

SB

135

SFIN

FILE

SENATE FINANCE COMMITTEE REPORT

DATE: 3/18/93

FURTHER:

DATE TURNED INTO OFFICE: 1-24-94

The Finance Committee considered SENATE BILL NO. 135

Special appropriation to the Department of Transportation and Public Facilities to determine the cost of acquiring real property within the right-of-way of the proposed extension of the Alaska Railroad from Eielson Air Force Base to the Alaska-Canada border; etd.

and recommends:

replace with _____ CS SB135 (FINANCE)
or adopt previous _____ CS _____
 attaches amendment(s)

same title
 new title
 technical title change (HB only)

adopts _____ Letter of Intent

further referral to the _____

CS (Fin) coming

do pass

do not pass

no recommendation

individual recommendations

NEW FISCAL NOTES

Department	Date	Zero	Fiscal

PREVIOUS FISCAL NOTES

Department	Date	Zero	Fiscal

Appropriation No Fiscal Note

DO PASS

Steve Pinn
George Parker
Sam Almy

OTHER RECOMMENDATIONS:

1. *Mark* DO PASS
Co-Chair: Signature/Recommendation

2. *Wanda Pearce* NO REC
Co-Chair: Signature/Recommendation

①

Please indicate
that this was
passed out
amended
w/o FN!

NATE AMENDMENT

By S. Szarp

SENATE BILL No. 135

HOUSE BILL No. _____

no objections
PASSED
5-0

LINE:

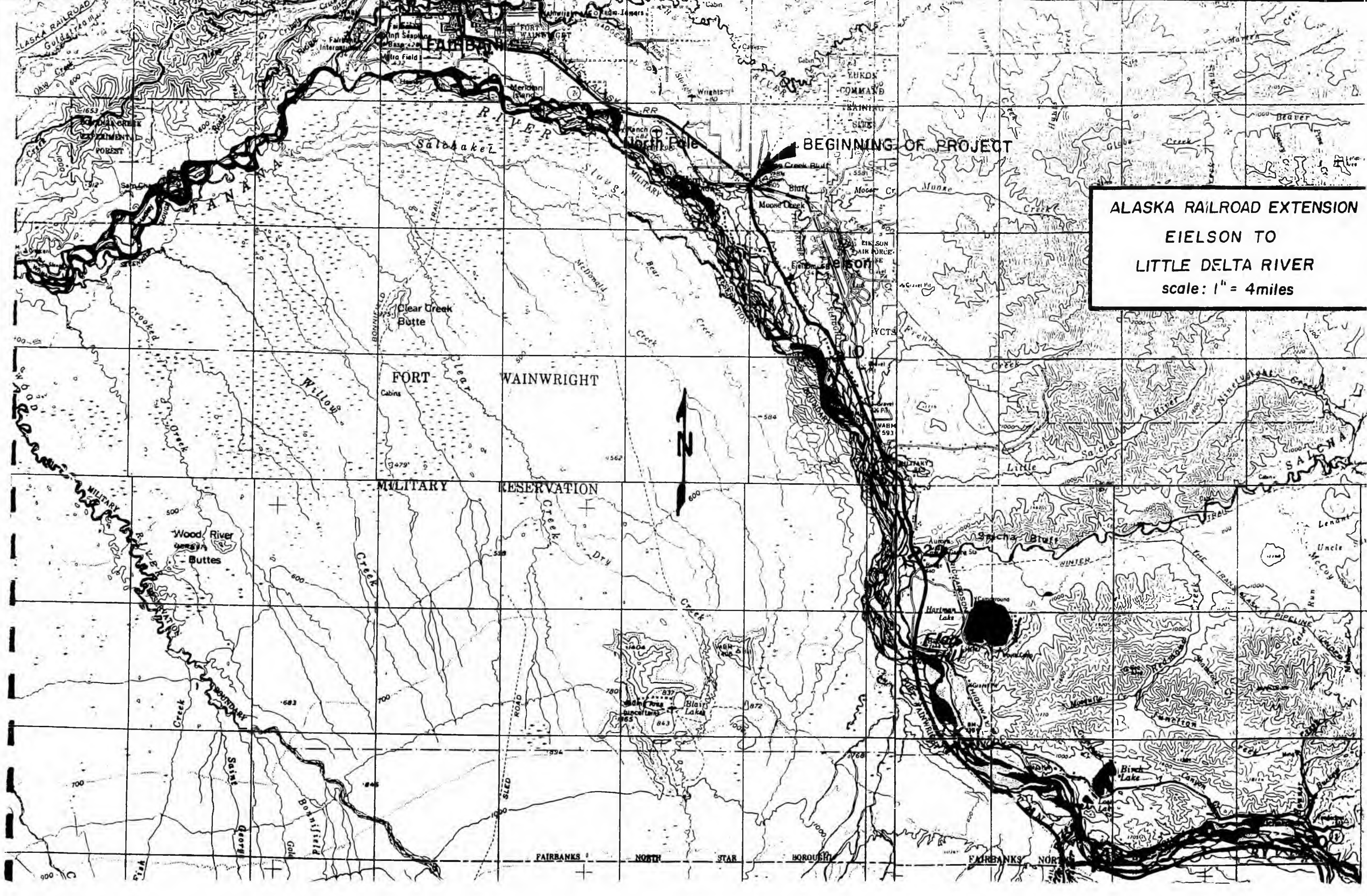
Pg 1, Line 7 - change "June 30, 1994"
to "June 30, 1995"

Pg 1, Line 12 - change "July 1, 1993."
to "July 1, 1994"

This is an
Appropriation
not nec to
have FN!

SENATE FINANCE
COMMITTEE ①
Amendment Number: _____
Bill Number: SB 135
Sponsor: Szarp Date: 1/24/94
Logged In By: (Bm)

1-24-94
10:25 am
Phoned to George Utermobile.



**ALASKA RAILROAD EXTENSION
EIELSON TO
LITTLE DELTA RIVER
scale: 1" = 4miles**

BEGINNING OF PROJECT

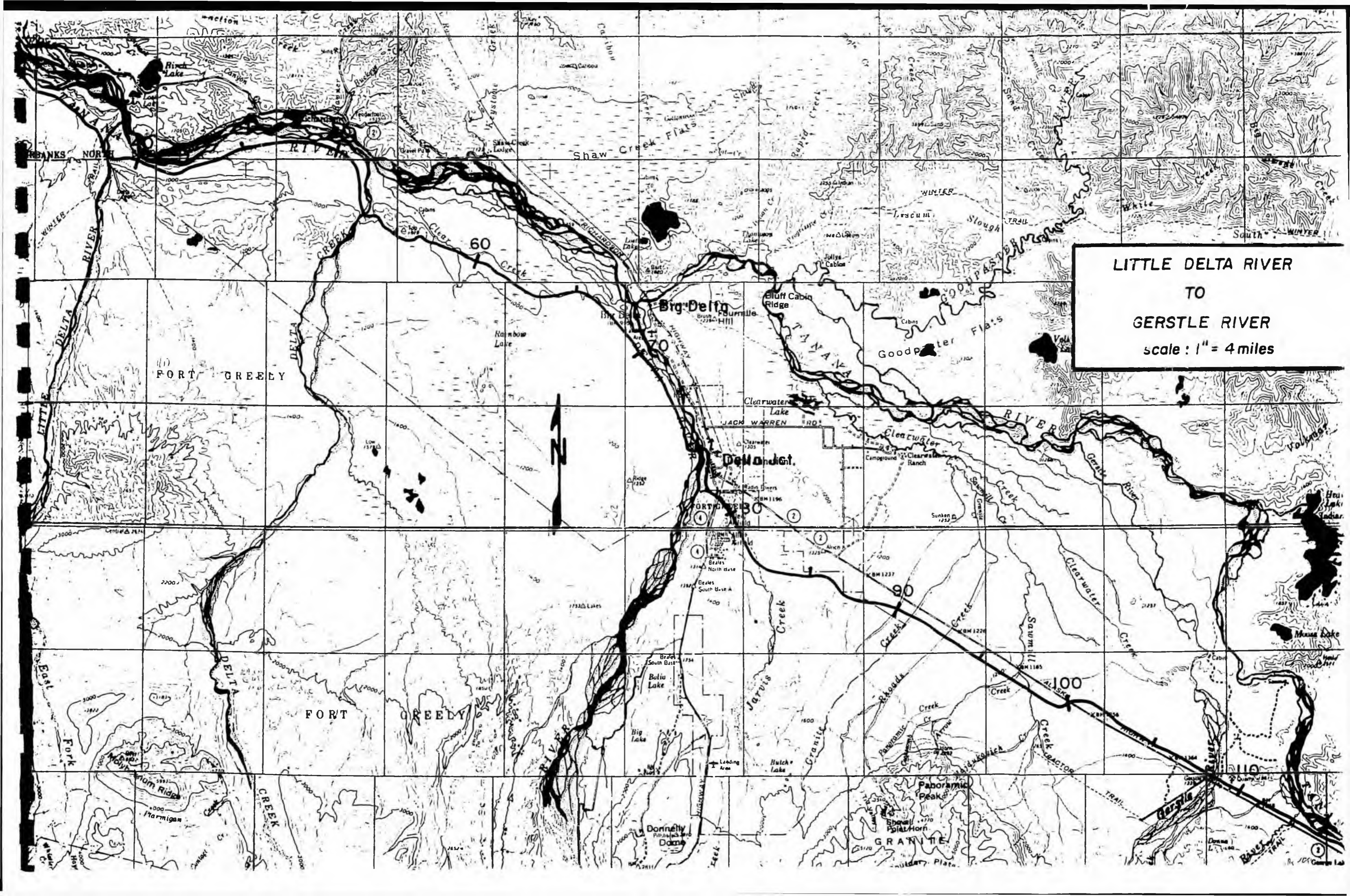
FORT WAINWRIGHT

MILITARY RESERVATION



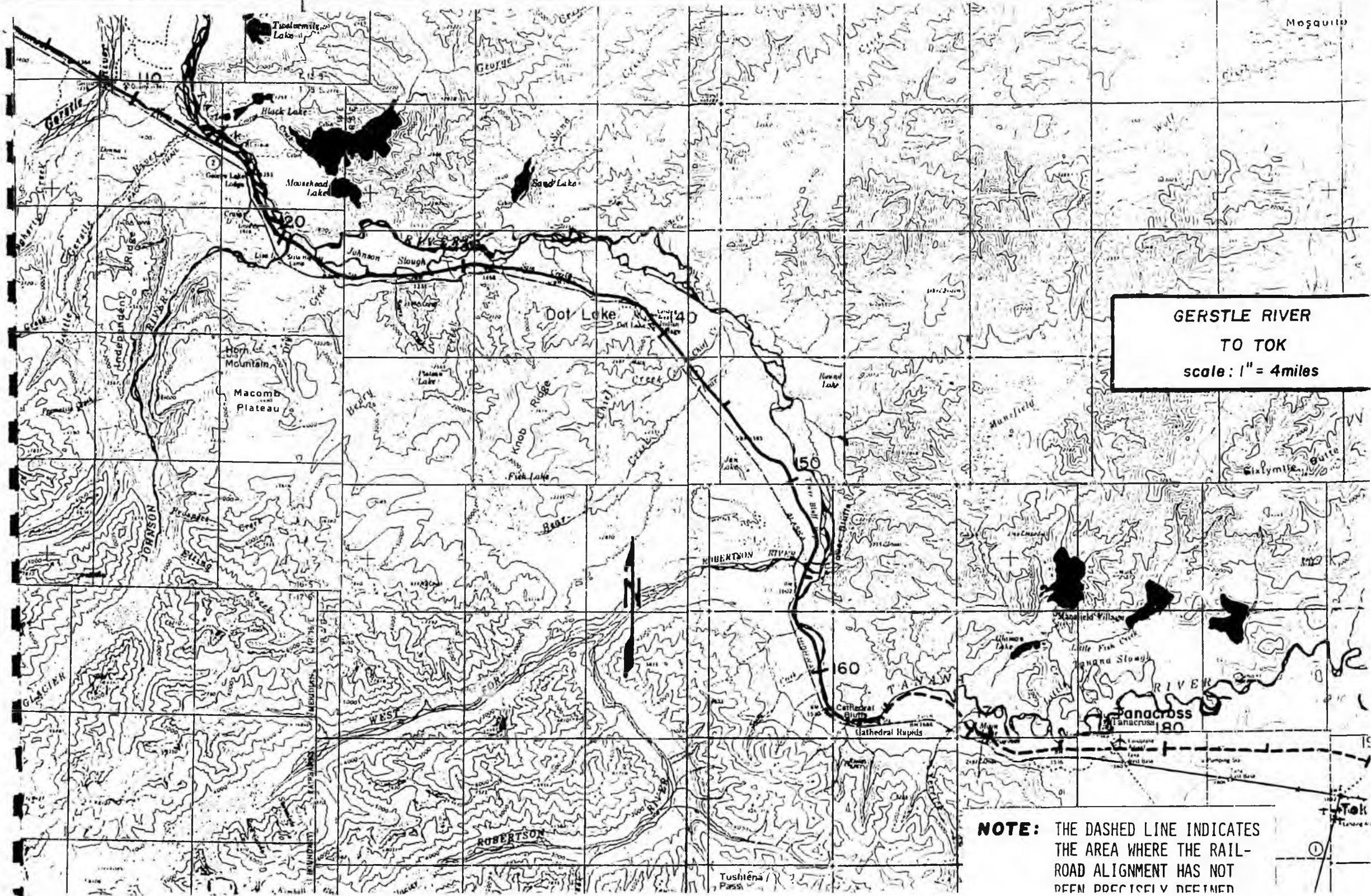
FAIRBANKS NORTH STAR BOROUGH

FAIRBANKS NORTH STAR BOROUGH



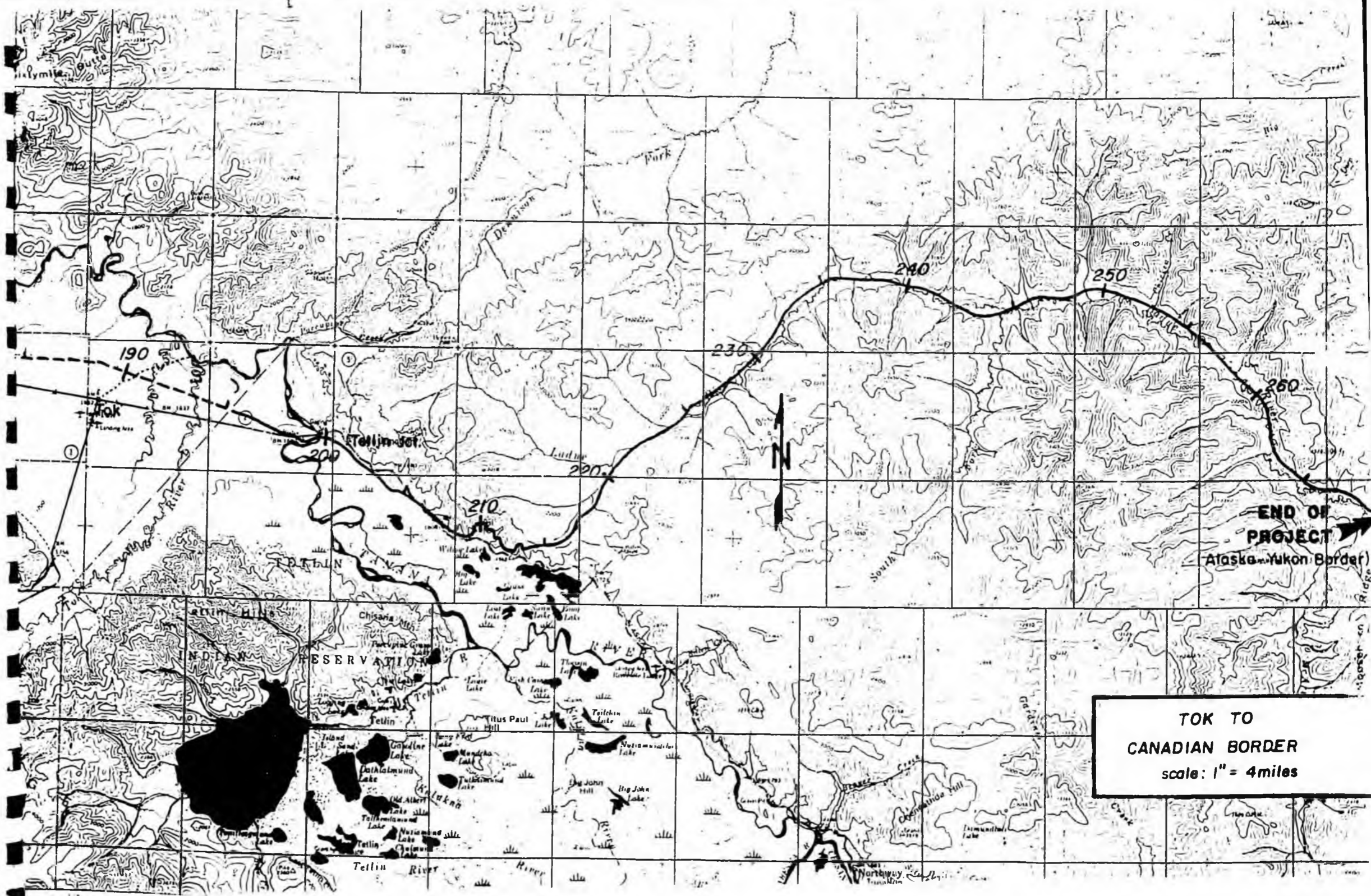
LITTLE DELTA RIVER
TO
GERSTLE RIVER
scale: 1" = 4 miles





**GERSTLE RIVER
TO TOK**
scale: 1" = 4miles

NOTE: THE DASHED LINE INDICATES THE AREA WHERE THE RAIL-ROAD ALIGNMENT HAS NOT BEEN PRECISELY DEFINED



Alaska State Legislature

SENATOR
MIKE MILLER
P O. Box 55094
North Pole, Alaska 99705
(907) 488-0862

Senate District Q



Senate

White in Juneau
State Capitol
Juneau, Alaska
99801-1182
(907) 465-4976

To: Senator Drue Pearce, Co-Chair
Senator Steve Frank, Co-Chair
Senate Finance Committee

From: Senator Mike Miller

Re: SB 135 - Approp: Ak. Railroad Extension
Study

Date: March 25, 1993

I would like to request that you schedule a hearing on SB 135 in the Senate Finance Committee at your earliest convenience.

Senate Bill 135 would appropriate \$10,000 to the Department of Transportation & Public Facilities to estimate the cost of acquiring private land for a railroad right-of-way from Eielson Air Force Base to the Canadian border.

Please contact Teresa of my staff if you need additional information. Thank you for your assistance.

Alaska State Legislature

SENATOR
MIKE MILLER
P O. Box 35094
North Pole, Alaska 99705
(907) 488-0862

Senate District 0



Senate

While in Juneau
State Capitol
Juneau, Alaska
99801-1182
(907) 465-4976

SPONSOR STATEMENT

Senate Bill 135 would appropriate \$10,000 to the Department of Transportation & Public Facilities to estimate the cost of acquiring private land for a railroad right-of-way from Eielson Air Force Base to the Canadian border.

In 1977 the Legislature directed the department to select a proposed utility corridor and identify a right-of-way for extension of the railroad. A report of that work, the Alaska Railroad Extension Route Selection was done in 1979. A follow up 1982 report includes an update of the route description and an environmental assessment of the route.

The legislation before you would provide adequate funding for an update the title work that was done in 1979 from which a new acquisition estimate can be derived. A current estimate is necessary due to recent completion of land selections and conveyances since the 1982 DOT report.

The cost of the original 1982 title work was \$66,700 and the right-of-way acquisition estimate at that time was \$3.175 million.

5B135

WALTER J. HICKEL, GOVERNOR

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
NORTHERN REGION, REGIONAL DIRECTOR

2301 PEGER ROAD
FAIRBANKS, ALASKA 99709-5316
PHONE: (907) 451-2210

December 30, 1992

Re: Railroad Extension
Project R-51034

Red Swanson
113 West 5th Street
Juneau, AK 99801

Dear Mr. Swanson:

You recently requested an estimated cost to acquire the right of way for the Alaska Railroad extension to the Canadian border. I understand your intent was to use this estimate as a basis for obtaining a legislative appropriation to proceed with the project.

When this project was mothballed in 1982, the estimated cost for right of way acquisition was approximately \$3.2 million. This was based on a 300' wide right of way for 270 miles which resulted in a proposed acquisition of nearly 10,000 acres. The majority of the land to be acquired was under the control of the Department of Natural Resources (DNR) or the Bureau of Land Management (BLM) and no compensation would have been required to obtain the right of way. Most of the estimated budget would have been used to develop right of way plans, appraise and acquire the private parcels and perform miscellaneous project-related right of way tasks.

Since 1982 a good deal of the lands to be acquired from BLM and some of the lands to be acquired from DNR have been conveyed to private parties. These lands and improvements, which now would have to be appraised and acquired, along with the expected appreciation in real estate values and the cost of doing business, represent a significant increase in the cost of securing the right of way.

In the normal process of project development we regularly prepare estimates for acquisition. These estimates involve a review of the land title status, an estimate of the value of the land and improvements, an estimate of the cost to appraise, acquire and condemn if necessary, and possibly an estimate to relocate homes and businesses. By the time we are asked to prepare these estimates, funding is generally available for the required staff time.

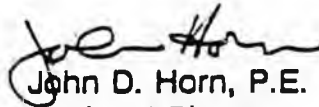
Red Swanson

-2-

December 30, 1992

With regard to the preparation of an estimate for the Railroad Extension Project, we are faced with a project which is several orders of magnitude larger than our typical project and without the funding necessary to perform the task adequately. The size of this project also puts it beyond the realm of tasks that can be performed with our limited overhead budget. Therefore, if we are to prepare an estimate that is anywhere close to reality, it will be necessary for you to secure an appropriation which will allow us to do this preliminary evaluation. Upon receipt of sufficient funding (approximately \$7,500 to \$10,000) we can begin scheduling the staff time necessary to proceed.

Sincerely,



John D. Horn, P.E.
Regional Director
Northern Region

jfb

ALASKA RAILROAD
EXTENSION

JB135

**ROUTE SELECTION
PROJECT X20089**



**EIELSON TO
CANADIAN BORDER**

STATE OF ALASKA
DEPT. OF TRANSPORTATION
& PUBLIC FACILITIES
JULY 1979

**APRIL 1982
UPDATE**

ALASKA RAILROAD EXTENSION

ROUTE SELECTION

PROJECT K20039
& R51033

EIELSON TO CANADIAN BORDER

STATE OF ALASKA

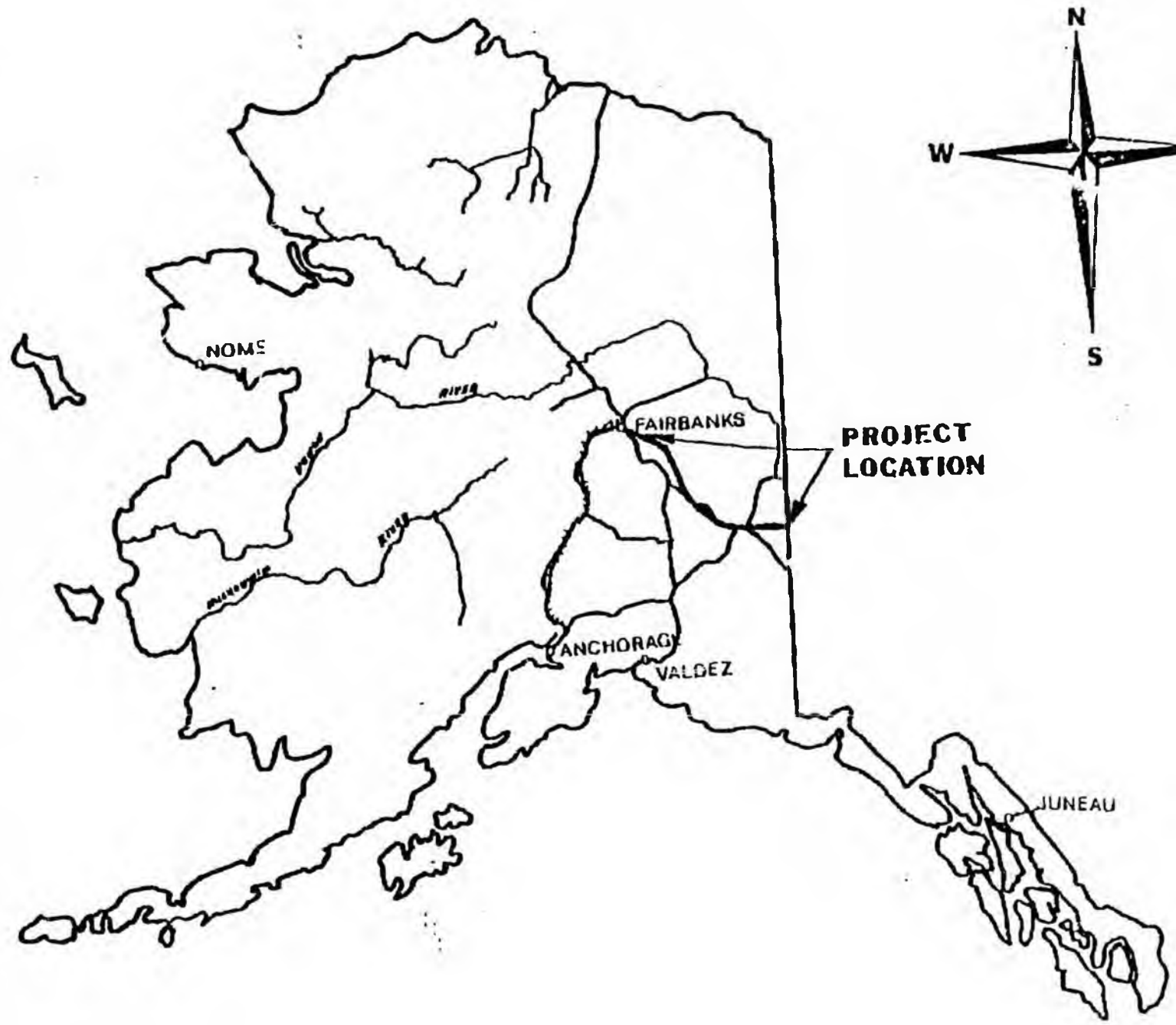
DEPARTMENT OF TRANSPORTATION

& PUBLIC FACILITIES

INTERIOR REGION



APRIL 1982



INTRODUCTION

In the spring of 1977 the first session of the tenth Alaska Legislature passed House Bill 47 dealing with a proposed extension of the Alaska Railroad to the Canadian Border. House Bill 47 directed the Interior Region of the Alaska Department of Transportation and Public Facilities to delineate a proposed utility corridor for extension of the railroad and to identify a proposed railroad right of way.

Over the following two years the Interior Region Department of Transportation and Public Facilities worked on the problem of selecting a route for the proposed rail extension. The basic alternatives under consideration were presented in a Preliminary Route Study in April 1978. The final route selected was presented in a report dated July, 1979. The latter report, Alaska Railroad Extension Route Selection, has been widely distributed. Some segments of right of way along the recommended line have already been reserved through State land disposal areas.

A July, 1981 amendment of House Bill 47 requires the Department to prepare an Environmental Assessment of the recommended railroad route and to move to acquire the necessary right of way. A copy of House Bill 47 as amended is included in the appendix of this report. The amended legislation also includes an April 2, 1982 deadline for a "complete legal description" of the proposed railroad right of way.

A legal description of the route had already been done at the time of the 1979 report. However, since that time, there have been numerous adjustments to the route location. The purpose of this report is to update the route description in conformance with the legislation and to discuss the environmental work and right of way acquisition which will be continuing for many months.

The precise location of the proposed railroad route is presently described in terms of Alaska State Coordinates derived from photogrammetric mapping. The mapping is based on a field survey performed in 1978. The updated coordinate data is not included in this report but is on file at the Interior Regional Department of Transportation and Public Facilities and with the Department of Natural Resources, Division of Lands. The route has been plotted on USGS quadrangle maps at a scale of 1 inch = 1 mile. A set of these maps is included in the back of this report.

The basic route corridor has not been changed since 1979; however, adjustments to the original alignment have been made to reduce impacts on private property, to conform to proposed State land disposals, to accommodate the proposed natural gas pipeline and to place the route on more favorable foundations.

In 1978 and 1979, photogrammetric mapping of the proposed railroad route was produced. The mapping covers a 500 ft. wide strip at a scale of 1 inch = 100 ft. Some of the recent alignment changes have shifted the recommended centerline out of the mapped area. Additional mapping to cover these line changes would have to be acquired before design work is done but this additional mapping will not be necessary to complete the work required by the amended House Bill 47.

The route recommended in the 1979 report had a gap of about 39 miles in the Cathedral Bluffs to Tok area that was not precisely defined because of problems with the control survey across Tanacross lands. The control work has since been completed and the area has been mapped and the route defined to the same accuracy as the rest of the project.

Work on the Environmental Assessment of the proposed corridor is under way and is expected to be completed some time in 1982. The Environmental work will include coordination with appropriate agencies as well as an opportunity for public input.

CRITERIA FOR ROUTE SELECTION

The location of the railroad was the key to defining the utility corridor required by House Bill 47 since the grade and alignment constraints on a railroad are much more restrictive than for any other transportation mode or utility installation. For this reason, the Department concentrated work on the selection of a railroad location. In effect, a utility corridor has been placed around the best available railroad alignment, rather than trying to place a railroad route within a pre-selected corridor.

In order to identify the best available railroad location, several factors were considered:

1. Design Standards The railroad was located so as to meet grade and alignment standards which are commensurate with the transcontinental rail system standards. The Engineering Department of the Alaska Railroad provided the following recommendations for design standards.

Grades

1%	desirable
1.7%	maximum

Curvature

3° valley terrain	desirable	maximum
6° mountainous terrain	"	"
10°	absolute	maximum

2. Foundations and Materials An attempt was made to locate the railroad on the best available foundations and in areas where construction materials were readily available. Good foundations are essential in keeping construction and operating costs to a minimum. Funding and time limitations did not allow a program of subsurface investigations and soils analysis. Materials investigations consisted primarily of aerial photo interpretation.

3. Safety Potentially hazardous situations such as highway grade crossings were avoided wherever possible. The route described in this report crosses the Richardson Highway one time and the Alaska Highway three times.

4. Service to Communities The railroad route was located so as to serve local communities and enhance local development plans while still maintaining the "through" nature of the route. Early in the reconnaissance study, meetings were held with military personnel at Fort Wainwright, Eielson AFB, Fort Greely and also with the Delta Junction Chamber of Commerce, Citizens of Tok, Alaska Department of Fish and Game and the State Division of Lands. Input from these meetings directly affected the selection of a railroad route through developed communities.

5. Environmental Concerns The scope and funding of the original study did not provide for a full Environmental Assessment of railroad construction and operation. However, the Department's Environmental Section as well as other appropriate agencies were consulted in order to maintain an awareness of environmentally sensitive areas and issues which might affect the selection of a railroad route. As mentioned earlier, the amended House Bill 47 requires a formal Environmental Assessment and this work is now in progress.

6. Right of Way The railroad alignment was placed on public lands wherever possible so as to minimize the costs and impacts of right of way acquisition.

7. Costs Costs of rail construction were kept in mind and minimized where possible. However, the study does not include an estimate of construction costs for the proposed rail project.

ROUTE RECONNAISSANCE

The information on the following three pages is an excerpt from the 1979 report describing the steps leading to the selection of the recommended railroad route.

Previous developments, (highways, pipelines, communications systems, airports), have established a general transportation corridor from the present terminus of the Alaska Railroad at Eielson Air Force Base southeast to the Canadian border. This corridor can be described in broad terms as the valley of the Tanana River or in more narrow terms, as the route of the Richardson and Alaska Highways.

A study of topographic and land status maps of eastern Alaska readily shows that the terrain and the associated economic and environmental considerations affectively rule out any general corridor other than the Tanana River Valley. This route study was confined to the Tanana Valley except for the easternmost 50 miles which follow the Ladue River down to the Canadian border.

The Ladue border crossing was first proposed in 1942 when the U.S. Army Corps of Engineers surveyed a route for a rail connection to Alaska. Interest in that project faded after the end of World War II, but the route chosen at that time has been reaffirmed many times in subsequent years. The Ladue crossing directs the Yukon Territory segment of the railroad route into the broad valleys of the White, Yukon, Pelly and Liard rivers. The valleys provide a fairly direct route to Watson Lake, Y.T., through which the connecting link to the existing transcontinental rail system will pass.

It should also be pointed out that the Ladue River border crossing allows the easiest and most direct route to Whitehorse, Y.T., should Canada decide to run the rail connection through that city. This study considers only the Ladue River border crossing.

The first step in selecting a railroad route was to study topographic maps and to identify on these the route possibilities that appeared to merit further study by means of aerial photography.

From the map study, it was determined that the 108 mile section from Delta Junction to Tok was adequately covered by aerial photographs taken in September 1976 for the purpose of highway reconnaissance. Likewise, the 80 mile segment from Tok to the Canadian border via the Ladue River had previously been photographed in a 1973 rail study. This left only the 75 mile segment from Eielson to Delta Junction lacking in reconnaissance photo coverage. Photographs of this area were scheduled for the fall of 1977.

Map study of the Eielson to Delta Junction area revealed several possible routes including an alignment along the north bank of the Tanana River and several alternatives south of the river. In September 1977, these routes were investigated by a fixed-wing overflight involving the Regional Geologist, Hydrologist and Reconnaissance Engineer. After this investigation, three routes were chosen as the most promising rail locations, one north of the Tanana River and two south of the river.

All three of these routes were subsequently photographed in color on October 1, 1977. All of the aerial photos mentioned above are at a scale of 1 inch = 1000 ft.

Through the winter of 1977-78, considerable time was spent studying the reconnaissance photographs in an effort to select a preliminary alignment. The preliminary route was then studied in detail and refined in 1978 and 1979. Photogrammetric mapping was chosen as the most effective means of selecting a precise route for the railroad. This method allowed a high degree of latitude in final route selection and was adaptable to the time and funding constraints which had been placed on the project. The mapping work was assigned to two consulting firms which were already under contract to provide mapping services to the State of Alaska. The Department also engaged consultants to do the control survey work necessary for accurate mapping.

In all cases, coordinate positions and azimuths were originated from existing Geodetic Survey, U.S. Geological Survey, U.S. Army Corps of Engineers, Bureau of Land Management and two stations established by the International Boundary Commission. The control traverses or nets were also closed with respect to other stations of the same origin or previously established monuments which had been derived from them. After running a field data traverse through the network from geodetic station to station, a compass adjustment was made to position all intermediate points. The thus derived positions of each new traverse or control station were anticipated to be within 1:30,000 accuracy relative to existing control. Actual field determinations have proven this to have been accomplished.

All vertical control was derived from existing U.S.C. & G.S. or U.S.G.S. Bench Marks. A more detailed discussion of the control survey is presented in a report prepared by the consultants upon completion of the survey work. That report also contains a listing of the positions of all control points.

As the Department received control data from the survey consultants, it was sent to the mapping consultants and the production of contour maps began by mid-summer 1978. This was accomplished at a scale of 1 inch = 100 ft. with a 2 inch contour interval. The band of mapping varied from 500 ft. to 800 ft. Over most of the length of the project a 500 ft. wide strip centered on the preliminary route was mapped. In some areas of rough terrain, a wider strip of mapping was requested to allow more flexibility in selecting a final railroad route.

As the mapping was received, the Department placed a railroad centerline on it. Occasionally, the line is tightly controlled by topography. This is most obvious when climbing from the Tanana River to the Ladue Summit. A 1% "Grade Contour" was laid out on the mapping by starting at the Ladue Summit and working down to the highway on the Tanana side. A railroad centerline was then drawn to get the best "fit" to this grade contour. The result is a railroad centerline with a sustained 1% grade and continuous curvature for a distance of about 10 miles.

As the alignment was placed on the mapping, the Regional Geologist and Hydrologist reviewed it and recommended needed changes. When the most desirable "fit" was achieved, the State Plane Coordinates of the tangent intersections were scaled off the contour maps and bearings and distances of the tangents were calculated, as well as all curve data. All of the alignment and coordinate data has been tabulated and is on file at the Interior Regional Office of the Department of Transportation and Public Facilities.

RIGHT OF WAY

A basic right of way width of 300 ft. is recommended for the railroad route. This will be ample for rail construction and still allow a buffer zone between the tracks and adjacent properties. Additional right of way could be needed for facilities such as switching yards, maintenance buildings or depots associated with the railroad. The need for such facilities has not been addressed to date and would be handled during the design phase of the rail project. Material sources for construction would also require lands in addition to the basic 300 ft. right of way.

For right of way purposes the railroad centerline has been described with circular curves in order to simplify the property descriptions. The railroad will actually be built with spiral curves which will deviate slightly from the right of way centerline.

Additional field survey work tying section corners and property corners to the original control survey will be necessary before right of way plans and plats can be produced. Some of these property ties have already been obtained and the rest will be acquired during the 1982 work season.

The Department plans to contract with a consultant to do the necessary title research work. This work will be followed by appraisals, negotiations and acquisition under the direction of Department personnel. Large right of way projects such as this typically involve some condemnation proceedings. The right of way process for the entire route is expected to extend over a period of two to three years. The intent is to begin at the Eielson end of the project and work toward the Canadian border.

Some funding has already been earmarked for property acquisition but additional funds will be required to complete acquisitions along the entire route. As presently laid out, the proposed route would involve no buildings but would require portions of numerous private holdings. The bulk of the route lies on State, military or native corporation lands.

ENVIRONMENTAL ASSESSMENT

The Environmental Assessment for the proposed railroad extension was initiated in early November, 1981, with written contact made to numerous State, federal and local government agencies as well as individuals and organizations interested or affected by the project. Comments and questions on the project were solicited. On November 24, 1981, an interagency scoping meeting was conducted to identify major issues of concern and coordination necessary to address the issues and process the proposal. The scoping process was followed by general data compilation and mapping.

An Alaska Heritage Resource Survey Inventory of the corridor was requested from the State Historic Preservation Office. The State Historic Preservation Office indicated in a follow-up phone contact that they did not have the manpower for an inventory. Department of Transportation and Public Facilities personnel subsequently mapped the corridor cultural resources using information from the State Historic Preservation Office in Anchorage. SHPO later responded with abbreviated inventory information and a recommendation for a preconstruction cultural resource survey.

Information on the extent of mining claims in the Ladue River Valley was provided by the Right of Way Section.

The Soil Conservation Service was contacted to determine the potential for project conflict with prime or unique farmlands. No conflict exists.

General geological hazards of the corridor were mapped by the Geology Section.

Contact with Northwest Alaska Pipeline Company provided information on sensitive wildlife areas and vegetation types in a narrow corridor surrounding the proposed gas pipeline; parts of the data may prove useful for site specific areas of railroad alignment.

Status plats have been researched at the local BLM Office to identify and map land classifications in the railroad corridor area, but further classification research is needed.

Several offices within the Department of Natural Resources have been contacted. State park lands within the corridor have been identified. Proposed disposals of State subdivision, remote and agricultural lands through 1984 have been mapped. Concurrent research for the Tanana Basin Area Plan has provided preliminary data on recreation, forestry and agricultural resources in the corridor area. This information has been mapped.

Considerable contact with the Department of Fish and Game (field biologists at three offices, habitat protection) resulted in detailed information on sensitive fish and wildlife areas within the railroad corridor. Some extremely sensitive areas are present and careful mitigation may be required (e.g., peregrine falcon habitats, the most important chum

spawning location in the State, the Delta Junction Bison Range).

Interpretation and evaluation of the above base information, including document pre-draft writing, is ongoing. Research into additional environmental elements remains to be done; noise, air quality and visual resource information is needed.

A draft of the Environmental Assessment should be available by June and the final document should be completed before the end of 1982.

ROUTE DESCRIPTION

An existing spur of the Alaska Railroad runs 30 miles southeast from Fairbanks to Eielson AFB. The proposed railroad extension takes off of this spur at the south end of the bridge spanning the floodway for the Chena River Flood Control Project. This beginning point (Mile 0), is 5 miles northeast of Eielson near Moose Creek Bluff.

From Mile 0 the proposed route runs southeast between the Richardson Highway and the Tanana River traversing old river bars and crossing numerous slough channels. The route is mostly on State-owned lands for the first six miles. In the area from Mile 1.4 to Mile 5.3, some large parcels are scheduled to be transferred to private agricultural use in the State's June 1982 land disposal program. A 300 ft. right of way will be reserved across the parcels traversed by the proposed railroad extension.

The route remains between the Richardson Highway and the Tanana River up to Mile 20. There are numerous private parcels and homes in this area. Several changes in the alignment have been made to reduce the impacts on these properties. These changes included the introduction of more curvature into the alignment and the shifting of the route across sloughs onto old river bars. At Mile 18.5, the railroad route has been relocated in order to avoid private homes. This location will require bank protection but will provide these homes with protection from erosion which has been severe at this place in recent years.

Near Mile 20, the proposed route turns up the Salcha River to a crossing one mile downstream from the highway bridge. From this point, the route heads toward the Tanana River crossing at the west slope of Flag Hill near Harding Lake.

The railroad route crosses the Tanana River at Mile 24.4. This crossing was chosen early in the route study as by far the best available Tanana crossing and was subsequently considered a fixed point in the route. At Flag Hill, the main river channel is fixed against the hillside and the total width of the active river channel is about $\frac{1}{4}$ mile. In most other areas, the Tanana's braided channels are continually shifting over a channel width of 1 to $1\frac{1}{4}$ miles.

After crossing the river, the route continues up the Tanana valley traversing the flood plain $\frac{1}{4}$ to 1 mile away from the river. From Mile 25.2 to Mile 30.1, the route is located military land (Fort Wainwright). After leaving Fort Wainwright, the route traverses State lands for the next 35 miles.

At Mile 36.5 the route turns south up the Little Delta River to reach secure site for crossing that stream. The route then continues easterly paralleling the Tanana River for the next 12 miles. At Mile 50, the route again turns away from the Tanana in order to reach a favorable site for crossing Delta Creek. The route crosses Delta Creek at Mile 52.8 and then continues easterly passing south of a three mile long

ridge. There is a Federal recreation withdrawal along Clear Creek which runs along the north side of this same ridge and the railroad route has been placed so as to avoid this withdrawal. From the east end of the ridge, (Mile 56.5), the route runs along low terraces about 1/2 mile south of Clear Creek to the headwaters of the creek near Mile 63.

Near Mile 67, the route passes through some private agricultural lands near the confluence of the Delta and Tanana rivers. The route then runs southeast through State lands along the Delta River.

The route turns across the Delta River at Mile 75 and then runs upstream along the east bank of the river for two miles through the Delta Junction area. The location of the railroad is intended to provide bank protection in an area where stream erosion has been a problem in recent years.

At Mile 77.5, the route turns away from the Delta River and runs along the east bank of Jarvis Creek. The route is situated on military lands from Mile 78 to Mile 88.5. At Mile 82, the route is near the developed area of Fort Greely although a bridge across Jarvis Creek would be necessary to provide direct access to the Fort. From Mile 82 the route turns easterly remaining on Fort Greely lands for the next 6.5 miles as a means of avoiding the private property along the Alaska Highway.

After leaving Fort Greely, the route runs east to the vicinity of the Alaska Highway and then closely parallels the highway for the next four miles. At Mile 99, the route makes an "S" curve in order to cross the highway at an acceptable angle. The route then parallels the highway on the north side for the next 11 1/4 miles. The railroad route has been located so as to be compatible with the route for the proposed Northwest Alaska Natural Gas Pipeline which also parallels the highway through this area.

At Mile 111.5, the railroad route bends around a proposed gas line compressor site and then departs from the vicinity of the highway and runs along the bank of the Tanana River from Mile 114 to Mile 120 at Johnson River. A route higher on the hill was considered on the approach to Johnson River but the route adjacent to the Tanana was determined to offer the best grades and foundations even though it will encroach on the river in a few places in order to avoid steep, unstable hillsides.

The railroad route crosses the Johnson River near its mouth and then returns to the vicinity of the Alaska Highway at Mile 123.5. On the accompanying map, the railroad route appears to cross the highway; however, the highway has been reconstructed through this area and has been shifted to the south. The railroad location actually remains north of the new highway alignment and is parallel to it from Mile 123.5 to Mile 128.3.

The railroad route swings away from the Alaska Highway at Mile 130 near Berry Creek and again at Mile 133 in order to maintain the required grades. In the vicinity of Mile 135, the alignment has been adjusted to accommodate a new State subdivision.

From Mile 135 to Mile 145, the railroad route closely parallels the highway. The highway and railroad rights of way actually overlap in the vicinity of Dot Lake in order to minimize the total right of way through the village area.

From Mile 145 the railroad route pulls away from the highway in order to avoid the rough terrain traversed by the highway just north of the Robertson River. The railroad route runs east of the rough terrain and then crosses the Robertson River just above its confluence with the Tanana River. The route remains close to the Tanana River for the next 12 miles in order to maintain acceptable grades through the Cathedral Bluffs area.

From Mile 165, the railroad turns away from the river and converges with the highway near Moon Lake (Mile 171). For the next six miles the route closely parallels the highway.

At Mile 177, the railroad departs from the vicinity of the Alaska Highway and proceeds in a nearly due east direction through the Tanacross and Tok areas. The route is located on section lines for 7 miles to Mile 188.5, two miles north of Tok. From this point, the route turns southeast and gradually converges with the highway.

The route passes north of the Coast Guard installation at Mile 195 and enters Tetlin Village lands at Mile 195.5. The route is located on Tetlin lands for the next 21.5 miles.

At Mile 199.4, the railroad route crosses the Alaska Highway and then crosses the Tanana River just upstream from the highway bridge. The route passes $\frac{1}{2}$ mile south of Tetlin Junction and remains south of the highway to Mile 207. At this point, the route again crosses the highway and begins the climb to the Ladue Summit. This section entails ten miles of sustained 1% grade and sharp curves. The Ladue Summit is the highest point on the proposed railroad route at 2300 ft. above sea level.

From the Ladue Summit, the rest of the proposed route is located on State selected lands. On the Ladue River side of the summit, maximum grades and curves are not necessary. The route reaches the valley floor at about Mile 221 at an elevation of about 2100 ft. From this point on, the route follows gentle grades and alignment down the Ladue Valley to the Canadian border.

The Ladue Valley is relatively narrow so that there is not a wide choice of route locations. For the most part, the railroad route follows along the north side of the valley in order to gain the advantage of a southern exposure. The route reaches the Alaska-Yukon border at Mile 271.

WESTERN ARCTIC COAL Alaska Miner

MARCH, 1993

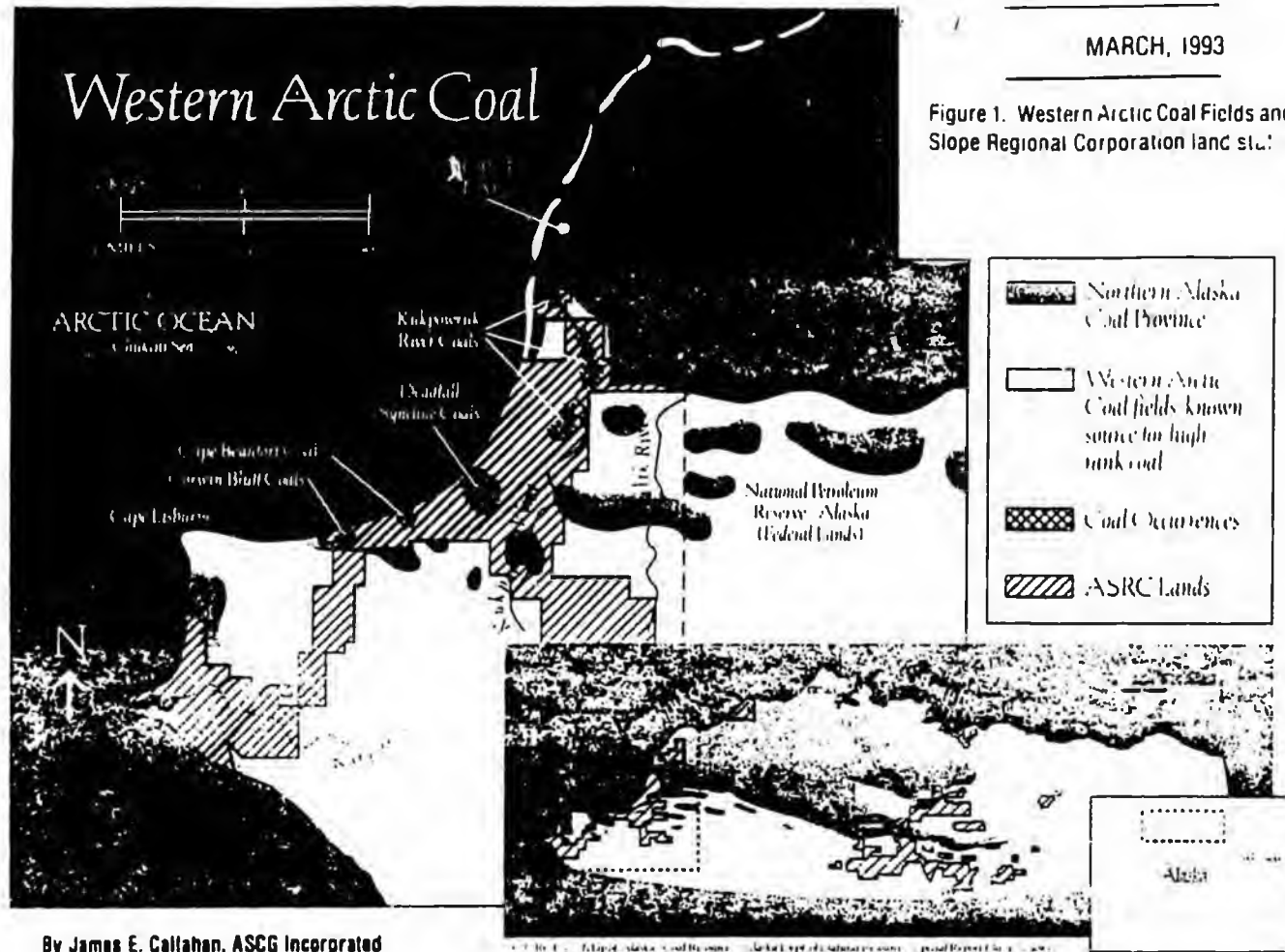


Figure 1. Western Arctic Coal Fields and Arctic Slope Regional Corporation land status.

By James E. Callahan, ASGC Incorporated
Steve W. Denton, Denton Civil & Mineral
Teresa A. Imm, ASGC Incorporated

INTRODUCTION

Located in northern Alaska is the Northern Alaska Coal Province (NACP), one of the largest coal provinces in the world. The NACP underlies approximately 30,000 square miles and extends 300 miles eastward from the Chukchi Sea. At the western end of the NACP lies the Western Arctic Coal Fields which contain hypothetical reserves of three billion tons of clean-burning, high-rank coal. The Western Arctic Coal Fields (figure 1), which lies outside the National Petroleum Reserve-Alaska boundary, is owned in large part by a private corporation, Arctic Slope Regional Corporation (ASRC). ASRC holds title to both surface and subsurface land and is working actively to market its coal deposits to the world.

GEOLOGY

Substantial bituminous coal resources are present in the Corwin Formation of the Nanushuk Group of Cretaceous age on the Arctic Slope of Alaska. The Corwin is a progradational fluvio-delta plain type deposit which thins in a southwest to northeast direction, from Corwin Bluffs reaching a zero edge south and southwest of Barrow. The

maximum measured thickness is in the type section at Corwin Bluff, where Chapman and Sable (1960) measured a 15,000 foot section. This figure was revised to 11,000 feet by Smiley (1969), based on repetition of floral zones resulting from faulting within the section. Elsewhere, large thicknesses of the upper part of the formation have been removed as a result of post-depositional uplift, deformation and erosion in the northern foothills belt of the Brooks Range. As a consequence of deep burial and subsequent exposure, the best quality coals (ie., with the greatest heating value) are exposed in the foothills, in broad east-west trending synclinal basins separated by complexly faulted anticlinal belts. In the present Arctic Coastal Plain of the National Petroleum Reserve-Alaska (NPR), near surface coals exhibit a steadily decreasing trend in heating values northward from the foothills toward the shoreline.

In the foothills of the western Arctic, west of NPR, relatively detailed investigations specifically oriented to evaluation of coal resources have focused on three areas: The Kukpowruk River, Cape Beaufort, and the Deadfall Syncline. On the Kukpowruk River about 30 miles from Point Lay, a 23 foot coal is exposed in the south limb of the Howard

Syncline. This coal has been extensively drilled and sampled in the immediate vicinity of the cutbank exposure, by private interests and by the U.S. Bureau of Mines (USBM) and the U.S. Geological Survey (USGS). However, information on its lateral extent and continuity is limited, particularly to the east. At Cape Beaufort, in the onshore portion of a synclinal basin, about 7,500 feet of the Corwin formation is present. The USBM and USGS conducted drilling and trenching operations in that area to evaluate several promising coals during the 1960's and 1970's. In 1982, exploratory work sponsored by the State of Alaska was begun on private lands of ASRC in the Deadfall Syncline northeast of Cape Beaufort.

At Cape Beaufort, the thickest known coal reaches a maximum thickness of approximately 17 feet, but it contains a thick zone of clay partings interbedded with high ash coal. Several other coal seams reach a thickness of 11 feet, these contain numerous clay partings and a high ash "bony" zone. One 11 foot seam appears to be free of thick partings and maintains its thickness for three miles or more along strike. However, dip angles along the southeast flank of the basin increase fairly rapidly from a minimum of about 15 degrees on the northeast to over 50 degrees at the

ice bound season and the heavy dependence of local residents on beluga whales for subsistence during the open water season are an impediment to shipping. However, the very factors which create these hurdles to development have a positive side.

Ledyard Bay, the nearest water body, is protected from the severe ice forces that create the immense pressure ridges typically associated with the Arctic Ocean. This opens up the potential of winter time operations for ice breakers and reduces the risks associated with building structures, such as offshore conveyors. The short open water season means that the time window for whale migration past the site is brief and mitigating impacts on them should be easily achievable.

Although the site is remote, the nearest national parks lands are approximately 50 miles away and national interest land impacts should not be an issue during development of this resource. The Deadfall Syncline is located in the foothills and impacts to coastal plains wetlands will be limited to those associated with the transportation system. Development of the western Arctic coal field can be accomplished in a fashion that will result in a very low level of adverse impact to the local environment. An Alaska Surface Coal Mining Permit has recently been issued for a small demonstration mine on the north limb of the syncline for extraction of 50,000 tons over a five year period.

Mining in the western Arctic coal field is expected to be more conventional than it will be unique. Although winters are long, the severity of the weather is moderated by proximity to the ocean. Minimum temperatures are higher than those experienced by Usibelli Coal Mine at Healy and the experience of the Red Dog Mine points to the likelihood that the western Arctic coals can be mined year round, with very little productivity loss due to weather. Pilot scale surface mining operations, that have been conducted to date, have shown that work can proceed during the full range of seasons and that typical surface mining practices for drilling, blasting and excavating can be employed. Because the area is within an "Arctic desert" zone, volumes of water that must be handled have been low and untreated water quality from the mine pit has been good.

Underground mining has not been studied to the same degree as surface mining, due to local availability of personnel trained in the use of surface-type mining equipment. However, the thickness, quality, continuity and structural simplicity of the deposit suggests that high efficiency underground mining should be well suited to many of the deposits. The major effects of weather will be mitigated by underground mining and environmental impacts would be reduced. However, the effect of permafrost on the behavior of rock types in the formation is largely unknown. We have identified only one coal mine in Spitsbergen, Norway as a possible analogue for underground mining in a permafrost environment. Therefore, large scale mechanized underground mining will probably be preceded by conventional surface and underground mining methods.

REFERENCES

- Chapman, R.M., and Sable, E.G., 1960. Geology of the Utukok-Corwin region, northwestern Alaska - Exploration of Naval Petroleum Reserve No. 4 and adjacent areas, northern Alaska, 1944-1953, Pt. 3, Area geology: U.S. Geological Survey Prof. Paper 303-C.
- Smiley, C.J., 1969. Floral zones and correlations of Cretaceous Kukpowruk and Corwin Formations, northwestern Alaska: AAPG Bulletin, v. 53, no. 10, pt. 1, p. 2079-2093.

FISCAL NOTE

Revision Date:
Title: AK Railroad Extension Study

Department Affected: DOT & PF
BRU: Norther Region D&C

Sponsor: Miller
Requestor:

Component: Right-Of-Way
Component Serial Number: #581

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY95	FY96	FY97	FY98	FY99	FY00
PERSONAL SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0
SUPPLIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING:	0	0	0	0	0	0

CAPITAL	10.0	0	0	0	0	0
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REVENUE FUND SOURCE	0	0	0	0	0	0
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FUNDING: (Thousands of Dollars)

1002 FEDERAL RECEIPTS	0	0	0	0	0	0
1003 GF MATCH	0	0	0	0	0	0
1004 GF	10.0	0	0	0	0	0
1005 GF/PROGRAM RECEIPTS	0	0	0	0	0	0
1006 GF/MHTIA	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL FUNDING:	10.0	0	0	0	0	0

POSITIONS

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

Estimate of current year (FY94) impact: \$0

ANALYSIS: (Attach a separate page if necessary)

The funding is to update the cost figures for acquiring a railroad right-of-way from Eielson to the Canadian Border.

Prepared by: Norm Piispanen

Phone: 451-2210

Division: Northern Region Planning

Date: November 24, 1993

Approved by Commissioner: *B.A. Campbell*

Phone: 465-3901

B.A. Campbell

Agency: Department of Transportation and Public Facilities

Date: November 24, 1993

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STATE OF ALASKA
1993 LEGISLATIVE SESSION

3/12/93
BILL NUMBER: SB 135

FISCAL NOTE

TRA - Mex. Fin

Revision Date:
Title: AK Railroad Extension Study

Department Affected: DOT&PF
BRU:

Sponsor: Miller
Requestor:

Component:
Component Serial Number:

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY94	FY95	FY96	FY97	FY98	FY99
PERSONAL SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0
SUPPLIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING:	0	0	0	0	0	0

CAPITAL	10.0	0	0	0	0	0
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REVENUE FUND SOURCE	0	0	0	0	0	0
---------------------	---	---	---	---	---	---

FUNDING: (Thousands of Dollars)

1002 FEDERAL RECEIPTS	0	0	0	0	0	0
1003 GF MATCH	0	0	0	0	0	0
1004 GF	10.0	0	0	0	0	0
1005 GF/PROGRAM RECEIPTS	0	0	0	0	0	0
1006 GF/MHTIA	0	0	0	0	0	0
OTHER	0	0	0	0	0	0
TOTAL FUNDING:	10.0	0	0	0	0	0

POSITIONS

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

Estimate of current year (FY93) impact: \$0

ANALYSIS: (Attach a separate page if necessary)

Prepared by: Norm Piispanen

Phone: 451-2210

Division: Northern Region Planning

Date: March 4, 1993

Approved by Commissioner: 
Frank G. Turpin

Phone: 465-3900

Agency: Department of Transportation and Public Facilities

Date: March 4, 1993

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*Department of Transportation
and Public Facilities*

POSITION PAPER

BILL NO: SB 135

APPROVED:

A handwritten signature in black ink, appearing to read "J. J. [unclear]".

TITLE: AK Railroad Extension Study

DATE: March 4, 1993

DOT&PF supports this effort to update the cost figures for acquiring a railroad right-of-way from Eielson to the Canadian Border. Native land selections have been completed, and conveyances have progressed to the point that an accurate assessment can now be made of how much private land would be involved and what its value is.

As long as a rail link through Canada to the Lower 48 is a viable future concept, there is significant value to keeping existing location and right-of-way information current. Such information is valuable to any decision making process involving the possible railroad extension.

For Further Information contact Katy McHugh at 465-3900.

SENATE COMMITTEE REPORT
FIRST COMMITTEE OF REFERRAL

DATE: 2/26/93

FURTHER FINANCE

Date of 5-Day Notice: 3-11-93
(in accordance with Uniform Rule 23)

DATE TURNED INTO OFFICE: 3-16-93

TRANSPORTATION Committee considered SB 135

~~SB~~ 135 APPRO: AK RAILROAD EXTENSION STUDY and Public Facilities making a special appropriation to the Department of Transportation and Public Facilities to determine the cost of acquiring real property within the right-of-way of the proposed extension of the Alaska Railroad from Eielson Air Force Base to the Alaska-Canada border and providing for an effective date."

and recommends:
 and a majority of the committee recommends do pass

replace with _____ CS _____ (_____)

attaches amendment(s)

adopts _____ Letter of Intent

further referral to the _____

- same title
- new title
- technical title change (HB only)

do pass

do not pass

no recommendation

individual recommendations

FN

FISCAL NOTE INFORMATION

Department	Date	Zero	Fiscal
DOTPF	3/4/93	3/4/93	10.0

Department	Date	Zero	Fiscal

Appropriation No Fiscal Note

Governor's Bill with Previous Fiscal Notes (enter information above)

DO PASS:

① Roll E. Oll *Do Pass*
② *Katelin do pass*
③ *Tim Kelly D. Pass*

OTHER RECOMMENDATIONS:

② *Lincoln NR*

⑩ *Ben [Signature] - do pass*
Chair: Signature and Recommendation