SUSITNA HYDROELECTRIC PROJECT

1982

HYDROGRAPHIC SURVEYS REPORT

DECEMBER 1982

PREPARED BY:
R&M CONSULTANTS, INC.

PREPARED FOR:
ACRES

ALASKA POWER AUTHORITY

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TASK 2 - SURVEYS AND SITE FACILITIES

1982 HYDROGRAPHIC SURVEYS

DECEMBER 1982

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ALASKA POWER AUTHORITY
SUSITNA HYDROELECTRIC PROJECT
HYDROGRAPHIC SURVEYS

1982 HYDROGRAPHIC SURVEYS REPORT

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ACKNOWLEDGMENTS

These river surveys were conducted under contract to Acres American, Inc., for the Susitna Hydroelectric Feasibility Study. This program was coordinated in collaboration with the Alaska Department of Fish & Game. The survey crews were supervised by Larry Nicholson (R&M). Carl Schoch coordinated the surveys program, reduced and analysed the data, and prepared this report.

1 - INTRODUCTION

1.1 - Objective

Hydrographic Surveys, Subtask 2.16 of the Susitna Hydroelectric Feasibility Study, was expanded in 1982 in order to provide additional data for further study of fisheries habitats, stream perching and ice cover modelling. This report presents the R&M Consultants field procedures and descriptions for monument identification. The objective is to provide future field crews and data users with an explanation of the methodology and to encourage standardization or improvement.

1.2 - Scope of Work

The primary data gathering effort concerned flow regimes through Susitna River side channels and sloughs. Sixty-nine additional cross sections were surveyed in selected slough spawning habitats between Portage Creek (RM 149) and Goose Creek (RM 70). These data will be useful in assessing potential detrimental effects to resident fish and fish fry by post-project reservoir discharges.

The natural flow regime through the sloughs is dependent upon groundwater infiltration and mainstem discharges. Prior to the spring breakup the sloughs are generally isolated from the mainstem at the mouth by a dewatered channel and by a berm at the upstream entrance or head. Rapid increases in river stage caused by freezeup or breakup ice jamming on the mainstem could result in water breaching the berm and flowing through the slough. Often vegetation is scarred and the configuration of gravel bars altered as ice blocks are swept through the channel. These floods are usually of short duration, and when the water subsides the slough is again isolated from the mainchannel. With summer runoff the river discharge increases, and the stage is usually high enough to open the mouth of the slough to mainstem flow. Characteristically a backwater pool forms at the mouth providing migrating fish with sufficient water to negotiate the shallows and swim up into the slough. Occasionally a severe summer flood will again breach the berm at the head and mainstem flow will pass through the slough. As precipitation decreases and summer flows subside, prior to freezeup, the access channels are dewatered and the sloughs are once again isolated.

It may be evident from the described flow sequence that access channel elevations are critical to the flow regime within the sloughs and therefore important to fisheries habitats. The post-project regulated summer flow is expected to be significantly less than normal and a concern was indicated about whether the flow within the sloughs will remain adequate to support resident populations as well as providing access to migrating salmon. Conversely the winter discharges will be dictated by energy requirements. This may potentially open the sloughs to mainstem flow and circulate the relatively warm (4°C) water through the spawn habitat. Therefore, in

order to effectively model the flow behavior within the sloughs and determine mitigation measures necessary to accommodate spawning fish, detailed channel cross sectioning was required. These data will determine critical elevations for flooding and dewatering of access channels.

Under Subtask 3.03 and in conjunction with the flow regime study of the sloughs, streamgages and strip chart recorders were installed in five separate sloughs to monitor water levels and record any sudden flow variations such as during breaching of the berm at the slough head. In addition, discharges were periodically measured and a stage-discharge curve was developed for 11 sloughs, including the recorder sites. This information will be published in the report Field Data Collection and Processing, Supplement 1 (R&M, 1982a).

A secondary objective, incorporated into the 1982 survey program, was to gather cross section and profile data on selected tributaries to the Susitna downstream of Devil Canyon. When bed material is large enough to remain stable even during high flows, then the bottom is considered armoured, and insignificant degradation of the channel will occur. If an armoured bottom exists at the mouth of a tributary to the Susitna, and anticipating below normal Susitna water levels due to regulated flow during post-project reservoir operation, then it is conceivable that some tributaries may become "perched" or elevated. This could virtually isolate these streams and prevent access to migrating fish.

Nineteen tributaries were identified for the study, and profiles were surveyed on each as well as a cross-section near the mouth. The results of this assessment have been published in Tributary Stability Analysis, (R&M, 1982b).

The final project that identified a need for further survey data was the river ice processes study conducted by Acres American. Thirty-two additional main channel cross sections were surveyed, nine downstream of Talkeetna and the remaining upstream to Sherman, supplementing the original lower river cross sections surveyed during 1980-1981. Of the original 62 cross-sections surveyed in 1980, cross section LRX-1 to LRX-5 were resurveyed to define changes in channel morphology near the Susitna/Chulitna confluence. These data were filed in HEC-2 format and transferred to Boeing Computer Services for storage on magnetic tape. Cross-section plots and the file printout are included in Attachment C.

1.3 - Report Contents

Section 2 of this report presents an explanation of the alphanumeric identification system used for survey monuments and staff gages. The procedures used by R&M Consultants for surveying the sloughs and tributaries are also briefly described. For a detailed discussion on methodology however, refer to the Hydrographic Surveys Closeout Report (R&M, 1981).

Attachment A is a tabulation of elevations for the survey monuments established by R&M under Subtask 2.16 from 1980 to 1982. Attachment B contains the graphical plots of slough cross-section surveyed in 1982 as well as reproductions of printouts listing the station description and elevations. Cross sections plots for the ice studies computer model "ICESIM" are shown in Attachment C, and finally in Attachment D are the revised copies of the Susitna River Hydrographic maps which delineate the locations of all cross sections surveyed to date below Devil Canyon.

2 - PROCEDURES

The general surveying procedures that were followed are described here. It should be noted that specific procedures may have varied somewhat due to channel configuration, water depth and restrictions imposed by weather conditions.

2.1 - Monument Identification

Coordination of this survey effort with the Alaska Department of Fish and Game resulted in collaboration on a standard indexing and identification system. The purpose of the system was twofold, first to provide a unique label for each survey monument and second to assign a location code so that the monument can be relocated in the field or on a map by referring to river mile numbers and orientation within a drainage channel. The various drainage channels include tributaries (coded "T"), the mainstem Susitna (M), and sloughs (S). The sloughs are further subdivided to identify specific areas within the slough such as the upstream entrance or head (H), mouth (M), backwater (B) and secondary access channels (A). The location code was refined to identify the specific object at the site, such as temporary benchmarks or staff gages. Temporary benchmarks are designated with RB or LB referring to right and left bank respectively. For all monuments set by R&M Consultants, this bank designation only applies when looking downstream. Staff gages were usually set in a stepped series perpendicular to the flow. These are identified with an A, B or C designation starting with the gage nearest the bank labelled "A".

For example, an aluminum cap stamped 144.8 H RB can be found on the Susitna River Hydrographic maps (Attachment D) by following the the river mile numbering system to Sheet 4. The first four digits of the code coincide with river mile estimated to the nearest 1/10 of a mile. The "H" in the code stands for head of a slough and "RB" refers to the right bank of the slough channel.

2.2 - Slough Surveys

All elevations surveyed in the sloughs are based on and tied in to existing vertical control, either R&M monumentation established during the 1980 cross-section surveys or National Geodetic Survey first-order benchmarks along the Alaska Railroad tracks. A level line was first surveyed through the sloughs and temporary benchmarks established at the sites selected to be cross-sectioned. These temporary benchmarks are 24" rebar, 5/8" in diameter, driven into the bank on both ends of the cross-section site. A 2" aluminum disk in sets on the rebar, and this provides the control surface. In areas near existing cross-sections, a spike was set in a tree trunk in place of an aluminum cap. This, however, applied to only one end of a transect, the opposite end having the normal rebar and "Alcap". Elevations were established on the temporary benchmarks, and the level line was either looped back to the initial starting elevation or tied to the nearest existing datum. This double running of each level line assured

that no errors were made and that all elevations are within the standard degree of error for 4th-order surveys. If the initial or control level line closed well, then the cross-sections were surveyed.

Each study slough had, in general, the following areas identified as critical and to be cross-sectioned:

1. The head or upstream entrance of the slough and across the highest and lowest points on the berm. These data are for determining the critical mainstem flow required to breach the berm.

2. The mouth of the slough, also across the highest and lowest points, in order to define the critical low water level of the mainstem before the slough is cut off.

3. In the backwater area above the mouth of the slough but downstream of any riffles or shallows. This backwater area is characteristically recognized caused by ponding of water caused by the backfilling or eddy of mainstream flow. The water surface within the backwater area is directly dependent on the water surface in the mainstream.

4. Access channels were also cross-sectioned, since many of these convey water to the slough from the mainstem (Slough 21).

5. Some intensive habitat study sites, such as Sloughs 8 and 9, required further cross-sectioning near tributary confluences and groundwater wells.

Water surface elevations were surveyed and a bottom profile established on all cross-sections. When sections were too deep to wade, then soundings were made from a boat. A staff gage was set on every cross-section if one had not already been placed by the Alaska Department of Fish and Game.

Elevations were brought in from the NGS 1st-order level line along the Alaska Railroad, which established true elevations on monuments in Birch Creek, Sunshine Slough, Rabideux Creek, Whitefish Slough and Goose Creek. Cross-section locations are shown in Attachment D.

2.3 - Tributaries

The stability analysis for determining whether a stream will become perched required a thalweg profile and cross-section at the mouth. The profile extended from about 1,000 feet upstream of the confluence to an arbitrary point opposite the confluence, across the first deep channel of the Susitna.

Stations were established at 50-foot intervals along the thalweg, where the bottom elevation was determined as well as water surface elevations. The thalweg profile was extended across the Susitna in order to define the slope where the tributary flows into the Susitna. This mainstem profile extension required the use of a sounding weight and a boat.

A cross-section of the tributary channel was required at a representative section near the mouth. Temporary benchmarks were placed at each end of this section. These benchmarks were the reference datum for the elevations used in the analysis of the tributaries.

2.4 - ICESIM Cross Sections

In order to provide additional information for the Acres ice cover model "ICESIM", mainstem cross sections were surveyed in the confluence area near Talkeetna and at key locations upstream to Sherman. The ice cover model is intended to provide information on ice cover thicknesses, upstream ice cover extent and ice jam locations before and after dam construction.

The area of particular interest is at the confluence of the three rivers - Chulitna, Susitna and Talkeetna - near the town of Talkeetna. Because of the intricate channel morphology at and downstream of the confluence, the additional cross-sections were concentrated in this area. Downstream of LRX-1, nine additional cross-sections were surveyed across the entire active flood plain. Between LRX-1 and LRX-5, thirteen new cross were surveyed. The remaining ten cross-sections were surveyed at key locations identified as sites of recurring ice jams or points of diverging or converging channels.

The procedures established during the 1980 cross-section surveys were followed this year to maintain a standard format, with the exception that in 1982 an aluminum cap monument was set at both ends of the transect. In 1980 only one monument was set for each cross-section, usually on the left bank. This addition was a result of problems encountered in relocating several of the 1980 monuments. Vertical control for cross-sections below Talkeetna was taken directly from NGS benchmarks. Upstream of Talkeetna, the original 1980 monuments were used for reference elevations. Cross-section locations are shown in Attachment D.

3 - REFERENCES

R&M Consultants, Inc. 1982a. Field Data Collection and Processing, Supplement 1, prepared for Acres American Incorporated for the Susitna Hydroelectric Feasibility Study. Anchorage, Alaska.

R&M Consultants, Inc. 1982b. Tributary Stability Analysis, prepared for Acres American Incorporated for the Susitna Hydroelectric Feasibility Study. Anchorage, Alaska.

R&M Consultants, Inc. 1981. Hydrographic Surveys Closeout Report, prepared for Acres American Incorporated for the Susitna Hydroelectric Feasibility Study. Anchorage, Alaska.

ATTACHMENT A

Susitna Hydroelectric Feasibility Study

Tabulated Elevations, Identifications and
Descriptions of R&M Consultants, Inc.
Survey Monumentation, 1980-1982

THIRD AND FOURTH ORDER BENCHMARKS SET IN ASSOCIATION WITH 1982 SUSITNA HYDROGRAPHIC SURVEYS

DEFINITION OF SYMBOLS AND ABBREVIATIONS

A - Access. Designation established by R&M for identification of survey monuments, referring to access channels leading to sloughs.

Alcap - Aluminum cap. A two inch aluminum disk usually set on 5/8" rebar within .2 of a foot from ground level. Stamped R&M Consultants Inc., 1982 and with the location identification also stamped in block type.

B - Backwater. Designation established by R&M for identification of survey monuments. Referring to pools in sloughs immediately upstream from the slough mouth.

C.W. - Cottonwood. Abbreviation used in location descriptions.

D.S. - Downstream. Abbreviation used in location descriptions.

H - Head. Designation established by ADF&G for location identification of the upstream end of a slough where mainstem flow could diverge and flow through the slough.

L.B. & R.B. - Left and right bank respectively. This designation applies when looking downstream only. All R&M river bank designations are relative to the downstream view.

LRX - Lower river cross section. Designation established by R&M for identification of mainstem cross sections which were used primarily for computer modeling.

M - Mainstem. Designation established by ADF&G for identification of staff gages, referring to the main channel flow as opposed to side channels or flow through sloughs.

Rebar - 24" long steel rod, 5/8" in diameter.

S - Slough. Designation established by ADF&G for use in labelling and identification of staff gages.

S.G. - Staff Gage

SL - Slough

U.S. - Upstream. Abbreviation used in location descriptions

T - Tributary. Designation established by ADF&G for identification of staff gages.

W - Mouth. Designation established by ADF&G for use in labelling the mouth of sloughs where they converge with the mainstem.

X-sec - Cross Section

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980-1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap on left bank of canyon	LRX-68 L.B.	861.70
R&M Rebar & Alcap on right bank of canyon	LRX-67 R.B.	853.47
R&M Rebar & Alcap on right bank of canyon	LRX-66 R.B.	853.75
R&M Rebar & Alcap on right bank of canyon	LRX-65 R.B.	852.72
R&M Rebar & Alcap on right bank of canyon	LRX-64 R.B.	848.23
R&M Rebar & Alcap on right bank of canyon	LRX-63 R.B.	847.11
R&M Rebar & Alcap @ center of photo panel	-	844.26
R&M spike in 14" cottonwood, right bank	TBM 153	845.92
R&M Rebar & Alcap, left bank near RM 147.6	LRX-60 L.B.	831.87
R&M Rebar & Alcap, left bank near RM 144.9	LRX-59 L.B.	796.80
Nail in base of 16" cottonwood, top of right bank	LRX-59 R.B.	797.59
Rebar at toe of steep left bank	TBM 101	767.05
Nail in root of cottonwood near RM 143.2	LRX-58 R.B.	773.41
R&M Rebar & Alcap, left bank @ RM 142.3	LRX-57 L.B.	761.68
R&M Rebar & Alcap, left bank @ RM 142.1	LRX-56 L.B.	759.30
R&M Rebar & Alcap, top of left bank, main channel	LRX-55 L.B.	748.51
R&M Rebar & Alcap, Top of left bank, RM 140.8	LRX-54 L.B.	741.20
R&M Rebar & Alcap, left bank on terrace	LRX-53 L.B.	733.76
R&M Rebar & Alcap, left bank at RM 139.5	LRX-52 L.B.	735.67
Nail in 6" C.W. on right bank at LRX-51	Indian	716.01
R&M Rebar & Alcap, left bank at RM 138.9	LRX-51 L.B.	717.86

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap, on steep bedrock, left bank	LRX-50 L.B.	709.34
R&M Rebar & Alcap, left bank at RM 138.2	LRX-49 L.B.	733.40
R&M Rebar & Alcap, top of left bank	LRX-48 L.B.	700.48
R&M Rebar & Alcap, left bank at RM 137.2	LRX-47 L.B.	700.48
R&M Rebar & Alcap, top of left bank, RM 136.9	LRX-46 L.B.	700.17
R&M Rebar & Alcap, left bank at RM 136.6	LRX-45 L.B.	690.81
Nail in 14" Cottonwood tree on right bank	LRX-44 R.B.	693.48
R&M Rebar & Alcap, angle point on far left bank	LRX-44 L.B.	688.67
R&M Rebar & Alcap, left bank main channel	LRX-43 L.B.	683.11
Nail in cottonwood tree on right bank	LRX-42 R.B.	676.71
R&M Rebar & Alcap, left bank RM 135.6	LRX-42 L.B.	703.81
Nail in tree stump on right bank	LRX-41 R.B.	664.55
R&M Rebar & Alcap, left bank RM 134.7	LRX-41 L.B.	703.01
Nail in 14" cottonwood tree, right bank	LRX-40 R.B.	663.30
R&M Rebar & Alcap, left bank RM 134.2	LRX-40 L.B.	676.53
R&M Rebar & Alcap, left bank RM 133.3	LRX-39 L.B.	652.06
R&M Rebar & Alcap, left bank east channel	LRX-38 L.B.	647.98
R&M Rebar & Alcap, left bank RM 131.9	LRX-37 L.B.	650.08
R&M Rebar & Alcap, left bank RM 131.2	LRX-36 L.B.	631.37
Spike in 36" cottonwood at crest gage	TBM-1	630.49
R&M Rebar & Alcap, top of left bank	LRX-35 L.B.	626.56

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap, top of left bank, west channel	LRX-34 L.B.	625.38
R&M Rebar & Alcap, left bank main channel	LRX-33 L.B.	615.53
Nail in 12" cottonwood on right bank	-	619.05
R&M Rebar & Alcap, left bank RM 129.7	LRX-32 L.B.	608.72
R&M Rebar & Alcap, left bank main channel	LRX-31 L.B.	603.50
R&M Rebar & Alcap, right bank on veg. island	LRX-30 N3 R.B.	599.75
R&M Rebar & Alcap, left bank an island, RM 128.7	LRX-30 N3 L.B.	600.99
R&M Rebar & Alcap, right bank on small island	LRX-30 N2 R.B.	596.15
R&M Rebar & Alcap, left bank on sand bar	LRX-30 N1 L.B.	592.33
R&M Rebar & Alcap, right bank, island w/lone C.W.	LRX-30 N1 R.B.	593.44
R&M Rebar & Alcap, top of left bank, RM 127.5	LRX-30	596.07
R&M Rebar & Alcap, top of left bank, RM 126.1	LRX-29	578.43
R&M Rebar & Alcap, left bank of bypass channel	LRX-28A L.B.	569.73
R&M Rebar & Alcap, right bank main channel	LRX-28A R.B.	575.84
Spike in 48" cottonwood on left bank, RM 124.4	TBM-1	565.48
R&M Rebar & Alcap, top of left bank near crest gage	LRX-28	561.80
R&M Rebar & Alcap, left bank at RM 123.3	LRX-27	552.71
R&M Rebar & Alcap, left bank at RM 122.5	LRX-26	547.80
R&M Rebar & Alcap, left bank at RM 122.1	LRX-25A L.B.	539.88
R&M Rebar & Alcap, right bank of main channel	LRX-25A R.B.	542.10
Nail in 16" cottonwood stump on left bank main channel	TBM "Tooth"	539.50

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap, left bank of east channel	LRX-25 L.B.	536.55
Spike in 15" spruce near Curry crest gage	TBM-1	534.20
R&M Rebar & Alcap, left bank at RM 120.7	LRX-24 L.B.	531.39
Nail in base of 15" spruce at angle point on island	TBM "FLU"	528.18
R&M Rebar & Alcap, left bank at RM 119.3	LRX-23 L.B.	530.53
Nail in cottonwood on right bank at RM 119.2	TBM "Fern"	518.94
R&M Rebar & Alcap, left bAnk by RR tracks	LRX-21 L.B.	523.74
R&M Rebar & Alcap, right bank at RM 118.4	LRX-20B R.B.	511.45
R&M Rebar & Alcap, left bank of east channel	LRX-20A L.B.	511.20
R&M Rebar & Alcap, right bank of west channel	LRX-20A R.B.	505.98
R&M Rebar & Alcap, left bank at RM 117.2	LRX-20 L.B.	503.98
R&M Rebar & Alcap, left bank at RM 116.5	LRX-19 L.B.	496.41
R&M Rebar & Alcap, left bank at RM 115.9	LRX-18C L.B.	500.57
R&M Rebar & Alcap, right bank main channel	LRX-18C R.B.	492.29
R&M Rebar & Alcap, left bank east channel RM 115.3	LRX-18B L.B.	485.72
Orange painted rock on right bank main channel	LRX-18B R.B.	482.71
R&M Rebar & Alcap, left bank at head of Lane SL	LRX-18A L.B.	482.21
R&M Rebar & Alcap, right bank of west channel	LRX-18A R.B.	479.35
Nail set in tree at top of right bank	LRX-18 R.B.	471.44
R&M Rebar & Alcap, left bank at RM 113	LRX-18 L.B.	469.91
R&M Rebar & Alcap, left bank at RM 112.7	LRX-17 L.B.	471.59

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
Spike in 48" cottonwood on right bank, weat channel	LRX-16 R.B.	465.45
R&M Rebar & Alcap, left bank of east channel	LRX-16 L.B.	469.58
R&M Rebar & Alcap, right bank at toe of bluff	LRX-15 R.B.	457.73
R&M Rebar & Alcap, left bank of east channel	LRX-15 L.B.	468.25
R&M Rebar & Alcap, on right bank at toe of bluff	LRX-14 R.B.	450.66
R&M Rebar & Alcap, left bank of east channel	LRX-14 L.B.	450.92
R&M Rebar & Alcap, top of left bank at RM 110.3	LRX-13 L.B.	454.43
Spike in 25" cottonwood on right bank at RM 108.4	LRX-12 R.B.	434.38
Spike in railroad tie on left bank at RM 108.4	LRX-12 L.B.	449.02
R&M Rebar set near toe of right bank at RM 106.7	LRX-11 R.B.	413.28
R&M Rebar & Alcap, left bank at RM 106.7	LRX-11 L.B.	420.88
R&M Rebar & Alcap, left bank at RM 106.4	LRX-10C L.B.	420.32
R&M Rebar & Alcap, right bank below bluff	LRX-10C R.B.	416.17
R&M Rebar & Alcap, left bank at RM 105.9	LRX-10B L.B.	417.03
R&M Rebar & Alcap, right bank below bluff	LRX-10B R.B.	413.64
R&M Rebar & Alcap, left bank at RM 105.1	LRX-10A L.B.	403.99
R&M Rebar & Alcap, right bank of west channel	LRX-10A R.B.	403.18
R&M Rebar & Alcap, left bank at RM 104.8	LRX-10 L.B.	410.15
Spike in 28" cottonwood on left bank of west channel	TBM "RAIN"	404.63
R&M Rebar & Alcap, left bank at RM 104.1	LRX-9A L.B.	404.80
R&M Rebar & Alcap, right bank in vegetation	LRX-9A R.B.	392.93

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap, left bank ar RM 103.4	LRX-9 L.B.	387.82
Spike in 18" spruce near crest gages	TBM-1	397.06
Nail in 18" spruce stump in right bank	LRX-9 R.B.	393.75
R&M Rebar & Alcap, left bank at RM 102.5	LRX-8 L.B.	385.64
R&M Rebar & Alcap, right bank near edge of veg.	LRX-8 R.B.	383.70
R&M Rebar & Alcap, left bank at RM 101.5	LRX-7 L.B.	369.26
R&M Rebar on right bank of west channel	TBM "WHISKERS"	375.29
R&M Rebar on right bank below Whiskers Cr.	LRX-6 R.B.	371.09
R&M Rebar & Alcap, left bank at RM 101	LRX-6 L.B.	371.16
R&M Rebar & Alcap, left bank of east channel	LRX-5 L.B.	362.75
R&M Rebar & Alcap, left bank of east channel	LRX-4D L.B.	364.09
R&M Rebar & Alcap, right bank at RM 100.2	LRX-4D R.B.	360.61
R&M Rebar & Alcap, left bank of east channel	LRX-4C L.B.	359.16
R&M Rebar & Alcap, right bank at RM 100.1	LRX-4C R.B.	360.07
R&M Rebar & Alcap, left bank of east channel	LRX-4B L.B.	359.45
R&M Rebar & Alcap, right bank at RM 99.9	LRX-4B R.B.	359.60
R&M Rebar & Alcap, left bank of east channel	LRX-4A L.B.	358.35
R&M Rebar & Alcap, right bank at RM 99.8	LRX-4A R.B.	358.74
R&M Rebar & Alcap, left bank of east channel	LRX-4 L.B.	352.30
Spike in 10" Spruce near crest gages at RM 99.5	TBM-1	366.96
R&M Rebar & Alcap, left bank of main channel	LRX-3D L.B.	361.69

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap, right bank of west channel	LRX-30 R.B.	350.50
R&M Rebar & Alcap, left bank of main channel	LRX-3C L.B.	352.39
R&M Rebar & Alcap, right bank on gravel island	LRX-3C R.B.	350.74
R&M Rebar & Alcap, left bank near slough head	LRX-3B L.B.	350.40
R&M Rebar & Alcap, right bank on island at RM 98.9	LRX-3B R.B.	351.75
R&M Rebar & Alcap, left bank of main channel	LRX-3A L.B.	349.18
R&M Rebar & Alcap, right bank of island	LRX-3A R.B.	349.84
Nail set in cottonwood log on bank of island	TBM "COAST"	349.68
R&M Rebar & Alcap, left bank of main channel	LRX-3 L.B.	346.45
R&M Rebar & Alcap, left bank of Susitna at RM 98.5	LRX-2C L.B.	346.93
R&M Rebar & Alcap, right bank of Chulitna River	LRX-2C R.B.	347.30
R&M Rebar & Alcap, left bank of Susitna at RM 98.3	LRX-2B L.B.	345.66
R&M Rebar & Alcap, right bank of Chulitna River	LRX-2B R.B.	346.63
R&M Rebar & Alcap, left bank at RM 98	LRX-2A L.B.	344.23
R&M Rebar & Alcap, right bank Chulitna right channel	LRX-2A R.B.	345.63
R&M Rebar & Alcap, left bank Susitna left channel	LRX-2 L.B.	343.87
R&M Rebar & Alcap, right bank at RM 97.9	LRX-2 R.B.	343.26
R&M Rebar & Alcap, left bank Susitna east channel	LRX-1B L.B.	341.90
R&M Rebar & Alcap, right bank of west channekl	LRX-1B R.B.	341.87
R&M Rebar & Alcap, left bank above Talkeetna R.	LRX-1A L.B.	339.86
R&M Rebar & Alcap, right bank of west channel	LRX-1A R.B.	340.41
R&M Rebar & Alcap, left bank near vegetation	LRX-1 L.B.	336.33

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS FOR
MAIN CHANNEL CROSS SECTIONS
1980 - 1982*

Monument Description	Identification	Elevation
R&M Rebar & Alcap, right bank at RM 97	LRX-1 R.B.	338.80
R&M Rebar & Alcap, right bank near RM 96.6	LRX-11 R.B.	336.77
R&M Rebar & Alcap, left bank near RM 96.8	LRX-11 L.B.	338.43
R&M Rebar & Alcap, right bank near RM 96.2	LRX-12 R.B.	334.54
R&M Rebar & Alcap, left bank near RM 96.5	LRX-12 L.B.	340.68
R&M Rebar & Alcap, right bank near RM 95.9	LRX-13 R.B.	334.62
R&M Rebar & Alcap, left bank near RM 95.6	LRX-13 L.B.	330.55
R&M Rebar & Alcap, right bank near RM 95.5	LRX-14 R.B.	329.14
R&M Rebar & Alcap, left bank near RM 95.2	LRX-14 L.B.	328.98
R&M Rebar & Alcap, right bank near RM 94.9	LRX-15 R.B.	323.80
R&M Rebar & Alcap, left bank near RM 94.9	LRX-15 L.B.	332.39
R&M Rebar & Alcap, right bank near RM 94.5	LRX-16 R.B.	323.22
R&M Rebar & Alcap, left bank near RM 94.5	LRX-16 L.B.	339.22
R&M Rebar & Alcap, right bank near RM 94	LRX-17 R.B.	322.22
R&M Rebar & Alcap, left bank near RM 94.2	LRX-17 L.B.	321.66

* NOTE: LRX-1 - LRX-62 were surveyed in 1980,
LRX-63 - LRX-68 were surveyed in 1981,
the remaining cross sections were surveyed in 1982.

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS

Description/Location	River Mile I.D.	Elevation
Chiseled Square, right bank, mouth Portage Cr.	148.9 T R.B.	848.32
Photo panel center, rebar & Alcap	148.9 T L.B.	844.27
TBM "Portage Q R.B.", right bank @ discharge site	148.9 Q R.B.	845.46
R&M Rebar & Alcap, right bank, mouth Jacklong Cr.	144.9 T1 R.B.	794.13
R&M Rebar & Alcap, left bank, mouth Jacklong Cr.	144.9 T1 L.B.	796.94
R&M Rebar & Alcap, right bank, head SL 22	144.8 H4 R.B.	791.93
R&M Spike, left bank, SL 22	144.8 H4 L.B.	794.99
R&M Rebar & Alcap, right bank @ discharge site	144.6 S3 R.B.	789.54
R&M Spike, left bank, SL 22 @ discharge site	144.6 S3 L.B.	788.92
R&M Rebar & Alcap, right bank SL 22	144.4 S2 R.B.	785.16
ADF&G Spike, right bank, Susitna mainstem	144.3 M1 R.B.	794.78
R&M Spike in 12" C.W., right bank, Susitna	144.3 M1 R.B.	794.79
ADF&G Spike in 14" C.W., left bank, SL 22	144.3 S4 L.B.	788.86
ADF&G Spike in 8" C.W., left bank, SL 22	144.3 W3 L.B.	788.25
R&M Rebar & Alcap, right bank, mouth SL 22	144.2 W1 R.B.	786.00
R&M Rebar & Alcap, left bank, mouth SL 22	144.2 W1 L.B.	784.58
R&M Spike in 20" C.W., left bank, head SL 21	142.0 H9 L.B.	763.33
R&M Rebar & Alcap, right bank SL 21 @ recorder	141.9 S8 R.B.	752.21
R&M Rebar & Alcap, left bank, SL 21 @ recorder	141.9 S8 L.B.	751.66
R&M Rebar & Alcap, right bank, x-sec SL 21	141.8 S7 R.B.	750.39
R&M Rebar & Alcap, left bank, x-sec SL 21	141.8 S7 L.B.	751.45
R&M Rebar & Alcap, left bank of access channel	141.8 A6 L.B.	753.45
R&M Rebar & Alcap, right bank of access channel	141.8 A6 R.B.	753.04

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
R&M Rebar & Alcap, left bank of access channel	141.7 A5 L.B.	750.81
R&M Rebar & Alcap, right bank of access channel	141.7 A5 R.B.	751.27
R&M Rebar & Alcap, right bank of access channel	141.3 A4 R.B.	746.28
R&M Rebar & Alcap, left bank of access channel	141.0 A3 L.B.	743.45
R&M Rebar & Alcap, right bank of access channel	141.0 A3 R.B.	740.84
R&M Rebar & Alcap, left bank of access channel	140.8 A2 L.B.	741.00
R&M Rebar & Alcap, right bank on point of island	140.6 W1 R.B.	736.05
R&M Rebar & Alcap, left bank, mouth SL 21	140.6 W1 L.B.	735.53
R&M Rebar & Alcap, left bank, head SL 20	140.6 H3 L.B.	737.33
ADF&G nail in root of 12" birch, head SL 20	140.6 H3 L.B.	737.49
R&M Rebar & Alcap, right bank, head of SL 20	140.6 H3 R.B.	734.25
ADF&G, nail in 30" C.W. on Trib. to SL 20	-	735.73
R&M Rebar & Alcap, left bank @ discharge site, SL 20	140.2 S2 L.B.	729.66
R&M Rebar & Alcap, right bank @ discharge site, SL 20	140.2 S2 R.B.	732.20
R&M Rebar & Alcap, left bank, mouth of SL 20	140.1 W1 L.B.	728.14
ADF&G staff gage top, SL 20	140.1 T3 B.	732.57
ADF&G 1½" Alcap at mouth of SL 19, right bank	-	725.14
R&M Rebar & Alcap, left bank, mouth of SL 19	139.8 W1 L.B.	725.09
R&M Rebar & Alcap, left bank at mouth of Indian River	138.6 T1 L.B.	712.02
R&M TBM, 8" spike in 30" C.W. tree on right bank of Indian River	-	714.09

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
ADF&G Rebar on right bank at head of SL 16	-	708.22
ADF&G Rebar on left bank at head of SL 16	-	708.86
R&M Rebar & Alcap, left bank at recorder site, SL 16	138.0 S3 L.B.	705.62
R&M Rebar & Alcap, right bank at recorder site, SL 16	138.0 S3 R.B.	706.05
R&M Rebar & Alcap, on right bank SL 16, edge of vegetation	137.9 S2 R.B.	701.24
R&M Rebar & Alcap, left bank, mouth of SL 16	137.8 W1 L.B.	702.01
R&M Rebar & Alcap, right bank, mouth of SL 16	137.8 W1 R.B.	701.74
ADF&G Rebar on left bank (R.B. Head pin 1), SL 16	-	702.21
R&M Rebar & Alcap, left bank, Gold Cr. discharge site	136.8 T2 L.B.	698.86
R&M Rebar & Alcap, right bank, Gold Cr. discharge site	136.8 T2 R.B.	699.81
R&M Rebar & Alcap, left bank at mouth of Gold Cr.	136.8 T1 L.B.	694.16
R&M Rebar & Alcap, right bank at mouth of Gold Cr.	136.8 T1 R.B.	696.28
R&M Rebar & Alcap, left bank of SL 11 at head	136.5 H4 L.B.	689.36
R&M Rebar & Alcap, left bank bypass channel, discharge site	136.5 Q3 L.B.	688.63
R&M Rebar & Alcap, right bank bypass channel, discharge site	136.5 Q3 R.B.	686.17
R&M Rebar & Alcap, left bank at recorder site, SL 11	135.7 S2 L.B.	675.88
R&M Rebar & Alcap, right bank at recorder site, SL 11	135.7 S2 R.B.	674.76
R&M Rebar & Alcap, left bank, mouth of SL 11	135.5 W1 L.B.	675.80

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
R&M Rebar & Alcap, right bank, mouth of SL 11	135.5 W1 R.B.	672.77
R&M Rebar & Alcap, left bank SL 11A	135.1 S1 L.B.	672.00
R&M Rebar & Alcap, right bank SL 11A	135.1 S1 R.B.	669.56
R&M Rebar & Alcap, left bank of SL 10 at discharge site	134.1 S1 L.B.	654.37
R&M Rebar & Alcap, right bank of SL 10 at discharge site	134.1 S1 R.B.	654.24
R&M Rebar & Alcap, left bank of trib., 75 ft U.S. from mouth	131.9 T1 L.B.	639.85
R&M Rebar & Alcap, right bank of trib.	131.9 T1 R.B.	641.52
R&M Rebar & Alcap, right bank of slough near 4th of July Cr.	131.2 S4 R.B.	626.18
R&M Rebar & Alcap, left bank of slough near 4th of July Cr.	131.2 S4 L.B.	624.39
R&M Rebar & Alcap, right bank, 300 ft. D.S. of 4th of July Cr.	131.1 S1 R.B.	623.03
R&M Rebar & Alcap, left bank, 300 ft. D.S. of 4th of July Cr.	131.1 S1 L.B.	619.08
R&M Rebar & Alcap, left bank, mouth of 4th of July Cr.	131.1 T2 L.B.	621.52
R&M Rebar & Alcap, right bank at mouth of 4th of July Cr.	131.1 T2 R.B.	622.66
R&M Rebar & Alcap, right bank at discharge site, 4th of July Cr.	131.1 T3 R.B.	626.13
R&M Rebar & Alcap, left bank at discharge site, 4th of July Cr.	131.1 T3 L.B.	627.69
R&M Rebar & Alcap, left bank Sherman Cr. at discharge site	130.8 T2 L.B.	622.78
R&M Rebar & Alcap, right bank Sherman Cr. at discharge site	130.8 T2 R.B.	624.96

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
R&M Rebar & Alcap, left bank mouth of Sherman Cr.	130.8 T1 L.B.	622.25
R&M Rebar & Alcap, right bank mouth of Sherman Cr.	130.8 T1 R.B.	623.53
R&M TBM 9-4, Spike at base of 8" C.W. near well 9-4	129.5 T6	613.95
R&M Rebar & Alcap, near well 9-4 in SL 9	129.5 T6 L.B.	610.39
R&M Rebar & Alcap, near well 9-5 in SL 9	129.5 T6 R.B.	607.41
ADF&G TBM, Spike in fork of 3" birch, near S.G.	129.5 T6	605.15
R&M Rebar & Alcap, at mouth of trib. to SL 9	129.4 T7 R.B.	605.66
R&M Rebar & Alcap, at mouth of trib. in SL 9	129.4 T7 L.B.	605.43
R&M TBM 9-7, Spike at base of 24" C.W.	129.3 S8	609.23
R&M Rebar & Alcap, left bank SL 9	129.3 S8 L.B.	608.28
R&M, Rebar & Alcap, right bank SL 9, 350 ft D.S. of head	129.3 S8 R.B.	606.33
R&M Rebar & Alcap, left bank SL 9 at head	129.3 H9 L.B.	606.77
R&M Rebar & Alcap, right bank at head of SL 9	129.3 H9 R.B.	608.18
ADF&G Rebar HP2, left bank SL 9	129.3 H9	605.85
R&M TBM 9-10, nail at base of 8" birch, near well 9-10	129.2 T7	606.66
R&M Rebar & Alcap, left bank 30 ft. U.S. of well 9-10	129.2 S5 L.B.	605.08
R&M Rebar & Alcap, right bank 8.9 ft. D.S. of Well 9-11	129.2 S5 R.B.	606.01
R&M Rebar & Alcap, left bank of SL 9 @ recorder	128.8 S3 L.B.	600.10
R&M Rebar & Alcap, right bank of SL 9 @ recorder	128.8 S3 R.B.	598.94
ADF&G Spike @ base of 6" birch, near Trib. 129.0	128.8	600.18

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
TBM 9-14, spike @ base of 30" C.W. @ well 9-14	-	602.19
R&M Rebar & Alcap, right bank Trib. 128.5	128.5 T2 R.B.	597.19
R&M Rebar & Alcap, left bank of Trib. 128.5	128.5 T2 L.B.	597.76
R&M Rebar & Alcap, right bank at mouth of SL 9	128.4 W1 R.B.	597.48
R&M Rebar & Alcap, left bank, mouth of SL 9	128.4 W1 L.B.	599.08
TBM ADF&G, Nail @ Base of 8" birch, left bank	128.4 W1	600.97
R&M Rebar & Alcap, left bank of tributary	127.3 T1 L.B.	590.01
R&M Rebar & Alcap, right bank of tributary	127.3 T1 R.B.	590.72
R&M Rebar & Alcap, left bank SL 8	126.6 S9 L.B.	579.15
R&M Rebar & Alcap, right bank SL 8	126.6 S9 R.B.	579.84
R&M Rebar & Alcap, left bank SL 8	126.5 S8 L.B.	578.14
R&M Rebar & Alcap, right bank SL 8	126.5 S8 R.B.	578.85
R&M Rebar & Alcap, left bank SL 8	126.5 S7 L.B.	580.79
R&M Rebar & Alcap, right bank SL 8	126.5 S7 R.B.	575.73
R&M Rebar & Alcap, left bank SL 8 at head	126.1 H4 L.B.	576.32
R&M Rebar & Alcap, right bank SL 8 at head	126.1 H4 R.B.	577.12
R&M Rebar & Alcap, left bank SL 8	125.9 S6 L.B.	571.40
R&M Rebar & Alcap, right bank SL 8	125.9 S6 R.B.	571.56
R&M Rebar & Alcap, right bank SL 8	125.7 S3 R.B.	570.90
R&M Rebar & Alcap, left bank at SL 8 recorder	125.7 S5 L.B.	568.37
R&M Rebar & Alcap, right bank at SL 8 recorder	125.7 S5 R.B.	567.56
R&M Rebar & Alcap, left bank SL 8	125.7 S3 L.B.	570.01

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
R&M Rebar & Alcap, right bank, SL 8	125.6 S2 R.B.	567.25
R&M Rebar & Alcap, left bank SL 8	125.6 S2 L.B.	571.49
R&M Rebar & Alcap, left bank, mouth of SL 8	125.2 W1 L.B.	568.51
R&M Rebar & Alcap, right bank, mouth of SL 8	125.2 W1 R.B.	566.01
TBM 8-8, nail at base of 5" birch tree	-	573.56
TBM 8-12, spike in 6" alder	-	569.58
TBM 8-5, nail in 6" birch	-	579.99
R&M Rebar & Alcap, left bank of Skull Cr.	124.7 T1 L.B.	564.91
R&M Rebar & Alcap, right bank of Skull Cr.	124.7 T1 R.B.	560.04
R&M Rebar & Alcap, left bank tributary @ RM 123.9	123.9 T1 L.B.	554.31
R&M Rebar & Alcap, right bank trib.	123.9 T1 R.B.	555.61
R&M Rebar & Alcap, left bank mouth of Curry Creek	120.9 T1 L.B.	536.67
R&M Rebar & Alcap, left bank mouth trib. 121.0	121.0 T1 L.B.	533.73
R&M Rebar & Alcap, right bank mouth trib. 121.0	121.0 T1 R.B.	532.96
R&M Rebar & Alcap, right bank mouth trib. 117.4	117.4 T1 RB	502.20
R&M Rebar & Alcap, left bank mouth trib. 117.4	117.4 T1 L.B.	503.04
R&M Rebar & Alcap, right bank mouth Mackenzie Cr.	116.7 T1 R.B.	497.77
R&M Rebar & Alcap, left bank mouth Mackenzie Cr.	116.7 T1 L.B.	496.34
R&M Rebar & Alcap, right bank at head Lane S1	114.1 H1 R.B.	476.23
R&M Rebar & Alcap, left bank at head Lane Sl.	114.1 H1 L.B.	481.81
R&M Rebar & Alcap, right bank Lane Cr. @ bridge	113.6 T2 R.B.	478.27

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
R&M Rebar & Alcap, left bank at Lane Cr. bridge	113.6 T2 L.B.	481.04
R&M Rebar & Alcap, left bank mouth Lane Cr.	113.6 T1 L.B.	473.21
R&M Rebar & Alcap, right bank mouth of Lane Cr.	113.6 T1 R.B.	474.31
R&M Rebar & Alcap, left bank, trib. at RM 110.1	110.1 T1 L.B.	445.89
R&M Rebar & Alcap, right bank, trib. at RM 110.1	110.1 T1 R.B.	446.14
R&M Rebar & Alcap, left bank, head Whiskers Sl.	101.6 H4 L.B.	374.24
R&M Rebar & Alcap, right bank, head Whiskers Sl.	101.6 H4 R.B.	372.72
R&M Rebar & Alcap, left bank, backwater Whiskers Sl.	101.4 S3 L.B.	370.38
R&M Rebar & Alcap, right bank, backwater Whiskers Sl.	101.4 S3 R.B.	370.85
R&M Rebar & Alcap, left bank, mouth Whiskers Cr.	101.3 T2 L.B.	368.17
R&M Rebar & Alcap, right bank, mouth Whiskers Cr.	101.3 T2 R.B.	369.37
R&M Rebar & Alcap, right bank, mouth Whiskers Sl.	101.2 W1 R.B.	370.07
R&M Rebar & Alcap, left bank, mouth Whiskers Sl.	101.2 W1 L.B.	370.43
ADF&G Rebar, left bank, near staff gages 101.2 M4	101.2	370.74
TBM RR Spike in 6" birch, left bank Susitna R.	96.8	339.27
TBM RR Spike in 10" birch, left bank Susitna R.	96.6	338.44
TBM RR Spike in root of 12" Spruce, left bank	96.2	340.17
TBM RR Spike in 10" birch, left bank Susitna R.	95.7	331.65
TBM RR Spike in 8" birch, left bank Susitna R.	95.4	334.94
TBM RR Spike in opposite Mile Post 225, between rails in a railroad tie.	95.2	335.19

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile I.D.	Elevation
TBM RR Spike, west end of railroad tie	94.9	334.13
TBM RR Spike, west end of railroad tie	94.6	343.94
TBM RR Spike, west end of railroad tie	94.3	355.94
R&M Rebar & Alcap, left bank, head of Birch Cr.	93.1 H4 L.B.	315.47
R&M Rebar & Alcap, right bank, head of Birch Cr.	93.1 H4 R.B.	313.96
R&M Rebar & Alcap, right bank, Birch Cr. Slough	89.3 S1 R.B.	287.44
R&M Rebar & Alcap, left bank, Birch Cr. Slough	89.3 S1 L.B.	387.79
R&M Rebar & Alcap, right bank, Birch Cr.	89.3 T2 R.B.	290.97
R&M Rebar & Alcap, left bank, Birch Cr.	89.3 T2 L.B.	290.68
R&M Rebar & Alcap, right bank, Birch Cr.	89.3 T3 R.B.	287.25
R&M Rebar & Alcap, left bank, Birch Cr.	89.3 T3 L.B.	286.90
R&M Rebar & Alcap, left bank, head Sunshine Sl.	86.8 H3 L.B.	284.77
R&M Rebar & Alcap, right bank, head of Sunshine Sl.	86.8 H3 R.B.	285.02
R&M Rebar & Alcap, right bank, Sunshine Cr., backwater	86.1 T2 R.B.	267.97
R&M Rebar & Alcap, left bank, Sunshine Cr., backwater	86.1 T2 L.B.	268.82
R&M Rebar & Alcap, right bank, mouth Sunshine Cr.	85.7 T1 R.B.	268.33
R&M Rebar & Alcap, left bank, mouth Sunshine Cr.	85.7 T1 L.B.	267.44
R&M Rebar & Alcap, right bank, mouth Rabideaux Cr.	83.3 T1 L.B.	263.08
R&M Rebar & Alcap, right bank, mouth Rabideaux Cr.	83.3 T1 R.B.	262.97
R&M Rebar & Alcap, right bank, mouth Whitefish Sl.	78.9 W1 R.B.	241.74

r37/d10

R&M CONSULTANTS
TEMPORARY BENCHMARKS
FOR 1982 SLOUGH SURVEYS
(Continued)

Description/Location	River Mile l.D.	Elevation
R&M Rebar & Alcap, left bank, mouth Whitefish Sl.	78.9 W1 L.B.	242.42
R&M Rebar & Alcap, left bank, head Goose Sl.	75.0 H5 L.B.	222.06
R&M Rebar & Alcap, right bank, head Goose Sl.	75.0 H5 R.B.	221.38
R&M Rebar & Alcap, left bank, x-sec. in Goose Sl.	73.2 S2 L.B.	212.76
R&M Rebar & Alcap, right bank, x-sec. in Goose Sl.	73.2 S2 R.B.	213.03
R&M Rebar & Alcap, left bank, mouth Goose Sl.	73.1 W1 L.B.	212.96
R&M Rebar & Alcap, right bank, mouth Goose Sl.	73.1 W1 R.B.	212.18
R&M Rebar & Alcap, right bank, Goose Cr.	73.1 T3 R.B.	215.71
R&M Rebar & Alcap, left bank, Goose Cr.	73.1 T3 L.B.	213.06
R&M Rebar & Alcap, right bank, Goose Cr.	73.0 T4 R.B.	215.17
R&M Rebar & Alcap, left bank, Goose Cr.	73.0 T4 L.B.	213.59

ATTACHMENT B

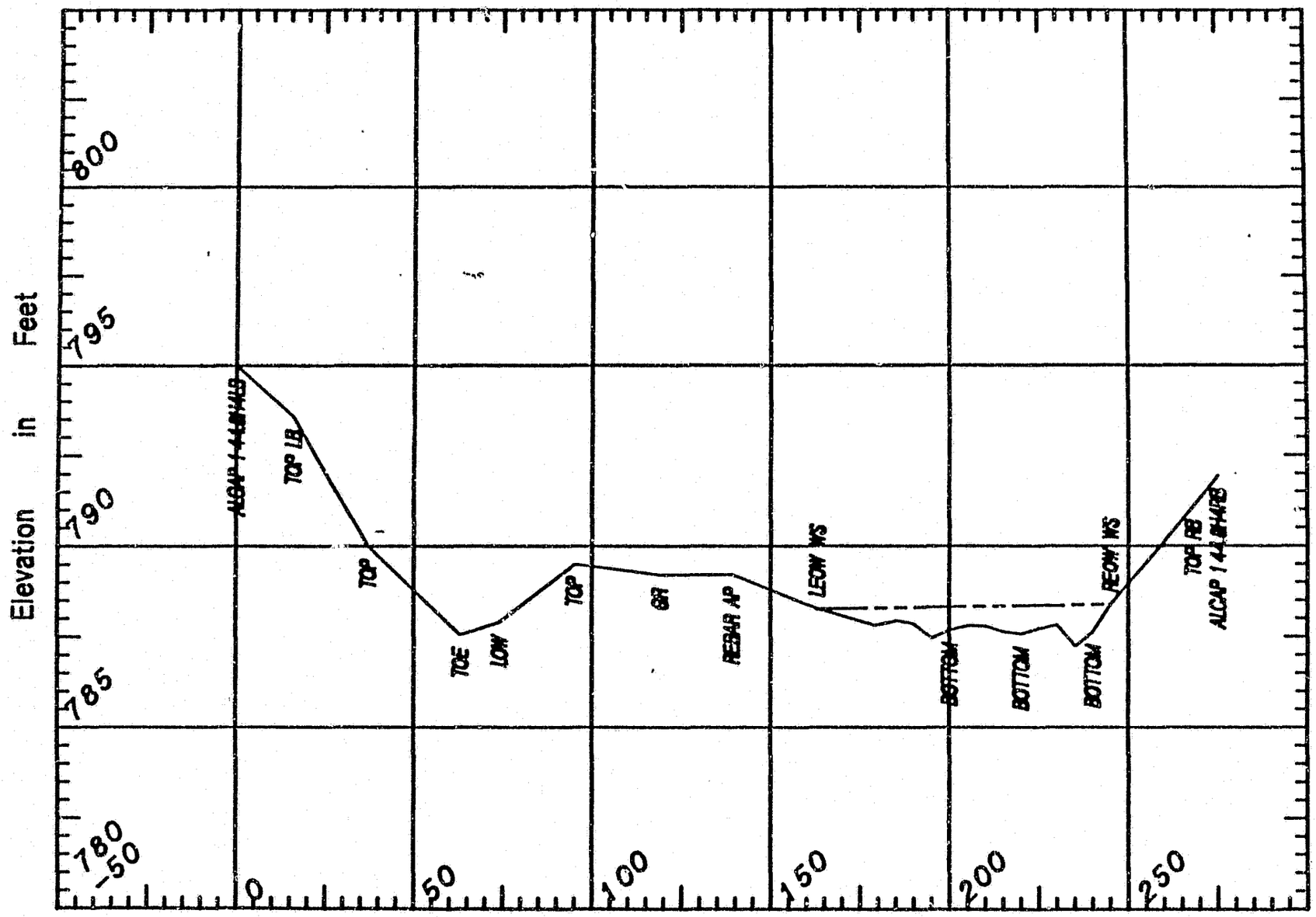
1982 Slough Cross Section Notes
and Graphical Plots

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL22 144.8H4

Date of Survey: JULY 10, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	794.990	ALCAP 144.8H4LB
2	16.000	793.560	TOP LB
3	37.000	789.990	TOP
4	63.000	787.540	TOE
5	74.000	787.900	LOW
6	95.000	789.500	TOP
7	119.000	789.190	GR
8	139.000	789.210	REBAR AP
9	163.000	788.260	
10	179.000	787.800	
11	185.000	787.940	
12	190.000	787.840	
13	195.000	787.450	
14	200.000	787.680	BOTTOM
15	205.000	787.800	
16	210.000	787.780	
17	215.000	787.620	
18	220.000	787.560	BOTTOM
19	225.000	787.720	
20	230.000	787.820	
21	235.000	787.230	
22	240.000	787.630	BOTTOM
23	245.000	788.390	
24	268.000	791.070	TOP RB
25	275.000	791.930	ALCAP 144.8H4RB
Water surface data:			
1	163.000	788.260	LEDW WS
2	245.000	788.390	REDW WS
MIN	0.000	787.230	
MAX	275.000	794.990	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SL22 144.8H4

Date of Survey: JULY 10, 1982

PREPARED FOR:

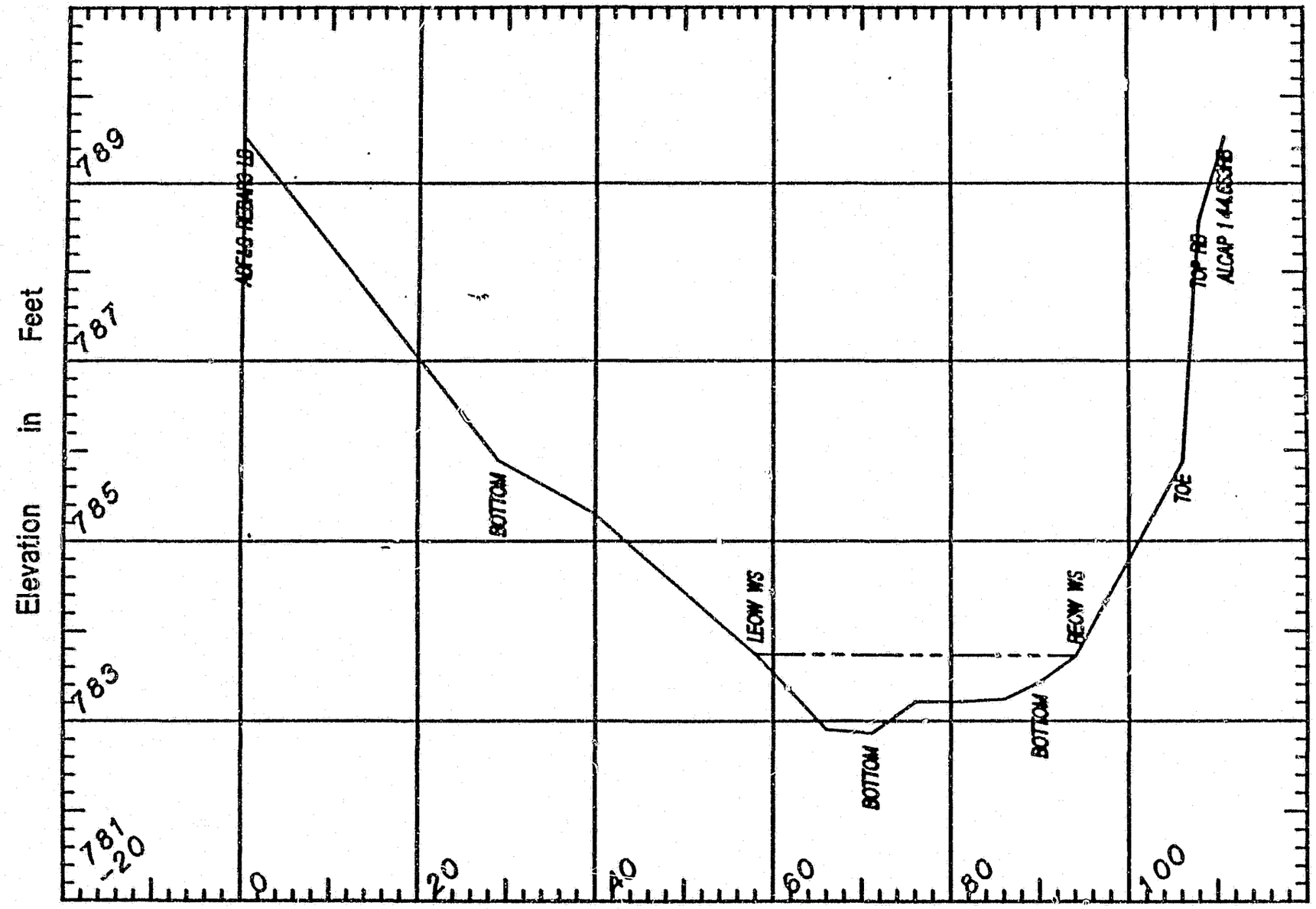
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL22 144.653

Date of Survey: JULY 10, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	789.540	ADF&G REBAR3 LB
2	29.000	785.890	BOTTOM
3	40.000	785.290	
4	58.000	783.740	
5	66.000	782.900	
6	71.000	782.860	BOTTOM
7	76.000	783.210	
8	81.000	783.210	
9	86.000	783.240	
10	90.000	783.430	BOTTOM
11	94.000	783.720	
12	106.000	785.880	TOE
13	108.000	788.570	TOP RB
14	111.000	789.540	ALCAP 144.653RB
Water surface data:			
1	58.000	783.740	LEOW WS
2	94.000	783.720	REOW WS
MIN	0.000	782.860	
MAX	111.000	789.540	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL22 144.6S3
Date of Survey: JULY 10, 1982

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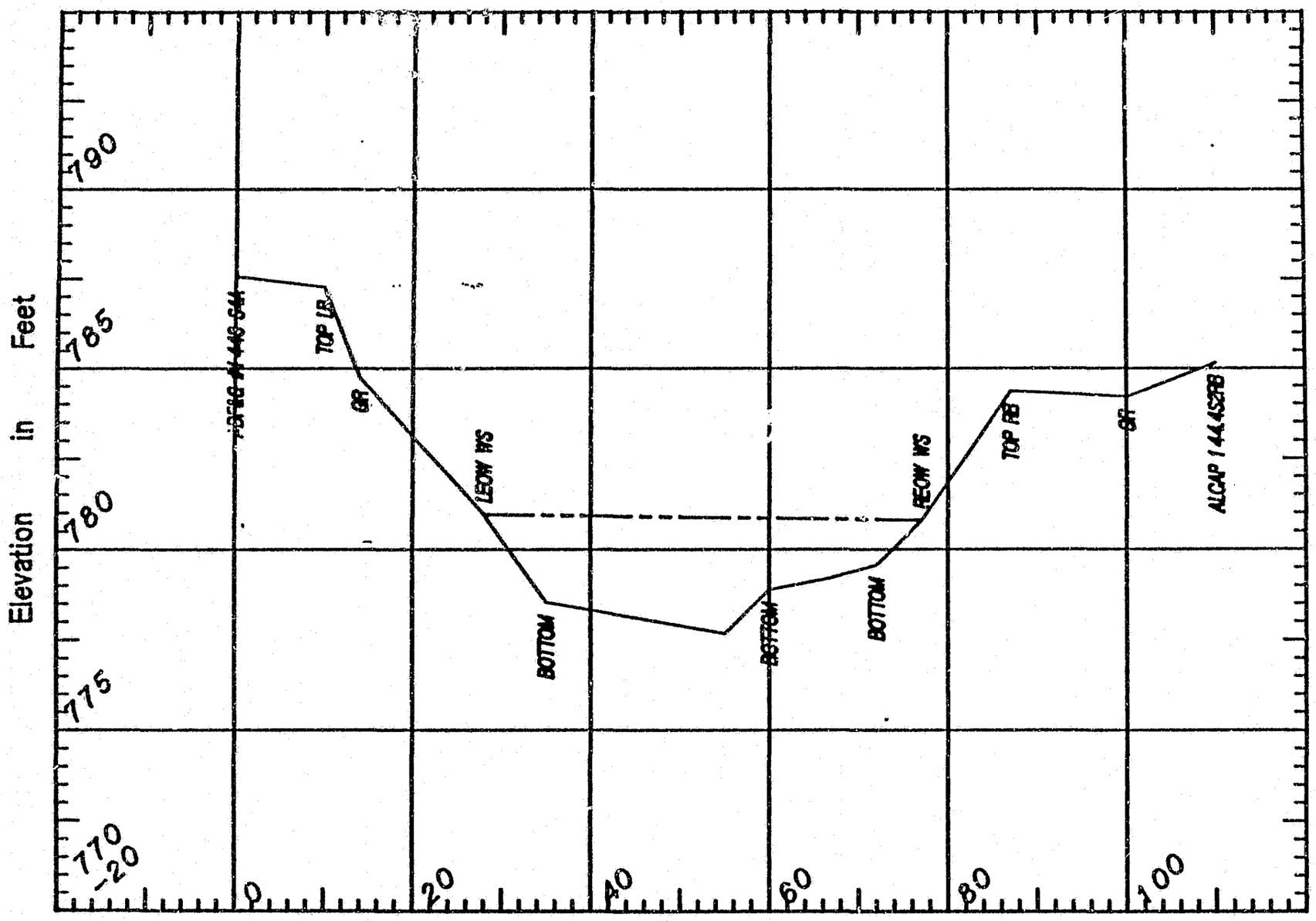
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL22 144.4S2

Date of Survey: JULY 10, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	787.560	ADF&G #1443 54A
2	10.000	787.250	TOP LB
3	14.000	784.720	GR
4	28.000	780.940	
5	35.000	778.520	BOTTOM
6	55.000	777.660	
7	60.000	778.890	BOTTOM
8	67.000	779.220	
9	72.000	779.570	BOTTOM
10	77.000	780.780	
11	87.000	784.350	TOP RB
12	100.000	784.190	GR
13	110.000	785.160	ALCAP 144.4S2RB
Water surface data:			
1	28.000	780.940	LEOW WS
2	77.000	780.780	REOW WS
MIN	0.000	777.660	
MAX	110.000	787.560	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL22 144.4S2
Date of Survey: JULY 10, 1982

PREPARED FOR:

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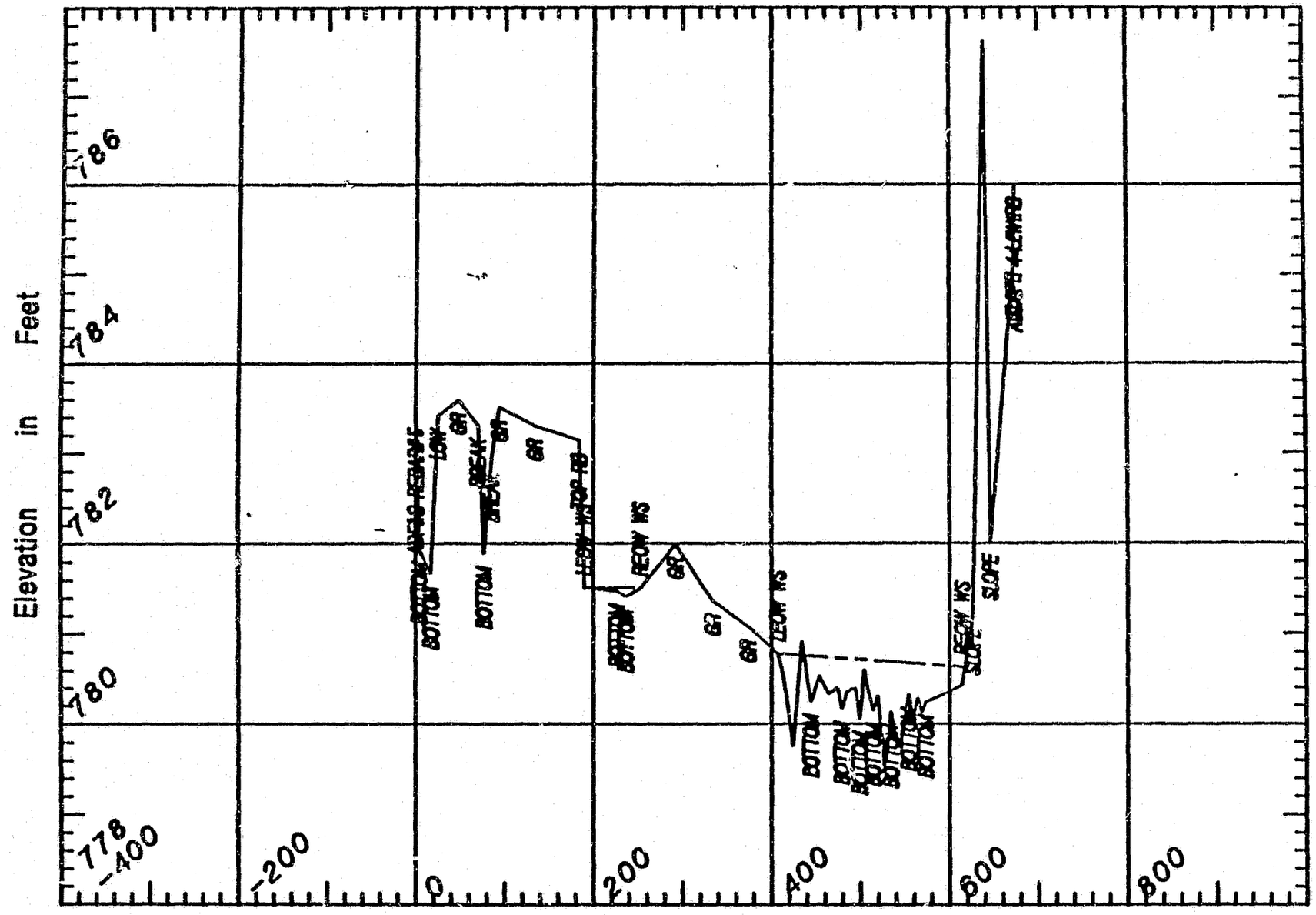
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL22 144.2W1

Date of Survey: JULY 10, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	783.420	ADF&G REBAR#5
2	4.000	781.940	BOTTOM
3	17.000	781.670	BOTTOM
4	25.000	783.420	LOW
5	48.000	783.590	GR
6	70.000	783.310	BREAK
7	77.000	781.890	BOTTOM
8	85.000	782.930	BREAK
9	94.000	783.510	GR
10	134.000	783.300	GR
11	184.000	783.140	TOP RB
12	190.000	781.510	
13	226.000	781.470	BOTTOM
14	236.000	781.410	BOTTOM
15	253.000	781.510	
16	292.000	781.990	GR
17	334.000	781.360	GR
18	374.000	781.070	GR
19	407.000	780.780	
20	414.000	780.500	
21	424.000	779.760	
22	434.000	780.910	
23	444.000	780.250	BOTTOM
24	454.000	780.530	
25	464.000	780.330	
26	474.000	780.400	
27	479.000	780.170	BOTTOM
28	484.000	780.350	
29	489.000	780.380	
30	494.000	780.390	
31	499.000	780.060	BOTTOM
32	504.000	780.600	
33	509.000	780.340	
34	514.000	780.150	BOTTOM
35	519.000	780.310	
36	52 .000	779.900	
37	529.000	779.630	
38	534.000	780.130	BOTTOM
39	539.000	779.890	
40	544.000	779.750	
41	549.000	780.000	
42	554.000	780.320	BOTTOM
43	559.000	780.100	
44	564.000	780.380	
45	569.000	780.130	
46	573.000	780.240	BOTTOM
47	614.000	780.430	
48	626.000	781.200	SLOPE
49	639.000	787.630	
50	646.000	782.020	SLOPE
51	673.000	785.150	SLOPE
52	674.000	786.000	ALCAP 144.2W1RB

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SL22 144.2W1
Date of Survey: JULY 10, 1982

PREPARED FOR:

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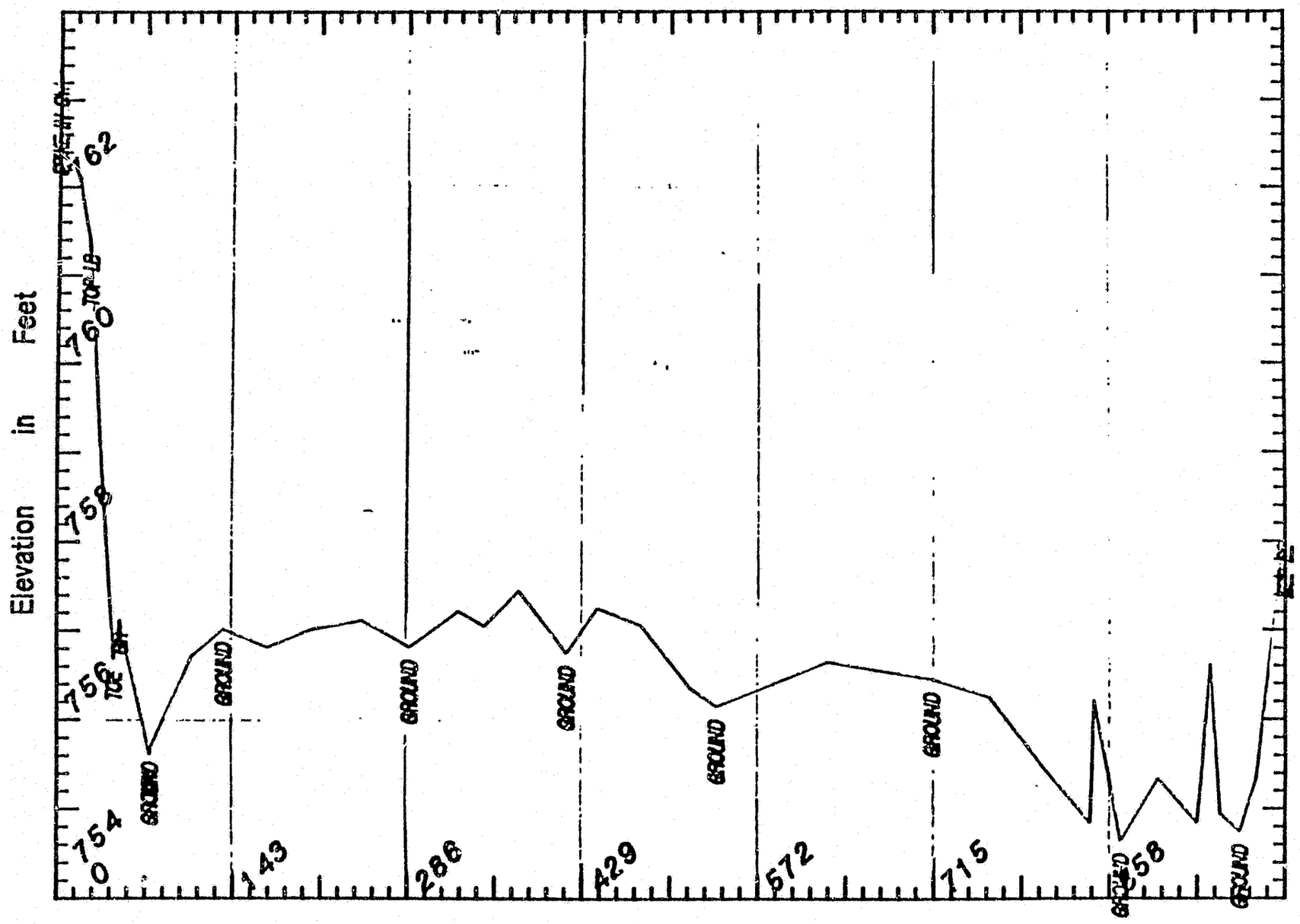
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 142.0H9

Date of Survey: JULY 11,1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	763.330	SPIKE IN CW
2	26.000	761.380	TOP LB
3	46.000	756.680	TOE
4	51.000	757.110	GR
5	75.000	755.610	LOW
6	75.000	755.670	GROUND
7	110.000	756.710	
8	136.000	757.010	GROUND
9	172.000	756.810	
10	208.000	757.010	
11	249.000	757.110	
12	288.000	756.810	GROUND
13	328.000	757.210	
14	349.000	757.040	
15	377.000	757.440	
16	416.000	756.740	GROUND
17	441.000	757.240	
18	477.000	757.040	
19	517.000	756.340	
20	538.000	756.140	GROUND
21	592.000	756.440	
22	628.000	756.640	
23	669.000	756.540	
24	713.000	756.440	GROUND
25	760.000	756.240	
26	805.000	755.440	
27	842.000	754.840	
28	845.000	756.210	
29	867.000	754.640	GROUND
30	897.000	755.340	
31	929.000	754.840	
32	940.000	756.610	
33	948.000	754.940	
34	964.000	754.740	GROUND
35	977.000	755.340	
36	1003.000	758.340	TOP RB
37	1003.000	759.260	LRX-56
MIN	0.000	754.640	
MAX	1003.000	763.330	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 1 42.0H9

Date of Survey: JULY 11,1982

PREPARED FOR:

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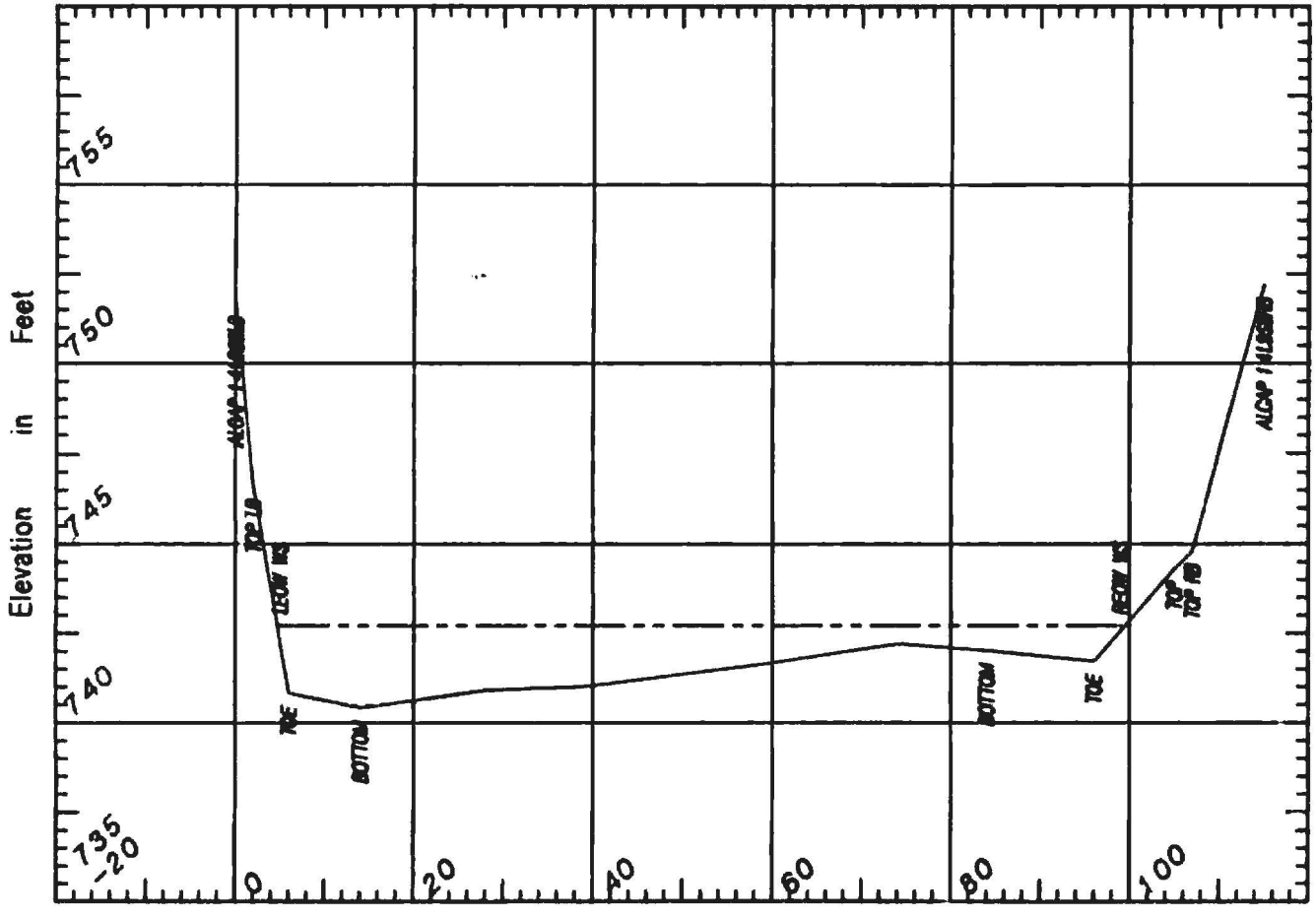
R-10

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 141.958

Date of Survey: JULY 11, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	751.690	ALCAP 141.958LB
2	2.000	746.610	TOP LB
3	6.000	740.910	TOE
4	14.000	740.410	BOTTOM
5	28.000	740.910	
6	39.000	741.010	
7	58.000	741.610	
8	74.000	742.210	
9	84.000	742.010	BOTTOM
10	96.000	741.710	TOE
11	105.000	744.310	TOP
12	107.000	744.810	TOP RB
13	115.000	752.210	ALCAP 141.958RB
Water surface data:			
1	5.000	742.700	LEOW WS
2	99.000	742.700	REOW WS
MIN	0.000	740.410	
MAX	115.000	752.210	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 1 41.9S8
Date of Survey: JULY 11, 1982

PREPARED FOR:

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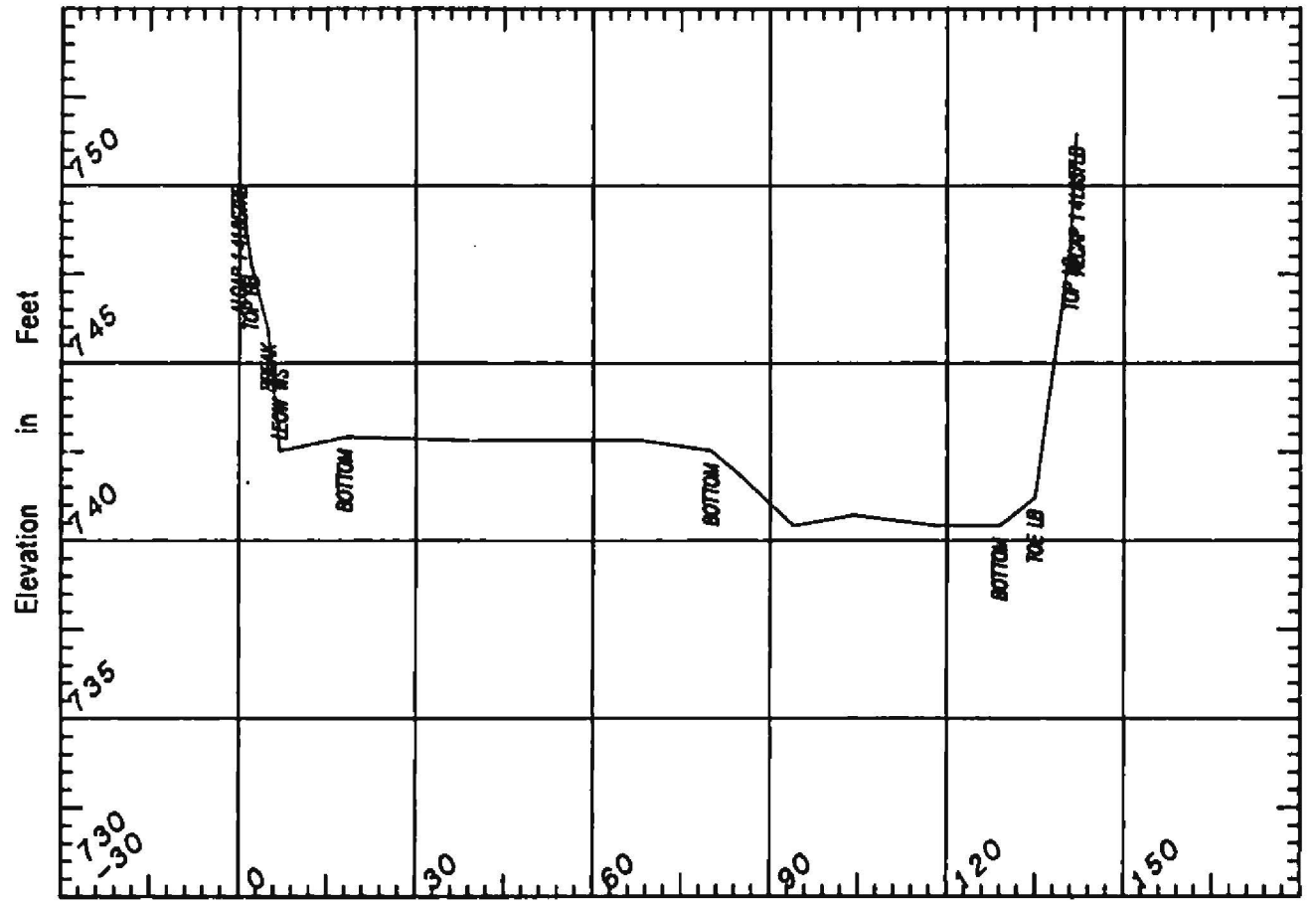
B-12

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 141.857

Date of Survey: JULY 11, 1982

'X'	'Y'	DESCRIPTION
Sta:		
0.000	751.450	ALCAP 141.857LB
1.000	748.320	TOP LB
7.000	741.220	TOE LB
13.000	740.420	BOTTOM
24.000	740.420	
38.000	740.720	
48.000	740.420	
57.000	741.820	
62.000	742.520	BOTTOM
74.000	742.820	
86.000	742.820	
104.000	742.820	
124.000	742.920	BOTTOM
135.000	742.520	
137.000	745.920	BREAK
140.000	747.820	TOP RB
142.000	750.390	ALCAP 141.857RB
Sta:		
[illegible]	742.520	TOW WS
0.000	740.420	
142.000	751.450	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 1 41.8S7
Date of Survey: JULY 11, 1982

PREPARED FOR:

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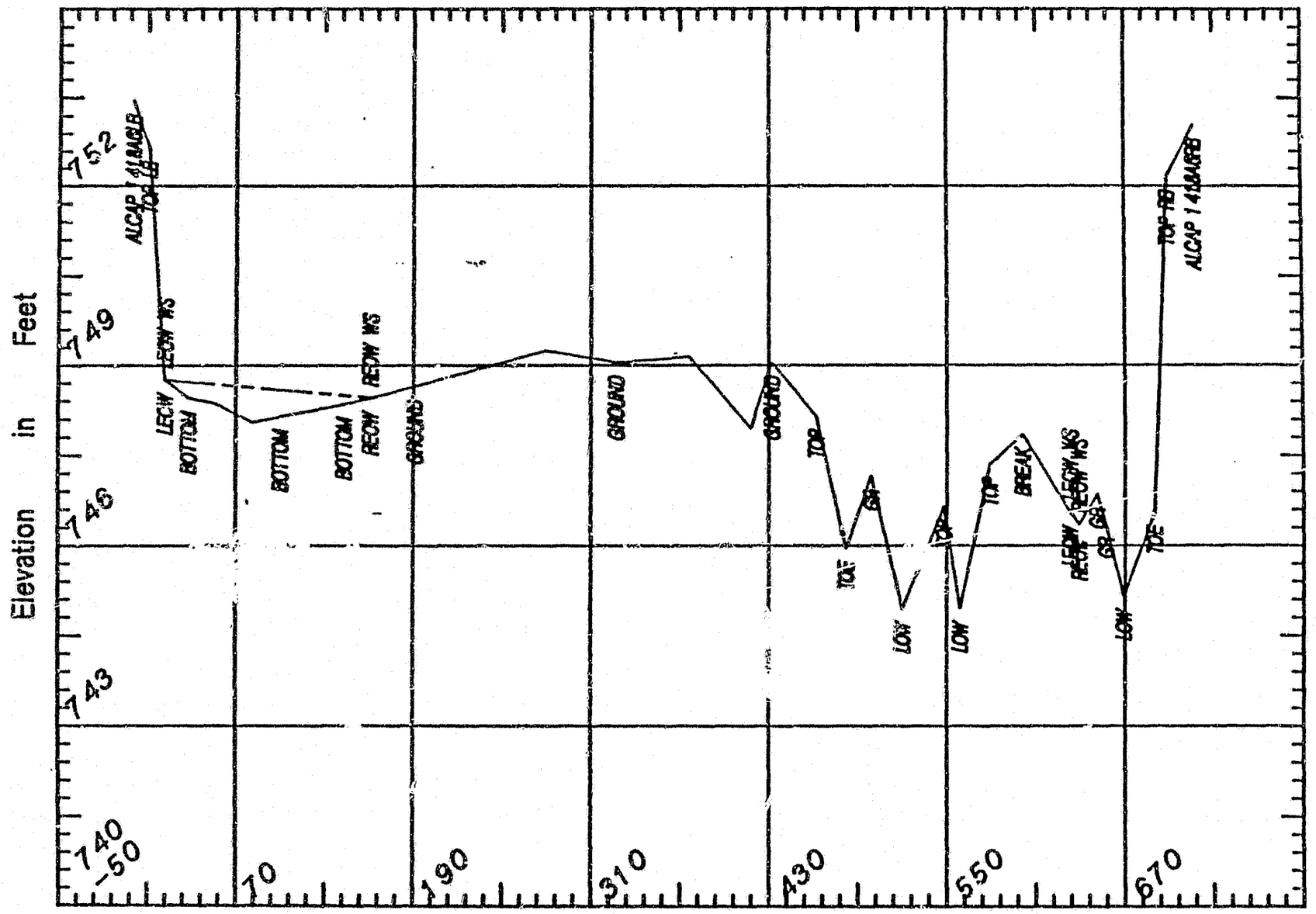
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 141.8A6

Date of Survey: JULY 11, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	753.450	ALCAP 141.8A6LB
2	11.000	752.650	TOP LB
3	22.000	748.750	LEOW
4	38.000	748.450	BOTTOM
5	57.000	748.350	
6	81.000	748.050	
7	100.000	748.150	BOTTOM
8	122.000	748.250	
9	143.000	748.350	BOTTOM
10	161.000	748.450	REOW
11	191.000	748.650	GROUND
12	235.000	748.950	
13	279.000	749.250	
14	327.000	749.050	GROUND
15	376.000	749.150	
16	418.000	747.950	
17	432.000	749.050	GROUND
18	462.000	748.150	TOP
19	482.000	745.950	TOE
20	499.000	747.150	GR
21	520.000	744.950	LOW
22	548.000	746.650	TOP
23	559.000	744.950	LOW
24	579.000	747.350	TOP
25	601.000	747.850	BREAK
26	633.000	746.550	LEOW
27	639.000	746.350	REOW
28	651.000	746.850	GR
29	657.000	746.350	GR
30	669.000	745.150	LOW
31	690.000	746.550	TOE
32	699.000	752.150	TOP RB
33	717.000	753.040	ALCAP 141.8A6RB
Water surface data:			
1	22.000	748.750	LEOW WS
2	161.000	748.450	REOW WS
			SPLIT
4	633.000	746.550	LEOW WS
5	639.000	746.350	REOW WS
MIN	0.000	744.950	
MAX	717.000	753.450	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 1 41.8A6
Date of Survey: JULY 11, 1982

PREPARED FOR:

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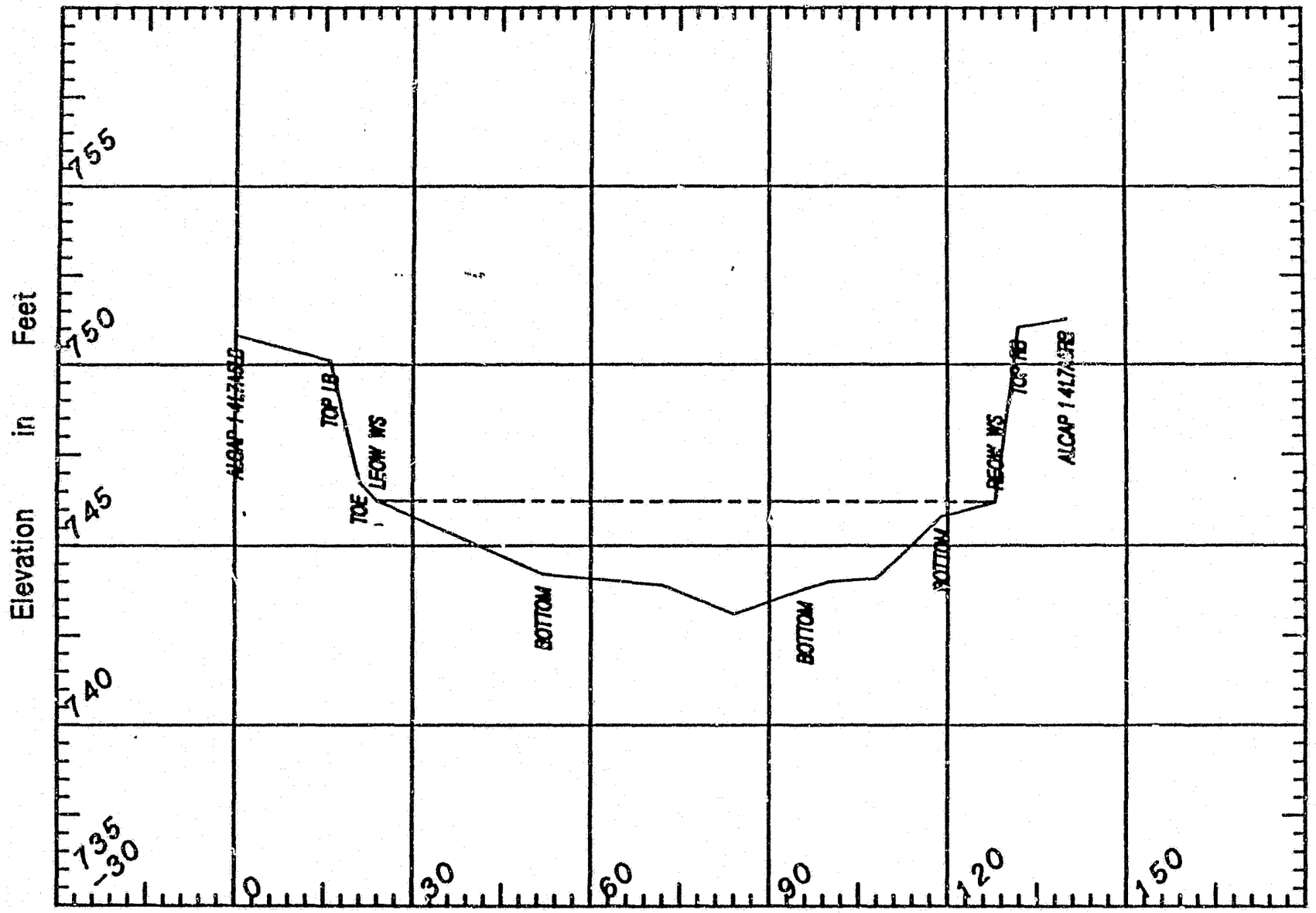
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 141.7A5

Date of Survey: JULY 11,1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	750.810	ALCAP 141.7A5LB
2	16.000	750.100	TOP LB
3	21.000	746.750	TOE
4	24.000	746.230	
5	52.000	744.200	BOTTOM
6	72.000	743.900	
7	84.000	743.100	
8	96.000	743.800	BOTTOM
9	100.000	744.000	
10	108.000	744.100	
11	119.000	745.800	BOTTOM
12	128.000	746.200	
13	132.000	751.030	TOP RB
14	140.000	751.270	ALCAP 141.7A5RB
Water surface data:			
1	24.000	746.230	LEDW WS
2	128.000	746.200	REDW WS
MIN	0.000	743.100	
MAX	140.000	751.270	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 1 41.7A5
Date of Survey: JULY 11,1982

PREPARED FOR:

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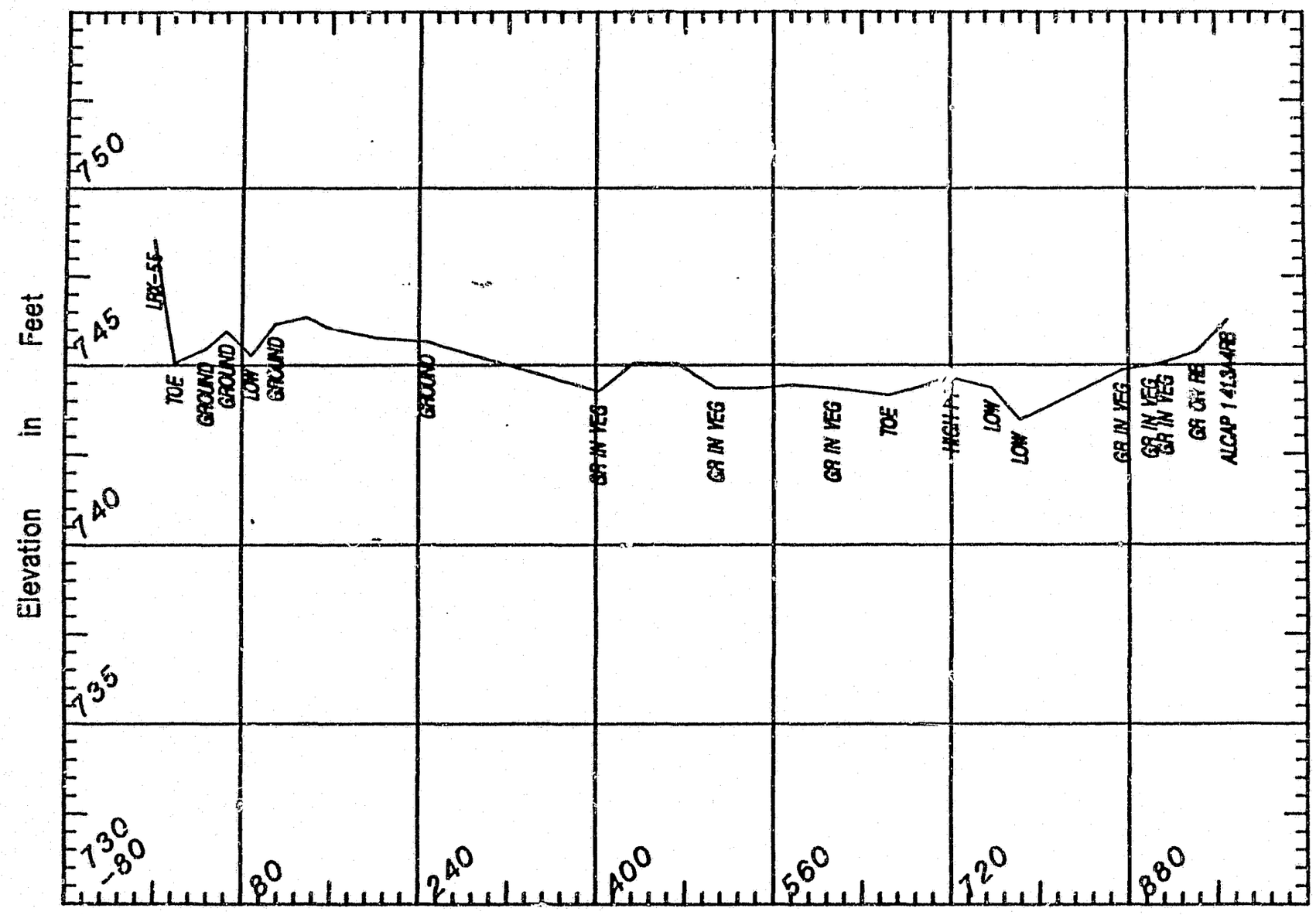
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 141.3A4

Date of Survey: JULY 12, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	748.510	LRX-35
2	19.000	745.060	TOE
3	47.000	745.460	GROUND
4	66.000	745.960	GROUND
5	88.000	745.260	LOW
6	110.000	746.160	GROUND
7	138.000	746.360	
8	157.000	746.060	
9	202.000	745.760	
10	247.000	745.660	GROUND
11	290.000	745.260	
12	346.000	744.760	
13	402.000	744.260	GR IN VEG
14	434.000	745.050	
15	473.000	745.050	
16	508.000	744.350	GR IN VEG
17	546.000	744.350	
18	577.000	744.450	
19	613.000	744.350	GR IN VEG
20	664.000	744.150	TOE
21	720.000	744.650	HIGH PT
22	757.000	744.350	LOW
23	782.000	743.450	LOW
24	874.000	744.850	GR IN VEG
25	899.000	744.990	GR IN VEG
26	913.000	745.090	GR IN VEG
27	942.000	745.390	GR ON RB
28	970.000	746.280	ALCAP 141.3A4RB
MIN	0.000	743.450	
MAX	970.000	748.510	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 1 41.3A4

Date of Survey: JULY 1 2, 1 9 8 2

PREPARED FOR:

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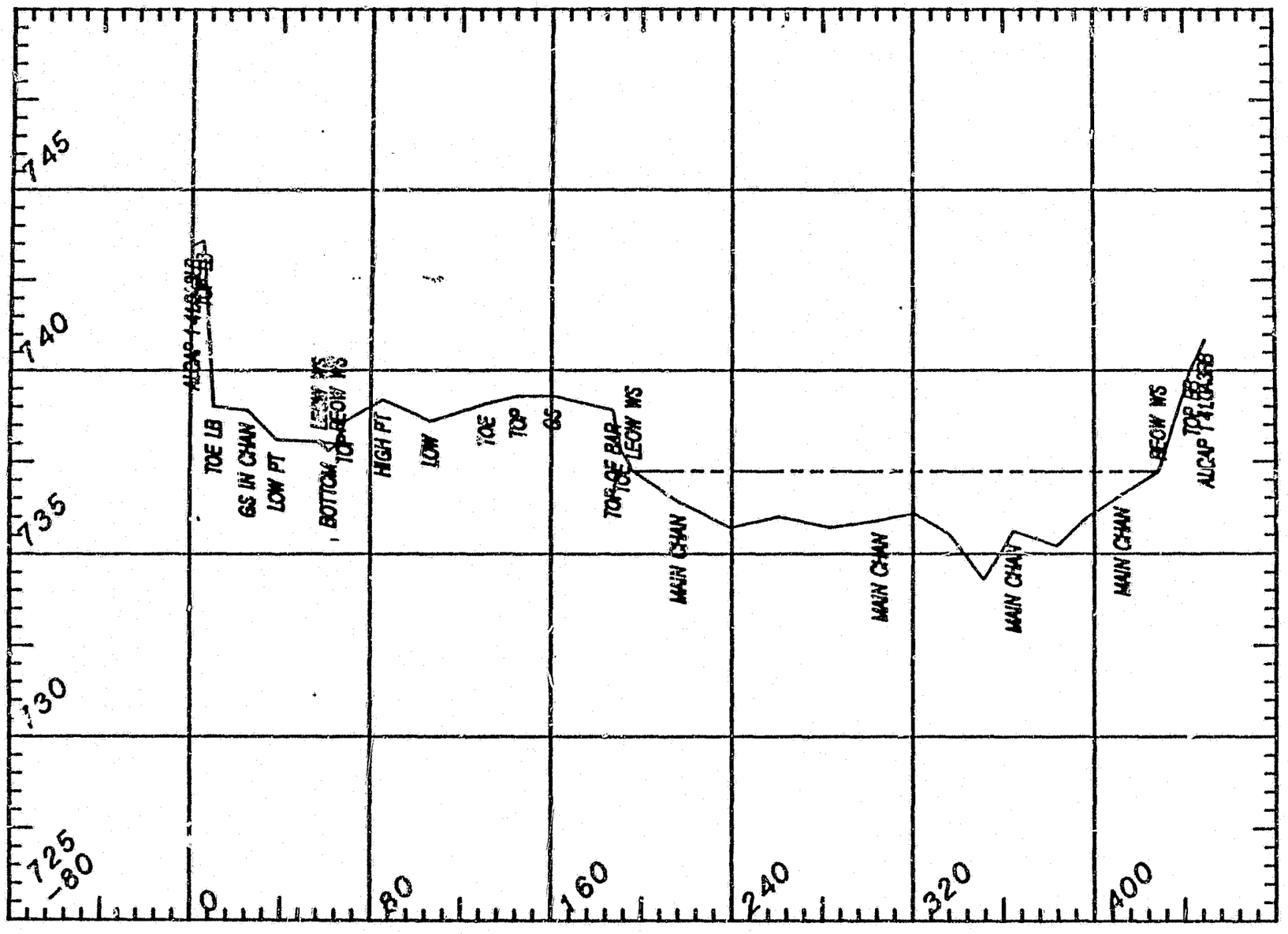
B-20

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 141.0A3

Date of Survey: JULY 12,1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	743.450	ALCAP 141.0A3LB
2	5.000	743.590	TOP LB
3	10.000	738.990	TOE LB
4	25.000	738.890	GS IN CHAN
5	38.000	738.090	LOW PT
6	57.000	738.030	
7	61.000	737.790	BOTTOM
8	65.000	737.990	
9	68.000	738.590	TOP
10	85.000	739.190	HIGH PT
11	106.000	738.590	LOW
12	131.000	739.090	TOE
13	145.000	739.290	TOP
14	160.000	739.290	GS
15	187.000	738.890	TOP OF BAR
16	191.000	737.790	TOE
17	196.000	737.230	
18	216.000	736.390	MAIN CHAN
19	239.000	735.690	
20	260.000	735.990	
21	283.000	735.690	
22	305.000	735.890	MAIN CHAN
23	320.000	736.090	
24	336.000	735.490	
25	351.000	734.290	
26	364.000	735.590	MAIN CHAN
27	383.000	735.190	
28	397.000	735.990	
29	412.000	736.590	MAIN CHAN
30	428.000	737.210	
31	443.000	740.090	TOP RB
32	449.000	740.840	ALCAP 141.0A3RB
Water surface data:			
1	57.000	738.030	LEOW WS
2	65.000	737.990	REOW WS
			SPLIT
4	196.000	737.230	LEOW WS
5	428.000	737.210	REOW WS
MIN	0.000	734.290	
MAX	449.000	743.590	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL21 1 41.0A3
Date of Survey: JULY 12,1982

PREPARED FOR:

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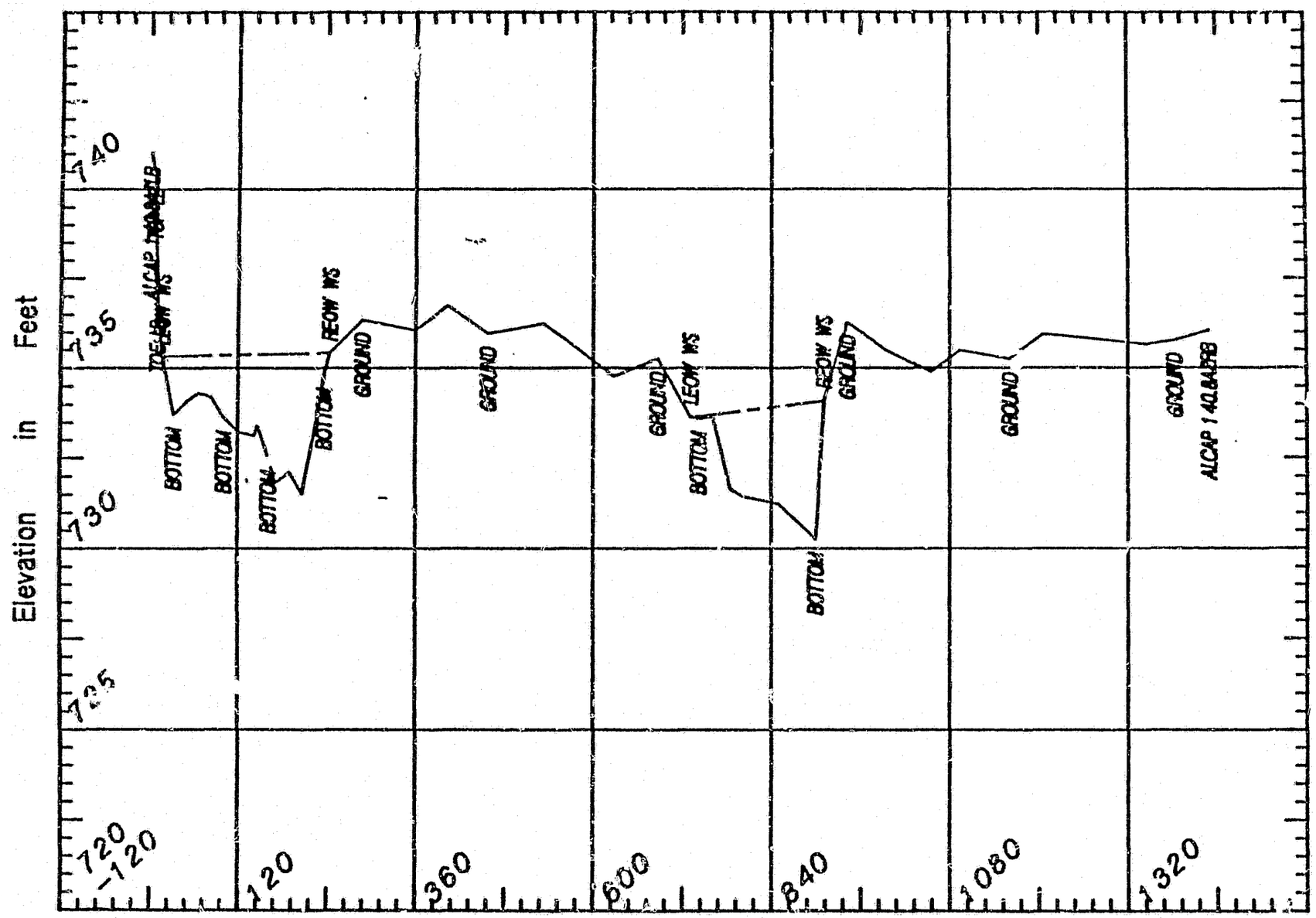
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 140.8A2

Date of Survey: JULY 12, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	741.000	ALCAP 140.8A2LB
2	6.000	740.420	TOP LB
3	10.000	736.720	TOE LB
4	16.000	735.310	
5	32.000	733.710	BOTTOM
6	51.000	734.110	
7	65.000	734.310	
8	82.000	734.210	
9	100.000	733.610	BOTTOM
10	120.000	733.210	
11	141.000	733.110	
12	145.000	733.410	
13	160.000	732.510	BOTTOM
14	170.000	731.810	
15	189.000	732.110	
16	206.000	731.510	
17	223.000	733.310	
18	235.000	734.810	BOTTOM
19	243.000	735.420	
20	287.000	736.350	GROUND
21	358.000	736.050	
22	402.000	736.750	
23	457.000	735.950	GROUND
24	531.000	736.250	
25	627.000	734.760	
26	686.000	735.260	GROUND
27	730.000	733.640	
28	741.000	733.590	BOTTOM
29	760.000	733.660	
30	784.000	731.640	
31	800.000	731.440	
32	848.000	731.240	
33	899.000	730.240	BOTTOM
34	910.000	734.100	
35	941.000	736.280	GROUND
36	993.000	735.480	
37	1054.000	734.880	
38	1093.000	735.480	
39	1160.000	735.240	GROUND
40	1205.000	735.940	
41	1252.000	735.840	
42	1344.000	735.640	
43	1382.000	735.770	GROUND
44	1428.000	736.050	ALCAP 140.8A2RB
Water surface data:			
1	16.000	735.310	LEDW WS
2	243.000	735.420	REDW WS
			SPLIT
4	730.000	733.640	LEDW WS
5	910.000	734.100	REDW WS

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL21 140.8A2
Date of Survey: JULY 12, 1982

PREPARED FOR:

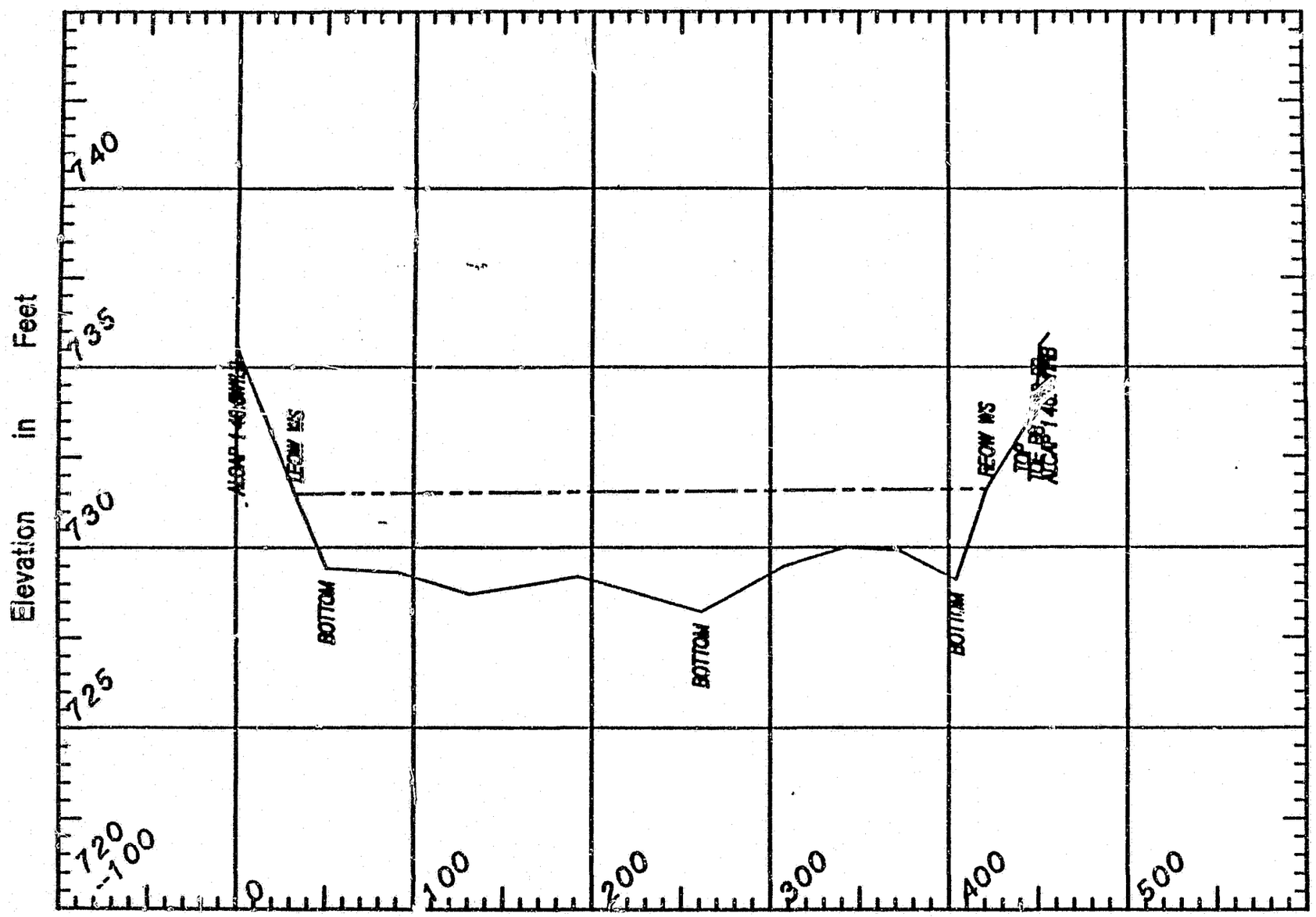
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL21 140.6W1

Date of Survey: JULY 12, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	735.530	ALCAP 140.6W1LB
2	33.000	731.470	
3	51.000	729.410	BOTTOM
4	91.000	729.300	
5	131.000	728.700	
6	192.000	729.200	
7	261.000	728.210	BOTTOM
8	308.000	729.500	
9	342.000	730.000	
10	372.000	729.900	
11	404.000	729.100	BOTTOM
12	421.000	731.610	
13	441.000	733.200	TOP
14	449.000	733.700	TOE RB
15	451.000	735.600	TOP RB
16	456.000	735.900	ALCAP 140.6W1RB
Water surface data:			
1	33.000	731.470	LEOW WS
2	421.000	731.610	REOW WS
MIN	0.000	728.210	
MAX	456.000	735.900	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL21 1 40.6W1
Date of Survey: JULY 12, 1982

PREPARED FOR:

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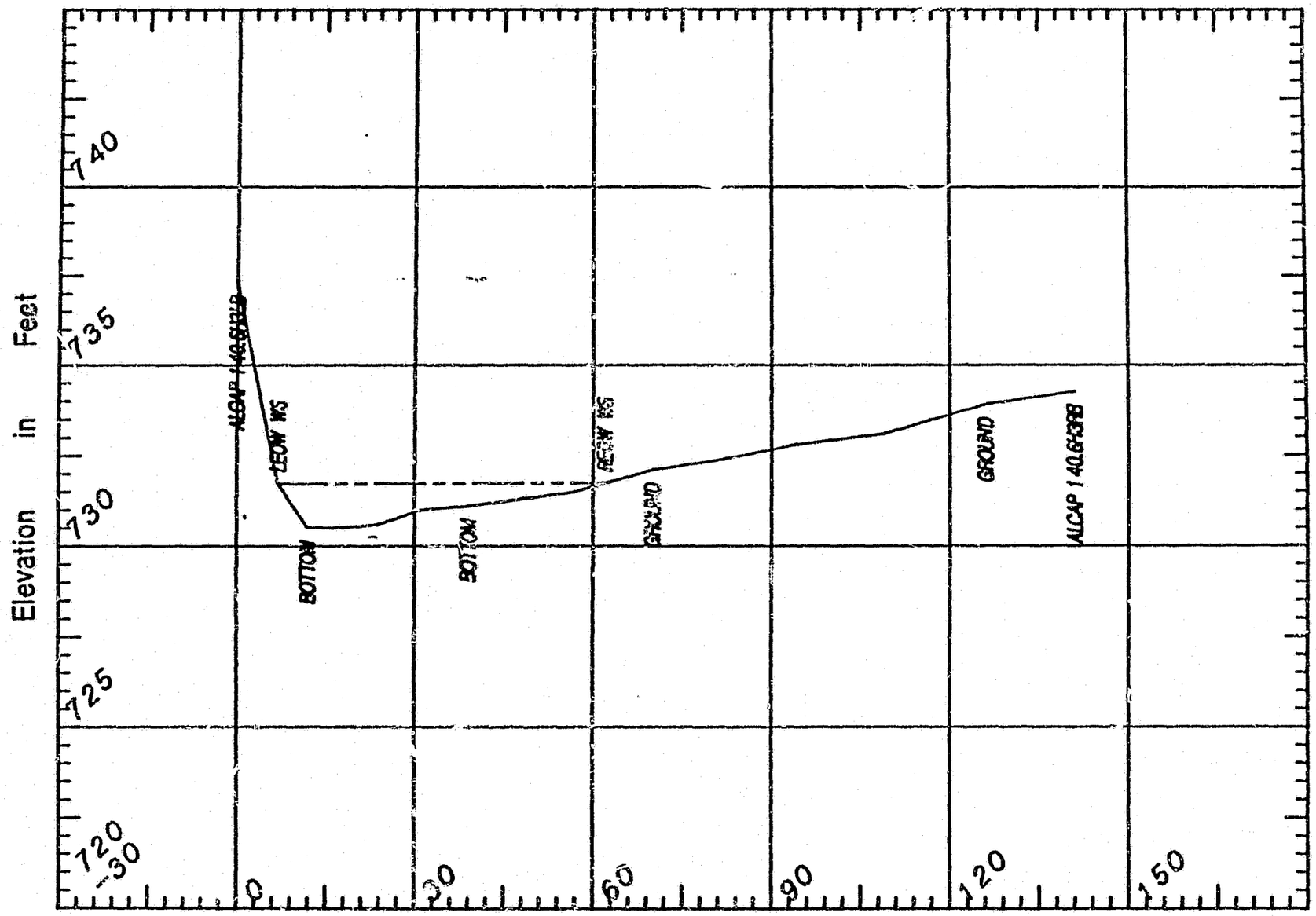
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL20 140.6H3

Date of Survey: JULY 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	737.330	ALCAP 140.6H3LB
2	7.000	731.710	
3	12.000	730.500	BOTTOM
4	18.000	730.500	
5	24.000	730.600	
6	31.000	731.000	
7	39.000	731.100	BOTTOM
8	48.000	731.300	
9	57.000	731.500	
10	62.000	731.730	
11	70.000	732.100	GROUND
12	82.000	732.400	
13	94.000	732.800	
14	109.000	733.100	
15	126.000	733.900	GROUND
16	141.000	734.250	ALCAP 140.6H3RB
Water surface data:			
1	7.000	731.710	LEOW WS
2	62.000	731.730	REOW WS
MIN	0.000	730.500	
MAX	141.000	737.330	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL20 140.6H3
Date of Survey: JULY 27, 1982

PREPARED FOR:

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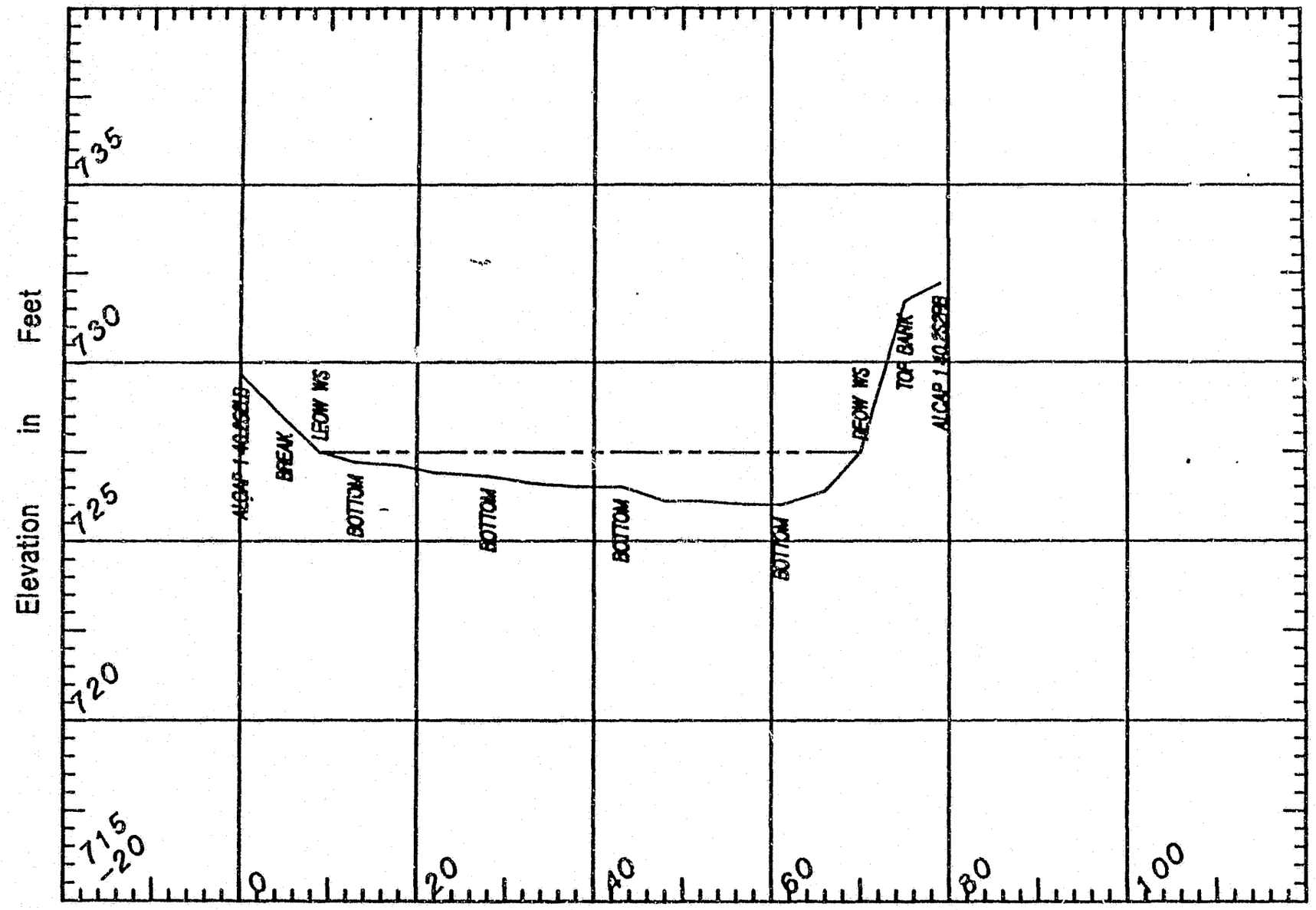
SUSITNA HYDROGRAPHIC SURVEYS
Cross section SL20 140.252

Date of Survey: JULY 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	729.660	ALCAP 140.252LB
2	5.000	728.400	BREAK
3	9.000	727.480	
4	13.000	727.200	BOTTOM
5	18.000	727.100	
6	22.000	726.900	
7	28.000	726.800	BOTTOM
8	33.000	726.600	
9	38.000	726.500	
10	43.000	726.500	BOTTOM
11	48.000	726.100	
12	52.000	726.100	
13	57.000	726.000	
14	61.000	726.000	BOTTOM
15	66.000	726.400	
16	70.000	727.480	
17	75.000	731.700	TOP BANK
18	79.000	732.200	ALCAP 140.252RB
Water surface data:			
1	9.000	727.480	LEOW WS
2	70.000	727.480	REOW WS
MIN	0.000	726.000	
MAX	79.000	732.200	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL20 1 40.2S2
Date of Survey: JULY 27, 1982

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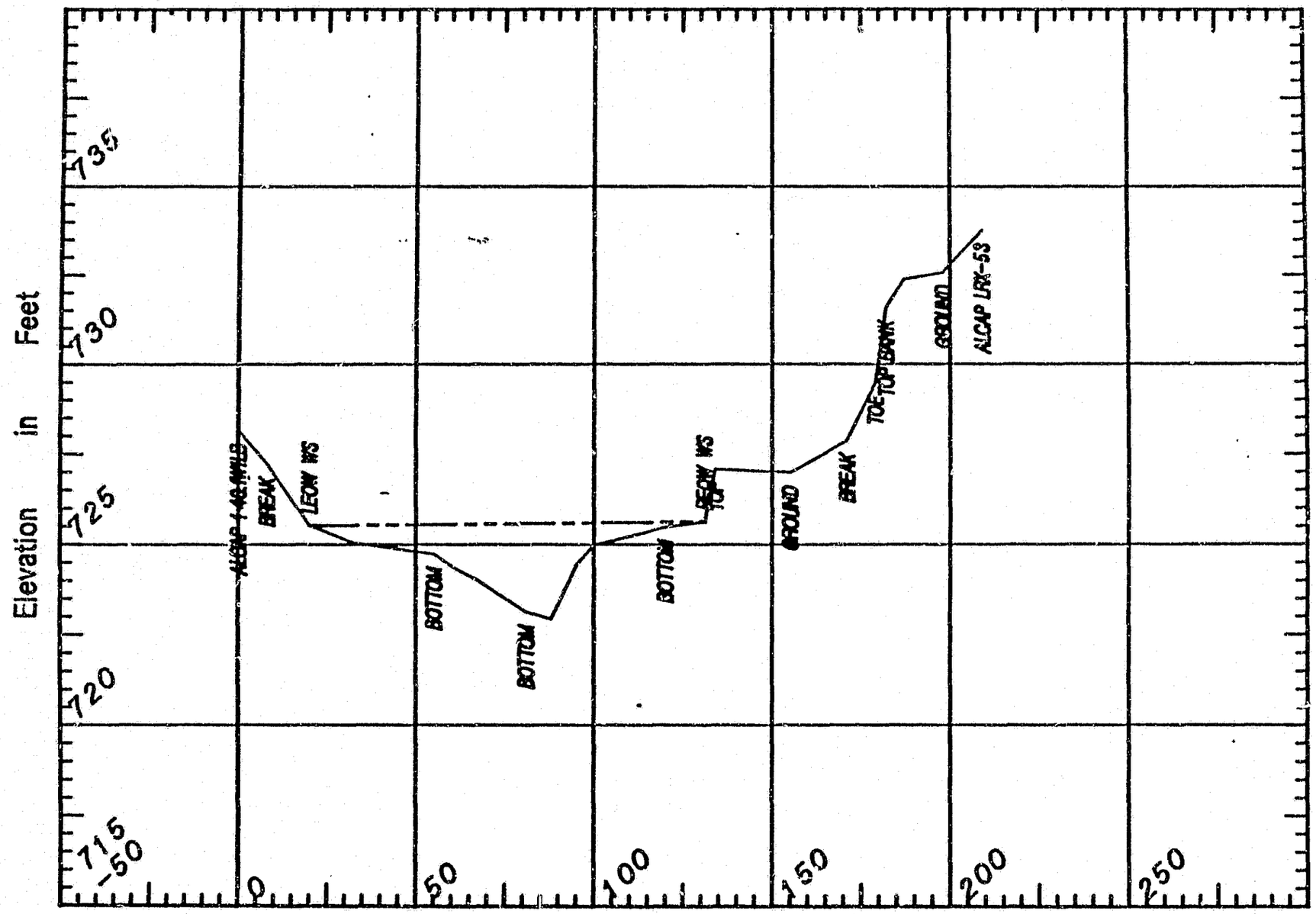
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL20 140.1W1

Date of Survey: JULY 24, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	728.140	ALCAP 140.1W1LB
2	8.000	727.220	BREAK
3	20.000	725.510	
4	33.000	725.020	
5	41.000	724.920	
6	48.000	724.820	
7	55.000	724.720	BOTTOM
8	61.000	724.320	
9	67.000	724.020	
10	73.000	723.620	
11	81.000	723.120	BOTTOM
12	88.000	722.920	
13	95.000	724.420	
14	100.000	724.980	
15	120.000	725.480	BOTTOM
16	131.000	725.630	
17	134.000	727.080	TOP
18	155.000	726.980	GROUND
19	171.000	727.880	BREAK
20	179.000	729.480	TOE
21	182.000	731.580	TOP BANK
22	187.000	732.380	
23	198.000	732.580	GROUND
24	209.000	733.760	ALCAP LRX-53
Water surface data:			
1	20.000	725.510	LEOW WS
2	131.000	725.630	REOW WS
MIN	0.000	722.920	
MAX	209.000	733.760	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL20 1 40.1W1

Date of Survey: JULY 24, 1982

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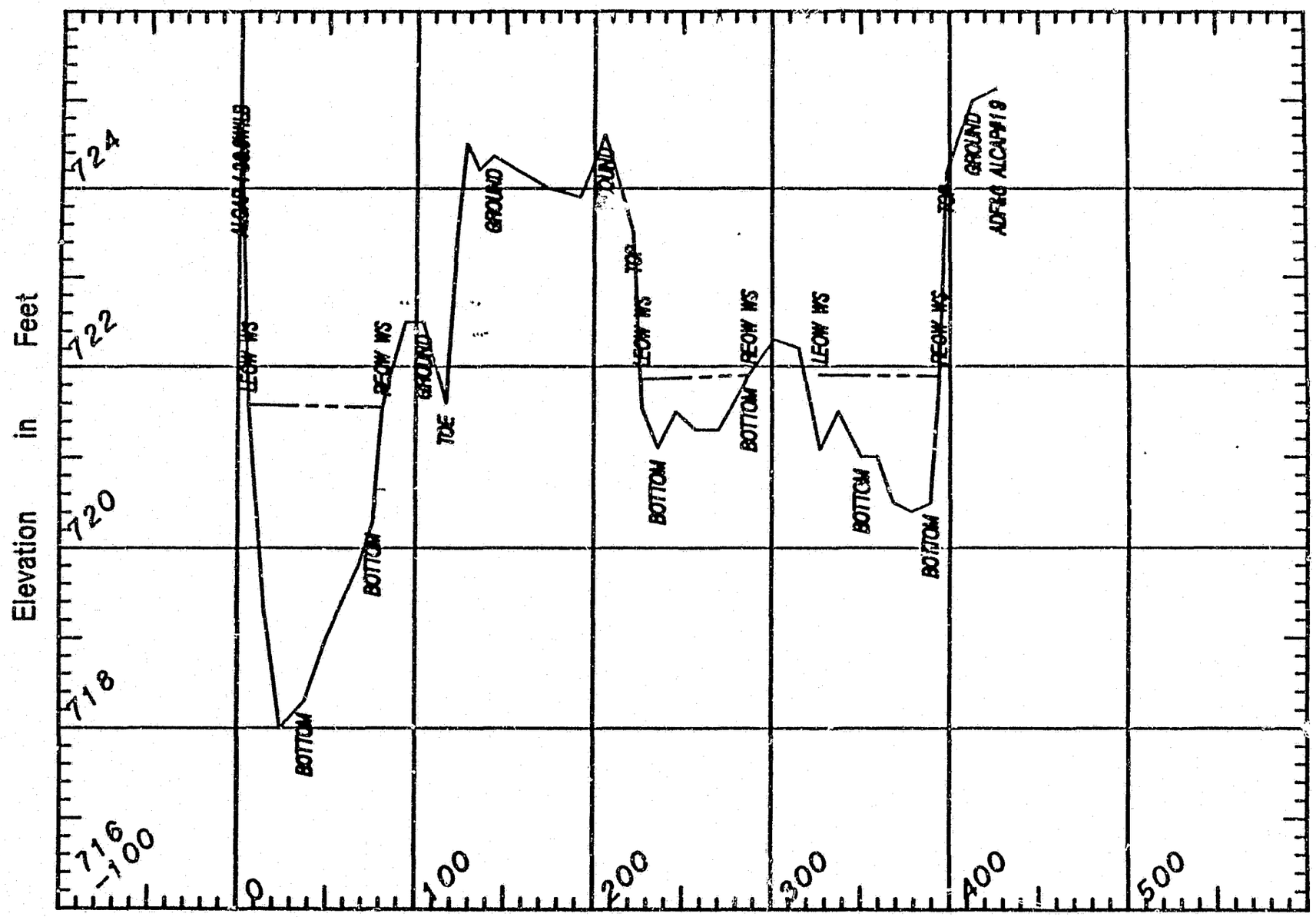
B-32

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL19 139.8W1

Date of Survey: JULY 24, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	725.090	ALCAP 139.8W1LB
2	6.000	721.580	
3	15.000	719.300	
4	24.000	718.000	
5	38.000	718.300	BOTTOM
6	50.000	719.000	
7	59.000	719.400	
8	68.000	719.800	
9	76.000	720.300	BOTTOM
10	81.000	721.550	
11	94.000	722.500	
12	104.000	722.500	GROUND
13	117.000	721.600	TOE
14	123.000	723.500	
15	128.000	724.500	
16	135.000	724.200	
17	143.000	724.360	GROUND
18	156.000	724.200	
19	174.000	724.000	
20	192.000	723.900	
21	206.000	724.600	GROUND
22	222.000	723.500	TOP
23	227.000	721.540	
24	236.000	721.100	BOTTOM
25	246.000	721.500	
26	257.000	721.300	
27	270.000	721.300	
28	287.000	721.900	BOTTOM
29	301.000	722.300	
30	315.000	722.200	
31	327.000	721.080	
32	337.000	721.500	
33	350.000	721.000	BOTTOM
34	359.000	721.000	
35	368.000	720.500	
36	378.000	720.400	
37	389.000	720.500	BOTTOM
38	394.000	721.890	
39	398.000	724.180	TOP
40	413.000	725.000	GROUND
41	427.000	725.140	ADF&G ALCAP#19
Water surface data:			
1	6.000	721.580	LEOW WS
2	81.000	721.550	REOW WS
			SPLIT
4	227.000	721.860	LEOW WS
5	287.000	721.900	REOW WS
			SPLIT

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL19 139.8W1
Date of Survey: JULY 24, 1982

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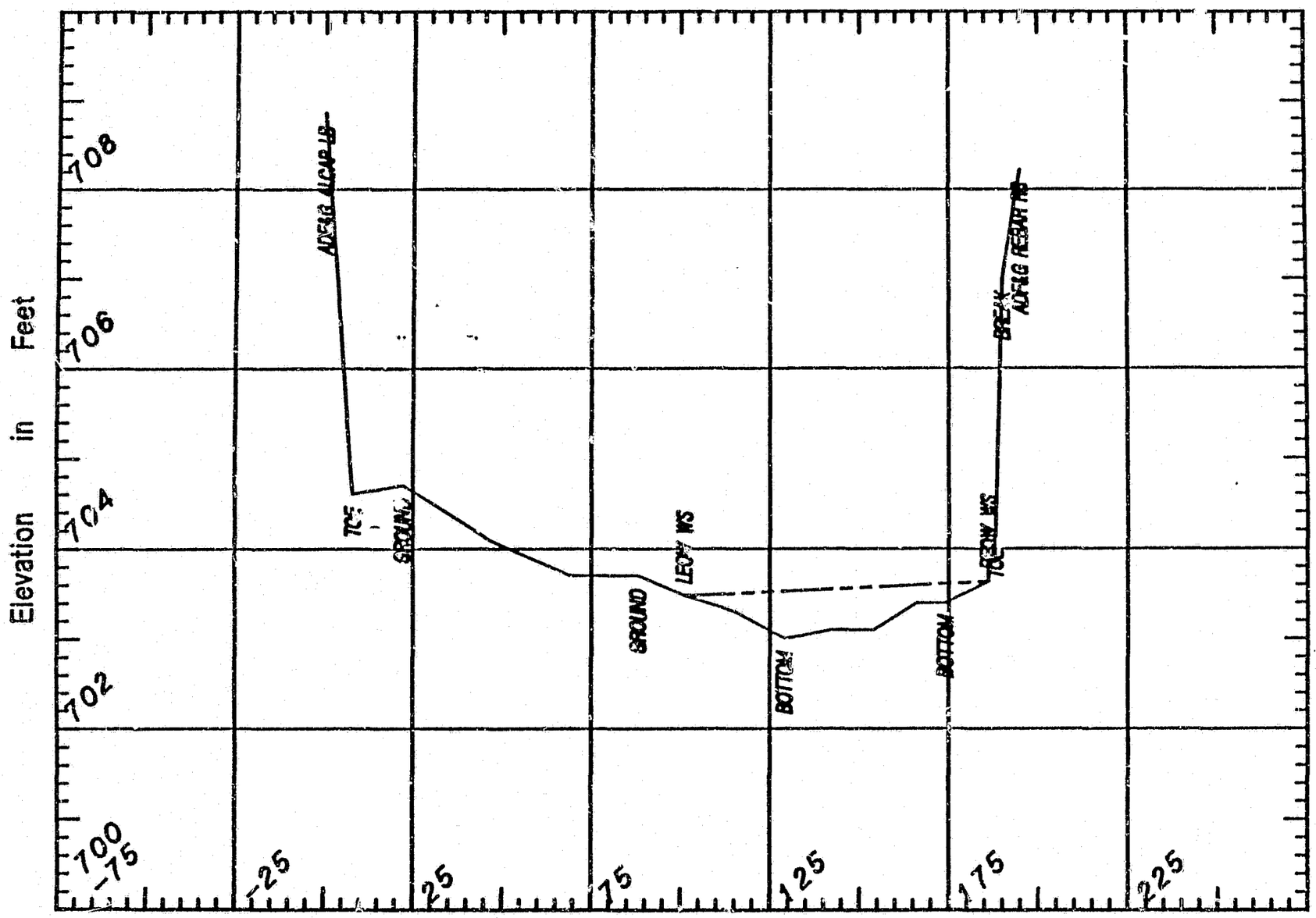
7	327.000	721.900	LEOW WS
8	394.000	721.890	PEOW WS
MIN	0.000	718.000	
MAX	427.000	725.140	

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL16 138.3H4

Date of Survey: JULY 22, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	708.860	ADF&G ALCAP LB
2	8.000	704.600	TOE
3	22.000	704.700	GROUND
4	46.000	704.100	
5	69.000	703.700	
6	88.000	703.700	GROUND
7	101.000	703.480	
8	115.000	703.300	
9	129.000	703.000	BOTTOM
10	142.000	703.100	
11	154.000	703.100	
12	166.000	703.400	
13	174.000	703.400	BOTTOM
14	186.000	703.640	
15	188.000	704.140	TOE
16	190.000	707.000	BREAK
17	195.000	708.220	ADF&G REBAR RB
Water surface data:			
1	101.000	703.480	LEOW WS
2	186.000	703.640	REOW WS
MIN	0.000	703.000	
MAX	195.000	708.860	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL16 138.3H4
Date of Survey: JULY 22, 1982

PREPARED FOR:

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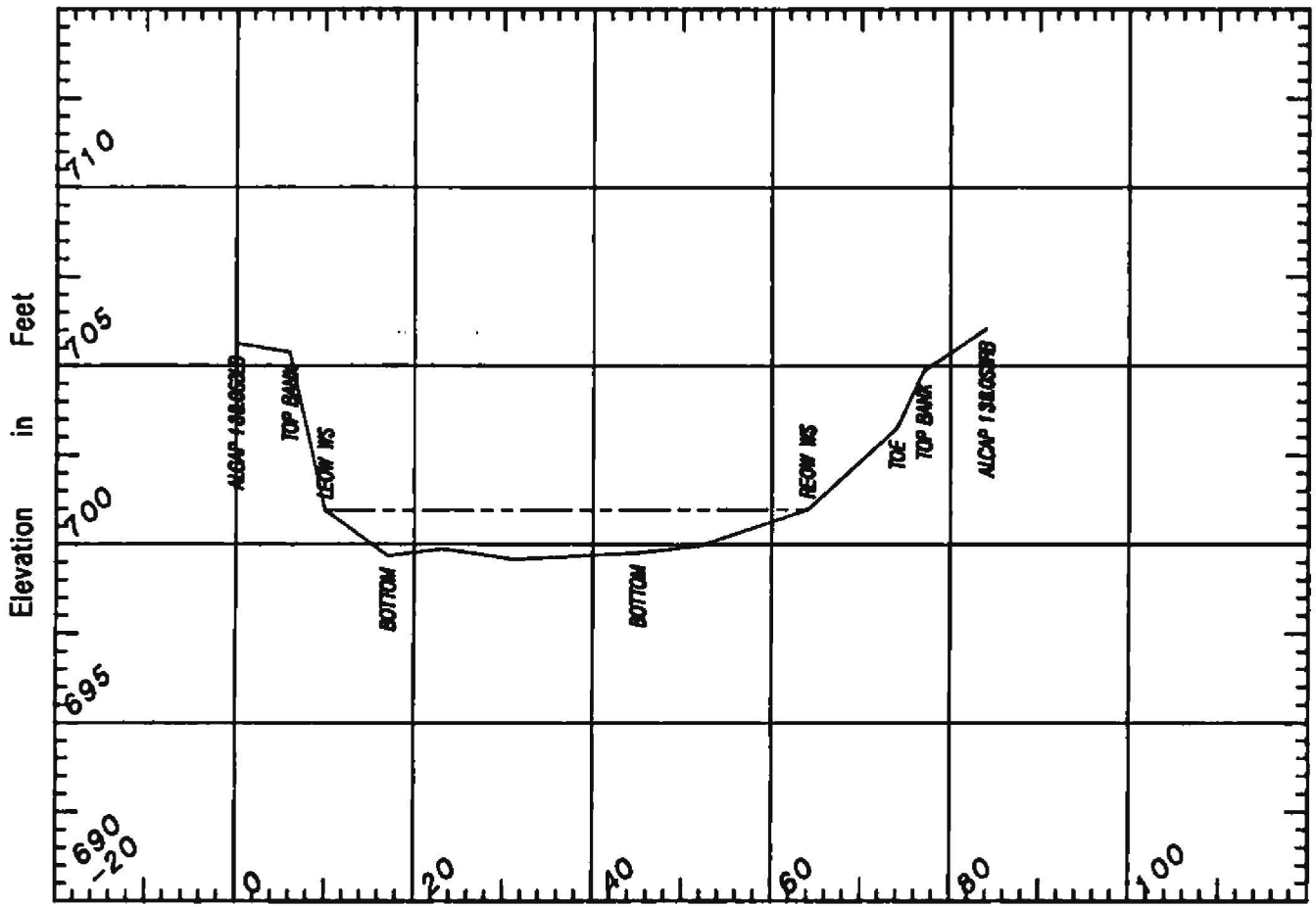
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL16 138.0S3

Date of Survey: JULY 24, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	705.620	ALCAP 138.0S3LB
2	6.000	705.370	TOP BANK
3	10.000	700.940	
4	17.000	699.670	BOTTOM
5	23.000	699.870	
6	31.000	699.570	
7	38.000	699.670	
8	45.000	699.770	BOTTOM
9	52.000	699.970	
10	64.000	700.980	
11	74.000	703.270	TOE
12	77.000	704.870	TOP BANK
13	84.000	706.050	ALCAP 138.0S3RB
Water surface data:			
1	10.000	700.940	LEOW WS
2	64.000	700.980	REOW WS
MIN	0.000	699.570	
MAX	84.000	706.050	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL1 6 138.0S3
Date of Survey: JULY 24, 1982

PREPARED FOR:

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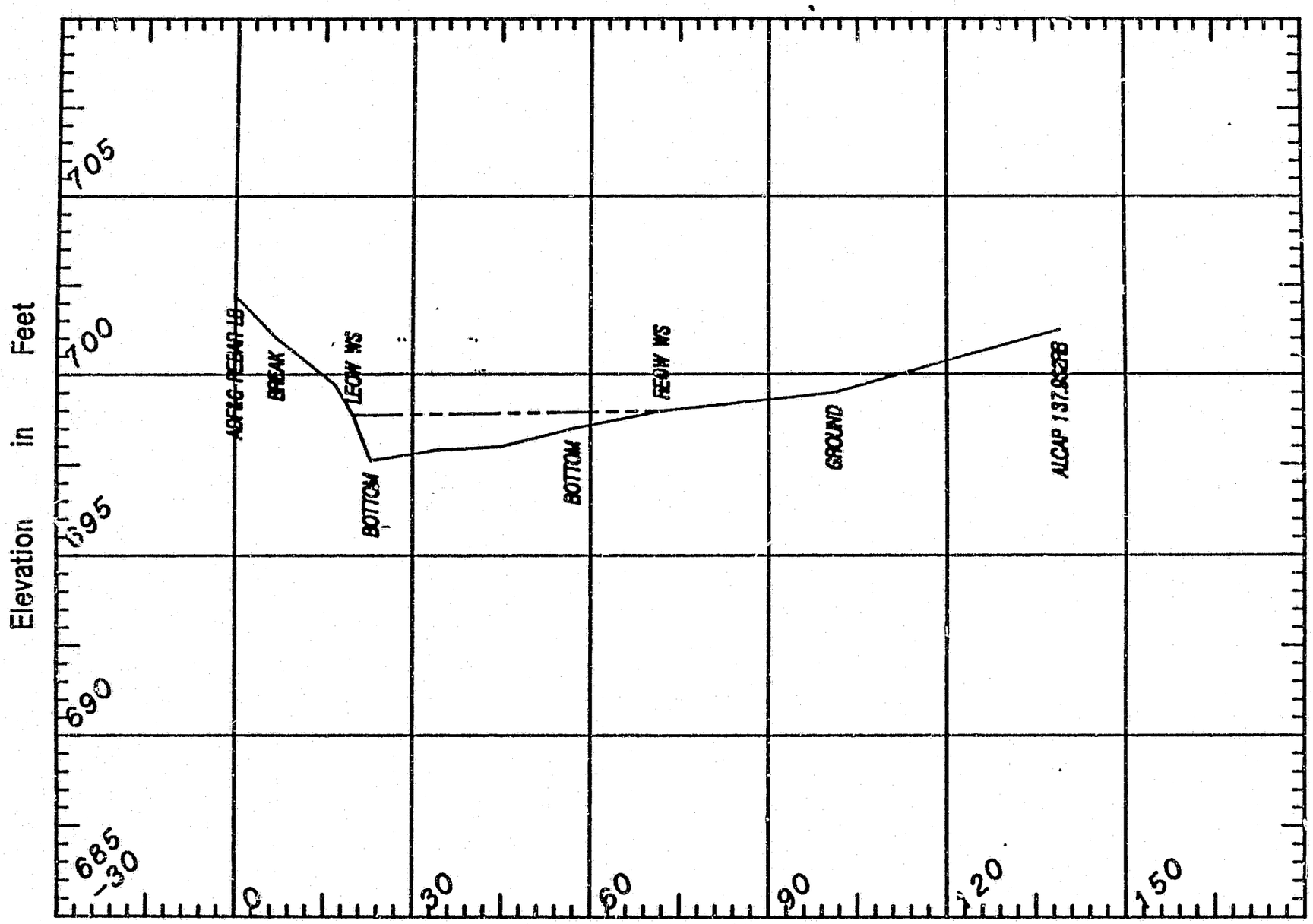
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL16 137.9S2

Date of Survey: JULY 22, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	702.210	ADF&G REBAR LB
2	7.000	701.000	BREAK
3	17.000	699.700	
4	20.000	698.860	
5	23.000	697.600	BOTTOM
6	34.000	697.900	
7	45.000	698.000	
8	57.000	698.500	BOTTOM
9	72.000	698.990	
10	101.000	699.500	GROUND
11	139.000	701.240	ALCAP 137.9S2RB
Water surface data:			
1	20.000	698.860	LEOW WS
2	72.000	698.990	REOW WS
MIN	0.000	697.600	
MAX	139.000	702.210	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL1 6 1 37.9S2
Date of Survey: JULY 22, 1 982

PREPARED FOR:

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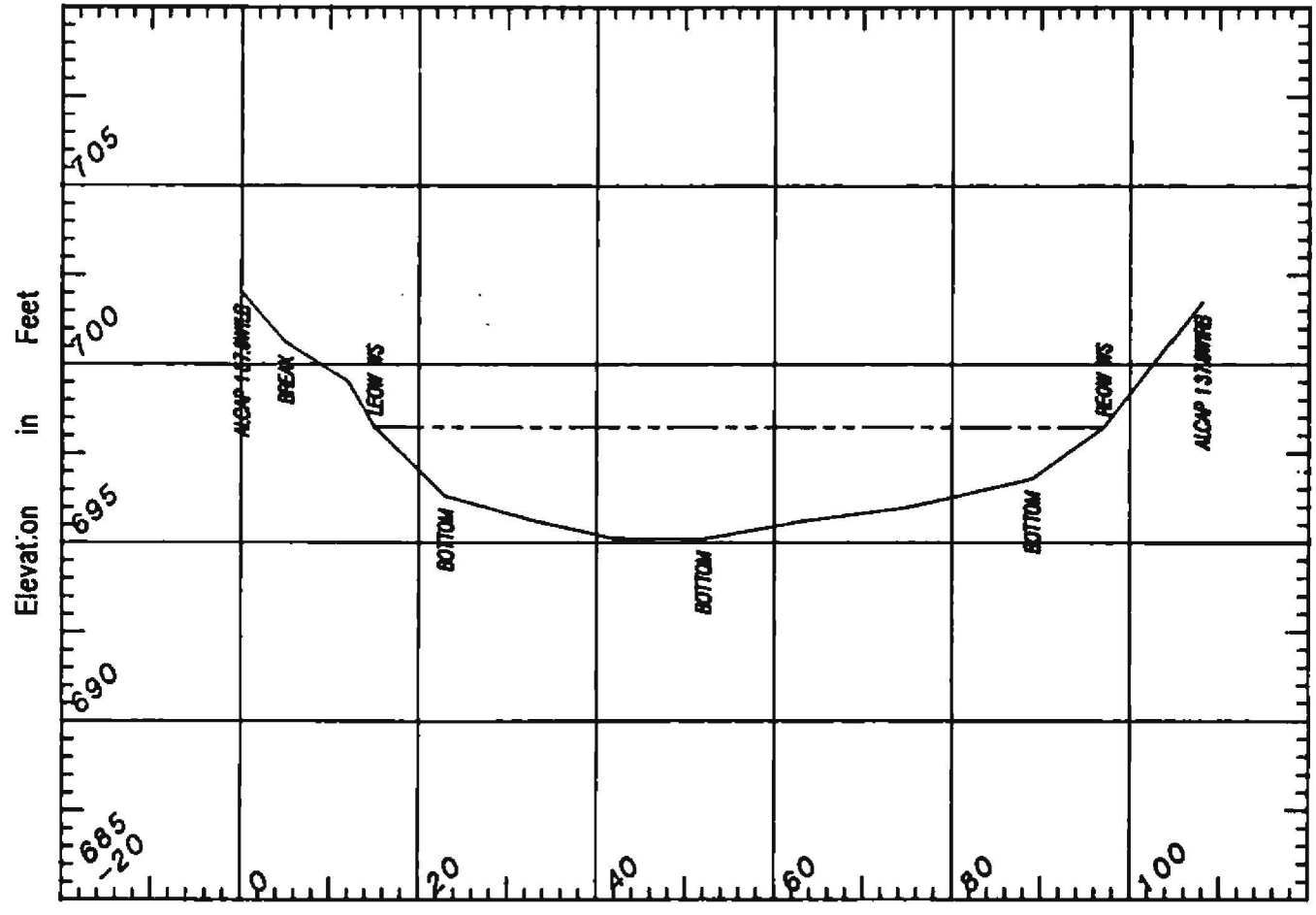
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL16 137.8W1

Date of Survey: JULY 22, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	702.010	ALCAP 137.8W1LB
2	5.000	700.600	BREAK
3	12.000	699.500	
4	15.000	698.230	
5	23.000	696.300	BOTTOM
6	33.000	695.600	
7	42.000	695.100	
8	52.000	695.100	BOTTOM
9	63.000	695.600	
10	75.000	696.000	
11	89.000	696.800	BOTTOM
12	97.000	698.230	
13	108.000	701.740	ALCAP 137.8W1RB
Water surface data:			
1	15.000	698.230	LEOW WS
2	97.000	698.230	REOW WS
MIN	0.000	695.100	
MAX	108.000	702.010	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL1 6 1 37.8W1
Date of Survey: JULY 22, 1 982

PREPARED FOR:

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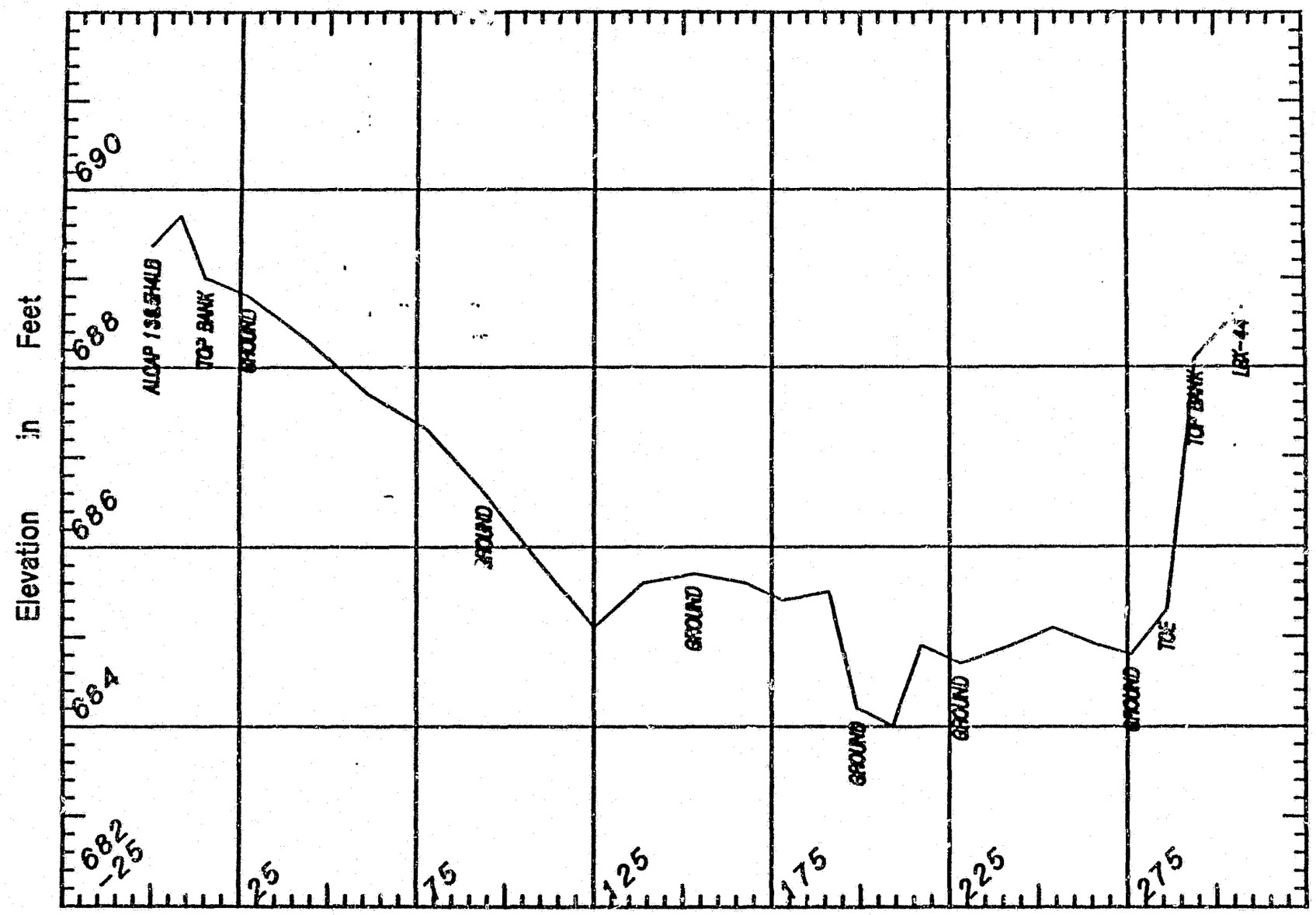
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL11 136.5H4

Date of Survey: JULY 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	689.360	ALCAP 136.5H4LB
2	8.000	689.700	
3	15.000	689.000	TOP BANK
4	27.000	688.800	GROUND
5	44.000	688.300	
6	61.000	687.700	
7	78.000	687.300	
8	94.000	686.600	GROUND
9	110.000	685.800	
10	125.000	685.100	
11	139.000	685.600	
12	153.000	685.700	GROUND
13	167.000	685.600	
14	178.000	685.400	
15	191.000	685.500	
16	199.000	684.200	GROUND
17	209.000	684.000	
18	217.000	684.900	
19	228.000	684.700	GROUND
20	242.000	684.900	
21	254.000	685.100	
22	267.000	684.900	
23	276.000	684.800	GROUND
24	286.000	685.300	TOE
25	294.000	688.100	TOP BANK
26	307.000	688.670	LRX-44
MIN	0.000	684.000	
MAX	307.000	689.700	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL11136.5H4

Date of Survey: JULY 28, 1982

PREPARED FOR:

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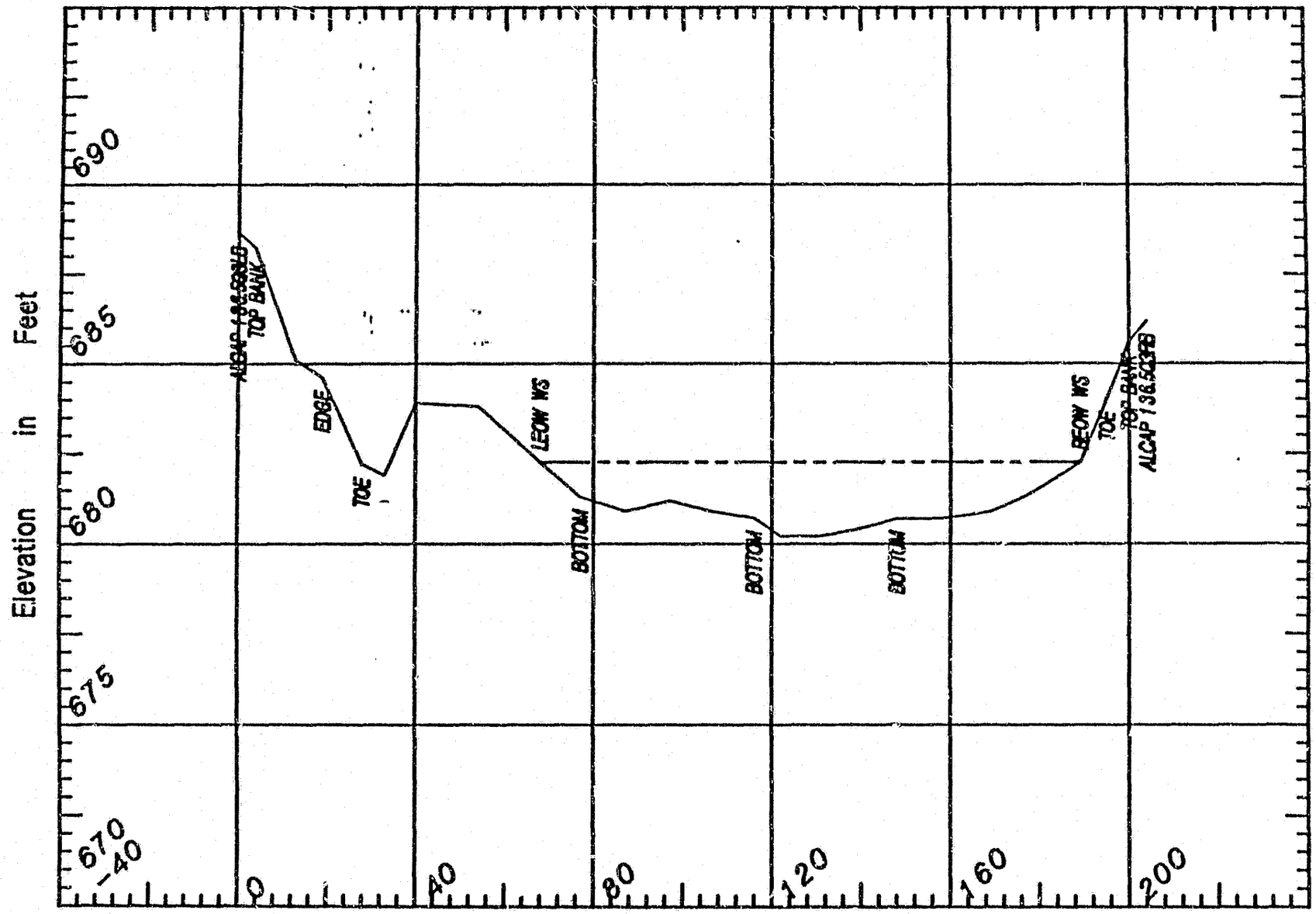
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL11 136.503

Date of Survey: JULY 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	688.630	ALCAP 136.503LB
2	4.000	688.200	TOP BANK
3	13.000	685.100	
4	19.000	684.600	EDGE
5	28.000	682.200	TOE
6	33.000	681.900	
7	40.000	683.900	
8	54.000	683.800	
9	68.000	682.260	
10	77.000	681.300	BOTTOM
11	87.000	680.900	
12	97.000	681.200	
13	106.000	680.900	
14	116.000	680.700	BOTTOM
15	122.000	680.200	
16	130.000	680.200	
17	139.000	680.400	
18	148.000	680.700	BOTTOM
19	158.000	680.700	
20	169.000	680.900	
21	178.000	681.400	
22	189.000	682.260	
23	195.000	684.000	TOE
24	200.000	685.600	TOP BANK
25	204.000	686.170	ALCAP 136.503RB
Water surface data:			
1	68.000	682.260	LEOW WS
2	189.000	682.260	REOW WS
MIN	0.000	680.200	
MAX	204.000	688.630	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL11136.5Q3

Date of Survey: JULY 28, 1982

PREPARED FOR:

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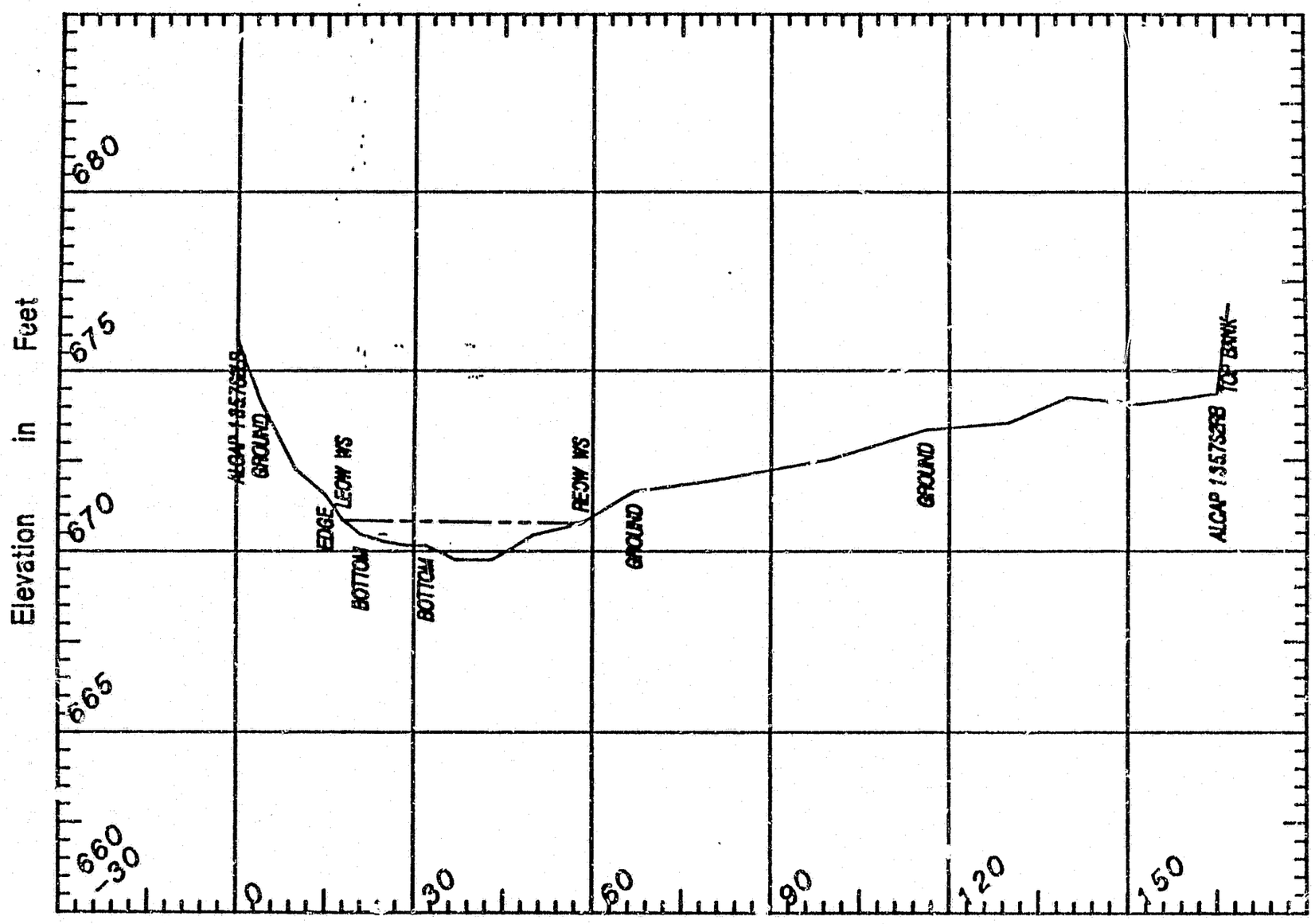
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL11 135.7S2

Date of Survey: JULY 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	675.880	ALCAP 135.7S2LB
2	4.000	674.150	GROUND
3	10.000	672.250	
4	15.000	671.550	EDGE
5	18.000	670.840	
6	21.000	670.450	BOTTOM
7	25.000	670.250	
8	29.000	670.150	
9	32.000	670.150	BOTTOM
10	37.000	669.750	
11	43.000	669.750	
12	50.000	670.450	
13	58.000	670.760	
14	67.000	671.650	GROUND
15	80.000	671.950	
16	100.000	672.550	
17	116.000	673.350	GROUND
18	130.000	673.550	
19	140.000	674.250	
20	152.000	674.050	
21	165.000	674.360	ALCAP 135.7S2RB
22	167.000	676.850	TOP BANK
Water surface data:			
1	18.000	670.840	LEDW WS
2	58.000	670.760	REDW WS
MIN	0.000	669.750	
MAX	167.000	676.850	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SL11135.7S2
Date of Survey: JULY 28, 1982

PREPARED FOR:

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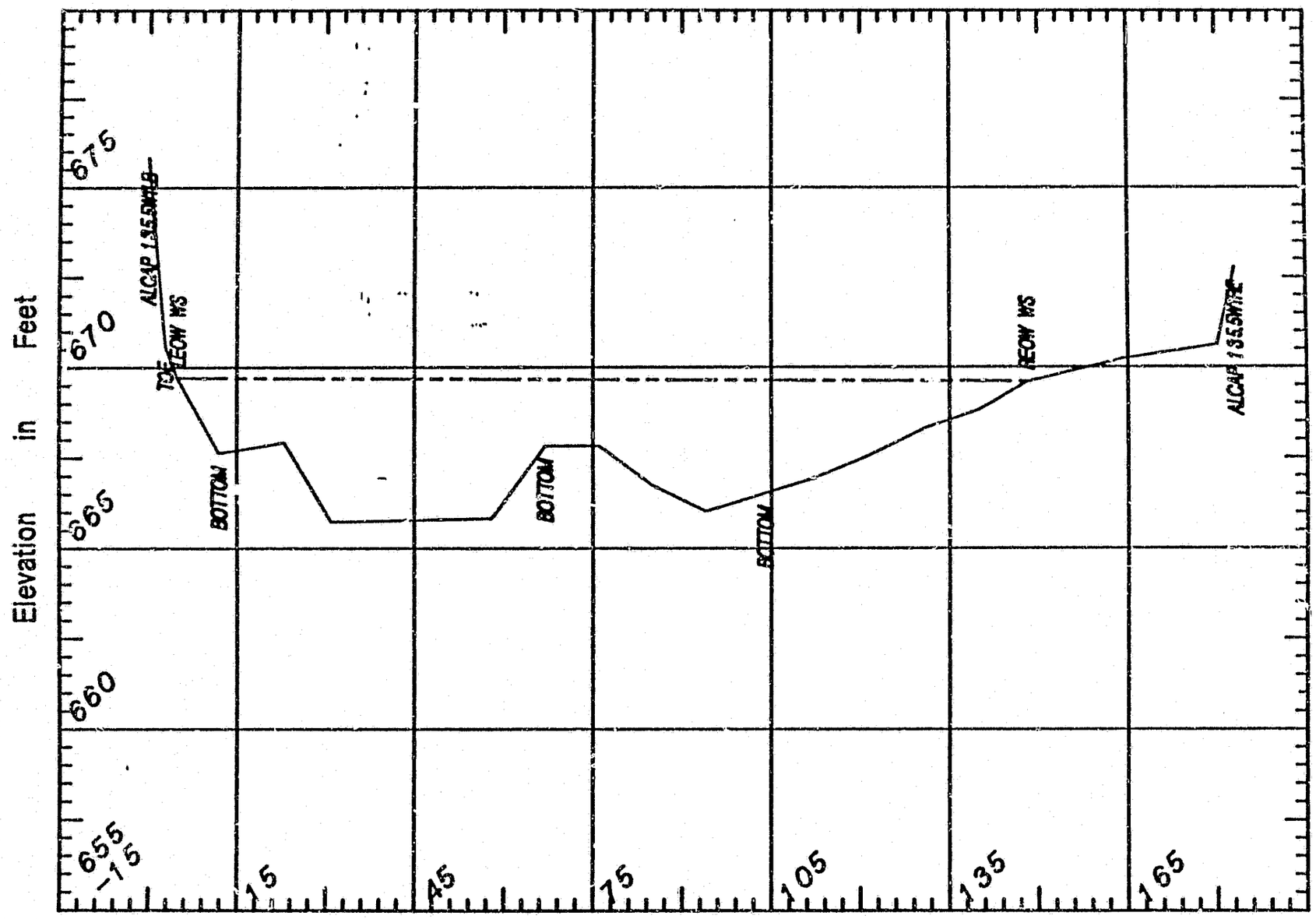
SUSITNA HYDROGRAPHIC SURVEYS
cross section SL11 135.5W1

Date of Survey: JULY 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	675.800	ALCAP 135.5W1LB
2	3.000	670.530	TOE
3	5.000	669.700	
4	12.000	667.630	BOTTOM
5	23.000	667.930	
6	31.000	665.730	
7	58.000	665.830	
8	67.000	667.830	BOTTOM
9	76.000	667.830	
10	85.000	666.730	
11	94.000	666.030	
12	104.000	666.530	BOTTOM
13	112.000	666.930	
14	121.000	667.530	
15	131.000	668.330	
16	140.000	668.830	
17	148.000	669.590	
18	164.000	670.230	
19	180.000	670.630	
20	183.000	672.770	ALCAP 135.5W1RB
Water surface data:			
1	5.000	669.700	LEOW WS
2	148.000	669.590	REOW WS
MIN	0.000	665.730	
MAX	183.000	675.800	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SL11 135.5W1

Date of Survey: JULY 28, 1982

PREPARED FOR:

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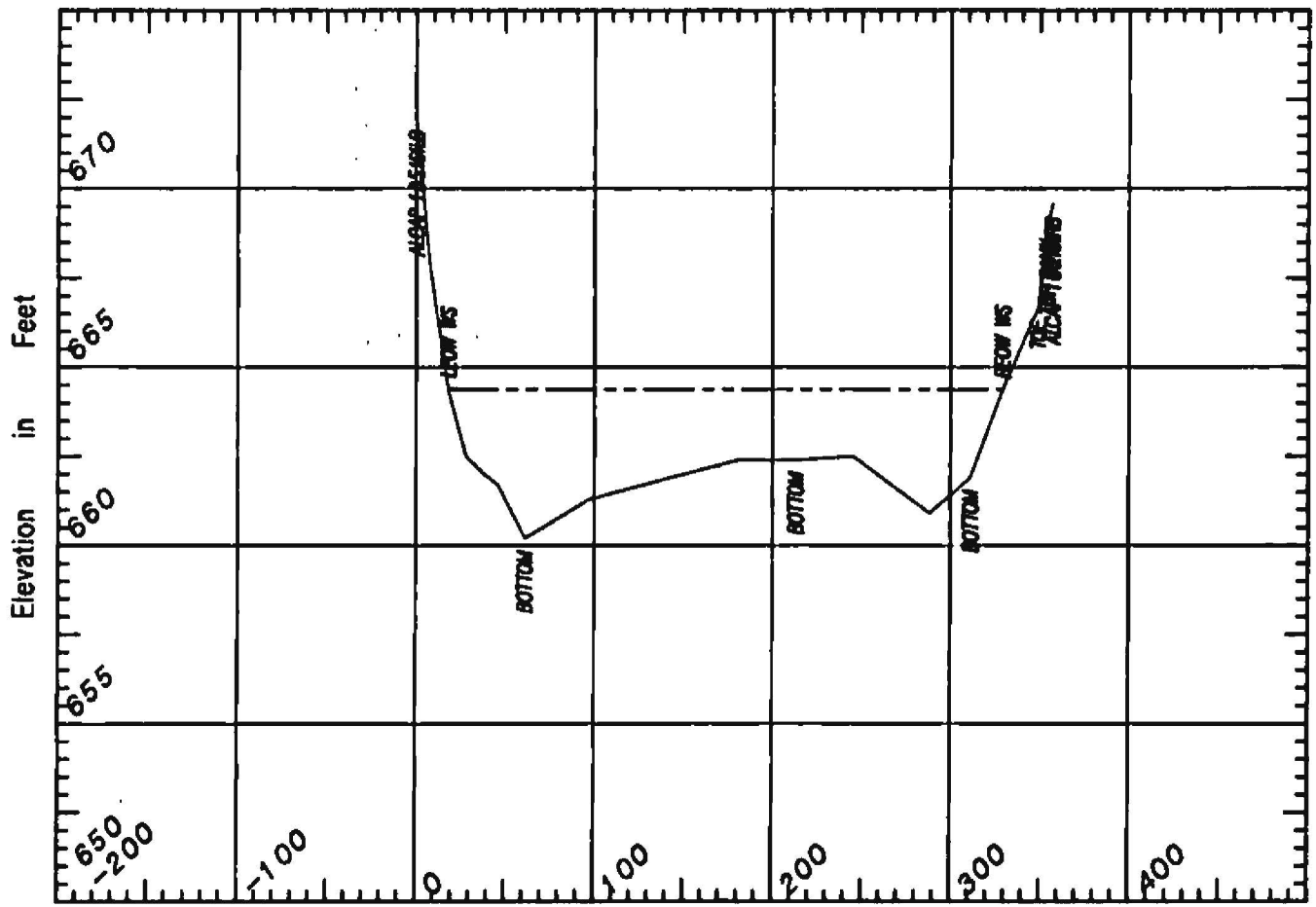
B-51

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL11 135.1S1

Date of Survey: JULY 29, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	672.000	ALCAP 135.1S1LB
2	8.000	667.770	
3	18.000	664.380	
4	28.000	662.500	
5	38.000	662.000	
6	46.000	661.700	
7	61.000	660.200	BOTTOM
8	97.000	661.300	
9	142.000	661.900	
10	181.000	662.400	
11	213.000	662.400	BOTTOM
12	245.000	662.500	
13	288.000	660.900	
14	311.000	661.900	BOTTOM
15	329.000	664.370	
16	349.000	666.670	TOE
17	354.000	668.970	TOP BANK
18	357.000	669.560	ALCAP 135.1S1RB
Water surface data:			
1	18.000	664.380	LEOW WS
2	329.000	664.370	REOW WS
MIN	0.000	660.200	
MAX	357.000	672.000	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SL1 1 1 35.1S1
Date of Survey: JULY 29, 1982

PREPARED FOR:

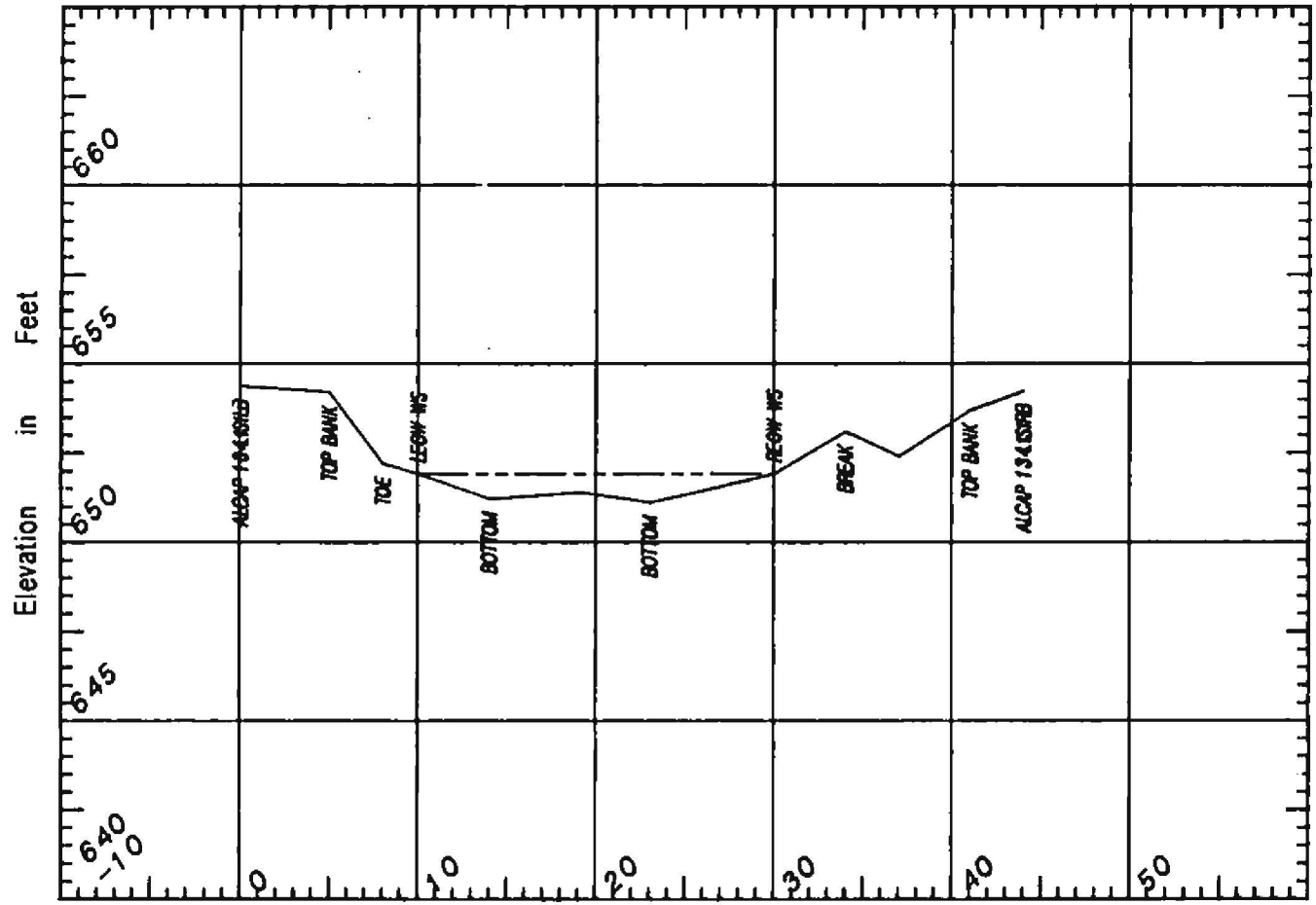
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SL10 134.151

Date of Survey: JULY 29, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	654.370	ALCAP 134.1S1LB
2	5.000	654.200	TOP BANK
3	8.000	652.200	TOE
4	10.000	651.900	
5	14.000	651.200	BOTTOM
6	19.000	651.400	
7	23.000	651.100	BOTTOM
8	30.000	651.920	
9	34.000	653.100	BREAK
10	37.000	652.400	
11	41.000	653.700	TOP BANK
12	44.000	654.240	ALCAP 134.1S1RB
Water surface data:			
1	10.000	651.900	LEOW WS
2	30.000	651.920	REOW WS
MIN	0.000	651.100	
MAX	44.000	654.370	

SUSITNA. HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SL10 134.1S1
Date of Survey: JULY 29, 1982

PREPARED FOR:

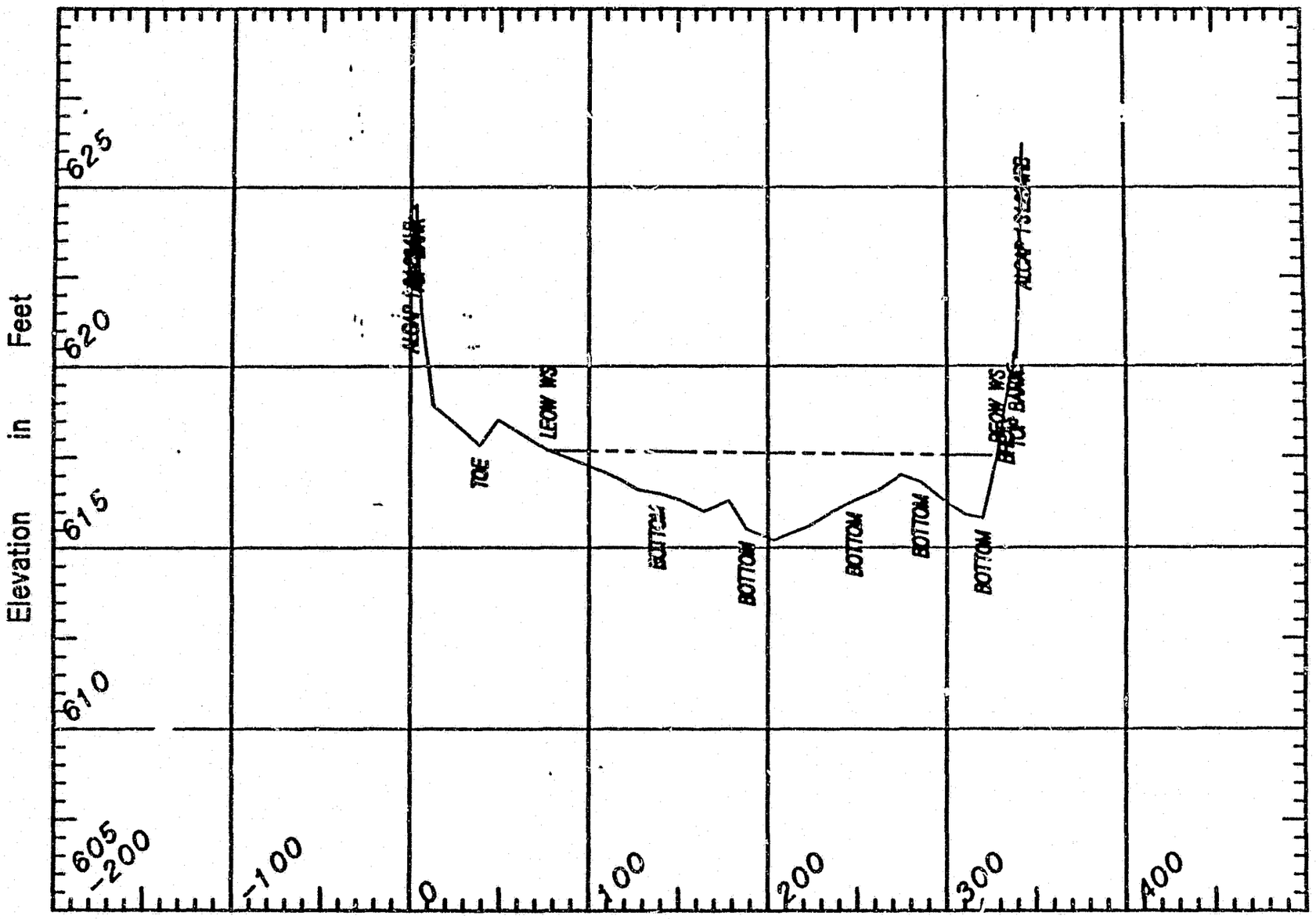
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section 4TH OF JULY 131.2S4

Date of Survey: AUGUST 3, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	624.390	ALCAP 131.2S4LB
2	3.000	624.510	TOP BANK
3	6.000	621.510	
4	13.000	618.910	
5	39.000	617.810	TOE
6	49.000	618.510	
7	77.000	617.670	
8	102.000	617.200	
9	116.000	616.900	
10	127.000	616.600	
11	138.000	616.500	BOTTOM
12	151.000	616.300	
13	164.000	616.000	
14	178.000	616.300	
15	188.000	615.500	BOTTOM
16	203.000	615.200	
17	223.000	615.600	
18	236.000	616.000	
19	248.000	616.300	BOTTOM
20	262.000	616.600	
21	274.000	617.000	
22	285.000	616.800	BOTTOM
23	298.000	616.300	
24	310.000	615.900	
25	320.000	615.800	BOTTOM
26	328.000	617.520	
27	333.000	619.010	BREAK
28	338.000	620.410	TOE
29	339.000	620.210	TOP BANK
30	343.000	626.180	ALCAP 131.2S4RB
Water surface data:			
1	77.000	617.670	LEOW WS
2	328.000	617.520	REOW WS
MIN	0.000	615.200	
MAX	343.000	626.180	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section 4TH OF JULY 131.2S4
Date of Survey: AUGUST 3, 1982

PREPARED FOR:

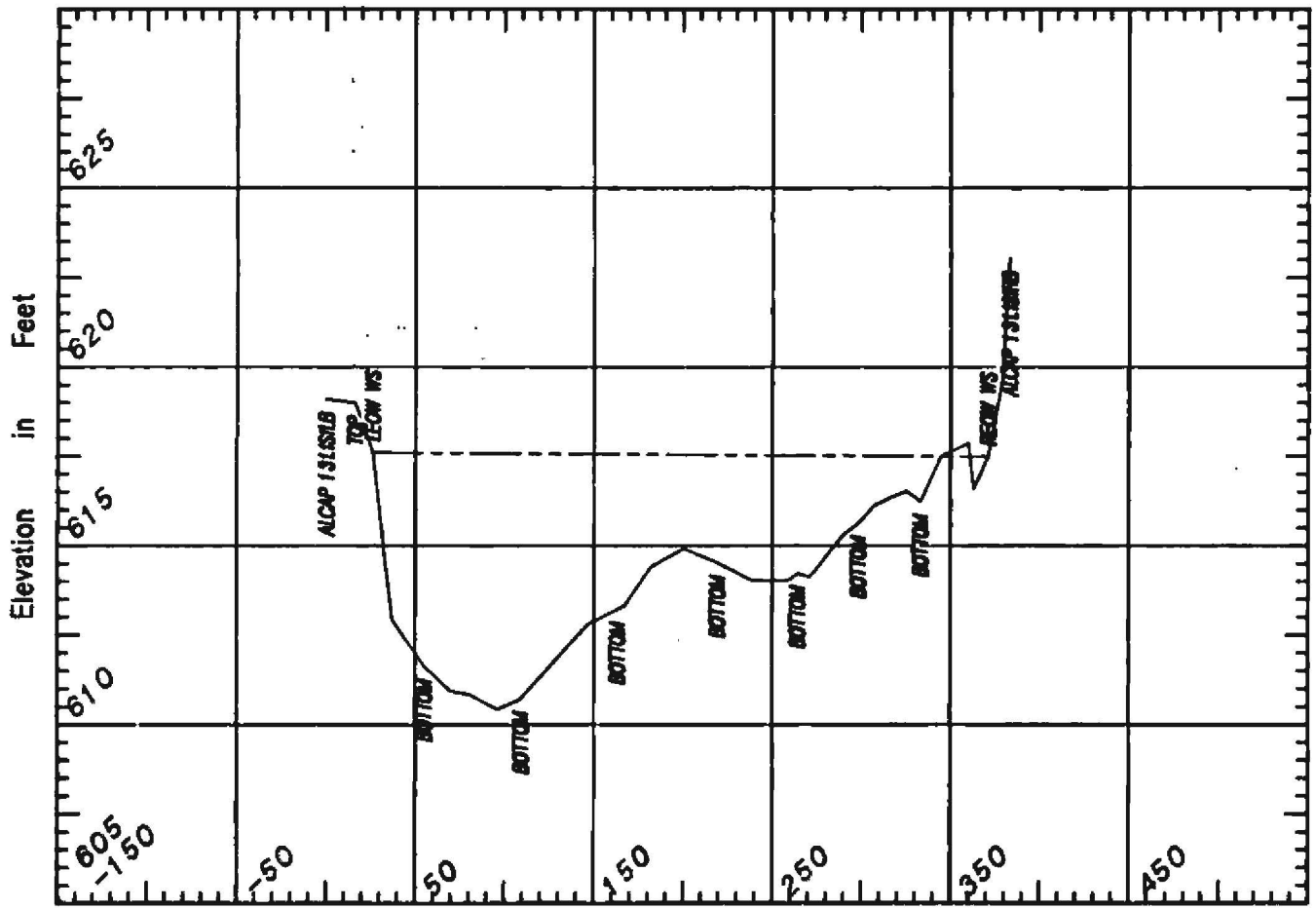
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section 4TH OF JULY 131.1S1

Date of Survey: JULY 30, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	619.080	ALCAP 131.1S1LB
2	16.000	618.970	TOP
3	26.000	617.590	
4	33.000	614.520	
5	37.000	612.920	
6	55.000	611.620	BOTTOM
7	70.000	610.920	
8	81.000	610.820	
9	96.000	610.420	
10	109.000	610.720	BOTTOM
11	134.000	612.120	
12	147.000	612.820	
13	155.000	613.020	
14	163.000	613.220	BOTTOM
15	167.000	613.320	
16	182.000	614.420	
17	200.000	614.920	
18	219.000	614.520	BOTTOM
19	238.000	614.020	
20	250.000	614.020	
21	259.000	614.020	
22	264.000	614.220	BOTTOM
23	271.000	614.120	
24	282.000	614.820	
25	290.000	615.320	
26	298.000	615.620	BOTTOM
27	307.000	616.120	
28	315.000	616.320	
29	325.000	616.520	
30	333.000	616.220	BOTTOM
31	345.000	617.520	
32	360.000	617.870	
33	363.000	616.570	
34	371.000	617.470	
35	379.000	619.670	
36	383.000	623.030	ALCAP 131.1S1RB
Water surface data:			
1	26.000	617.590	LEOW WS
2	371.000	617.470	REOW WS
MIN	0.000	610.420	
MAX	383.000	623.030	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section 4TH OF JULY 1 31.1S1
Date of Survey: JULY 30, 1982

PREPARED FOR:

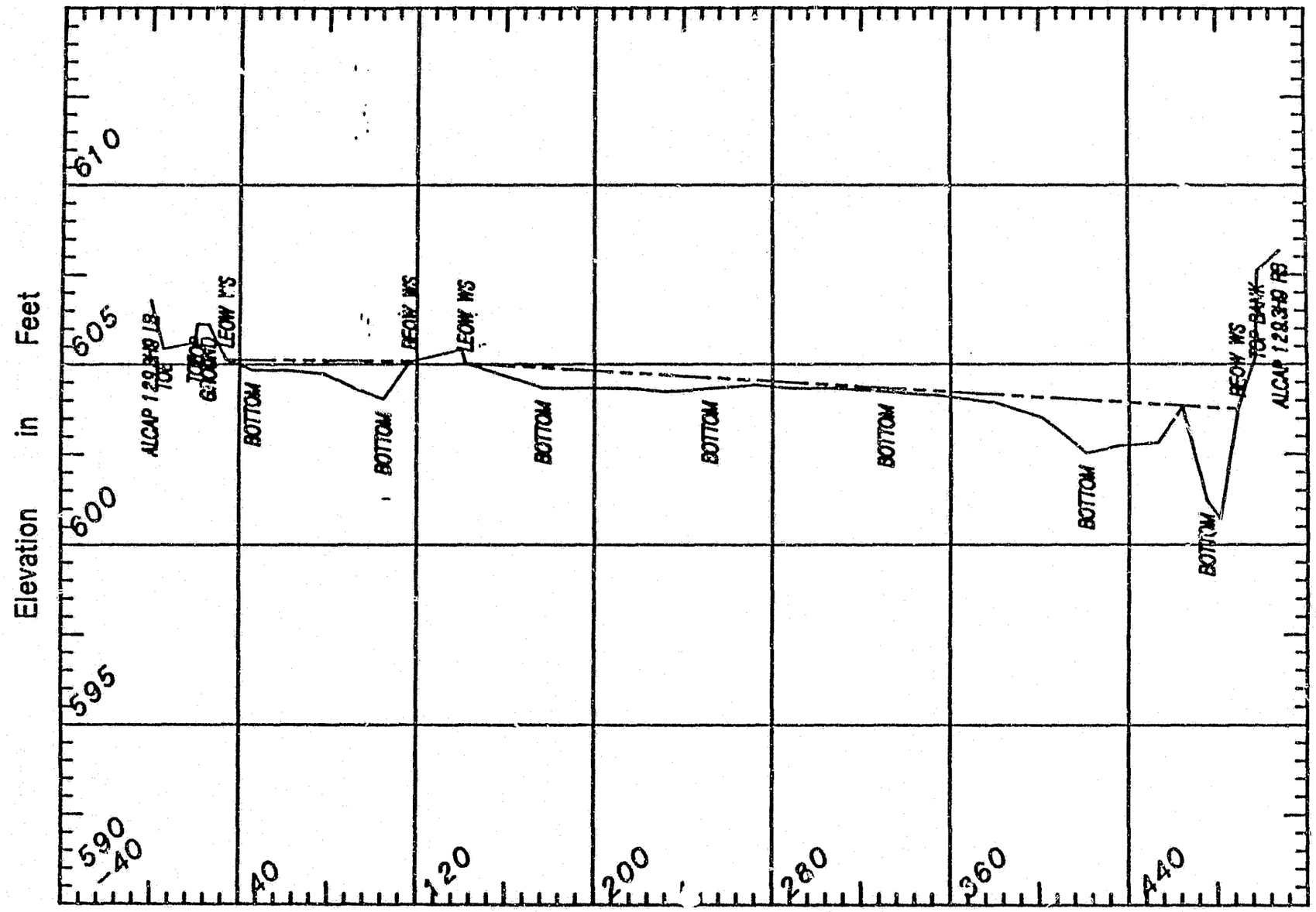
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 129.3H9

Date of Survey: AUGUST 1, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	606.770	ALCAP 129.3H9 LB
2	6.000	605.430	TOE
3	20.000	605.630	TOE
4	21.000	606.130	TOP
5	26.000	606.130	GROUND
6	34.000	605.130	
7	46.000	604.830	BOTTOM
8	61.000	604.830	
9	78.000	604.730	
10	92.000	604.330	
11	105.000	604.030	BOTTOM
12	117.000	605.090	
13	140.000	605.430	
14	142.000	605.020	
15	177.000	604.330	BOTTOM
16	197.000	604.330	
17	215.000	604.330	
18	232.000	604.230	
19	252.000	604.330	BOTTOM
20	271.000	604.430	
21	288.000	604.330	
22	308.000	604.330	
23	331.000	604.230	BOTTOM
24	354.000	604.130	
25	380.000	603.930	
26	401.000	603.530	
27	421.000	602.530	BOTTOM
28	435.000	602.730	
29	453.000	602.830	
30	464.000	603.830	
31	475.000	601.230	BOTTOM
32	481.000	600.730	
33	489.000	603.760	
34	497.000	605.230	
35	498.000	607.630	TOP BANK
36	508.000	608.180	ALCAP 129.3H9 RB
Water surface data:			
1	34.000	605.130	LEOW WS
2	117.000	605.090	REOW WS
			SPLIT
4	142.000	605.020	LEOW WS
5	489.000	603.760	REOW WS
MIN	0.000	600.730	
MAX	508.000	608.180	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 129.3H9

Date of Survey: AUGUST 1, 1982

PREPARED FOR:

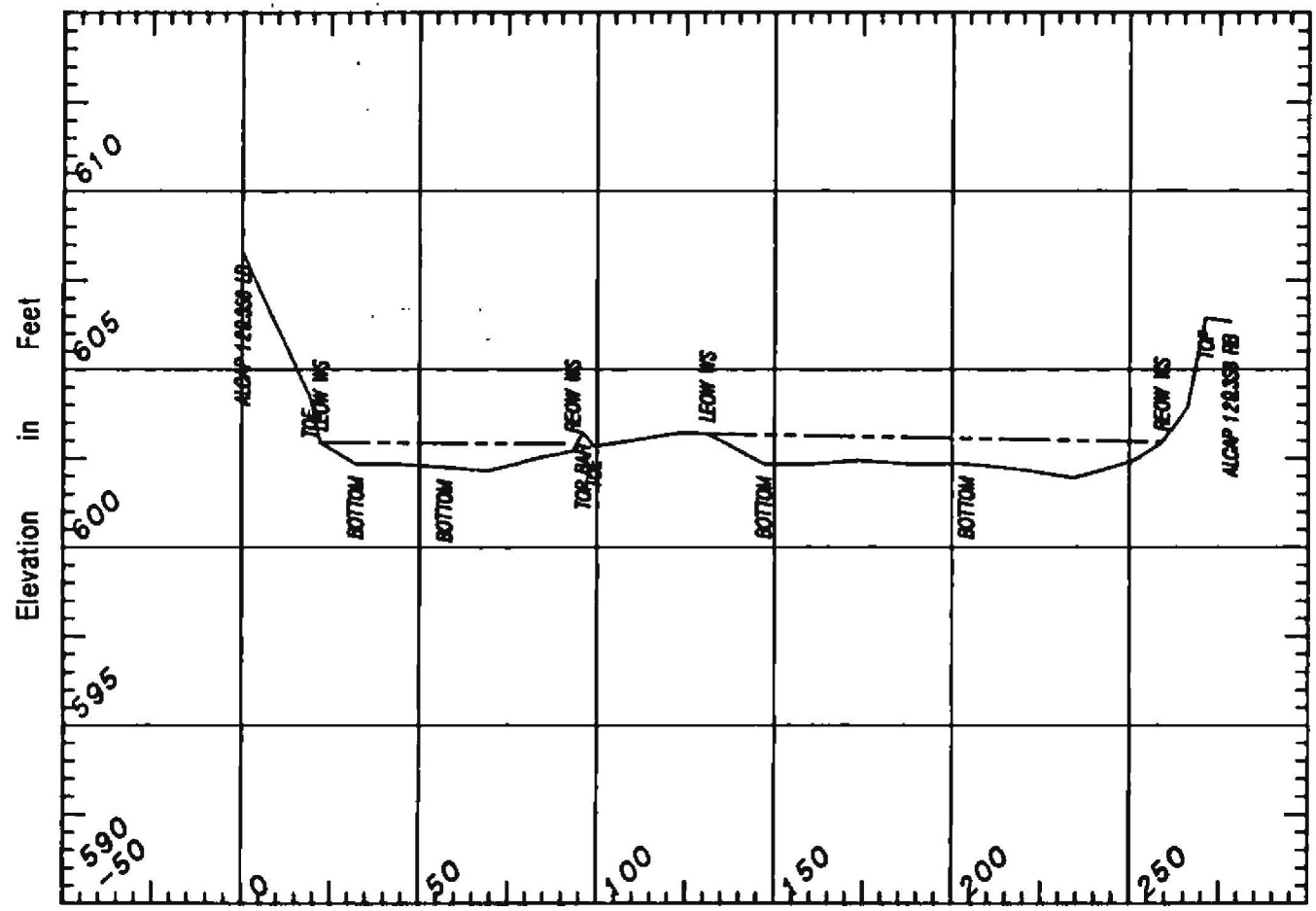
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 129.3S8

Date of Survey: AUGUST 1, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	608.280	ALCAP 129.3S8 LB
2	8.000	606.540	
3	19.000	604.240	TOE
4	22.000	602.940	
5	32.000	602.340	BOTTOM
6	43.000	602.340	
7	57.000	602.240	BOTTOM
8	69.000	602.140	
9	84.000	602.540	
10	93.000	602.710	
11	96.000	603.240	TOP BAR
12	99.000	602.840	TOE
13	124.000	603.240	
14	131.000	603.190	
15	147.000	602.340	BOTTOM
16	160.000	602.340	
17	173.000	602.440	
18	188.000	602.340	
19	204.000	602.340	BOTTOM
20	222.000	602.140	
21	234.000	601.940	
22	251.000	602.440	
23	259.000	602.950	
24	266.000	603.940	
25	271.000	606.440	TOP
26	278.000	606.330	ALCAP 129.3S8 RB
Water surface data:			
1	22.000	602.940	LEOW WS
2	93.000	602.900	REOW WS
			SPLIT
4	131.000	603.190	LEOW WS
5	259.000	602.950	REOW WS
MIN	0.000	601.940	
MAX	278.000	608.280	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 129.3S8
Date of Survey: AUGUST 1, 1982

PREPARED FOR:

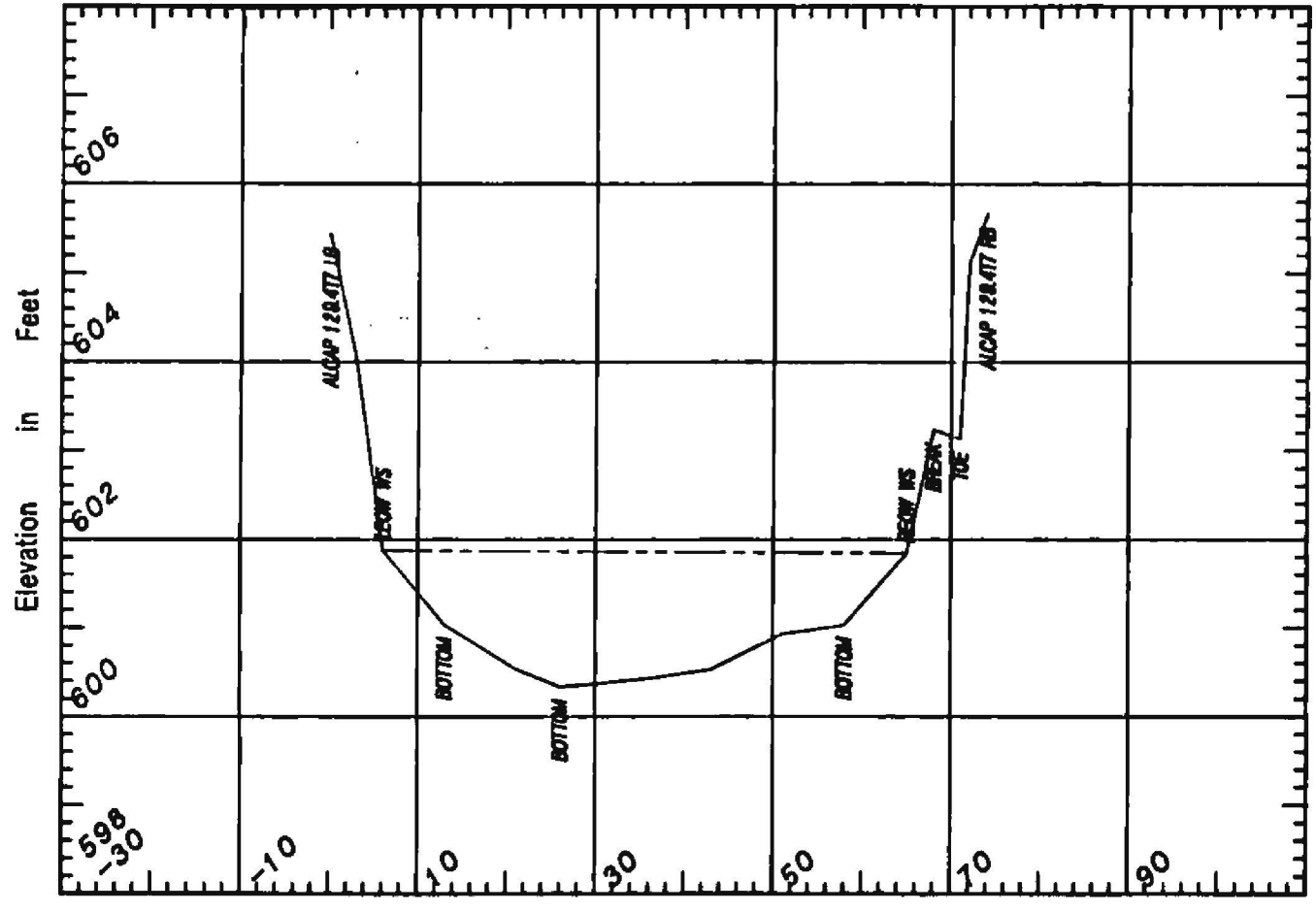
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 129.4T7

Date of Survey: AUGUST 1, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	605.430	ALCAP 129.4T7 LB
2	3.000	604.000	
3	6.000	601.870	
4	13.000	601.030	BOTTOM
5	21.000	600.530	
6	26.000	600.330	BOTTOM
7	36.000	600.430	
8	43.000	600.530	
9	51.000	600.930	
10	58.000	601.030	BOTTOM
11	65.000	601.840	
12	68.000	603.230	BREAK
13	71.000	603.130	TOE
14	72.000	605.130	
15	74.000	605.660	ALCAP 129.4T7 RB
Water surface data:			
1	6.000	601.870	LEOW WS
2	65.000	601.840	REOW WS
MIN	0.000	600.330	
MAX	74.000	605.660	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 129.4T7
Date of Survey: AUGUST 1, 1982

PREPARED FOR:

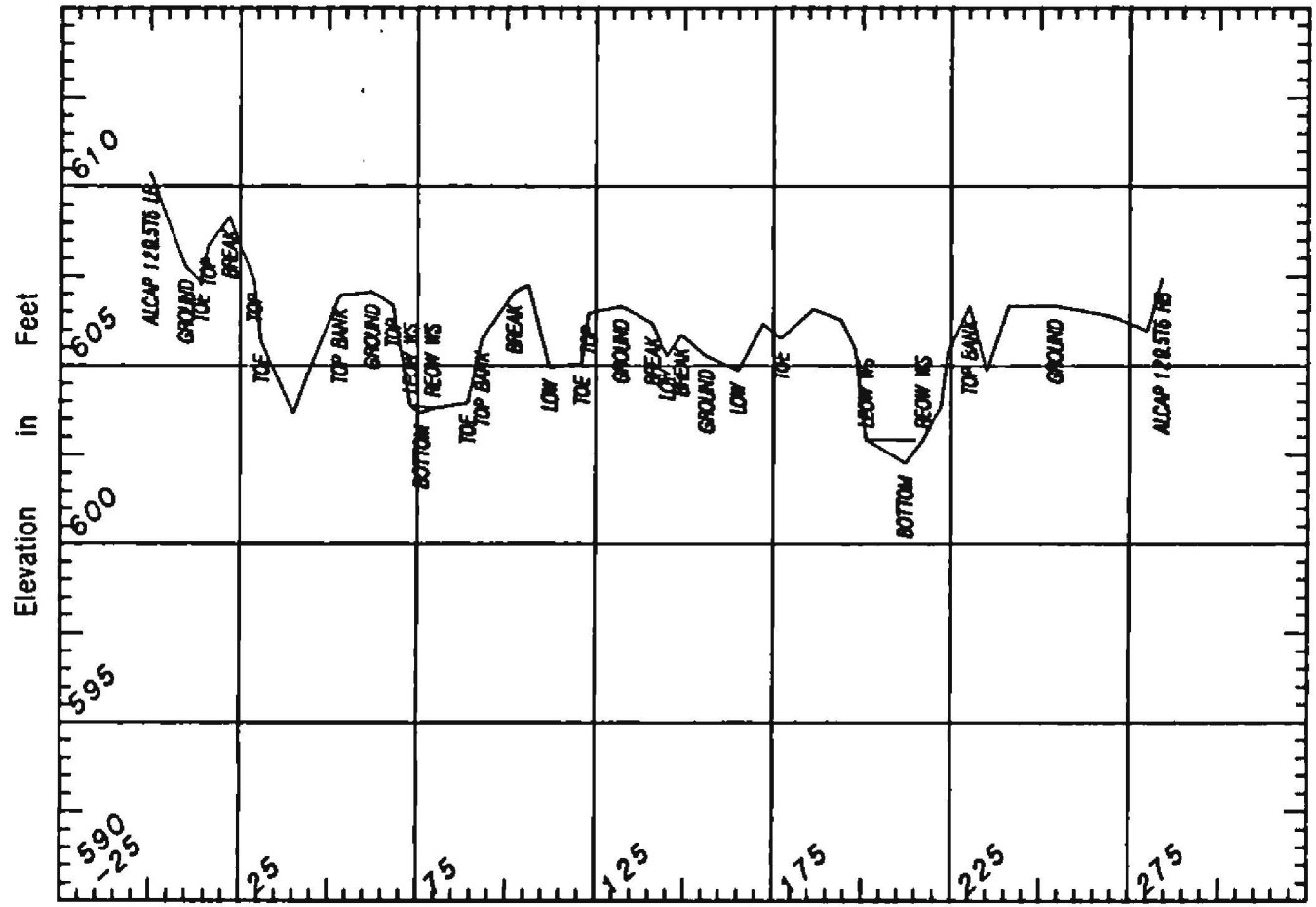
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 129.5T6

Date of Survey: AUGUST 1, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	610.390	ALCAP 129.5T6 LB
2	10.000	607.760	GROUND
3	14.000	607.360	TOE
4	16.000	608.360	TOP
5	22.000	609.160	BREAK
6	29.000	607.360	TOP
7	31.000	605.660	TOE
8	40.000	603.660	
9	44.000	604.760	
10	53.000	606.960	TOP BANK
11	62.000	607.060	GROUND
12	68.000	606.660	TOP
13	73.000	603.870	
14	76.000	603.660	BOTTOM
15	79.000	603.800	
16	89.000	603.960	TOE
17	93.000	605.760	TOP BANK
18	102.000	607.060	BREAK
19	106.000	607.260	
20	112.000	604.960	LOW
21	121.000	605.060	TOE
22	123.000	606.460	TOP
23	132.000	606.660	GROUND
24	141.000	606.160	BREAK
25	145.000	605.260	LOW
26	149.000	605.860	BREAK
27	156.000	605.260	GROUND
28	165.000	604.860	LOW
29	172.000	606.160	
30	177.000	605.760	TOE
31	186.000	606.560	
32	194.000	606.260	
33	198.000	605.460	
34	201.000	602.920	
35	212.000	602.260	BOTTOM
36	217.000	602.910	
37	222.000	603.860	
38	224.000	605.360	
39	230.000	606.660	TOP BANK
40	235.000	604.860	
41	241.000	606.660	
42	254.000	606.660	GROUND
43	270.000	606.360	
44	280.000	605.960	
45	284.000	607.410	ALCAP 129.5T6 RB
Water surface data:			
1	73.000	603.870	LEOW WS
2	79.000	603.800	REOW WS
			SPLIT
4	201.000	602.920	LEOW WS
5	217.000	602.910	REOW WS

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 129.5T6
Date of Survey: AUGUST 1, 1982

PREPARED FOR:

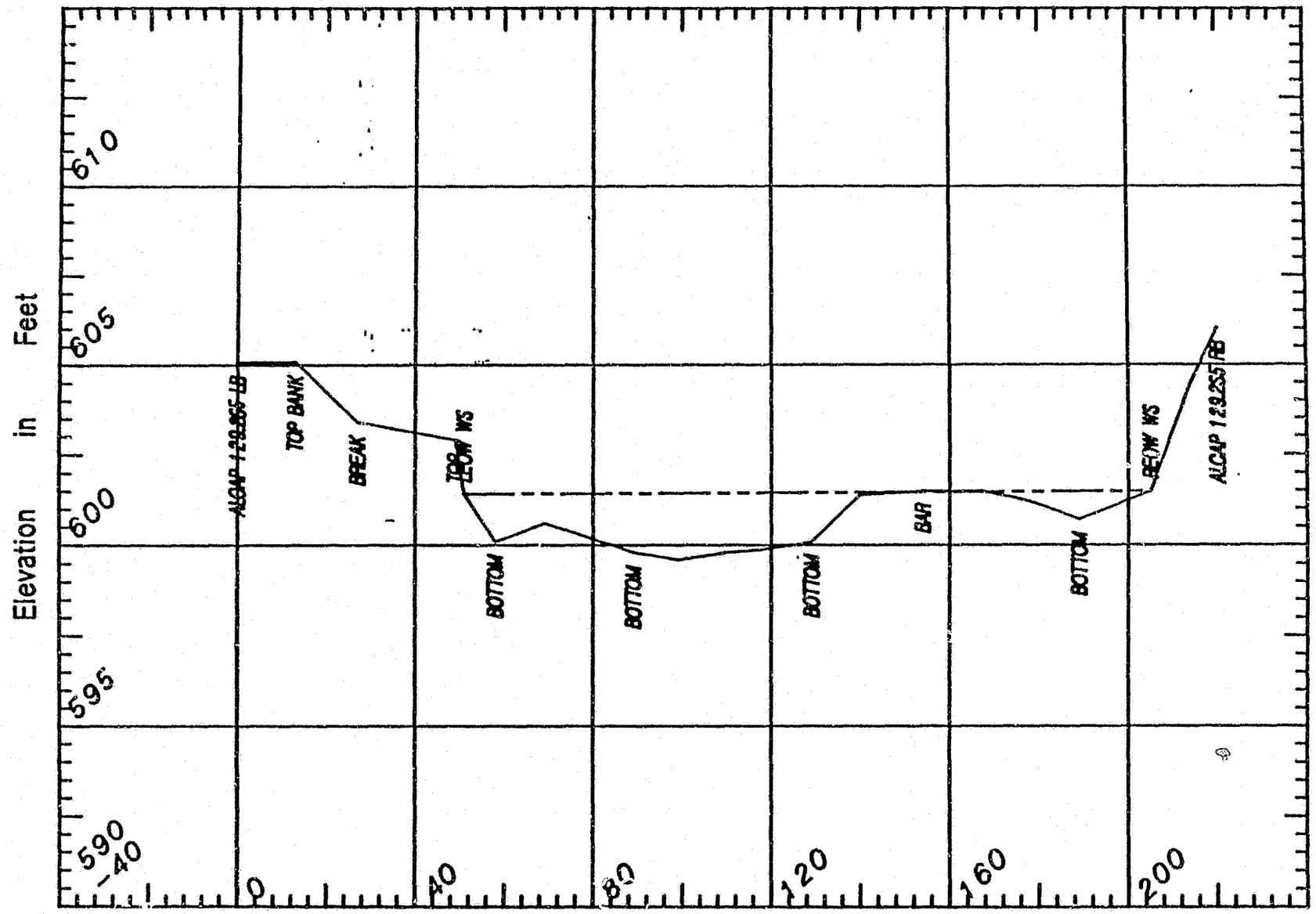
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 129.2S5

Date of Survey: AUGUST 1, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	605.080	ALCAP 129.2S5 LB
2	13.000	605.090	TOP BANK
3	27.000	603.390	BREAK
4	49.000	602.890	TOP
5	51.000	601.410	
6	58.000	600.090	BOTTOM
7	69.000	600.590	
8	79.000	600.190	
9	89.000	599.790	BOTTOM
10	99.000	599.590	
11	109.000	599.790	
12	119.000	599.890	
13	129.000	600.090	BOTTOM
14	140.000	601.390	
15	154.000	601.490	BAR
16	167.000	601.490	
17	178.000	601.190	
18	189.000	600.690	BOTTOM
19	205.000	601.490	
20	214.000	604.490	
21	220.000	606.010	ALCAP 129.2S5 RB
Water surface data:			
1	51.000	601.41	LEOW WS
2	205.000	601.490	REOW WS
MIN	0.000	599.590	
MAX	220.000	606.010	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 129.2S5
Date of Survey: AUGUST 1, 1982

PREPARED FOR:

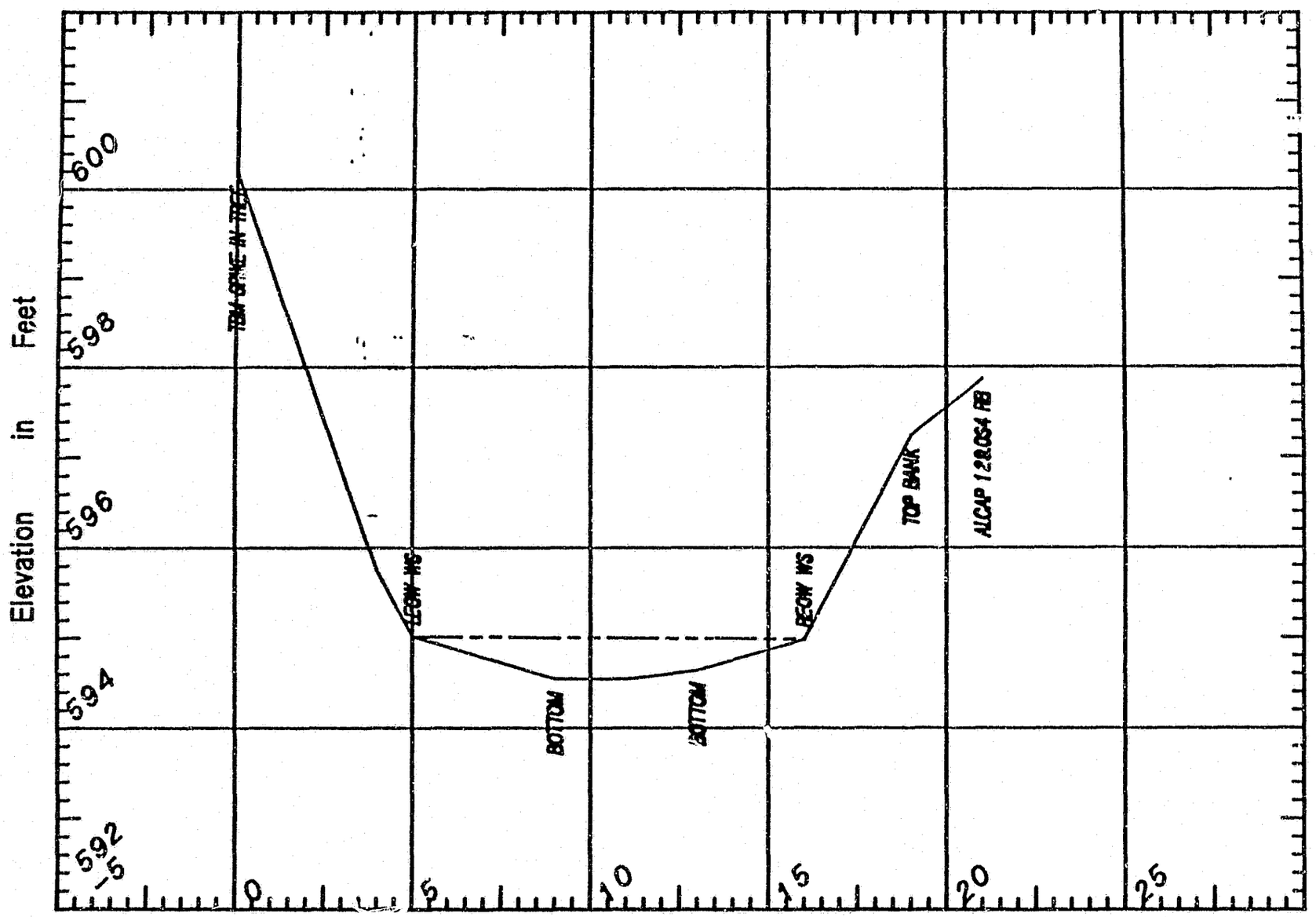
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 129.0S4

Date of Survey: AUGUST 1,1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	600.180	TBM SPIKE IN TREE
2	4.000	595.740	
3	5.000	595.010	
4	9.000	594.540	BOTTOM
5	11.000	594.540	
6	13.000	594.640	BOTTOM
7	16.000	594.980	
8	19.000	597.240	TOP BANK
9	21.000	597.870	ALCAP 129.0S4 RB
Water surface data:			
1	5.000	595.010	LEDW WS
2	16.000	594.980	REDW WS
MIN	0.000	594.540	
MAX	21.000	600.180	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 1 2 9.0S4

Date of Survey: AUGUST 1,1 9 8 2

PREPARED FOR:

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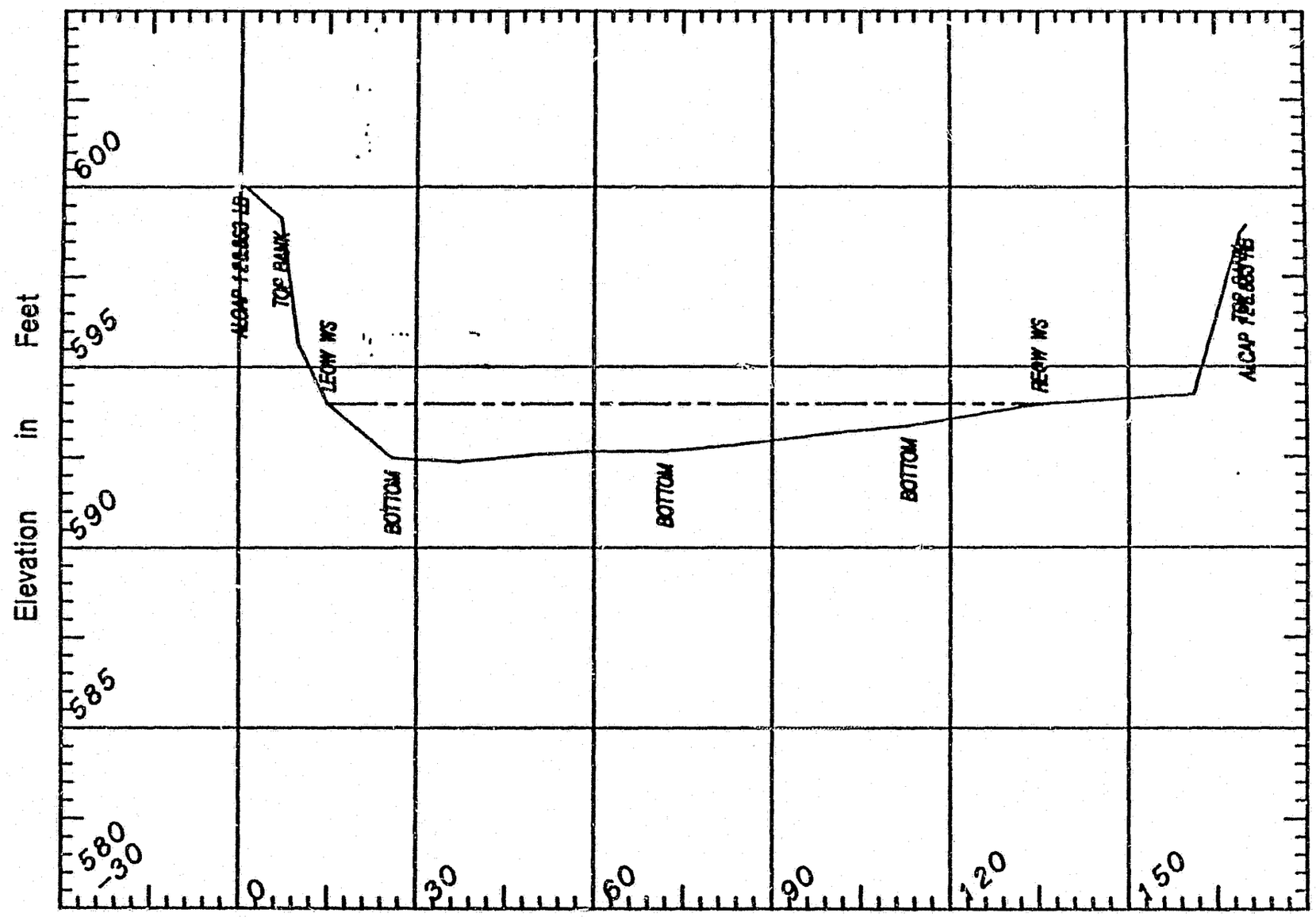
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 128.8S3

Date of Survey: AUGUST 1, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	600.100	ALCAP 128.8S3 LB
2	7.000	599.130	TOP BANK
3	10.000	595.630	
4	15.000	593.960	
5	26.000	592.460	BOTTOM
6	37.000	592.360	
7	49.000	592.560	
8	59.000	592.660	
9	72.000	592.660	BOTTOM
10	85.000	592.860	
11	100.000	593.160	
12	113.000	593.360	BOTTOM
13	135.000	593.960	
14	161.000	594.230	
15	169.000	598.730	TOP BANK
16	170.000	598.940	ALCAP 128.8S3 RB
Water surface data:			
1	15.000	593.960	LEOW WS
2	135.000	593.960	REOW WS
MIN	0.000	592.360	
MAX	170.000	600.100	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 128.8S3
Date of Survey: AUGUST 1, 1982

PREPARED FOR:

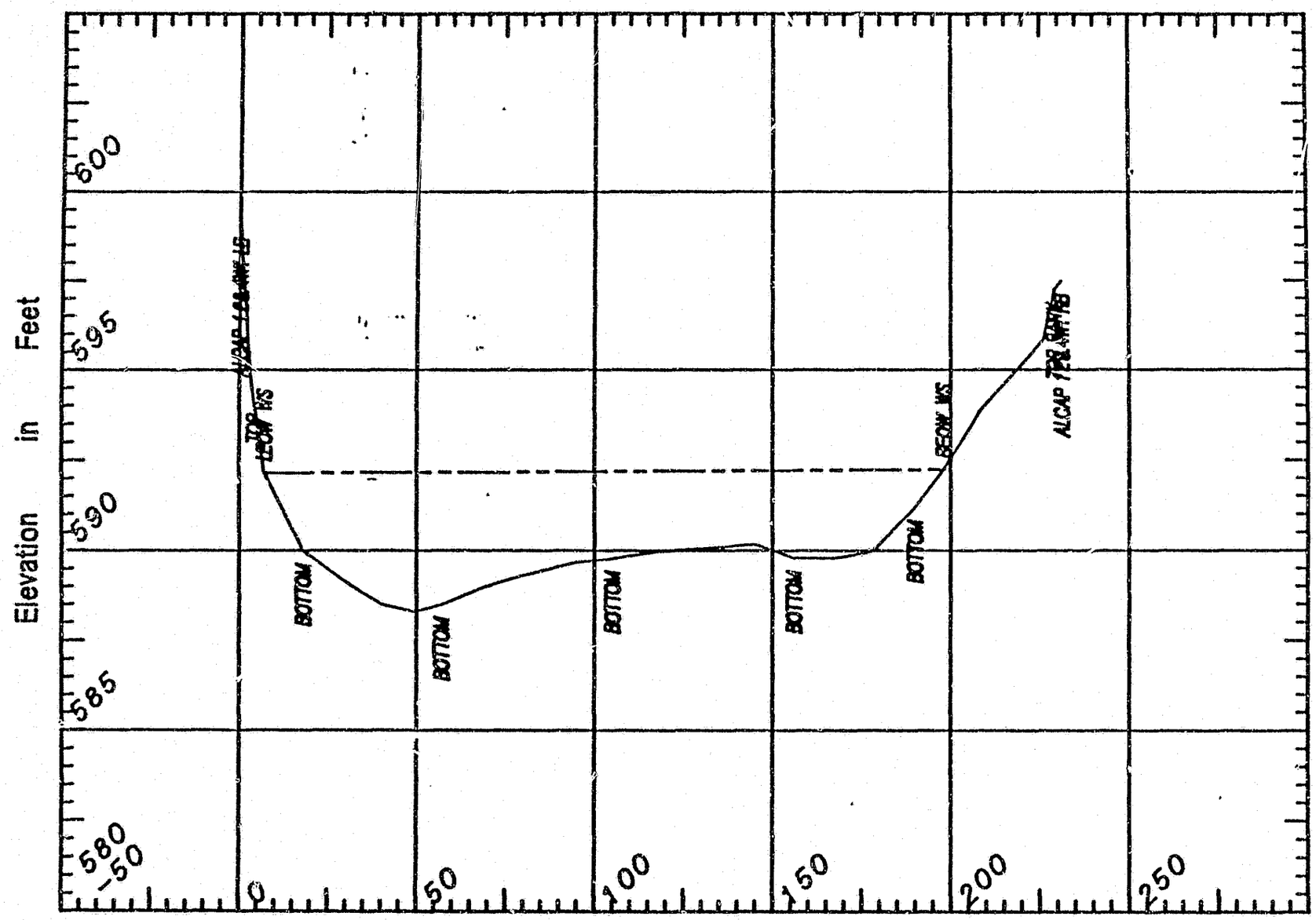
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 9 128.4W1

Date of Survey: AUGUST 2, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	599.080	ALCAP 128.4W1 LB
2	3.000	594.830	
3	4.000	594.130	TOP
4	7.000	592.130	
5	18.000	589.980	BOTTOM
6	29.000	589.180	
7	40.000	588.480	
8	49.000	588.280	
9	57.000	588.480	BOTTOM
10	69.000	588.980	
11	79.000	589.280	
12	95.000	589.680	
13	105.000	589.780	BOTTOM
14	118.000	589.980	
15	132.000	590.080	
16	145.000	590.180	
17	156.000	589.780	BOTTOM
18	167.000	589.780	
19	178.000	589.980	
20	190.000	591.180	BOTTOM
21	198.000	592.240	
22	208.000	593.830	
23	226.000	595.830	
24	229.000	597.230	TOP BANK
25	231.000	597.480	ALCAP 128.4W1 RB
Water surface data:			
1	7.000	592.130	LEOW WS
2	198.000	592.240	REOW WS
MIN	0.000	588.280	
MAX	231.000	599.080	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 9 128.4W1
Date of Survey: AUGUST 2, 1982

PREPARED FOR:

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SUSITNA HYDROGRAPHIC SURVEYS
CROSS SECTION AT LRX-30N3

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	600.990	ALCAP LRX-30N3 LB
2	2.000	600.900	TOP
3	4.000	598.400	
4	11.000	597.000	
5	17.000	595.500	
6	22.000	595.600	BOTTOM
7	50.000	595.700	
8	80.000	595.700	BOTTOM
9	125.000	596.100	
10	170.000	596.000	BOTTOM
11	212.000	596.100	
12	245.000	596.400	BOTTOM
13	273.000	597.100	
14	308.000	598.200	
15	372.000	599.000	TOP
16	419.000	598.700	
17	447.000	598.600	
18	460.000	599.750	ALCAP LRX-30N3 RB
Water surface data:			
1	11.000	597.000	LEOW WS
2	273.000	597.100	REOW WS
MIN	0.000	595.500	
MAX	460.000	600.990	

SUSITNA HYDROGRAPHIC SURVEYS
CROSS SECTION AT LRX--30N2

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	596.150	ALCAP LRX-30N2 RB
2	23.000	595.800	TOP
3	42.000	594.300	
4	60.000	593.800	TOE
5	74.000	595.900	
6	90.000	596.100	HIGH PT
7	103.000	595.600	
8	136.000	594.400	BREAK
9	182.000	594.400	GROUND
10	223.000	594.000	
11	239.000	594.900	TOP
12	258.000	594.700	
13	270.000	593.500	TOE
14	299.000	593.200	
15	324.000	594.000	
16	367.000	593.800	LOW PT
17	407.000	591.300	
18	425.000	591.900	BREAK
19	443.000	591.700	
20	450.000	590.800	
21	465.000	588.000	
22	495.000	587.800	BOTTOM
23	526.000	588.200	
24	549.000	588.700	BOTTOM
25	559.000	589.600	
26	581.000	590.900	BOTTOM
27	593.000	591.800	
28	628.000	594.500	
29	650.000	594.400	
30	707.000	595.300	HIGH PT
31	735.000	594.700	
32	792.000	594.800	
33	840.000	593.300	BREAK
34	868.000	591.200	
35	878.000	591.200	
36	883.000	595.700	TOP ?B
37	901.000	596.900	
38	915.000	597.480	ALCAP 128.4 W1 RB
Water surface data:			
1	443.000	591.700	REOW WS
2	593.000	591.800	LEOW WS
MIN	0.000	587.800	
MAX	915.000	597.480	

SUSITNA HYDROGRAPHIC SURVEYS
CROSS SECTION AT LRX-30N1

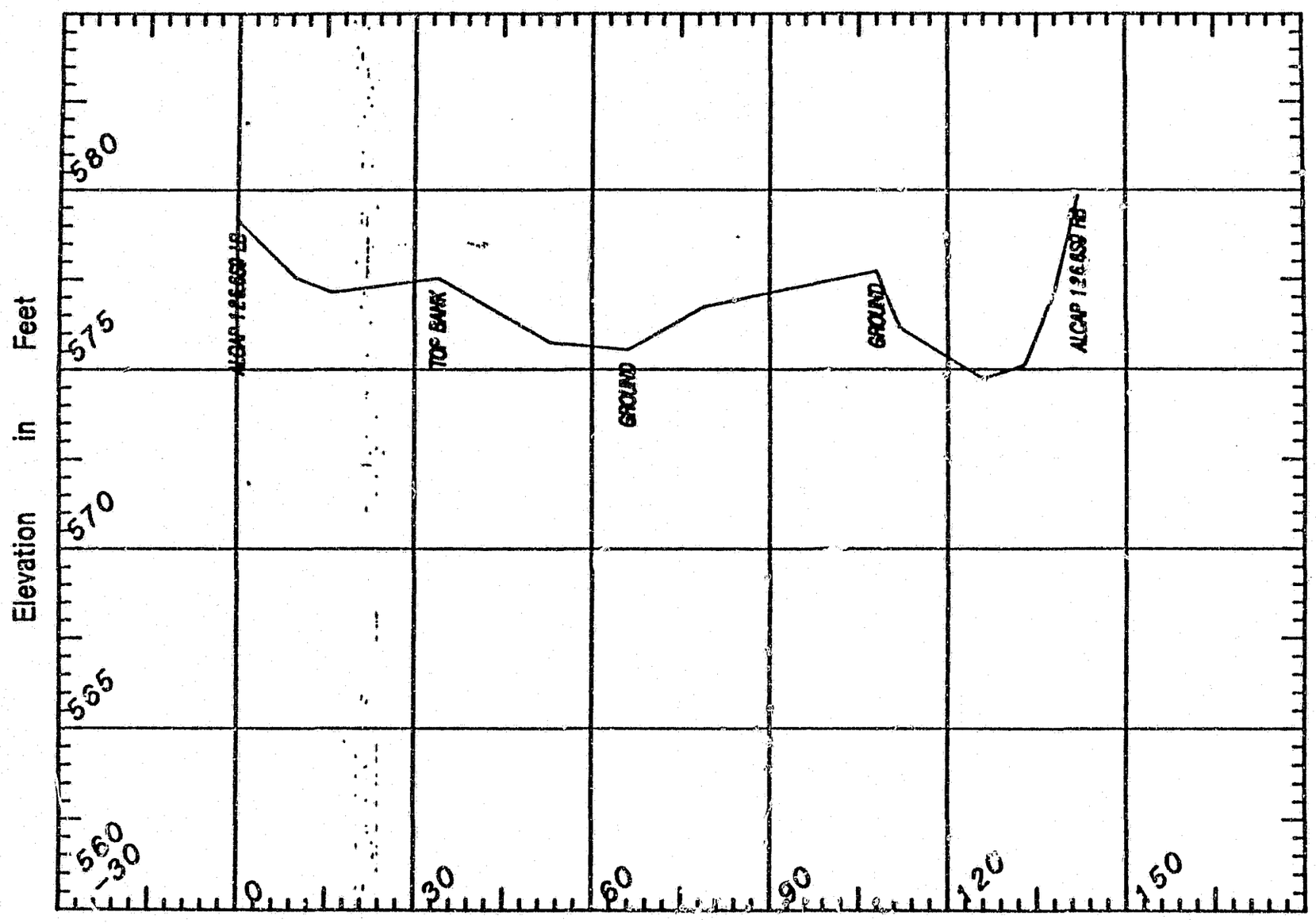
POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	592.330	ALCAP LRX-30N1 LB
2	44.000	591.680	
3	78.000	591.180	TOP
4	81.000	590.850	
5	90.000	588.810	BOTTOM
6	112.000	586.210	
7	142.000	586.610	BOTTOM
8	169.000	587.210	
9	199.000	587.410	BOTTOM
10	232.000	588.210	
11	262.000	588.310	BOTTOM
12	295.000	589.010	
13	322.000	589.810	BOTTOM
14	350.000	590.110	
15	380.000	591.570	
16	401.000	591.480	GROUND
17	437.000	591.880	
18	458.000	590.780	
19	472.000	591.980	HIGH PT
20	523.000	591.580	
21	550.000	591.120	
22	555.000	590.380	BOTTOM
23	562.000	589.980	
24	563.000	592.580	
25	566.000	593.380	TOP RB
26	570.000	593.440	ALCAP LRX-30N1 RB
Water surface data:			
1	81.000	590.850	LEOW WS
2	380.000	591.070	REOW WS
			SPLIT
4	550.000	591.120	LEOW WS
MIN	0.000	586.210	
MAX	570.000	593.440	

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 126.6S9

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	579.150	ALCAP 126.6S9 LB
2	10.000	577.530	
3	16.000	577.130	
4	34.000	577.530	TOP BANK
5	53.000	575.730	
6	66.000	575.530	GROUND
7	79.000	576.730	
8	93.000	577.230	
9	108.000	577.730	GROUND
10	112.000	576.130	
11	119.000	575.430	
12	126.000	574.730	
13	133.000	575.130	
14	138.000	577.130	
15	142.000	579.840	ALCAP 126.6S9 RB
MIN	0.000	574.730	
MAX	142.000	579.840	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 8 126.6S9
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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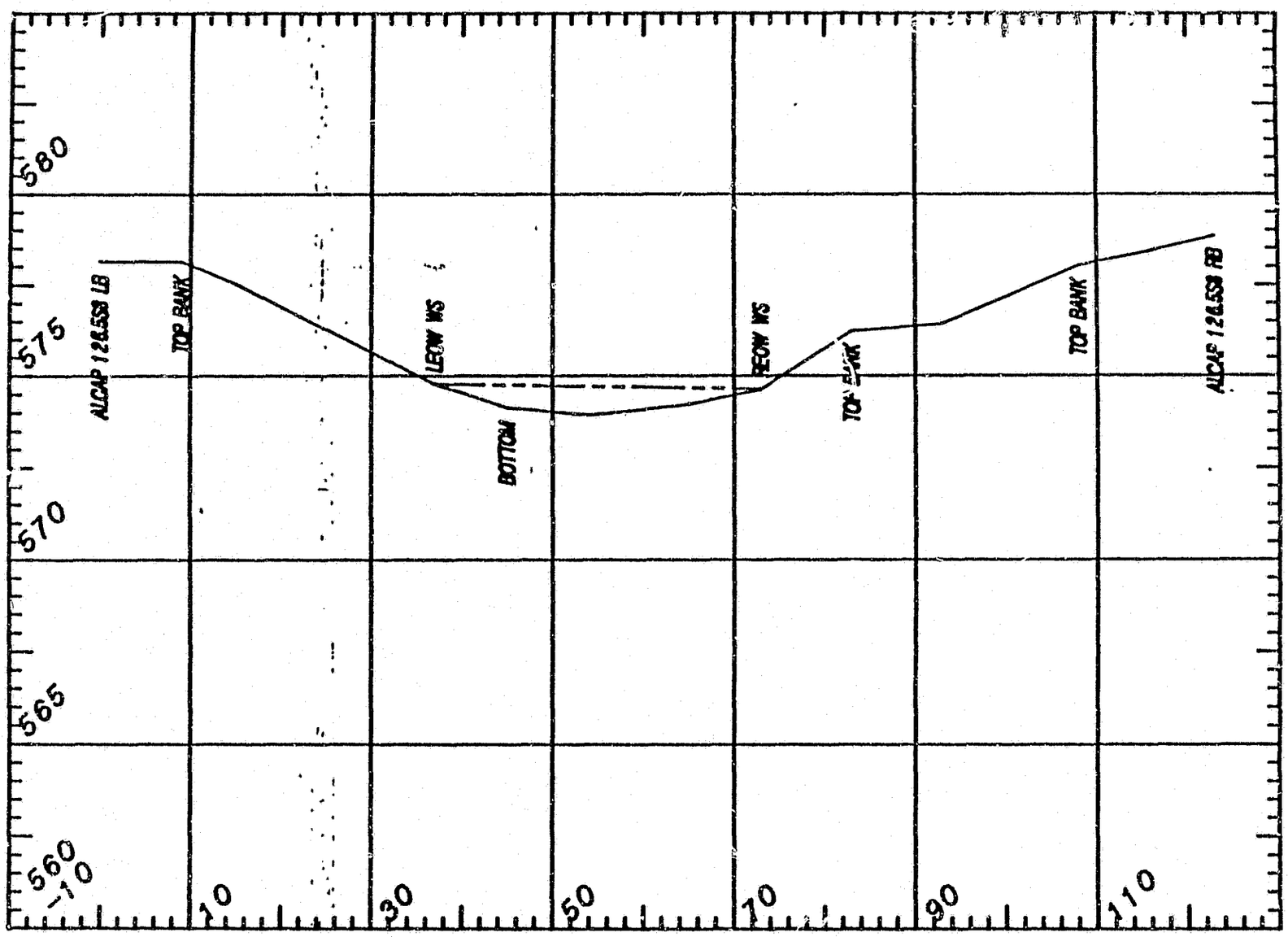
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 126.5S8

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	578.140	ALCAP 126.5S8 LB
2	9.000	578.130	TOP BANK
3	15.000	577.530	
4	37.000	574.770	
5	45.000	574.130	BOTTOM
6	54.000	573.930	
7	65.000	574.230	
8	73.000	574.630	
9	83.000	576.230	TOP BANK
10	93.000	576.430	
11	108.000	578.030	TOP BANK
12	116.000	578.430	
13	123.000	578.850	ALCAP 126.5S8 RB
Water surface data:			
1	37.000	574.770	LEOW WS
2	73.000	574.630	REOW WS
MIN	0.000	573.930	
MAX	123.000	578.850	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SLOUGH 8 126.5S8
Date of Survey: AUGUST 4, 1982

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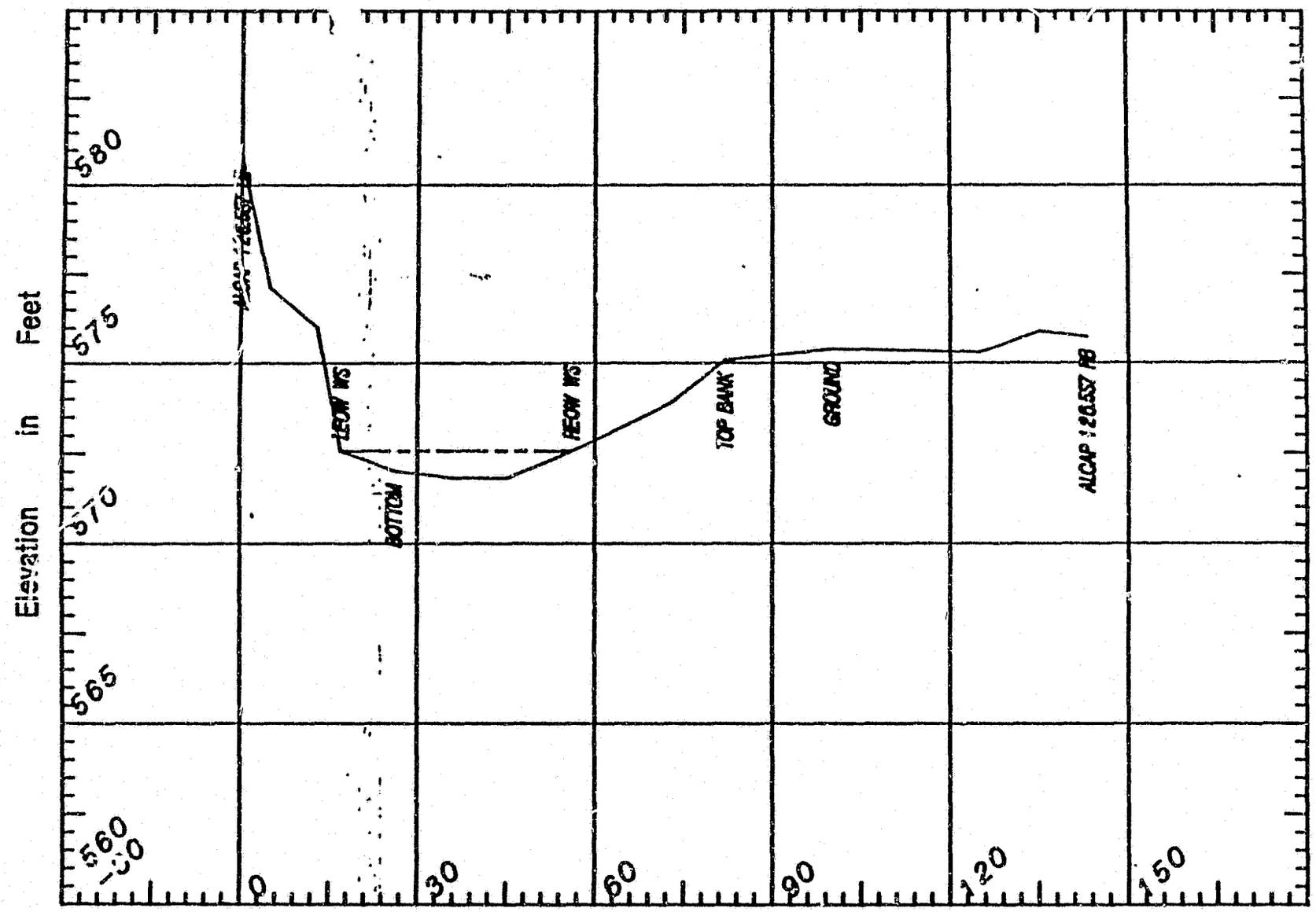
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 126.5S7

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	580.790	ALCAP 126.5S7 LB
2	5.000	577.100	
3	13.000	576.000	
4	17.000	572.560	
5	26.000	572.000	BOTTOM
6	36.000	571.800	
7	45.000	571.800	
8	56.000	572.560	
9	73.000	573.900	
10	82.000	575.100	TOP BANK
11	100.000	575.400	GROUND
12	125.000	575.300	
13	135.000	575.900	
14	143.000	575.730	ALCAP 126.5S7 RB
Water surface data:			
1	17.000	572.560	LEOW WS
2	56.000	572.560	REOW WS
MIN	0.000	571.800	
MAX	143.000	580.790	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SLOUGH 8 1 26.5S7
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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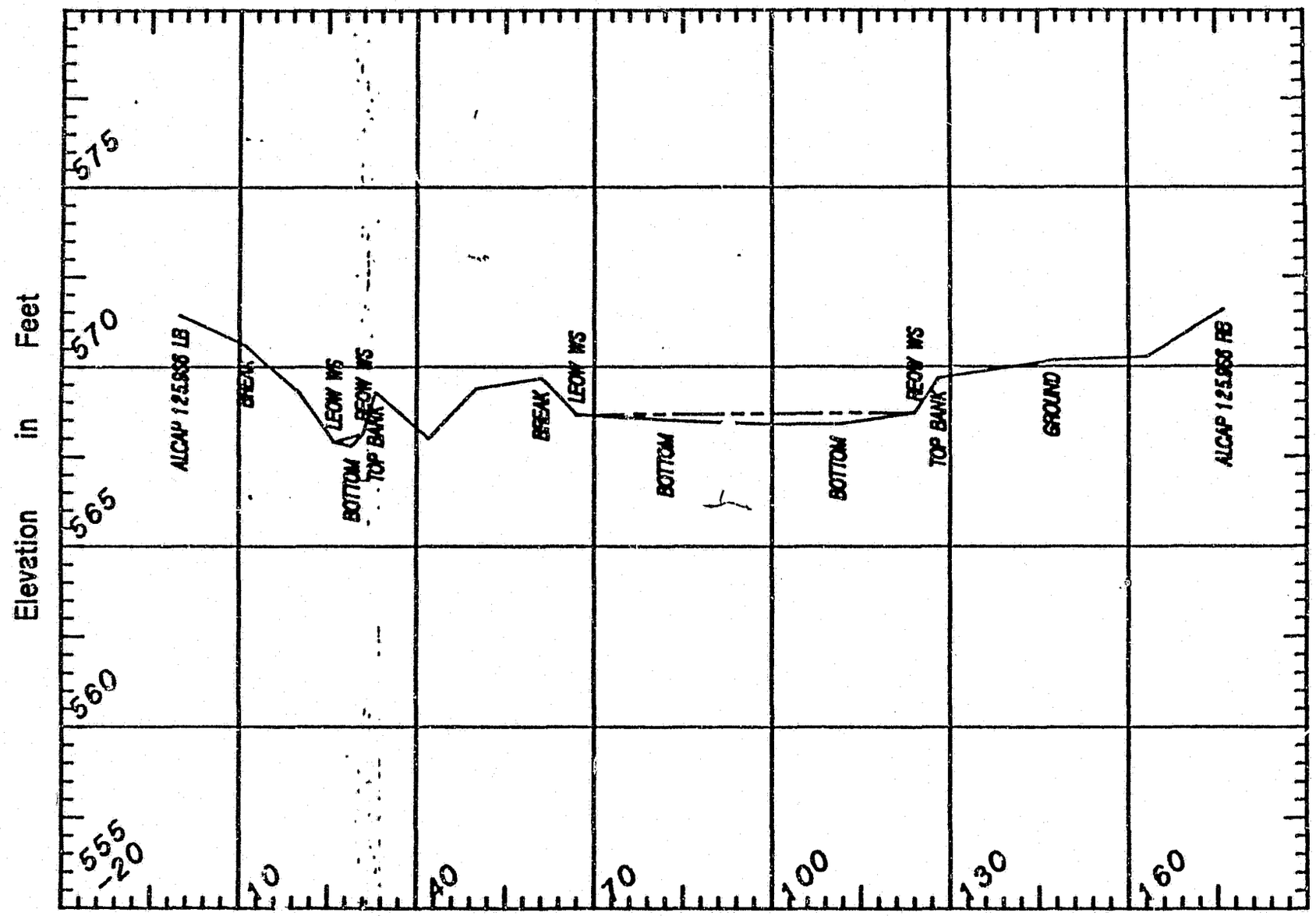
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 125.9S6

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	571.400	ALCAP 125.9S6 LB
2	11.000	570.580	BREAK
3	20.000	569.280	
4	26.000	567.900	
5	29.000	567.780	BOTTOM
6	31.000	568.140	
7	33.000	569.280	TOP BANK
8	42.000	567.980	
9	50.000	569.380	
10	61.000	569.680	BREAK
11	67.000	568.640	
12	82.000	568.480	BOTTOM
13	98.000	568.380	
14	111.000	568.380	BOTTOM
15	124.000	568.700	
16	128.000	569.680	TOP BANK
17	147.000	570.180	GROUND
18	163.000	570.280	
19	176.000	571.560	ALCAP 125.9S6 RB
Water surface data:			
1	26.000	567.900	LEOW WS
2	31.000	568.140	REOW WS
			SPLIT
4	67.000	568.640	LEOW WS
5	124.000	568.700	REOW WS
MIN	0.000	567.780	
MAX	176.000	571.560	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SLOUGH @ 125.956
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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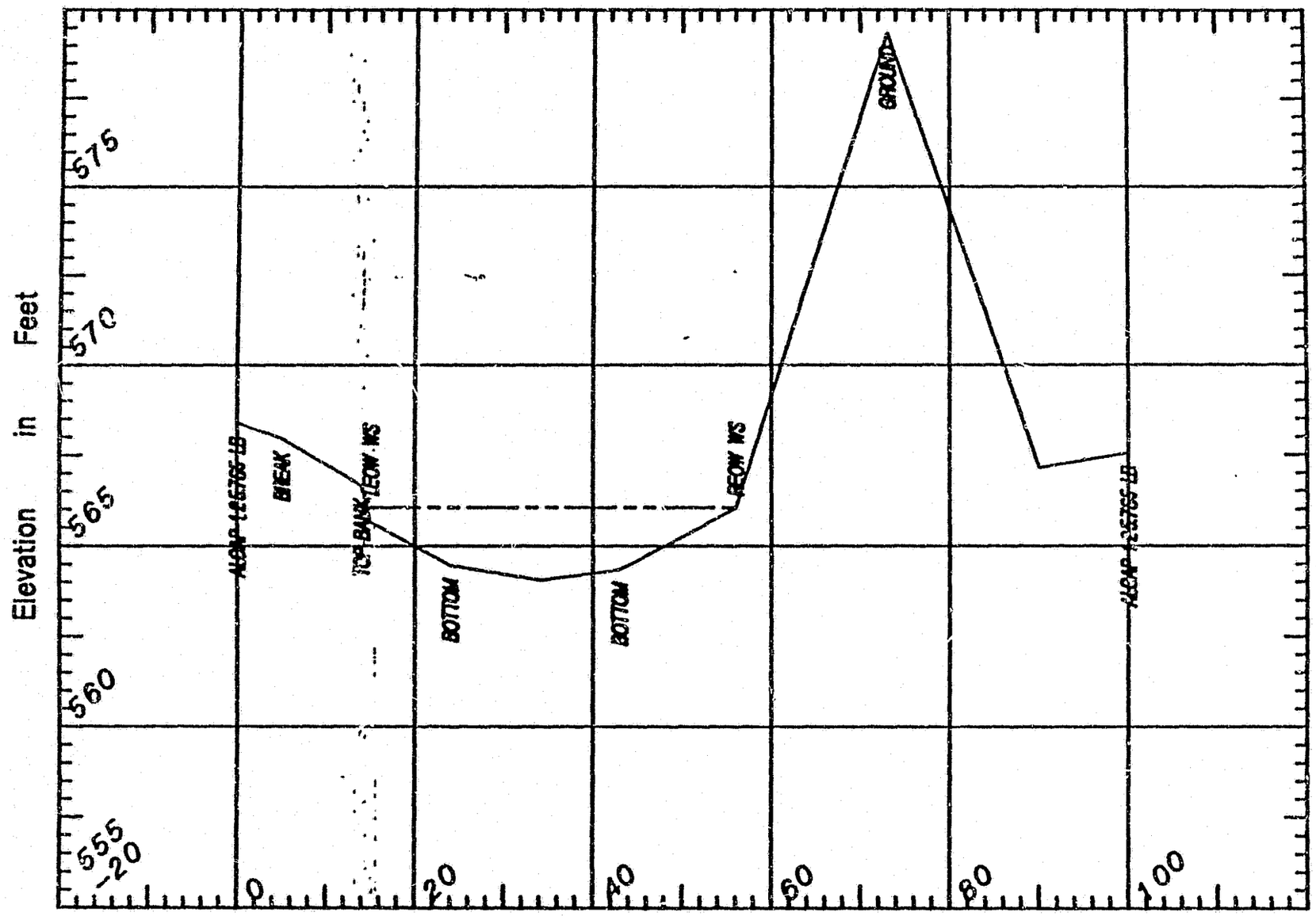
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 125.7S5

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	568.370	ALCAP 125.7S5 LB
2	5.000	567.950	BREAK
3	14.000	566.650	TOP BANK
4	15.000	565.640	
5	24.000	564.450	BOTTOM
6	34.000	564.050	
7	43.000	564.350	BOTTOM
8	56.000	566.040	
9	73.000	579.350	GROUND
10	90.000	567.150	
11	100.000	567.560	ALCAP 125.7S5 LB
Water surface data:			
1	15.000	566.040	LEOW WS
2	56.000	566.040	REOW WS
MIN	0.000	564.050	
MAX	100.000	579.350	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SLOUGH 8 125.7S5
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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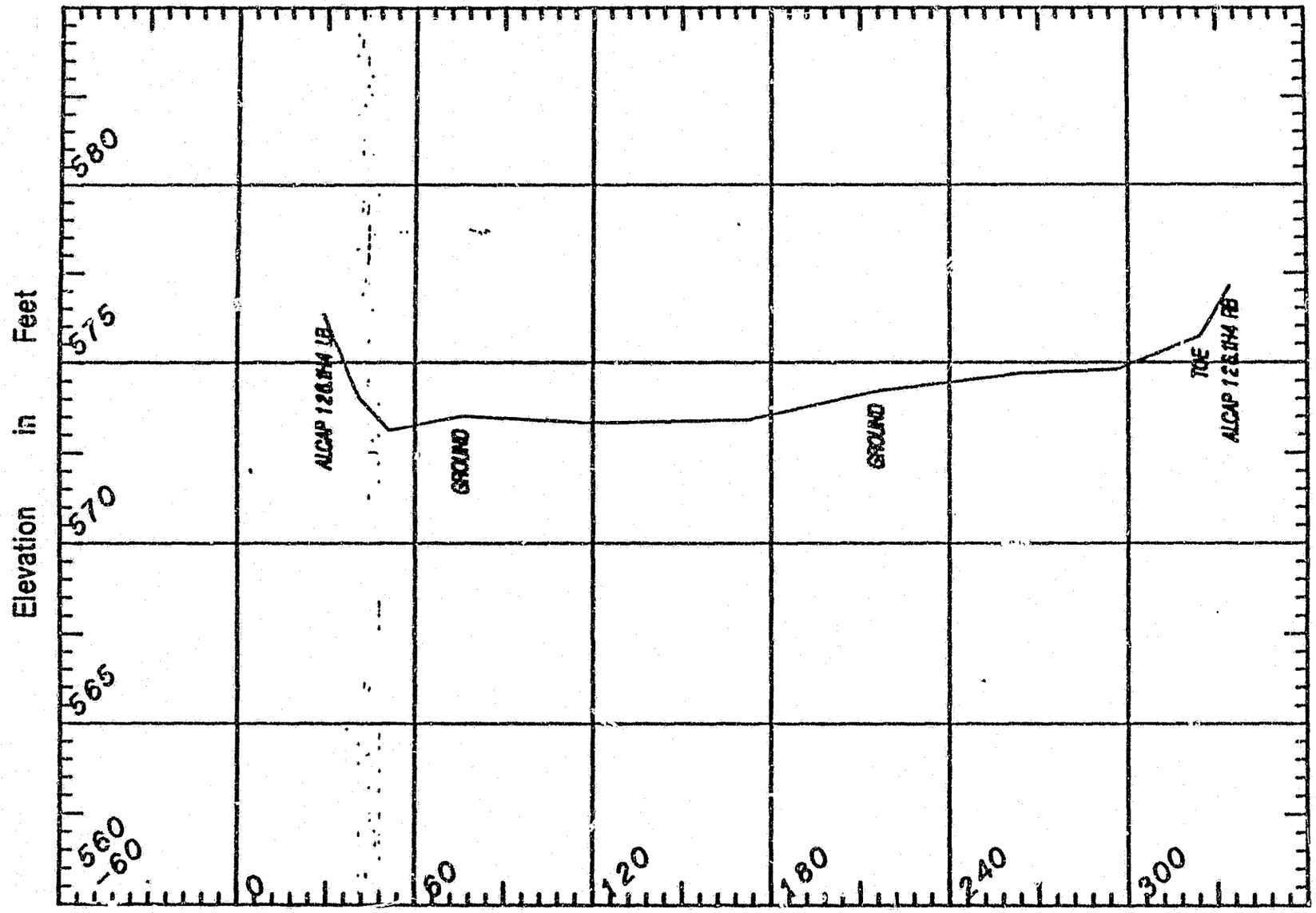
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 126.1H4

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	29.000	576.320	ALCAP 126.1H4 LB
2	41.000	574.020	
3	51.000	573.120	
4	75.000	573.520	GROUND
5	119.000	573.320	
6	172.000	573.420	
7	215.000	574.220	GROUND
8	264.000	574.720	
9	296.000	574.820	
10	324.000	575.720	TOE
11	334.000	577.120	ALCAP 126.1H4 RB
MIN	29.000	573.120	
MAX	334.000	577.120	

SUSITNA HYDROGRAPHIC SURVEYS



B-90

PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 8 126.1H4
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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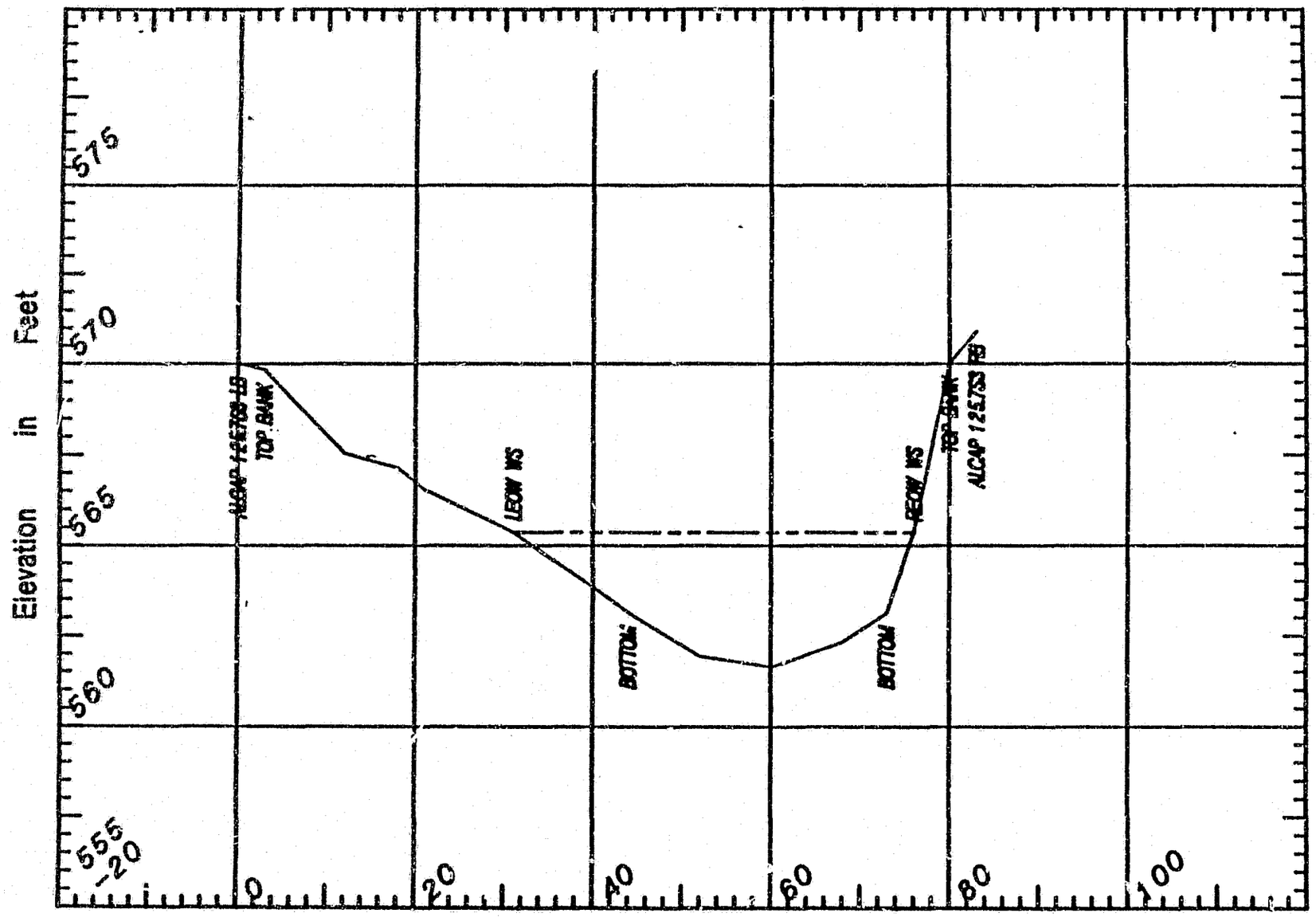
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 125.7S3

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	570.000	ALCAP 125.7S3 LB
2	3.000	569.830	TOP BANK
3	12.000	567.530	
4	18.000	567.130	
5	21.000	566.530	
6	31.000	565.360	
7	44.000	563.130	BOTTOM
8	52.000	561.930	
9	60.000	561.630	
10	68.000	562.330	
11	73.000	563.130	BOTTOM
12	76.000	565.350	
13	80.000	570.030	TOP BANK
14	83.000	570.900	ALCAP 125.7S3 RB
Water surface data:			
1	31.000	565.360	LEOW WS
2	76.000	565.350	REOW WS
MIN	0.000	561.630	
MAX	83.000	570.900	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section SLOUGH 8 125.7S3
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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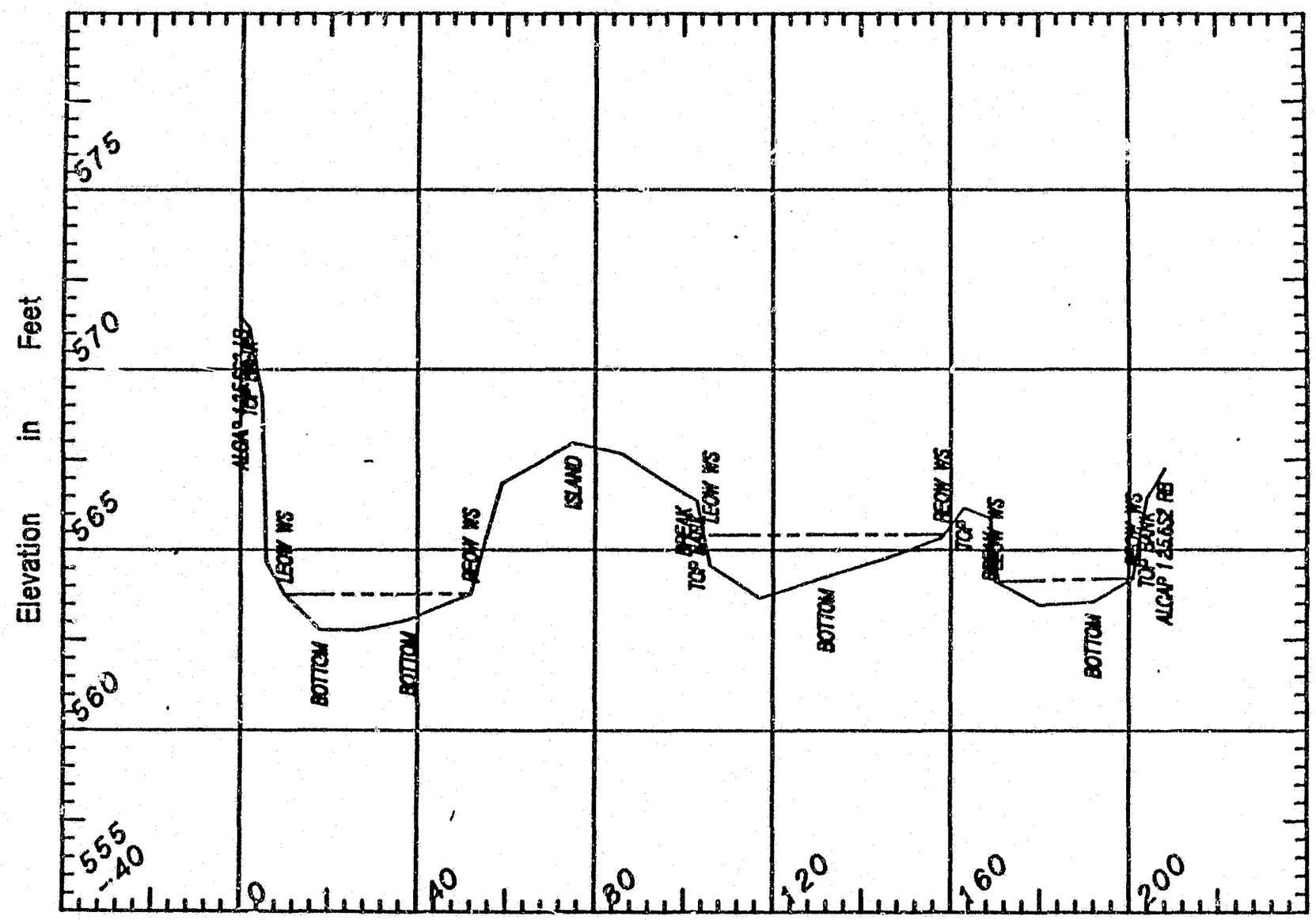
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 125.6S2

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	571.470	ALCAP 125.6S2 LB
2	2.000	571.160	TOP BANK
3	5.000	569.260	
4	6.000	564.660	
5	10.000	563.750	
6	18.000	562.760	BOTTOM
7	27.000	562.760	
8	38.000	563.060	BOTTOM
9	52.000	563.780	
10	59.000	566.860	
11	75.000	567.960	ISLAND
12	86.000	567.660	
13	100.000	566.560	BREAK
14	103.000	566.360	TOP BANK
15	106.000	564.560	
16	117.000	563.660	
17	132.000	564.260	BOTTOM
18	145.000	564.760	
19	158.000	565.330	
20	163.000	566.160	TOP
21	169.000	565.860	BREAK
22	170.000	564.130	
23	180.000	563.460	
24	192.000	563.560	BOTTOM
25	201.000	564.220	
26	204.000	566.440	TOP BANK
27	208.000	567.250	ALCAP 125.6S2 RB
Water surface data:			
1	10.000	563.750	LEOW WS
2	52.000	563.780	REOW WS
			SPLIT
4	106.000	565.410	LEOW WS
5	158.000	565.430	REOW WS
			SPLIT
7	170.000	564.130	LEOW WS
8	201.000	564.220	REOW WS
MIN	0.000	562.760	
MAX	208.000	571.470	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 8 125.6S2
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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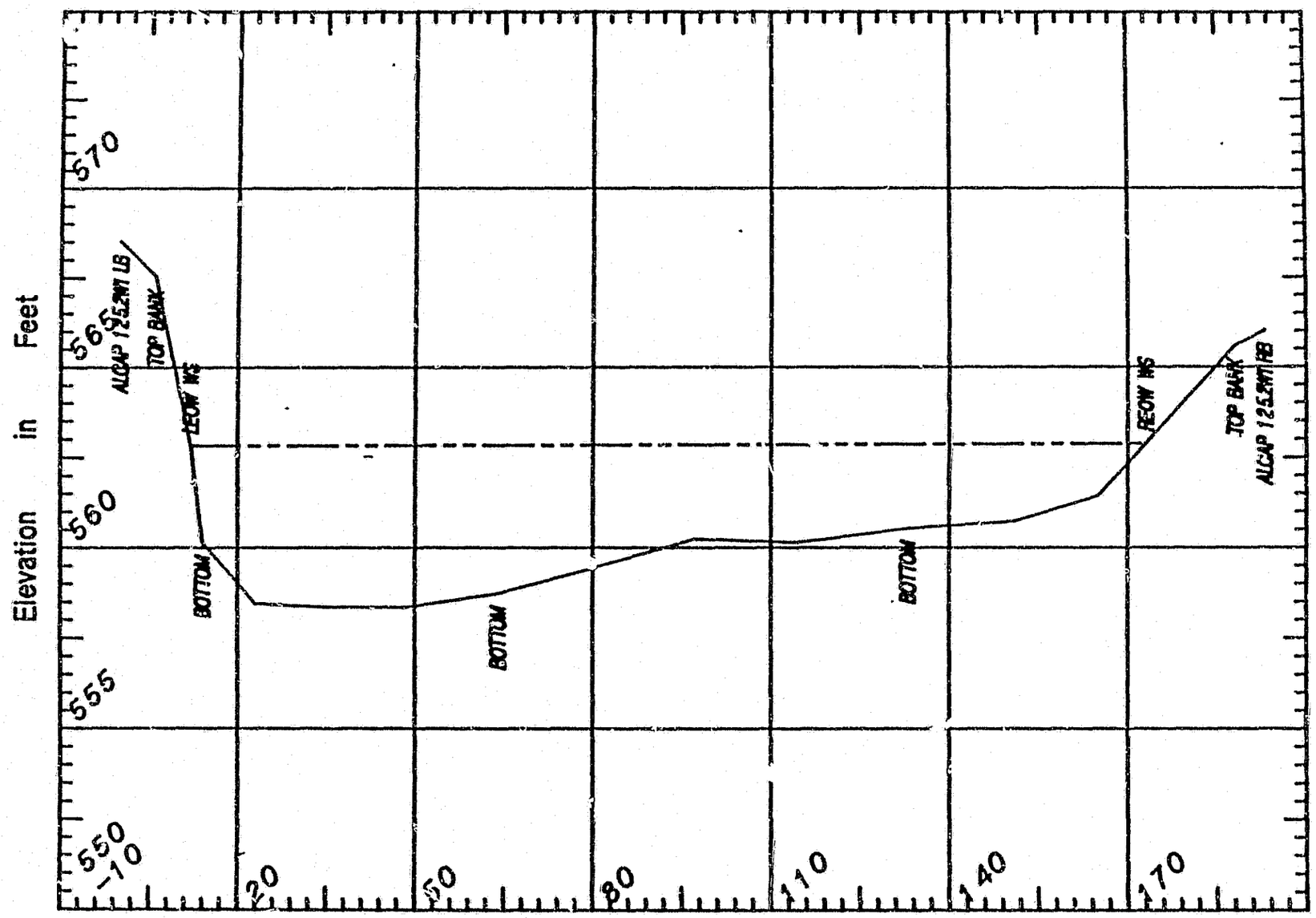
SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 8 125.2W1

Date of Survey: AUGUST 4, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	568.510	ALCAP 125.2W1 LB
2	6.000	567.540	TOP BANK
3	12.000	562.810	
4	14.000	560.140	BOTTOM
5	23.000	558.440	
6	35.000	558.340	
7	48.000	558.340	
8	64.000	558.740	BOTTOM
9	80.000	559.440	
10	97.000	560.240	
11	114.000	560.140	
12	133.000	560.540	BOTTOM
13	151.000	560.740	
14	165.000	561.440	
15	173.000	562.880	
16	188.000	565.590	TOP BANK
17	193.000	566.010	ALCAP 125.2W1 RB
Water surface data:			
1	12.000	562.810	LEOW WS
2	173.000	562.880	REOW WS
MIN	0.000	558.340	
MAX	193.000	568.510	

SUSITNA HYDROGRAPHIC SURVEYS



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cross section SLOUGH 8 125.2W1
Date of Survey: AUGUST 4, 1982

PREPARED FOR:

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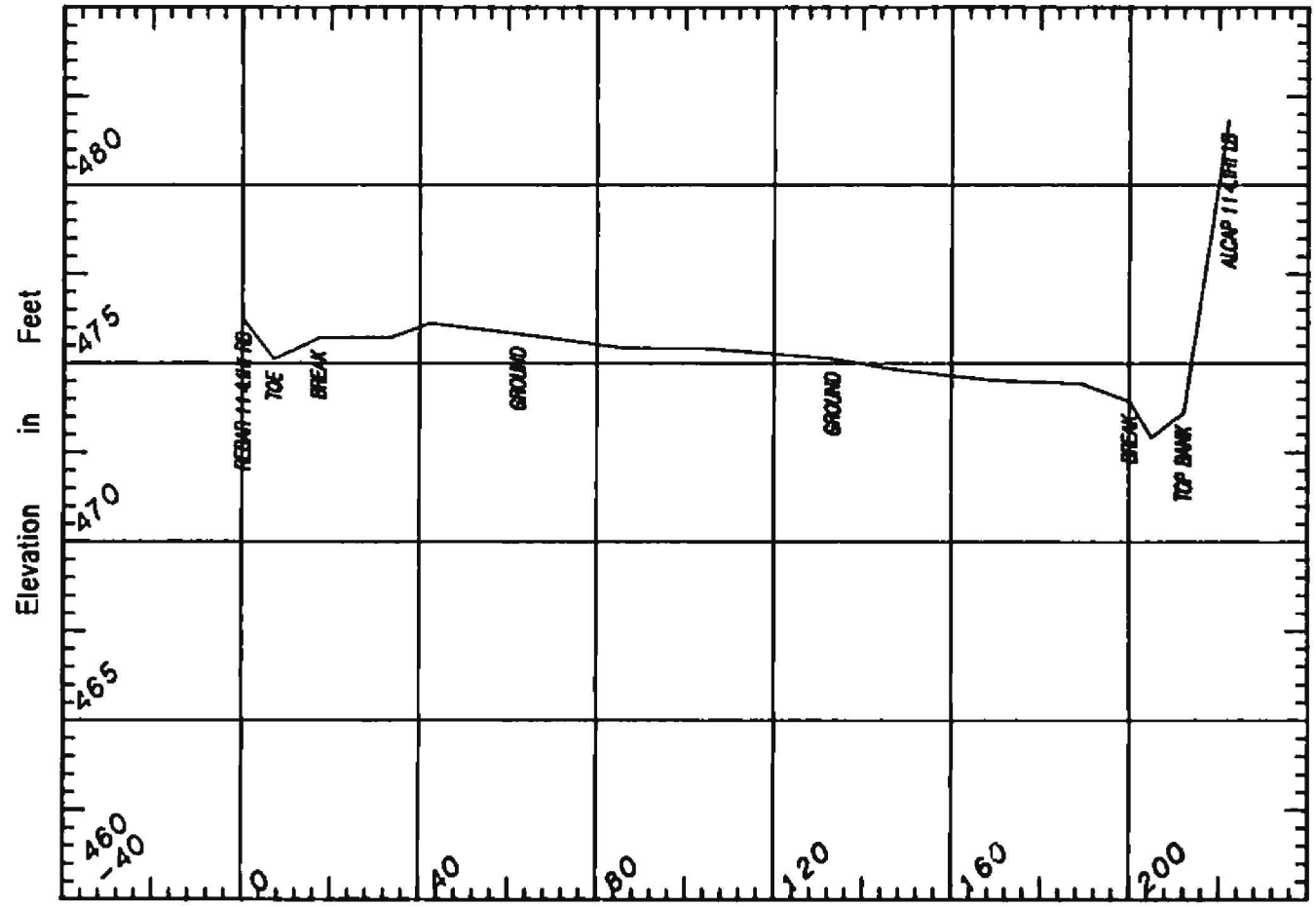
SUSITNA HYDROGRAPHIC SURVEYS
cross section LANE CR SLOUGH 114.1H1

Date of Survey: AUGUST 16, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	481.810	ALCAP 114.1H1 LB
2	10.000	473.620	TOP BANK
3	14.000	473.220	
4	17.000	472.920	
5	22.000	473.920	BREAK
6	33.000	474.420	
7	53.000	474.520	
8	75.000	474.820	
9	89.000	475.120	GROUND
10	118.000	475.420	
11	136.000	475.420	
12	160.000	475.820	GROUND
13	180.000	476.120	
14	189.000	475.720	
15	205.000	475.720	BREAK
16	215.000	475.120	TOE
17	222.000	476.230	REBAR 114.1H1 RB
MIN	0.000	472.920	
MAX	222.000	481.810	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section LANE CR SLOUGH 1 1 4.1H1
Date of Survey: AUGUST 1 6, 1 9 8 2

PREPARED FOR:

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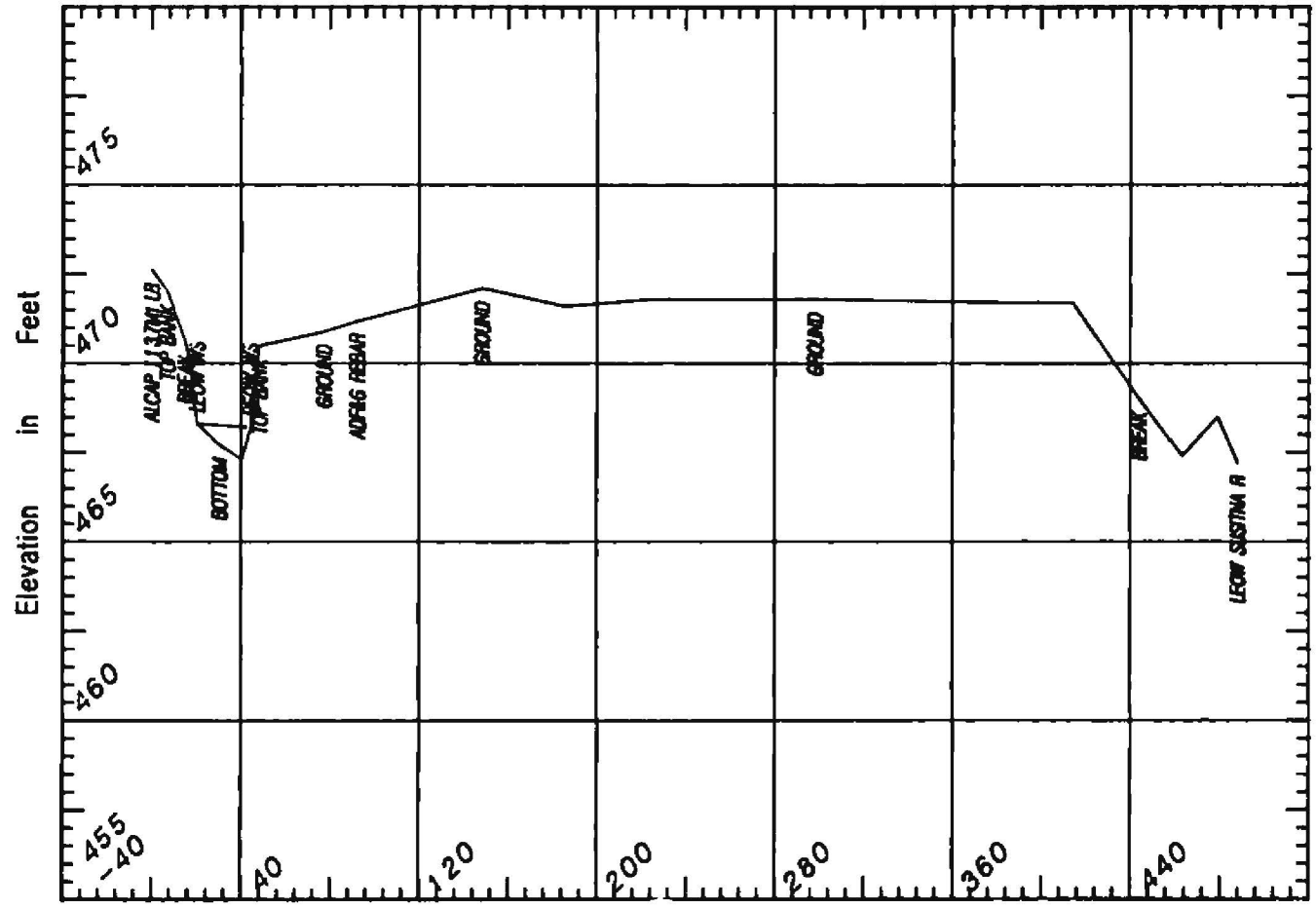
SUSITNA HYDROGRAPHIC SURVEYS
cross section LANE CR SLOUGH 113.7M1

Date of Survey: AUGUST 24, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	472.600	ALCAP 113.7M1 LB
2	7.000	472.000	TOP BANK
3	15.000	470.600	BREAK
4	20.000	468.300	
5	30.000	467.700	BOTTOM
6	40.000	467.300	
7	44.000	468.200	
8	48.000	470.500	TOP BANK
9	77.000	470.900	GROUND
10	92.000	471.190	ADF&G REBAR
11	148.000	472.100	GROUND
12	185.000	471.600	
13	223.000	471.800	
14	298.000	471.800	GROUND
15	384.000	471.700	
16	414.000	471.700	
17	444.000	469.000	BREAK
18	463.000	467.400	
19	479.000	468.500	
20	488.000	467.200	LEOW SUSITNA R
Water surface data:			
1	20.000	468.300	LEOW WS
2	44.000	468.200	REOW WS
MIN	0.000	467.200	
MAX	488.000	472.600	

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

cross section LANE CR SLOUGH 113.7M1
Date of Survey: AUGUST 24, 1982

PREPARED FOR:

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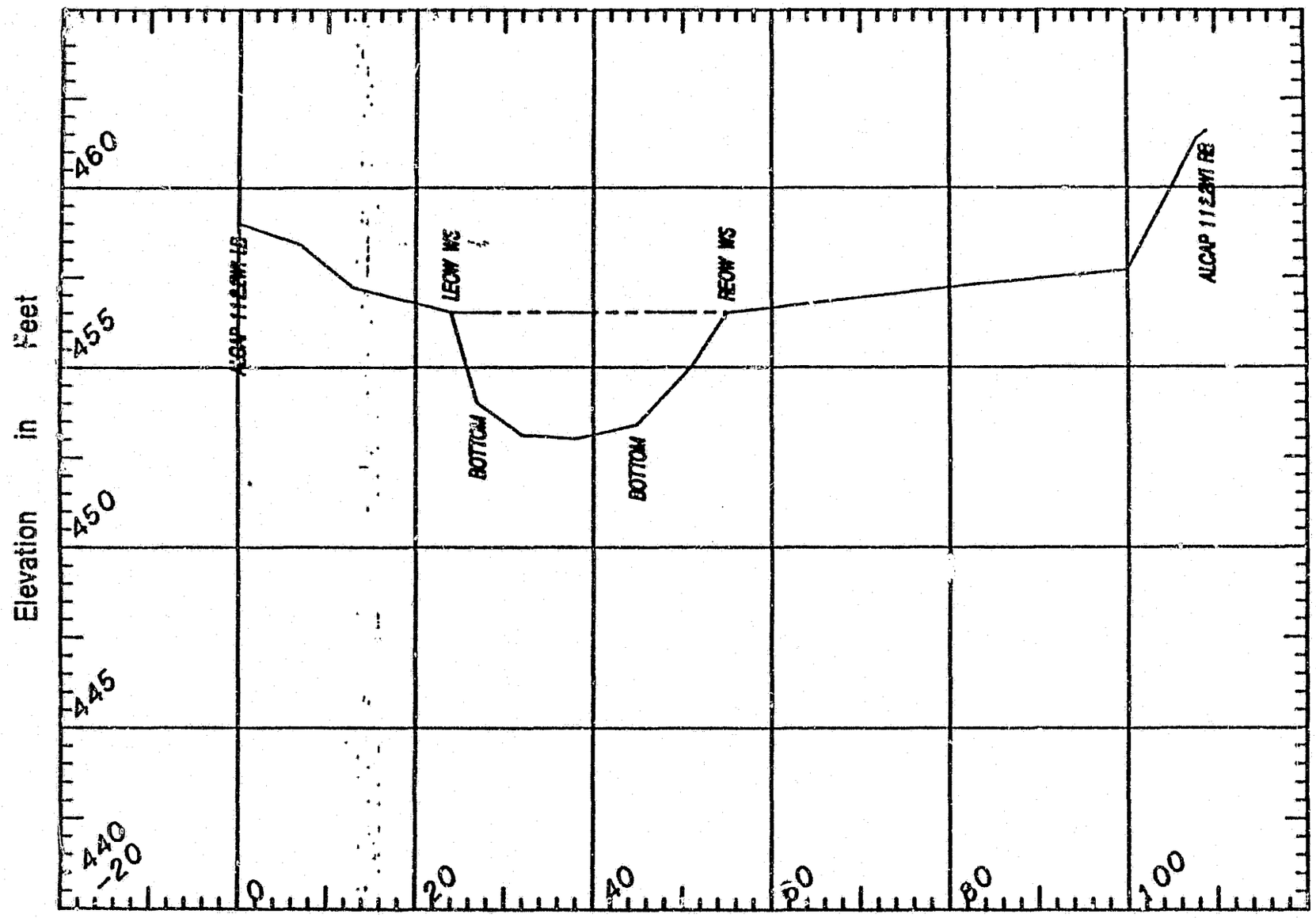
R-100

SUSITNA HYDROGRAPHIC SURVEYS
cross section SLOUGH 6A 112.2W1

Date of Survey: SEPTEMBER 2, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	458.990	ALCAP 112.2W1 LB
2	7.000	458.400	
3	13.000	457.200	
4	24.000	456.500	
5	27.000	454.000	BOTTOM
6	32.000	453.100	
7	38.000	453.000	
8	45.000	453.400	BOTTOM
9	51.000	455.000	
10	55.000	456.500	
11	83.000	457.300	
12	100.000	457.700	
13	108.000	461.400	
14	109.000	461.590	ALCAP 112.2W1 RB
Water surface data:			
1	24.000	456.500	LEOW WS
2	55.000	456.500	REOW WS
MIN	0.000	453.000	
MAX	109.000	461.590	

SUSITNA HYDROGRAPHIC SURVEYS



13-102

PREPARED BY:

R&M CONSULTANTS, INC.

cross section SLOUGH 6A 112.2W1

Date of Survey: SEPTEMBER 2, 1982

PREPARED FOR:

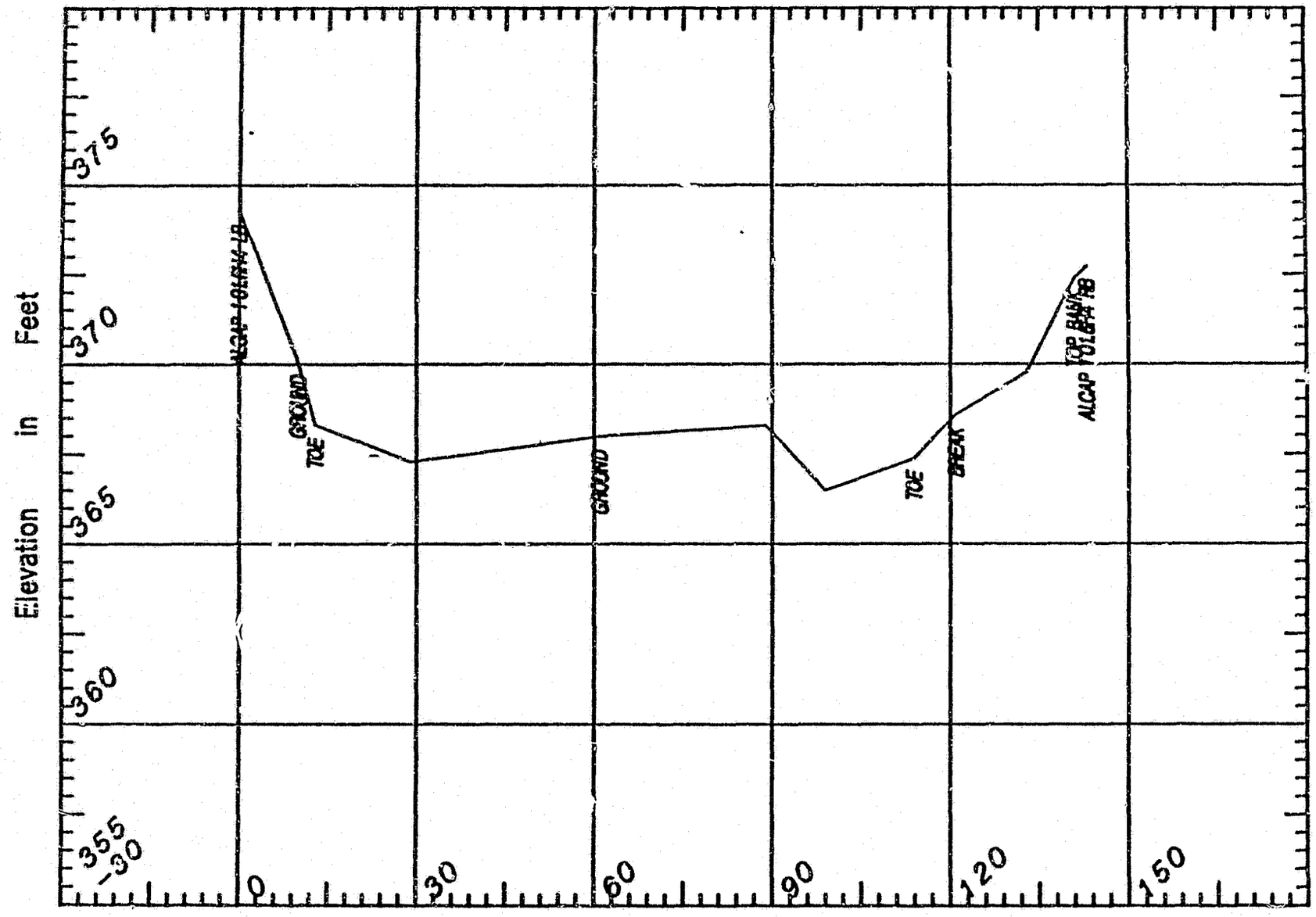
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section WHISKERS 101.6H4

Date of Survey: AUGUST 11, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	374.240	ALCAP 101.6H4 LB
2	2.000	373.490	
3	10.000	370.090	GROUND
4	13.000	368.290	TOE
5	29.000	367.290	
6	61.000	367.990	GROUND
7	70.000	368.090	
8	89.000	368.290	
9	99.000	366.490	
10	114.000	367.390	TOE
11	121.000	368.590	BREAK
12	133.000	369.790	
13	141.000	372.390	TOP BANK
14	143.000	372.720	ALCAP 101.6H4 RB
MIN	0.000	366.490	
MAX	143.000	374.240	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section WHISKERS 101.6H4
Date of Survey: AUGUST 11, 1982

PREPARED FOR:

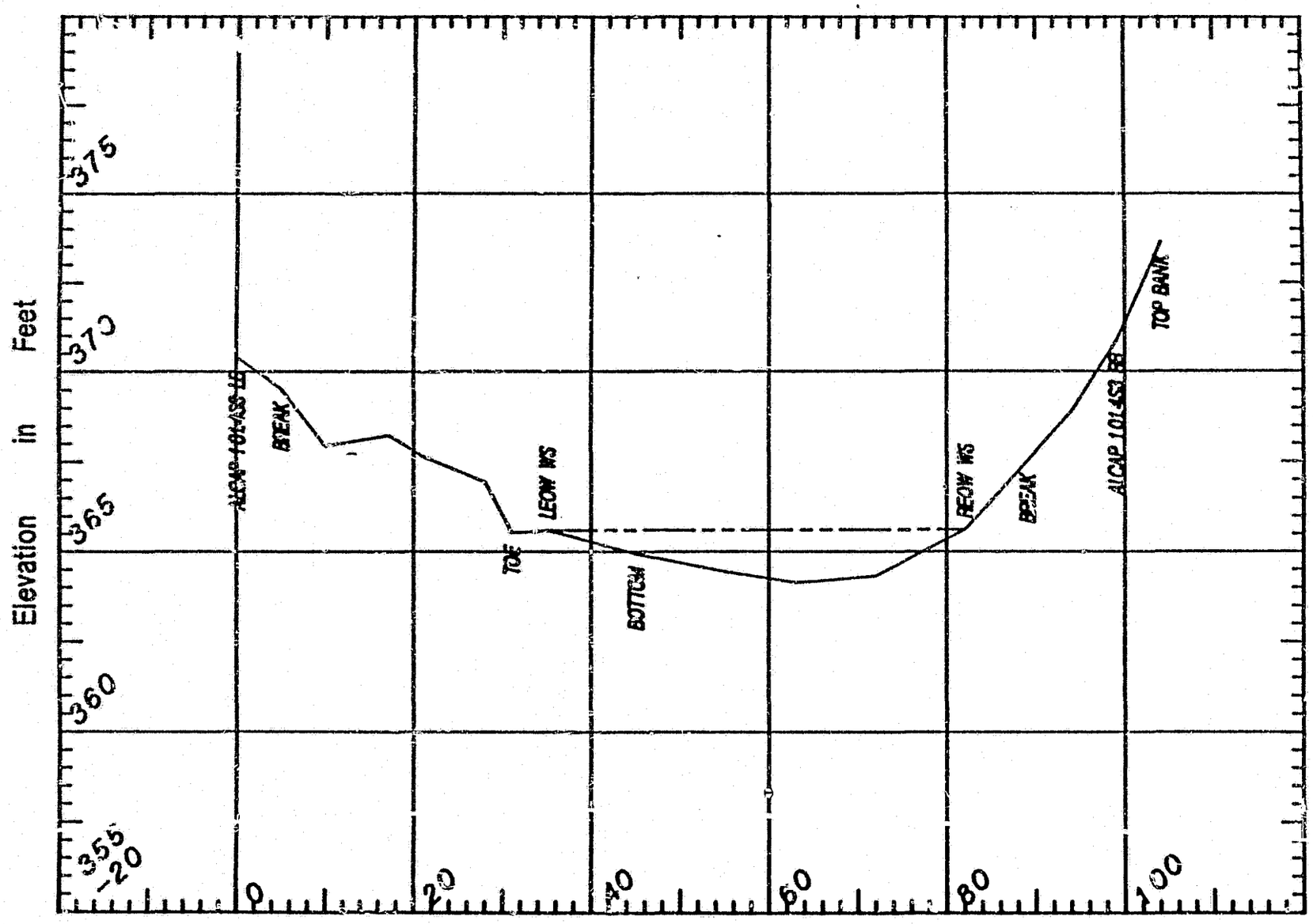
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section WHISKERS 101.4S3

Date of Survey: AUGUST 11, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	370.380	ALCAP 101.4S3 LB
2	5.000	369.520	BREAK
3	10.000	367.920	
4	17.000	368.220	
5	21.000	367.620	
6	28.000	366.920	
7	31.000	365.520	TOE
8	35.000	365.590	
9	45.000	364.920	BOTTOM
10	55.000	364.420	
11	63.000	364.120	
12	72.000	364.320	
13	82.000	365.620	
14	89.000	367.520	BREAK
15	94.000	368.920	
16	99.000	370.850	ALCAP 101.4S3 RB
17	104.000	373.620	TOP BANK
Water surface data:			
1	35.000	365.590	LEOW WS
2	82.000	365.620	REOW WS
MIN	0.000	364.120	
MAX	104.000	373.620	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section WHISKERS 101.4S3

Date of Survey: AUGUST 11, 1982

PREPARED FOR:

ACRES

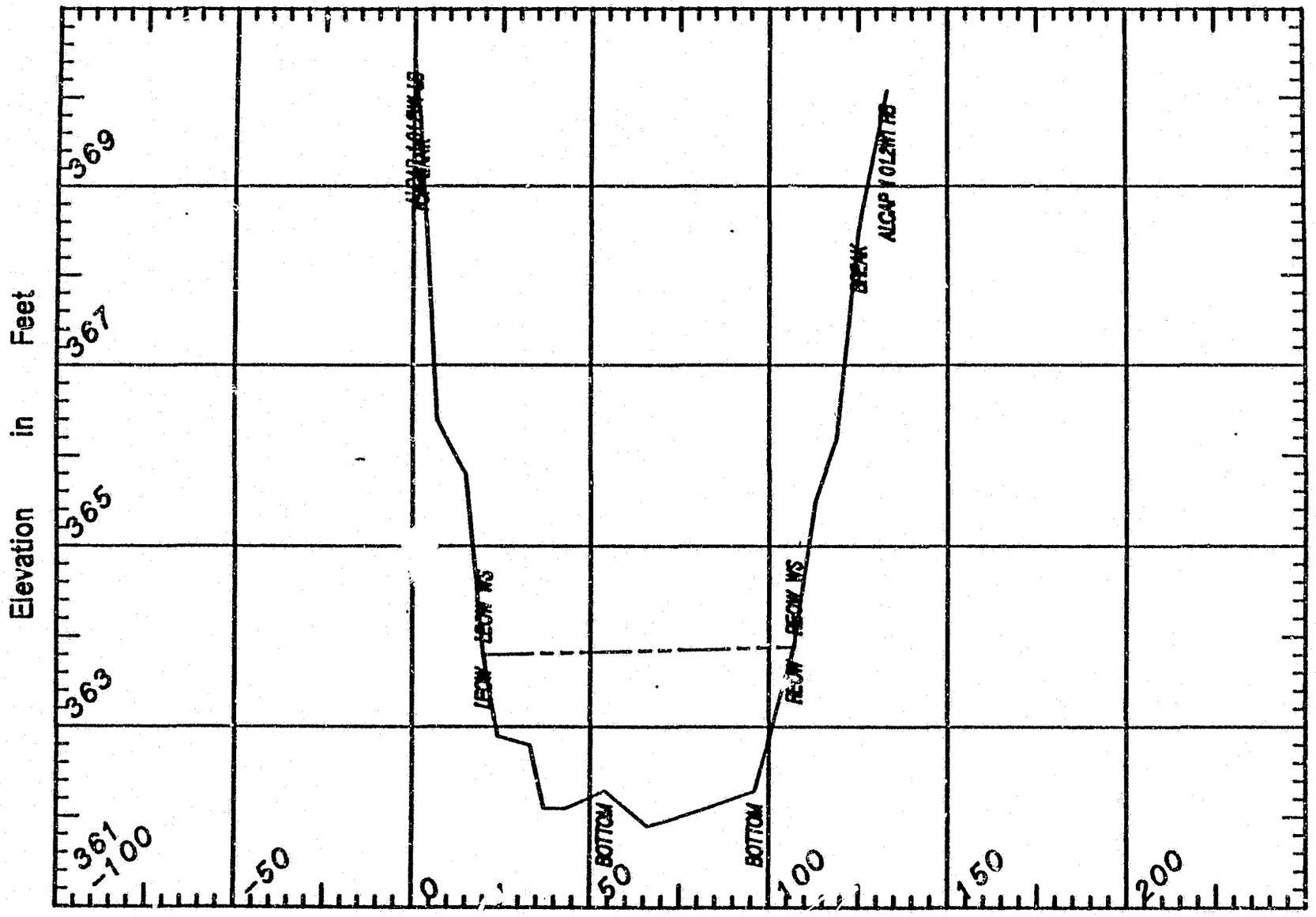
90T-108

SUSITNA HYDROGRAPHIC SURVEYS
cross section WHISKERS 101.2W1

Date of Survey: AUGUST 12, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	370.430	ALCAP 101.2W1 LB
2	2.000	369.690	TOP BANK
3	7.000	366.390	
4	15.000	365.790	
5	20.000	363.800	
6	24.000	362.890	
7	33.000	362.790	
8	37.000	362.090	
9	43.000	362.090	
10	54.000	362.290	BOTTOM
11	66.000	361.890	
12	82.000	362.090	
13	96.000	362.290	BOTTOM
14	107.000	363.890	
15	113.000	365.490	
16	119.000	366.190	
17	125.000	368.490	BREAK
18	133.000	370.070	ALCAP 101.2W1 RB
Water surface data:			
1	20.000	363.800	LEOW WS
2	107.000	363.890	REOW WS
MIN	0.000	361.890	
MAX	133.000	370.430	

SUSITNA HYDROGRAPHIC SURVEYS



E-108

PREPARED BY:

R&M CONSULTANTS, INC.

cross section WHISKERS 1 01.2W1

PREPARED FOR:

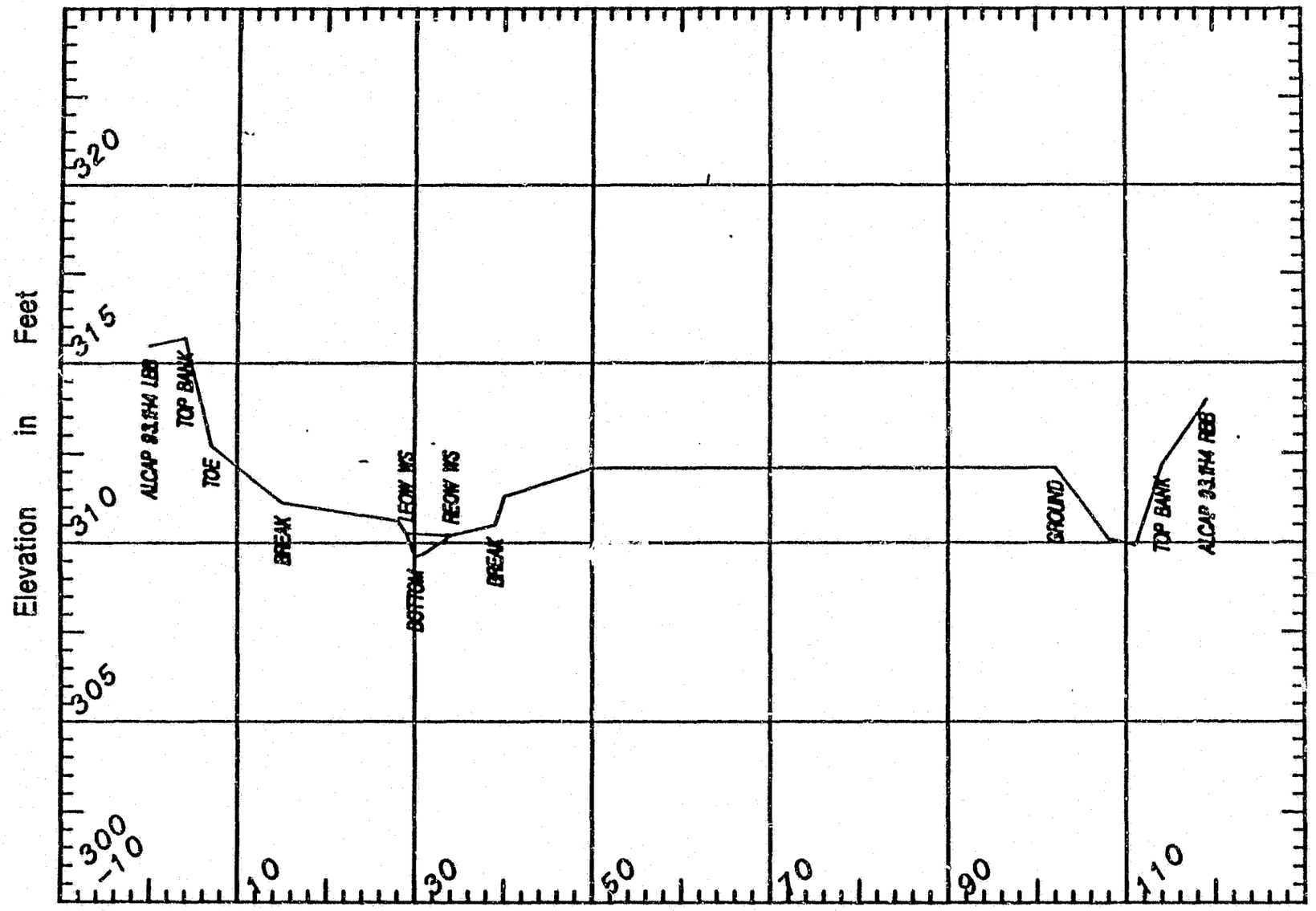
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section BIRCH SLOUGH 93.1H4

Date of Survey: AUGUST 19, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	315.470	ALCAP 93.1H4 LBB
2	4.000	315.700	TOP BANK
3	7.000	312.700	TOE
4	15.000	311.100	BREAK
5	28.000	310.600	
6	29.000	310.250	
7	30.000	309.600	BOTTOM
8	31.000	309.700	
9	34.000	310.200	
10	39.000	310.500	BREAK
11	40.000	311.300	
12	50.000	312.100	
13	74.000	312.100	
14	102.000	312.100	GROUND
15	108.000	310.100	
16	111.000	309.900	
17	114.000	312.200	TOP BANK
18	119.000	313.960	ALCAP 93.1H4 RBB
Water surface data:			
1	29.000	310.250	LEOW WS
2	34.000	310.200	REOW WS
MIN	0.000	309.600	
MAX	119.000	315.700	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section BIRCH SLOUGH 93.1H4

Date of Survey: AUGUST 19, 1982

PREPARED FOR:

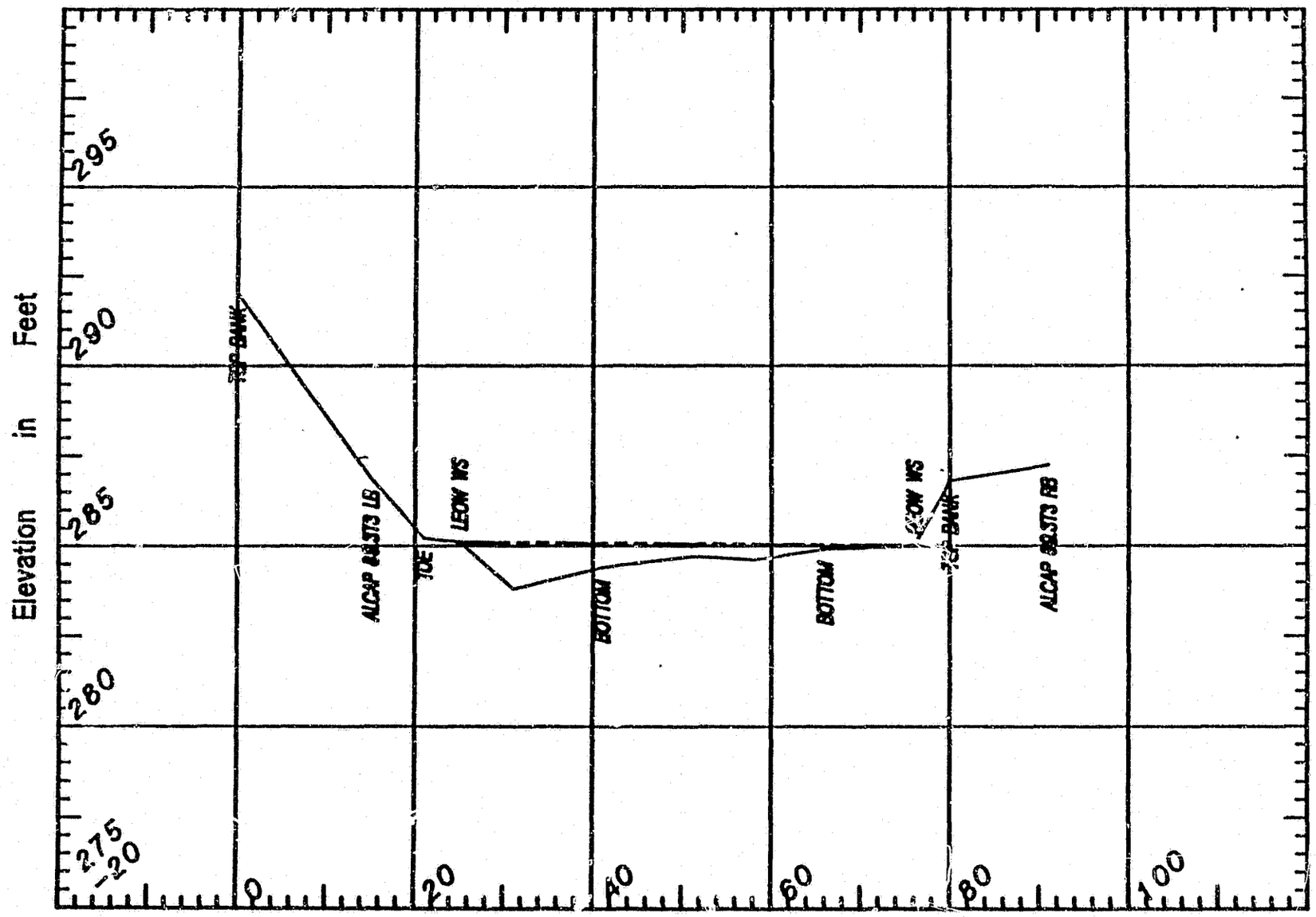
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section BIRCH CREEK 89.3T3

Date of Survey: AUGUST 23, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	292.000	TOP BANK
2	15.000	286.900	ALCAP 89.3T3 LB
3	21.000	285.210	TOE
4	25.000	285.100	
5	31.000	283.810	
6	41.000	284.410	BOTTOM
7	51.000	284.710	
8	58.000	284.610	
9	66.000	284.910	BOTTOM
10	76.000	285.000	
11	80.000	286.810	TOP BANK
12	91.000	287.250	ALCAP 89.3T3 RB
Water surface data:			
1	25.000	285.100	LEOW WS
2	76.000	285.000	REOW WS
MIN	0.000	283.810	
MAX	91.000	292.000	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section BIRCH CREEK 89.3T3
Date of Survey: AUGUST 23, 1982

PREPARED FOR:

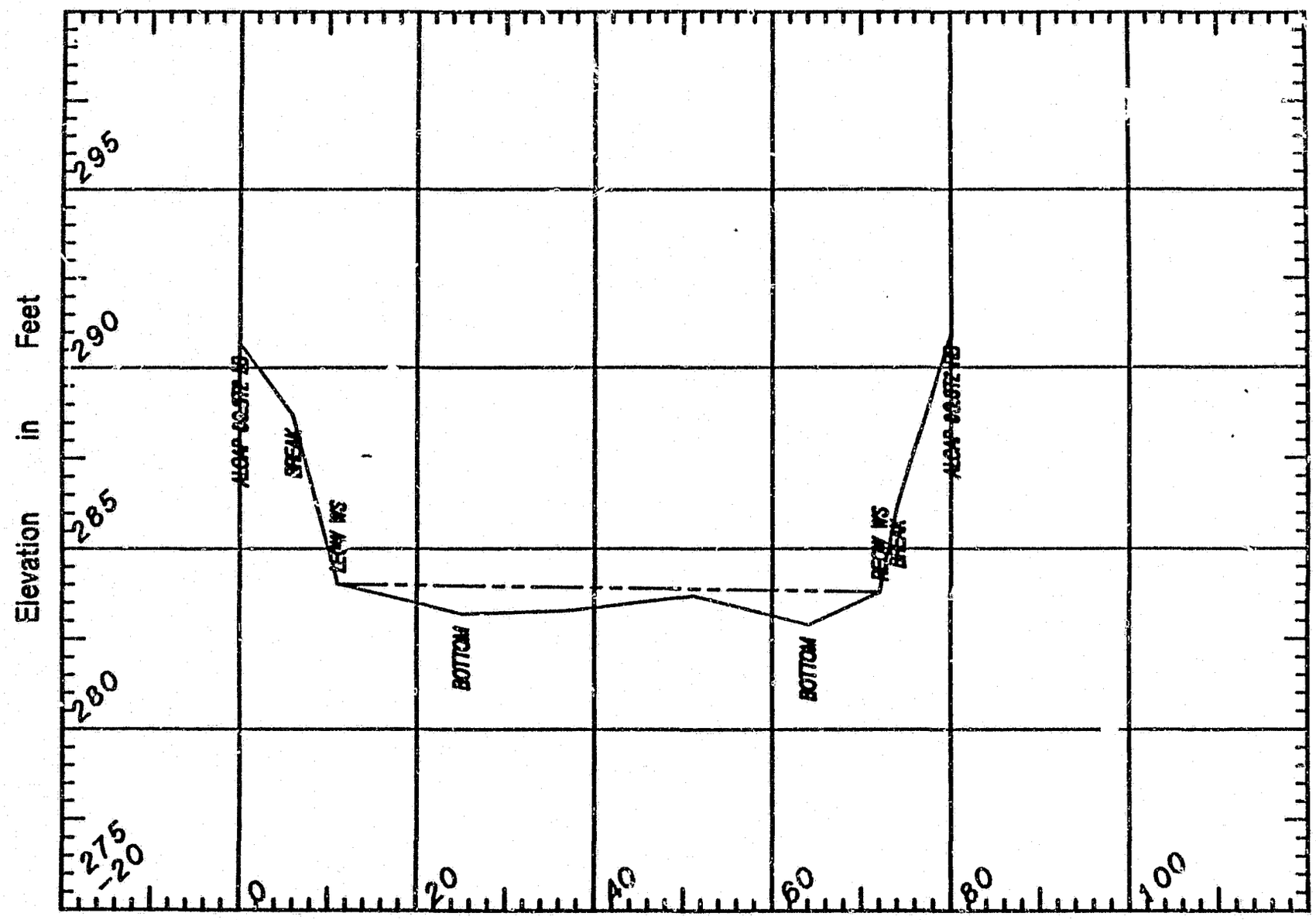
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section BIRCH SLOUGH 89.3T2

Date of Survey: AUGUST 23, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	290.680	ALCAP 89.3T2 LB
2	6.000	288.680	BREAK
3	11.000	284.000	
4	25.000	283.180	BOTTOM
5	37.000	283.280	
6	51.000	283.680	
7	64.000	282.880	BOTTOM
8	72.000	283.780	
9	74.000	286.180	BREAK
10	80.000	290.970	ALCAP 89.3T2 RB
Water surface data:			
1	11.000	284.000	LEOW WS
2	72.000	283.780	REOW WS
MIN	0.000	282.880	
MAX	80.000	290.970	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section BIRCH SLOUGH 89.3T2
Date of Survey: AUGUST 23, 1982

PREPARED FOR:

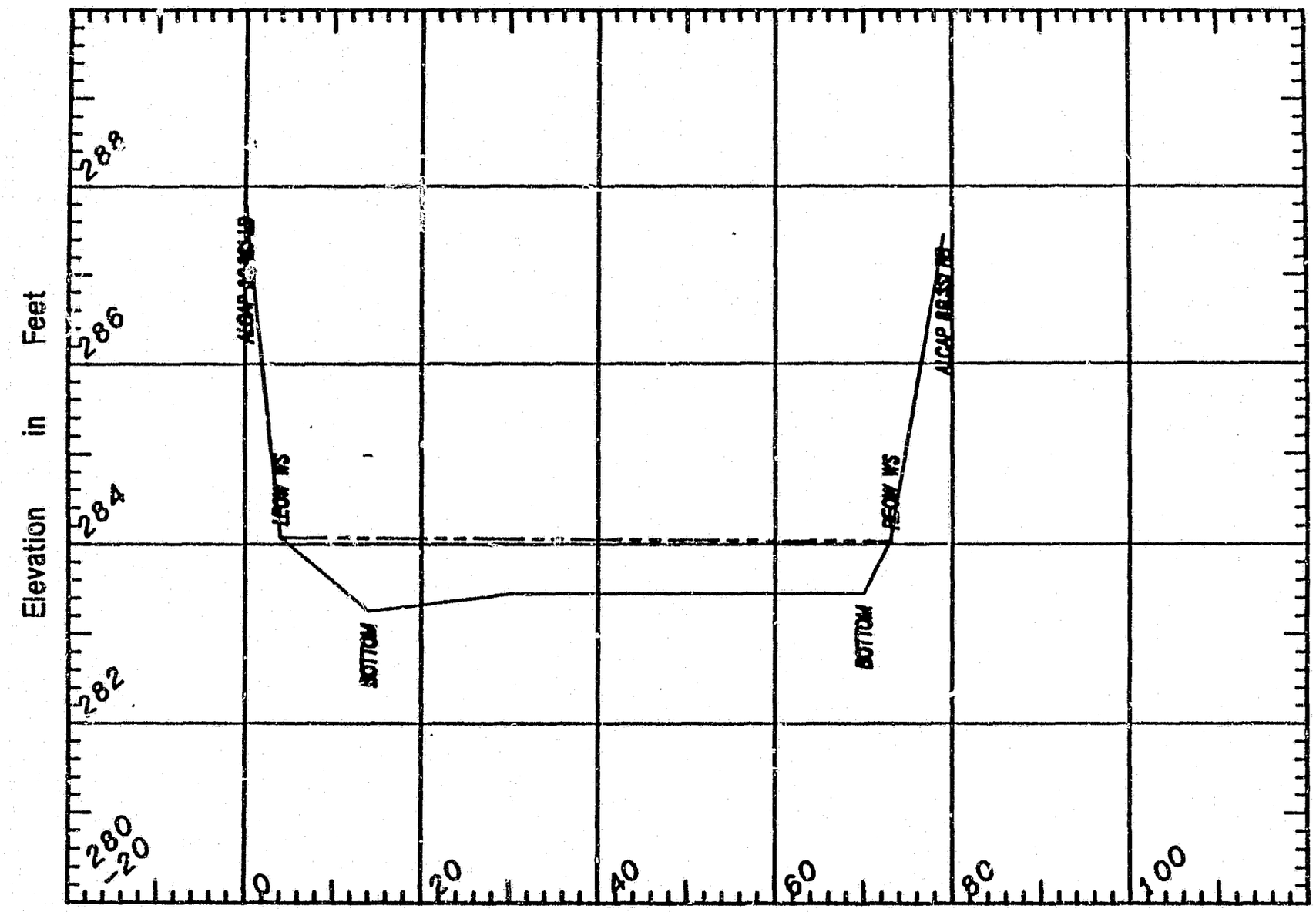
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section BIRCH SLOUGH 89.3S1

Date of Survey: AUGUST 23, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	287.790	ALCAP 89.3S1 LB
2	4.000	284.070	
3	14.000	283.250	BOTTOM
4	30.000	283.450	
5	43.000	283.450	
6	58.000	283.450	
7	70.000	283.450	BOTTOM
8	73.000	284.030	
9	79.000	287.440	ALCAP 89.3S1 RB
Water surface data:			
1	4.000	284.070	LEOW WS
2	73.000	284.030	REOW WS
MIN	0.000	283.250	
MAX	79.000	287.790	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section BIRCH SLOUGH 89.3S1

Date of Survey: AUGUST 23, 1982

PREPARED FOR:

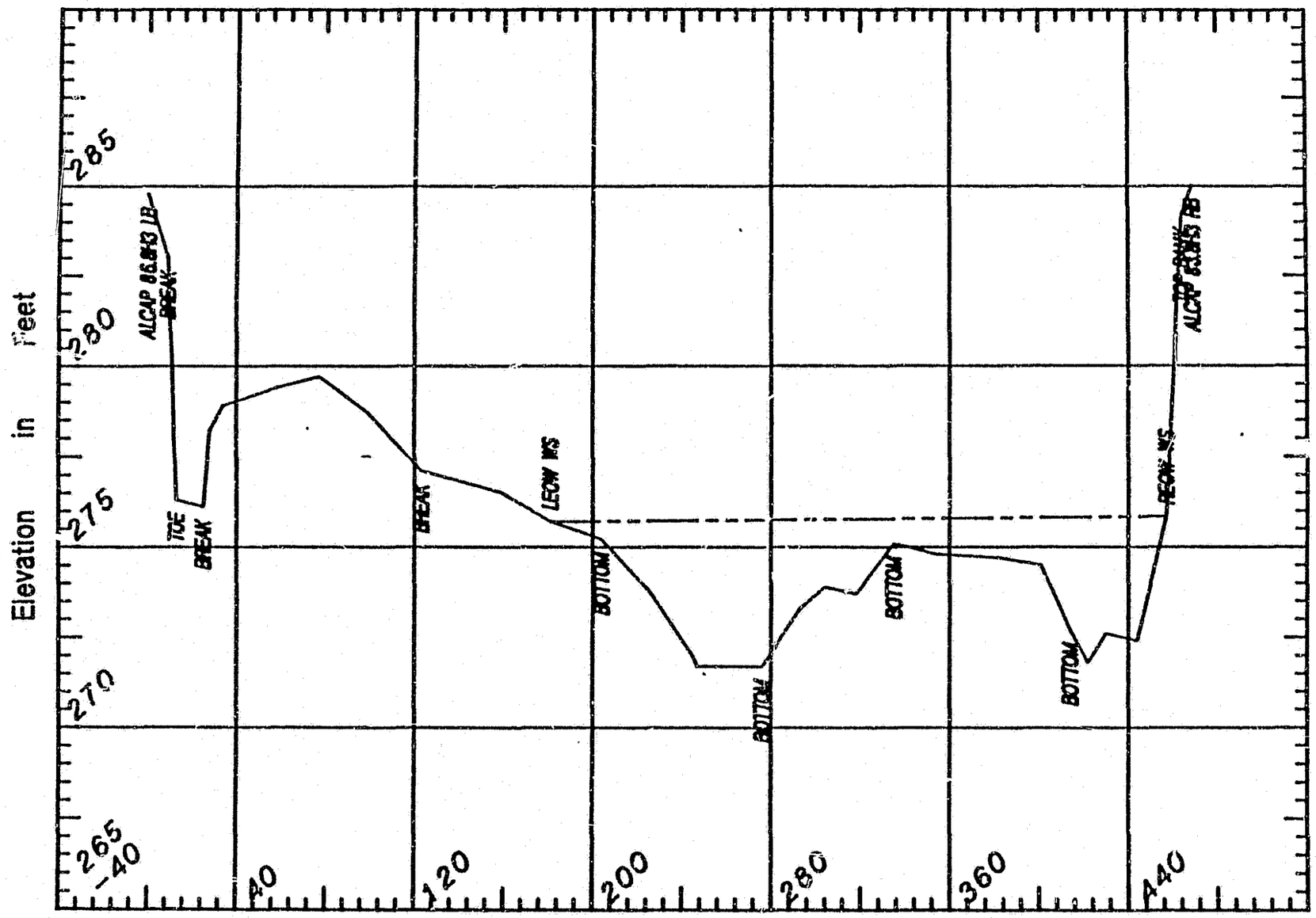
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section SUNSHINE 86.8H3

Date of Survey: AUGUST 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	284.770	ALCAP 86.8H3 LB
2	9.000	283.010	BREAK
3	11.000	280.010	
4	13.000	276.310	TOE
5	25.000	276.110	BREAK
6	28.000	278.210	
7	34.000	278.910	
8	58.000	279.410	
9	77.000	279.710	
10	99.000	278.710	
11	123.000	277.110	BREAK
12	159.000	276.510	
13	181.000	275.700	
14	204.000	275.210	BOTTOM
15	225.000	273.810	
16	245.000	271.970	
17	247.000	271.700	
18	276.000	271.700	BOTTOM
19	293.000	273.300	
20	304.000	273.900	
21	318.000	273.700	
22	335.000	275.100	BOTTOM
23	354.000	274.800	
24	382.000	274.700	
25	401.000	274.500	
26	414.000	272.700	BOTTOM
27	422.000	271.800	
28	430.000	272.600	
29	444.000	272.400	
30	457.000	275.850	
31	464.000	284.210	TOP BANK
32	469.000	285.020	ALCAP 83.8H3 RB
Water surface data:			
1	181.000	275.700	LEOW WS
2	457.000	275.850	REOW WS
MIN	0.000	271.700	
MAX	469.000	285.020	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SUNSHINE 86.8H3
Date of Survey: AUGUST 28, 1982

PREPARED FOR:

ACRES

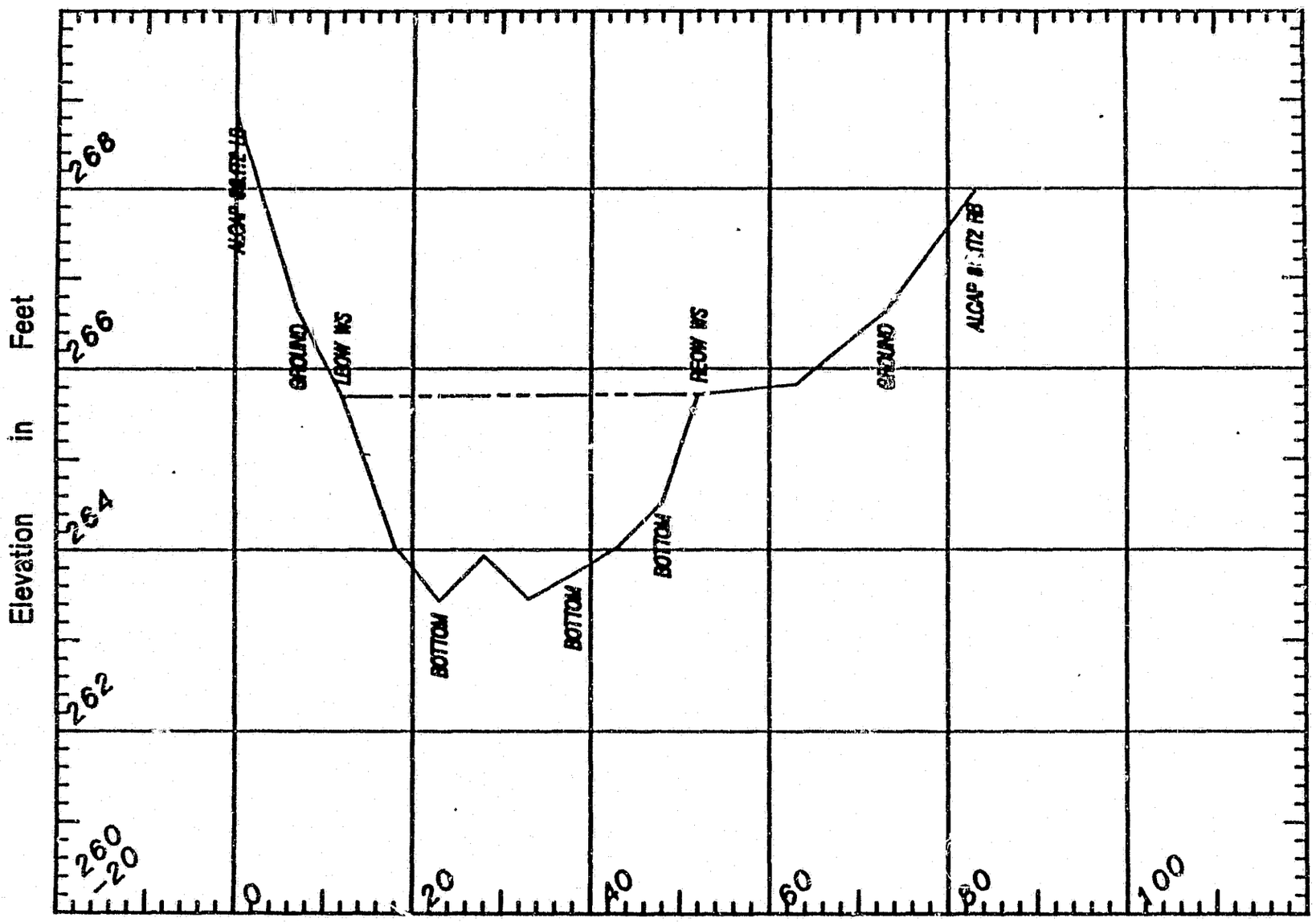
B-118

SUSITNA HYDROGRAPHIC SURVEYS
cross section SUNSHINE 86.1T2

Date of Survey: AUGUST 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	268.820	ALCAP 86.1T2 LB
2	7.000	266.630	GROUND
3	12.000	265.690	
4	18.000	264.030	
5	23.000	263.430	BOTTOM
6	28.000	263.930	
7	33.000	263.450	
8	38.000	263.730	BOTTOM
9	43.000	264.030	
10	48.000	264.530	BOTTOM
11	52.000	265.720	
12	63.000	265.830	
13	73.000	266.630	GROUND
14	83.000	267.970	ALCAP 86.1T2 RB
Water surface data:			
1	12.000	265.690	LEOW WS
2	52.000	265.720	REOW WS
MIN	0.000	263.430	
MAX	83.000	268.820	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SUNSHINE 86.1T2
Date of Survey: AUGUST 28, 1982

PREPARED FOR:

ACRES

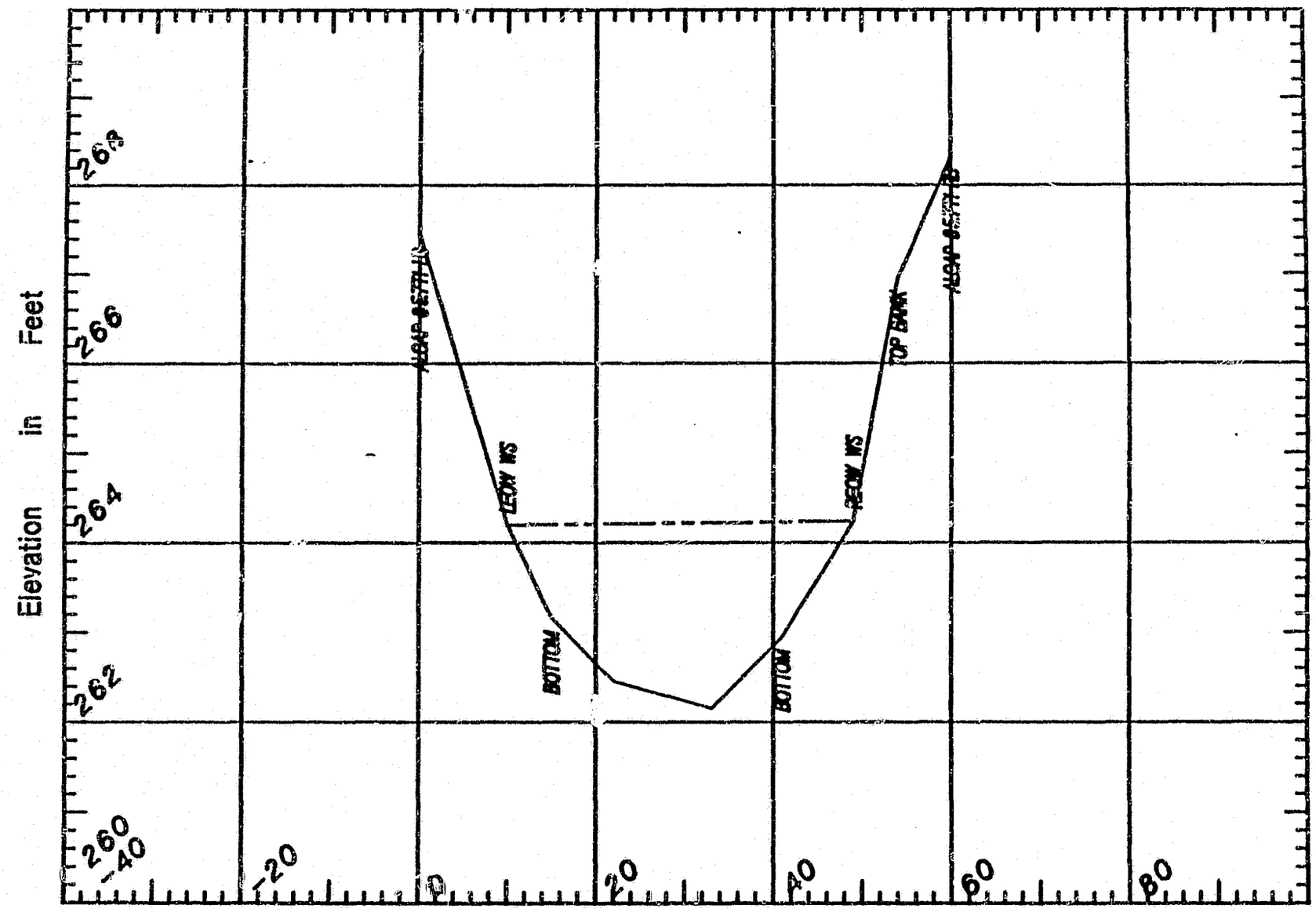
B-120

SUSITNA HYDROGRAPHIC SURVEYS
cross section SUNSHINE 85.7T1

Date of Survey: AUGUST 26, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	267.440	ALCAP 85.7T1 LB
2	10.000	264.190	
3	15.000	263.150	BOTTOM
4	22.000	262.450	
5	33.000	262.150	
6	41.000	262.950	BOTTOM
7	49.000	264.240	
8	54.000	266.950	TOP BANK
9	60.000	268.330	ALCAP 85.7T1 RB
Water surface data:			
1	10.000	264.190	LEOW WS
2	49.000	264.240	REOW WS
MIN	0.000	262.150	
MAX	60.000	268.330	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section SUNSHINE 85.7T1
Date of Survey: AUGUST 26, 1982

PREPARED FOR:

ACRES

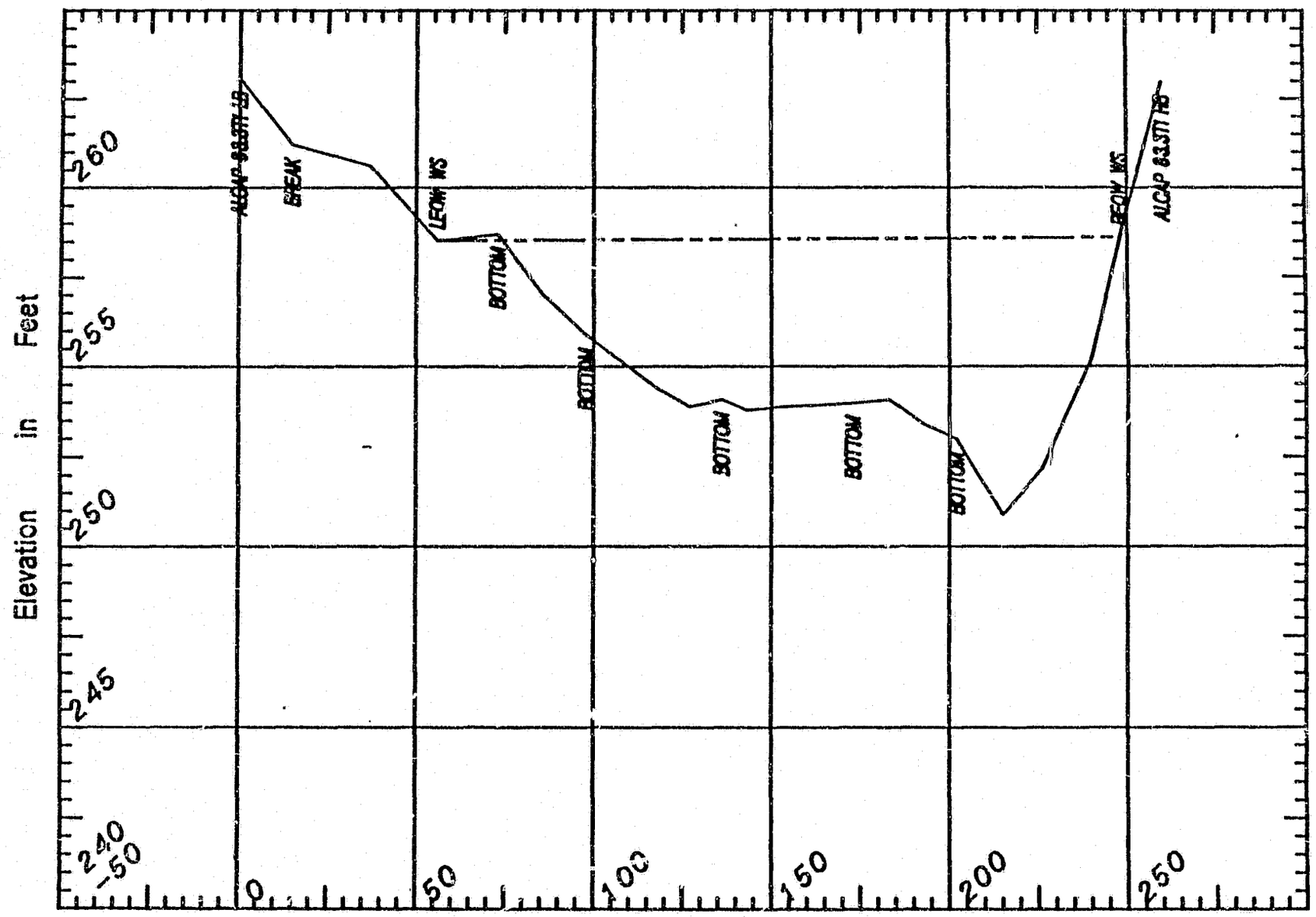
B-122

SUSITNA HYDROGRAPHIC SURVEYS
cross section RABIDEAUX 83.3TI

Date of Survey: AUGUST 26, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	263.080	ALCAP 83.3TI LB
2	15.000	261.200	BREAK
3	37.000	260.600	
4	56.000	258.520	
5	73.000	258.700	BOTTOM
6	86.000	256.970	
7	98.000	255.870	BOTTOM
8	118.000	254.370	
9	127.000	253.870	
10	136.000	254.070	BOTTOM
11	143.000	253.770	
12	153.000	253.870	
13	173.000	253.970	BOTTOM
14	183.000	254.070	
15	193.000	253.370	
16	202.000	252.970	BOTTOM
17	215.000	250.870	
18	226.000	252.170	
19	240.000	255.270	
20	248.000	258.610	
21	260.000	262.970	ALCAP 83.3TI RB
Water surface data:			
1	56.000	258.520	LEOW WS
2	248.000	258.610	REOW WS
MIN	0.000	250.870	
MAX	260.000	263.080	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section RABIDEAUX 83.3T1

Date of Survey: AUGUST 26, 1982

PREPARED FOR:

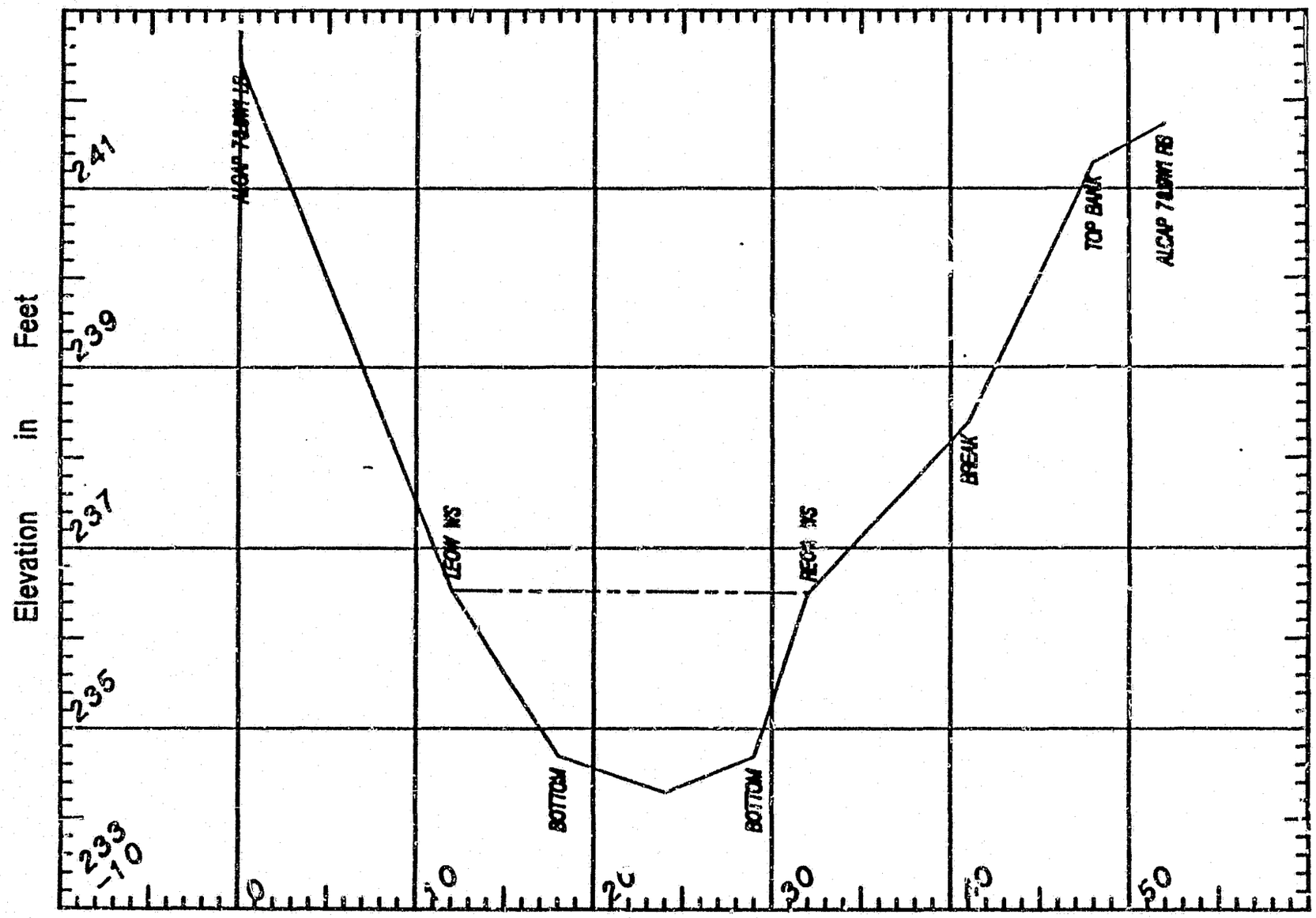
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section WHITEFISH 78.9W1

Date of Survey: AUGUST 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	242.420	ALCAP 78.9W1 LB
2	12.000	236.530	
3	18.000	234.690	BOTTOM
4	24.000	234.290	
5	29.000	234.690	BOTTOM
6	32.000	236.500	
7	41.000	238.390	BREAK
8	48.000	241.290	TOP BANK
9	52.000	241.740	ALCAP 78.9W1 RB
Water surface data:			
1	12.000	236.530	LEOW WS
2	32.000	236.500	REOW WS
MIN	0.000	234.290	
MAX	52.000	242.420	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section WHITEFISH 78.9W1

Date of Survey: AUGUST 27, 1982

PREPARED FOR:

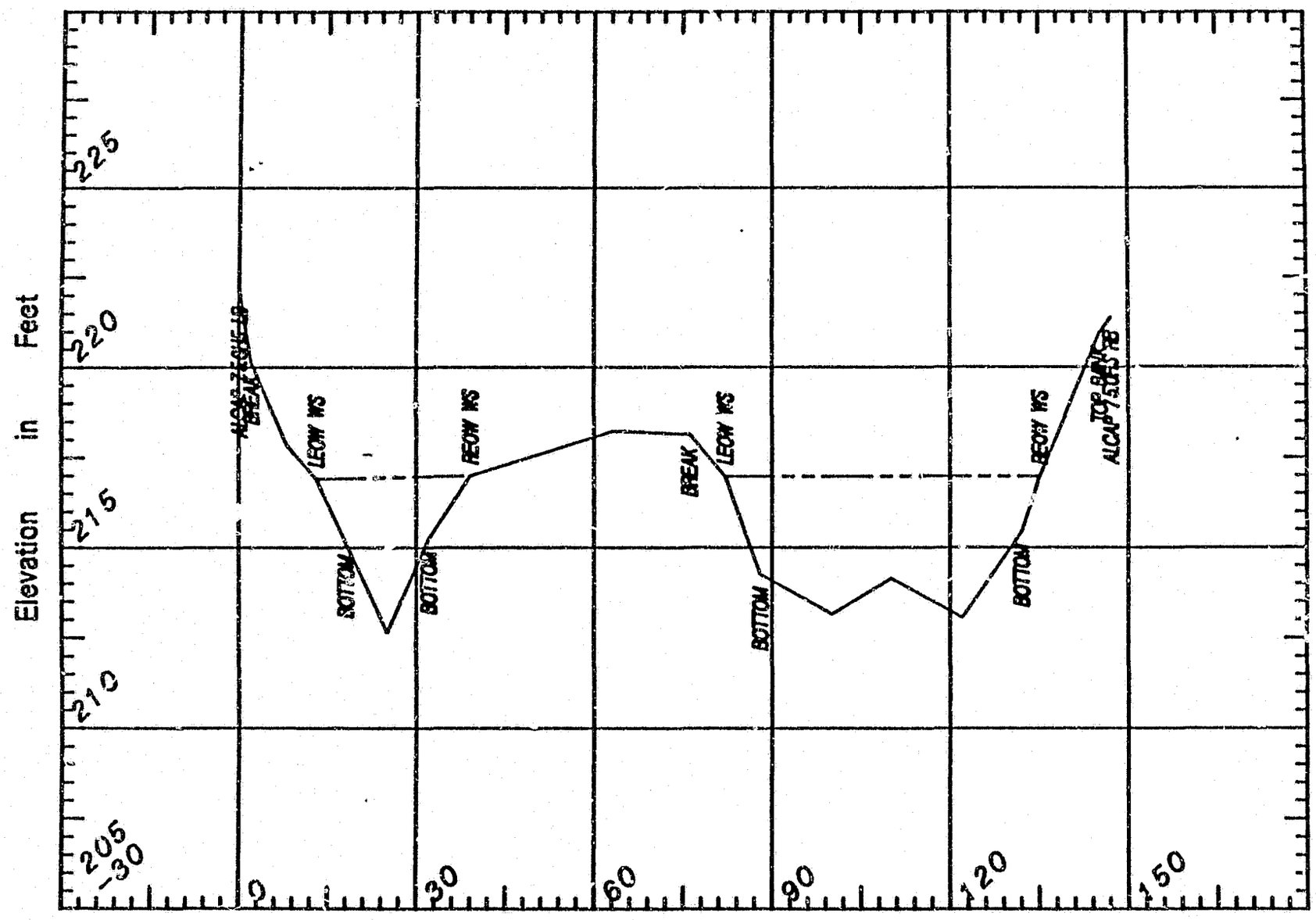
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section GOOSE CR 75.0H5

Date of Survey: AUGUST 28, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	222.060	ALCAP 75.0H5 LB
2	2.000	220.140	BREAK
3	8.000	217.840	
4	13.000	216.900	
5	18.000	215.140	BOTTOM
6	25.000	212.640	
7	32.000	215.240	BOTTOM
8	39.000	217.000	
9	63.000	218.240	
10	76.000	218.140	BREAK
11	82.000	216.970	
12	88.000	214.240	BOTTOM
13	100.000	213.140	
14	110.000	214.140	
15	122.000	213.040	
16	132.000	215.440	BOTTOM
17	135.000	216.970	
18	145.000	220.940	TOP BANK
19	147.000	221.380	ALCAP 75.0H5 RB
Water surface data:			
1	13.000	216.900	LEOW WS
2	39.000	217.000	REOW WS
			SPLIT
4	82.000	216.970	LEOW WS
5	135.000	216.970	REOW WS
MIN	0.000	212.640	
MAX	147.000	222.060	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section GOOSE CR 75.0H5
Date of Survey: AUGUST 28, 1982

PREPARED FOR:

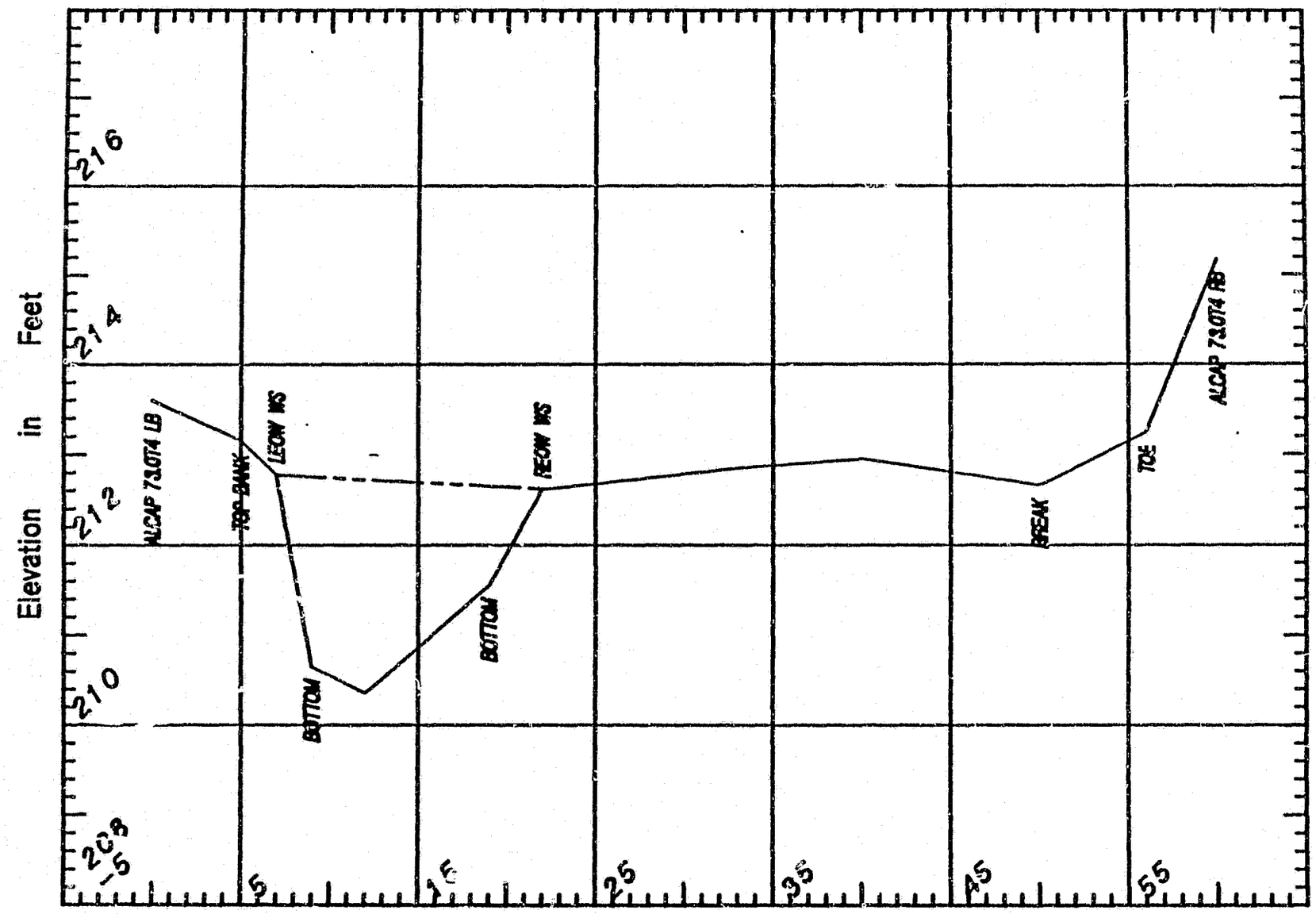
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section GOOSE CR 73.0T4

Date of Survey: AUGUST 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	213.590	ALCAP 73.0T4 LB
2	5.000	213.150	TOP BANK
3	7.000	212.770	
4	9.000	210.650	BOTTOM
5	12.000	210.350	
6	19.000	211.550	BOTTOM
7	22.000	212.610	
8	33.000	212.850	
9	40.000	212.950	
10	50.000	212.650	BREAK
11	56.000	213.250	TOE
12	60.000	215.170	ALCAP 73.0T4 RB
Water surface data:			
1	7.000	212.770	LEOW WS
2	22.000	212.610	REOW WS
MIN	0.000	210.350	
MAX	60.000	215.170	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section GOOSE CR 73.0T4
Date of Survey: AUGUST 27, 1982

PREPARED FOR:

ACRES

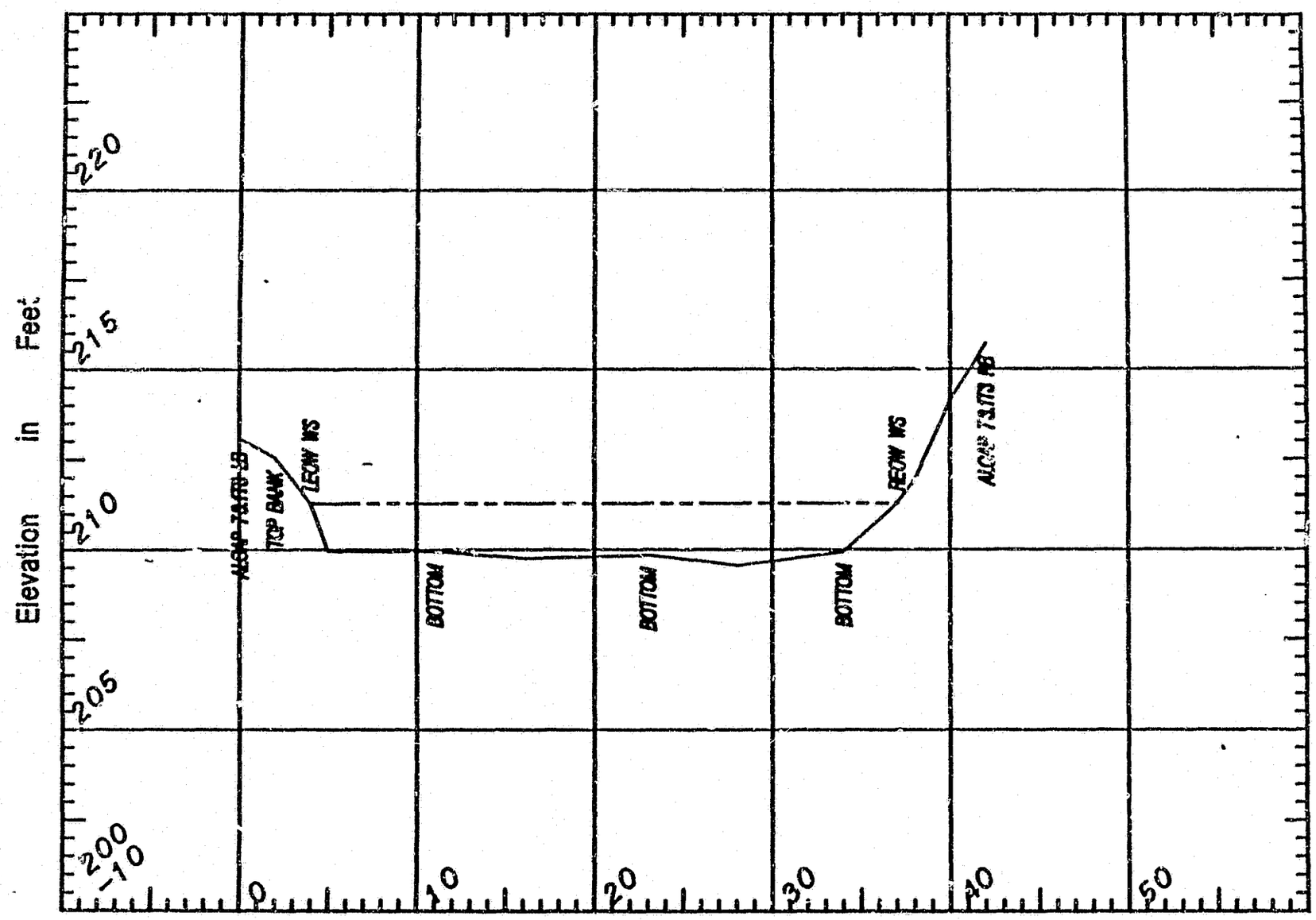
SUSITNA HYDROGRAPHIC SURVEYS
cross section GOOSE CR 73.1T3

Date of Survey: AUGUST 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	213.060	ALCAP 73.1T3 LB
2	2.000	212.540	TOP BANK
3	4.000	211.280	
4	5.000	209.940	
5	11.000	209.940	BOTTOM
6	16.000	209.740	
7	23.000	209.840	BOTTOM
8	28.000	209.540	
9	34.000	209.940	BOTTOM
10	37.000	211.290	
11	38.000	211.940	
12	40.000	214.140	
13	42.000	215.710	ALCAP 73.1T3 RB
Water surface data:			
1	4.000	211.280	LEOW WS
2	37.000	211.290	REOW WS
MIN	0.000	209.540	
MAX	42.000	215.710	

B-132

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section GOOSE CR 73.1T3
Date of Survey: AUGUST 27, 1982

PREPARED FOR:

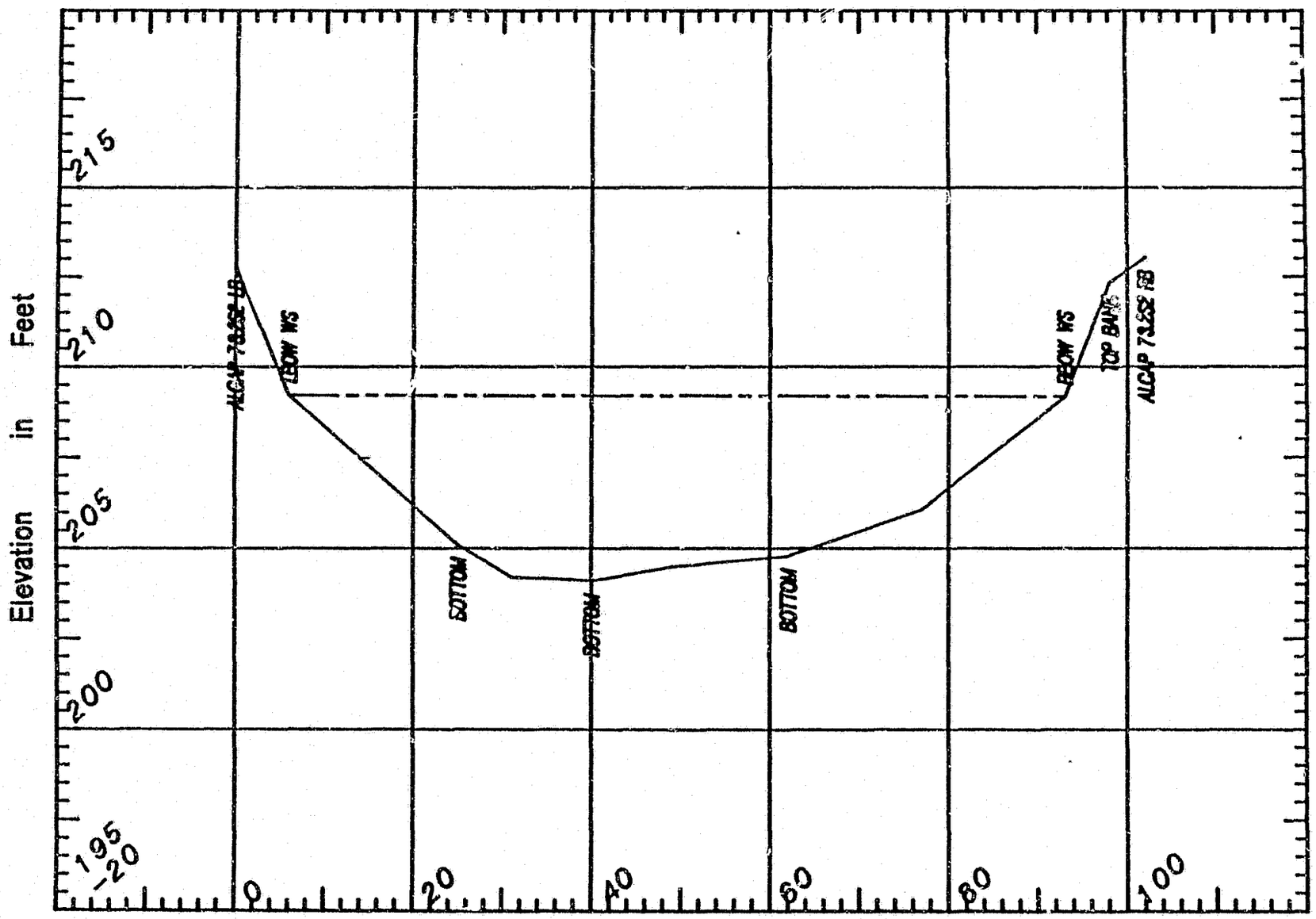
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section GOOSE CR 73.2S2

Date of Survey: AUGUST 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	212.760	ALCAP 73.2S2 LB
2	6.000	209.210	
3	25.000	205.090	BOTTOM
4	31.000	204.190	
5	40.000	204.090	BOTTOM
6	49.000	204.490	
7	62.000	204.790	BOTTOM
8	77.000	206.090	
9	93.000	209.170	
10	98.000	212.340	TOP BANK
11	102.000	213.030	ALCAP 73.2S2 RB
Water surface data:			
1	6.000	209.210	LEOW WS
2	93.000	209.170	REOW WS
MIN	0.000	204.090	
MAX	102.000	213.030	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section GOOSE CR 73.2S2
Date of Survey: AUGUST 27, 1982

PREPARED FOR:

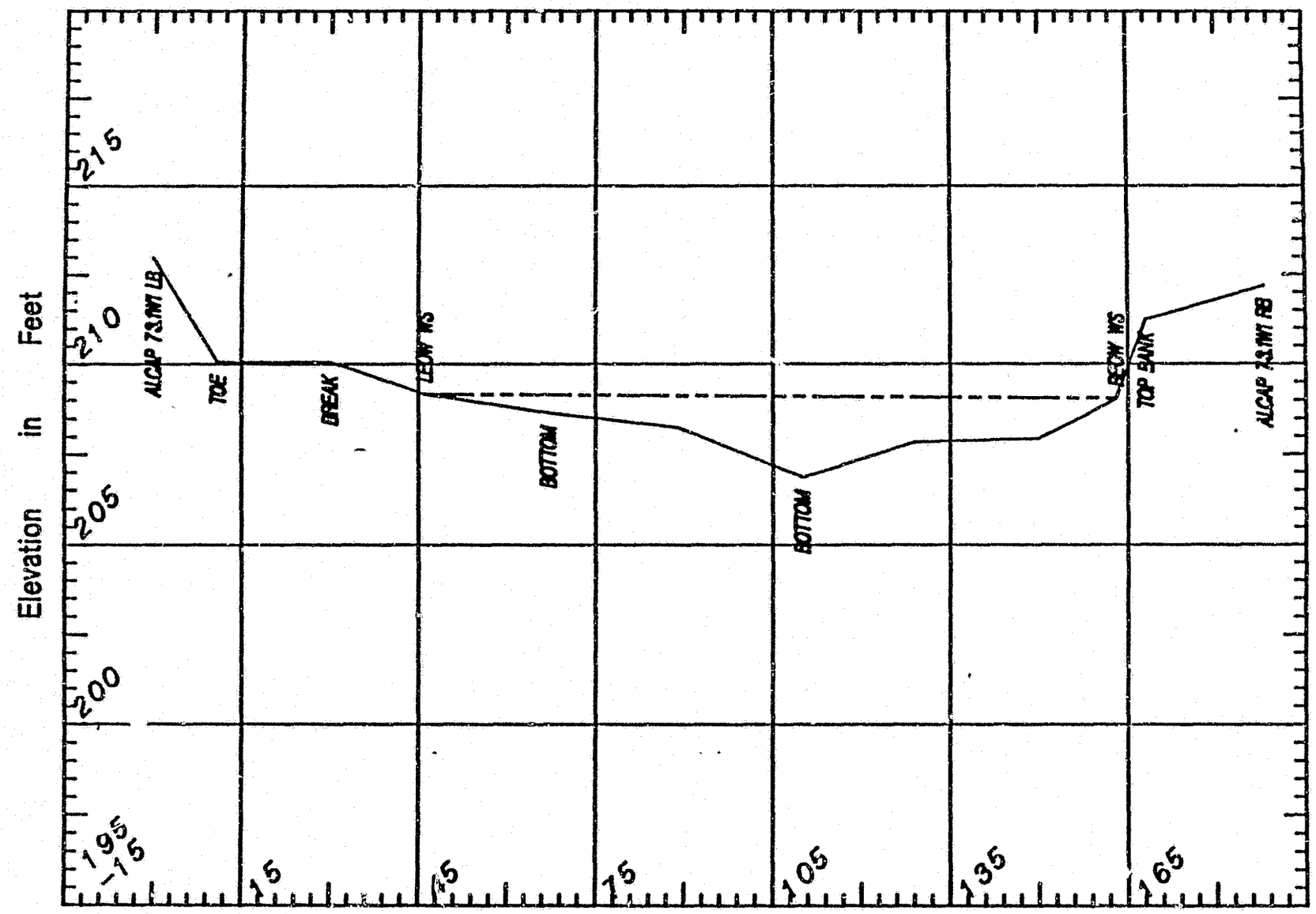
ACRES

SUSITNA HYDROGRAPHIC SURVEYS
cross section GOOSE CR 73.1W1

Date of Survey: AUGUST 27, 1982

POINT	'X'	'Y'	DESCRIPTION
Cross section data:			
1	0.000	212.960	ALCAP 73.1W1 LB
2	11.000	210.050	TOE
3	30.000	210.050	BREAK
4	46.000	209.160	
5	67.000	208.650	BOTTOM
6	89.000	208.250	
7	110.000	206.850	BOTTOM
8	129.000	207.850	
9	150.000	207.950	
10	163.000	209.040	
11	168.000	211.250	TOP BANK
12	188.000	212.180	ALCAP 73.1W1 RB
Water surface data:			
1	46.000	209.160	LEOW WS
2	163.000	209.040	REOW WS
MIN	0.000	206.850	
MAX	188.000	212.960	

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

cross section GOOSE CR 73.1W1
Date of Survey: AUGUST 27, 1982

PREPARED FOR:

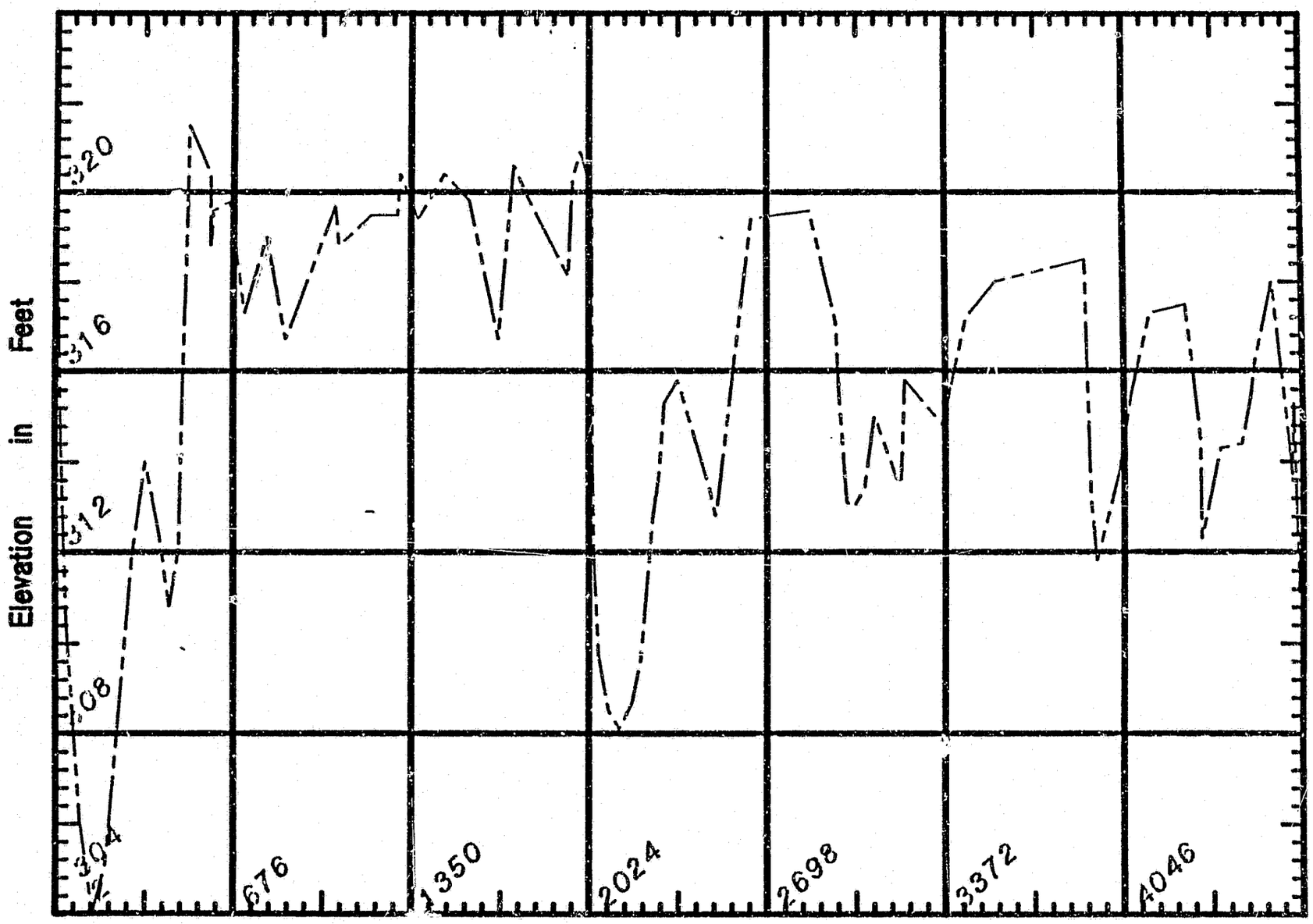
ACRES

ATTACHMENT C

1982 ICESIM Cross Section Plots
and Updated HEC-2 File Printout

C-1

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

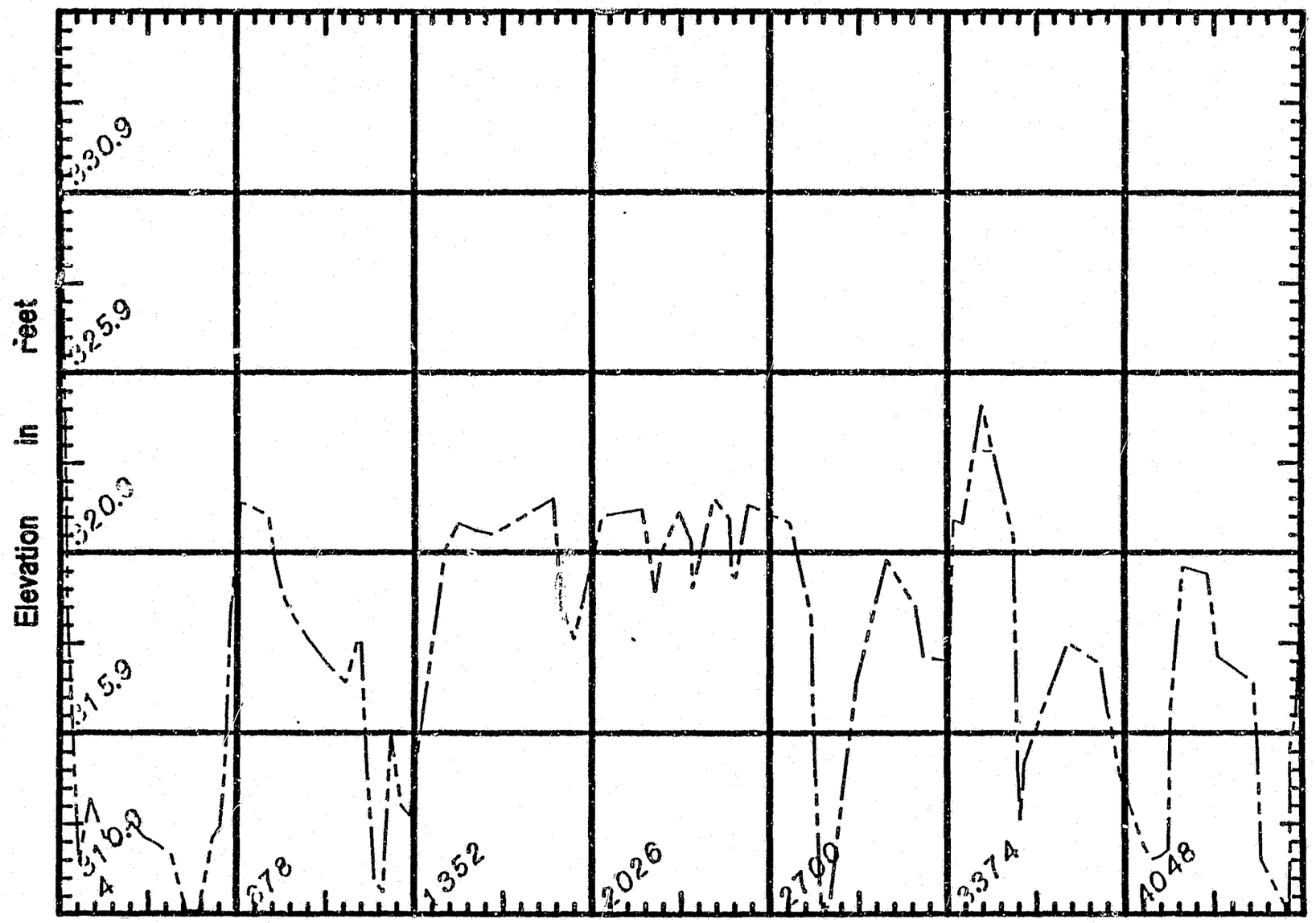
R&M CONSULTANTS, INC.

CROSS-SECTION Number 0.3

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 0.4

PREPARED FOR:

ACRES

C-2

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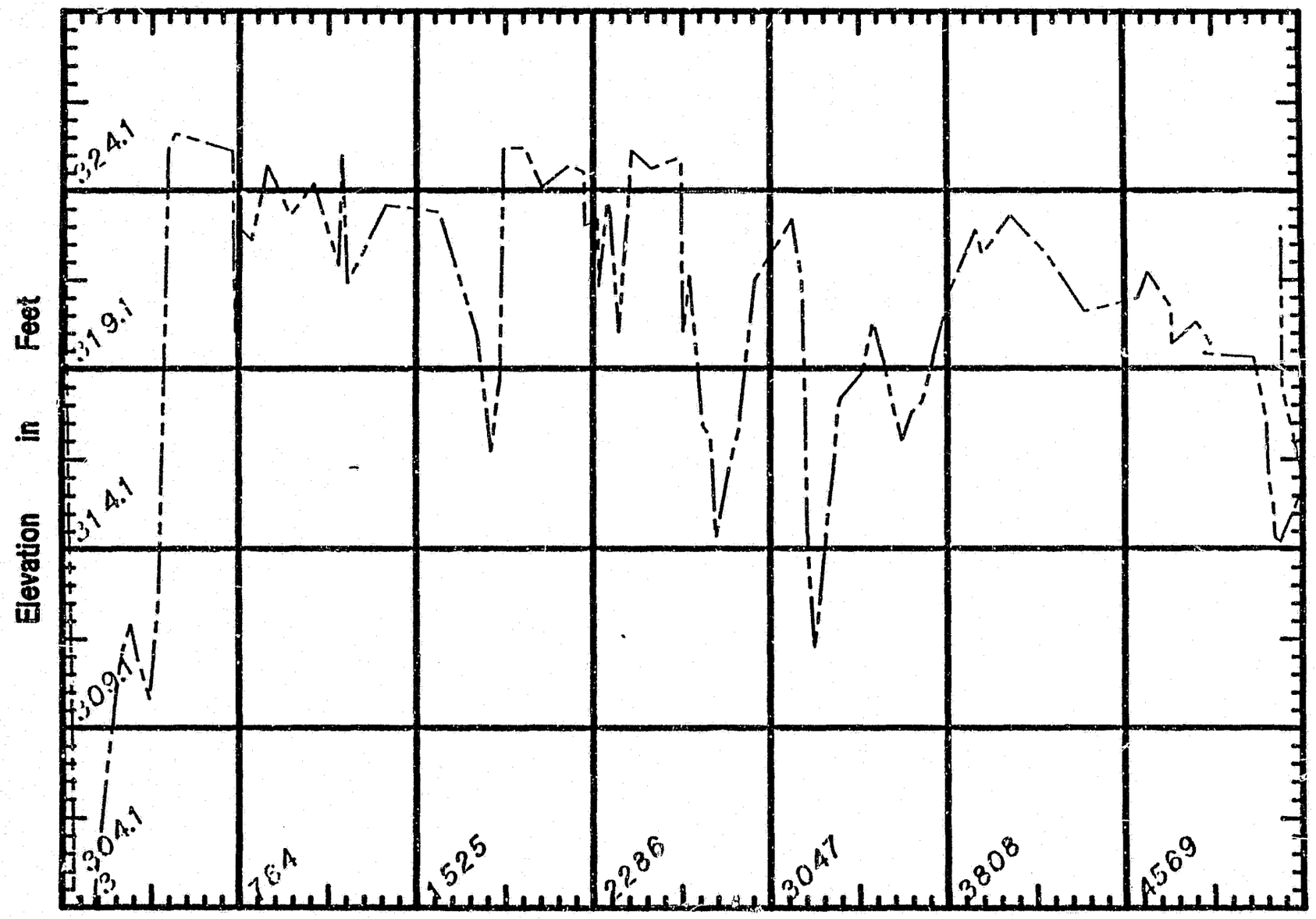


PREPARED BY:

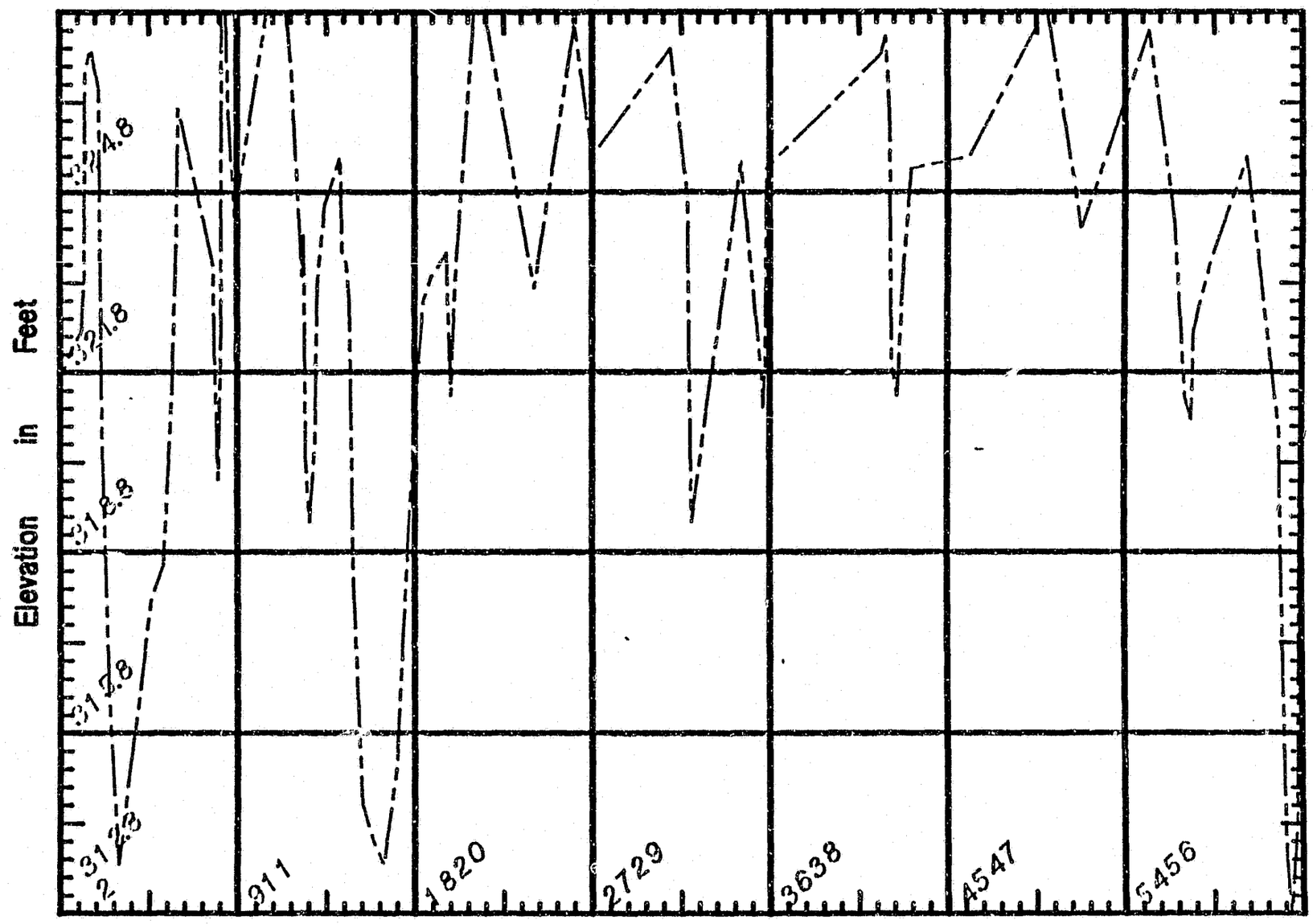
R&M CONSULTANTS, INC.

CROSS-SECTION Number 0.5

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 0.6

PREPARED FOR:

ACRES

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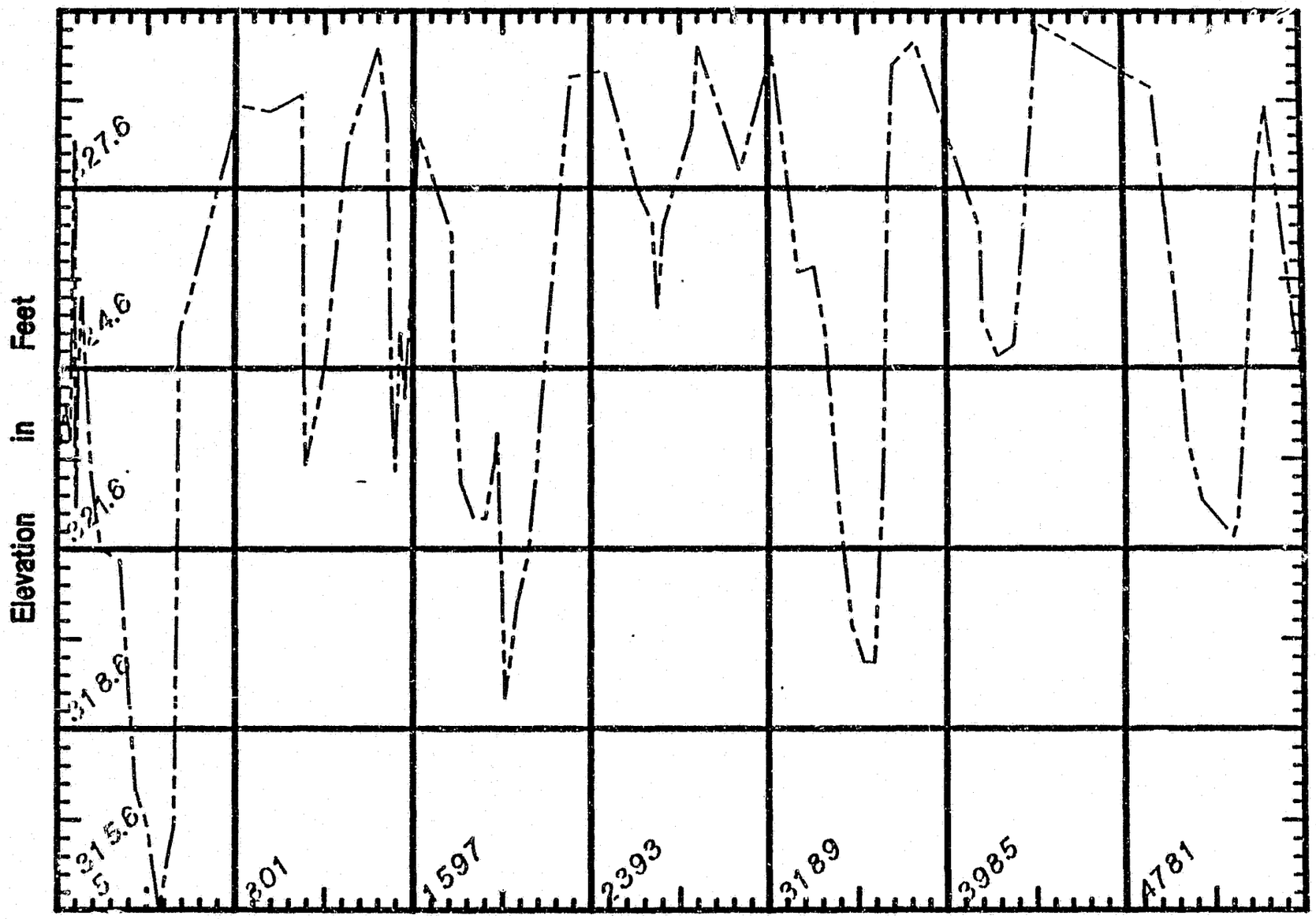


PREPARED BY:

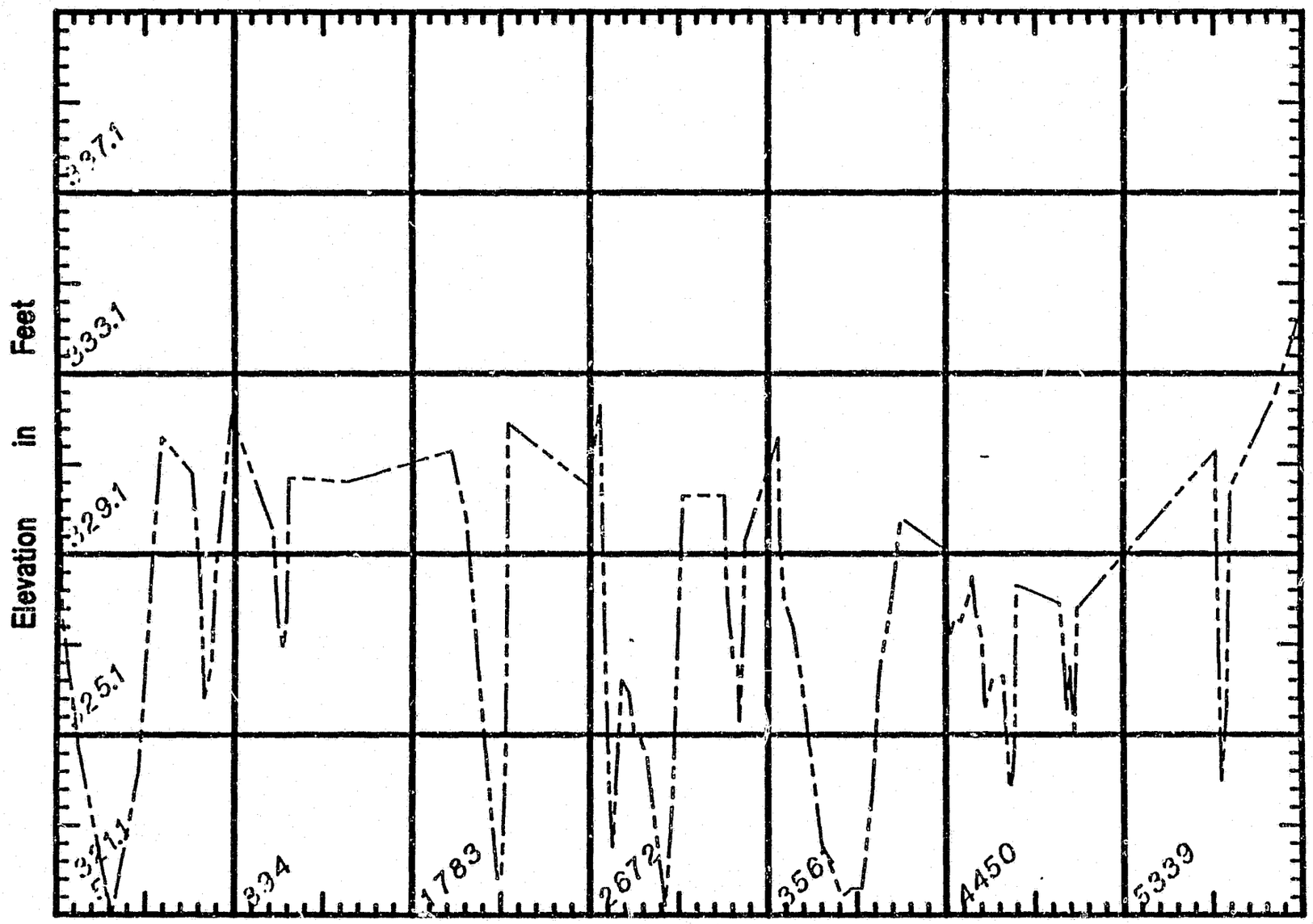
R&M CONSULTANTS, INC.

CROSS-SECTION Number 0.7

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

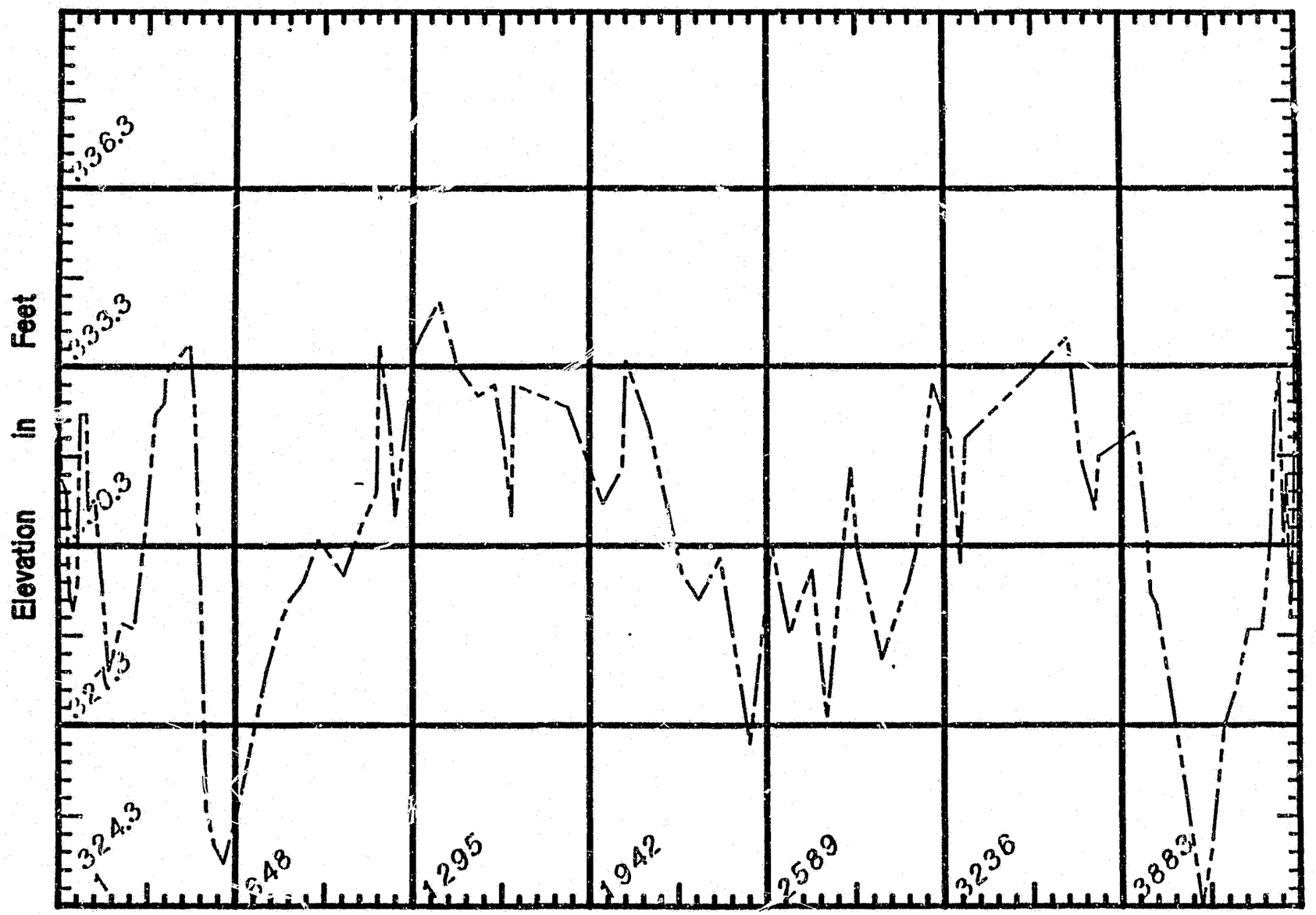
CROSS-SECTION Number 0.8

PREPARED FOR:

ACRES

C-6

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

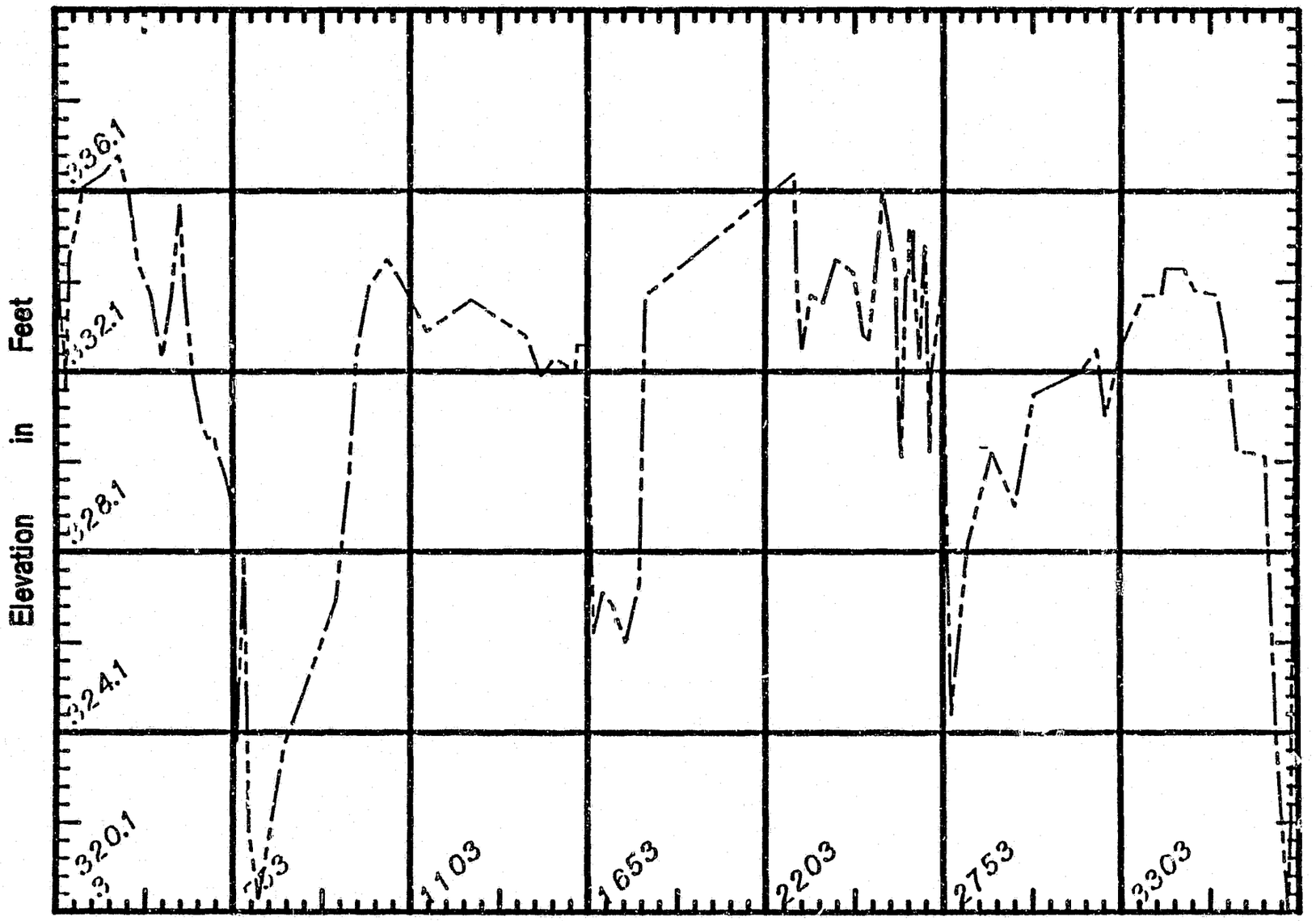
R&M CONSULTANTS, INC.

CROSS-SECTION Number 0.9

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

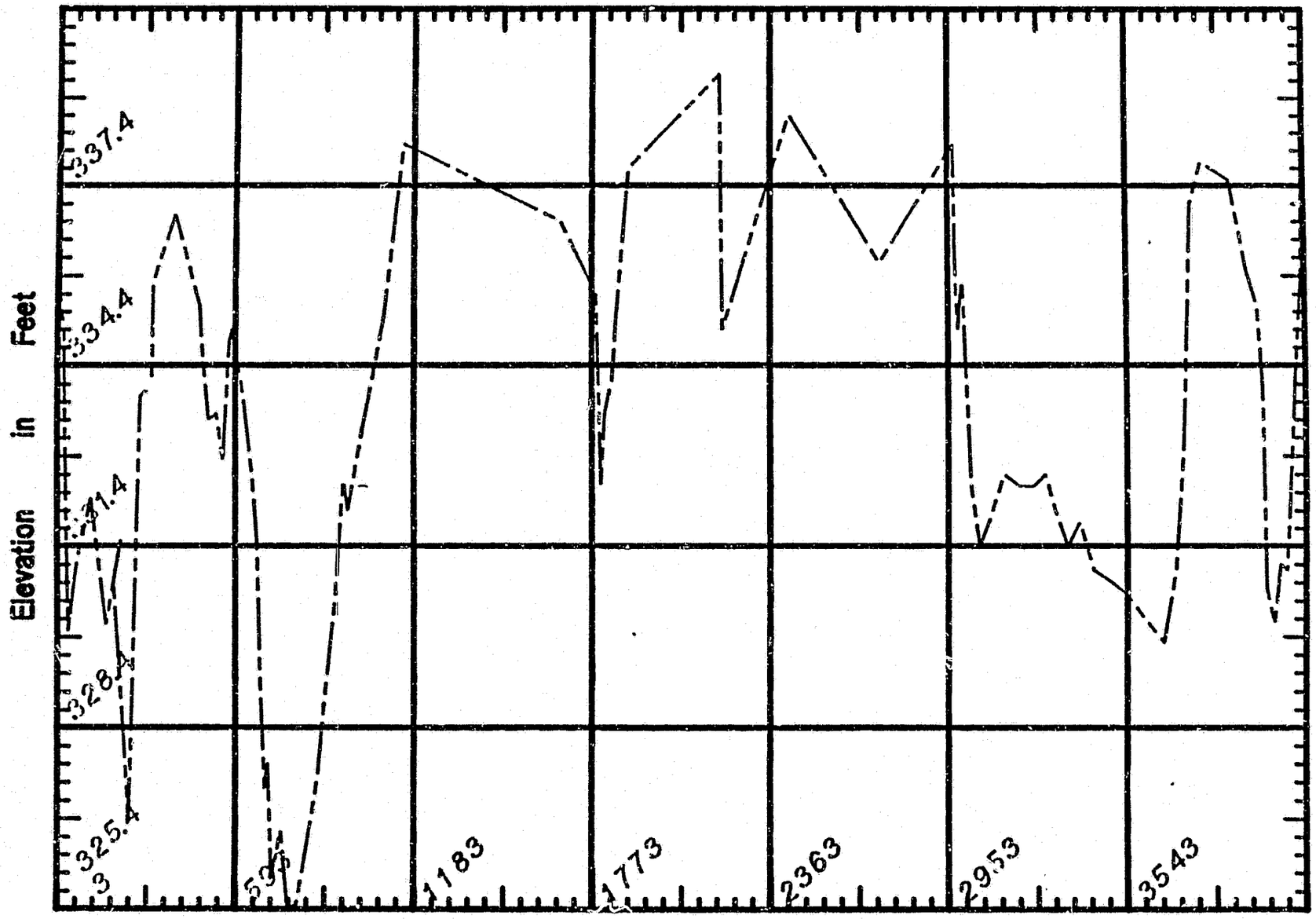
R&M CONSULTANTS, INC.

CROSS-SECTION Number 1

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 1.1

PREPARED FOR:

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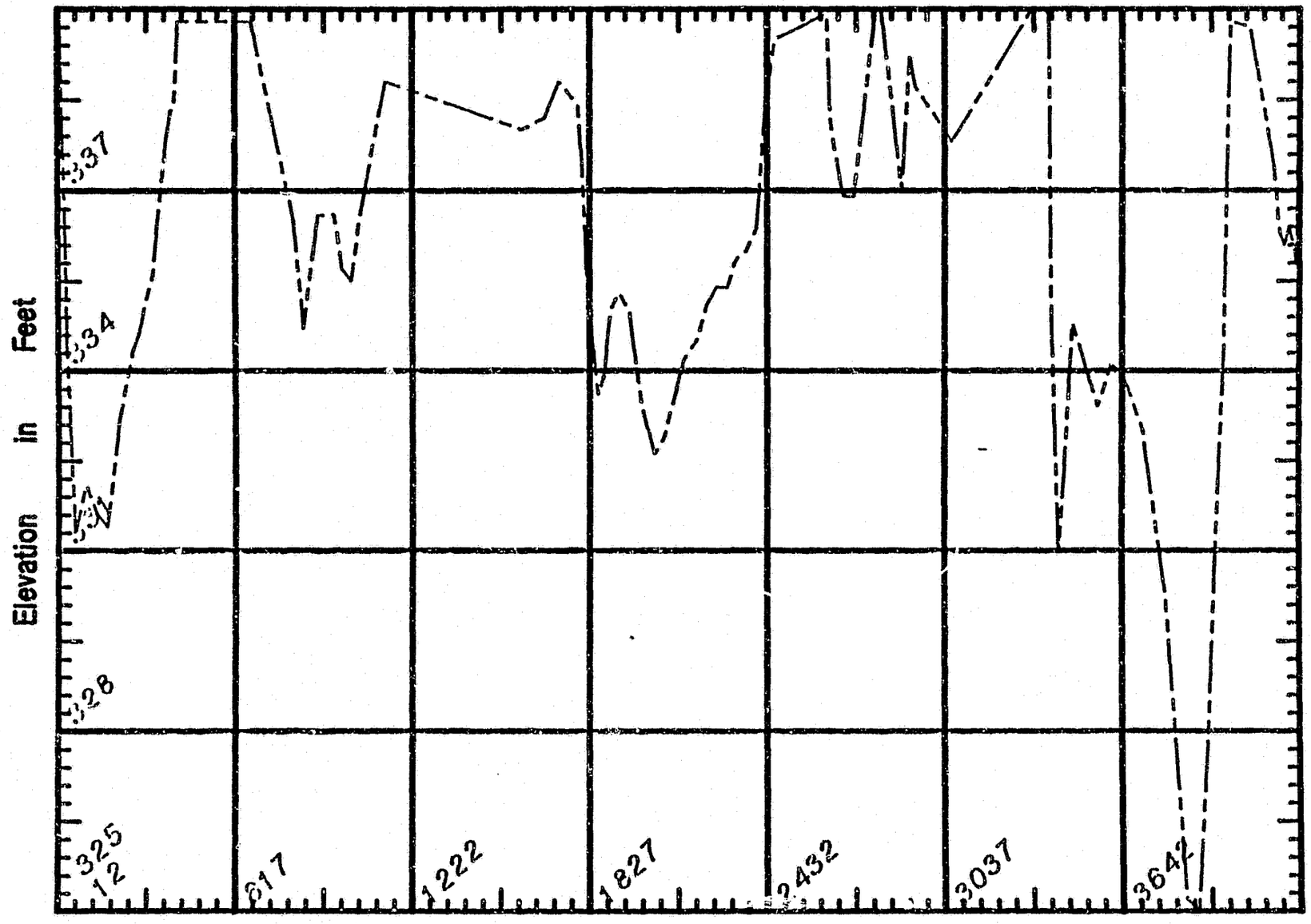
SUSITNA HYDROGRAPHIC SURVEYS



C-10

PREPARED BY:

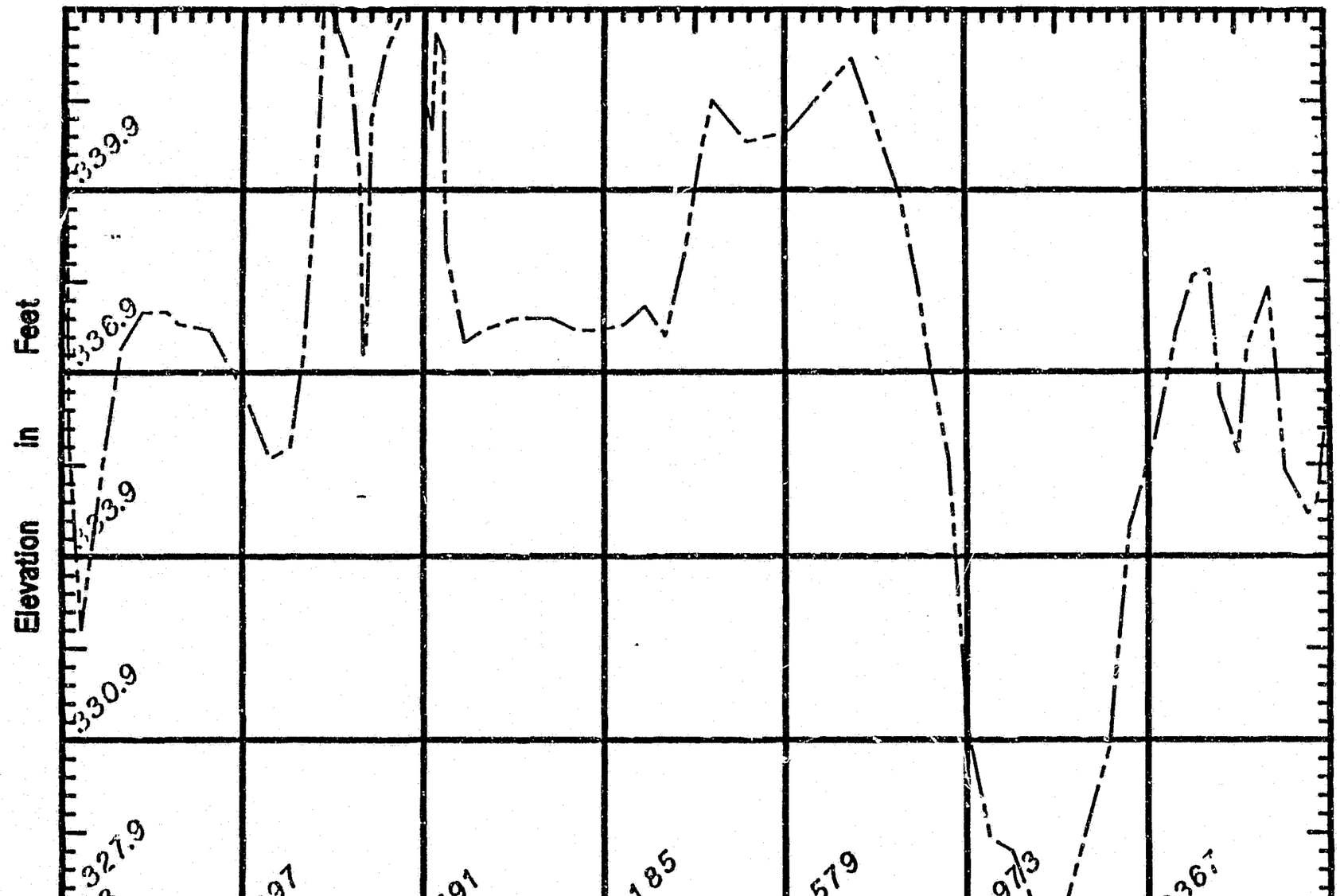
R&M CONSULTANTS, INC.

CROSS-SECTION Number 1.2

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 2

PREPARED FOR:

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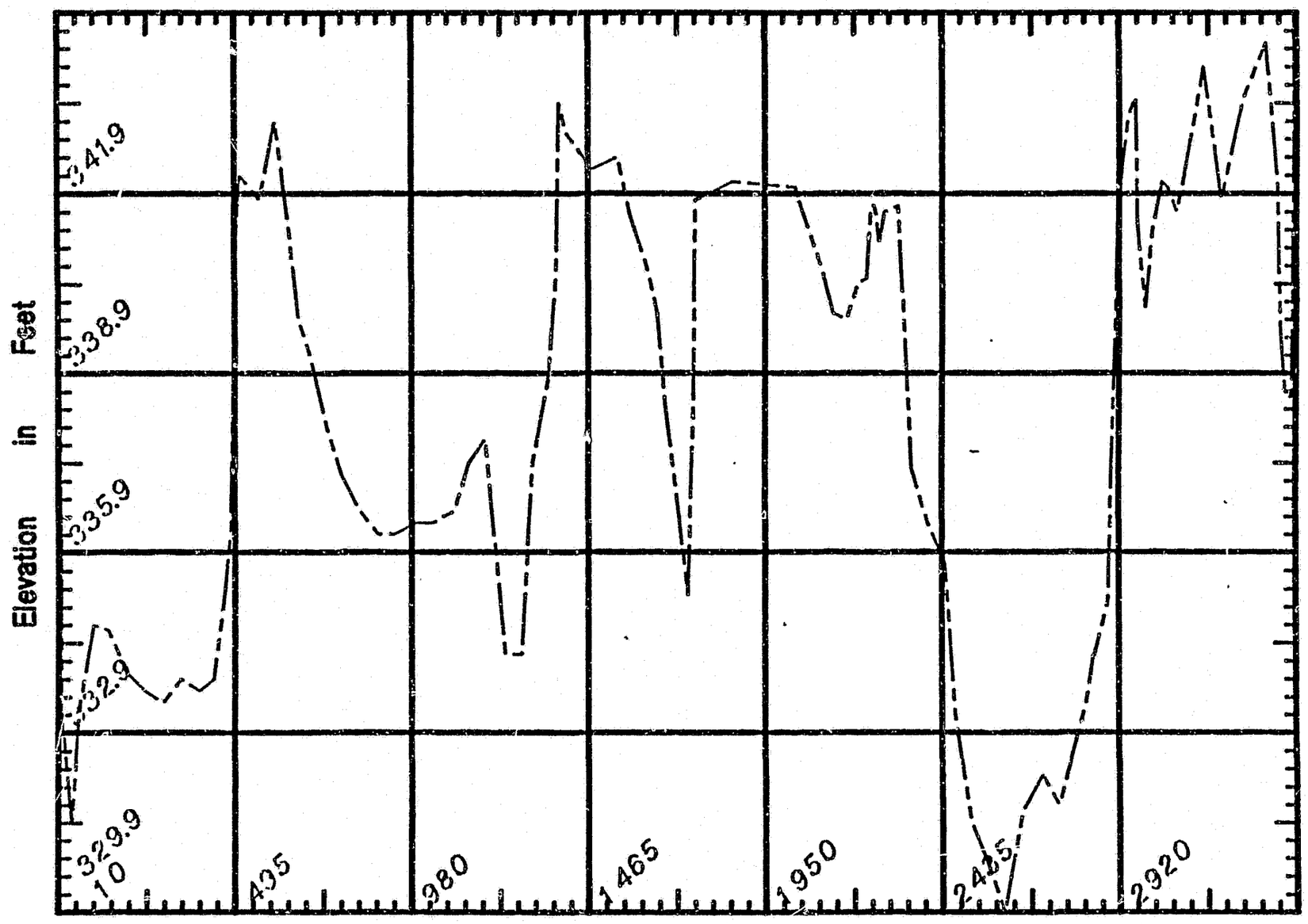
SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

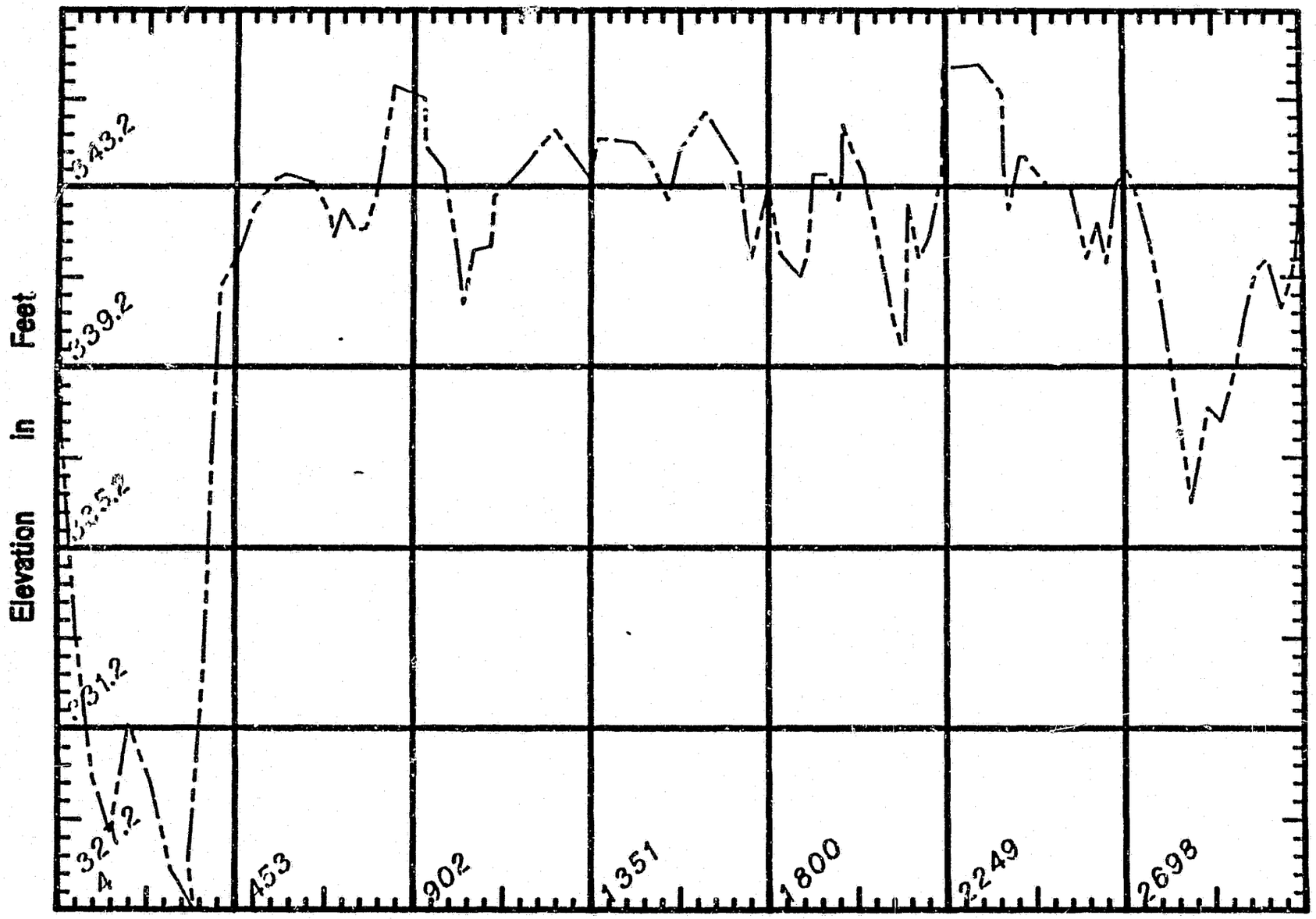
R&M CONSULTANTS, INC.

CROSS-SECTION Number 2.1

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

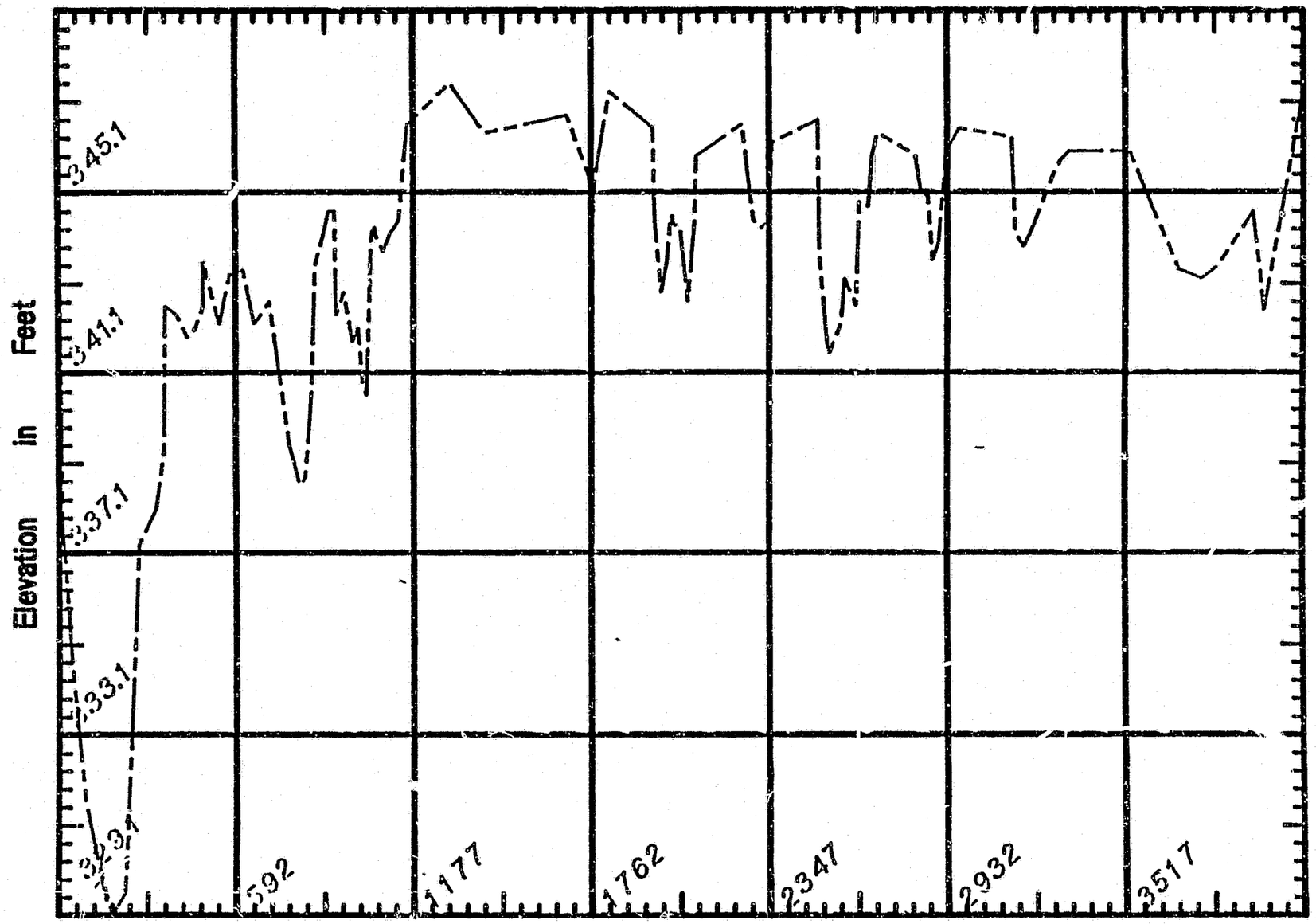
CROSS-SECTION Number 2.2

PREPARED FOR:

ACRES

C-13

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

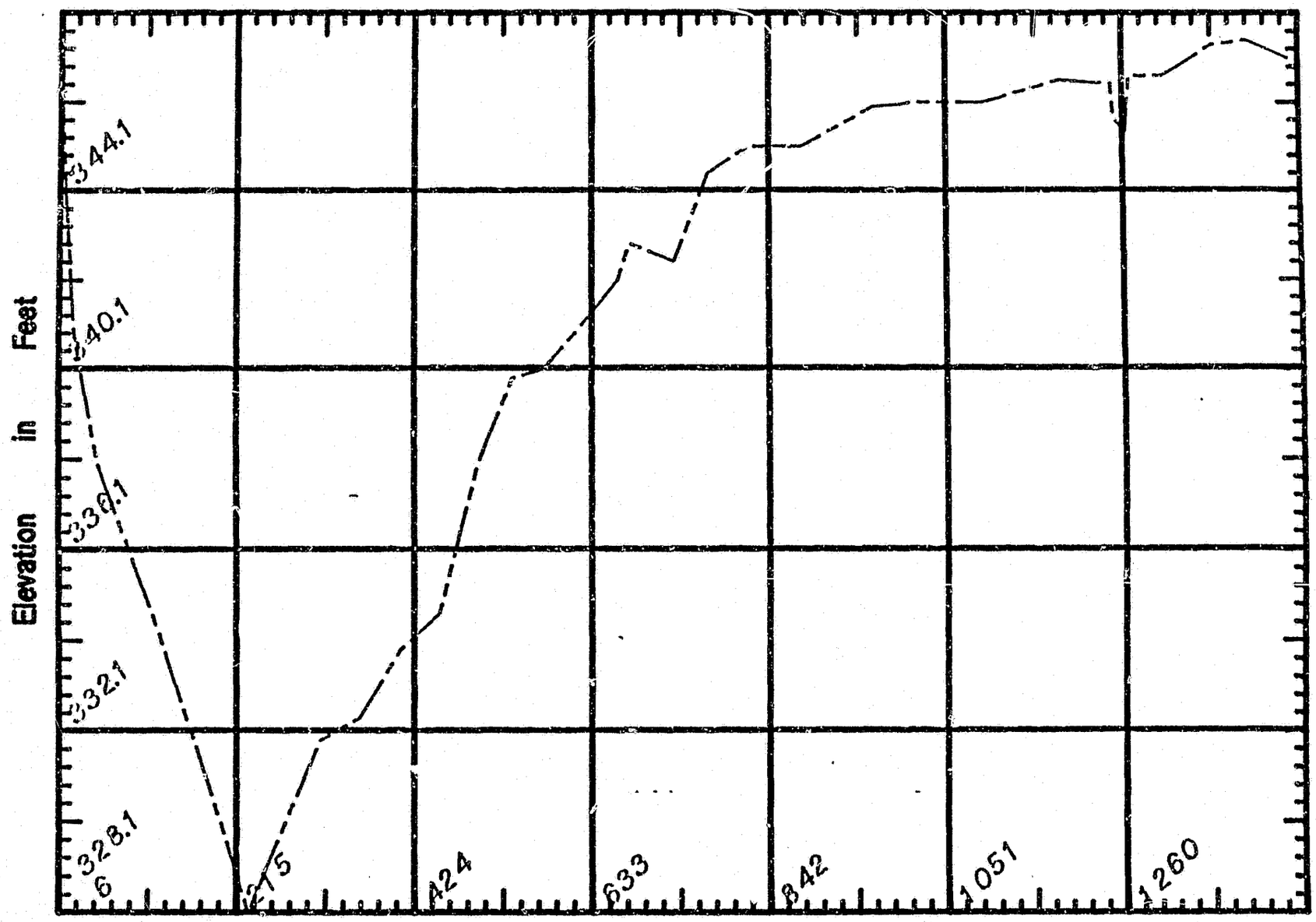
R&M CONSULTANTS, INC.

CROSS-SECTION Number 2.3

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

CROSS-SECTION Number 3

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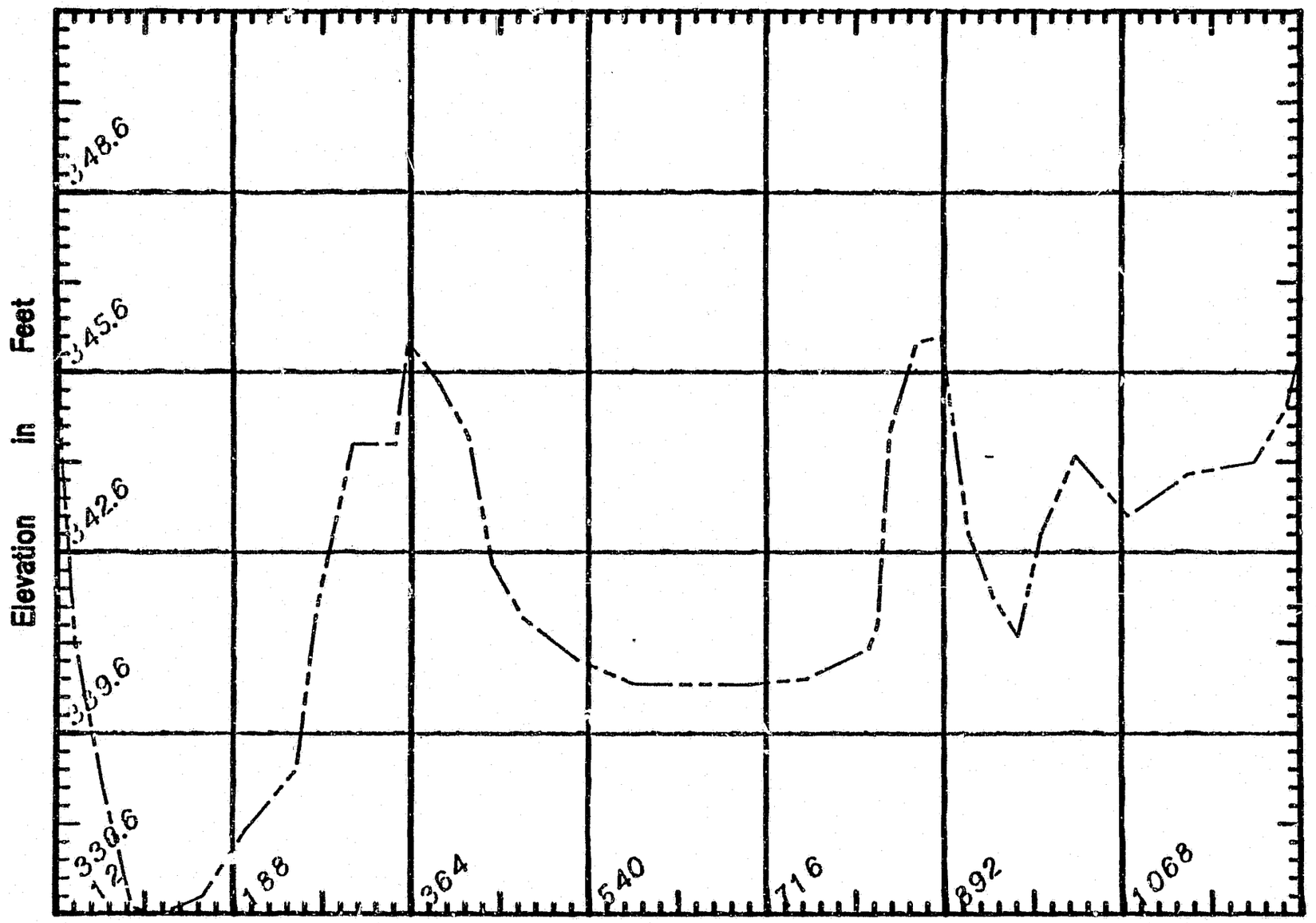

PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 3.1

PREPARED FOR:

ACRES

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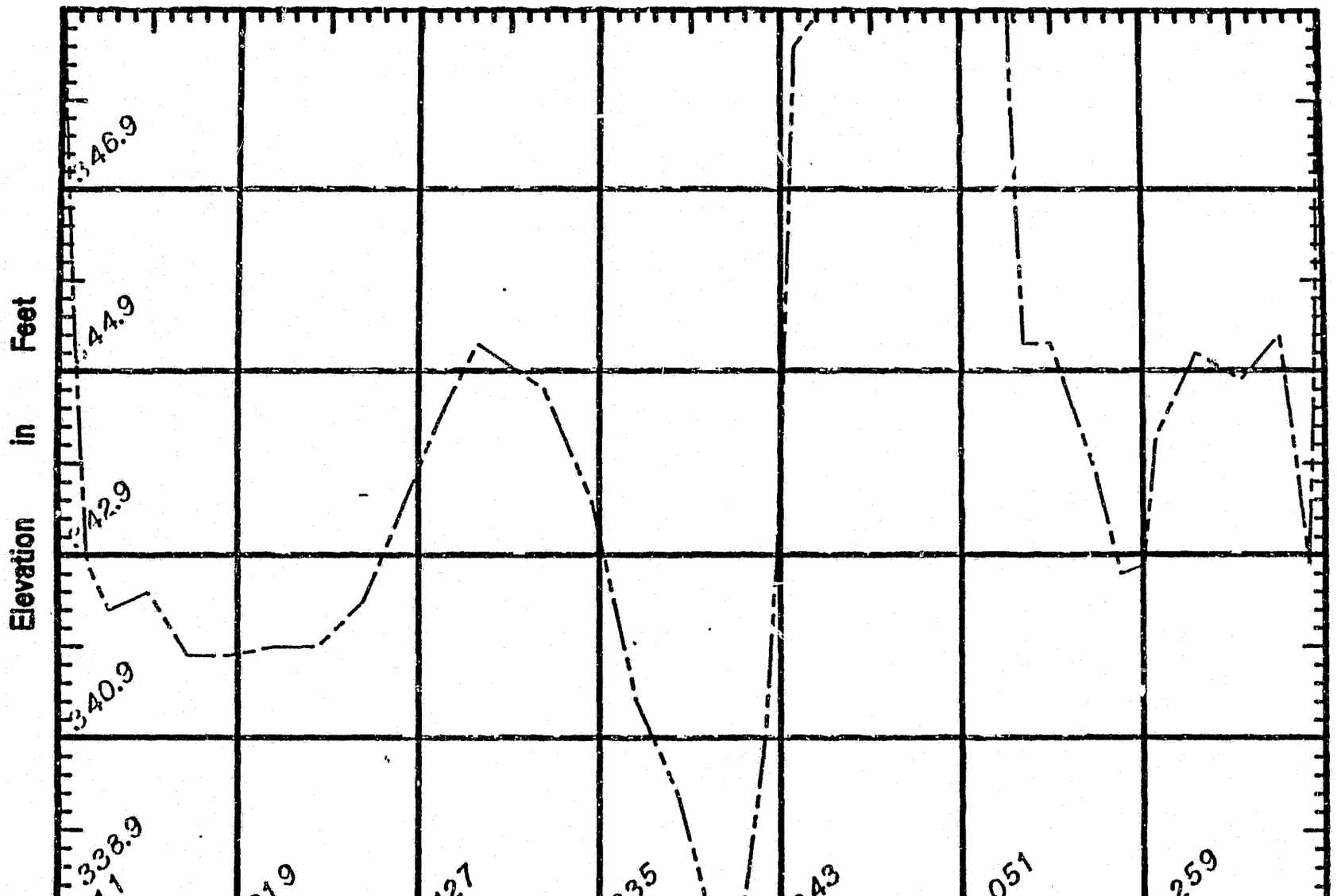

PREPARED BY:

R&M CONSULTANTS, INC.

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PREPARED FOR:

ACRES

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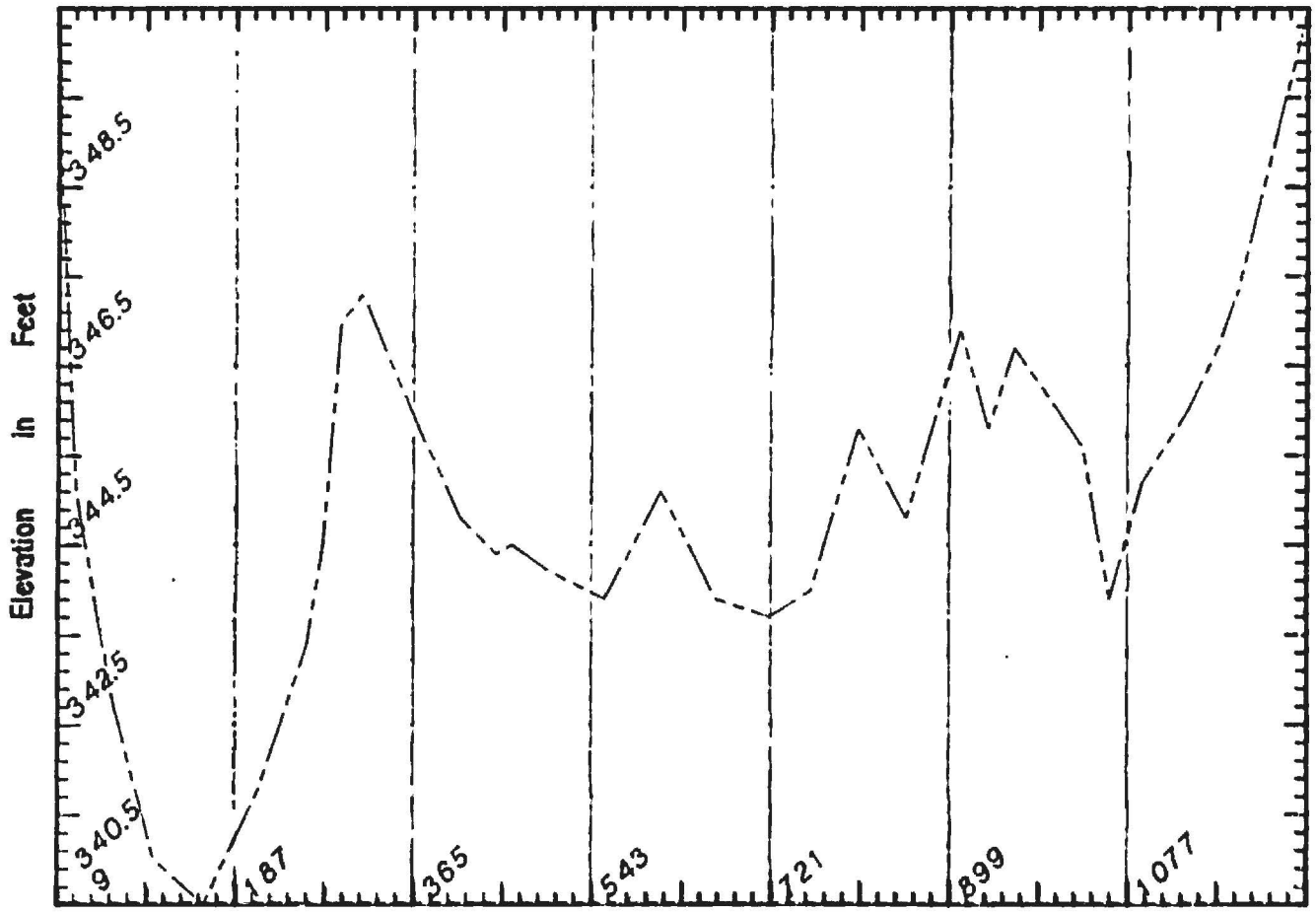

PREPARED BY:

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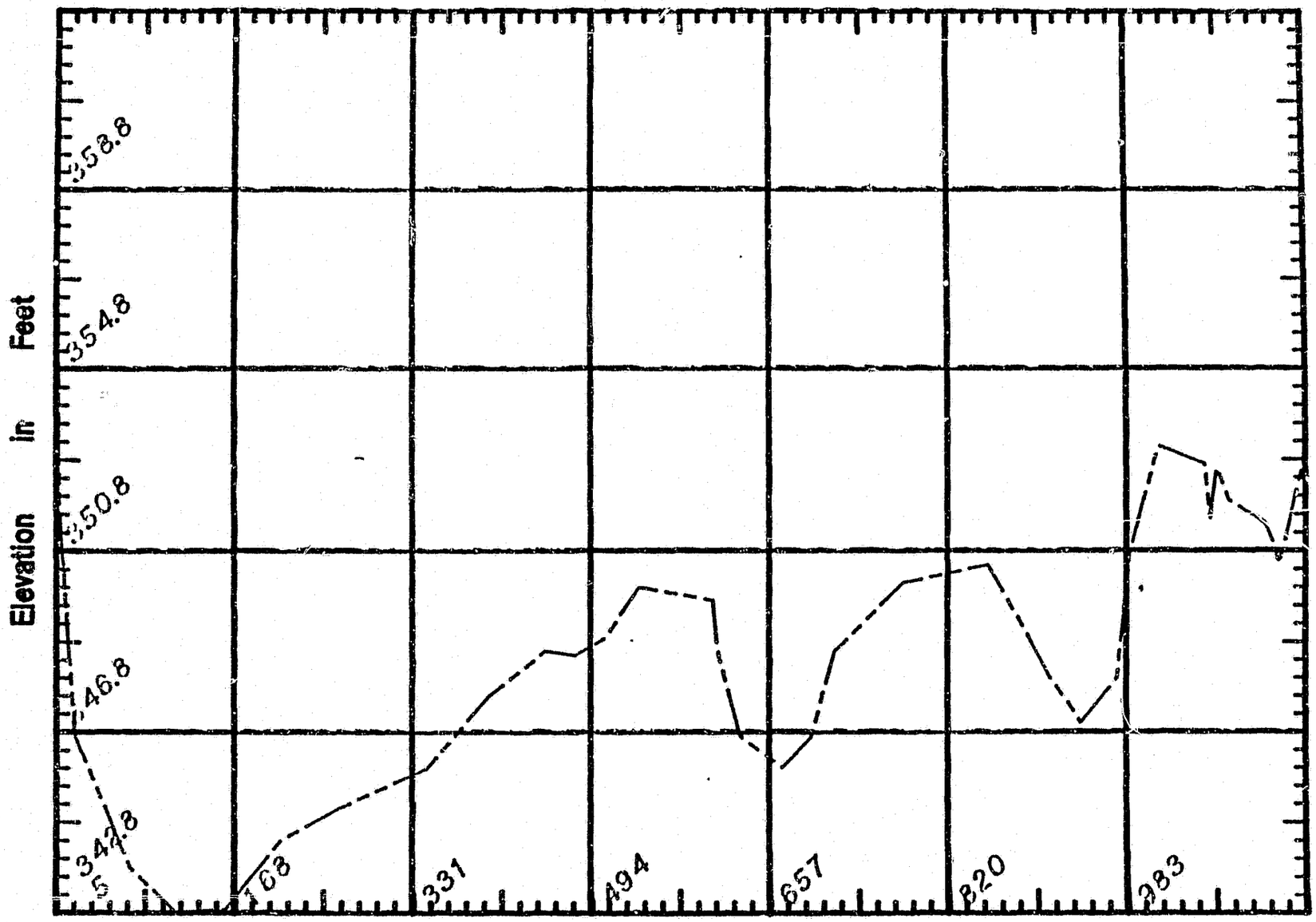
PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

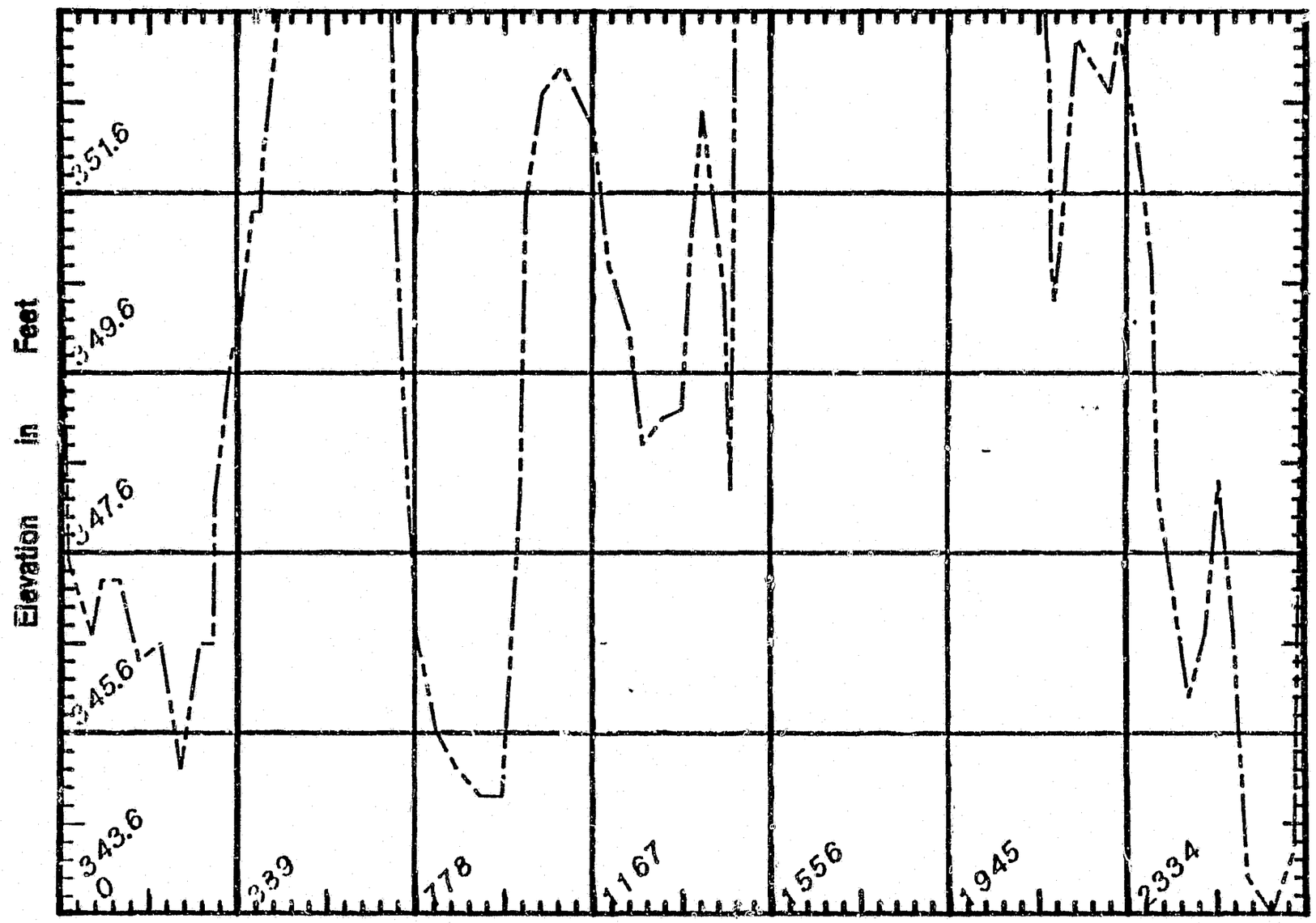
R&M CONSULTANTS, INC.

CROSS-SECTION Number 3.4

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

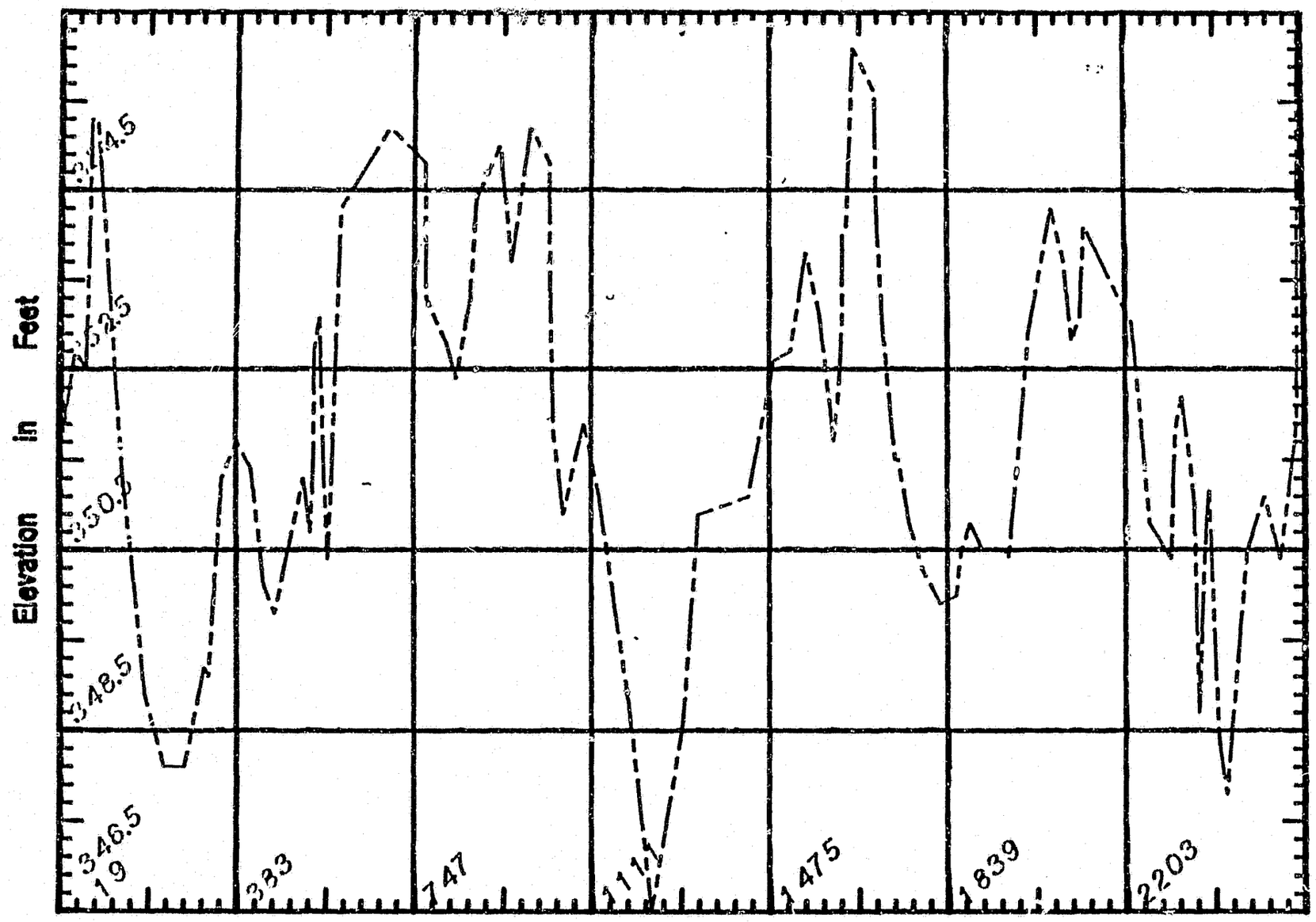
R&M CONSULTANTS, INC.

CROSS-SECTION Number 4

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

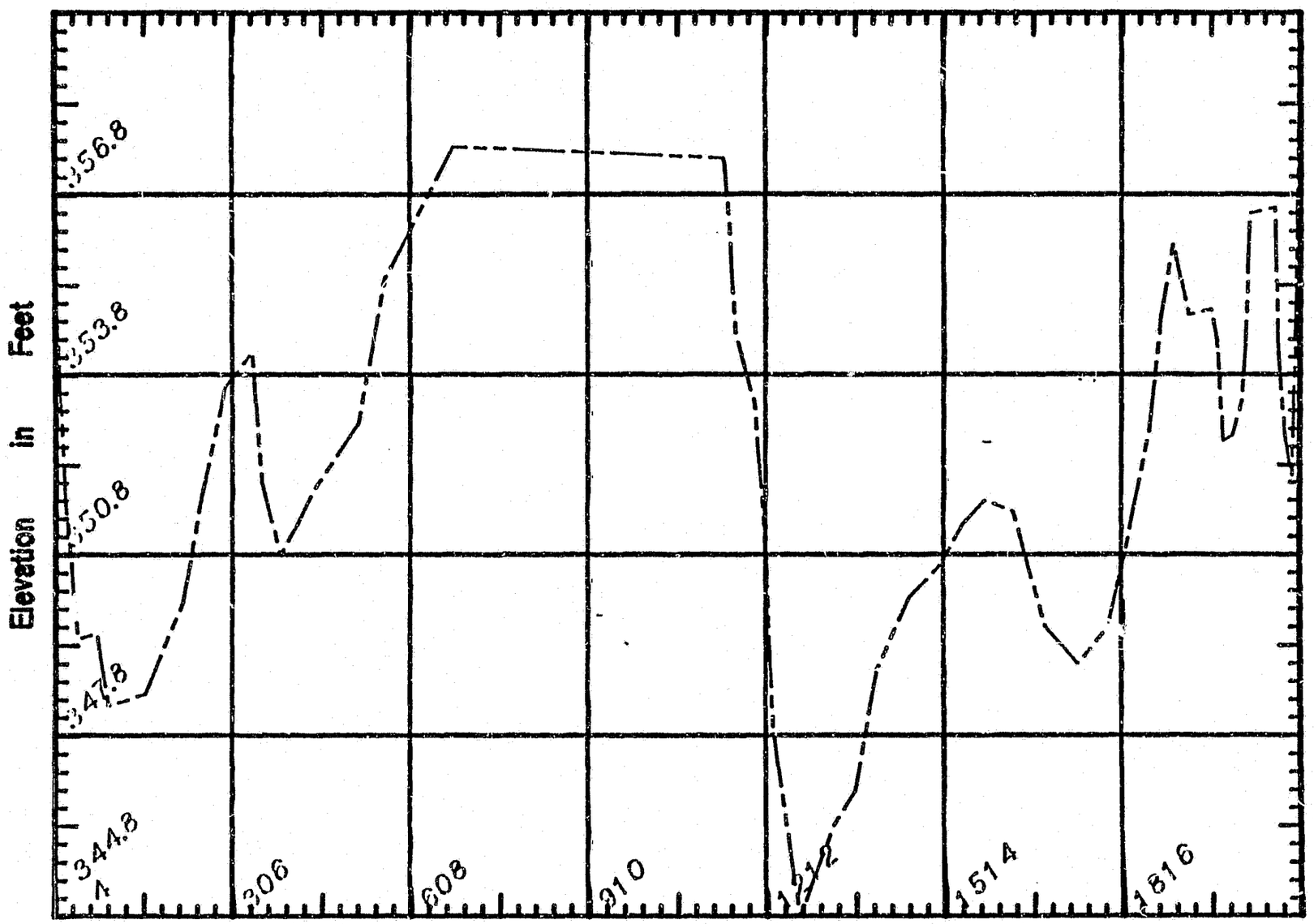
R&M CONSULTANTS, INC.

CROSS-SECTION Number 4.1

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

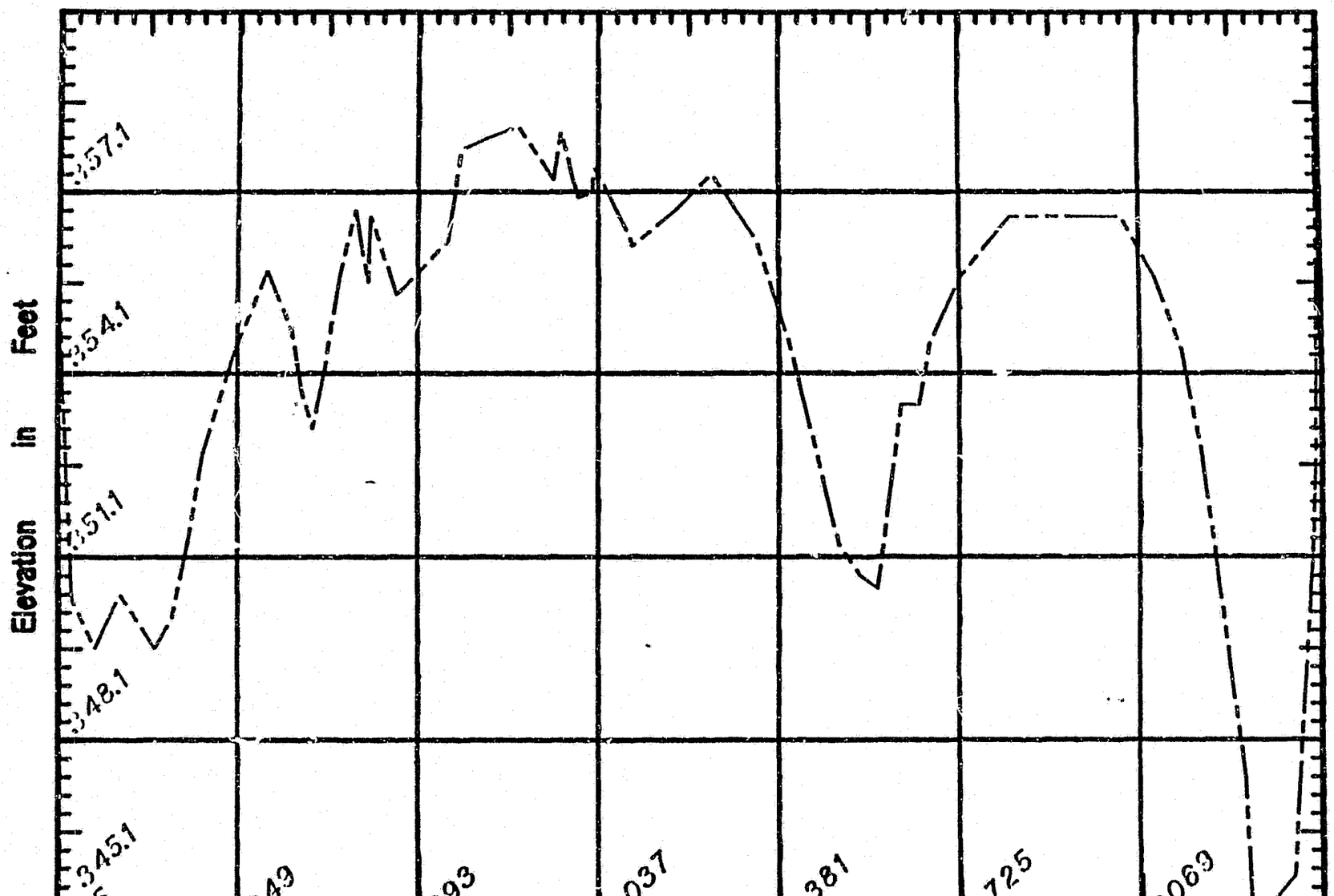
R&M CONSULTANTS, INC.

CROSS-SECTION Number 4.2

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



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R&M CONSULTANTS, INC.

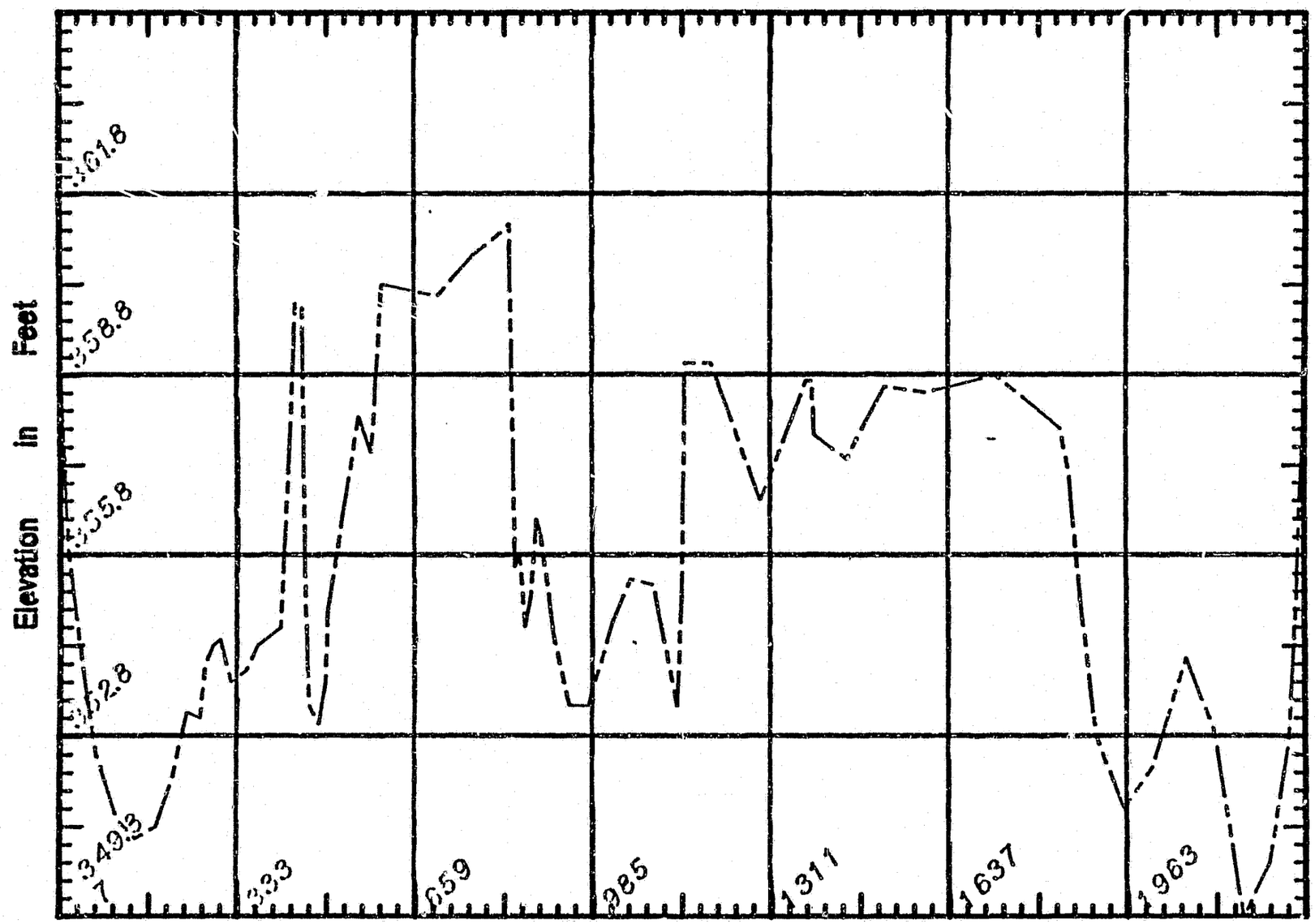
CROSS-SECTION Number 4.3

PREPARED FOR:

ACRES

C-23

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

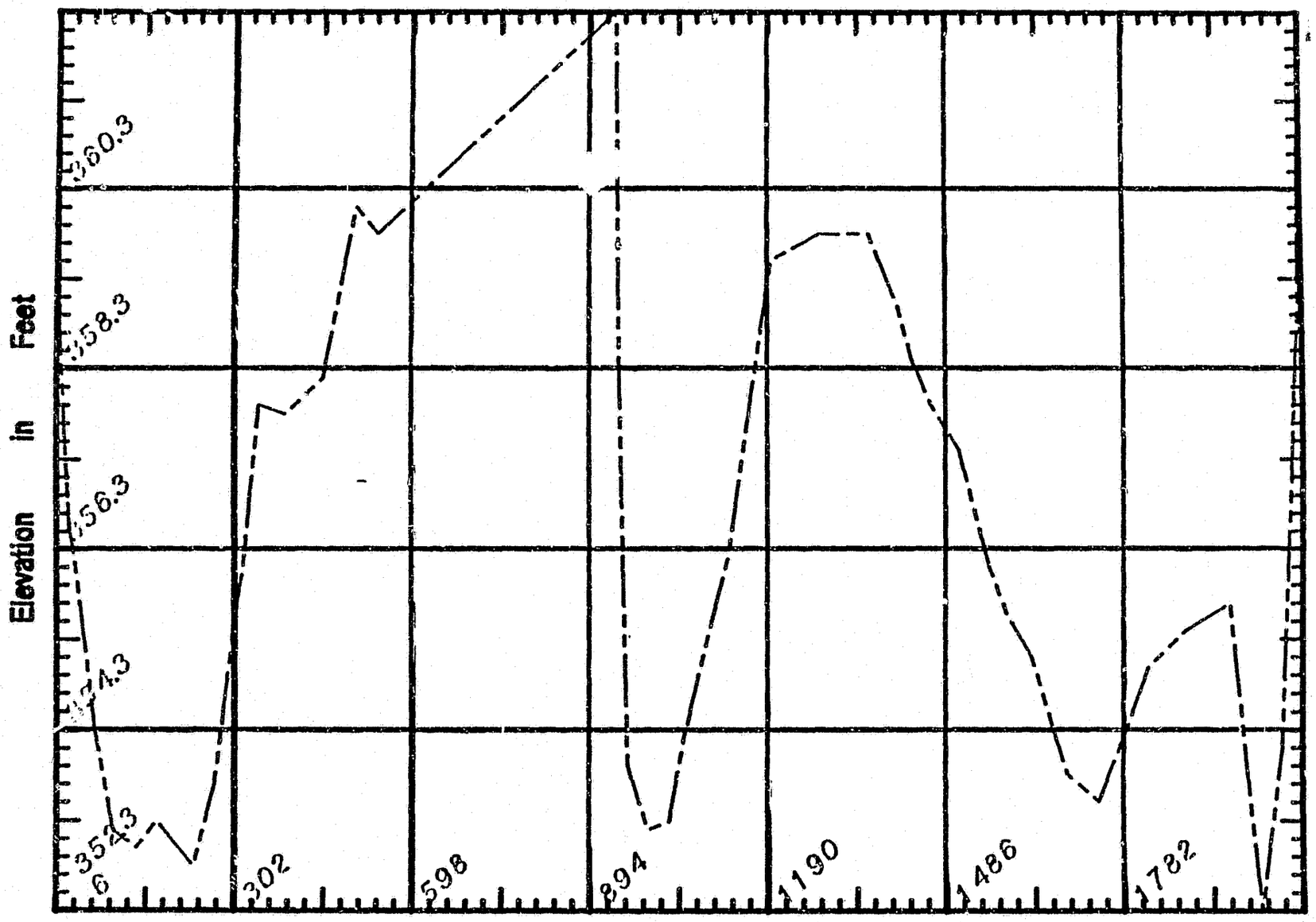
R&M CONSULTANTS, INC.

CROSS-SECTION Number 4.4

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

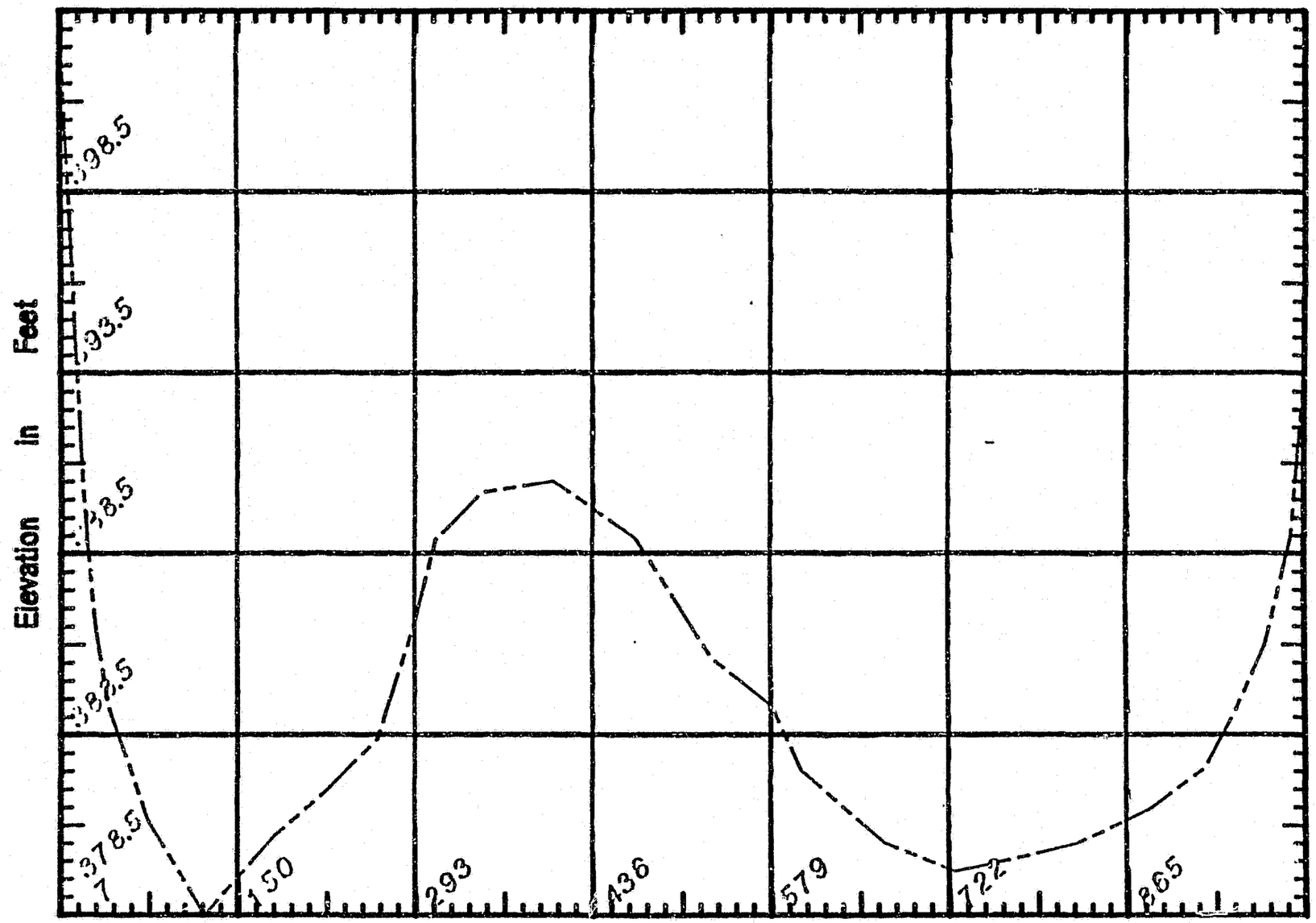
CROSS-SECTION Number 5

PREPARED FOR:

ACRES

C-25

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

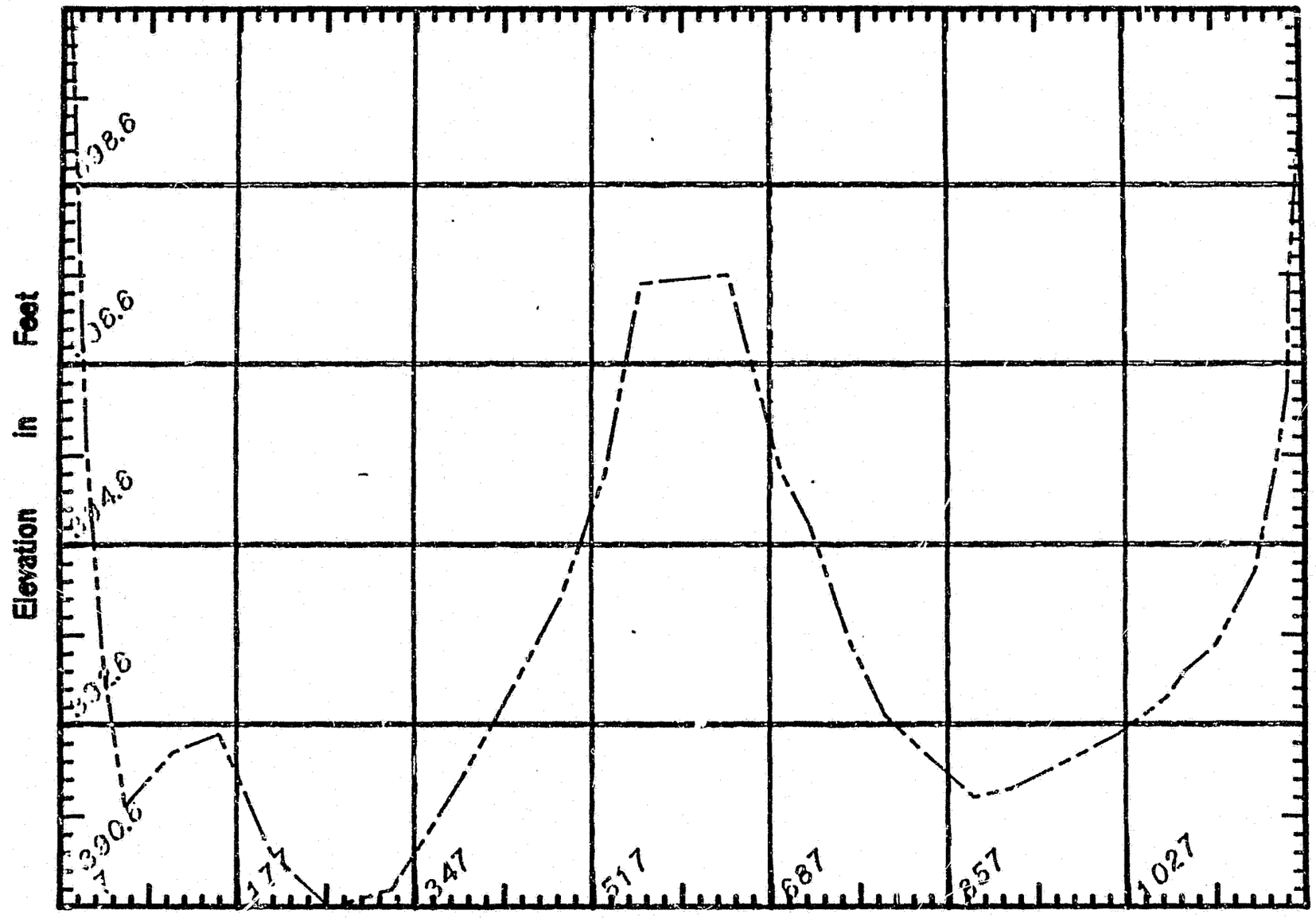
CROSS-SECTION Number 9.1

PREPARED FOR:

ACRES

C-26

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

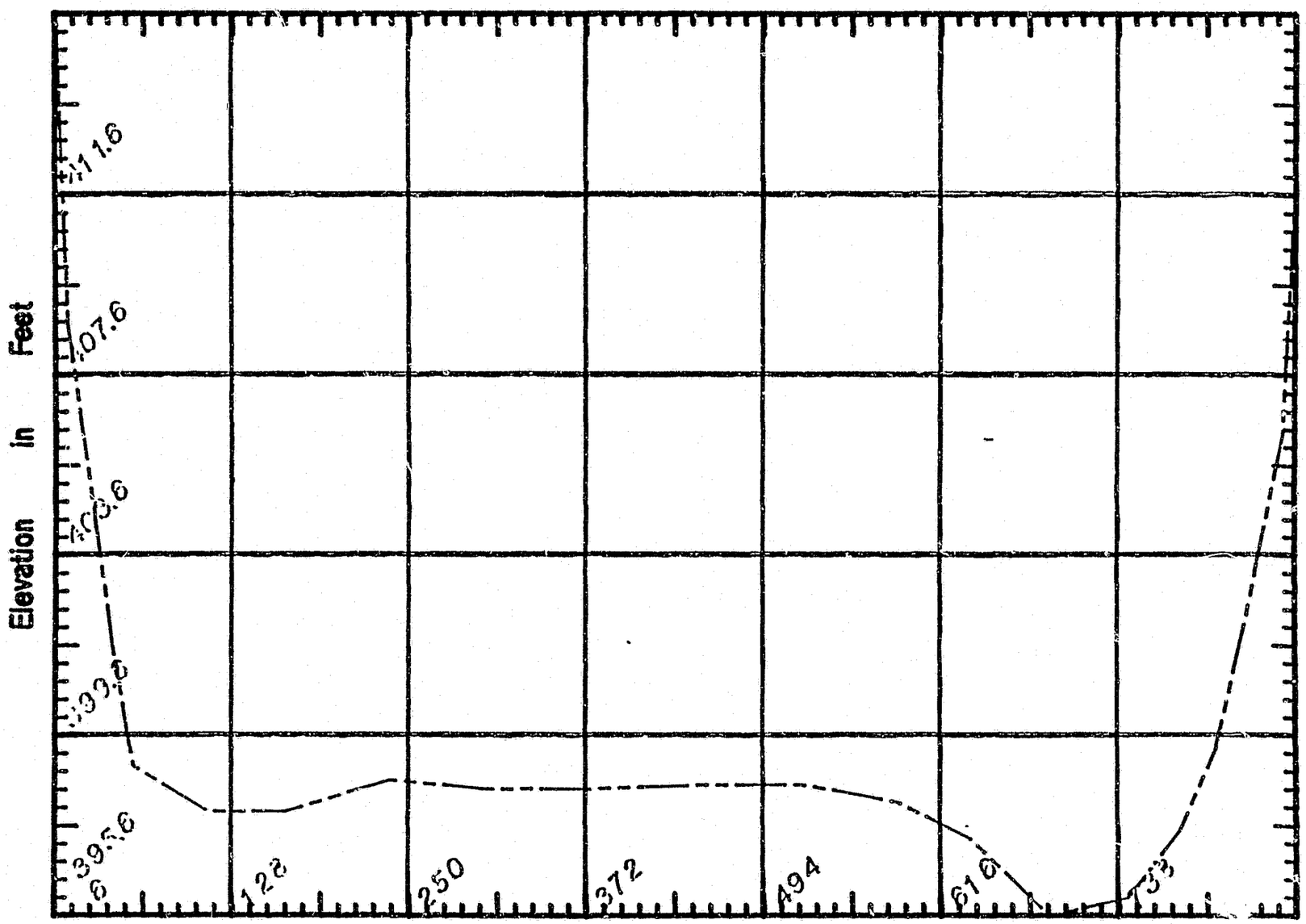
CROSS-SECTION Number 10.1

PREPARED FOR:

ACRES

C-27

SUSITNA HYDROELECTRIC PROJECT



PREPARED BY:

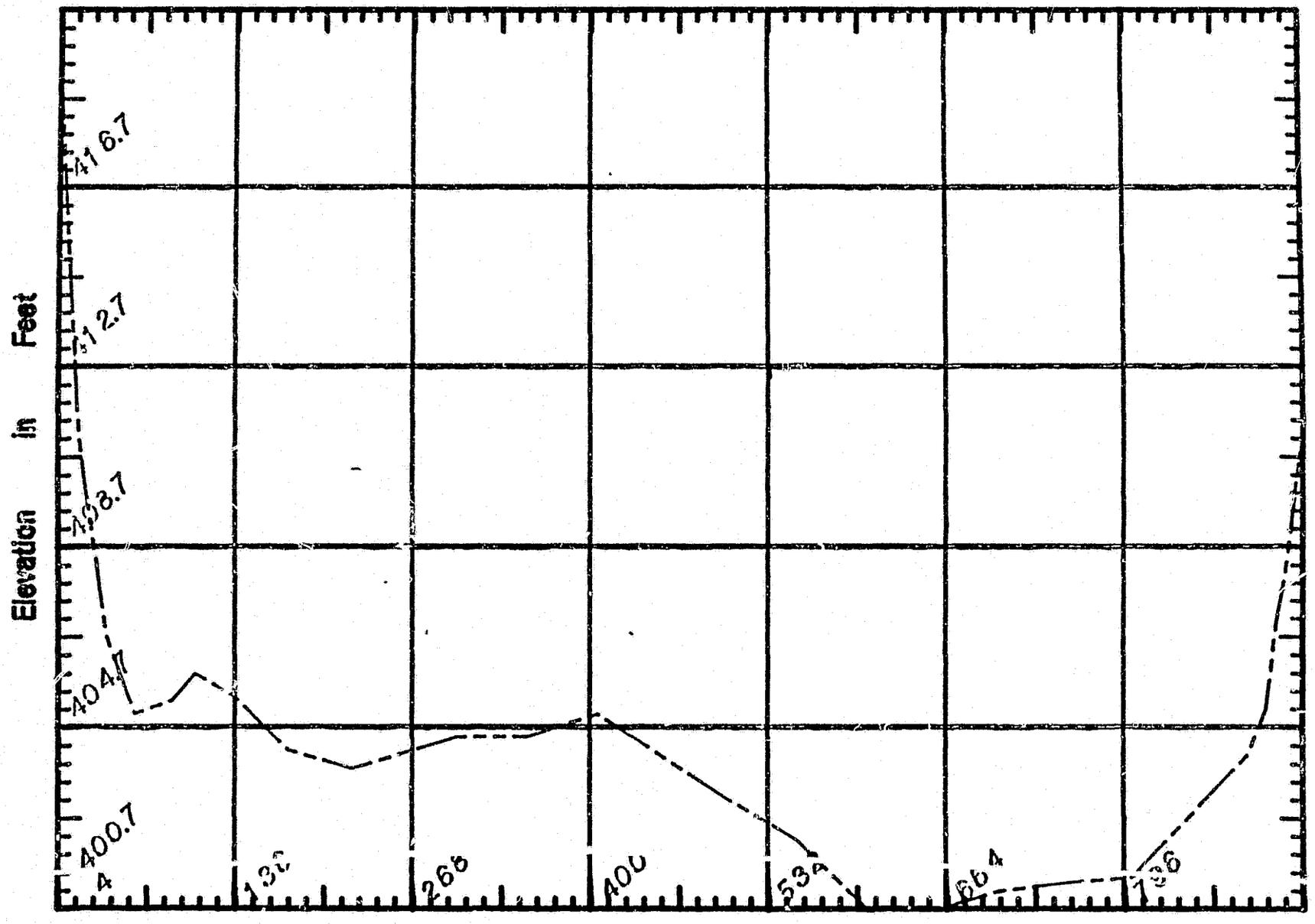
R&M CONSULTANTS, INC.

CROSS-SECTION Number 10.2

PREPARED FOR:

ACRES

SUSITNA HYDROELECTRIC PROJECT



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R&M CONSULTANTS, INC.

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PREPARED FOR:

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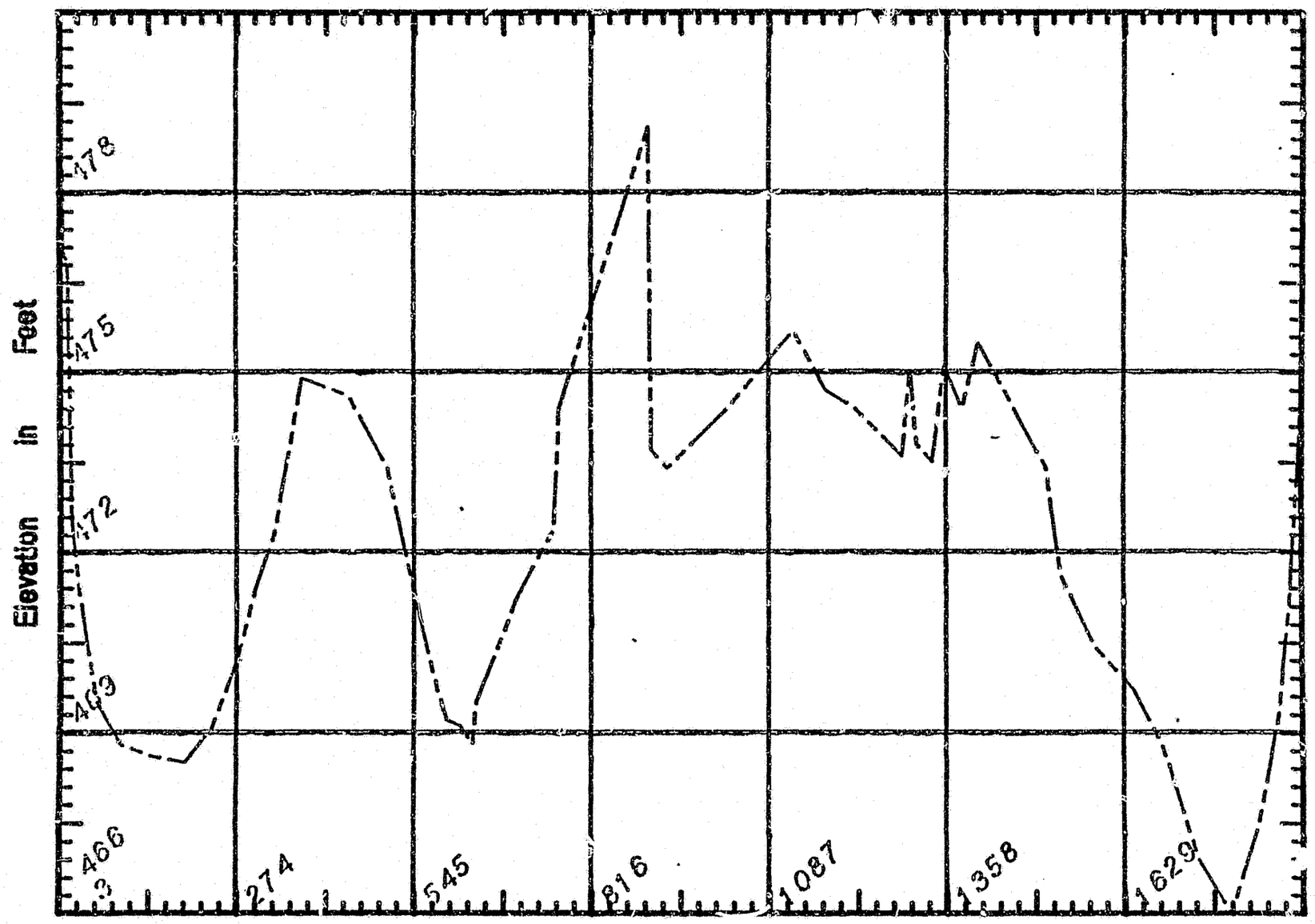
SUSITNA HYDROELECTRIC PROJECT



PREPARED BY:

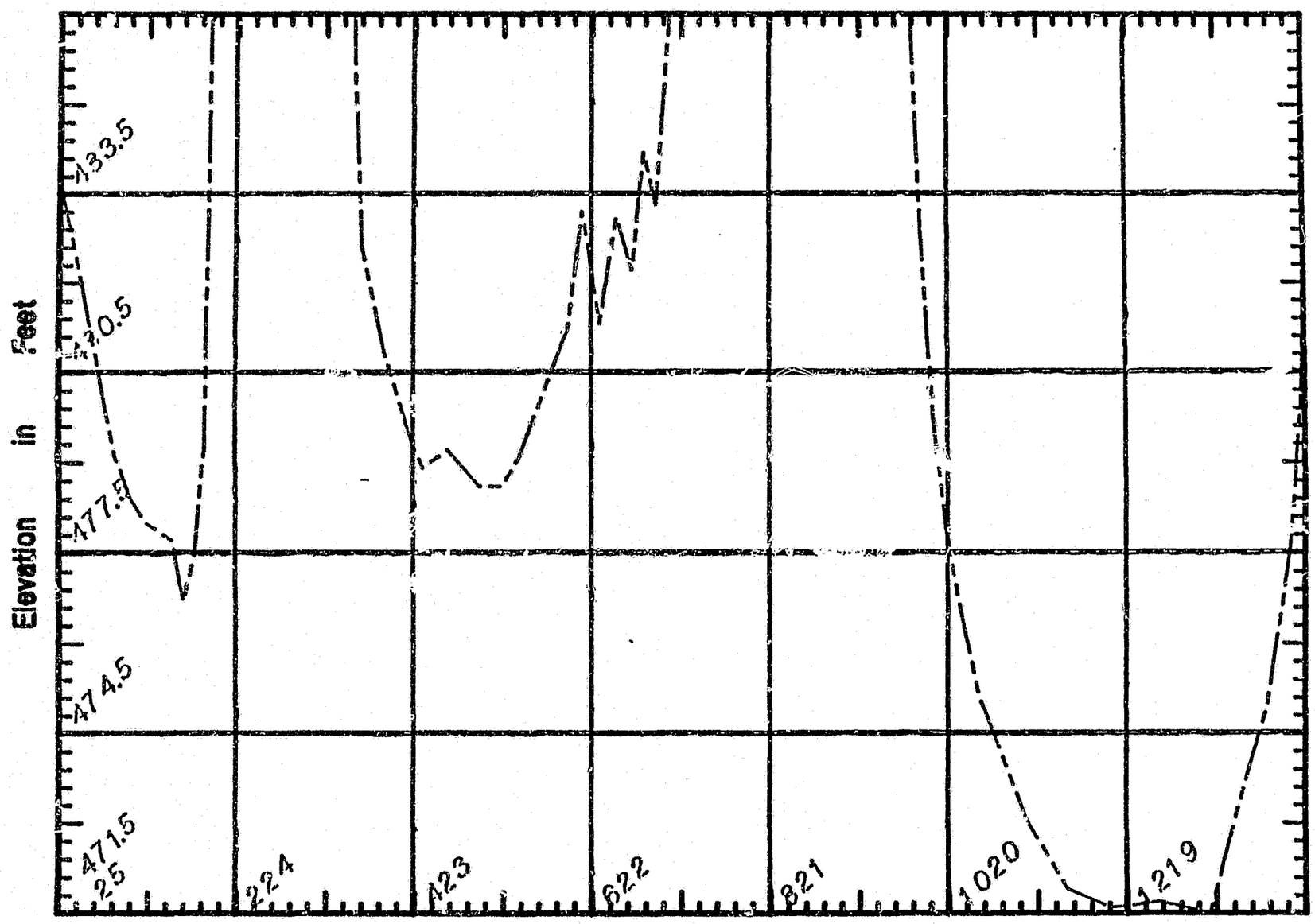
R&M CONSULTANTS, INC.

CROSS-SECTION Number 18.1

PREPARED FOR:

ACRES

SUSITNA HYDROELECTRIC PROJECT



PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 18.2

PREPARED FOR:

ACRES

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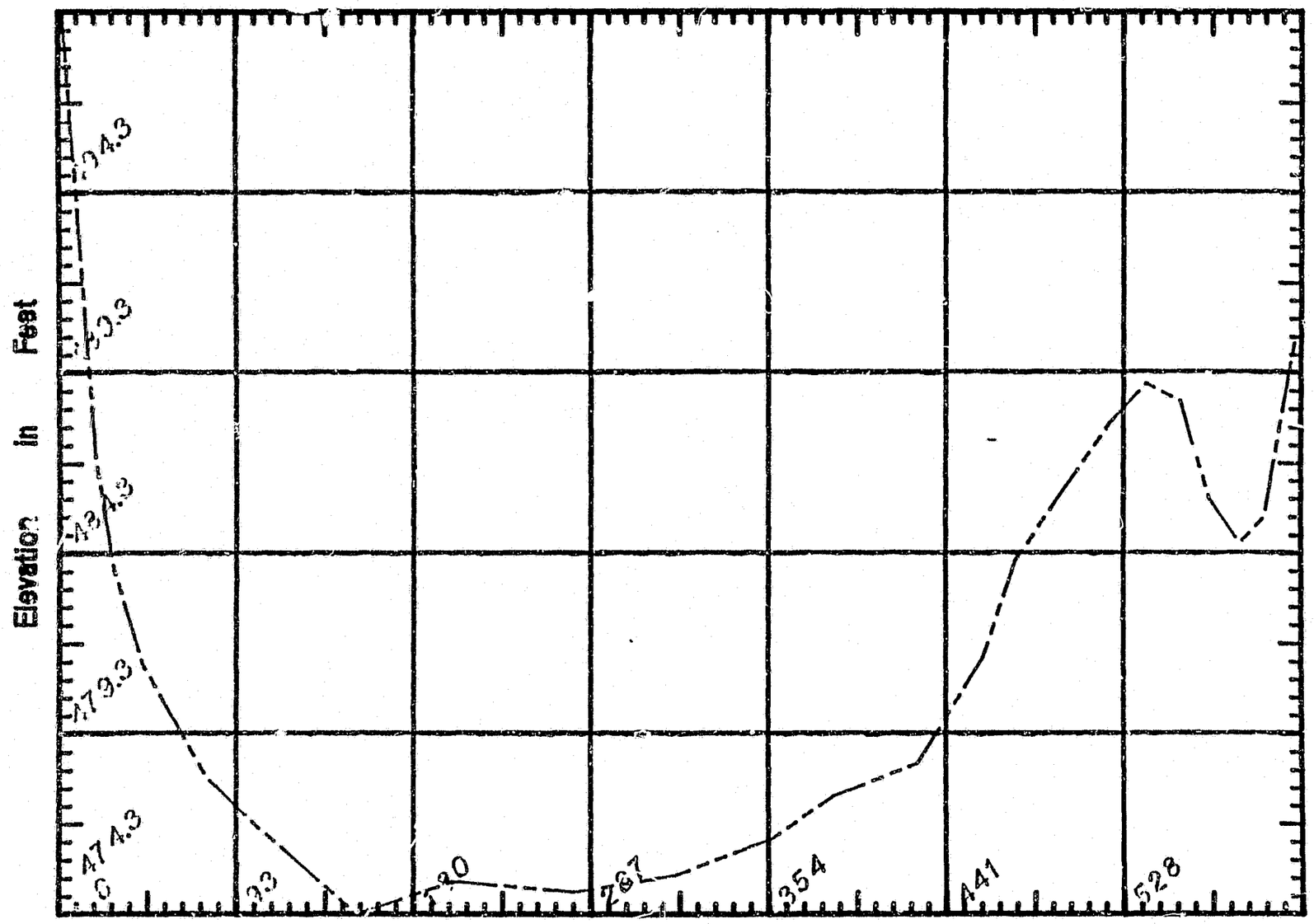


PREPARED BY:

R&M CONSULTANTS, INC.

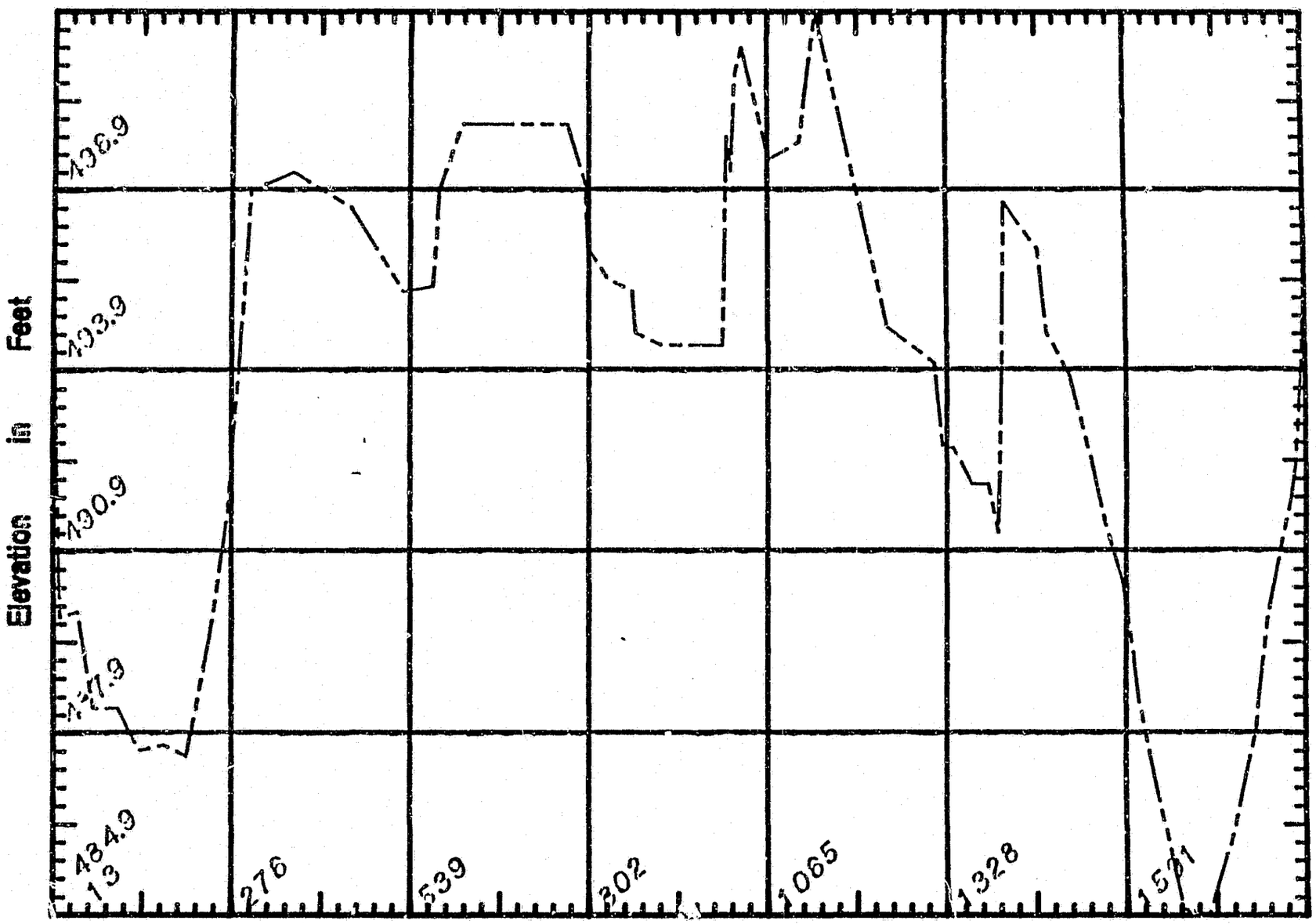
CROSS-SECTION Number 18.3

PREPARED FOR:

ACRES

C-32

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

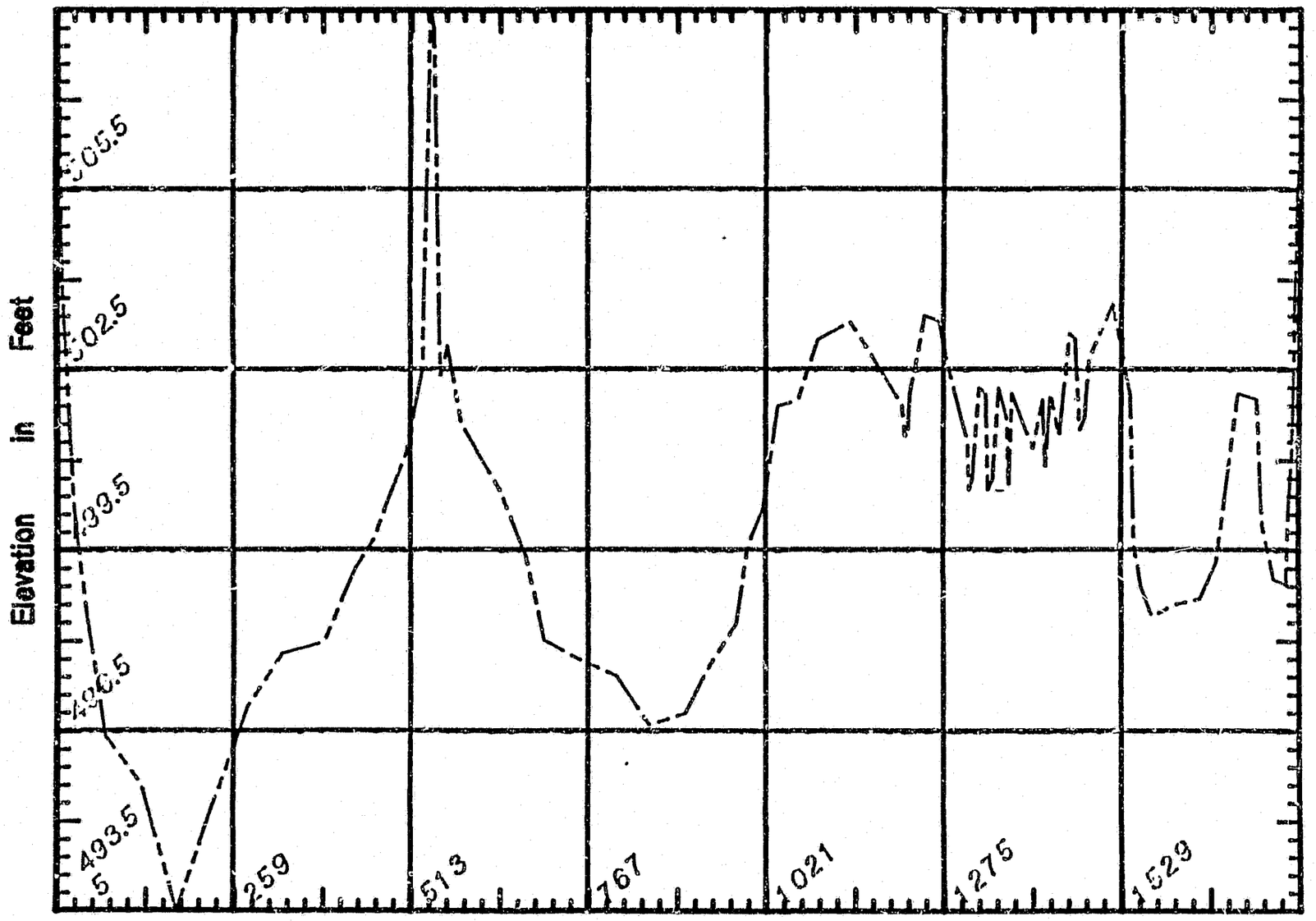
R&M CONSULTANTS, INC.

CROSS-SECTION Number 19.1

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

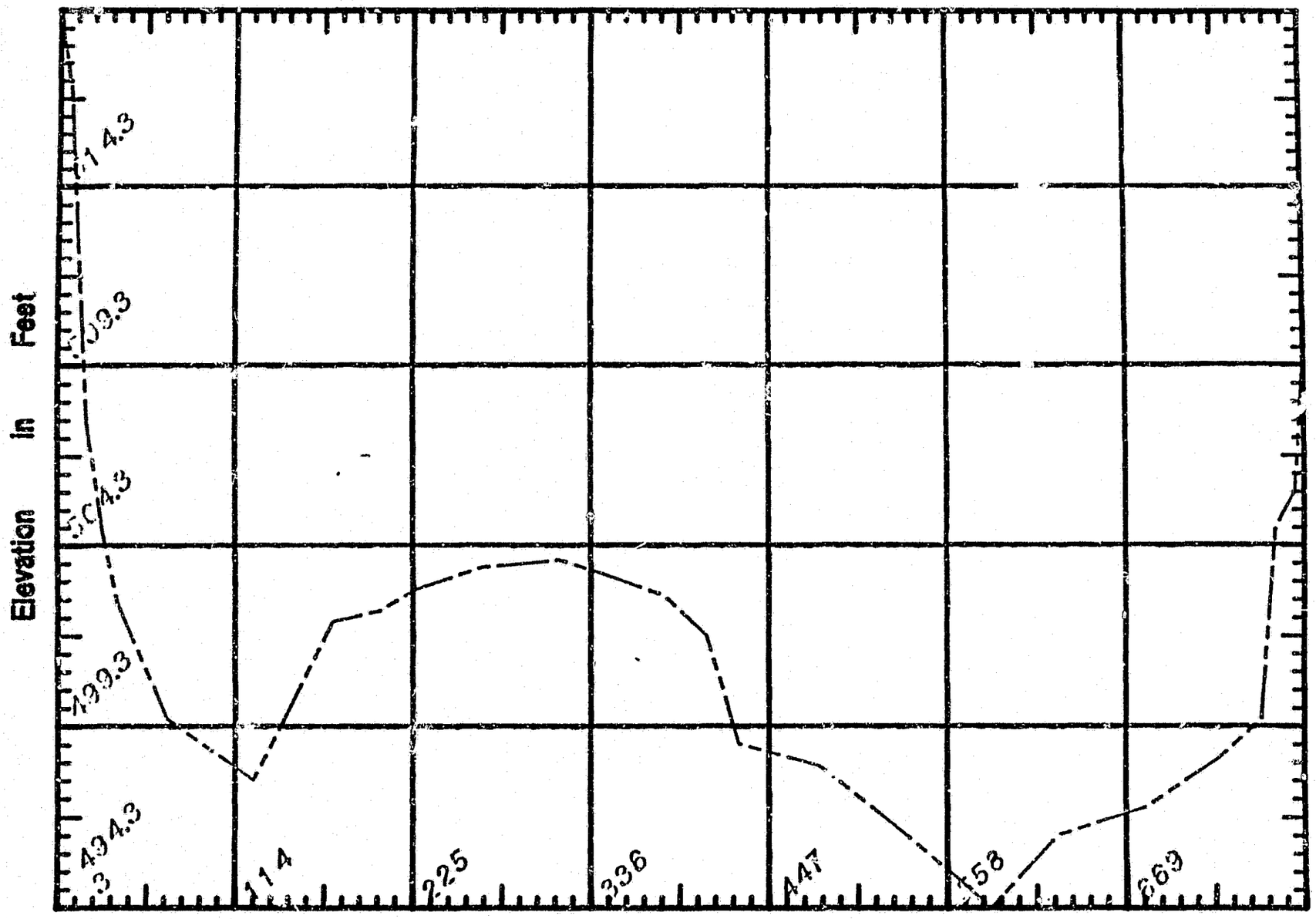
R&M CONSULTANTS, INC.

CROSS-SECTION Number 20.1

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

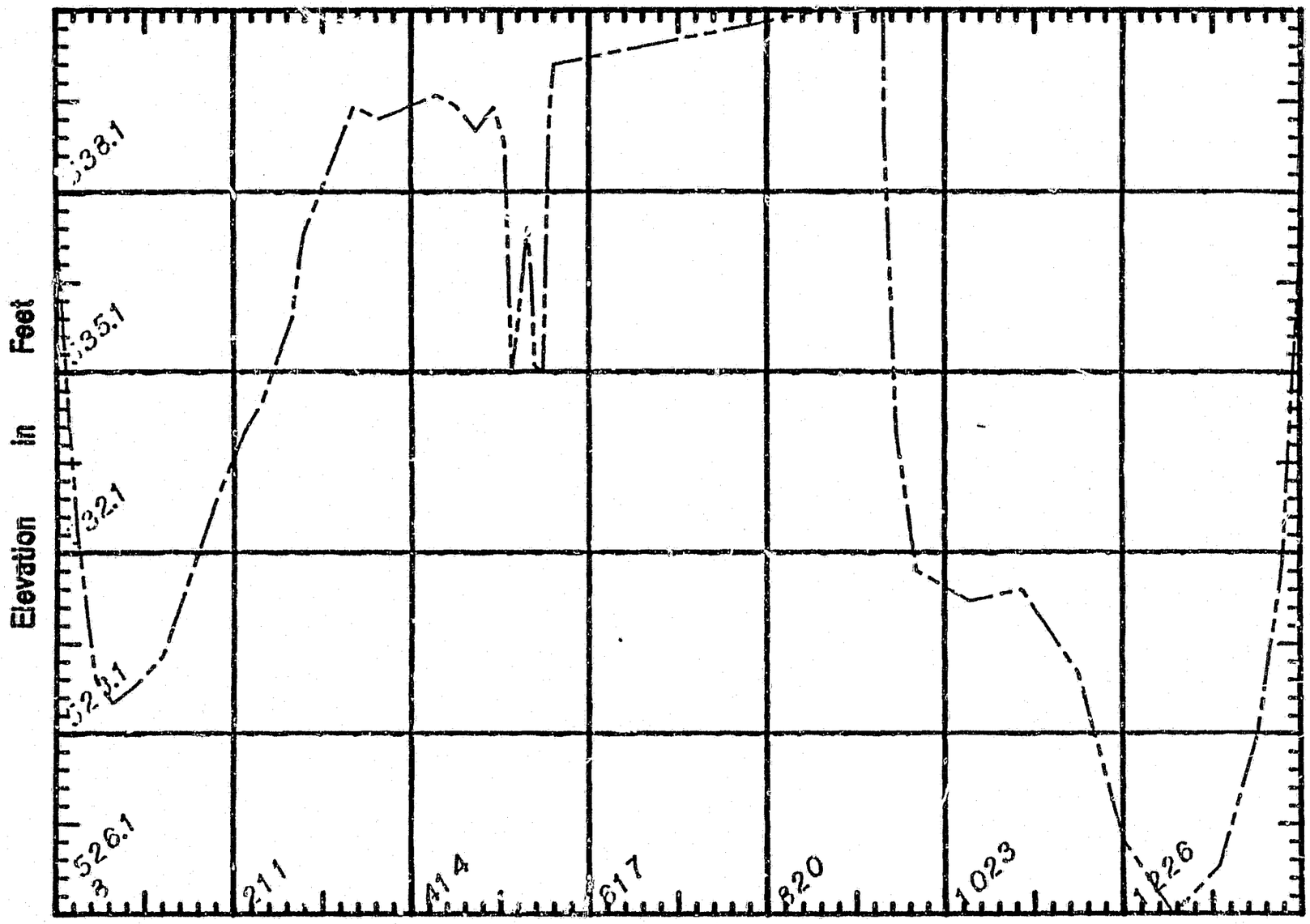
R&M CONSULTANTS, INC.

CROSS-SECTION Number 20.2

PREPARED FOR:

ACRES

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

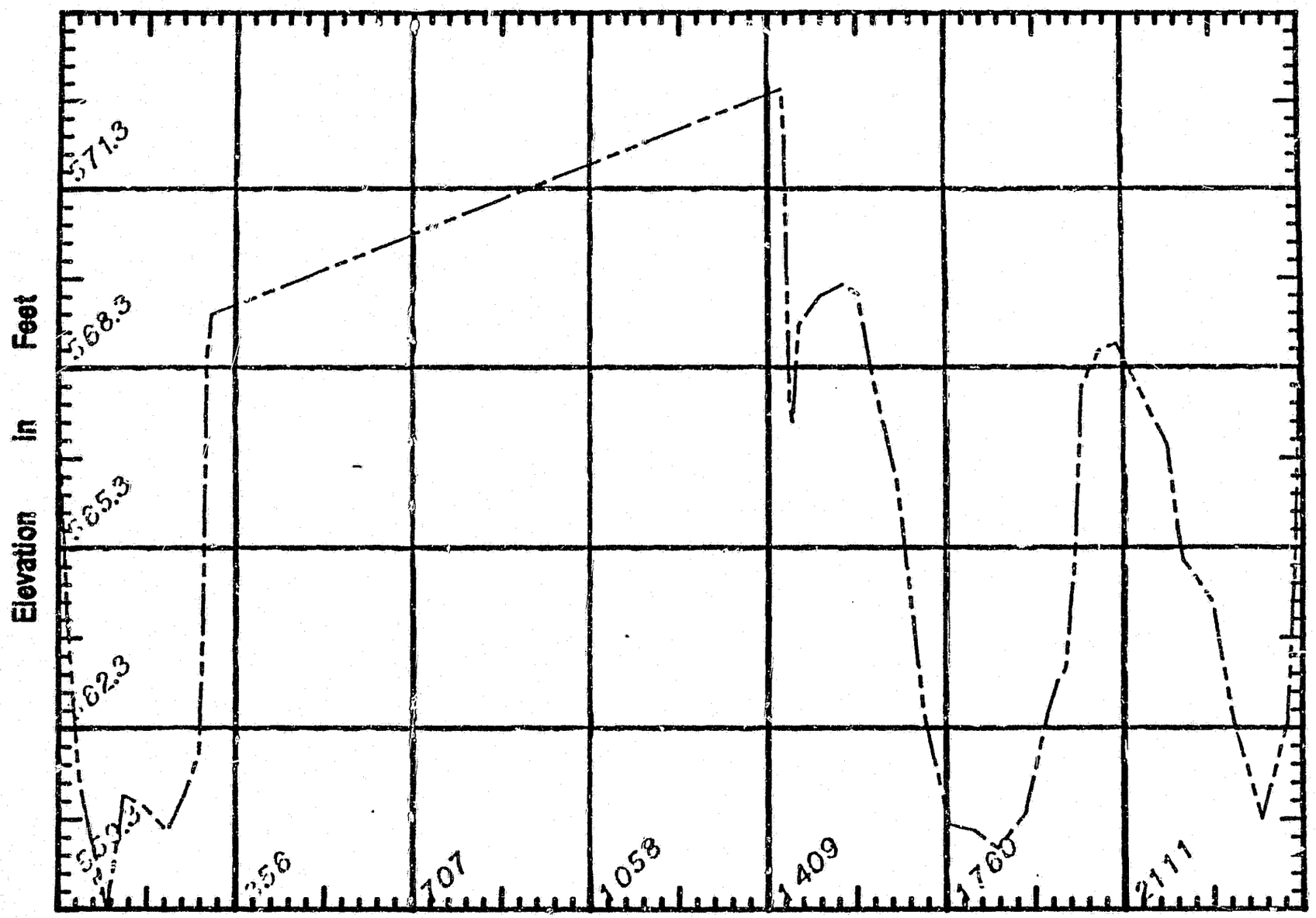
R&M CONSULTANTS, INC.

PREPARED FO

ACRES

CROSS-SECTION Number 25.1

SUSITNA HYDROGRAPHIC SURVEYS



PREPARED BY:

R&M CONSULTANTS, INC.

CROSS-SECTION Number 28.1

PREPARED FOR:

ACRES

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DATA FILE FOR ICESIM
T1                          SUSITNA HYDROELECTRIC PROJECT
T2                  SUBTASK 3.06 HYDRAULIC AND ICE STUDIES
T3            SUSITNA RIVER-LOWER REACH (DEVIL CANYON TO TALKEETNA)
X1    0.3       90       02     4726       00       00       00       00       00
GR  321.8        2    318.8        7    317.3       15    315.0       23    310.5       43
GR  306.1       93    304.0      142    305.1      190    308.7      245    311.9      294
GR  314.0      345    312.5      395    310.8      435    312.1      472    317.2      492
GR  318.3      498    321.5      506    320.4      588    318.8      590    319.6      599
GR  319 8      660    317.3      719    319.0      802    316.7      875    319.7     1063
GR  318.8     1076    319.5     1198    319.5     1298    320.4     1308    319.4     1376
GR  320.4     1475    319.8     1571    318.8     1607    316.7     1682    320.6     1739
GR  319.9     1790    318.1     1946    320.3     1962    320.9     1991    320.0     2036
GR  313.7     2040    311.7     2045    309.7     2061    308.5     2098    308.1     2138
GR  3' 1.7    2188    309.7     2222    311.4     2246    312.8     2267    313.7     2290
GR  315.3     2310    315.8     2361    313.3     2485    312.8     2503    313.3     2516
GR  319.4     2639    319.5     2731    319.6     2858    317.1     2958    315.4     2971
GR  313.1     2999    313.0     3025    313.4     3066    315.0     3104    313.6     3188
GR  313.6     3205    315.8     3219    314.8     3360    317.2     3451    318.0     3562
GR  318.5     3900    315.5     3910    313.2     3920    311.8     3942    313.8     4029
GR  315.5     4074    317.3     4147    317.5     4280    314.5     4334    312.3     4338
GR  314.3     4410    314.4     4491    315.5     4526    316.2     4541    318.0     4608
GR  313.7     4680    315.3     4687    311.1     4704    313.1     4714    319.5     4720
X1    0.4      100       04     4727     1700     1100     1700       00       00       00
GR  338.2        4    330.8       16    319.3       30    312.3       77    314.1      120
GR  313.0      175    312.8      225    313.4      277    313.0      325    312.8      379
GR  312.5      430    311.0      487    311.0      535    313.0      586    313.3      613
GR  315.2      632    319.2      650    322.3      691    321.9      796    320.6      821
GR  319.6      855    319.2      882    318.5      945    317.8     1021    317.3     1088
GR  318.2     1124    318.4     1130    318.4     1148    317.9     1151    315.3     1168
GR  311.8     1201    311.5     1233    315.9     1261    313.9     1301    313.6     1333
GR  316.3     1380    318.3     1417    321.0     1467    321.7     1518    321.5     1585
GR  321.4     1650    322.4     1879    319.3     1910    318.5     1957    321.9     2063
GR  322.1     2215    319.8     2265    321.0     2292    322.0     2356    321.2     2402
GR  319.9     2407    322.4     2488    321.8     2548    320.3     2554    320.2     2570
GR  322.2     2618    321.7     2777    319.1     2857    316.5     2864    310.9     2894
GR  311.2     2927    313.2     2958    315.3     2992    316.5     3015    317.4     3029
GR  320.7     3144    319.4     3252    318.0     3285    317.9     3363    316.5     3378
GR  321.8     3398    321.7     3433    325.0     3503    321.3     3426    315.0     3641
GR  313.5     3650    315.1     3665    315.9     3703    318.4     3831    317.8     3956
GR  316 5     3983    314.7     4030    313.5     4084    312.8     4116    312.4     4146
GR  312.5     4180    312.7     4211    316.5     4221    320.5     4271    320.3     4365
GR  318.0     4402    317.3     4537    315.4     4552    312.4     4562    310.9     4668
GR  312.9     4673    315.5     4674    316.5     4699    320.1     4720    323.0     4720
X1    0.5      100       03     5241     1900     1200     1920       00       00       00
GR  331.5        3    320.1       17    304.5       48    304.1       95    304.1      134
GR  307.8      187    311.1      248    312.0      290    310.9      326    309.9      372
GR  312.8      412    317.1      428    320.3      440    325.3      452    325.7      481
GR  325.2      728    324.5      732    321.8      734    320.1      743    323.1      753
GR  322.7      812    324.8      879    323.4      977    324.3     1078    322.0     1186
GR  325.1     1201    321.5     1225    323.7     1387    323.5     1615    320.0     1782
GR  318.3     1813    316.8     1840    318.5     1872    318.8     1879    325.3     1895
GR  325.3     1984    324.2     2058    324.8     2177    324.6     2240    323.1     2245
GR  323.3     2301    321.4     2305    323.8     2342    323.4     2355    320.1     2391
GR  325.2     2447    324.7     2531    325.0     2641    324.9     2660    321.3     2663
GR  320.1     2667    321.7     2696    317.5     2751    317.2     2783    314.4     2808
GR  316.4     2864    317.4     2905    321.6     2975    322.9     3101    323.3     3137
GR  322.6     3153    321.5     3178    318.0     3191    315.0     3199    313.5     3208
GR  311.3     3232    313.0     3260    315.1     3288    316.2     3310    318.0     3331
GR  318.3     3345    319.0     3436    320.4     3484    319.3     3529    318.2     3563
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GR	317.1	3606	317.9	3648	318.2	3694	321.3	3816	323.0	3925
GR	322.3	3952	323.4	4075	322.3	4230	320.7	4392	321.1	4622
GR	321.8	4665	320.8	4764	319.8	4767	320.4	4871	319.8	4934
GR	319.5	4906	319.4	5116	317.7	5169	315.9	5181	315.3	5199
GR	314.4	5207	314.3	5229	315.9	5332	318.6	5237	323.1	5241
X1	0.6	98	02	6362	2250	3200	2380	00	00	00
GR	328.3	2	323.5	7	321.8	12	322.2	62	322.5	109
GR	323.4	125	326.8	129	327.2	159	326.5	201	323.7	206
GR	320.7	212	316.4	250	313.6	299	315.2	356	316.6	413
GR	318.0	461	318.6	525	321.4	571	324.1	597	326.2	606
GR	323.6	784	322.4	788	320.0	808	322.4	824	328.5	829
GR	328.8	840	326.2	861	324.4	894	329.1	1121	326.9	1185
GR	323.4	1239	324.1	1247	323.3	1251	320.3	1256	319.3	1275
GR	320.6	1305	323.3	1318	324.6	1357	325.4	1436	323.8	1445
GR	323.6	1465	323.0	1482	318.5	1499	314.6	1550	314.0	1605
GR	313.6	1657	315.2	1724	319.3	1785	321.6	1830	323.0	1860
GR	323.4	1900	323.8	1981	323.4	1982	321.4	2002	323.4	2025
GR	328.6	2139	328.2	2154	323.2	2428	327.6	2635	325.4	2725
GR	327.2	3127	324.7	3214	322.5	3219	319.3	3234	320.3	3274
GR	321.7	3330	322.4	3366	325.3	3486	321.8	3591	321.2	3601
GR	321.9	3609	325.2	3617	327.1	4204	327.4	4228	326.1	4248
GR	323.3	4253	321.9	4259	321.4	4287	323.4	4316	325.2	4358
GR	325.4	4657	327.9	5053	324.2	5230	327.5	5577	324.4	3705
GR	322.4	5745	321.4	5762	321.0	5797	322.5	5806	323.6	5886
GR	325.4	6078	320.8	6246	318.8	6255	313.8	6279	312.8	6301
GR	314.2	6335	320.7	6356	327.8	6362				
X1	0.7	99	05	5578	1700	2200	2050	00	00	00
GR	329.2	5	325.4	14	323.3	20	324.0	44	323.4	69
GR	325.4	71	328.4	76	328.4	81	327.2	85	325.3	86
GR	322.8	89	322.3	92	324.1	100	325.6	111	325.8	115
GR	325.8	118	325.2	125	323.8	147	322.8	159	321.6	199
GR	321.4	284	317.6	353	317.0	404	315.6	459	316.6	504
GR	317.0	525	322.8	548	325.2	552	325.7	593	329.0	815
GR	328.9	951	329.2	1096	325.0	1109	323.0	1116	324.0	1174
GR	324.7	1206	328.3	1300	330.0	1437	328.7	1478	325.5	1494
GR	324.0	1502	322.9	1516	325.2	1538	324.1	1560	325.8	1586
GR	328.5	1619	326.8	1770	325.1	1776	322.7	1809	322.1	1869
GR	322.1	1919	323.1	1963	323.6	1972	319.1	2008	320.7	2063
GR	321.5	2112	323.1	2153	323.9	2167	325.3	2201	329.5	2300
GR	329.6	2452	327.6	2600	327.0	2668	325.6	2691	327.0	2718
GR	328.6	2847	330.0	2872	327.9	3061	329.9	3203	327.7	3275
GR	326.2	3319	326.3	3390	325.2	3440	322.3	3500	320.3	3558
GR	319.7	3612	319.7	3660	322.6	3696	327.8	3725	329.7	3748
GR	330.1	3845	326.9	4136	326.6	4137	325.4	4143	324.8	4209
GR	325.0	4283	326.6	4324	330.4	4396	329.3	4906	325.7	5007
GR	323.4	5054	322.4	5119	321.8	5259	322.1	5279	325.8	5340
GR	328.0	5377	329.0	5416	324.5	5563	333.0	5578		
X1	0.8	100	05	6226	2700	2000	1950	00	00	00
GR	340.4	5	329.7	27	327.7	30	324.8	118	321.1	284
GR	324.3	416	329.5	490	331.7	530	330.9	681	328.6	721
GR	325.9	744	326.7	780	328.7	799	332.2	878	329.6	1087
GR	327.7	1110	327.0	1136	327.7	1156	330.8	1166	330.7	1454
GR	331.4	1980	329.9	2053	327.8	2092	325.6	2133	324.2	2163
GR	321.9	2213	321.9	2233	324.2	2249	327.9	2259	332.0	2263
GR	330.6	2664	332.4	2724	327.4	2746	324.1	2768	322.6	2787
GR	326.3	2831	326.0	2871	325.1	2895	325.1	2919	324.6	2950
GR	321.3	3049	323.6	3085	327.9	3117	330.4	3138	330.4	3347
GR	328.8	3353	328.1	3361	326.8	3388	326.6	3411	325.4	3422
GR	327.5	3440	328.9	3445	329.4	3448	331.7	3614	329.5	3622
GR	328.1	3642	327.5	3688	326.2	3733	322.7	3830	321.5	3930

GR	321.7	3980	321.7	4030	323.9	4085	326.5	4120	327.7	4167
GR	328.7	4199	329.4	4213	329.9	4228	329.2	4447	328.2	4453
GR	327.3	4473	327.7	4500	327.6	4530	328.3	4577	328.6	4586
GR	327.9	4600	327.2	4634	325.7	4649	326.3	4685	326.4	4740
GR	323.9	4770	324.2	4785	325.1	4797	327.9	4804	328.4	4805
GR	328.0	5022	327.4	5035	325.6	5058	326.6	5074	325.0	5097
GR	327.5	5109	327.9	5110	331.4	5802	330.6	5804	327.8	5816
GR	324.0	5829	325.8	5859	330.6	5878	332.6	6096	334.5	6226
X1	0.9	99	01	4531	2400	1450	2550	00	00	00
GR	338.0	1	332.2	8	331.4	13	331.2	31	329.5	39
GR	329.2	53	329.7	70	332.5	81	332.5	104	330.9	109
GR	331.1	136	328.2	182	329.0	230	328.9	275	330.5	318
GR	332.5	356	332.7	388	333.2	393	333.7	480	332.7	497
GR	330.7	513	325.9	540	325.3	568	325.0	603	325.9	655
GR	328.2	760	329.0	810	329.4	846	329.7	895	330.4	952
GR	330.1	999	329.8	1044	330.7	1113	331.2	1163	333.7	1171
GR	332.4	1208	331.9	1216	330.8	1230	333.6	1300	334.4	1390
GR	333.3	1456	332.8	1532	333.0	1592	332.0	1624	330.8	1655
GR	333.0	1662	332.6	1860	331.0	1988	331.6	2060	333.4	2072
GR	332.3	2156	329.8	2280	329.4	2337	330.1	2417	328.9	2458
GR	327.0	2524	330.3	2605	328.8	2668	329.3	2700	329.9	2750
GR	327.4	2805	331.6	2892	330.3	2915	328.4	3005	329.8	3110
GR	330.2	3131	332.3	3172	333.0	3191	332.1	3257	330.0	3292
GR	332.1	3311	333.8	3684	331.8	3728	330.9	3783	331.8	3797
GR	332.2	3924	332.0	3939	330.6	3971	329.5	3984	329.3	4006
GR	327.7	4063	326.3	4111	324.3	4171	325.3	4209	327.3	4253
GR	327.9	4293	328.9	4340	328.9	4389	330.3	4420	332.6	4438
GR	333.2	4455	332.1	4460	330.3	4468	331.5	4480	329.1	4494
GR	330.7	4505	332.1	4509	333.7	4510	336.2	4531		
X1	1	100	03	3851	1380	1300	2180	00	00	00
GR	336.3	3	333.7	11	332.7	24	331.7	30	333.7	39
GR	334.7	43	335.3	63	336.2	86	336.5	150	336.9	195
GR	336.0	229	334.5	255	333.8	295	332.6	324	332.4	330
GR	333.8	359	335.8	385	333.9	400	332.0	425	330.9	453
GR	330.6	472	330.7	489	330.2	504	329.8	524	329.1	547
GR	323.9	560	328.0	582	321.9	598	320.4	630	323.8	707
GR	327.0	867	329.8	910	332.5	933	334.0	972	334.6	1029
GR	334.1	1070	333.0	1150	333.7	1288	333.3	1368	332.9	1457
GR	332.0	1505	332.4	1546	332.1	1611	332.7	1618	332.7	1648
GR	326.3	1668	327.2	1696	326.9	1728	326.1	1768	327.4	1810
GR	333.8	1829	336.5	2288	333.8	2298	332.6	2314	333.8	2340
GR	333.6	2376	334.6	2416	334.3	2472	332.9	2503	332.8	2520
GR	334.3	2541	336.1	2562	334.4	2602	331.0	2614	330.2	2622
GR	334.2	2634	334.3	2643	335.3	2645	335.3	2656	334.4	2657
GR	332.4	2677	334.9	2693	334.3	2696	330.3	2711	332.1	2714
GR	334.1	2748	324.5	2776	328.3	2829	330.3	2902	329.1	2974
GR	331.6	3031	332.1	3174	332.6	3226	331.1	3254	332.7	3304
GR	333.8	3371	333.8	3425	334.4	3438	334.4	3493	333.9	3529
GR	333.8	3597	332.9	3624	330.3	3665	330.3	3704	330.2	3751
GR	323.8	3785	320.1	3817	322.3	3828	330.4	3845	337.9	3851
X1	1.1	92	03	4132	1620	1110	1540	00	00	00
GR	339.6	3	335.6	10	334.9	23	333.1	28	330.0	36
GR	331.2	69	332.2	114	330.1	164	331.5	214	330.8	189
GR	326.9	239	333.9	277	334.1	314	334.8	316	335.8	317
GR	336.9	389	335.4	472	334.7	481	333.5	503	333.6	529
GR	332.8	551	334.8	571	335.0	581	334.7	589	333.9	617
GR	332.6	647	331.5	664	329.3	674	327.4	689	327.8	700
GR	325.9	712	326.7	743	325.4	767	325.5	797	326.3	824
GR	327.6	865	328.8	886	330.5	923	332.5	951	332.0	966
GR	333.5	1018	335.2	1082	338.1	1146	336.8	1666	335.6	1785

GR	334.8	1790	332.4	1802	333.6	1815	334.2	1839	335.3	1854
GR	337.7	1894	339.3	2195	335.0	2205	338.6	2425	336.1	2724
GR	338.1	2970	336.2	2975	335.4	2980	335.0	2985	335.6	2993
GR	335.8	3000	334.6	3008	332.4	3028	331.4	3056	331.8	3086
GR	332.6	3136	332.4	3186	332.4	3232	332.6	3271	332.0	3305
GR	331.4	3346	331.8	3386	331.0	3432	330.8	3491	330.6	3541
GR	330.2	3599	329.8	3664	331.0	3704	333.0	3729	337.1	3756
GR	337.8	3793	337.5	3885	336.0	3939	335.4	3974	334.1	3990
GR	330.7	4003	330.1	4028	331.1	4049	331.0	4070	334.1	4097
GR	335.9	4120	339.6	4132						
X1	1.2	96	12	4249	2150	1380	1590	00	00	00
GR	342.2	12	340.6	16	338.6	25	335.6	40	334.3	43
GR	331.3	69	332.1	106	331.6	145	331.4	180	333.2	222
GR	334.3	265	334.6	287	335.2	314	335.6	336	336.8	359
GR	337.9	384	338.3	398	338.4	410	339.8	423	339.8	671
GR	336.5	817	334.7	850	335.7	875	336.6	901	336.6	956
GR	335.7	983	335.5	1015	336.6	1044	338.8	1130	338.0	1594
GR	338.2	1673	338.8	1722	338.4	1786	337.4	1802	335.7	1816
GR	335.1	1825	333.6	1856	333.9	1876	335.0	1898	335.3	1927
GR	335.0	1962	333.4	2005	332.6	2049	332.9	2082	333.6	2118
GR	334.2	2149	334.5	2192	335.1	2227	335.4	2260	335.4	2297
GR	335.8	2322	335.9	2333	336.0	2360	336.4	2397	338.4	2425
GR	339.5	2457	339.9	2622	339.9	2635	338.2	2646	337.8	2657
GR	336.9	2692	336.9	2727	340.4	2811	337.0	2890	339.2	2917
GR	338.7	2937	337.8	3061	340.2	3359	339.9	3392	337.8	3395
GR	335.0	3400	331.0	3426	332.3	3445	334.8	3472	333.4	3559
GR	334.1	3603	334.0	3641	333.0	3713	331.7	3749	330.3	3789
GR	327.5	3829	325.2	3859	325.0	3899	327.8	3934	330.8	3959
GR	334.3	3989	338.0	4001	339.8	4011	339.7	4077	337.4	4159
GR	336.3	4179	336.1	4196	336.4	4210	336.1	4227	335.8	4238
GR	341.4	4249								
X1	2	73	03	2762	1460	1080	1680	00	00	00
GR	343.7	3	340.3	10	335.8	18	332.7	43	335.3	90
GR	337.3	130	337.9	177	337.9	230	337.7	255	337.6	324
GR	336.6	397	335.5	456	335.7	500	337.3	530	340.9	559
GR	343.2	570	342.0	627	340.0	649	337.2	658	337.4	665
GR	340.0	671	341.1	673	342.2	703	343.4	772	343.1	792
GR	341.3	793	340.9	806	342.5	814	342.2	831	341.1	832
GR	338.9	837	337.4	879	337.6	917	337.7	952	337.8	987
GR	337.8	1022	337.8	1067	337.6	1122	337.6	1172	337.7	1227
GR	338.0	1272	337.5	1317	338.8	1357	340.6	1396	341.4	1419
GR	340.7	1494	340.9	1588	342.1	1724	339.8	1830	338.3	1867
GR	337.1	1890	335.5	1932	331.1	1972	329.3	2022	329.1	2069
GR	327.9	2130	328.1	2180	330.8	2281	334.4	2324	335.9	2382
GR	337.6	2429	338.5	2467	338.6	2502	336.5	2521	335.6	2561
GR	337.3	2581	338.3	2631	335.3	2661	334.6	2711	334.8	2731
GR	336.1	2750	338.1	2756	342.8	2762				
X1	2.1	100	10	3399	540	1675	515	00	00	00
GR	340.4	10	337.8	14	333.2	17	331.4	46	333.4	68
GR	334.7	105	334.6	145	333.9	195	333.6	245	333.4	295
GR	333.8	345	333.6	395	333.8	435	335.3	466	336.3	481
GR	341.2	496	342.2	508	341.8	563	343.1	605	341.4	641
GR	339.8	668	339.2	700	338.0	745	337.2	785	336.6	835
GR	336.2	885	336.2	930	336.4	985	336.4	1035	336.6	1095
GR	337.4	1135	337.8	1180	334.2	1235	334.2	1280	337.4	1310
GR	338.8	1353	340.7	1376	343.4	1383	342.9	1402	342.3	1472
GR	342.5	1544	341.5	1580	340.7	1623	339.9	1652	338.4	1673
GR	336.5	1712	335.2	1735	338.1	1750	341.4	1756	341.8	1757
GR	342.1	1858	342.0	2032	341.8	2040	340.7	2101	339.9	2134
GR	339.8	2170	340.4	2201	340.5	2227	341.7	2239	341.7	2247

GR	341.6	2251	341.1	2261	341.6	2276	341.7	2313	337.3	2349
GR	336.4	2392	335.7	2441	333.2	2469	331.4	2512	330.7	2557
GR	329.9	2602	331.6	2652	332.2	2707	331.7	2752	332.7	2797
GR	333.4	2827	334.2	2847	334.2	2850	335.1	2887	341.8	2916
GR	343.2	2943	343.5	2963	341.4	2968	340.0	2989	341.3	3009
GR	342.1	3035	342.0	3051	341.6	3075	342.1	3092	344.0	3140
GR	341.8	3197	343.5	3258	344.4	3319	342.0	3352	339.7	3359
GR	338.5	3374	338.5	3390	341.9	3395	345.4	3399	345.6	3403
X1	2.2	95	04	3149	835	680	1055	00	00	00
GR	345.1	4	341.7	7	337.8	13	333.2	49	330.1	90
GR	328.9	134	331.3	182	330.0	237	328.1	288	327.2	348
GR	328.3	333	332.7	373	337.0	393	341.0	413	341.8	461
GR	342.7	496	343.4	552	343.5	573	343.3	645	342.6	687
GR	342.1	698	342.7	721	342.2	754	342.3	779	343.0	805
GR	345.5	850	345.2	926	344.1	930	343.6	975	341.6	1014
GR	340.6	1027	341.8	1053	341.9	1096	343.0	1104	343.5	1162
GR	344.5	1257	343.4	1345	344.3	1368	344.2	1459	343.8	1498
GR	342.9	1544	344.0	1573	344.9	1637	343.7	1722	341.5	1751
GR	343.2	1798	341.7	1828	341.4	1857	341.2	1879	341.7	1897
GR	343.5	1912	343.5	1950	342.9	1976	343.5	1984	344.6	1986
GR	343.9	2016	343.5	2038	341.4	2088	340.3	2111	339.7	2131
GR	339.7	2143	342.8	2150	341.6	2178	342.1	2204	343.5	2236
GR	345.9	2241	346.0	2331	345.3	2391	343.7	2394	342.7	2406
GR	343.9	2434	343.9	2447	343.7	2459	343.2	2508	343.2	2562
GR	341.6	2601	342.4	2629	341.5	2651	343.3	2678	343.6	2704
GR	343.4	2717	342.0	2760	340.9	2783	336.2	2861	338.3	2903
GR	338.0	2936	339.2	2974	340.4	3000	341.3	3026	341.6	3056
GR	340.5	3091	341.0	3110	341.6	3129	343.5	3142	346.6	3149
X1	2.3	100	07	4101	945	1500	1015	00	00	00
GR	346.8	7	342.3	11	337.7	16	334.5	50	331.6	94
GR	330.2	138	329.1	181	329.6	224	337.3	268	338.1	325
GR	339.4	352	342.6	357	342.4	395	341.9	430	342.1	456
GR	342.6	482	343.6	482	342.2	535	343.3	570	343.4	614
GR	342.2	651	342.7	700	339.5	764	338.6	799	338.8	817
GR	340.7	838	343.5	851	344.1	875	344.7	896	344.7	915
GR	344.2	916	342.4	920	342.9	945	341.8	974	342.1	993
GR	340.8	1008	340.6	1020	344.1	1036	344.4	1044	344.1	1054
GR	343.8	1074	344.2	1098	344.5	1127	346.6	1155	347.5	1294
GR	346.4	1409	346.8	1679	345.4	1755	344.5	1763	345.5	1774
GR	347.3	1820	346.5	1963	344.5	1968	342.9	1989	343.6	2009
GR	344.4	2018	344.6	2024	344.4	2029	344.3	2052	342.7	2077
GR	344.4	2099	345.9	2105	346.6	2255	344.5	2292	344.3	2316
GR	344.5	2344	346.2	2354	346.7	2505	345.7	2506	343.7	2509
GR	341.5	2539	342.2	2579	343.2	2592	342.6	2629	344.9	2640
GR	344.8	2670	345.9	2682	346.4	2700	345.9	2824	345.1	2844
GR	345.0	2867	343.6	2881	344.0	2901	346.0	2926	346.5	2969
GR	346.3	3142	344.2	3152	343.9	3180	344.3	3208	345.5	3278
GR	345.8	3301	346.0	3330	346.0	3529	343.4	3690	343.2	3763
GR	343.5	3821	344.7	3935	343.2	3960	342.5	3970	347.4	4101
X1	3	34	06	1681	740	1550	880	00	00	00
GR	346.7	6	344.1	13	340.9	24	338.0	52	334.6	118
GR	330.9	182	328.1	229	330.1	273	331.9	314	332.4	360
GR	333.9	408	334.7	454	338.0	499	339.9	540	340.1	576
GR	341.0	618	342.1	664	342.9	677	342.5	730	344.5	770
GR	345.1	818	345.1	880	346.0	965	346.1	1016	346.1	1094
GR	346.6	1185	346.5	1246	345.7	1250	345.4	1263	346.7	1268
GR	346.7	1307	347.4	1366	347.5	1406	347.0	1467		
X1	3.1	40	12	1246	885	740	860	00	00	00
GR	349.1	12	344.2	17	341.1	30	338.7	58	336.7	88
GR	336.6	116	336.9	158	338.0	200	339.0	250	341.7	270

GR	343.5	294	344.4	306	344.4	348	346.1	361	345.4	392
GR	344.5	421	342.4	444	341.5	475	340.8	530	340.4	584
GR	340.4	650	340.4	695	340.5	755	341.0	817	341.4	826
GR	344.6	838	346.1	865	346.2	889	345.2	897	342.9	916
GR	341.8	942	341.2	965	342.9	988	344.2	1022	343.2	1074
GR	343.9	1134	344.1	1200	345.0	1231	345.8	1243	349.7	1246
X1	3.2	42	11	1467	970	750	950	00	00	00
GR	350.0	11	347.9	15	345.7	26	342.8	44	342.3	69
GR	342.5	113	341.8	159	341.8	204	341.9	259	341.9	309
GR	342.4	362	344.4	450	345.2	493	344.7	569	343.5	624
GR	341.3	676	340.3	723	338.9	763	338.9	797	340.9	824
GR	343.1	839	345.4	847	348.5	858	349.6	939	349.9	1008
GR	349.7	1040	350.4	1059	350.0	1104	348.1	1107	346.4	1115
GR	345.2	1121	345.2	1152	343.8	1203	342.7	1232	342.8	1259
GR	344.2	1273	345.1	1319	344.8	1370	345.3	1415	342.8	1448
GR	346.3	1459	351.0	1467						
X1	3.3	36	09	1258	905	890	890	00	00	00
GR	352.6	9	348.7	12	347.3	18	345.1	27	342.7	65
GR	341.0	105	340.5	155	341.8	210	343.4	257	344.5	273
GR	347.0	291	347.2	306	347.3	311	347.2	316	346.0	361
GR	344.8	411	344.4	446	344.5	462	344.2	500	343.9	555
GR	345.1	610	343.9	665	343.7	718	344.0	760	345.8	807
GR	344.8	855	346.9	909	345.8	937	346.7	963	345.6	1031
GR	343.9	1058	345.2	1091	346.0	1136	346.7	1166	347.3	1185
GR	350.6	1258								
X1	3.4	37	05	1634	1135	450	1100	00	00	00
GR	360.4	5	351.7	8	349.1	15	346.7	22	343.8	72
GR	342.8	115	342.9	160	344.4	210	345.1	262	346.0	344
GR	347.6	401	348.6	452	348.5	479	348.9	507	350.0	538
GR	349.7	605	348.5	610	346.7	630	346.0	668	346.7	695
GR	348.6	716	350.1	779	350.5	856	349.3	884	348.0	913
GR	347.0	941	348.0	974	350.8	986	353.1	1012	352.7	1054
GR	351.5	1059	352.6	1065	351.9	1076	351.4	1109	351.0	1116
GR	350.5	1122	353.1	1147						
X1	4	68	00	2722	1325	1350	1020	00	00	00
GR	352.3	0	349.8	7	347.5	15	347.1	40	346.7	67
GR	347.3	88	347.3	127	346.4	170	346.6	217	345.2	263
GR	346.6	303	346.6	333	348.2	336	349.8	373	350.2	393
GR	351.4	419	351.4	437	352.0	443	353.6	479	354.6	509
GR	354.7	718	353.8	724	352.1	730	351.4	733	348.8	754
GR	346.7	770	345.6	823	345.2	868	344.9	918	344.9	966
GR	348.2	1005	351.5	1018	352.7	1055	353.0	1098	352.3	1167
GR	350.8	1199	350.1	1243	348.8	1273	349.1	1319	349.2	1360
GR	351.0	1378	352.5	1404	350.5	1452	348.3	1466	350.2	1471
GR	354.2	1476	354.2	1483	354.2	2148	352.7	2163	350.9	2166
GR	350.4	2173	350.9	2184	353.3	2221	352.7	2294	353.4	2315
GR	352.0	2358	350.8	2387	348.3	2401	346.0	2468	346.7	2505
GR	348.4	2535	346.8	2566	344.0	2595	343.6	2647	344.3	2697
GR	347.2	2710	350.8	2717	354.9	2722				
X1	4.1	100	00	2568	1605	950	1270	00	00	00
GR	355.0	19	351.8	27	352.7	50	352.5	74	355.3	81
GR	355.3	92	353.3	121	351.4	147	350.1	172	348.9	193
GR	348.1	233	348.1	275	349.2	315	349.1	324	351.3	352
GR	351.7	382	351.4	412	350.1	438	349.8	460	351.3	519
GR	350.7	533	351.5	540	352.7	541	353.1	551	351.4	561
GR	350.4	569	351.4	578	354.3	594	355.2	694	354.8	767
GR	353.3	769	352.8	810	352.4	832	353.3	860	354.4	872
GR	355.0	920	353.7	945	355.2	983	354.8	1022	353.5	1024
GR	351.8	1031	350.9	1051	351.5	1075	351.9	1093	351.1	1124
GR	348.7	1188	346.5	1233	348.6	1297	350.9	1328	351.1	1430

GR	352.6	1483	352.7	1517	353.8	1548	353.1	1576	351.7	1605
GR	352.4	1617	353.0	1622	354.0	1623	354.1	1631	356.1	1645
GR	355.6	1690	354.3	1693	353.0	1705	351.5	1730	351.5	1737
GR	350.8	1759	350.3	1785	349.9	1823	350.0	1856	350.5	1866
GR	350.8	1884	350.5	1908	350.5	1919	350.5	1954	350.4	1962
GR	351.7	1984	352.9	2003	354.3	2051	353.7	2076	352.8	2092
GR	353.1	2109	354.1	2118	353.0	2215	352.2	2228	350.8	2250
GR	350.4	2294	351.8	2302	352.2	2315	351.4	2334	351.0	2341
GR	348.7	2352	350.5	2363	351.2	2371	348.4	2393	347.8	2409
GR	350.5	2450	351.1	2484	350.4	2517	351.9	2551	358.7	2568
X1	4.2	56	04	2117	310	1155	1020	00	00	00
GR	358.9	4	354.9	6	351.7	21	349.4	43	349.5	74
GR	348.3	95	348.5	157	349.2	186	350.0	220	351.3	244
GR	351.8	253	353.6	293	354.2	339	352.0	355	350.8	386
GR	351.3	415	351.9	444	353.0	519	355.4	564	357.6	680
GR	357.4	1140	356.5	1148	354.5	1160	353.3	1192	351.3	1208
GR	347.9	1223	344.8	1268	346.3	1325	346.9	1362	348.9	1399
GR	350.1	1454	350.6	1504	351.3	1545	351.7	1582	351.5	1631
GR	349.6	1685	349.0	1740	349.6	1791	351.0	1824	352.9	1862
GR	354.8	1882	356.0	1902	354.8	1929	354.9	1966	354.4	1977
GR	352.7	1988	352.8	2004	353.4	2020	354.4	2026	356.5	2032
GR	356.6	2075	354.2	2081	352.8	2093	352.1	2105	354.1	2110
GR	359.5	2117								
X1	4.3	57	05	2410	1030	1245	1240	00	00	00
GR	359.4	5	355.3	8	352.8	20	350.4	32	349.6	75
GR	350.5	123	349.6	190	350.1	222	351.3	252	352.8	282
GR	354.4	340	355.8	404	354.8	452	353.8	471	353.2	492
GR	354.2	515	354.9	527	355.8	544	356.8	572	355.6	596
GR	356.7	601	355.4	651	356.3	749	357.8	774	358.0	823
GR	358.2	881	357.3	951	358.1	964	357.0	997	357.1	1023
GR	357.5	1029	356.4	1094	356.2	1101	356.8	1183	357.4	1252
GR	356.3	1337	354.6	1400	353.2	1440	351.3	1494	350.8	1534
GR	350.6	1568	353.6	1613	353.6	1647	354.6	1668	355.7	1726
GR	356.7	1822	356.7	2032	355.7	2096	354.5	2147	352.8	2184
GR	351.2	2210	347.5	2267	345.1	2280	345.9	2360	351.1	2395
GR	352.7	2401	360.2	2410						
X1	4.4	75	07	2291	900	500	540	00	00	00
GR	363.8	7	358.9	8	355.9	22	354.0	48	352.5	74
GR	351.4	114	351.1	145	351.3	184	352.1	213	353.2	240
GR	353.1	264	354.0	274	354.3	288	354.4	301	353.7	321
GR	353.9	349	354.3	370	354.6	412	357.4	428	360.0	440
GR	359.9	452	357.2	455	354.9	458	353.3	465	353.0	482
GR	353.7	494	354.9	499	356.1	520	358.1	555	357.5	579
GR	360.3	598	360.1	699	360.8	766	361.1	808	361.3	832
GR	355.6	842	355.8	851	354.6	861	355.1	871	355.9	878
GR	356.4	881	356.1	890	354.4	915	353.3	942	353.3	976
GR	354.7	1022	355.4	1054	355.3	1096	353.3	1140	355.1	1148
GR	359.0	1154	359.0	1202	356.7	1292	358.7	1376	358.7	1387
GR	357.8	1391	357.4	1449	358.6	1519	358.5	1595	358.8	1721
GR	357.9	1842	357.1	1858	355.0	1879	352.8	1907	351.6	1957
GR	352.3	2010	354.1	2072	352.9	2122	349.8	2176	350.7	2224
GR	352.8	2260	355.1	2275	356.9	2282	357.8	2287	361.3	2291
X1	5	49	06	2076	955	850	870	00	00	00
GR	361.2	6	358.7	11	356.6	27	356.0	40	354.3	70
GR	353.2	100	353.0	139	353.3	172	352.8	234	353.7	269
GR	355.5	303	356.1	317	357.9	343	357.8	387	358.2	450
GR	360.1	504	359.8	540	362.3	936	362.1	938	358.5	942
GR	356.2	949	353.9	957	353.2	990	353.3	1026	354.2	1050
GR	355.5	1097	356.2	1124	357.6	1153	359.5	1195	359.8	1275
GR	359.8	1357	359.0	1405	358.4	1429	357.9	1460	357.4	1507

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GR 356.1    1550   355.6    1585   355.1    1628   353.8    1688   353.5    1740
GR 354.1    1774   355.0    1824   355.4    1885   355.7    1958   352.3    2011
GR 354.1    2045   358.1    2065   358.9    2072   360.9    2076
X1      6     44    6528     7696    3330     3190    3190      00      00      00
X3     10
GR 381.2    0340   377.0    0345   377.6    1890   376.1    3000   374.3    4500
GR 369.2    6000   370.4    6104   364.4    6114   359.9    6177   364.3    6246
GR 364.2    6294   361.8    6350   360.1    6395   359.1    6413   360.1    6442
GR 361.9    6463   366.1    6471   366.4    6528   366.02   6624   364.89   6634
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GR361.89    6824   362.19   6871   361.19   6913   359.2    6992   358.0    7196
GR 357.1    7254   358.0    7362   357.3    7424   358.4    7494   358.9    7543
GR 360.0    7582   360.6    7625   358.5    7648   358.3    7667   360.79   7677
GR 370.6    7696   371.7    7746   371.0    7800   374.2    8500
X1      7     57    1101     2465    2340     3500    2910
X3     10                              3765
GR 375.3    1000   372.5    1010   374.2    1022   372.7    1060   366.5    1077
GR 365.9    1082   366.4    1086   368.5    1094   369.2    1101   366.4    1105
GR364.62    1126   362.8    1145   360.9    1185   359.8    1244   359.4    1275
GR 359.4    1330   359.8    1365   362.4    1416   364.59   1524   367.9    1667
GR 366.7    1698   366.7    1812   365.74   2012   363.9    2048   362.9    2100
GR 361.6    2170   362.5    2200   364.2    2210   365.90   2290   366.3    2311
GR365.69    2328   364.3    2334   366.02   2394   367.9    2458   371.1    2465
GR 374.8    2469   373.7    2555   368.7    2565   368.0    2745   372.9    2755
GR 375.5    2785   374.6    2905   376.9    2925   372.4    3035   377.9    3065
GR 378.7    3765   371.1    3795   367.3    3845   370.7    3895   371.3    3955
GR 369.0    3961   369.0    3976   372.2    3980   372.1    3995   376.8    4005
GR 376.8    4095   391.8    4105
NC                 .050
X1      8     30    3103     3680    4500     5060    4590
X3     10
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GR 386.7    3000   385.4    3103   375.6    3113   371.22   3126   367.5    3159
GR 366.5    3215   364.1    3310   366.2    3420   368.3    3480   369.1    3497
GR 367.9    3552   368.3    3589   371.09   3600   373.5    3640   373.9    3680
GR370.79    3691   368.8    3714   369.6    3733   370.89   3826   373.3    3960
GR 375.7    3969   383.0    4008   384.7    4035   383.4    4100   387.5    4570
NC                 .055
X1      9     38    1950     2673    4960     4450    4870
GR402.95    0070   394.0    0090   388.2    0100   386.5    0160   391.7    0190
GR 391.6    0400   395.2    0500   395.0    0600   394.2    0900   393.2    1375
GR 397.0    1390   398.5    1470   393.2    1500   396.2    1800   390.7    1820
GR 393.7    1900   392.6    1950   388.7    1970   387.6    2003   384.1    2012
GR 383.5    2052   381.6    2083   378.01   2187   375.7    2228   371.5    2288
GR 369.3    2349   368.5    2390   366.6    2453   366.9    2500   368.7    2550
GR 370.1    2580   375.7    2591   378.07   2609   381.0    2638   386.1    2656
GR 392.1    2673   391.3    2718   395.0    4000
X1    9.1     27      07     1007    4190     3885    3870
GR 403.4      7   390.2      25   386.7      34   384.3      45   381.1      78
GR 378.5    123   380.7     179   382.0     222   383.4     262   386.5     291
GR 388.9    309   390.2     346   390.5     403   388.9     470   385.6     531
GR 384.3    579   382.5     603   380.5     670   379.7     726   380.1     778
GR 380.5    825   381.5     685   382.6     927   384.1     951   386.0     976
GR 388.9    997   392.9    1007
X1     10     42    1100     3000    3350     2835    2900
X3     10
GR 407.8    922   407.3    1000   406.9    1035   404.7    1040   404.7    1060
GR 409.8   1070   411.8    1088   410.1    1100   395.0    1125   391.88   1149
GR390.42   1175   389.0    1216   387.8    1290   388.1    1345   389.0    1405
GR 388.7   1490   389.3    1572   389.7    1605   391.94   1630   395.8    1646
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GR	402.7	1658	402.83	1660	397.4	1880	406.5	1910	403.2	2110
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GR	390.40	2621	388.6	2674	387.9	2703	387.0	2740	386.2	2793
GR	386.2	2858	387.0	2900	388.3	2914	390.52	2935	395.5	2967
GR	425.7	3000	426.3	3170						
X3	10.1	34	00	1200	1585	1950	1790			
GR	402.4	7	395.5	34	393.2	49	391.7	69	392.3	115
GR	392.5	159	391.2	209	390.6	265	390.8	325	392.0	391
GR	393.0	440	394.0	486	395.4	529	397.5	563	397.6	646
GR	395.4	697	394.8	725	393.5	763	392.7	796	392.3	832
GR	391.8	881	391.9	916	392.2	969	392.5	1019	392.9	1065
GR	393.2	1083	393.2	1083	393.5	1113	394.3	1149	395.4	1168
GR	396.3	1181	397.6	1184	399.4	1197	402.5	1200		
X1	10.2	20	06	863	4160	4055	4250			
GR	416.4	6	408.7	15	401.5	46	398.9	60	397.9	112
GR	397.9	164	398.6	236	398.4	300	398.4	370	398.5	446
GR	398.5	520	398.1	587	397.3	636	395.6	690	396.0	745
GR	397.5	780	399.3	805	401.9	824	406.3	852	413.9	863
X1	10.3	27	04	939	2725	2800	2790			
GR	419.4	4	417.2	8	411.1	20	406.7	40	405.0	61
GR	405.3	89	405.9	106	405.4	134	404.2	175	403.8	222
GR	404.5	300	404.5	353	405.0	405	404.0	456	403.1	503
GR	402.2	553	400.7	605	400.7	656	401.1	703	401.3	755
GR	401.4	801	403.0	852	404.1	887	405.1	901	406.9	908
GR	408.3	916	410.8	926						
X1	11	26	2003	2775	1330	1385	1360			
X3	10									
GR	423.2	0120	418.1	0170	419.3	0450	421.3	1630	417.4	1650
GR	420.9	1900	420.8	2003	415.2	2010	410.9	2030	407.66	2074
GR	405.9	2112	405.6	2113	405.1	2180	404.9	2205	405.4	2290
GR	405.2	2335	405.1	2430	402.9	2500	401.2	2582	401.0	2640
GR	402.2	2700	404.8	2715	407.78	2746	411.6	2763	422.0	2775
GR	440.0	2794								
X1	12	22	1043	1606	8790	9220	9120			
GR	442.9	1000	442.7	1005	446.3	1020	446.0	1043	427.9	1071
GR	421.73	1093	419.6	1119	417.4	1153	415.6	1196	414.4	1258
GR	416.9	1313	415.7	1428	415.3	1503	416.1	1573	418.5	1618
GR	419.6	1635	421.78	1646	426.5	1670	432.6	1686	432.9	1691
GR	440.0	3355	447.0	3550						
X1	13	34	1039	2787	10450	9780	10275			
X3	10									
GR	453.7	1000	452.9	1008	456.3	1023	454.1	1039	436.41	1071
GR	432.7	1086	430.9	1128	426.5	1198	426.5	1238	428.4	1308
GR	431.7	1378	434.5	1428	436.47	1460	441.2	1528	445.4	1548
GR	445.90	1555	442.1	1685	444.5	1840	450.9	1898	449.5	2121
GR	449.3	2125	443.8	2148	449.0	2181	448.8	2355	446.12	2661
GR	445.7	2664	441.5	2676	440.5	2689	437.95	2702	434.0	2736
GR	438.3	2759	438.0	2776	440.7	2787	470.9	2822		
X1	14	34	1090	2585	2850	2160	2825			
X3	10			1000						
GR	454.7	1000	448.2	1015	451.0	1065	450.9	1090	442.49	1099
GR	439.3	1119	439.2	1169	440.4	1221	441.1	1263	440.5	1264
GR	442.2	1322	443.77	1452	447.0	1606	445.1	1656	448.7	1718
GR	450.63	1742	448.3	2017	448.3	2021	443.71	2028	440.8	2048
GR	440.8	2089	441.9	2179	442.4	2223	439.6	2367	438.8	2407
GR	437.2	2482	440.5	2527	441.8	2549	444.07	2565	447.6	2578
GR	453.4	2585	453.6	2635	456.8	3885	459.0	3890		
NC			.045							
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X3	10									

GR	468.5	1000	471.1	1016	468.3	1027	469.3	1035	452.39	1062
GR	449.3	1072	448.7	1112	449.5	1167	450.0	1202	451.0	1220
GR	452.39	1235	455.2	1298	456.7	1300	456.94	1306	457.7	1406
GR	458.2	1618	457.9	1621	453.5	1638	450.23	1685	447.6	1710
GR	446.1	1783	446.8	1843	447.1	2018	446.1	2138	448.1	2228
GR	450.23	2257	453.8	2312	457.5	2340	475.0	2430		
NC			.040							
X1	16	54	1033	2974	2530	2800	2710			
X3	10									
GR	469.6	1000	471.6	1016	469.5	1033	458.7	1049	455.13	1061
GR	451.0	1091	450.4	1115	450.5	1173	450.2	1213	449.7	1293
GR	450.0	1353	451.9	1463	455.24	1487	460.7	1505	463.9	1509
GR	463.38	1538	463.2	1919	455.6	1943	455.1	1968	457.0	2017
GR	458.1	2056	456.1	2064	456.6	2067	456.9	2072	461.1	2096
GR	462.6	2295	456.5	2301	457.3	2322	458.1	2327	458.2	2344
GR	460.6	2359	460.4	2380	460.0	2394	457.0	2437	455.52	2605
GR	453.1	2675	452.7	2766	453.1	2810	453.4	2878	454.1	2890
GR	455.49	2927	456.0	2951	458.6	2964	462.0	2974	461.5	3098
GR	455.34	3112	453.9	3155	453.9	3171	453.4	3210	453.2	3223
GR	455.34	3231	464.3	3259	462.9	3390	476.0	3450		
X1	17	42	1053	2226	1740	2650	1820			
X3	10					3103				
GR	470.1	1000	473.9	1020	471.6	1036	461.2	1053	458.41	1077
GR	457.4	1107	454.7	1157	454.0	1225	453.7	1275	453.4	1355
GR	455.4	1445	456.7	1487	458.39	1531	462.88	1683	459.05	1817
GR	457.6	1877	457.1	1921	456.5	1956	457.5	2007	458.3	2020
GR	458.4	2137	456.4	2158	456.5	2181	458.48	2200	463.3	2226
GR	469.9	2233	470.1	2268	467.8	2273	469.5	2283	468.6	2483
GR	466.0	2493	468.0	2503	465.8	3103	461.8	3113	461.8	3138
GR	466.6	3168	463.4	3248	466.7	3268	465.6	3618	467.9	4068
GR	473.1	4118	475.9	4148						
NC	0	0	0	0.1	0.3					
X1	18	23	1073	1689	1640	1530	1740			
X3	10									
GR	471.0	1000	474.0	1013	473.4	1027	469.7	1064	463.4	1073
GR	460.67	1082	458.5	1095	457.0	1116	456.0	1161	456.3	1235
GR	453.8	1326	452.9	1411	454.1	1516	457.1	1606	459.2	1646
GR	460.74	1661	462.9	1672	466.3	1686	470.1	1689	470.7	1739
GR	465.6	2890	467.9	3090	480.0	3097				
X1	18.1	53	03	1904	5660	6160	6200			
GR	481.5	3	477.0	8	476.8	14	472.5	20	471.3	32
GR	469.5	58	468.8	96	468.6	141	468.5	193	469.1	235
GR	470.2	273	471.3	298	472.3	329	474.9	372	474.6	443
GR	473.4	502	471.5	540	469.7	579	469.2	594	469.1	615
GR	468.8	633	469.5	638	471.2	699	472.0	737	472.4	757
GR	474.4	765	479.1	901	473.7	906	473.4	930	474.4	1022
GR	475.7	1123	474.7	1172	474.4	1217	473.6	1289	475.0	1301
GR	475.0	1302	473.8	1311	473.5	1335	475.1	1353	474.4	1381
GR	475.5	1405	473.4	1509	471.6	1532	470.4	1585	469.7	1643
GR	468.8	1686	466.9	1740	466.0	1790	467.5	1833	469.3	1864
GR	471.1	1880	473.3	1893	474.8	1900				
X1	18.2	50	25	1420	5560	5010	5140			
GR	483.7	25	481.8	52	479.1	87	478.4	105	478.0	122
GR	477.7	152	476.7	164	477.5	177	479.0	185	479.2	188
GR	486.4	194	488.2	350	487.9	354	485.4	356	484.5	359
GR	482.6	363	480.7	391	479.3	420	478.9	432	479.2	459
GR	478.6	495	478.6	520	479.1	541	480.6	578	481.2	594
GR	483.2	610	481.3	630	483.1	648	482.2	666	484.2	679
GR	483.3	693	485.2	702	488.3	717	487.4	973	486.8	978
GR	482.8	989	479.7	1003	477.9	1017	476.7	1031	475.1	1054

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GR 473.0   1108  471.9   1152  471.6   1200  471.7   1253  471.5   1311
GR 473.7   1351  475.0   1376  477.5   1401  479.9   1413  482.7   1420
X1  18.3     22    06    625   3370    4230   4073
GR 500.9      6  486.9     24  483.8     33  481.2     47  478.1     78
GR 476.7    103  474.3    152  475.2    199  474.9    258  475.4    309
GR 476.4    356  477.6    386  478.5    427  481.4    459  484.1    475
GR 487.9    521  489.0    539  488.5    556  485.8    570  484.6    585
GR 485.3    597  490.2    612
X1    19     33   1583   2190   2860   2570   2640
X3    10            1457
GR 501.7   1140  496.7   1253  494.7   1313  498.4   1321  500.0   1344
GR 494.9   1406  492.9   1408  493.3   1430  501.4   1446  502.8   1457
GR 501.3   1468  496.2   1478  496.0   1485  493.4   1489  496.9   1508
GR 496.4   1568  496.4   1570  490.9   1583  485.1   1640  484.1   1658
GR 482.4   1711  481.7   1790  481.9   1865  482.4   2004  482.1   2081
GR 482.6   2104  483.9   2126  485.5   2136  491.8   2180  495.4   2190
GR 497.8   2500  500.0   2780  510.0   2785
X1  19.1     64    00    1862   3000   2710   2810
GR 495.9     13  495.2     15  489.8     23  489.9     49  488.3     72
GR 488.3    108  487.6    139  487.7    175  487.5    209  489.5    244
GR 491.5    270  494.9    293  496.9    304  497.2    366  496.6    451
GR 495.2    529  495.3    573  496.9    582  498.0    615  498.0    703
GR 498.0    770  497.0    797  495.9    801  495.4    830  495.2    866
GR 494.5    871  494.3    908  494.3    967  494.3    999  497.8   1005
GR 497.2   1011  498.8   1017  499.3   1027  497.4   1067  497.7   1112
GR 499.9   1136  494.6   1241  494.0   1310  492.6   1322  492.6   1337
GR 492.0   1364  492.0   1388  491.2   1403  492.5   1406  496.7   1413
GR 496.0   1454  495.9   1462  494.5   1475  493.8   1508  492.4   1539
GR 491.3   1561  490.4   1585  489.2   1601  488.4   1610  487.0   1635
GR 485.0   1674  484.9   1711  486.3   1749  487.9   1780  489.9   1799
GR 491.2   1822  491.8   1833  492.4   1840  495.3   1855
X1    20     57   1312   3723    800   1430   1260
X3    10
GR 501.8   1000  503.0   1114  502.6   1250  500.9   1255  501.4   1271
GR 506.8   1295  504.0   1309  503.8   1312  492.3   1331  486.0   1342
GR 483.3   1362  484.8   1429  486.3   1472  488.7   1499  492.3   1512
GR497.15   1609  498.1   1835  496.7   1840  496.5   1881  493.7   1927
GR 493.8   1972  494.7   1994  496.6   1998  499.9   2001  500.6   2151
GR 499.6   2509  498.6   2523  495.3   2532  496.4   2568  494.8   2602
GR 495.3   2620  495.1   2695  500.9   2704  500.9   2714  501.1   2880
GR 500.6   2890  498.4   2906  499.7   3012  497.6   3141  499.1   3160
GR 499.5   3194  499.1   3269  499.7   3269  494.0   3344  495.1   3357
GR 494.9   3399  493.9   3421  493.5   3429  492.5   3445  491.0   3478
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GR 502.9   3723  507.0   3740
NC     0      0  .040     0.1     0.3
X1  20.1     84    05    1778   2730   2670   2540
GR 510.1      5  503.9     12  500.2     28  498.6     44  496.4     74
GR 495.6    125  493.5    176  495.2    225  496.9    277  497.8    327
GR 498.0    387  499.2    432  499.7    459  500.2    474  501.1    504
GR 502.5    528  508.5    540  508.2    545  502.4    554  502.9    564
GR 501.6    584  500.5    639  499.4    677  498.0    703  497.7    750
GR 497.4    807  496.6    853  496.8    905  497.6    940  498.3    978
GR 499.6    995  500.2   1016  501.9   1037  502.0   1066  503.0   1094
GR 503.3   1140  501.9   1215  501.4   1219  501.4   1223  502.1   1226
GR 503.4   1247  503.3   1268  502.6   1279  501.3   1309  500.5   1311
GR 500.7   1316  502.2   1325  502.1   1335  500.5   1338  500.7   1345
GR 502.2   1353  501.7   1365  500.6   1368  502.1   1372  501.2   1402
GR 502.0   1416  500.9   1420  502.1   1427  501.4   1440  503.1   1454
GR 503.0   1462  501.5   1469  501.7   1476  502.7   1482  503.6   1516
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GR	498.4	1573	498.6	1604	498.7	1642	499.3	1665	500.2	1675
GR	502.1	1695	502.0	1722	499.9	1731	499.0	1748	498.9	1765
GR	500.1	1768	501.1	1773	505.5	1778	506.0	1781		
X1	20.2	25	03	782	3550	3100	3690			
GR	519.3	3	517.0	10	507.7	21	504.7	31	502.7	40
GR	499.5	71	497.8	125	502.2	175	502.5	204	503.1	227
GR	503.7	268	503.9	316	502.9	381	501.8	408	498.8	428
GR	498.2	478	496.2	535	494.3	585	496.3	626	497.1	682
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X1	21	21	1457	2063	3790	3930	4030			
X3	10									
GR	523.7	1000	525.4	1014	523.8	1029	509.4	1058	508.4	1134
GR	508.1	1144	508.4	1155	512.8	1197	514.5	1319	514.31	1457
GR	508.4	1609	506.6	1646	504.9	1759	500.9	1886	504.4	1936
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NC			.030							
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GR	511.3	1140	510.8	1242	509.0	1347	507.5	1382	506.5	1434
GR	504.9	1476	503.4	1532	505.8	1599	507.5	1643	515.0	1678
GR	519.7	1693	520.0	1887	520.4	1938	522.7	2056	520.3	2193
GR	514.3	2199	511.6	2230	509.4	2240	510.2	2245	510.5	2250
GR	510.3	2270	509.9	2296	511.4	2302	513.1	2305	515.4	2375
GR	518.0	2380	518.7	2465	522.0	2472	525.0	2780		
X1	23	45	1345	2743	5030	5550	4920			
X3	10									
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GR	526.5	1296	529.7	1311	530.53	1333	530.6	1337	523.5	1345
GR	519.13	1366	517.2	1384	516.0	1455	516.3	1508	516.4	1583
GR	516.0	1679	515.5	1782	515.9	1827	519.03	1906	521.0	1942
GR	521.2	1955	519.9	1959	520.4	1974	521.0	1976	524.5	2003
GR	528.2	2008	526.7	2115	528.7	2125	528.6	2275	526.6	2304
GR	527.7	2342	527.1	2383	526.7	2403	520.1	2430	519.75	2445
GR	517.0	2487	516.3	2530	516.6	2569	519.2	2602	519.78	2612
GR	523.0	2624	528.1	2632	522.2	2703	525.7	2743	545.0	2755
X1	24	15	1108	1586	1850	2470	2160			
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GR	534.2	1000	530.9	1108	524.7	1114	522.4	1134	523.11	115
GR	520.03	1247	515.8	1311	514.3	1375	507.6	1439	509.1	1481
GR	513.7	1502	515.6	1538	520.0	1568	526.5	1586	535.0	1592
X1	24.1	46	00	1200	1500	1500	1400			
GR	536.7	0	526.0	73	525.3	75	524.3	85	522.9	96
GR	517.6	151	516.6	201	517.5	246	520.9	308	522.1	351
GR	522.9	393	523.5	405	525.6	420	528.1	459	529.5	494
GR	531.8	529	530.6	590	530.0	645	528.4	667	527.8	680
GR	529.5	687	529.9	704	530.2	719	530.0	749	529.3	782
GR	529.4	848	529.3	873	528.0	878	528.6	894	529.2	902
GR	528.0	928	528.4	935	527.6	972	527.1	1008	526.4	1018
GR	525.0	1028	523.5	1038	521.5	1045	521.5	1050	521.0	1066
GR	522.5	1076	524.2	1082	526.5	1088	528.0	1023	528.7	1155
GR	533.7	1200								
X1	24.5	18	2300	4200	2400	2200	2200			
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GR	527.5	2980	529.5	3000	530.5	3100	532.0	3200	531.0	3300
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GR 526.9     1717    532.6     1917    533.7     1965    530.9     1980    531.7     2045
GR 532.9     2053    534.0     2142    531.4     2157    533.1     2215    531.7     2273
GR 534.9     2278    536.9     2428    535.2     2654    530.3     2658    533.0     2738
GR 530.9     2873    535.4     2921    534.4     3000    532.6     3071    531.2     3157
GR 535.5     3167    536.2     3313    529.6     3325    530.4     3387    534.2     3422
GR 536.0     3452    536.2     3571    536.2     3581    530.2     3586    529.7     3590
GR 528.2     3602    527.9     3619    526.4     3649    527.2     3681    528.5     3715
GR 529.7     3757    530.0     3769    532.4     3839    530.2     3861    529.6     3903
GR 529.6     3911    530.9     3920    531.8     3946    530.5     3974    530.2     3978
GR 529.1     3997    527.2     4044    526.3     4085    526.2     4127    527.3     4159
GR528.61     4201    530.2     4211    536.6     4232    547.0     4237
NC   .080    .080     .035
X1  25.1       49       08     1437     3040     2270     2290
GR 539.6        8    537.6        9    534.6       21    532.4       32    530.0       53
GR 529.6       73    529.9       99    530.4      130    532.0      168    532.9      189
GR 533.1      194    534.1      223    534.6      243    536.0      278    537.4      291
GR 538.9      332    539.5      348    539.3      376    539.5      410    539.7      443
GR 539.5      466    539.1      488    539.5      508    538.9      521    535.1      529
GR 535.9      536    537.5      547    536.6      552    535.2      555    535.1      565
GR 539.4      572    540.2      577    541.3      949    541.0      953    539.0      954
GR 536.3      962    534.1      968    531.8      991    531.3     1051    531.5     1111
GR 530.1     1175    527.3     1227    526.1     1283    526.9     1336    529.1     1380
GR 531.9     1409    534.8     1420    536.3     1426    537.4     1430
X1    26       39     2507     3123     3360     2610     2700
X3    10
GR 550.7     0720    550.4     0721    550.1     0722    549.8     0723    547.0     0730
GR547.23     1000    546.7     1140    544.3     1235    546.8     1245    546.7     1343
GR 544.6     1348   544.64     1664    545.0     1816    538.4     1833    537.4     1858
GR 537.9     1888    545.2     1906    543.3     1953    546.5     2021    544.5     2334
GR547.80     2505    547.8     2507    542.4     2513    536.2     2538    534.7     2543
GR 532.3     2562    532.1     2609    533.7     2663    534.1     2749    534.0     2846
GR 533.0     2895    533.6     2928    533.5     2963    532.6     3007    532.8     3020
GR 534.4     3050    535.8     3063   541.85     3118    552.0     3123
NC                             0.1      0.3
X1    27       31     2320     2835     3900     3900     3900
X3    10
GR 558.2     0440    554.7     0450    554.6     0650    554.5     0850    554.4     1050
GR554.21     1400   553.11     1535    545.2     1545    545.3     1575    550.6     1600
GR 551.4     1800   550.16     2049    547.6     2071    551.0     2114    552.6     2230
GR552.71     2318    552.7     2320    548.8     2323   542.89     2353    540.7     2435
GR 538.6     2497    536.1     2545    535.0     2585    533.8     2651    535.6     2700
GR 538.3     2724    542.8     2805    547.7     2832    551.5     2835    554.0     2975
GR 560.0     2978
X1    28       48     1486     2726     5150     5610     5820
X3    10
GR 567.2      987    564.3     1000    559.5     1014    561.6     1028    561.7     1092
GR 561.8     1153    556.2     1178    556.0     1186    553.9     1196   551.81     1228
GR 549.8     1295    550.5     1327   551.81     1350    555.8     1381    557.6     1438
GR 557.6     1486    554.8     1494    554.1     1539   553.83     1588    553.3     1633
GR554.12     1695    554.7     1726   553.86     1751    551.6     1781    550.7     1827
GR 549.8     1887    550.1     1925    550.9     1955   553.93     1978    557.0     2089
GR 556.1     2152    559.0     2272    559.7     2344    560.4     2390    559.9     2433
GR 558.7     2448    557.8     2503    558.5     2511    554.4     2566   553.95     2576
GR 552.1     2591    549.2     2623    548.0     2661    549.7     2692   553.93     2709
GR 555.0     2726    567.0     2732    577.0     2780
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X1   28.1       52        05      2473      6000      5990      6030
GR  569.5        5     567.1         9     564.2        23     562.5        37     561.5        46
GR  560.8       62     559.3       103     561.2       135     561.0       175     560.6       221
GR  561.2       255    561.9       284     564.1       292     567.2       298     568.5       300
GR  569.2       309    573.0       1437    572.1       1443    567.7       1452    567.4       1458
GR  569.0       1470   569.5       1513    569.7       1558    569.5       1587    568.0       1617
GR  567.1       1644   566.5       1661    565.9       1671    562.5       1717    560.7       1767
GR  560.6       1817   560.3       1861    560.9       1917    562.5       1960    563.1       1982
GR  563.3       1997   565.2       2015    568.0       2028    568.6       2065    568.7       2097
GR  567.6       2159   567.0       2196    565.6       2216    565.1       2227    564.4       2284
GR  562.4       2327   560.8       2382    562.4       2433    565.0       2447    567.2       2453
GR  569.1       2458   570.4       2464
X1     29        57     3449      4070      3160      2800      2940
X3     10
GR581.05        927    583.1        940     582.1        953     574.9       1000    574.0       1015
GR  571.9       1019   571.9       1076     575.0       1080    573.2       1116    571.6       1120
GR  572.0       1200   573.4       1201     575.3       1238    578.2       1240    577.4       1400
GR  575.2       1510   577.7       1517     578.1       1590    571.6       1609    570.8       1620
GR  571.9       1631   575.2       1641     579.1       1859    579.1       1900    577.4       2008
GR  577.3       2128   577.3       2200     572.5       2219    574.9       2234    571.9       2268
GR  569.9       2280   571.9       2295     573.2       2303    573.97      2387    575.4       2658
GR576.01        2797   577.9       2824     578.43      3449    577.8       3454    572.9       3466
GR568.37        3532   565.5       3547     566.3       3578    566.6       3604    564.8       3635
GR  564.8       3673   568.0       3769     567.9       3837    566.7       3894    565.6       3934
GR  564.2       3962   563.3       3976     564.7       4018    567.0       4044    568.36      4052
GR  573.5       4070   591.0       4080
NC                     .038
X1     30        70     1164      4456      7190      6130      7320
X3     10                         1150
GR  589.4       1000   587.4       1025     589.4       1050    591.7       1075    591.9       1128
GR  597.4       1150   595.9       1164     582.18      1194    581.0       1203    579.4       1237
GR  578.4       1263   578.6       1292     579.6       1317    581.5       1336    582.1       1365
GR  581.7       1385   583.14      1497     584.4       1527    587.2       1725    586.3       1775
GR  584.7       1795   582.6       1917     586.5       1961    588.4       2037    587.7       2149
GR  584.8       2192   585.6       2339     586.3       2340    585.22      2425    584.2       2448
GR  583.5       2460   582.0       2510     585.67      2569    586.3       2578    589.9       2580
GR  589.6       2610   586.1       2613     585.1       2615    586.2       2705    586.0       2891
GR  587.1       2895   587.1       3011     585.7       3013    585.7       3023    591.9       3045
GR  589.6       3168   583.0       3188     583.0       3208    587.7       3219    591.0       3327
GR  587.6       3426   587.4       3501     591.1       3521    590.7       4014    585.50      4019
GR  582.4       4029   582.6       4059     583.6       4111    585.2       4158    585.40      4184
GR  586.8       4199   585.2       4220     588.7       4225    588.3       4311    586.9       4321
GR  586.5       4355   585.35      4360     584.8       4408    585.47      4456    596.0       4462
X1     31        49     3432      3940      5340      5060      6140
X3     10                         1105
GR  598.2       1000   600.3       1090     608.7       1105    598.1       1141    599.4       1240
GR  597.2       1444   594.9       1494     594.1       1497    592.55      1581    592.2       1592
GR592.55        1607   594.3       1622     599.9       1634    602.0       1708    600.6       1763
GR  601.3       1900   601.78      2073     596.3       2088    596.3       2150    593.7       2162
GR  594.2       2381   600.5       2391     600.1       2518    598.8       2548    601.0       2567
GR  600.1       2650   602.2       2658     601.68      2852    601.4       2903    599.7       2913
GR  598.7       2924   601.1       2943     599.9       2982    601.2       3002    602.1       3196
GR  602.3       3300   603.5       3432     599.8       3434    594.06      3463    588.5       3499
GR  587.9       3583   587.4       3640     586.8       3699    586.8       3756    588.6       3789
GR  590.7       3830   594.05      3898     599.1       3927    610.0       3940
X1     32        34     3854      4721      5470      5450      5340
X3     10
GR  623.0       0000   619.0       0600     614.1       0602    613.6       1600    613.1       2600
GR  612.8       3100   612.9       3244     609.2       3260    611.4       3280    611.0       3391
GR  608.7       3433   604.7       3448     603.37      3493    603.2       3534    603.25      3575
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GR 605.5    3611    604.6    3626    604.5    3676    605.2    3681    607.2    3790
GR 610.1    3854    607.2    3872    604.86   3895    604.9    3967    606.3    3980
GR 606.6    3993    605.6    4006    607.1    4046    608.7    4108    604.46   4213
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NC                  .0361
X1     33     67     2818     4134     2200     2540     2380
X3     10
GR 630.0    0400    627.5    0600    625.0    0800    618.5    0801    617.3    0900
GR 616.1    1000    615.2    1077    611.9    1084    610.6    1112    607.9    1133
GR 607.9    1172    607.9    1182    607.55   1205    606.6    1220    607.55   1241
GR 611.1    1372    611.6    1442    614.9    1488    618.1    1512    615.9    1715
GR 617.1    1838    612.9    1870    617.8    1906    615.8    1981    618.0    2003
GR 616.7    2086    616.5    2224    615.4    2358    614.7    2607    614.1    2608
GR 613.3    2692    617.0    2744    617.7    2818    617.1    2848    614.6    2853
GR 615.6    2872    612.4    2876    611.28   2881    609.6    2901    610.1    2937
GR 608.8    2986    607.0    3133    609.3    3192    611.35   3212    613.7    3278
GR 617.7    3298    612.5    3492    614.2    3580    611.9    3729    608.01   3793
GR 606.5    3857    606.51   3904    607.31   3930    608.46   3969    609.36   4012
GR 620.6    4134    619.5    4160    617.1    4250    618.5    4278    614.4    4296
GR 613.4    4309    611.1    4326    610.69   4337    610.4    4359    610.69   4383
GR 614.0    4406    627.5    4500
X1     34     38     1883     2511     2840     2580     2130
X3     10
GR 647.3    0920    646.3    1020    645.0    1140    639.0    1145    627.0    1155
GR 621.0    1160    611.98   1197    610.58   1217    611.0    1237    611.98   1242
GR 616.7    1324    619.3    1494    618.4    1606    621.9    1640    623.6    1706
GR 623.7    1762    623.7    1779    623.9    1850    625.2    1883    619.1    1889
GR614.53    1905    611.7    1920    610.5    1935    608.9    1991    609.9    2025
GR 610.7    2060    611.4    2095    612.0    2147    613.0    2173    613.2    2237
GR 612.2    2305    613.4    2354    613.5    2409    614.98   2459    620.5    2504
GR 625.0    2511    625.4    2550    635.0    2987
X1     35     32     1377     1804     1555     1700     1810
GR 651.0     986    649.7    1000    636.7    1042    636.9    1109    634.3    1144
GR 637.4    1149    636.9    1189    631.9    1220    632.8    1233    628.3    1247
GR 627.3    1311    625.3    1317    625.5    1321    627.9    1330    625.6    1377
GR 622.4    1381    618.3    1396    615.73   1430    612.3    1438    611.5    1463
GR 609.7    1493    608.6    1528    605.5    1589    606.4    1637    610.3    1687
GR 612.8    1728    613.3    1731    615.86   1756    622.0    1794    626.1    1804
GR 627.3    1862    637.0    2316
X1     36     55     1448     2868     1540     1430     1670
X3     10
GR 653.2    1000    653.4    1081    644.7    1255    647.9    1275    642.7    1295
GR 640.5    1361    637.1    1368    635.3    1415    630.7    1428    631.1    1448
GR 623.3    1461    618.48   1491    614.8    1517    615.6    1536    618.46   1556
GR 623.0    1588    622.5    1662    619.1    1677    618.93   1785    615.8    1834
GR 614.4    1874    614.0    1917    614.0    1950    614.0    1981    615.7    2029
GR 616.6    2067    616.9    2078    619.20   2100    619.5    2101    623.3    2116
GR 627.4    2122    626.3    2177    628.4    2227    627.0    2261    622.6    2274
GR 621.6    2388    621.3    2410    619.4    2422    617.02   2474    616.2    2490
GR617.02    2504    619.1    2515    619.6    2537    618.9    2557    619.0    2561
GR 621.5    2577    622.1    2610    622.3    2672    619.27   2767    618.9    2787
GR620.09    2844    621.5    2860    624.8    2868    626.4    2908    640.0    3230
X1     37     30     1009     1620     3520     4250     3270
X3     10
GR 654.5     990    653.2    1000    650.0    1009    631.6    1048    623.97   1064
GR 622.2    1130    619.8    1188    618.8    1222    619.5    1251    620.9    1271
GR 622.2    1286    623.6    1336    623.3    1361    623.1    1383    622.6    1407
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GR 630.5    1903    627.96   1978    626.84   2078    628.8    2099    629.2    2312
GR 633.7    2316    636.2    4700    640.4    4780    641.0    4930    660.0    4942
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GR 681.5      0770      678.0      0800      669.7      0870      666.2      0900      657.9      0970
GR 654.3      1000      650.9      1071      648.5      1130      647.7      1199      643.1      1205
GR637.33      1311      636.2      1344      636.0      1389      635.9      1448      635.2      1512
GR 635.2      1553     637.33      1602      642.8      1631      646.3      1634      648.5      2065
GR 646.7      2070      643.6      2178      642.6      2221      644.0      2229      644.6      2289
GR 644.9      2334      641.5      2366     639.56      2374      637.5      2397      635.3      2457
GR 635.5      2493      634.9      2564      634.7      2603      637.2      2627     639.31      2657
GR 641.3      2716      642.4      2767      642.3      2802      641.1      2809      641.0      2832
GR 648.9      2851      649.5      3010      655.5      3190      661.3      4640      676.5      4650
X1      39        46       1760      2935       2100      2280       2270
X3      10
GR 689.0       990      687.7      1000      682.1      1017      675.9      1102      651.4      1138
GR 647.9      1156      650.6      1172      651.6      1284      651.5      1381      648.6      1389
GR 648.5      1401      646.4      1408     644.67      1425      643.4      1440     644.67      1456
GR 646.4      1472      653.2      1484       653.0      1535      648.6      1576      651.9      1594
GR 652.1      1760      647.0      1766     642.86      1912      641.2      1978      641.2      2024
GR 641.0      2066     642.65      2160       645.1      2373      650.3      2399      652.4      2477
GR 652.2      2503      650.1      2506      647.6      2555     645.57      2600      643.5      2622
GR 642.0      2677      641.5      2713      641.9      2757      642.7      2833      643.3      2863
GR 644.2      2885     645.79      2899       65 .4      2935      657.0      2980      675.0      2990
GR 685.0      2995
NC                      .038
X1      40        39       1058      1706       4470      4820       5010
X3      10                                              3800
GR 676.1      1000      676.1      1058      661.2      1074     653.84      1094      650.6      1114
GR 650.5      1148      650.4      1166      650.3      1228      650.8      1276      652.7      1312
GR 652.7      1339      652.0      1371      651.0      1415      650.7      1455      650.3      1534
GR 650.0      1618      652.4      1653     654.34      1672      658.2      1689      656.5      1703
GR 660.5      1706      661.8      1756      659.2      1820      662.8      1830      655.9      1950
GR 663.9      2000      660.5      2100      659.2      2135      664.2      2190      661.4      2390
GR 662.7      2465      663.8      3950      658.8      3965      660.3      3990      655.3      4000
GR 655.3      4080      661.5      4090      661.8      4200      680.0      4210
X1      41        46       2520      3043       2570      2340       2340
GR 702.4      1000      703.0      1104      661.8      1157     655.38      1186      654.6      1203
GR 652.8      1218      650.4      1250      653.5      1285      655.38      1298      660.2       131
GR 661.4      1437      659.2      1475      658.4      1484      658.8      1500      662.6      1519
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GR 660.9      2088      663.8      2147      665.5      2158      664.8      2238      661.6      2257
GR 661.1      2373      661.5      2384      665.2      2397      662.6      2445      664.9      2520
GR 663.1      2588     659.09      2610      657.0      2630      656.9      2635      656.3      2680
GR 655.8      2758      655.3      2830      655.8      2927      656.5      2985     658.86      3011
GR 662.2      3029      669.5      3043      669.3      3093      670.4      3500      672.3      4730
GR 710.0      4750
NC       0         0         0         0       0.5
X1      42        46       1667      3023       3325      3275       3370
GR 688.3      1000      688.1      1043      692.0      1059      692.1      1081      697.5      1099
GR 703.3      1201      670.3      1242      670.1      1245      670.0      1249      668.0      1257
GR666.84      1294      666.5      1311     666.84      1329      668.2      1359     667.79      1430
GR 667.3      1546      667.4      1593     667.91      1607      670.4      1632      670.6      1667
GR 669.1      1716     667.76      1812      665.6      1917      665.5      1967      665.2      2016
GR667.87      2059      671.2      2166      671.5      2273     668.94      2284      666.3      2324
GR 666.4      2463      667.2      2514      667.5      2569      668.3      2646      666.7      2729
GR 666.0      2758      664.1      2808      663.9      2645      665.4      2916      666.1      2983
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GR 710.0      3358
NC                      .040
X1      43        37       2483      3227       2000      1850       1900
X3      10
GR 701.4       965      681.9      1000      677.4      1010      677.4      1045     673.69      1054
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GR  674.6     1068   673.68    1077    677.5    1186    681.5    1204    682.0    1734
GR  679.4     1758    681.8    1782    683.5    2099    679.4    2115    688.1    2141
GR  681.1     2161   683.11    2420    682.9    2423    674.2    2440    673.2    2481
GR  674.7     2530    676.3    2717    674.6    2774   670.90    2900    669.6    2957
GR  668.2     2966    662.2    2999    658.4    3053    658.2    3075    657.6    3114
GR  658.7     3148    663.4    3179    670.1    3209   670.59    3212    672.4    3221
GR  675.6     3227    700.0    3240
X1   43.5       24     2625    3436     1250    1450     1400
X3     10
GR  685.6     1300    685.6    2200    681.7    2450    681.3    2500    681.7    2530
GR  685.0     2580    685.2    2625    679.9    2645    679.9    2700    680.6    2730
GR  680.4     2800    678.7    2815    678.6    2900    675.7    3000    673.8    3100
GR  672.3     3160    667.5    3200    665.2    3250    664.5    3300    664.6    3315
GR  665.9     3350    674.8    3410    679.0    3427    692.0    3436
X1     44       49     2793    3441     1050    2850     2200
X3     10
GR  727.1      960    725.8     970    705.5    1000    702.5    1101    697.9    1138
GR  702.1     1161    696.5    1457    690.7    1494    691.3    1568    691.7    1974
GR  688.8     2005    690.9    2047    689.4    2091    691.2    2110    691.5    2161
GR  686.6     2187    683.1    2238    682.0    2302    689.8    2323   688.67    2337
GR  682.5     2361    682.9    2425   680.76    2469    680.2    2497   680.79    2529
GR  683.0     2556    688.1    2579    690.3    2790    690.3    2793    686.1    2803
GR  683.6     2813    682.0    2914   679.92    3034    678.2    3082    677.7    3120
GR  675.8     3169    675.3    3235    674.6    3300    676.5    3373   680.06    3404
GR  686.0     3435    691.5    3441    692.8    3497    690.3    3631    693.9    3651
GR  689.5     4291    686.4    4301    687.0    4401    720.0    4425
NC   .080     .080     .040     0.1      0.3
X1     45       25     1226    1620     1470    1500     1470
X3     10
GR  693.0     1000    695.7    1081    693.7    1115    692.2    1125   692.15    1126
GR  690.7     1160   690.60    1168   687.00    1176   683.25    1201   686.10    1226
GR 678.40     1232    678.2    1272    675.2    1331    673.5    1386    676.4    1440
GR  679.0     1495    680.7    1532   683.32    1564   688.20    1612   690.10    1620
GR 689.70     1651    692.0    1680    698.6    1692    699.1    1728    721.9    1775
NC                    .045
X1     46       26     1587    2065     2650     980     1500
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GR  718.6     0040    703.0    0072    701.3    0395    694.8    0400    697.0    0425
GR  698.7     1000    700.2    1100    699.8    1106    692.6    1123    686.6    1172
GR  686.7     1221    688.8    1521    692.7    1534    692.9    1581    694.1    1587
GR 693.89     1620   687.17    1666    685.2    1705    684.0    1774    682.6    1832
GR  682.0     1904    681.4    1955    683.0    2009   686.73    2052    690.2    2065
GR  728.8     2106
NC                    .040
X1     47       38     2100    2541     820     1025     1025
X3     10
GR  719.8     0070    703.4    0100    699.7    0350    703.8    0465    699.1    0490
GR  701.8     0650    697.9    0710    696.1    0720    696.1    0740    698.2    0750
GR  699.8     1100    700.4    1200    693.3    1218    689.5    1286    687.7    1458
GR  692.3     1509    693.9    1552    696.8    1572    697.0    1795    696.3    1807
GR  696.3     1820    698.8    1843    692.5    1896   697.42    1942    696.9    2100
GR  695.6     2116    693.3    2135   688.47    2196    685.6    2254    685.0    2290
GR  684.3     2340    682.0    2378    681.9    2432    683.4    2475    684.9    2490
GR 689.02     2518    694.5    2541    728.6    2570
X1     48       32     1740    2343      700    1760     1325     0.94
X3     10
GR  721.0     0000    705.0    0030    702.5    0570    698.0    0600    700.0    0620
GR 702.32     1000   700.02    1101   697.02    1110   695.12    1127   689.68    1153
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GR 689.53     1300   692.22    1321   695.82    1532   697.92    1740   691.70    1815
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GR691.17    2279    696.62   2330    702.0    2343    691.7    2555    691.7     2570
GR 694.9    2585    739.1    2779
X1     49     27     1206     2109     3770     4550     4325
GR 727.9    1000    727.2    1046    730.7    1095    733.1    1168    704.3     1206
GR 701.0    1236    701.4    1272    699.01   1284    697.3    1303    694.8     1336
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GR 704.5    1811    701.8    1971    701.3    2010    705.1    2109    708.3     2111
GR 713.1    2132    712.4    2182    712.2    2530    718.0    2540    717.0     3280
GR 714.0    3285    740.0    3350
NC                  .045
X1     50     22     1008     1561     1345     1125     1350
GR 720.3    0995    718.1    0996    715.9    0997    713.7    0998    711.5     0999
GR 705.9    1008    701.92   1021    696.8    1061    693.5    1082    697.0     1194
GR 696.7    1287    697.2    1387    698.4    1442    701.98   1478    707.5     1490
GR 709.9    1561    709.1    1935    715.3    1950    713.2    2050    714.7     2065
GR 713.1    2600    730.0    2670
NC                  .050
X1     51     25     1005     1680     2140     2220     2140
X2   9540
GR 740.0    0990    735.6    0992    731.2    0994    726.7    0996    722.3     0.98
GR 712.3    1005    707.04   1020    705.1    1035    704.5    1065    704.0     1129
GR 701.9    1175    702.5    1251    704.2    1290    706.5    1348    705.5     1414
GR 705.1    1493    703.7    1577    704.8    1612    705.6    1644    707.04    1657
GR710.83    1670    713.3    1677    715.1    1680    715.7    1712    726.0     2295
X1     52     49     1000     2453     3000     3200     2910
X3     10
GR 735.0    1000    730.9    1006    726.7    1012    722.6    1018    718.5     1024
GR 715.3    1029    713.46   1051    712.9    1060    713.40   1088    715.0     1108
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GR 711.3    1729    709.7    1786    708.0    1829    707.2    1900    707.4     1965
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GR 714.8    2305    713.8    2319    714.5    2357    719.6    2366    721.6     2453
GR 721.1    2625    721.1    2629    716.9    2633    716.0    2655    716.17    2669
GR 715.2    2727    716.3°   2779    716.5    2870    716.44   2989    714.4     3048
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X3     10
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GR 727.9    1873    731.0    1875    733.2    1880    728.4    1885    722.23    1908
GR 720.2    1929    718.9    1990    718.1    2048    717.2    2118    717.2     2198
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NC                  .055
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GR 728.4    1771    726.8    1817    726.3    1869    727.0    1933    728.2     1996
GR 729.5    2080    731.70   2104    736.4    2131    744.0    2138    750.0     2144
X1     55     33     1637     2291     3350     3650     3490
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GR 748.5    1627    748.6    1630    746.5    1637    746.6    1646    744.0     1656
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GR739.90    1790    741.9    1802    743.4    1859   742.57    1915    740.4    1955
GR 738.9    2023    739.3    2083    739.1    2167    739.3    2216    740.1    2246
GR742.53    2277    746.6    2291    757.0    2300
X1     56     36     1587    2293     3450    3450     3335
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GR 752.9    1131    755.4    1140    755.8    1249    753.7    1277    753.5    1315
GR 753.7    1345    756.0    1352    757.4    1415   759.30    1573    758.9    1587
GR 757.0    1601    754.8    1607    753.0    1627    756.4    1715   750.96    1832
GR 748.6    1893    747.3    1953    745.2    2021    744.4    2062    744.6    2116
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GR 776.0    2310
NC                    .050
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NC                    .055
X1     60     18     1119    1525    14410   14200    14430
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GR817.79    1511    823.2    1525    835.0    1540
X1     61     17      996    1306     5975    6250     6190
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GR 838.9    1306    848.0    1313
X1     62     20      989    1326     1120    1120     1120
X2   9140
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GR933.90    1300    838.5    1316    843.0    1326    850.0    1330    860.0    1335
X1     63     13      998    1311     1160    1210     1110
GR 859.1     998    839.1    1000    832.9    1009    827.2    1071    827.7    1129
GR 827.7    1147    831.7    1215    833.7    1259    835.9    1283    839.2    1290
GR 844.3    1305    847.1    1309    867.1    1311
X1     64     12      998    1330     1020    1060     1040
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GR 832.4    1145   835.4    1172   836.1    1255   837.1    1303   841.1    1316
GR 848.2    1330   868.2    1332
X1    65      20     998    1684     610     600     560
GR 862.8     998   842.8    1000   839.1    1015   836.1    1069   836.6    1110
GR 838.1    1175   839.6    1208   842.4    1241   847.3    1270   844.5    1280
GR 846.9    1347   846.4    1398   844.0    1487   841.2    1504   838.5    1544
GR 837.2    1584   838.5    1624   842.7    1664   852.7    1684   872.7    1704
X1    66      17     998    1667     300     350     290
GR 863.2     998   843.2    1000   838.6    1008   837.2    1057   837.8    1107
GR 839.0    1180   842.8    1246   846.8    1322   844.4    1420   843.8    1452
GR 841.4    1504   839.8    1552   839.3    1597   840.3    1639   844.6    1649
GR 853.8    1667   873.8    1672
X1    67      13     998    1404    1600    1620    1620
GR 868.1     998   848.1    1000   843.7    1013   841.7    1076   842.2    1120
GR 841.2    1188   840.6    1239   840.9    1281   841.3    1323   842.6    1364
GR 848.4    1396   853.5    1404   873.5    1414
X1    68      13     990    1349    2000    2000    2000
GR 881.7     990   861.7    1000   852.2    1026   845.9    1042   834.9    1080
GR 829.9    1125   831.9    1140   845.4    1206   846.5    1234   846.9    1283
GR 846.5    1319   851.7    1349   871.7    1353
EJ
T1   SUSITNA HYDROELECTRIC PROJECT (SUBTASK 3.06 HYDRAULIC AND ICE STUDIES)
T2  Q=13,400 CFS, STARTING W.S.E. @ LRX-3 = 344.5, NC CARDS USED
T3         MIDDLE SUSITNA RIVER--FOR FLOWS BELOW 20,000 CFS
J1     0       2       0       0       0       0       0   13400   344.5  1.3814
J2     2       0      -1       0       0   -0.95       0       0       0      15
T1  SUSITNA HYDRO PROJECT
T2  Q=17,000 CFS, STARTING W.S.E @ LRX-3 = 345.5, NC CARDS USED
T3         MIDDLE SUSITNA RIVER--FOR FLOWS BELOW 20,000 CFS
J1   -10       2       0       0       0       0       0   17000   345.5  1.7526
J2    15       0      -1       0       0   -0.90       0       0       0      15
```

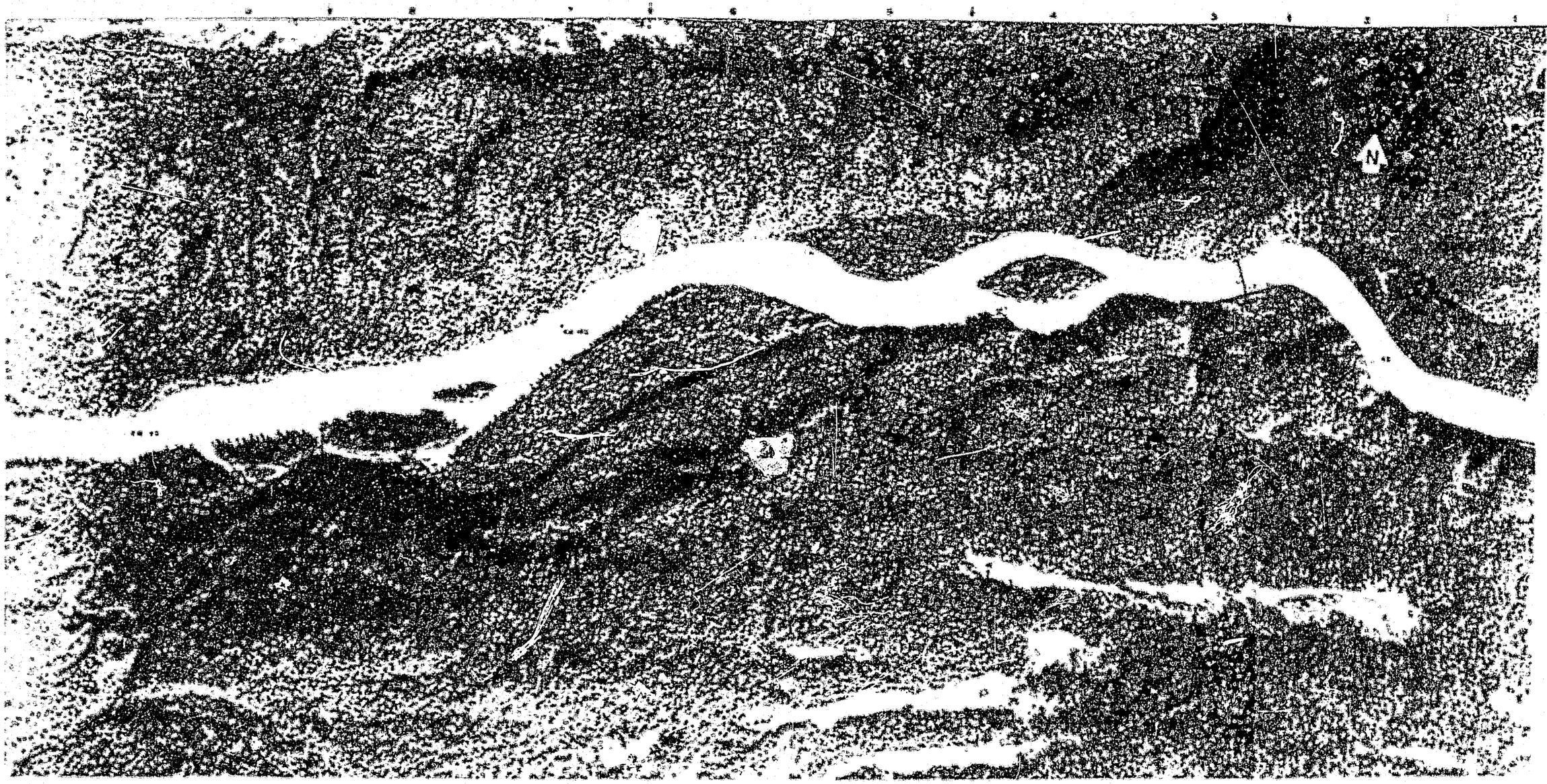
ATTACHMENT D

Susitna River, Hydrographic Maps
(Revised December 1982)

PORTAGE CREEK

N

HYDRODYNAMIC MAPS

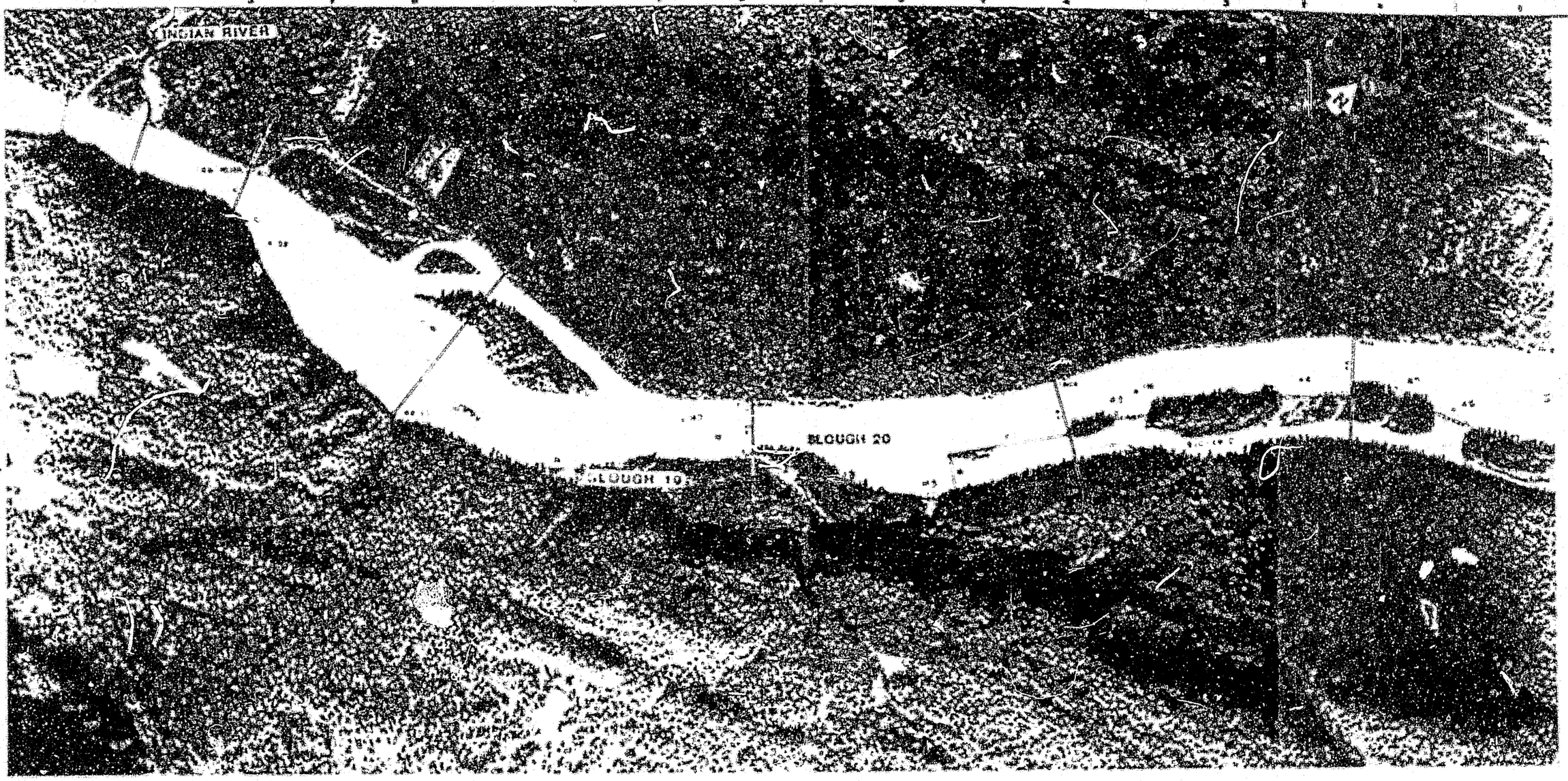


SUSITNA RIVER

HYDROGRAPHIC MAPS

SUSITNA RIVER

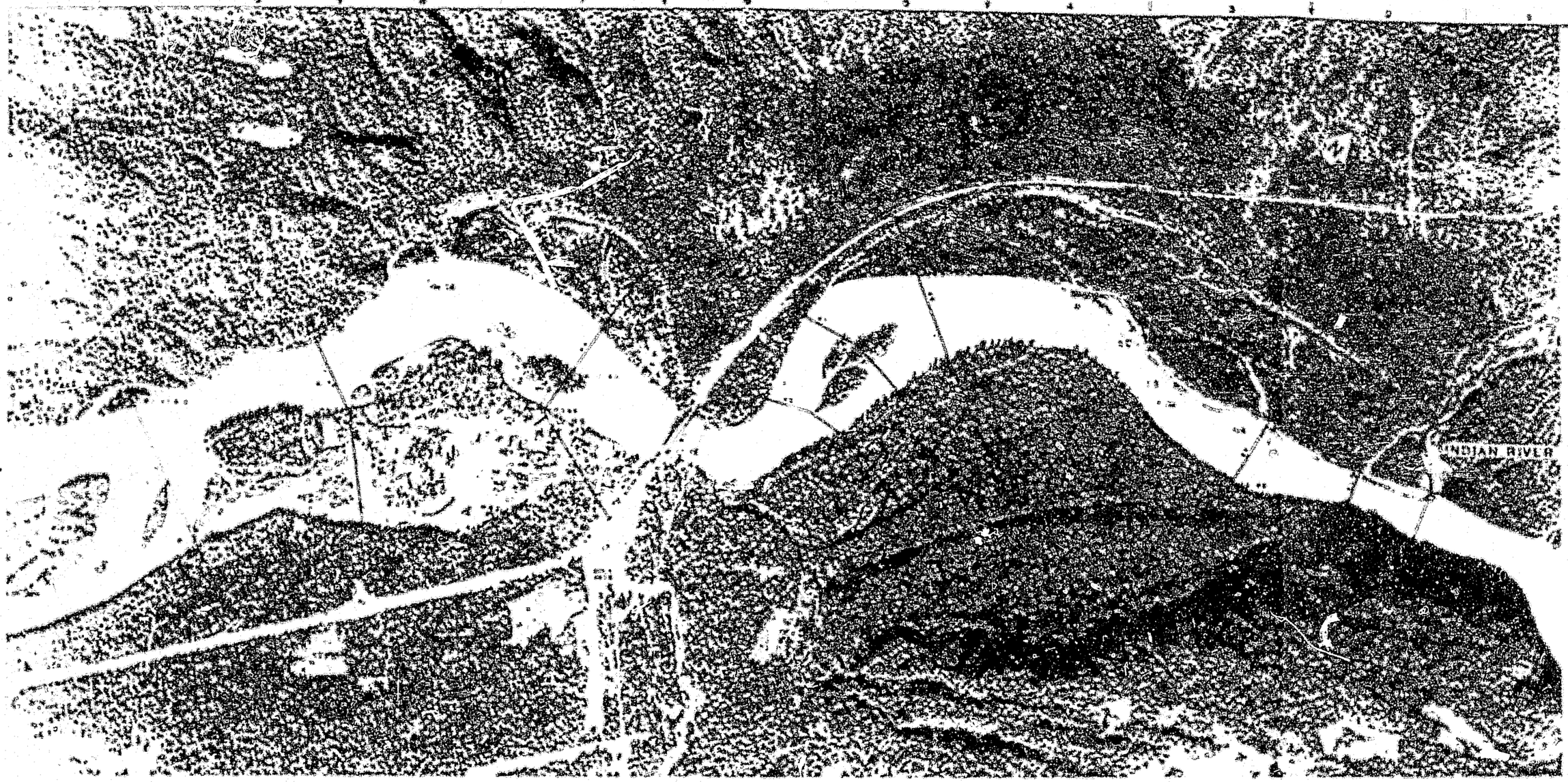
HYDROGRAPHIC MAPS



ALASKA POWER AUTHORITY

SUSITNA RIVER

HYDROGRAPHIC MAPS



ALASKA POWER ADMINISTRATION

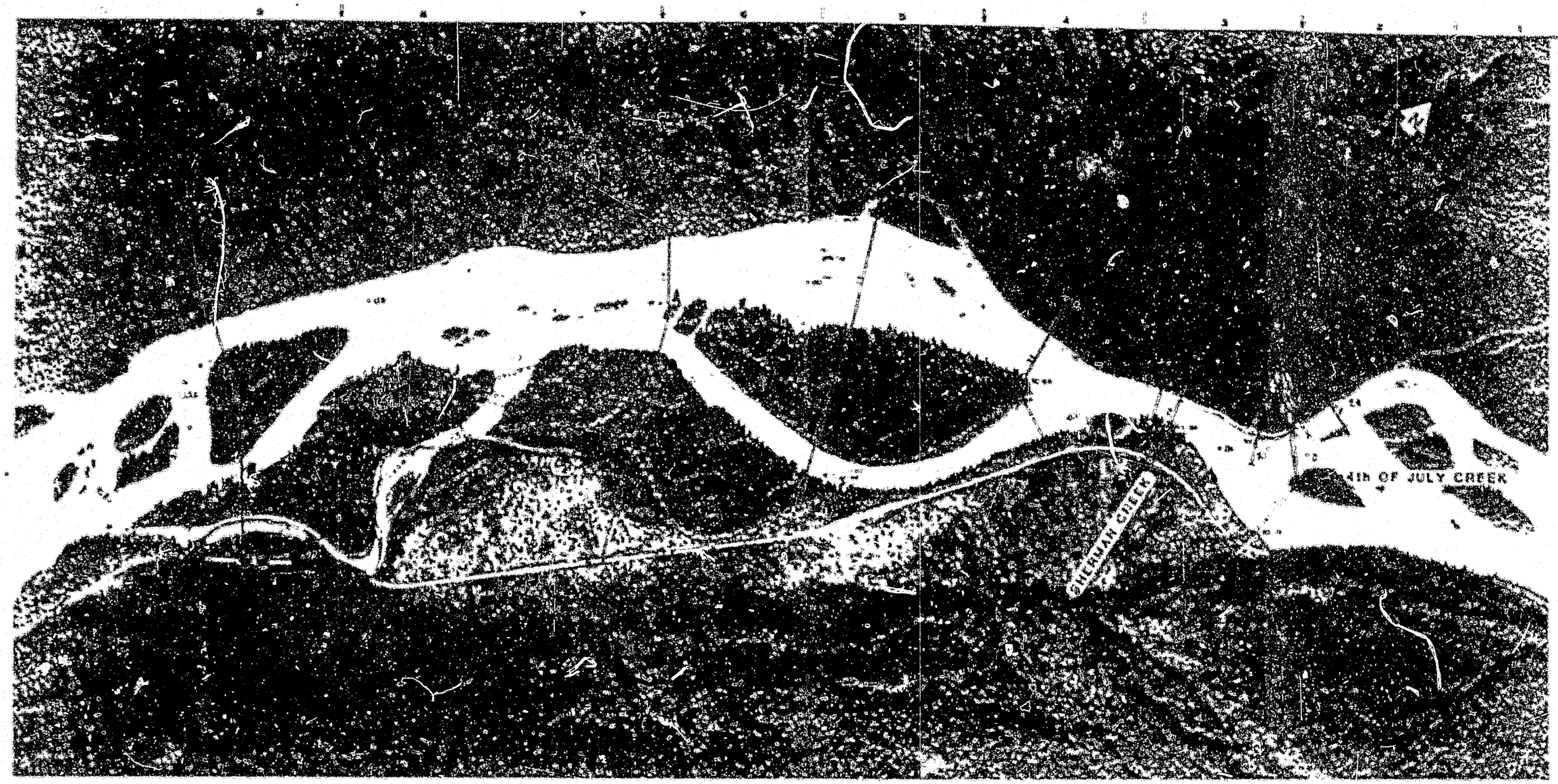
SUSITNA DIVISION

HYDROELECTRIC) MAPS

ALASKA RIVER SURVEY

QUESTNA RIVER

HYDROGRAPHIC MAPS

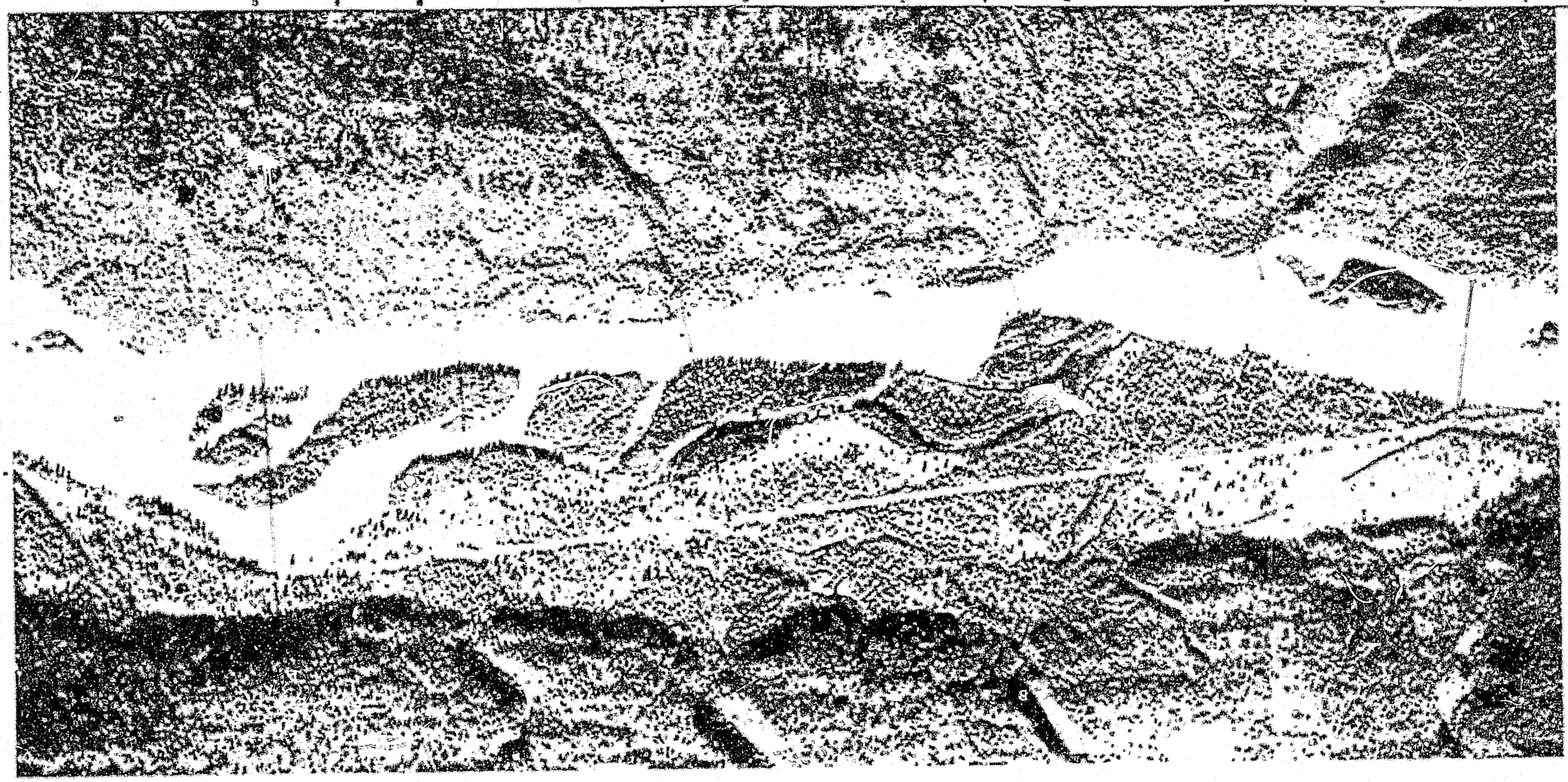


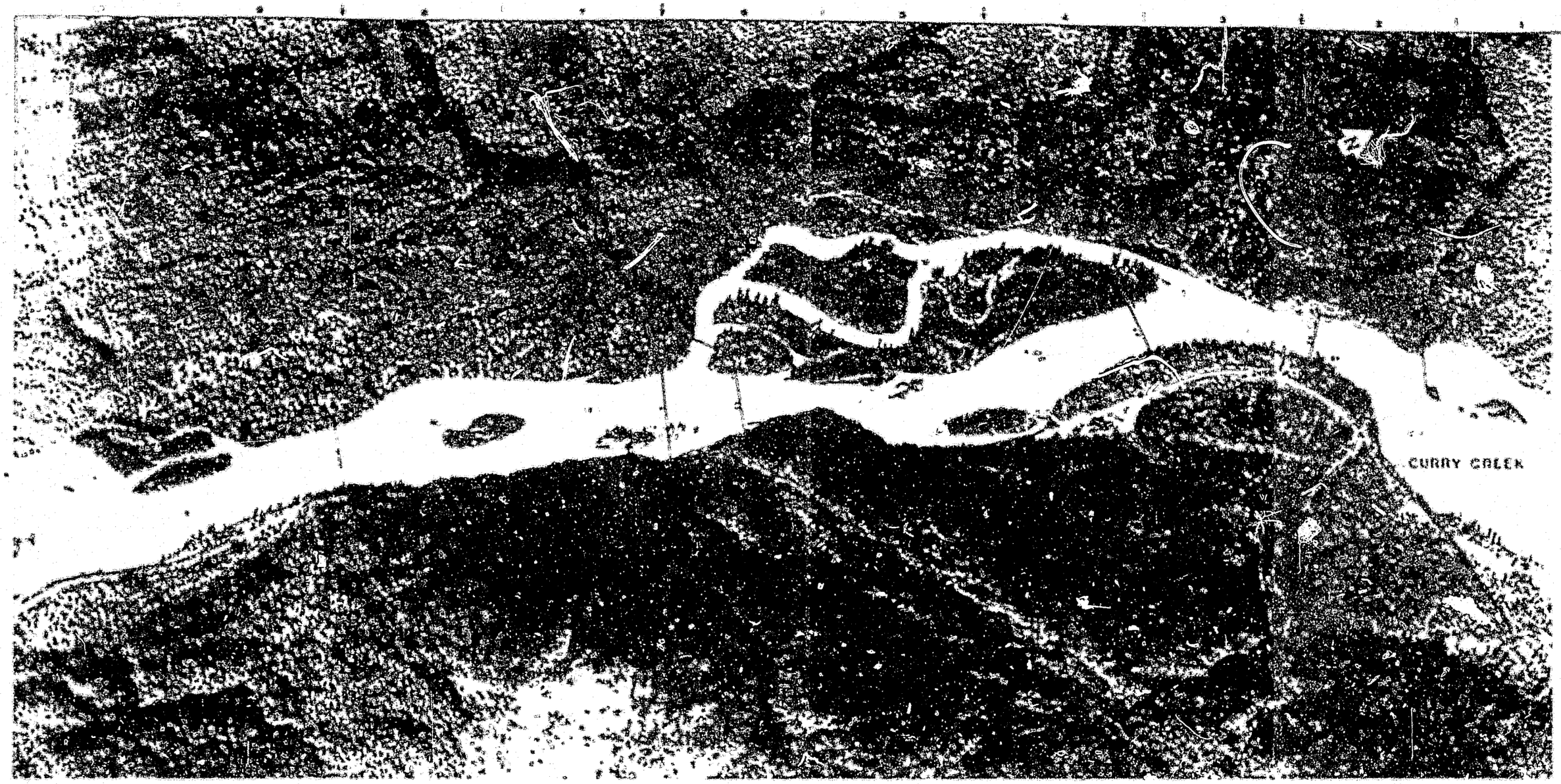
SUSITNA RIVER

HYDROGRAPHIC MAPS

KLAMATH RIVER

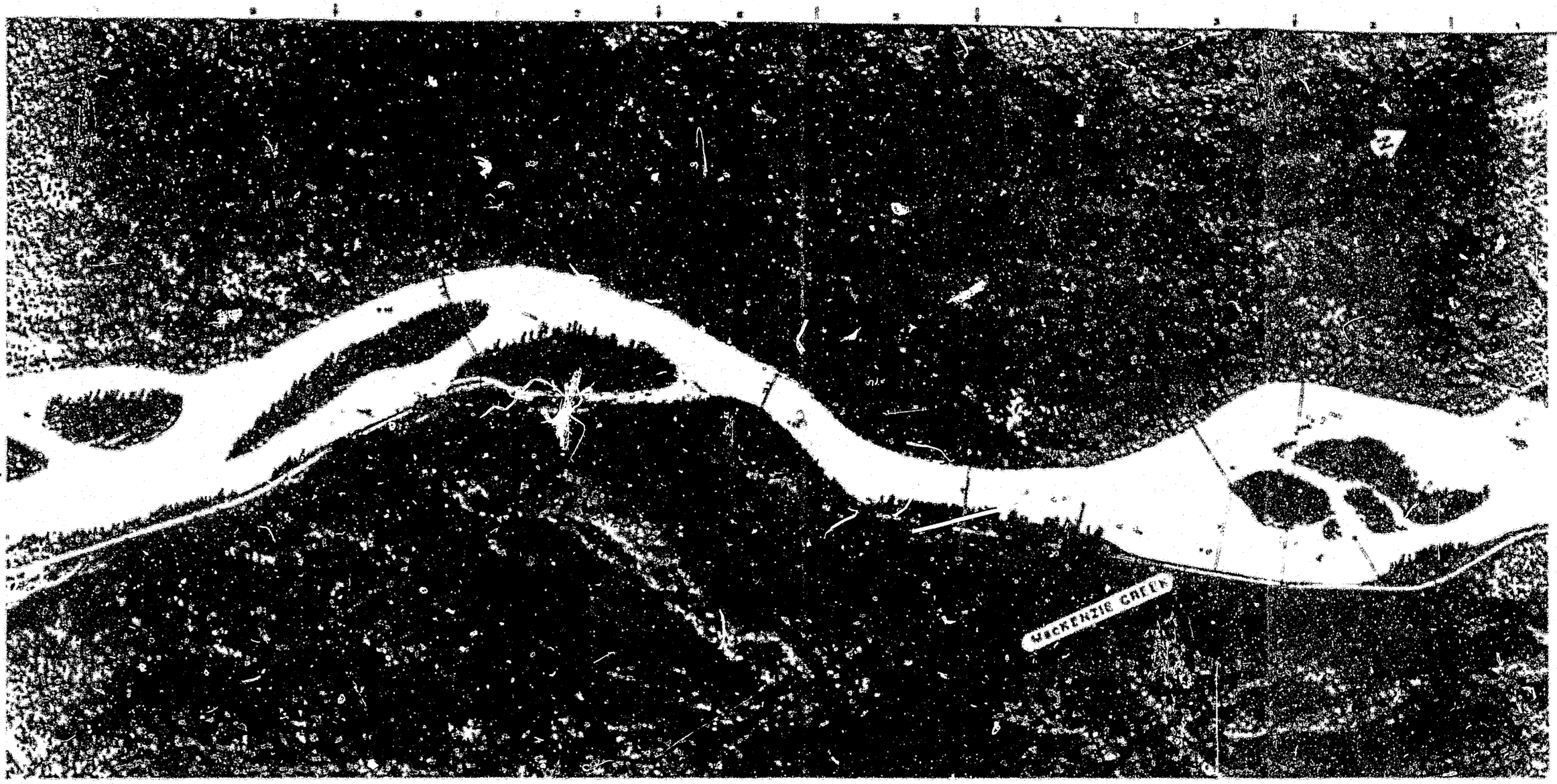
HYDROGRAPHIC MAP





GUATINA RIVER

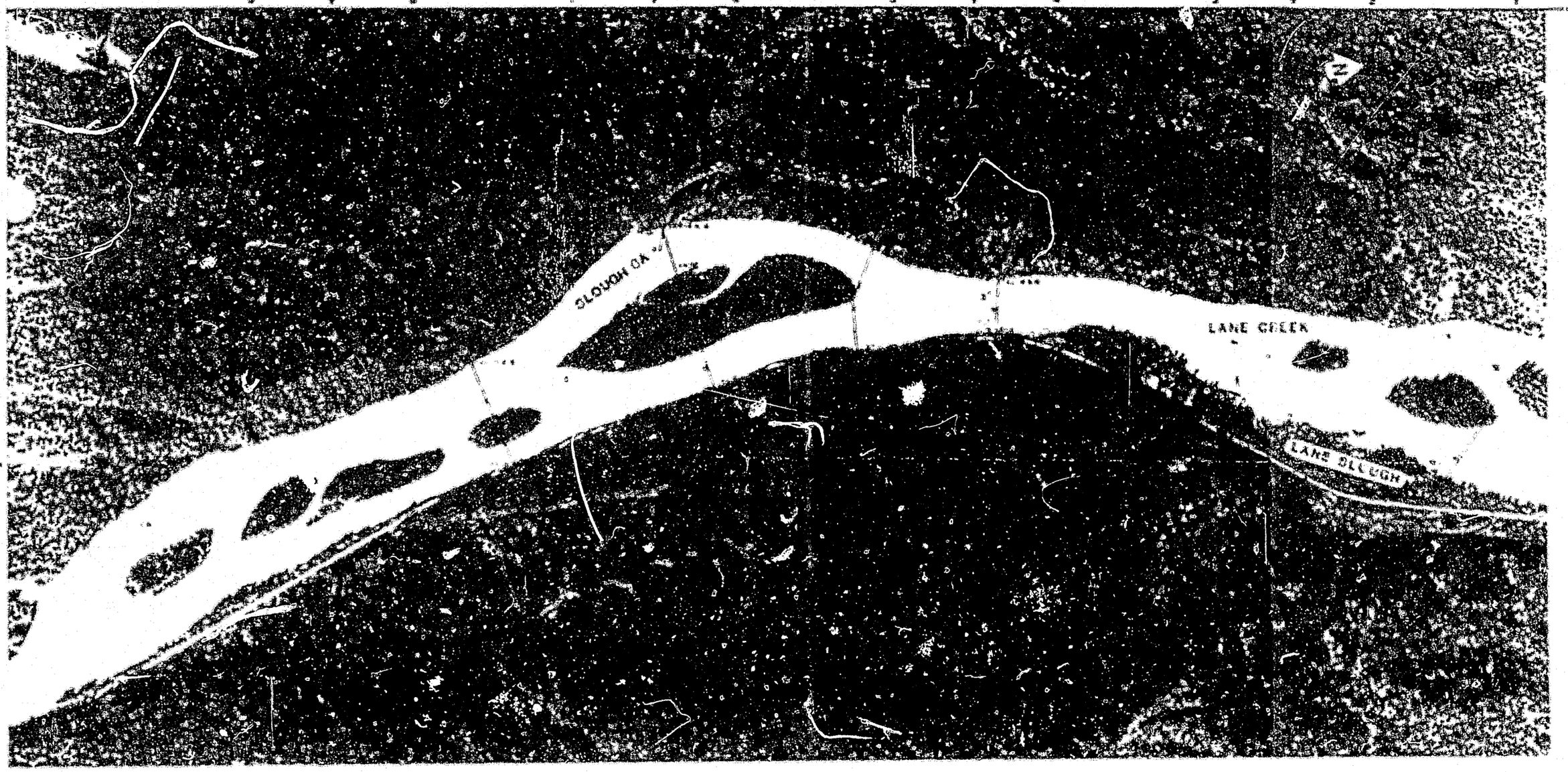
HYDROGRAPHIC MAP



ALASKA POWER AUTHORITY

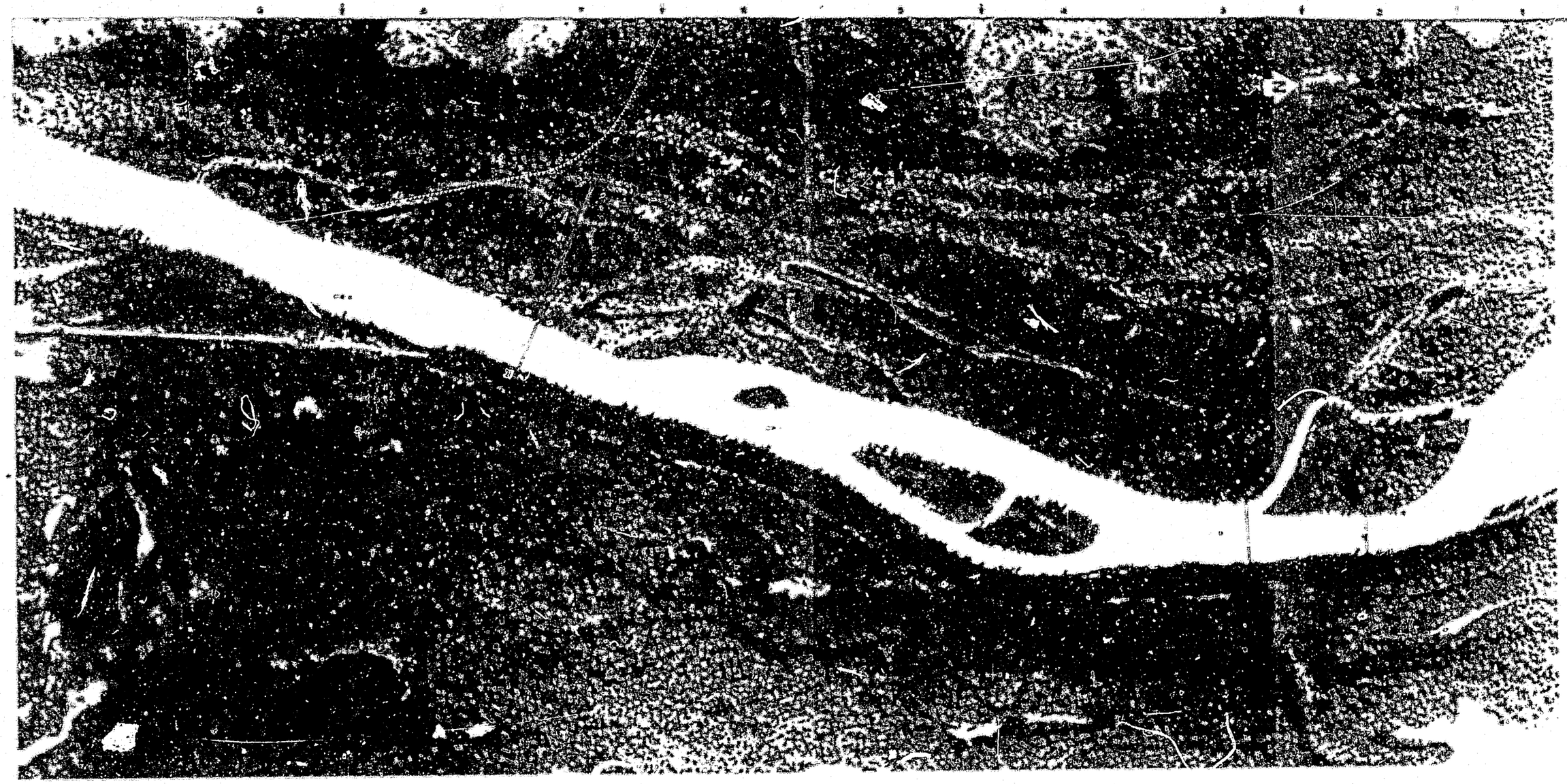
SUSITNA POWER

HYDROGRAPHIC MAPS



MIRTHA RIVER

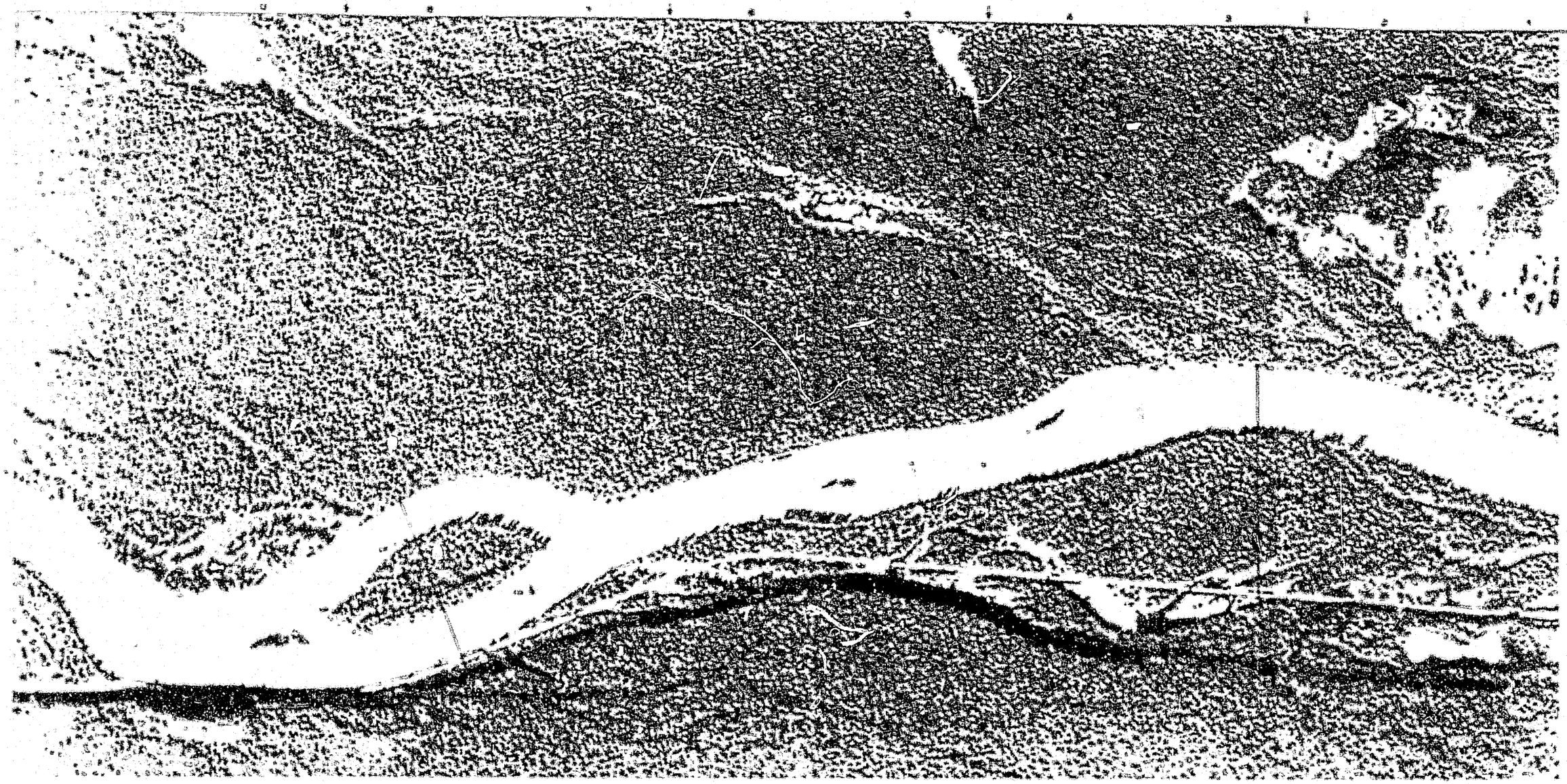
HYDRODYNAMIC MAPS



ALASKA POWER ADMINISTRATION

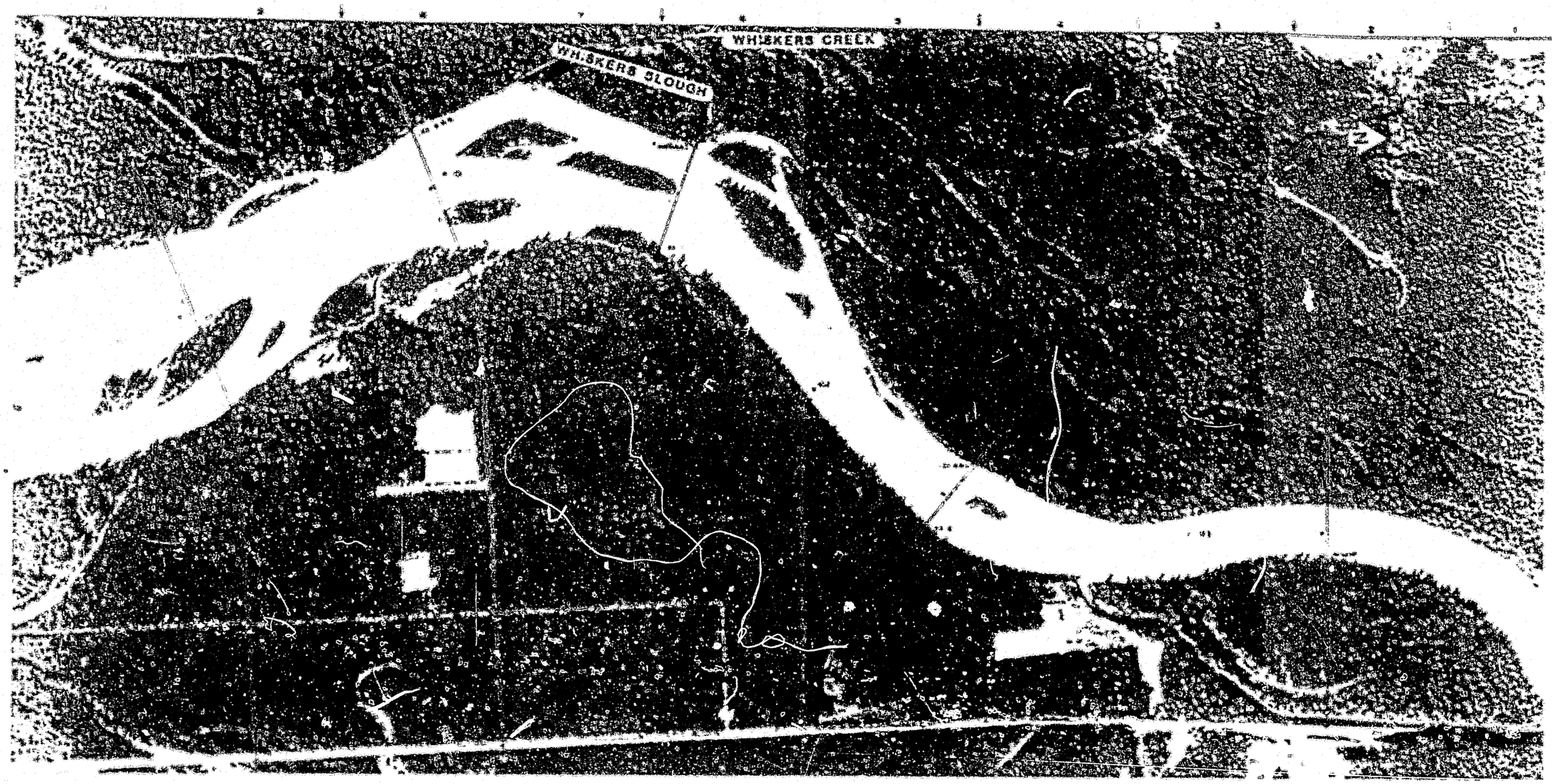
BUNTHA RIVER

HYDROGRAPHIC MAPS



KUBUTHA DIVISION

HYDROGRAPHIC MAPS

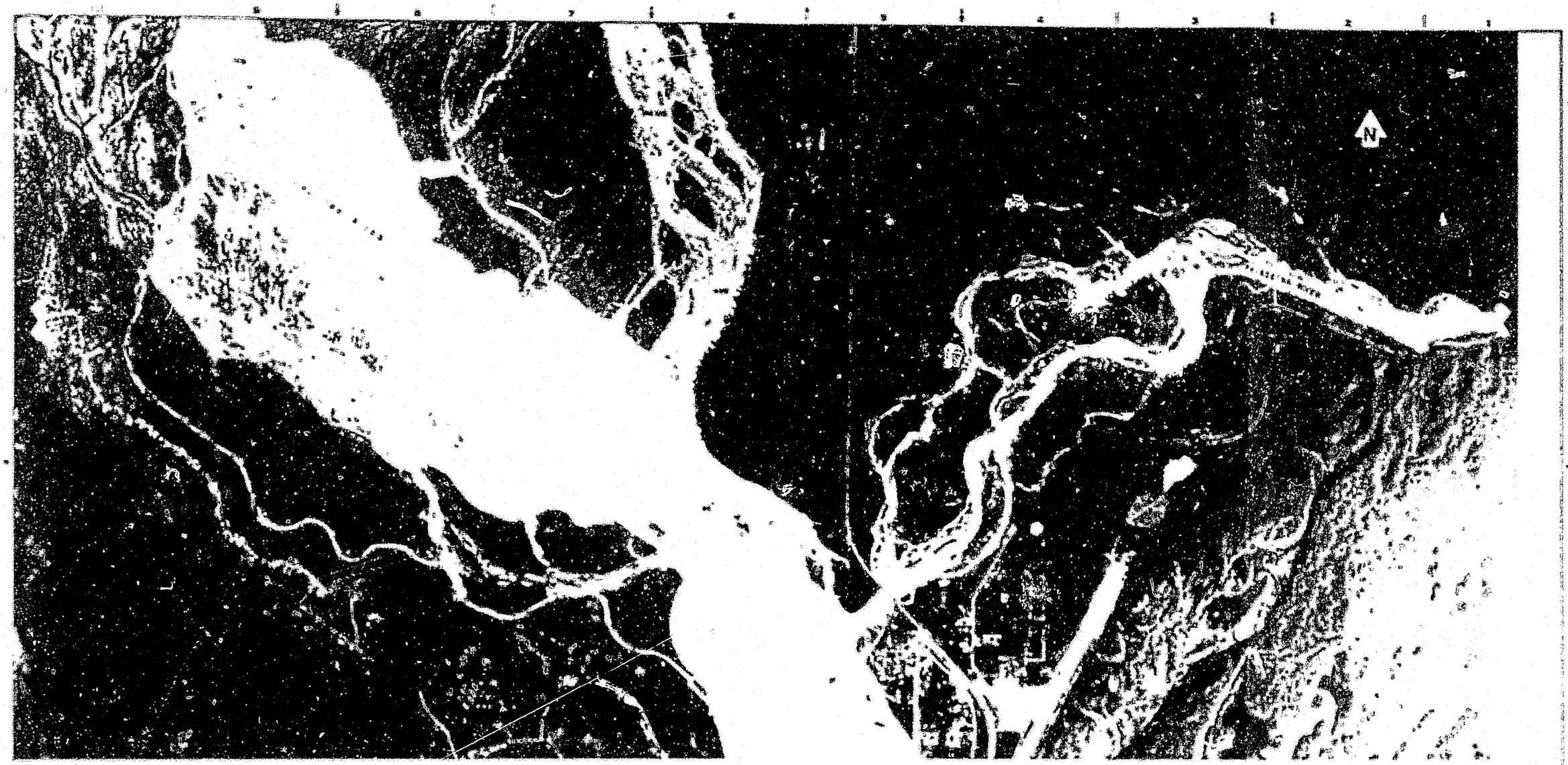


ALASKA POWER AUTHORITY

SUSITNA RIVER
HYDROGRAPHIC MAP

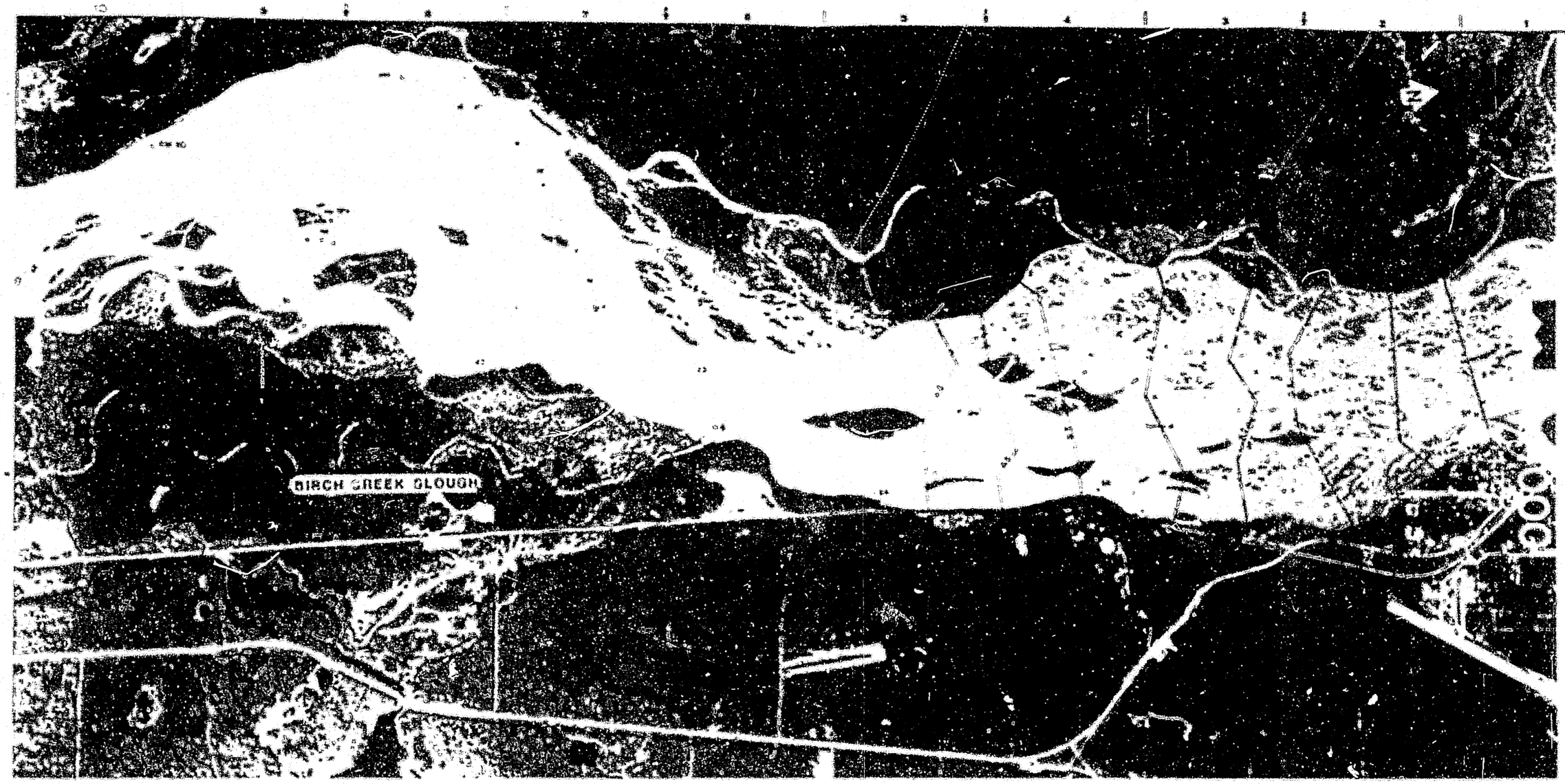
PUERTA RIVER

HYDROGRAPHIC MAPS

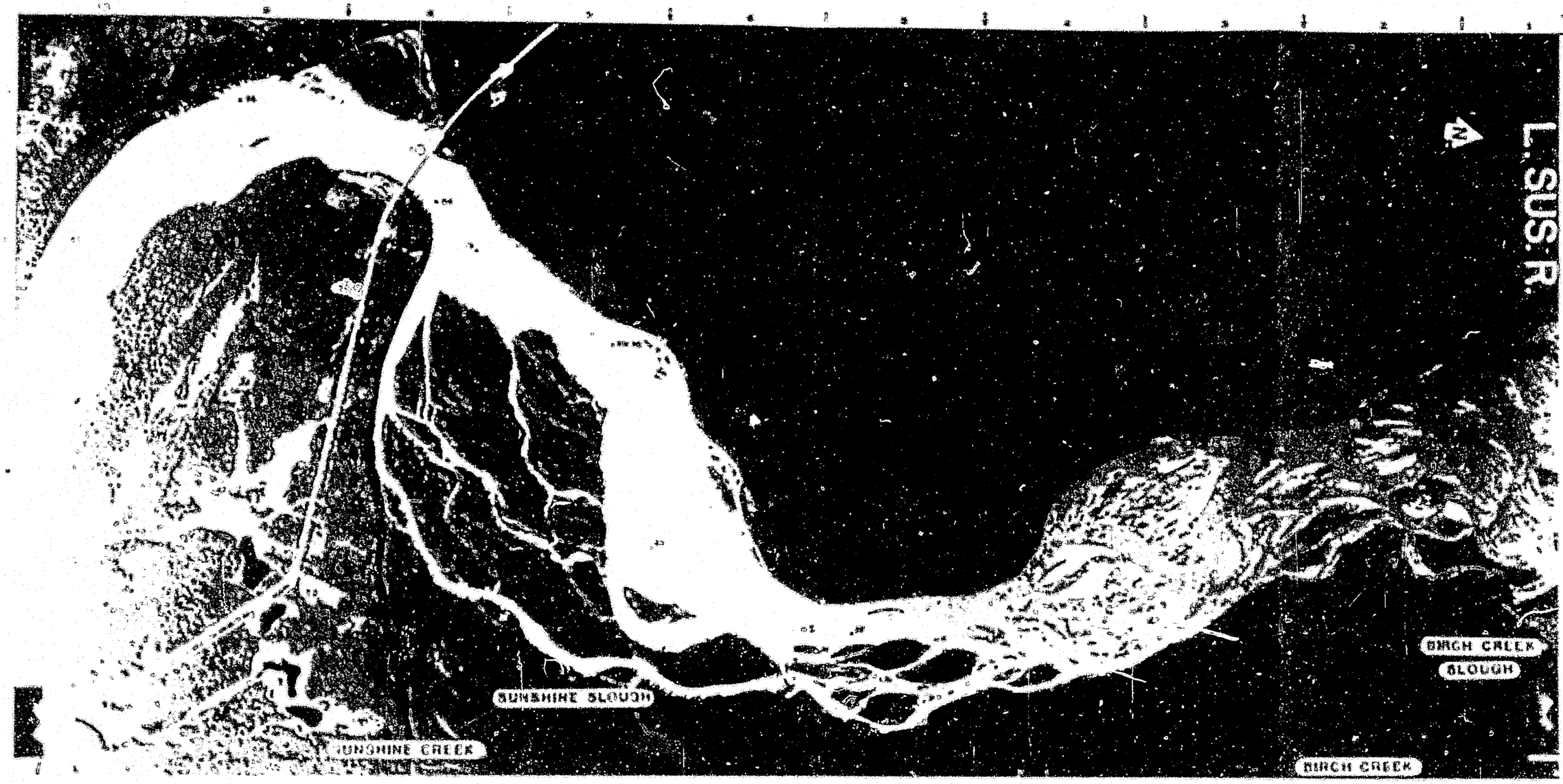


ALASKA POWER AUTHORITY

SUSITNA RIVER
HYDROGRAPHIC MAPS

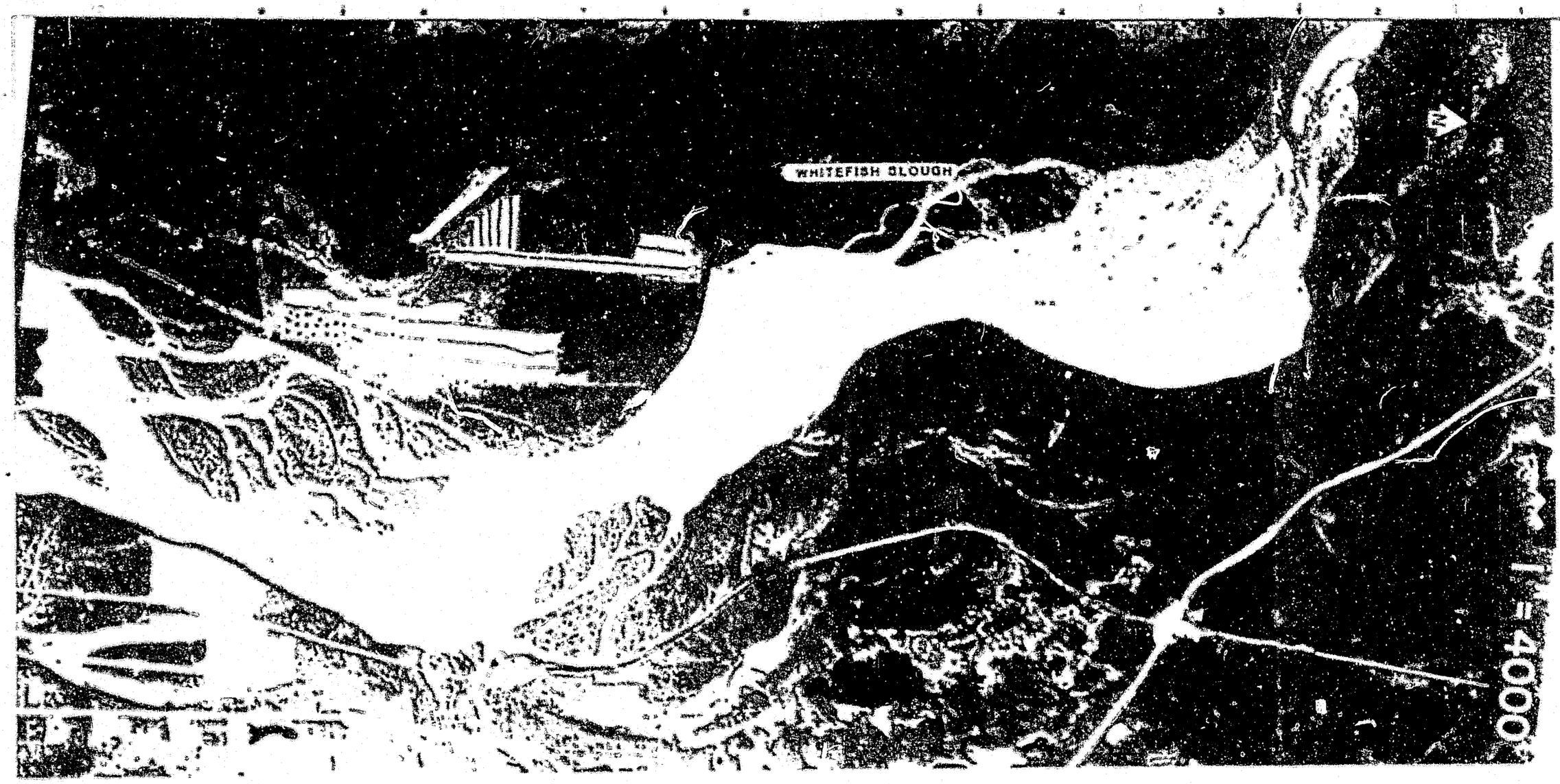


SUNTRUS RIVER
HYDROGRAPHIC MAPS



ALASKA POWER AUTHORITY

SUSITNA RIVER
HYDROGRAPHIC MAPS


WHITEFISH SLOUGH
N
4000'


3-3
N
GOOSE CREEK SLOUGH