



Public Works
Canada

Travaux publics
Canada

Western Region

Région de l'Ouest



D006032

MACKENZIE HIGHWAY, N.W.T. MILE 715 - MILE 732.2 (N)

ALIGNMENT UPDATE REPORT

NOVEMBER, 1974



MEMORANDUM

NOTE DE SERVICE

TO
À

Mr. W.R. Binks
Program Manager (Civil)
Design & Construction
Ottawa, Ontario

FROM
DE

Mr. F.E. Kimball
Project Manager N.W.T. Roads
Western Region

SUBJECT
OBJET

ALIGNMENT UPDATE REPORT
MILE 715 - MILE 732
MACKENZIE HIGHWAY, N.W.T.

Attached are 24 copies of the report titled: "Mackenzie Highway N.W.T. - Mile 715 to Mile 732 - Alignment Update Report - November 1974."

Five copies are being sent to C. Amos, DINA, Yellowknife; one copy to F. Janz DINA, Edmonton; one copy each to DOE, Edmonton, DOE, Winnipeg and EMR, Calgary.

Mr. F.E. Kimball
Project Manager N.W.T. Roads
Western Region

Attach.

SECURITY - CLASSIFICATION -- DE SÉCURITÉ
000018
OUR FILE -- N/RÉFÉRENCE
9305-52-300
YOUR FILE -- V/RÉFÉRENCE
DATE
November 12, 1974

MACKENZIE HIGHWAY N.W.T.

ALIGNMENT UPDATE REPORT

MILE 715 TO 732.2 (N)

DEPARTMENT OF PUBLIC WORKS

WESTERN REGION

EDMONTON, ALBERTA

NOVEMBER, 1974

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INTRODUCTION

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This is a special alignment update report dealing specifically with the Fort Good Hope, Hare Indian River area. A separate subsequent alignment update report will be submitted to cover proposed alignment revisions for Miles 735 to 936.

This report can be considered as a follow-up to the Alignment Update Report for Miles 725 to 939 which was prepared by the Department of Public Works in October 1973, which included a proposed revision back to Mile 715 previously designated as revision area "C21".

In order to be consistent with the previously established numbering system on alignment revisions for sections A,B,C, the commencement of section 'D' mileage is changed from Mile 725 to Mile 721.7 to correspond with the intersection of the proposed Fort Good Hope settlement access Road with the recommended MacKenzie Highway route. Revision 'C21' previously discussed in the alignment reports for Miles 500 to 725, dated November 5, 1973, and January, 1974, was affected by alignment considerations for the Hare Indian River crossing.

The semi-controlled airphoto mosaics, scale 1"=1000' and 1:50,000 topographic maps forming part of this report show the current alignment recommendations of D.P.W. The alignment will be evaluated to confirm the selection of alternate routes after completion of detailed geotechnical work scheduled for the spring of 1975.

This report summarizes the conclusions reached during field investigations carried out in the summer and fall of 1974. The MacKenzie Highway and Fort Good Hope Settlement Access Road are in a socialologically sensitive area and within the Northwest Territorial Government Administrative Reserve for the settlement of Fort Good Hope and therefore will require special approvals for the proposed alignment.

ALIGNMENT DETAILS - NARRATIVE

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MILE 715 TO 719.4 - REVISION AREA "C21"

This revision, as outlined in the October 1973 report, has been surveyed in the field and the revised alignment considerably reduces the amount of unstable organic terrain traversed. In order to minimize the increase in length of this revision it was necessary to select a routing between two small lakes where the 300 foot clearance cannot be maintained, however, in our opinion this factor is not significant considering terrain type, total overlay construction, and the relatively small size of lakes. Subject to geotechnical evaluation, the revised alignment is superior and will be included in a preliminary design submission.

MILE 719.4 TO 721.7

The proposed alignment will follow the original 1972 survey route for this section of the highway with no revision considered and will be included in a preliminary design submission.

MILE 721.7 TO 735.5S (732.2N) - REVISION AREA "D1"

The following discussion relates to the revised alignment for this area as was projected in the alignment update report - Mile 725 to 939, dated October 1973, for an improved crossing of the Hare Indian River and for which field surveys and investigations have now been carried out.

Although the revised alignment is approximately 3.3 miles longer than the original routing, benefits are expected on the Hare

Indian River bridge structure through reduced height and length along with improved bridge approaches and aesthetic values where the approach alignment provides a panorama of the Hare Indian River Valley. In addition, the revised alignment will reduce the access distance to Ontadek (Jackfish) Lake, a favorite fishing and camping area for the Fort Good Hope inhabitants.

The south approach to the Hare Indian River crossing has been surveyed for two alternate approach alignments shown as "A" and "B" on the airphoto mosaics, with the final alignment selection to be made on the basis of the geotechnical work scheduled for the spring of 1975. The merits of the two routes are summarized as follows:

Alternate "A" - A more direct alignment to the south approach of the river crossing, that will require an extensive cut through the valley wall, which would reduce the panoramic view of the river valley.

Alternate "B" - Follows the base of the valley wall approaching the river crossing, along a low terrace or flood plain that will require special consideration to clear the high water elevation produced by back-water effects resulting from ice-jam induced high water on the MacKenzie some 7 miles downstream. While the south approach alignment is not as good as for Alternate "A", it is presumed

that ice-rich soils will prevail in the south valley wall and the "B" Alignment requires less cutting where it descends onto the floodplain. Hence the ice content of the soil at these cuts may be the dominant factor in selection of one of these alternates.

The alignment geometrics and terrain on 'D1' and the original location are basically similar with the proximity of borrow areas to 'D1' expected to be more advantageous on the north side of the river.

Preliminary geotechnical work was carried out on the north side of the river and at the river crossing in 1973. The drill hole locations are shown on the airphoto mosaic and will be described in a separate geotechnical report for section 'D'.

ALIGNMENT AREA - 'FORT GOOD HOPE ACCESS' - MILE 0 TO 3.2

To provide for construction access from Fort Good Hope, an access road alignment to the MacKenzie Highway has been surveyed and investigated in the fall 1974. This alignment can be developed as the permanent settlement communication road subject to the special approvals that are required to ensure compatibility with the long-term community planning. The alignment, which commences as an extension of a community street, and then parallels the community airstrip, sufficiently offset to meet the Ministry of Transport zoning regulations, proceeds along what is commonly called 'The Jackfish Trail', to

the MacKenzie Highway Mile 721.7. The existing trail, primarily used as a winter route to Ontadek (Jackfish) Lake, and Colville Lake settlement, follows a sandy gravelly flat. The proposed access road alignment is located to the west of the winter trail to avoid low wet areas.

A 24' gravel road from the settlement to the D.P.W. camp and Hare Indian River outlet was constructed in 1972-73, and is shown on the 1:50,000 MAP. This road can be used for construction access from the MacKenzie River so as to avoid construction traffic through the settlement.

ALIGNMENT AREA - 'THE RAMPARTS' SPUR ROAD

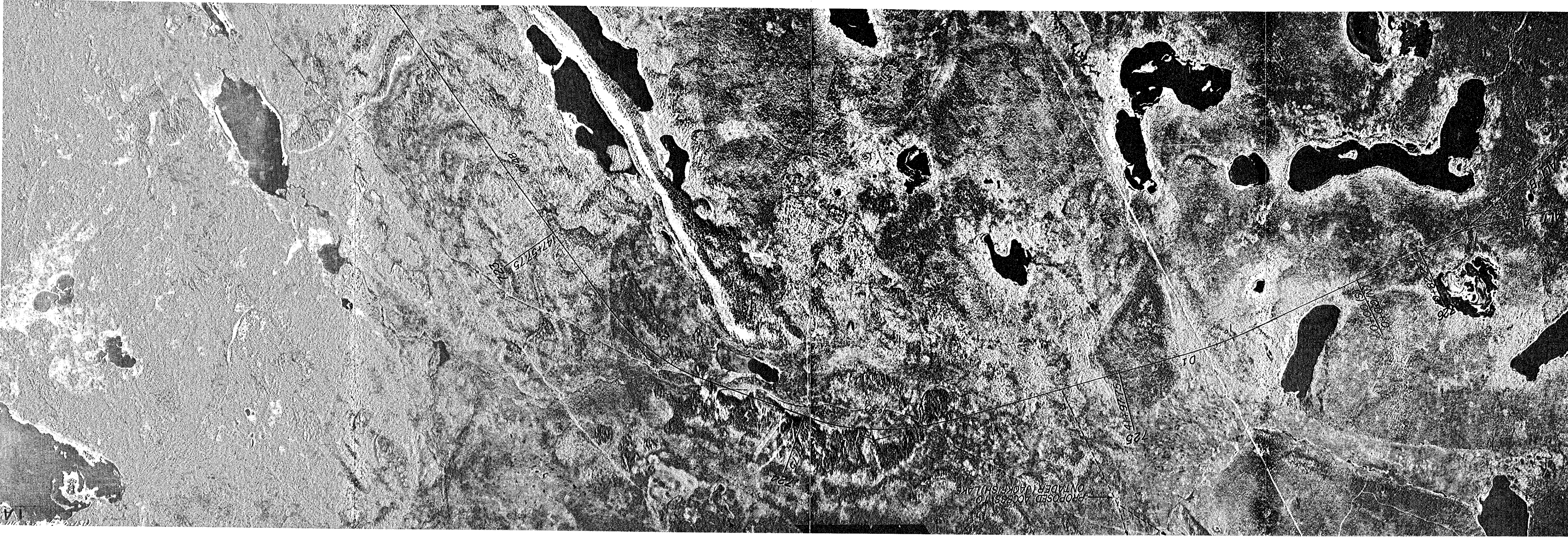
An alignment has been projected on the airphoto mosaics and map from Fort Good Hope settlement towards the MacKenzie River Ramparts a distance of 13 miles. The first tangent has been surveyed in the fall of 1974, in order to determine a grade and alignment criteria for the Jackfish Creek crossing.

The alignment would intersect the Good Hope Access Road just north of the settlement boundary, crossing Jackfish Creek just above the MacKenzie River backup water elevation. From this point it would follow the east bank of the MacKenzie River to the upper end of the Ramparts as a potential park drive to develop the scenic grandeur of the Ramparts. It would also provide access to the Department of Transport very high frequency omni range (V.O.R.) site, contracted for construction 1974-75.

STATION ED IN FIELD	BY	DATE

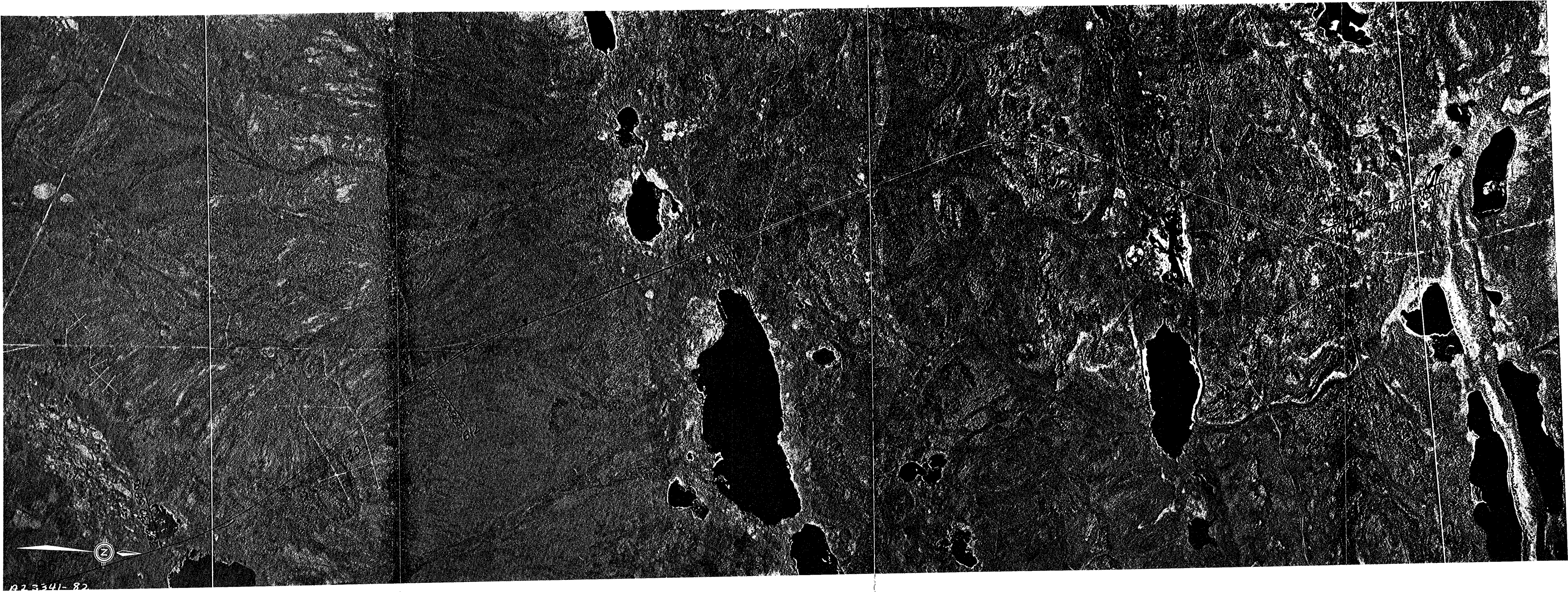
PLAN
ALIGNMENT
TOPOGR. NOTES
DRAINAGE
BORROW AREAS
STRUCTURES NOTED

SURV. YTD	DATE	NOTED	DATE	CHKD	DATE



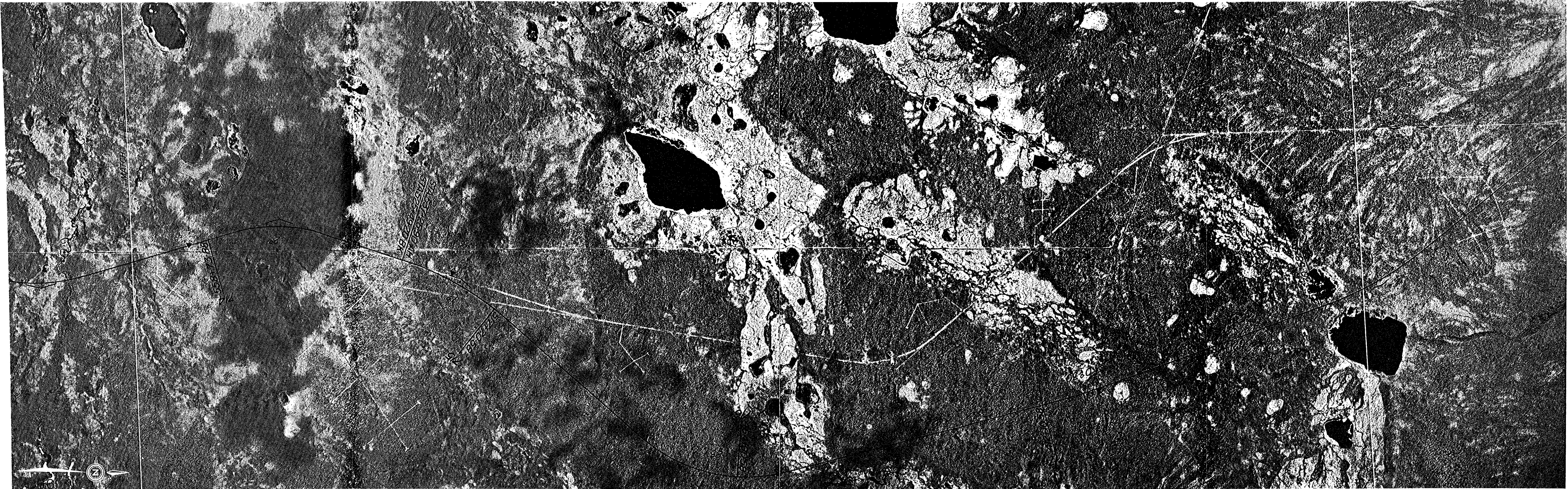
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APPENDIX II - Semi-controlled Mosaics Showing
Alignment Revisions. (1"=1,000')

