map Reference Nabesna (D-1), AK T 11N R 22E Sec. 2

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Bohemian Creek is a small, slightly humic-stained stream that flows through a well defined, incised channel. Intermittent ponding throughout the observed length of the stream is a result of previous beaver activity. Stream channel integrity is lost for short distances below several of the inactive beaver dams and several drops over one foot were observed.

Although young-of-the-year grayling were found in this stream in the fall of 1979 (Chihuly et al. 1980), fish use in the vicinity of the NWA alignment in 1981 was highly unlikely. The weir trap placed about 400 ft upstream from the proposed NWA crossing was in operation nearly continuously from 12 June to 18 September and no fish were captured. This stream provided excellent fish habitat during the entire open water season and no obvious barriers to adult or juvenile fish were observed for 2 mi below the NWA alignment. It is assumed that barriers must exist below the observed reach, probably from beaver activity.

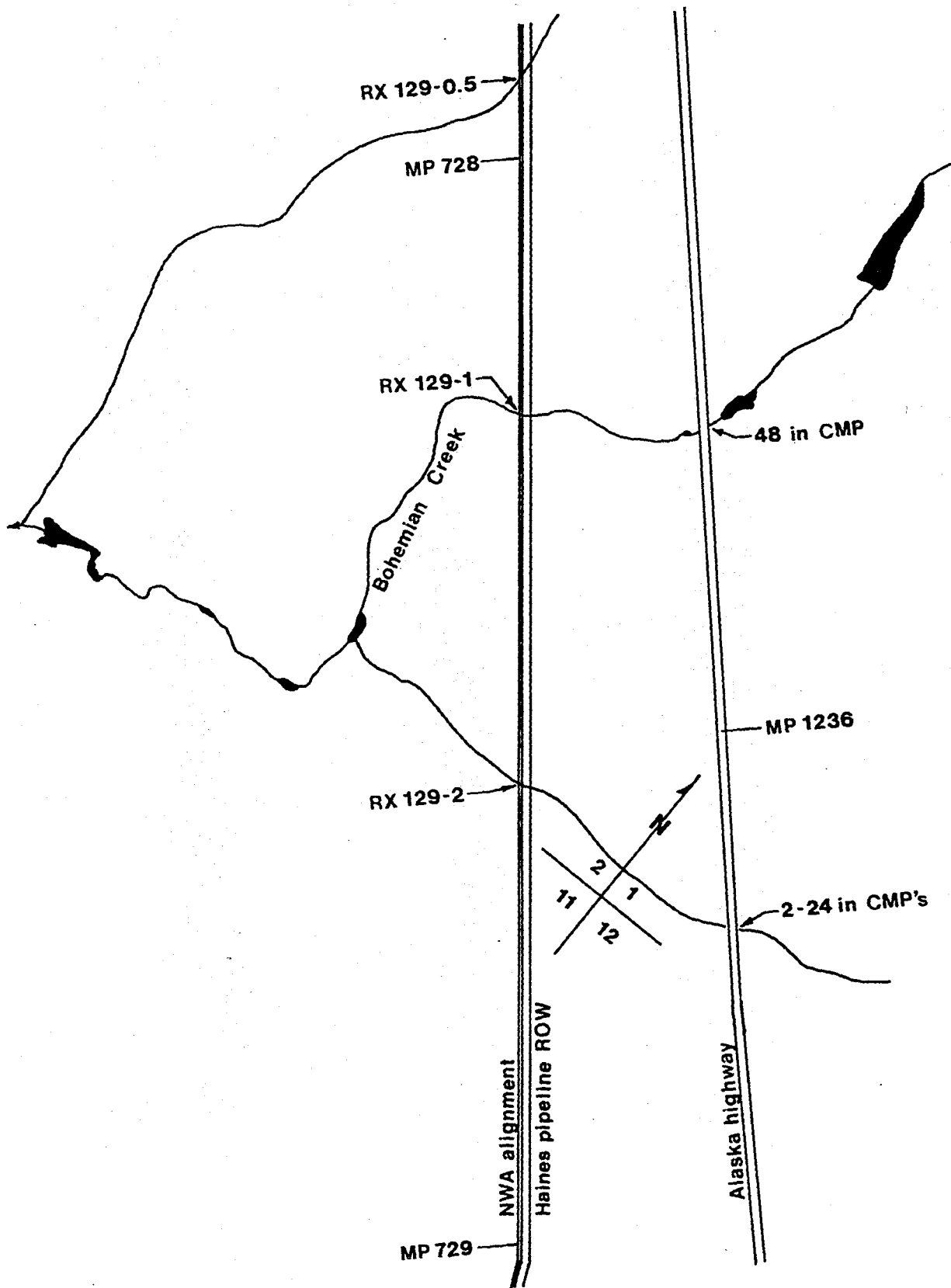
Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery downstream from the proposed gasline crossing.

Data collected in 1981 are presented in Appendices I and IV.

Waterbody

Bohemian Creek

EMG-RX 129-1



Waterbody Unnamed Creek EMG-RX 129-2

Main Drainage Sweetwater Creek Tributary to Bohemian Creek

NWAMP 728.57 AHMP 1235.8

USGS Map Reference Nabesna (D-1), AK T 11N R 22E Sec. 2

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are as described for Unnamed Creek 1235.9 by Chihuly et al. (1980).

This stream's potential for fisheries use is limited to the first several hundred feet above its confluence with Bohemian Creek, where the channel is fairly well defined and gradient is not excessive.

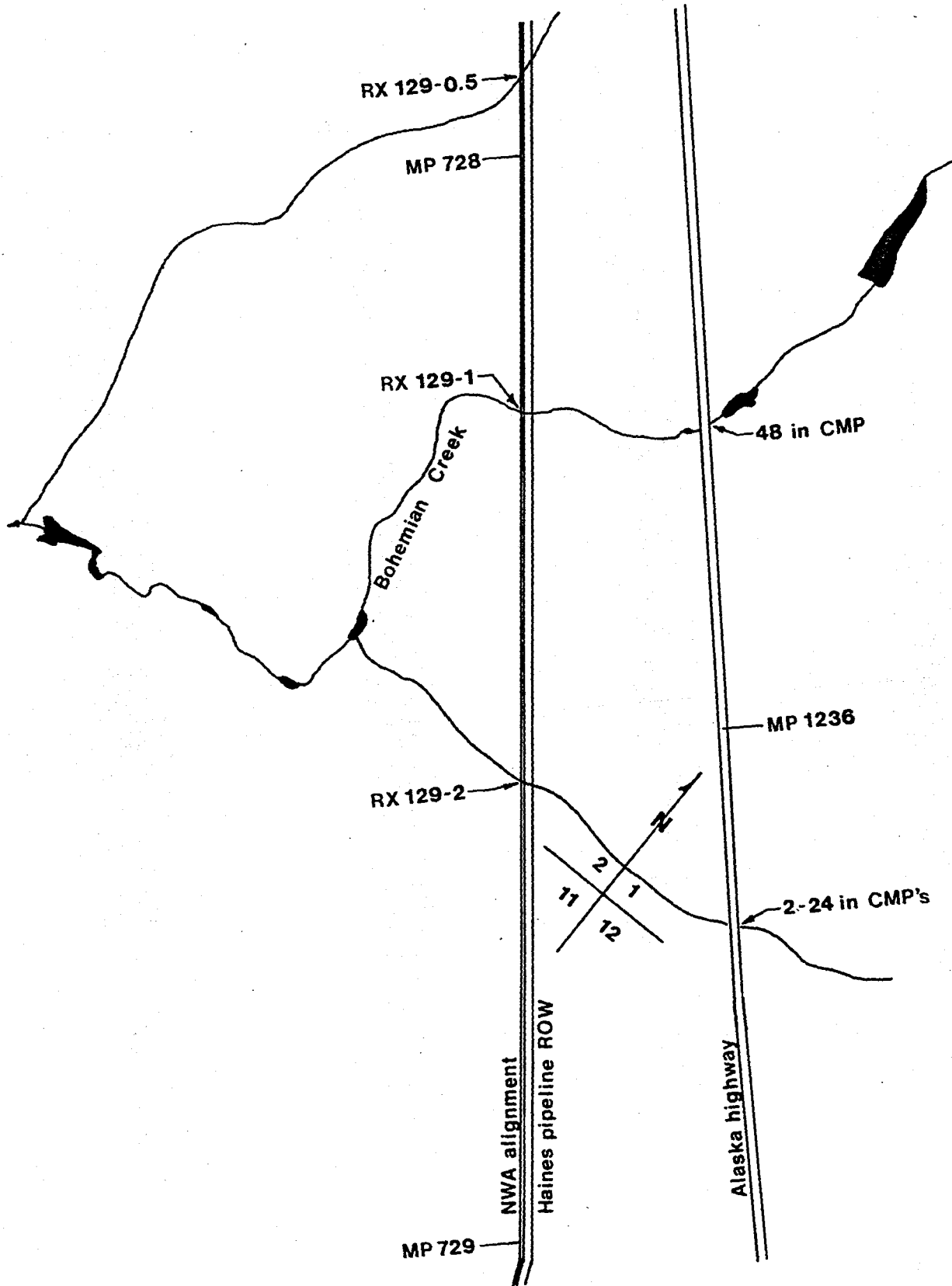
Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery in Bohemian Creek.

Data collected in 1981 are presented in Appendices I and IV.

Waterbody

Unnamed Creek

EMG-RX 129-2



Waterbody Island Lake Inlet EMG-RX 129-5
 Main Drainage Desper Creek Tributary to Island Lake
 NWAMP 732.49 AHMP 1232.3
 USGS Map Reference Nabesna (C-1), AK T 11N R 23E Sec. 30, 29

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are as described for Unnamed Creek 1232.1 by Chihuly et al. (1980).

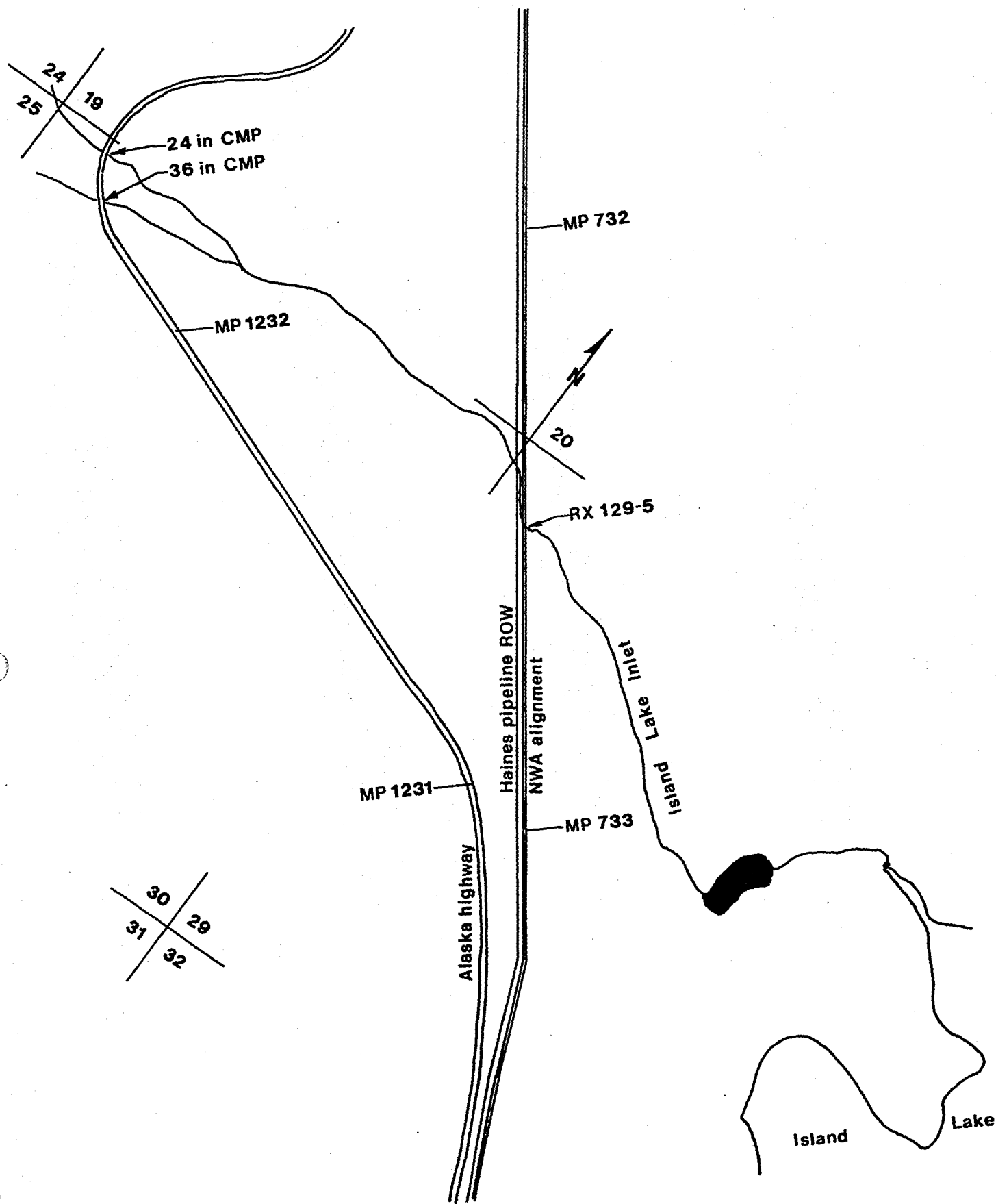
Northern pike are abundant in Island Lake and were observed spawning near the mouth of this stream in mid-May, 1981. The beaver dam at this stream's mouth is probably an effective barrier to all upstream fish movement. No fish were captured or observed above the beaver dam in 1981.

Data collected in 1981 are presented in Appendices I and III.

Waterbody

Island Lake Inlet

EMG-RX 129-5



Waterbody Desper Creek EMG-RX 130-1

Main Drainage Chisana River Tributary to Scottie Creek

NWAMP 737.42 AHMP 1225.6

USGS Map Reference Nabesna (C-1), AK T 10N R 23E Sec. 11

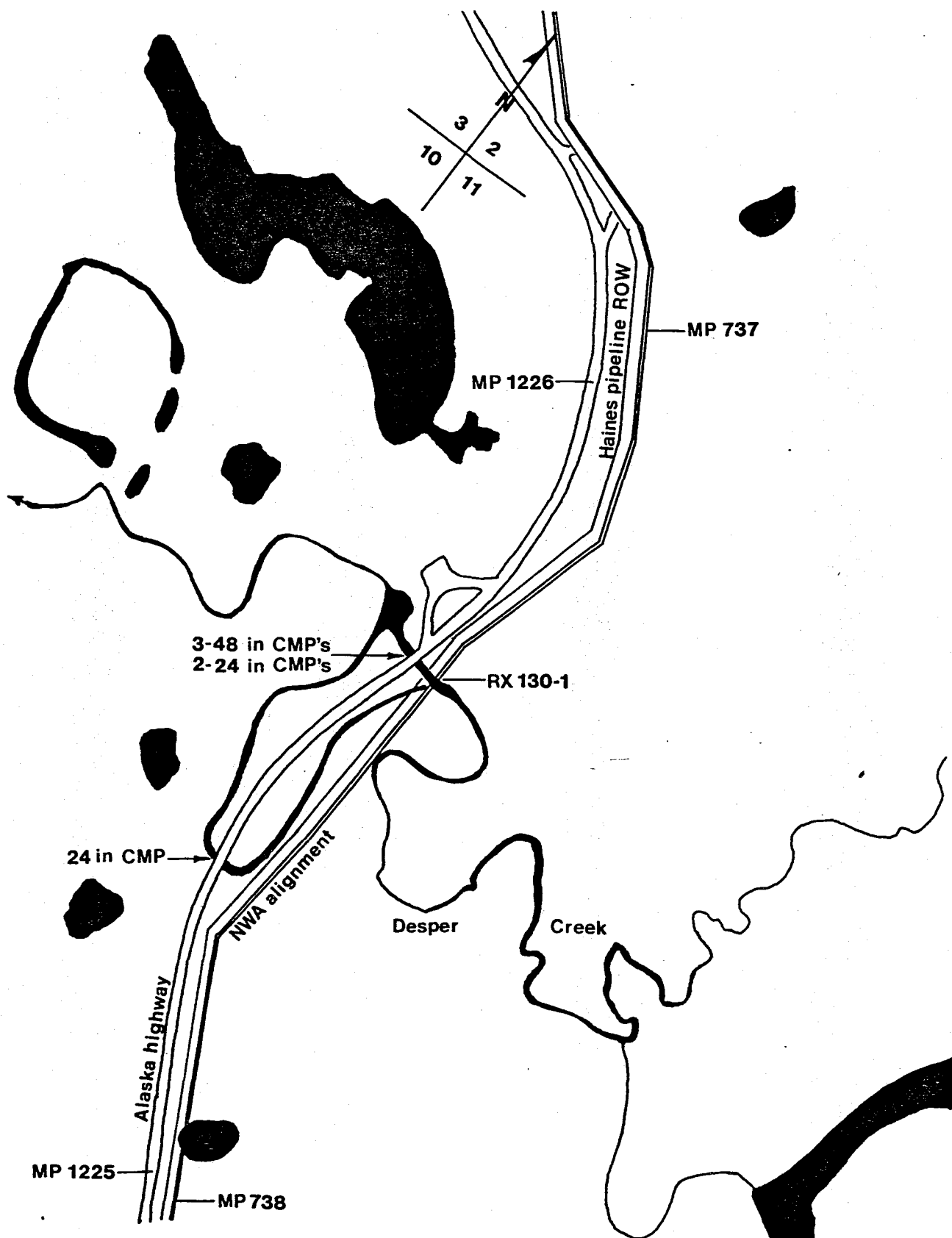
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>NP</u>	<u>M, R, S</u>
Summer	<u>NP</u>	<u>R</u>
Fall	<u>NP, HW</u>	<u>M, R, S?</u>

Desper Creek is a low gradient, meandering stream, flowing south to the Alaska highway then west for about 10 mi to its confluence with Scottie Creek. Island Lake is part of its upper drainage. Stream and streamside characteristics are as described by Chihuly et al. (1980). In 1981, there was beaver activity observed in several locations along Desper Creek. Beaver dams across the full width of the stream were observed about 1000 ft upstream from the Alaska highway, and about 2 and 3 miles downstream from the Alaska highway. The first dam below the highway influenced the water level at the highway culverts. On 7 August, water depth in the culverts was about 0.5 ft. deeper than on 8 July with only about one-half the flow. Continuing construction of that dam throughout the summer was continually raising the water level in the scour pool below the highway. Between the lower beaver dams and its mouth, the Desper Creek channel is almost completely filled with aquatic vegetation.

Investigations in 1981 indicate Desper Creek is heavily utilized by northern pike throughout the open water period as a rearing area. Spawning was observed in Island Lake and probably occurs in the stream as well. Beaver activity has severely restricted access to the stream reach crossed by the highway and the NWA alignment and few fish were seen or captured in that reach compared to below the beaver dams. The first dam below the highway appeared to be a complete barrier to upstream fish movement and the fish captured above that dam quite possibly overwintered there. Adult humpback whitefish observed in the lower reaches of Desper Creek in September were possibly spawners which would indicate overwintering in that area.

Data collected in 1981 are presented in Appendices I and IV.



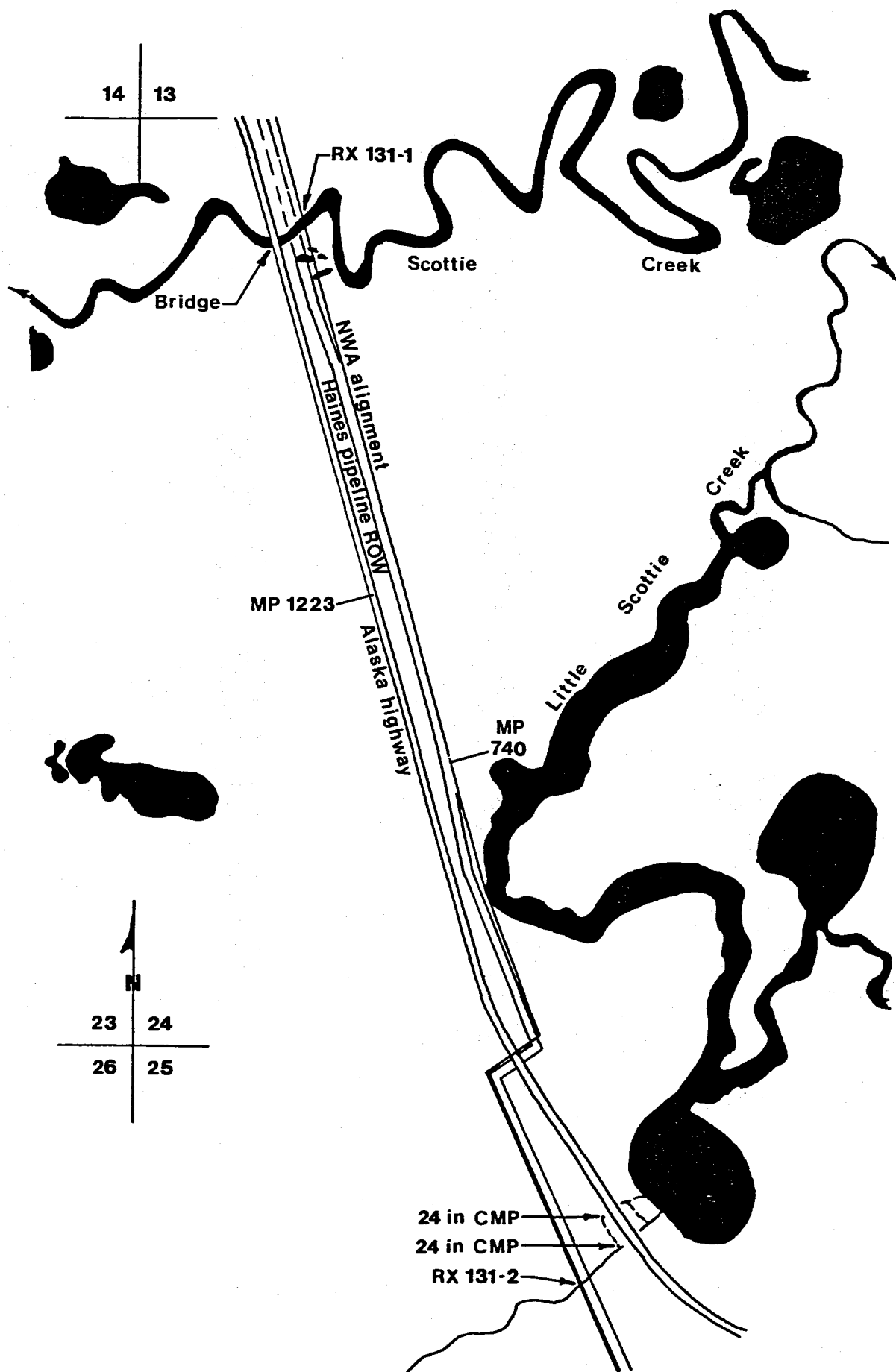
Waterbody Scottie Creek EMG-RX 131-1
 Main Drainage Tanana River Tributary to Chisana River
 NWAMP 739.40 AHMP 1223.4
 USGS Map Reference Nabesna (C-1), AK T 10N R 23E Sec. 24

FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>NP, X</u>	<u>M, R, S</u>
Summer	<u>LS</u>	<u>R</u>
Fall	<u>X</u>	<u>R</u>

Stream and streamside characteristics are as described by Chihuly et al. (1980). In addition to the species documented in 1981, previous documentation includes: spring - burbot; fall - burbot and longnose sucker; winter - burbot, humpback whitefish and northern pike (Chihuly et al. 1980). The young-of-the- year longnose suckers captured in this stream in 1981 indicate a spring spawning run by this species.

Data collected in 1981 are presented in Appendix IV.



Waterbody Little Scottie Creek EMG-RX --

Main Drainage Chisana River Tributary to Scottie Creek

NWAMP 740.14-740.16 AHMP --

USGS Map Reference Nabesna (C-1), AK T 10N R 23E Sec. 24, 25

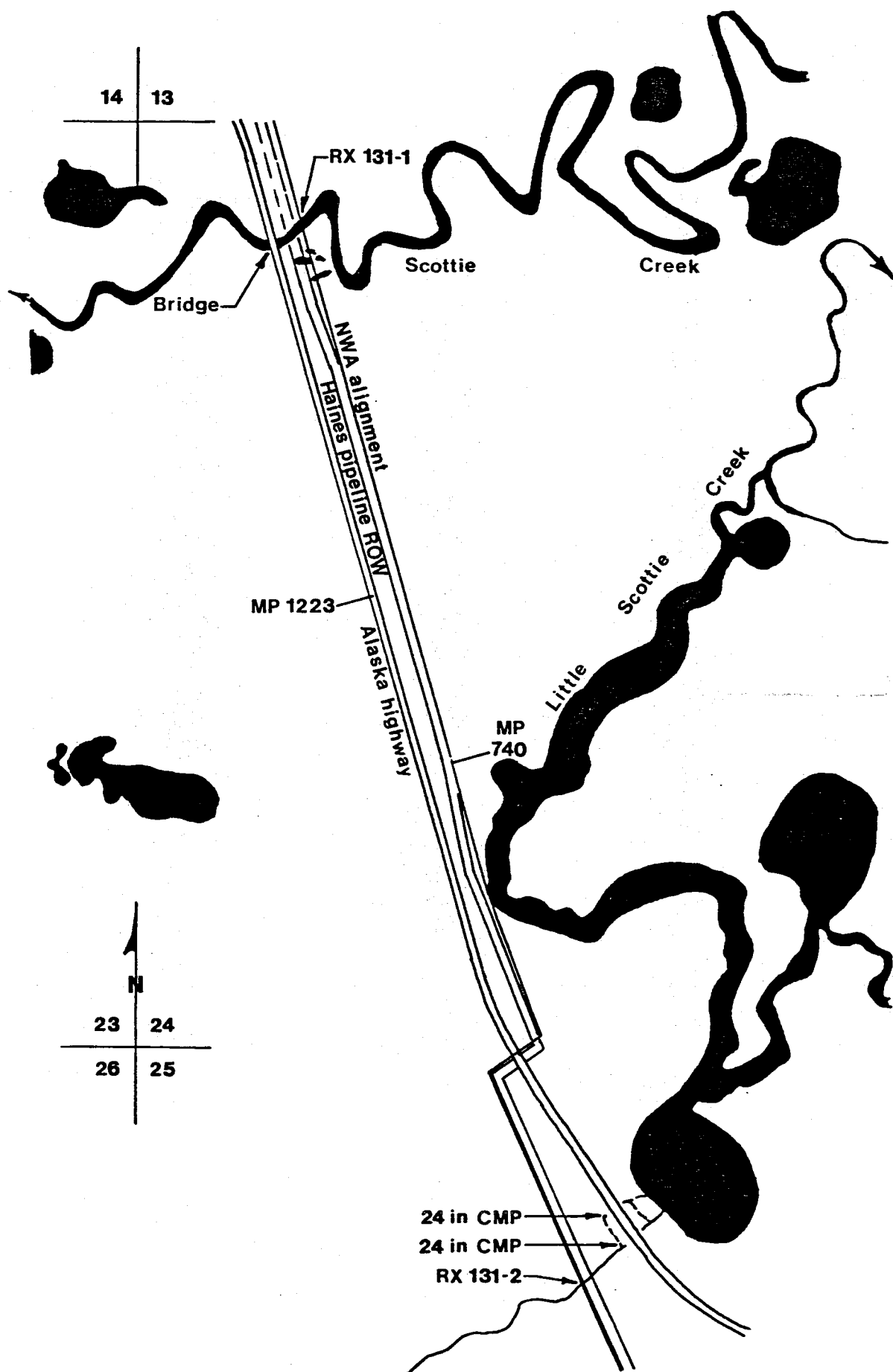
FISHERIES ASSESSMENT

	Species Documented in 1981	Fish Use
Spring	<u>LS, X</u>	<u>R</u>
Summer	<u>X</u>	<u>R</u>
Fall	<u>HW</u>	<u>R</u>

The stream and streamside characteristics of Little Scottie Creek are as described for Unnamed Creek 1222.6 by Chihuly et al. (1980). During high spring flows and after storm events, stream flow is out of this stream's incised channel and spread out over adjacent sedge marsh, as illustrated in the following figure. During these high water periods, the NWA alignment encroaches on this stream.

All observed fish use in 1981 was in the shallow backwater pond that Unnamed Creek (RX 131-2) flows into. This pond was connected to Little Scottie Creek throughout the open water season. The unidentified fish observed throughout the season in this pond were probably humpback whitefish. A local resident reported catching humpback whitefish and northern pike in his gill net set in this pond during August and September.

Data collected in 1981 are presented in Appendix IV.



Waterbody Unnamed Creek EMG-RX 131-2
 Main Drainage Scottie Creek Tributary to Little Scottie Creek
 NWAMP 740.63 AHMP 1222.2
 USGS Map Reference Nabesna (C-1), AK T 10N R 23E Sec. 25

FISHERIES ASSESSMENT

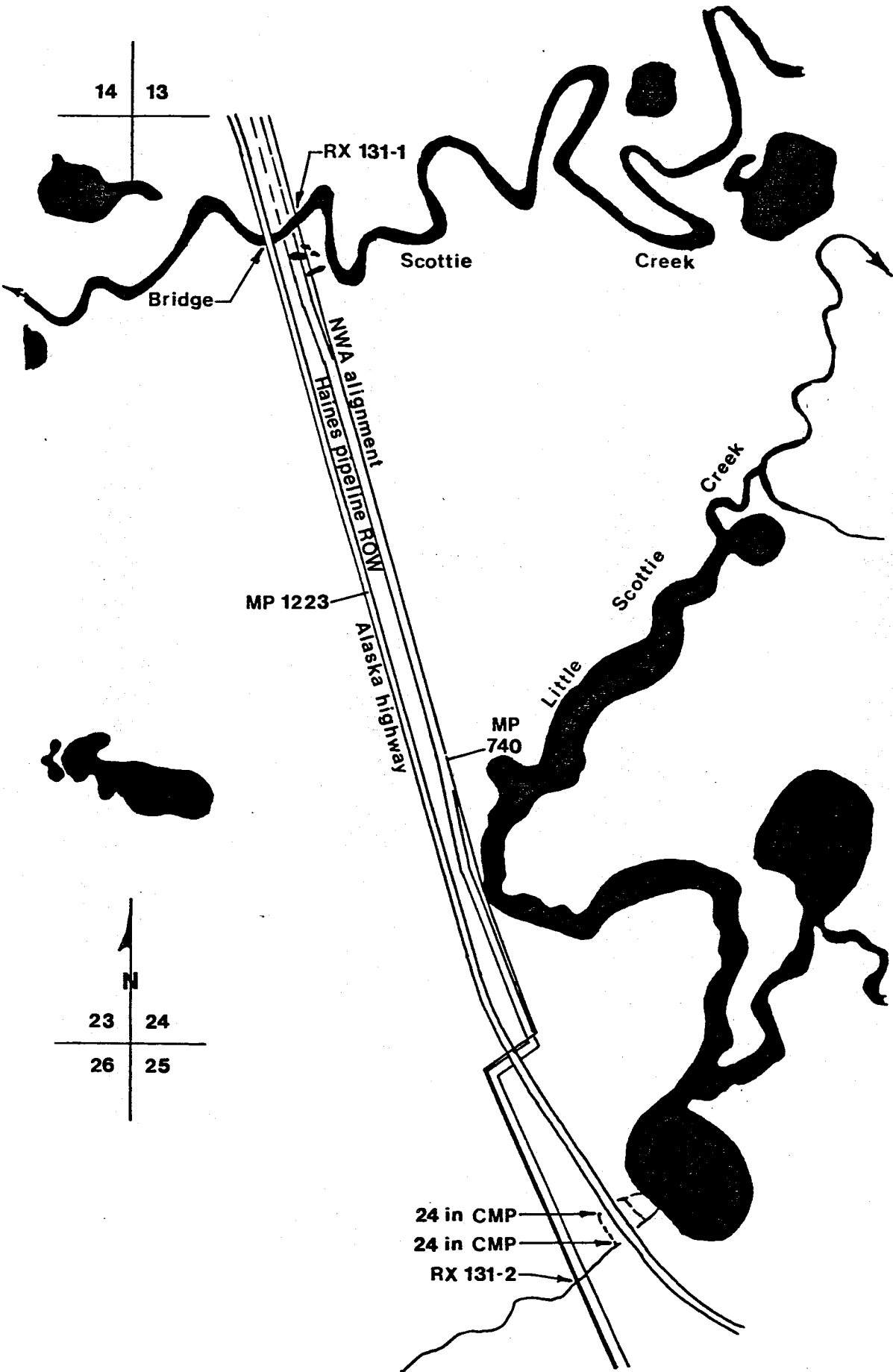
	Species Documented in 1981	Fish Use
Spring	<u>None</u>	<u></u>
Summer	<u>None</u>	<u></u>
Fall	<u>None</u>	<u></u>

Stream and streamside characteristics are as described for Unnamed Creek 1222.2 by Chihuly et al. (1980).

Fish passage into this stream has been blocked by impacts from the Alaska highway. The natural stream channel downstream from the culvert (S. CMP) aligned with the channel is filled with eroded road bed materials. The outlet end of the culvert has fallen apart and produced a barrier to potential fish passage during the period it was not frozen closed. There is no distinct channel below the overflow culvert (N. CMP) that thawed first.

Avoidance of instream construction during the open water season will ensure minimal impacts to the fishery in Little Scottie Creek.

Data collected in 1981 are presented in Appendix IV.



ACKNOWLEDGEMENTS

Special thanks go to Paul Bach, Michael Johnson, James Kay, John McDonell and James Nolke for their assistance in conducting the field portion of this project.

Thanks also go to Berthlyn Baker, Charlie David, Sr., Lucy David, John Ervin and family, Jon Ferguson, Rose Glazier, Donald Joe, Martha Mark, Annie Sam and Jenny Sanford for their consent to conduct stream surveys on their property.

Northwest/Fluor provided the use of two pH meters.

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- Van Hyning, J. M. 1978. Fall and winter fish studies on the upper Tanana River drainage. Aquabionics, Inc., Report to the Northwest Alaskan Pipeline Company, June, Fairbanks, Alaska. 77 p.

APPENDICES

Appendix I: Spring fishery surveys along Northwest Alaskan Pipeline
Company's proposed gas pipeline route -- Delta Junction to the
Canada border. Under separate cover.

Appendix II: Summer fishery surveys along Northwest Alaskan Pipeline
Company's proposed gas pipeline route -- Delta Junction to the
Canada border (Yerrick Creek). Under separate cover.

Appendix III: Fall fishery surveys along Northwest Alaskan Pipeline
Company's proposed gas pipeline route -- Delta Junction to the
Canada border. Under separate cover.

Appendix IV: Miscellaneous fishery surveys along Northwest Alaskan Pipeline
Company's proposed gas pipeline route -- Delta Junction to the
Canada border. Under separate cover.

Appendix V: New fish streams documented in 1981.

<u>Stream name</u>	<u>Species documented</u>
Noklay Creek (RX 107-2)	NP
In-between Creek (RX 123-2)	LS
Tenmile Creek (RX 126-1)	LS, NP