



Public Works
Canada

Travaux Publics
Canada

Western Region Région de l'Ouest



INUUVIK TO TUKTOYAKTUK HIGHWAY

MILE 971 TO MILE 1059

ALIGNMENT UPDATE REPORT

MARCH, 1977



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SECURITY - CLASSIFICATION - DE SÉCURITÉ
OUR FILE - N/RÉFÉRENCE 6220-A5
YOUR FILE - V/RÉFÉRENCE
DATE 1977-03-24

SUBJECT
OBJET

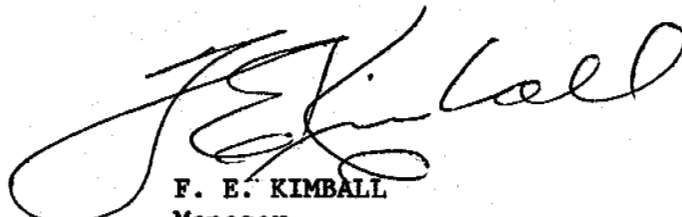
ALIGNMENT UPDATE REPORT, MARCH 1977, INUVIK TO TUKTOYAKTUK HIGHWAY
MILE 971 TO 1059

Enclosed are five copies of the above mentioned report for your information and records and for furtherance to the Department of Indian Affairs and Northern Development in Ottawa. Five copies of this report have also been forwarded to the Head of the Field Services Unit, I.A.&N.D. Edmonton for local distribution.

The purpose of the report is to summarize the current status of the route location for the Inuvik to Tuktoyaktuk Highway and to outline areas where modifications are proposed or where modifications may be necessary as a result of further studies.

It is to be noted that there are a number of proposed alignment revisions in the immediate Tuktoyaktuk area which have been initiated to better integrate with existing and proposed road networks in the area together with revisions necessary by a proposed extension to the M.O.T. runway. The projections for these revisions have now been quite firmly established and field surveys will be carried out later this summer to confirm the locations on the ground. It has been indicated to us that the requirement for the surveys in this area during the coming summer is quite definite because of the proposed developments by others in the area.

Geotechnical investigations are currently being carried out in the section from approximately Mile 974 to approximately Mile 995 in an effort to locate some suitable sources of materials for embankment construction. In addition to further investigations along the route presently established on the ground, investigations will also be carried out some distance to the east as well as to the west of this alignment. If these investigations should show that a significant improvement in material sources exists elsewhere then some serious consideration will be given to possible route revisions in this area to take advantage of the improved sources. This has the potential for generating further field surveys in this area during the coming summer months.


F. E. KIMBALL
Manager
Highways Program

c.c. Mr. F. Janz, DINA, Edmonton (5 copies of report)
c.c. Mr. H. DeCecco (1 copy of report)
c.c. Mr. V. Hagman (1 copy of report)

INUVIK TO TUKTOYAKTUK, N.W.T.

HIGHWAY

MILE 971 TO MILE 1058

ALIGNMENT UPDATE REPORT

Public Works Canada
Western Region
Edmonton, Alberta
March, 1977

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1.0 INTRODUCTION

The intent of this report is to show the alignment revisions surveyed in 1976 on the Inuvik to Tuktoyaktuk Highway alignment, Mile 971 to 1058 referred to in the Alignment Update Report dated July 1976.

In addition to the revised survey alignment surveyed to date, the report includes other recommended realignment sections referred to in the previous report and a new proposed major re-routing from Mile 1046 to Mile 1055.5.

2.0 ROUTE REVISIONS

The alignment revisions that were surveyed in 1976 are as follows:

- Mile 971.5 to 974.7 - commencing from the Inuvik Marine Road, two alternate alignment revisions over the escarpment to the east of Inuvik, were investigated and surveyed with only the recommended alignment shown on the mosaics and maps in the Appendix.

The recommended alignment crosses and then follows the north side of a creek valley on a gradually ascending grade over narrow terraces and sidehill sections. Where the alignment leaves the creek valley, there will be approximately 500 feet of 10% grade. The revision is approximately 1300 feet shorter than the route previously surveyed and will be in close proximity to the recommended shale borrow source adjacent to the N.C.P.C. power line. Where the alignment is

in the creek valley it crosses the base of two dormant mud flows created by a 1969 forest fire, and the stability of the soils in this section are to be determined by drilling during the geotechnical investigation scheduled for spring of 1977.

- Mile 1010 to 1013.1 - This realignment survey was initiated to bypass the proposed Gulf Oil, Parsons Lake Gas Plant Site. Gulf Oil has indicated their concurrence with this revised alignment.

Realignment on the sections listed below are based on projections using airphoto mapping. Field surveys were not carried out because of the high cost resulting from difficulty of access and because the mapping provides a reasonably accurate base for the design resulting from vegetation free terrain. It is felt that the mapping will be adequate for any design requirements up to the preconstruction survey.

- Mile 1025.5 to 1028.5 - This projected revision was selected to improve the vertical geometrics in an area of rolling ice-rich ridges.
- Mile 1042.5 to 1043.2 - This projected revision was selected to avoid a steep sidehill that would also improve the vertical and horizontal alignment.
- Mile 1055.7 to 1056.5 - To avoid a small hill that is probably ice-rich a realignment has been projected for this section that will now cross a shallow tidal flat.

- Mile 157.0 to 158.0 - A recently proposed boundary revision plan for the Tuktoyaktuk Airport has been developed that allows for a future southeast airstrip extension from 3,522' to 6,000'. Since the Inuvik-Tuktoyaktuk Highway is required to cross the southeast approach to the airstrip a realignment has been projected to ensure maximum vertical clearance within the flight control zoning area for the above extension. In addition the projected realignment will improve access to Tuktoyaktuk Harbour and incorporate existing roadway sections into the highway alignment. Transport Canada has indicated their concurrence with the revision.

2.1 TUKTOYAKTUK ACCESS

The highway from Mile 1058.2 at the N.T.C.L. road that connects with the Tuktoyaktuk streets was constructed by the Hamlet in the spring of 1976 to the alignment shown on the mosaics in Appendix II and street plan in Appendix III, however, its southern end does not coincide with the 1975 highway alignment. Arctic Navigation constructed a section of the highway in 1976 from Mile 1057 to 1058 for access to their dock site. To connect this section of roadway with the Hamlet section of the highway, a distance of approximately 1,000', will require an alignment revision with the introduction of two shallow curves. To connect these two sections of highway by incorporating the existing roadways in the area as part of the highway would be geometrically prohibitive to the horizontal design criteria established for the Inuvik-Tuktoyaktuk Highway.

2.2. PROPOSED ALTERNATE ALIGNMENT

To improve access to the south shore of Tuktoyaktuk Harbour, a proposed alternate alignment has been airphoto projected from Mile 1046.5 to 1055.5. The projected alignment as shown on the maps and mosaics in the appendices has comparable geometric and terrain characteristics to the existing surveyed alignment. The alternate alignment will be approximately 1000' longer than the surveyed route and in providing access to the south shore of the harbour must cross the drainage system entering the east end of Tuktoyaktuk Harbour where the sounding chart included in Appendix III shows a shoreline width of 500 feet and maximum water depths of 17 feet at low tide.

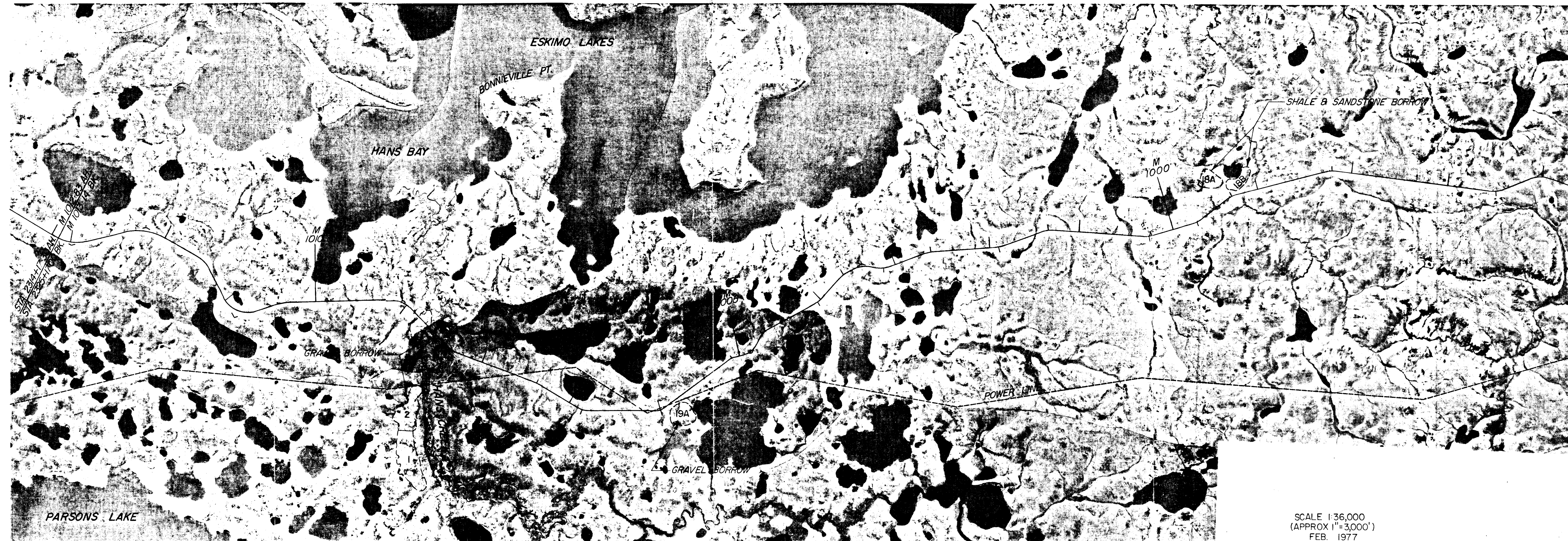
On the 1"=3000' mosaic in Appendix II a proposed intersection is shown at approximately Mile 1055 of the alternate alignment from which a service road along the south side of Tuktoyaktuk Harbour could be developed. The gravel source established by Imperial Oil south of their base camp has an estimated quantity of 150,000 cubic yards which could be used for the development of the service road, but is of insufficient quantity to be a material source for the main highway construction.

3.0 BORROW MATERIALS

Outlined on the 1"=3000 feet mosaics in Appendix II are the highway construction borrow materials as recommended in the Geotechnical Investigation dated October 15, 1976. The following is the location, type and estimated quantity of the borrow materials:

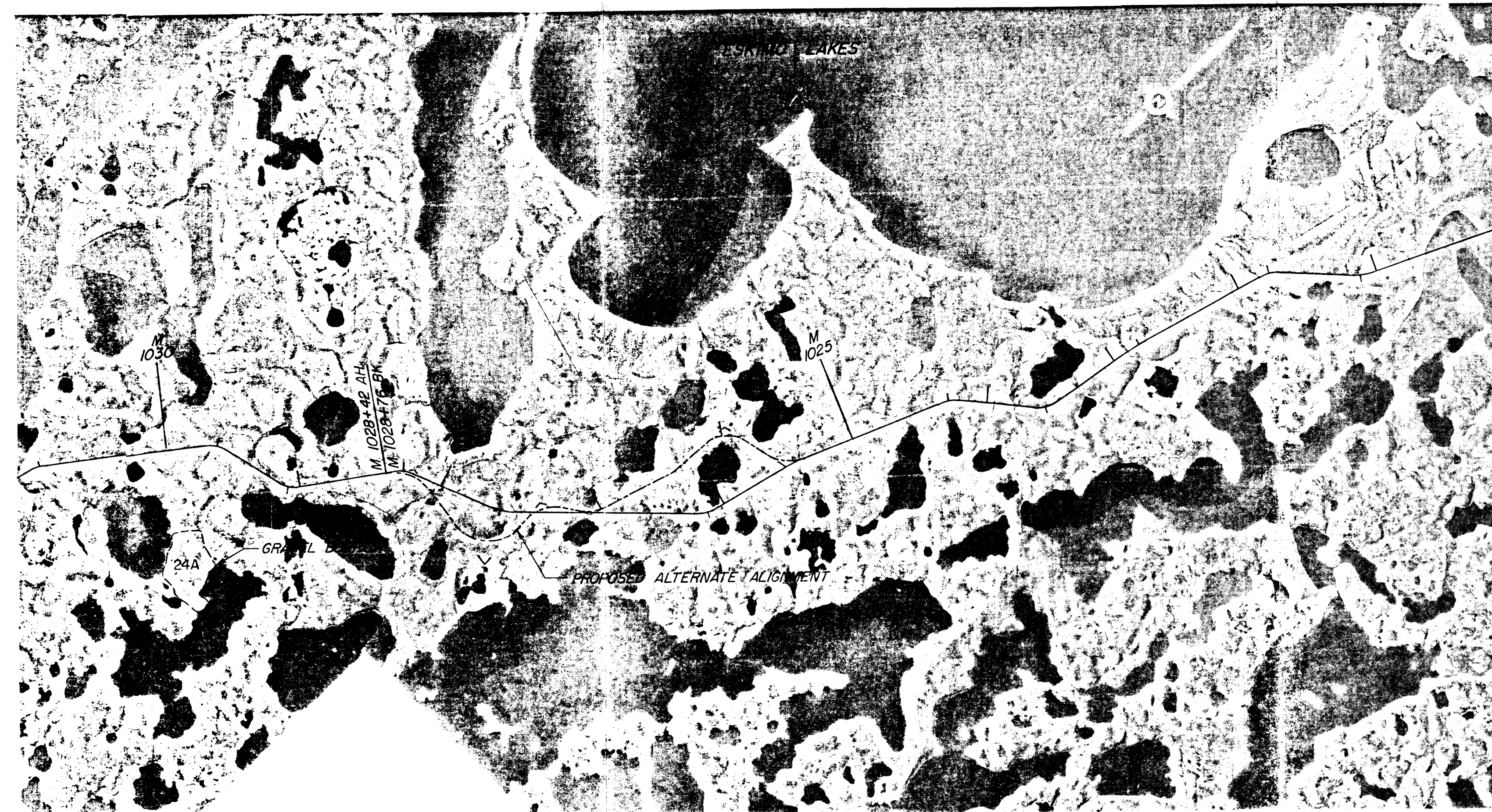
Mile 972	-	Shale	-	1,000,000+ C.Y.
Mile 1000	-	Shale, Sandstone	-	750,000 C.Y.
Mile 1006	-	Sand, Gravel	-	500,000 C.Y.
Mile 1009	-	Sand, Gravel	-	1,800,000 C.Y.
Mile 1030	-	Sand, Gravel	-	200,000 C.Y.
Mile 1034	-	Sand, Gravel	-	1,000,000+ C.Y.
Mile 1041	-	Sand, Gravel	-	300,000 C.Y.

It is apparent from the above information there is a shortage of construction materials between Mile 972 and 1000, however, a geotechnical investigation is scheduled for April 1977, in this section to search for additional construction materials. Since there has been no geotechnical investigation along the alignment between Miles 1041 to 1058, this section will also be included in the above program. It should be noted that the identified source of materials at Mile 1009 is immediately adjacent to a proposed gas plant site near Parsons Lake. This source must therefore also provide materials for the gas plant construction and other related facilities in the area.

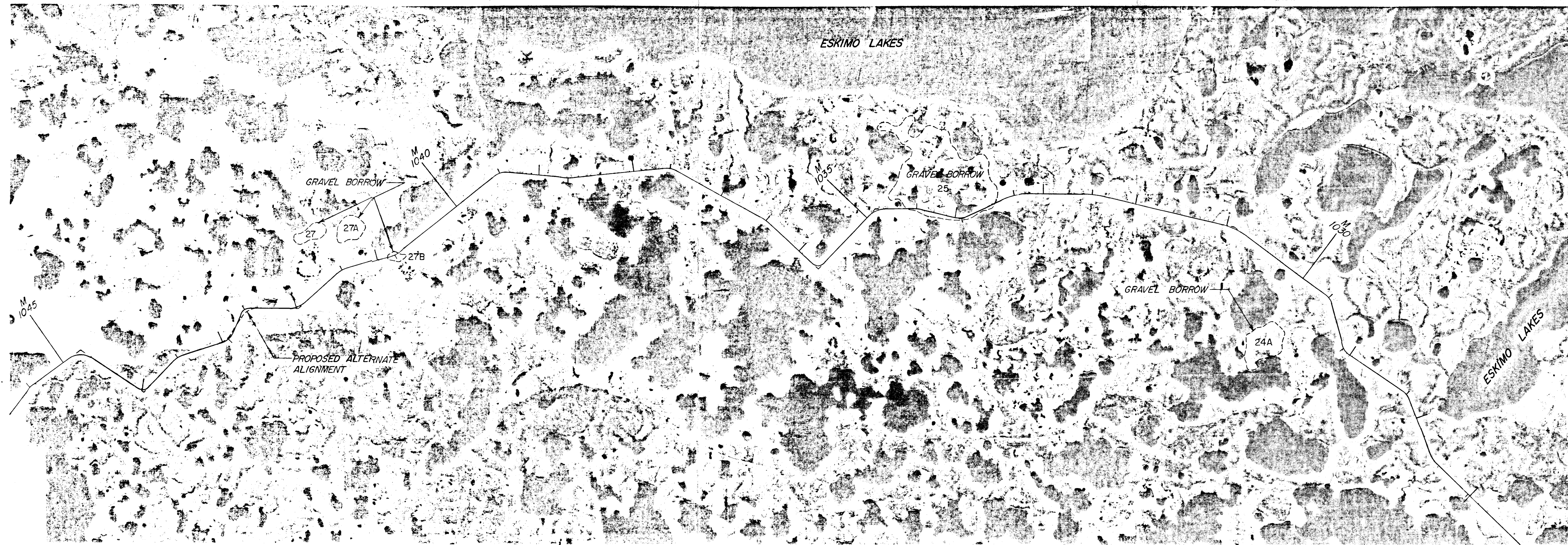


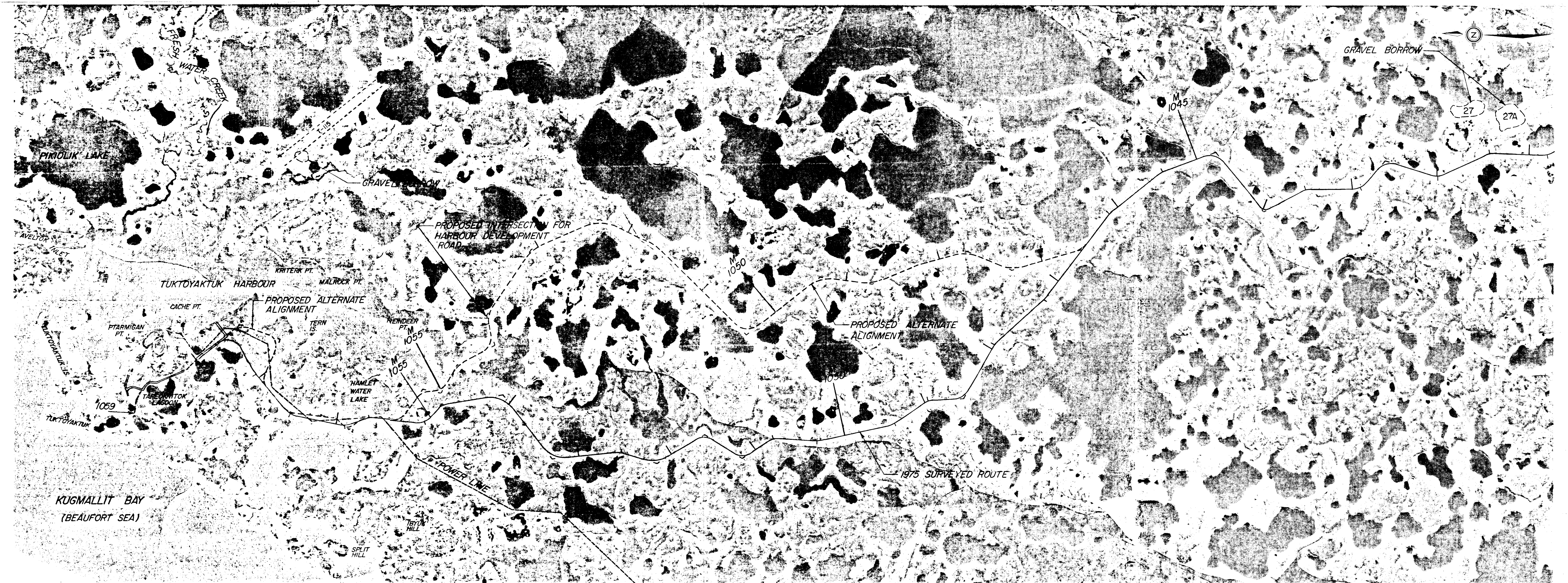
SCALE 1:36,000
(APPROX 1"=3,000')
FEB. 1977

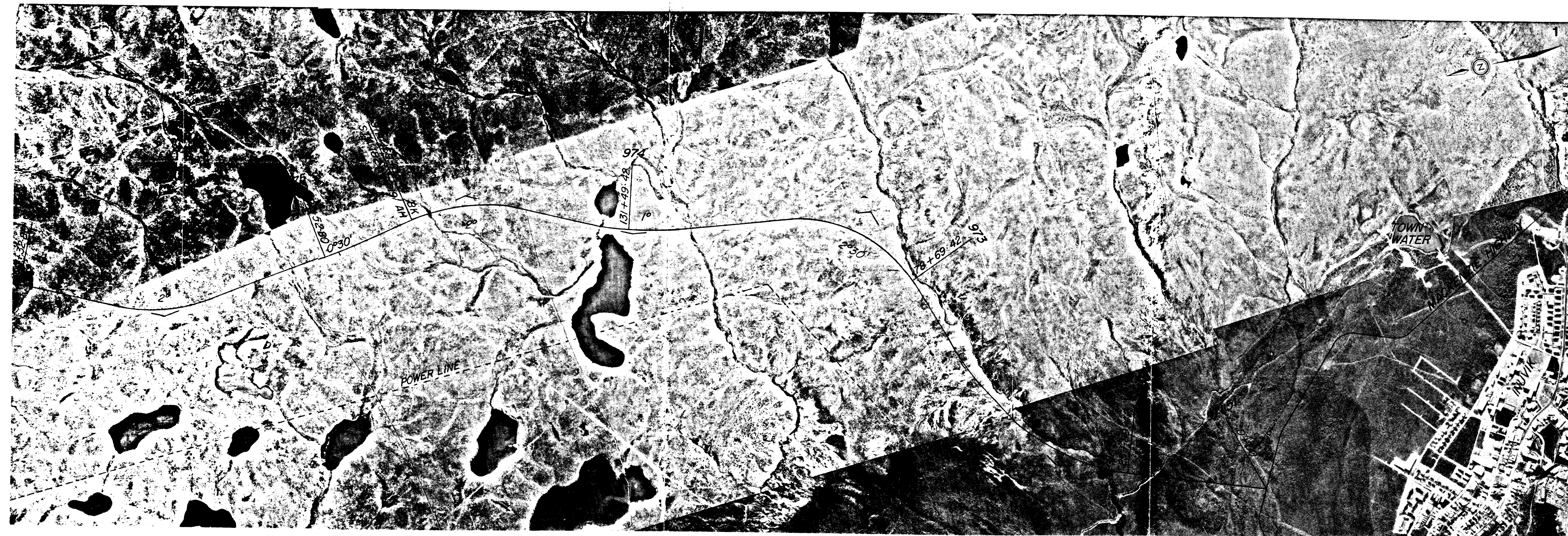


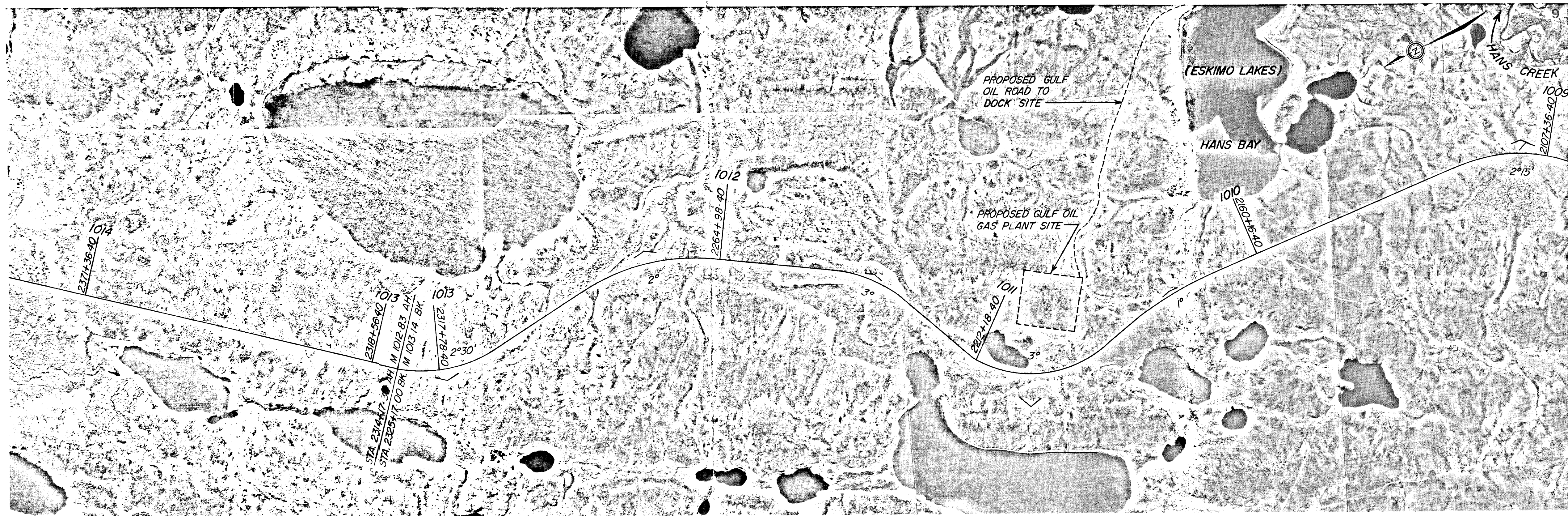


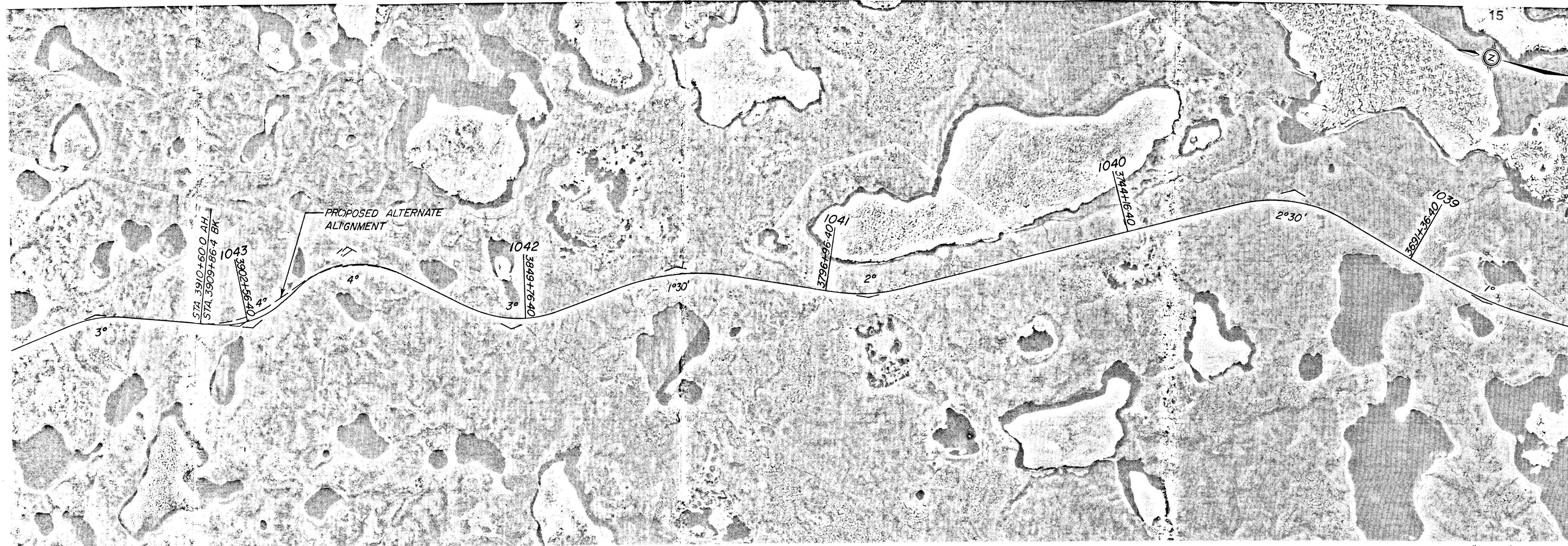
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(APPROX 1"=3,000')
FEB. 1977



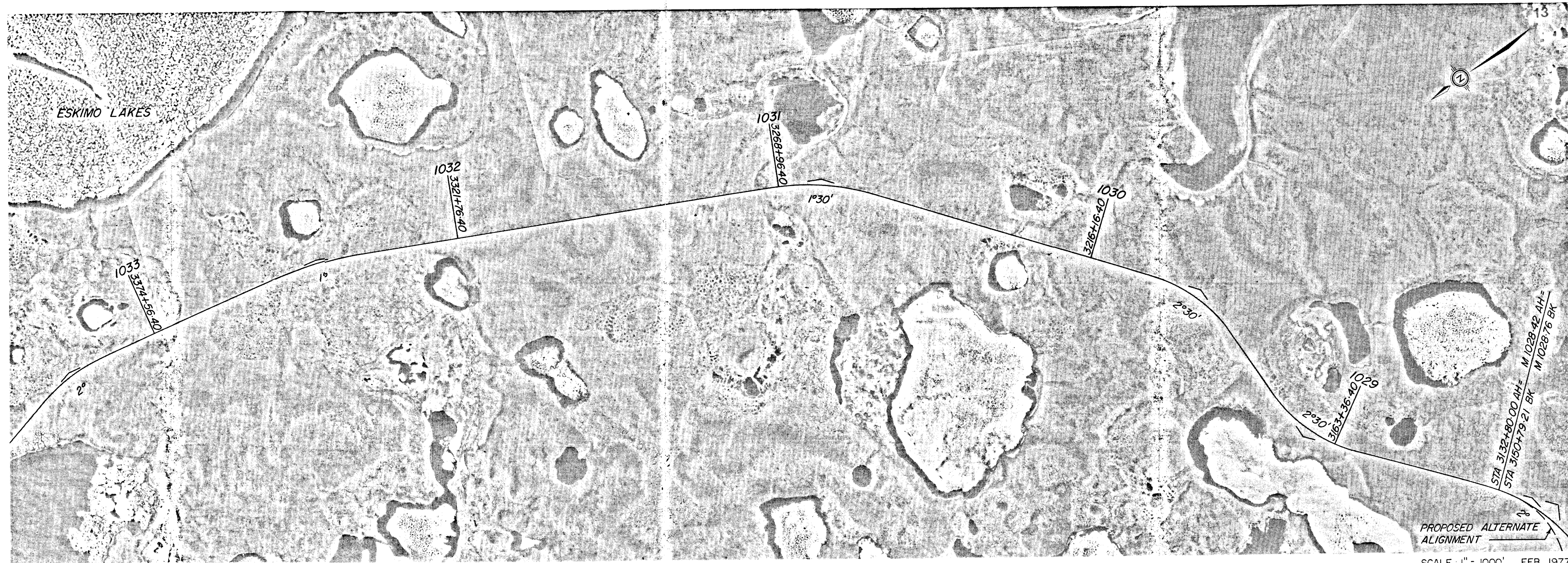


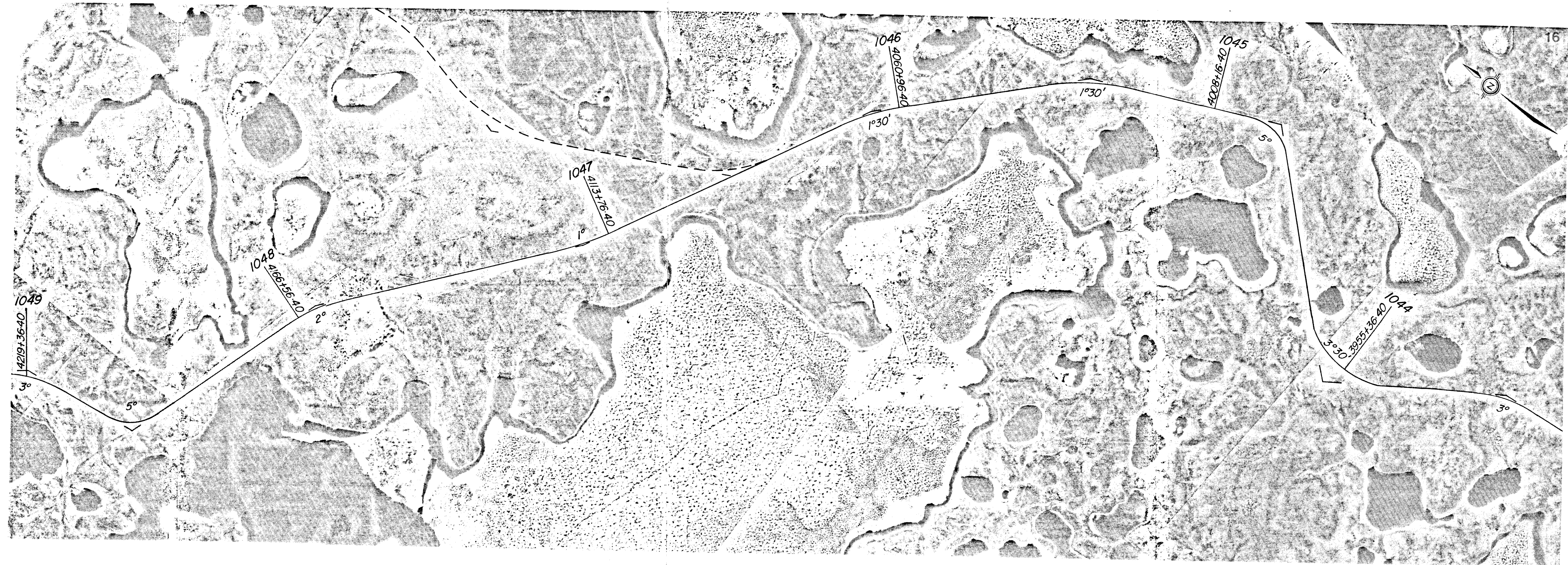


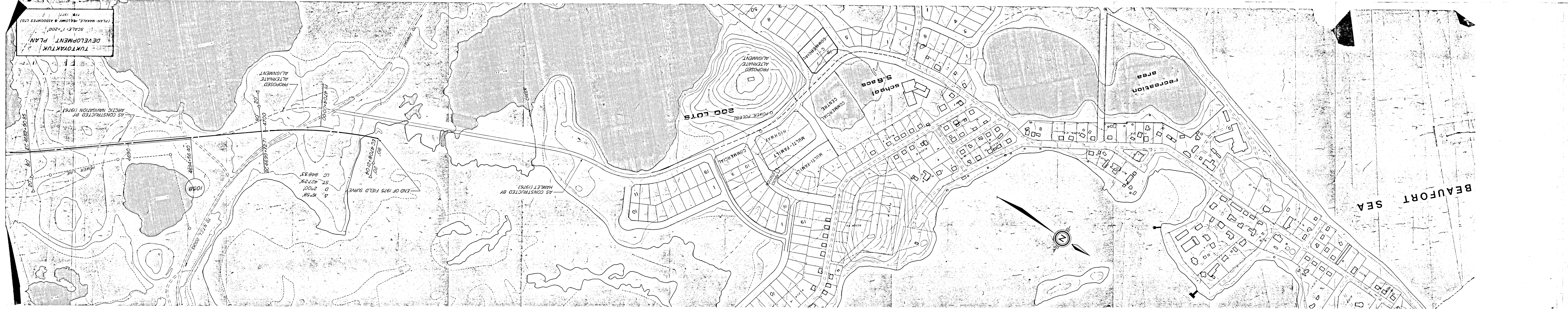


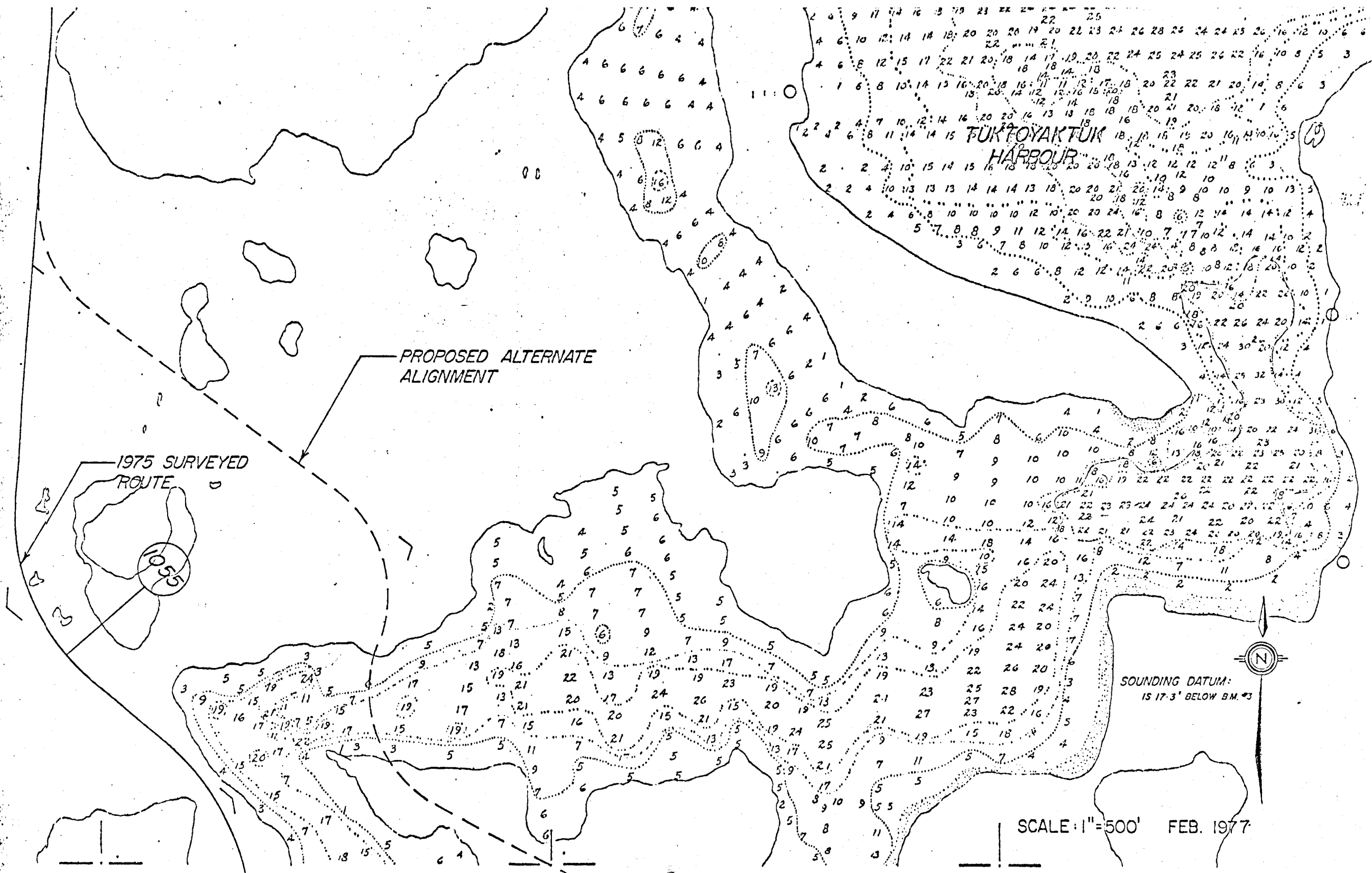


SCALE : 1" = 1000' FEB. 1977









PROPOSED ALTERNATE
ALIGNMENT

1975 SURVEYED
ROUTE

FURTOYAKTUK
HARBOUR

SOUNDING DATUM:
IS 17' 3" BELOW B.M. #3

SCALE: 1"=500' FEB. 1977



PUBLIC WORKS CANADA
WESTERN REGION

Legend

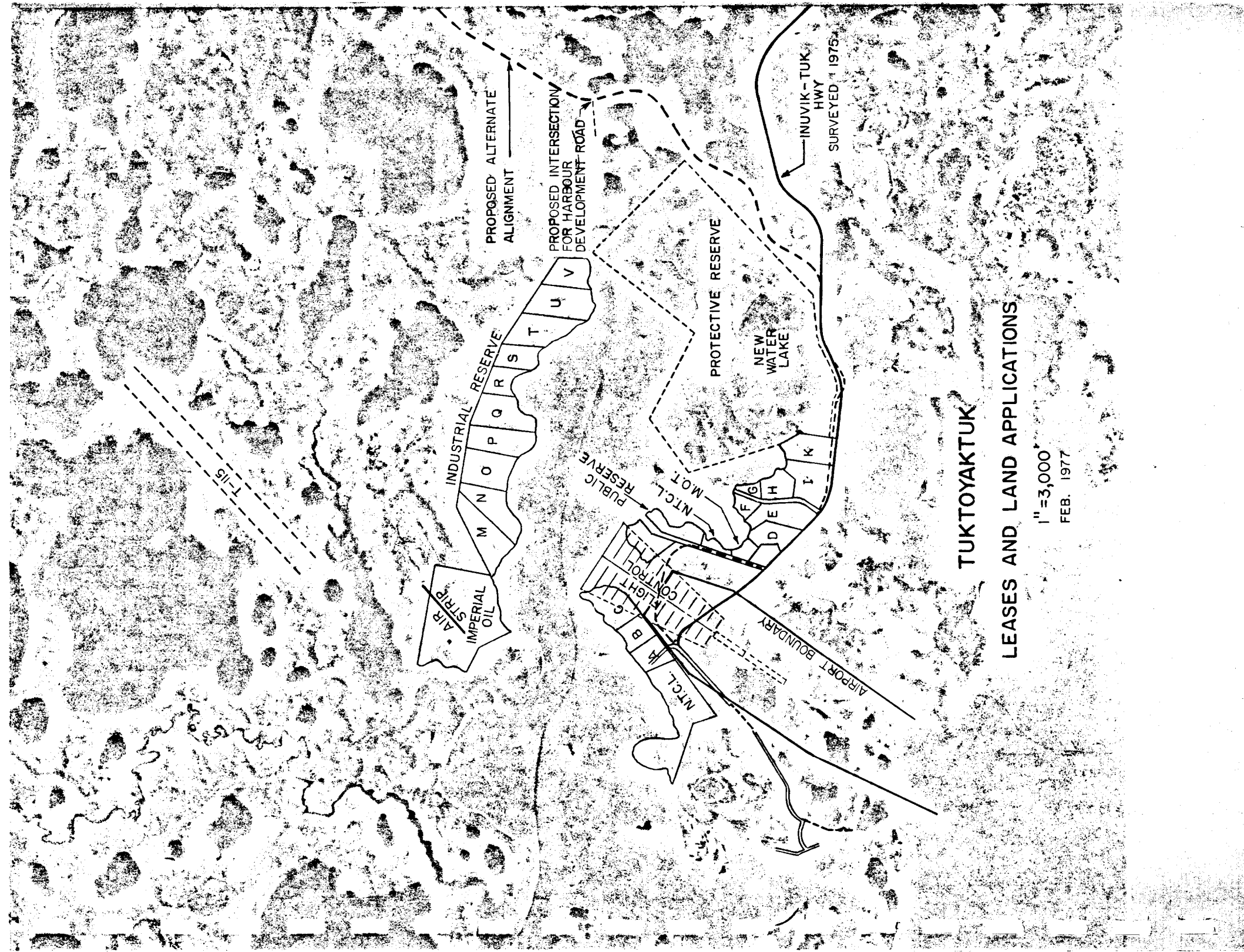
- Highway (constructed)
- Highway (under construction)
- - - - Highway (proposed)
- Highway mile post
- Power transmission line
- FortsLoxe Gas Field

Revision date
REVISED DATE FEB. 1977

**inuvik-tuk
highway**

Scale 1:250,000

Miles 0 1 2
Kilometres 0 1 2



TUKTOYAKTUK

LEASES AND LAND APPLICATIONS

1" = 3,000'
FEB. 1977



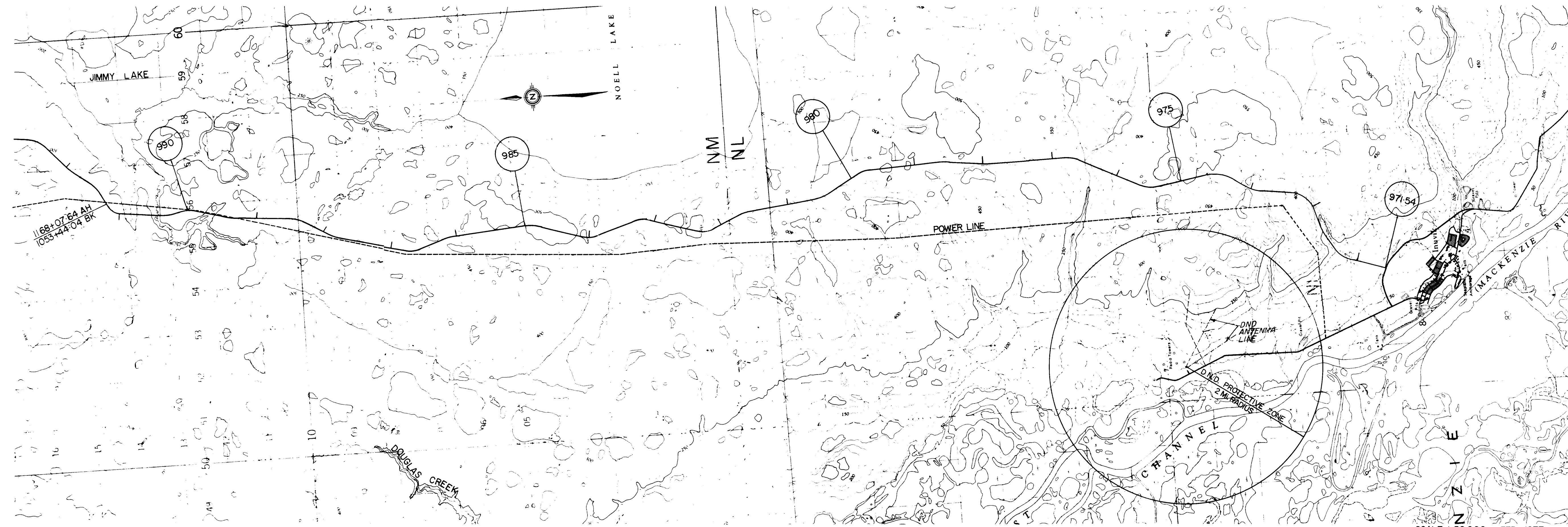
SITE PLAN and BOREHOLE LOCATIONS

EBA Engineering Consultants Ltd.



PROPOSED COMMUNITY GRAVEL PIT
DOME ROAD
DAWSON CITY, YUKON

APP. SCALE 1:2000



SCALE 1:50,000 FEB. 1977

