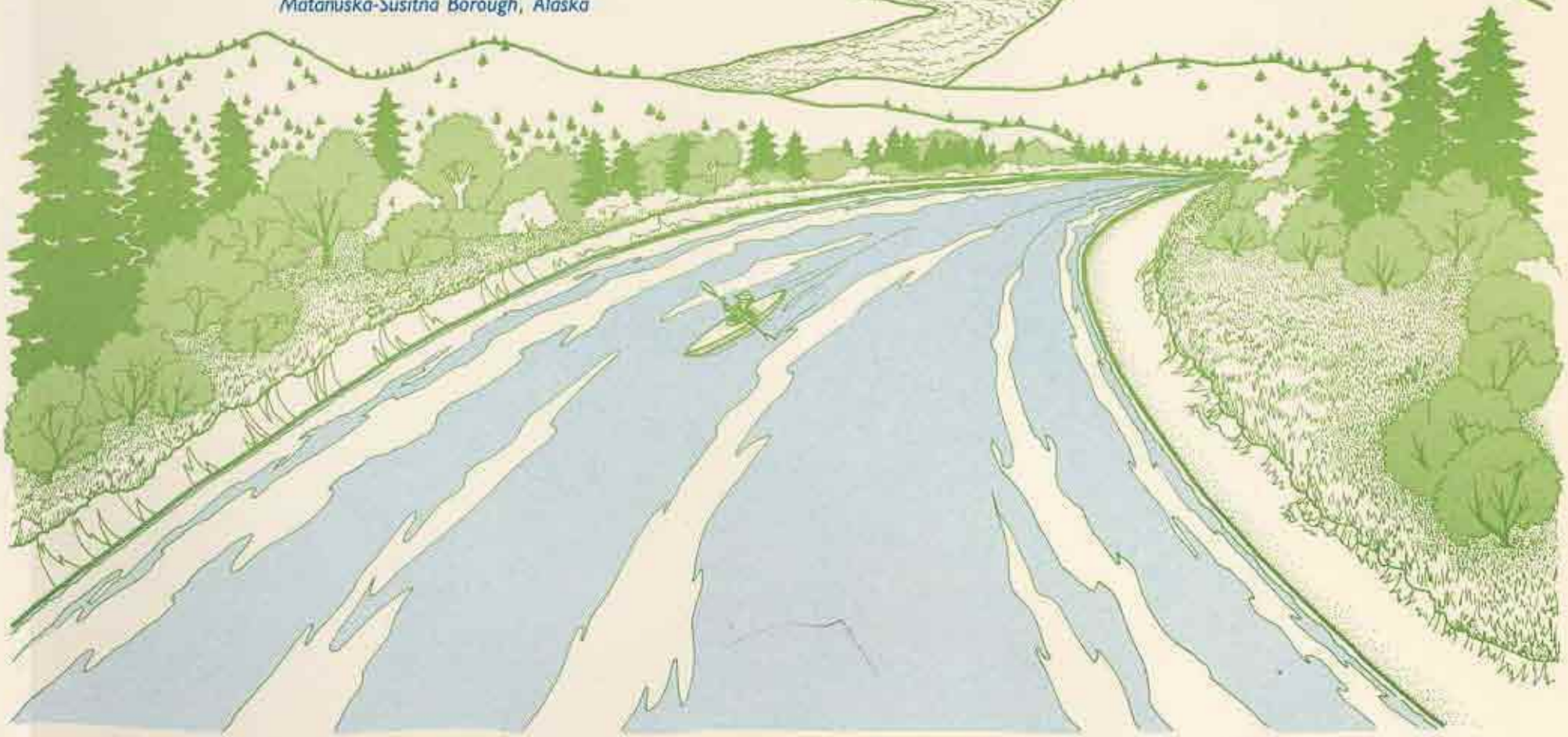
FLOOD HAZARD STUDY

KROTO, RABIDEUX, TRAPPER AND PETERS CREEKS

ALASKA RIVERS COOPERATIVE STUDY

Susitna River Basin, Talkeetna Subbasin
Matanuska-Susitna Borough, Alaska



JANUARY, 1982

Prepared by the
U.S. Department of Agriculture
Soil Conservation Service
Economics Research Service
Forest Service

In cooperation with the
State of Alaska
Department of Natural Resources
Department of Fish and Game

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Edward Grey, Hydraulic Eng. S.C.S.

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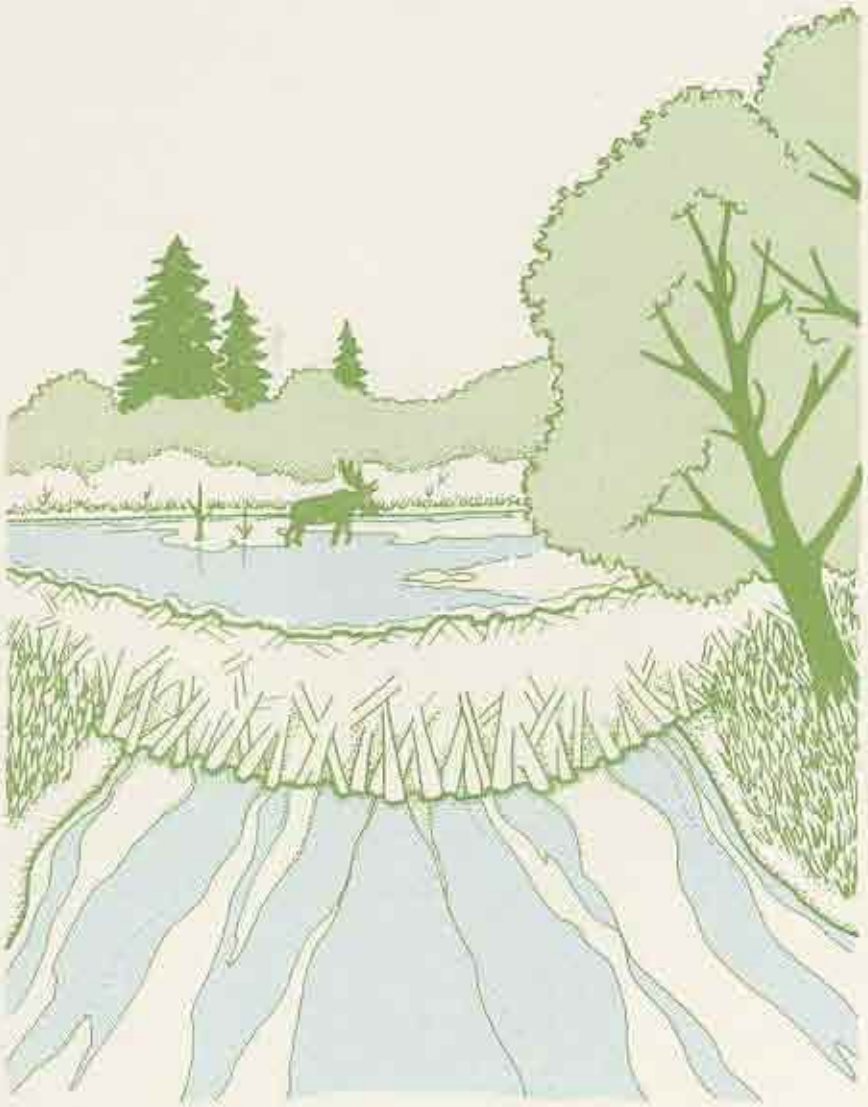

FOREWORD

The flood hazard information in this report will serve as a basis for local government and planning groups in formulating flood plain land use and management programs, adopting regulations, and providing the public with information concerning flood hazards along KROTO, MOOSE, NINE MILE, GATE, TWENTYMILE, SEVENTEENMILE, PETERS, KENNY, RABIDEUX, AND TRAPPER CREEKS.

The Soil Conservation Service implemented the technical phases of the study. The State of Alaska and Matanuska-Susitna Borough, Alaska Soil Conservation District and Palmer, Wasilla, and Montana Subdistricts assisted in providing land use data, obtaining permission for field surveys, and made available materials to be used for the study. They will distribute the report and make interpretations of the study data so it may be used effectively in local flood plain management programs. The State of Alaska, Matanuska-Susitna Borough and the SCS encourage the immediate use of the flood hazard information in implementing these programs and upon request will assist in the interpretation and use of the data presented in the report.

The cooperation and assistance given by other federal, state and local agencies and property owners in the collection of data for this report are greatly appreciated.

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INTRODUCTION

Local Study Needs

The Matanuska-Susitna Borough requested the Soil Conservation Service, through the Alaska Soil Conservation District and Alaska Department of Natural Resources, to carry out flood studies of several streams which presently have development along the stream banks. The local government feels that rapid development will take place in the near future, along the Petersville Road, adjacent to these streams. Development will increase the potential flood damages to those properties in the flood plains. An immediate need exists to accurately define the existing flood hazard areas along existing travel routes. This report defines the areas subject to flooding so that adequate flood plain management programs can be implemented that will regulate land use and development in flood prone areas. Such management programs will reduce potential flood damage, assure wise land use, and preserve and enhance the physical environment of the communities.

Development of flood plain reports requires that peak discharge-frequency analysis be developed in sufficient detail that reliable peak discharges by frequency can be determined for each watershed area to be studied. The peak-frequency analysis includes all of the streams that drain into the Cook Inlet north of the Anchorage bowl around to and including McArthur River.

This report will include Kroto, Moose, Ninemile, Gate, Twentymile, Seventeenmile, Peters, Kenny, Rabideux, and Trapper Creeks. The details of work items involved in this analysis and authorities for USDA and State of Alaska agency participation are set forth in the Alaska Rivers Cooperative Study Plan of Work for the Willow and Talkeetna Subbasins dated February 1979. Flood hazard reports on "196 Mile, Caswell, Sheep, Goose, Montana, Answer, and Birch Creeks" and "Troublesome, Byers, Honolulu Creeks-East and Middle Forks of Chulitna River" have been published by SCS in 1981.

The U.S. Corps of Engineers has published a Flood Plain Information Report on a portion of the Talkeetna River which is within the Talkeetna Subbasin

DESCRIPTION OF THE STUDY AREA

The flood hazard report concerns the area of the Talkeetna Subbasin bounded by the Susitna River on the south and east, the most southerly boundary of the Chulitna River drainage on the north and the most easterly boundary of the Kahiltna River on the west. The study area, for flood hazard concerns, encompasses about 1,052 square miles. The southern boundary of the area is about 80 miles by air north of Anchorage. The area is within the USGS hydrologic unit number 19050002. This number designates the Cook Inlet subregion of the Southcentral Alaska Region. Figure 1 shows the location of the area and delineates watershed boundaries of the area covered by the flood hazard report.

Source: SCS

Included within the drainage are high mountainous areas in which snow pack depths are three to five feet each winter.

Source: SCS

Timberland, brushland, and wetland areas are intermingled with one another throughout the Susitna River Basin.

Elevations range from about 70 feet above sea level to about 5,200 feet above sea level. The area generally slopes to the south. Kroto, Moose, Ninemile, Gate, Twentymile, Seventeenmile, Kenny, Rabideux, and Trapper Creeks head in the Peters Hills which are relatively flat with rolling hills. Peters Creek heads in the Dutch Hills which are steep and rough: Ninemile and Gates Creeks are tributaries to Moose Creek, which along with Twentymile and Seventeenmile Creeks, flow into Kroto Creek. Kroto Creek and tributaries flow into the Susitna River. Rabideux and Trapper Creeks are tributaries to the Susitna River. Peters Creek of which Kenny Creek is a tributary flows into the Kahiltna River. The lower portion of the area is nearly level to undulating: low hills with irregular slopes are prominent; poorly drained bogs and other wetlands are common.

Below timberline, about 2,000 feet above mean sea level elevation, on the better drained soils, paper birch-white spruce stands are the predominant vegetation. Black spruce is predominant on the poorly drained soils associated with numerous sphagnum bogs. Cottonwood, alder and willow are common in the flood plains adjacent to the streams. Vegetation above timberland, 2,000 feet to 6,700 feet elevation, is predominately of the tundra type.

Source: SCS

Lowland streams meander alot and are usually on a relatively flat slope.

Stream channel slopes range from about six feet per mile in the lower reaches to about 100 feet per mile in the mountains. Petersville Road runs east and west and crosses most of the streams in the study area. Alaska State Highway 3 (Parks Highway) crosses Rabideux and Trapper Creeks.

The climate of the area is influenced by marine conditions in the south and continental conditions in the east. The temperature range is from a minus 45 degrees F to 85 degrees F. The average daily maximum temperature in the summer is in the upper 60's with low 60's being common. Temperatures of 32 degrees F or lower have been recorded during every month of the year.

Average maximum winter temperatures range from about zero to the mid-teens. The freeze free period averages about 80 to 95 days. Average annual precipitation ranges from about 28 inches in the south to about 60 inches in the mountains. In the southern portion of the area, over half of the precipitation occurs from June 1 through the end of September. In the winter snow covers the entire area and ranges from about 20 inches in the lower elevations to over 100 inches in the mountains.

Source: SCS

Tall heavy bluestem grass is found in the lowland and upland alike. Grass will grow to a height in excess of five feet. Note forested area in background.

Source: SCS

Many of the streams are lined with dense forest type vegetative cover and stream velocities are slow and inviting to the adventurous.

FLOOD HISTORY

Development in the area is sparse and has taken place in recent years. Contact with local residents, state and borough officials, and other federal agencies, was made in an effort to obtain historical flood data in the study area.

Channel obstructions are factors which are significant in assessing flood damages. Historically the streams included in this report have had no known ice dams, jams, stream channel glaciation, etc., but others in the vicinity have. It is possible for flood damages from these types of stream channel obstructions to occur however, reliable predictions of where and how frequent they may occur cannot be determined with present day data. Stream bank erosion is caused by the high water surface and velocities produced by storms equal to or greater than the 10-year frequency event.

FLOOD POTENTIAL (PRESENT CONDITIONS)

Flood Hazards

Present damageable property in the area consists of scattered homes and cabins, many of which are for seasonal use, and highway crossings. Damages to these properties from a 100-year event is estimated to be less than $100,000 with average annual damage totaling less than $8,000. A detailed damage analysis concerning the effect of flooding on stream fisheries is beyond the scope of this study, however, under certain conditions, flooding could severely disrupt stream sports fisheries and have a long term negative impact on commercial fisheries. See Appendix D, Exhibit 2, for water surface elevations along the streams.

Source: SCS

Moose Creek bridge washed out July 11, 1981.

Source: SCS

Looking downstream on Kroto Creek just below the confluence of Moose Creek.

Ninemile Creek

Peak discharges that exceed the peak produced by a five year frequency event will overtop the Petersville Road crossing. This would cause damage to the highway and damage to private property. Depth of flow and high velocities, in excess of 7.0 feet per second, from storms equal to or greater than the 50-year event, would endanger life, cause extensive damage to road fill, culvert, stream banks, and the flood plain.

Gate Creek

At the Petersville Road crossing over the creek, the 50-year and greater discharge will produce stream velocities through the highway bridge structure in excess of seven feet per second which is erosive to the stream banks around the bridge structure and are a risk to human life.

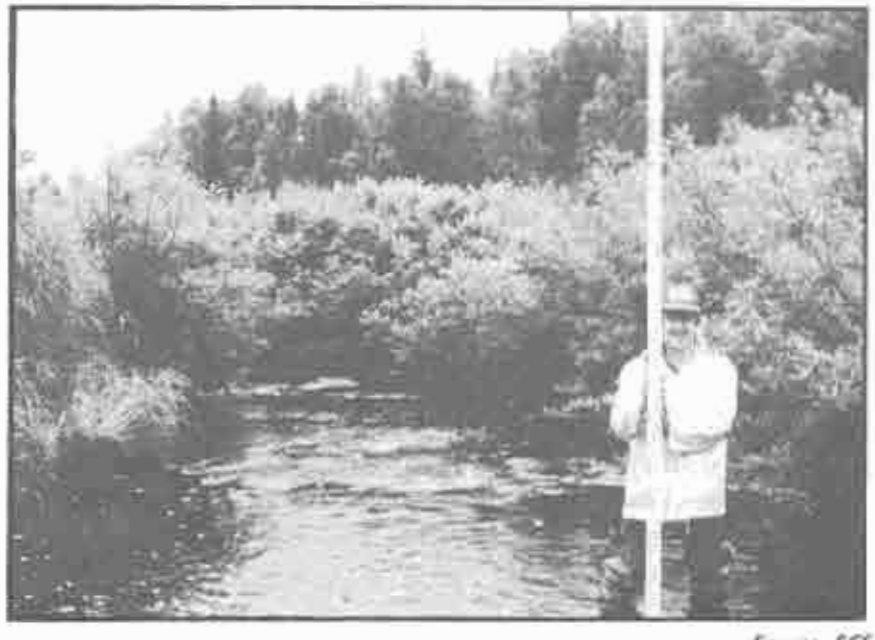
The road that crosses the creek upstream of Petersville Road has a small bridge which will be overtopped by storms greater than the 5-year event. Velocities at the structure are in excess of seven feet per second and would cause damages to the structure, stream banks, and flood plains, and would be a risk to human life.

Twentymile Creek

The peak discharge produced by a storm equal to or greater than the 5-year event will overtop the culvert across Twentymile Creek. The stream velocity at the structure across the creek is in excess of seven feet per second and can cause extreme damage to the culvert and road bed, damage the flood plain and stream banks, and is a threat to human life.

Source: SCS

Foot bridge across Moose Creek, also typical vegetation along stream banks.



Source: SCS

Looking downstream on Gate Creek below small bridge crossing for development road. Note heavy brush along stream bank.

Seventeenmile Creek

Flood events greater than the five year storm will overtop the Petersville Road and cause extensive damages to the culvert, road fill, stream banks, and flood plain. Flow velocities will be in excess of six feet per second and are a risk to human safety.

Peters Creek

The flow caused by an event equal to or greater than the ten year event will overtop the road fill at the bridge approaches on the road. The road fill, stream banks, and flood plain will receive damages, however, structure damage will be minor. Stream velocities are in excess of five feet per second and flow depths are in excess of seven or eight feet, which are a threat to loss of life.

Kenny Creek

The Petersville roadway will be overtopped from a storm equal to or greater than the 10-year event. This may cause damages to the culvert, road fill, and flood plain. Velocities, seven feet per second and greater in combination with seven or eight feet depths of flow present a risk to human life.

Rabideux Creek

The culverts in Rabideux Creek at the Parks Highway crossing are large enough to convey the peak discharge produced by the 100-year storm event. Structural and road fill damages are minor, however, the velocity, in excess of six feet per second, and depth of flow, eight to ten feet, is a risk to human life.

Source: SCS

Rabideux Creek at highway crossing. Note heevy brush and timber stands along stream banks.

Source: SCS

Looking downstream at Petersville Road crossing over Tropper Creek. Typical cross section and vegetation along the small streams.

Trapper Creek

There are two road crossings, developed farmland, and several cabins which will be endangered by flood discharges on Trapper Creek. Flood flows in excess of that produced by the 10-year storm will cause damage to about 120 acres of farmland and several cabins.

At the Petersville Road crossing flood discharges equal to or greater than the 5-year event exceeds the capacity of the culverts and overtops the road fill. Road fill, stream banks, and flood plains are damaged by erosion. Depth of flow, greater than seven feet, and high velocity, greater than six feet per second, combine to present a risk to human life.

The Parks Highway culverts will convey the discharge produced by the 100-year storm and do not present any problems.

Technical Data and Related Material

The technical data and related material needed for the intended uses of this study are provided as figures, exhibits and tables in this report.

Figures 2 through 17 are drawings of selected valley cross sections showing the flood elevations for the 10-, 50-, 100-, and 500-year under present land use conditions.

Table 1 (Appendix A) is a tabulation of frequency-discharge-elevation data at cross sections for the 10-, 50-, 100-, and 500-year floods under present conditions. This table may provide greater convenience and efficiency when information is needed at specific locations. At a particular location the water surface may be more accurately located by using depth of flow from the stream channel bottom. Table 2 (Appendix B) is a listing of

descriptions and elevations for selected elevation reference marks established in the study area. All elevations, except for those in the immediate vicinity of the Parks Highway crossing over Rabideux, are estimated from USGS topographic quadrangles. Their locations are shown on the appropriate photomap indicated in the table. They may be used in establishing the relative locations of existing or planned buildings, roadways, etc., with the floodwater elevations. Cross sections in the immediate vicinity of the Parks Highway and Rabideux Creek crossing are based on bench levels run from a USNGS bench mark.

Table 3 (Appendix C) presents flood flow width and velocities by valley cross section for the 100-year event.

Exhibit 1 of Appendix D provides the index for Exhibit 2, flood profile sheets. Exhibit 2 provides plottings of the routed water surface elevations for the 10-, 50-, 100-, and 500-year peak discharges under present conditions, along the streams. Except for Peters Creek the zero station for each stream is at its confluence with the Susitna River. Peters Creek stationing starts at a point about 17 miles downstream from the bridge. The stations increase in an upstream direction from these points. The profiles for each stream with the exception of Peters Creek were started at the average water surface in the Susitna River. Water surface profiles for Peters Creek were started by assuming normal flow. A straight line interpolation was used between each cross section. These profiles may be used for those purposes which require the location of flood boundaries on the ground.

To locate a flood profile elevation on the ground, determine on the appropriate photomap the distance along the stream from the point in question to the nearest cross secton. On the appropriate profile sheet, use the distance from the reference cross section to determine the stream distance on the profile of the point in question and read the elevation of the desired flood frequency line. Transfer this elevation to the ground from the nearest reference mark. Check the depth of flow from the profiles to be sure that your ground elevation allows for an adequate depth of flow. Adjust upward if needed to provide a safe elevation.

Exhibit 3 of Appendix E is a Photomap Index to determine the sheet number of the photomap desired.

The Flood Hazard Photomaps, Exhibit 4 of Appendix E, show the area inundated by the 100-year flood. The actual limits of the 100-year flood line on the ground may vary somewhat from that shown because of the stereoscopic interpolation and the interpolation from USGS quadrangles with 50 feet or 100 feet contour intervals. These photomaps can be used to determine the location of points in question and their relationship to specific flood frequency as outlined above for Exhibit 2. They may also be used for flood plain management decisions or for purposes which require the approximate location of the 100-year flood plain.

FUTURE FLOOD POTENTIAL

The Matanuska-Susitna Borough is a participant in the HUD Flood Insurance Program administered by the Federal Insurance Administration. This participation guarantees that federally subsidized flood insurance coverage is available to owners and occupiers of all buildings and mobile homes (including contents) within the subbasin.

As required by the HUD Program the Borough has adopted land use management regulations which:

1. Insure that all new construction is designed to minimize flood loss, and

2. Require that all new construction or substantial improvements to existing structures have the first floor (including basement) level at or above the 100-year flood elevation and that all utilities be flood proofed.

With flood plain management regulations in effect it is expected that future residential, commercial, and industrial flood plain development will be such that flood damages to these properties will not increase above present levels. This presupposes that flood plains will be identified and used as a tool and a means for enforcing local ordinances and that the ordinances themselves are enforced. Should this fail to occur, damage potential will increase drastically with population growth.

Although the damage threat to existing development is expected to be arrested, it is doubtful that the same will be true of highways and railroads. Transportation networks are often found in and adjacent to floodplain lands as a result of construction costs. Even when flood damage costs are added to construction, operation, and maintenance costs, it often remains less expensive to build on flat lowland areas than an more rugged upland terrain.

FLOOD PLAIN MANAGEMENT

Management Programs

Regulatory measures presently adopted do not prevent flooding but, instead, reduce the threat of damage or loss of life from floods by discouraging development of homes and other buildings on floodplains. Without additional measures damage to existing property will continue and road and bridge related damages are likely to increase. As a means to minimize this situation the following alternatives are suggested.

1. For Existing Properties:

   a. Permanent measures built as an integral part of the structure, such as raising the elevation of the structure, water-proofing of basement and foundation walls, anchor and reinforce floors and walls, and use water-resistant materials.

   b. Contingency measures which require action to be taken to make them effective, such as manually closed flood gates and removable bulkheads.

   c. Emergency measures carried out during floods according to prior emergency plans, such as sandbagging, pumping, and removal of contents to flood-free areas.

   d. Reclamation of flood plains which includes the permanent evacuation of developed areas subject to inundation and the acquisition of these lands by purchase or land trades, the removal of structure, and the relocation of the population from such areas.

   e. Use of flood watch or warning systems to provide advance notice of impending flood danger.

   f. Buildings and mobile homes within or adjacent to the delineated flood hazard areas in Appendix A of this report should carry flood insurance on the structure and its contents. Although this will not reduce existing damage potential, it will have the positive effect of spreading the flood hazard risk.

2. For Future Road and Bridge Construction

   a. When analyzing proposed alternative transportation routes, the costs of potential flood damage will continue to be investigated and included for use in the decision making process.

   b. Construction designs will continue to reflect sound engineering judgement with regards to flood hazard potential. This includes the analysis of soils, geology, hydrology and hydraulics, as well as adequacy of construction materials.

Recommendations

It is not the intent of this report to provide solutions to flood problems in the study area; however, it does furnish an information base for the adoption of an overall flood plain management program. Other management programs dealing with environmental values of flood plains may also benefit from this information. Following are recommendations which should be emphasized during development and implementation of this program.

1. Adopt and/or enforce flood plain regulations in compliance with the National Flood Insurance Program as a minimum. The regulations should address such things as minimum floor elevations, floodways, greenbelt areas, adequate drainage facilities, building and housing codes, and sanitary codes with specific flood hazard provisions for all new construction.

2. Consider nonstructural measures for flood prevention such as flood plain acquisition, flood proofing, and flood forecasting and warning systems. Federal cost sharing for these measures may be available under Section 73(b) of Public Law 93-251. The realization of the need for a

flood warning system is due to the projected rapid development of the flood plains that have occurred in the past decade and the high velocities in the streams. The National Weather Service of the National Oceanic and Atmospheric Administration issues frequent warnings of potential flood producing storms. Frequently the flood warnings are preceded by a "severe weather or flood watch."

3. Include in land development ordinance the provision for on-site runoff and sediment storage. A continuous maintenance program needs to be provided for these types of measures.

4. Owners of property subject to flood damage (including areas adjacent to the delineated flood hazard areas) should be encouraged to purchase flood insurance on their buildings, mobile homes, and their contents.

5. Develop a regular mainterance program to keep all hydraulic structure openings, approach channels, and outfall channels clear of sediment and debris.

INVESTIGATIONS AND ANALYSES

The hydraulic and hydrologic investigations followed procedures in the SCS publications National Engineering Handbook, Section 4, Hydrology (NEH-4) and Section 5, Hydraulics (NEH-5), and other technical references. Computer programs developed by the SCS were used for most of the analyses.

Field Surveys

Field surveys were completed in the summer of 1978, 1979, and 1980 for valley and road cross sections. Vertical control for surveys at the crossing of the Parks Highway and Rabideux Creek were referenced to the National Geoditic Vertical Control Datum of 1965-1968. Other valley cross section elevations were referenced to contours from the USGS quadrangles.

A few key cross sections were surveyed and others were made by use of the key cross sections, interpolations made by use of USGS quadrangles and use of high altitude photography.

Hydraulics

Elevation-discharge relationships were developed for all bridges, culverts, and valley sections utilizing the water surface profile computer program WSP2 outlined in SCS Technical Release No. 61. The hydraulic parameters of the channel and flood plain for the conditions existing prior to 1979 were input data for the WSP2 program. High water marks, stream gage records, and other historical flood data were used in checking the accuracy of the computed water surface profiles.

One stream gage, on Kroto Creek, is located in the study area and has two years of record which was used to check hydraulic parameters.

Hydrology

Peak-frequency (annual series) studies were made by the USGS for all of Alaska. The USGS published a regional analysis, "Flood Characteristics of Alaskan Streams," Water Resources Investigations 78-129, dated 1979, which presents regional equations for two areas in Alaska, Area I and Area II.

The study area is located in Area II. Peak-frequency curves were developed using the equation proposed by USGS and by use of the Log-Pearson Type III method. Peaks calculated by these two frequency methods for given storm frequencies were compared to one another to determine the adequacy of the regional equation for this study. From these comparisons it was determined that the regional equation lacked sufficient accuracy for this type of study.

Twenty-six stream gages within the Southcentral Region were then used to develop peak-frequency curves in an effort to obtain more reliable peaks for the study area.

Thirteen of these gage records were discarded because watershed characteristics and/or drainage areas were not representative of the study area and/or the time of stream gaging records was too short for adequate frequency analysis. Eleven of the gage records, on streams within the Cook Inlet drainage, were used to make a final determination of peak-frequency curves to be used in this study area.

An envelope for high, medium, and low peak discharge curves, for the 2-year, 10-year, 50-year, 100-year and 500-year events were developed. (See Appendix E, Exhibit 5, 6, 7, 8, and 9 of "Flood Hazard Study for 196 Mile, Caswell, Sheep, Montana, Answer and Birch Creeks" by SCS 1981.) These curves and watershed characteristics such as watershed slope, channel length and slope, mean elevation, land cover and average annual precipitation, were used to develop a peak-frequency curve for each watershed at each cross section.

The peak discharge for each area above each cross section for the 10-, 50-, 100-, and 500-year storm events were taken from these curves and used for channel flood routing on each stream to determine water surface elevations and area inundated.

GLOSSARY

ANNUAL SERIES - A frequency series in which only the largest value in each year is used, such as the annual floods.

BACKWATER - The resulting high water due to a downstream obstruction or restriction or from high water elevations in an intersecting stream.

BM - Bench mark. See elevation reference mark.

CFS - Abbreviation for cubic feet per second. The rate of discharge or flow of water representing a volume of 1 cubic foot passing a given point during 1 second.

CHANNEL - A natural or artifically created open conduit that periodically or continuously conveys water. River, creek, stream, branch, and tributary are some of the terms used to describe channels.

CROSS SECTION (stream or valley) - The shape of a channel, stream, or valley viewed across the axis. In watershed investigations it is determined by a line approximately perpendicular to the main path of water flow, along which measurements of distance and elevation are taken to define the cross sectional area.

CSM - Abbreviation for cubic feet per second per square mile. (Rate of discharge per square mile of drainage area.)

DRAINAGE AREA - The area, measured in a horizontal plane, which drains into a stream at a specified location. See watershed.

ELEVATION REFERENCE MARK - A fixed reference, usually placed on or near the ground, giving the measurement in elevation of that point in relation to mean sea level. Bench mark (BM) or (TBM) temporary bench mark is the common term used by surveyors.

FLOOD - An overflow or inundation of normal dry lands from a stream or other body of water; the high streamflow overtopping the banks of a stream; or a high flow as measured by either stage or discharge.

FLOOD HAZARD AREA PHOTOMAP - A photographic background map that indicates areas likely to be flooded by the 100-year frequency or the one percent chance flood (it has one chance in 100 of being equaled or exceeded in any given year) from an adjoining stream or water body.

FLOOD CREST - The maximum stage or elevation reached by the waters of a flood at a given location.

FLOOD FREQUENCY - The average interval of time between floods equal to or greater than a specified discharge or stage. It is generally expressed in years. Following are examples:

10-year flood or 10-year frequency flood. The flood which can be expected or exceeded on an average once in 10 years; and which would have a 10 percent chance of being equaled or exceeded in any given year.

50-year flood ... two percent chance ... in any given year.

100-year flood ... one percent chance ... in any given year.

500-year flood ... two-tenths percent chance ... in any given year.

FLOOD HAZARD - A general term meaning the risk to life or damage to property from overflows of rivers or stream channels, extraordinary waves or tides occurring on lake or estuary shores; floodflows in intermittent or normally dry streams; floods on tributary streams; floods caused by accumulated debris or ice in rivers; or other similar events.

FLOOD PEAK OR PEAK DISCHARGE - The highest value of the stage or discharge attained by a flood, thus, peak stage or peak discharge.

FLOOD PLAIN OR FLOOD-PRONE AREA - The land area situated on either side of a channel or body of water which is subject to flooding.

FLOOD PLAIN MANAGEMENT - The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works, and land use and control measures.

FLOOD PROFILES - A plot or graph defining the water surface elevation in relation to the distance along the stream during a particular flood.

FLOOD ROUTING - Determining the changes in a flood wave as it moves downstream through a valley or through a reservoir (then sometimes called reservoir routing). Graphic or numerical methods are used.

FREQUENCY-DISCHARGE-ELEVATION - The relationship of the flood frequency of discharges and the water elevations resulting from these discharges at a surveyed cross section or other point along a stream. This data may be shown as a plotted curve or in table form.

GREENBELT AREA - A strip of land kept in its natural or relatively undeveloped state or in agricultural use which is planned around the periphery of urban development or in the flood plain of a stream or body of water.

HEADWATER - (1) The source of a stream. (2) The water upstream from a structure or point on a stream.

LEFT FLOOD PLAIN - The flood plain on the left side of a river, stream, or watercourse, looking downstream.

MANNING'S "n" VALUE - A coefficient of roughness in Manning's flow equation for determining stream velocities.

RIGHT FLOOD PLAIN - The flood plain on the right side of a river, stream, or watercourse, looking downstream.

RUNOFF - That portion of the precipitation on a drainage area that is discharged from the area in stream channels. Types include surface runoff, groundwater runoff, or seepage.

SEDIMENT - Solid material, both mineral and organic, that is in suspension, and is being transported, or has been moved from its site of origin by air, water, gravity, or ice, and has come to rest on the earth's surface.

STREAM - Any natural channel or depression through which water flows either continuously, intermittently, or periodically, including modification of natural channel or depression.

STRUCTURE - Anything constructed or erected, the use of which requires a more or less permanent location on or in the ground. Includes but is not limited to bridges, buildings, canals, dams, ditches, diversions, irrigation systems, pumps, pipelines, railroads, roads, sewage disposal systems, underground conduits, water supply systems, and wells.

SUPERCRITICAL FLOW - Those conditions of flow for which the depth is less than critical and the velocity is greater than critical. Critical flow is the term used to describe open channel flow when the discharge is maximum for a given specific energy head, or stated conversely, those which exist when the specific energy head is minimum for a given discharge.

TBM - Temporary bench mark. See elevation reference mark.

WATERSHED - The area contributing direct runoff to a stream. Usually it is assumed that base flow in the stream also comes from the same area. However, the groundwater watershed may be larger or smaller.

CONVERSION TABLE

Multiply inch-pound units	by	to obtain SI units
cubic feet per second (ft^3/s)	0.0283	cubic meters per second (m^3/s)
cubic feet per second per square mile [$(ft^3/s)/mi^2$]	0.0109	cubic meters per second per square kilometer [$(m3/s)/km^2$]
square miles (mi^2)	2.589	square kilometers (km^2)
feet (ft)	0.3048	meters (m)
inches (in.)	2.540	centimeters (cm)
degrees Fahrenheit (°F)	5/9(°F-32)	degrees Celsius (°C)

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11. U.S. Department of Interior, Geological Survey, Annual Peak Flow Data Retrieval Computer Program.

12. U.S. Department of Interior, Geological Survey, Water Data Reports, Water Resources Data for Alaska, 1948-1977.

13. U.S. Department of Interior, Geological Survey, Annual Peak Flow Frequency Analysis, Computer Program Following WRC Guidelines, Rev. 07/20/79.

14. U.S. Water Resources Council: A Unified National Program for Flood Plain Management, July 1979.

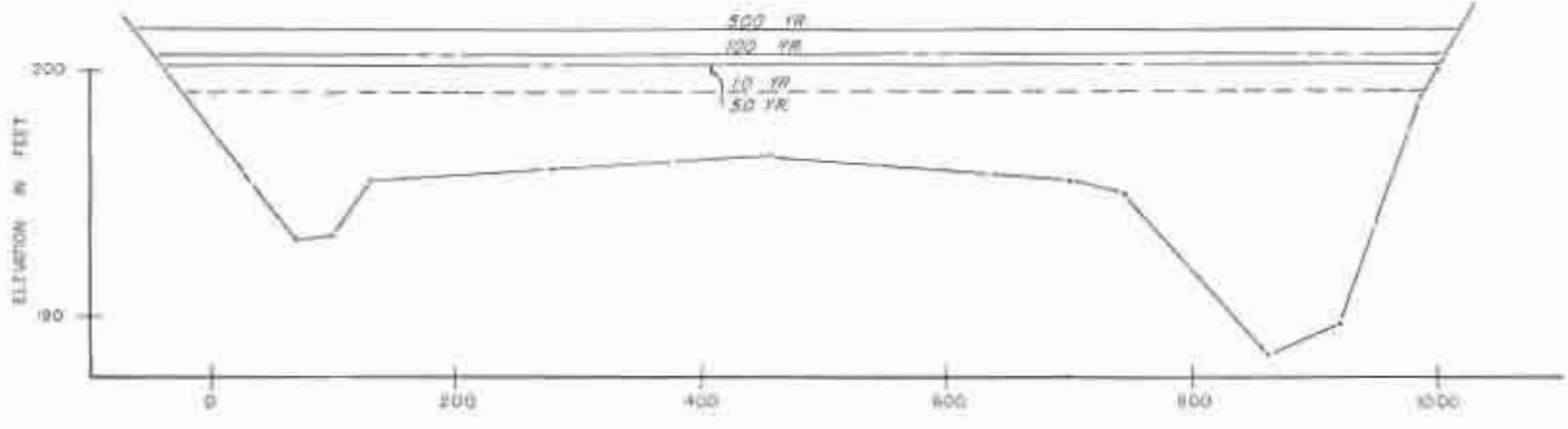
15. U.S. Water Resources Council: Guidelines for Determining Flood Flow Frequency, Bulletin No. 17A, Rev. June 1977.

Typical Valley Sections

Figures 2 through 17

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



DISTANCE IN FEET

SECTION RR-L

KROTO CREEK

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

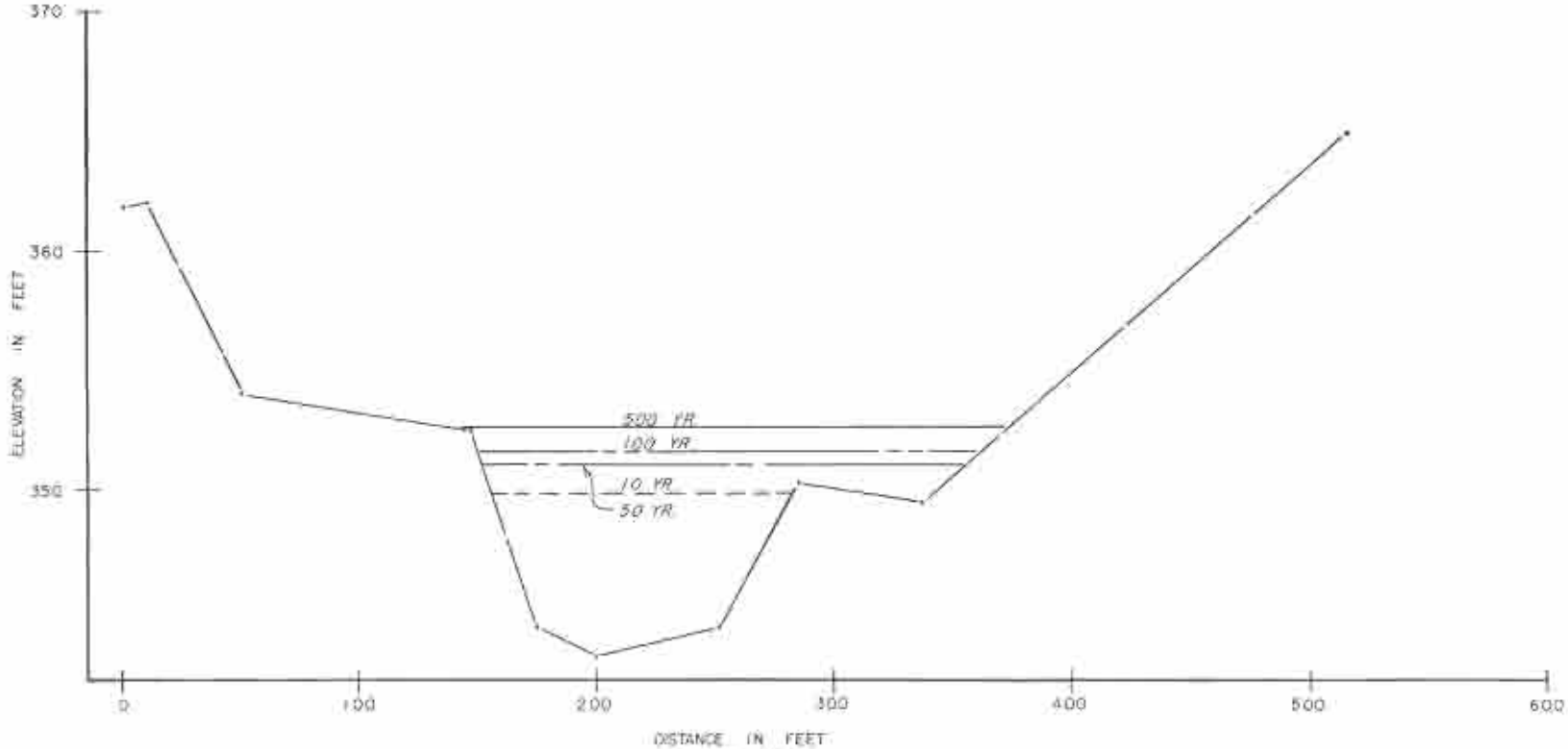
TALKEETNA SUBBASIN

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 3

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



SECTION KR-R

KROTO CREEK

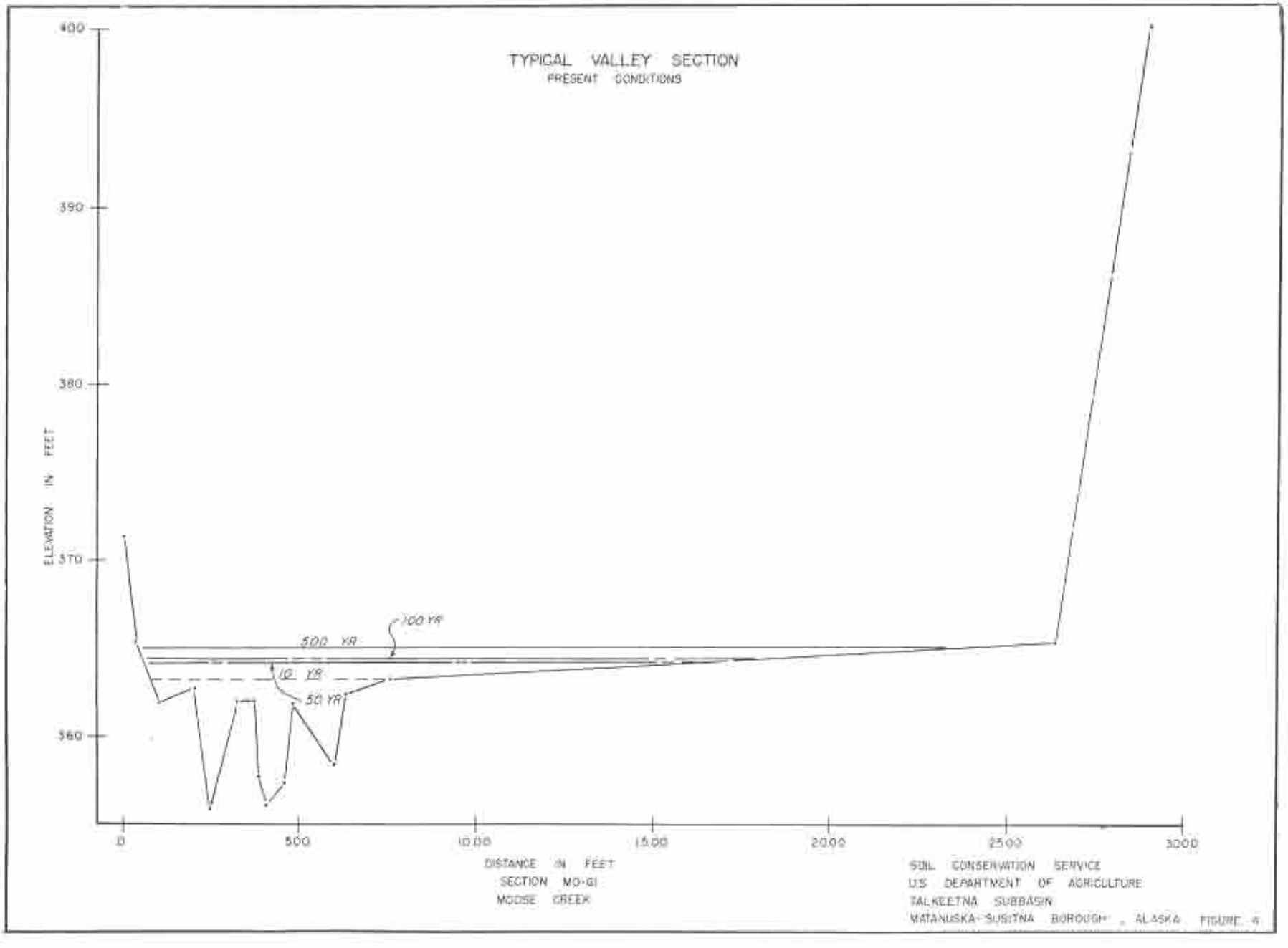
SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

TALKEETNA SUBBASIN

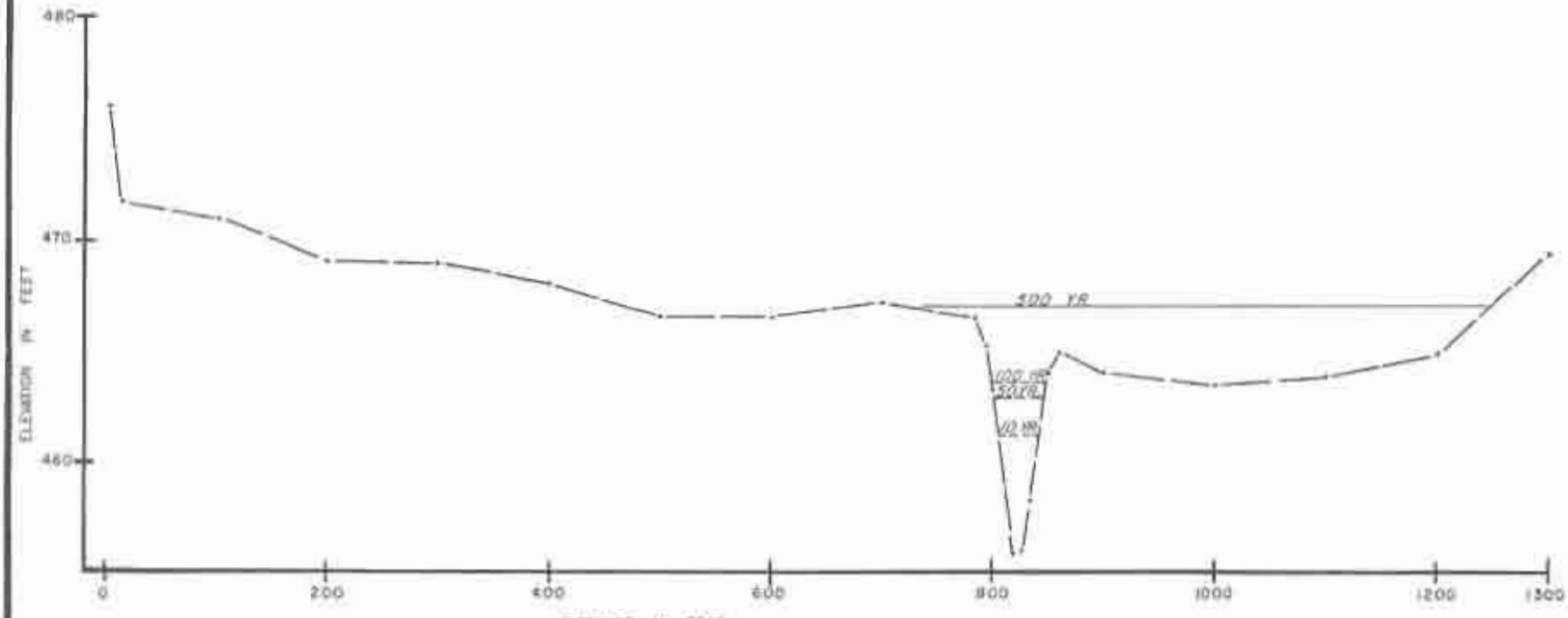
MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 3


TYPICAL VALLEY SECTION
PRESENT CONDITIONS
400
390
380
370
360
ELEVATION IN FEET
500 YR
100 YR
10 YR
50 YR
0
500
1000
1500
2000
2500
3000
DISTANCE IN FEET
SECTION MO-G1
MOOSE CREEK
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA-SUSITNA BOROUGH, ALASKA
FIGURE 4

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



SECTION MO-GMM

MOOSE CREEK

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

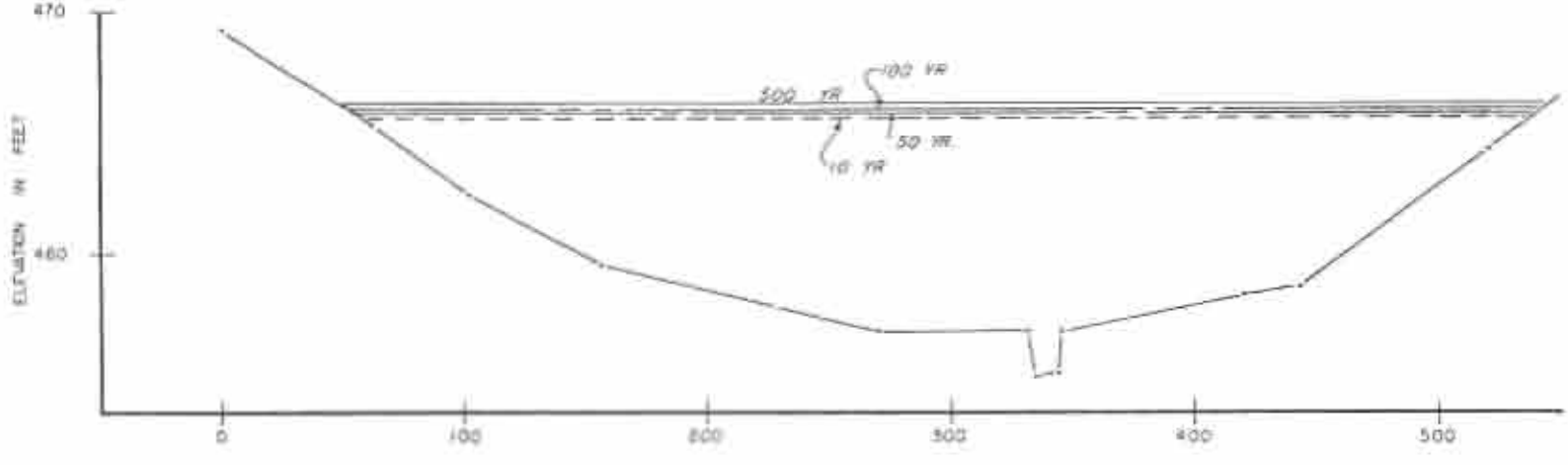
TALKEETNA SUBBASIN

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 5

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



DISTANCE IN FEET

SECTION 4-NE

9 MILE CREEK

SOIL CONSERVATION SERVICE

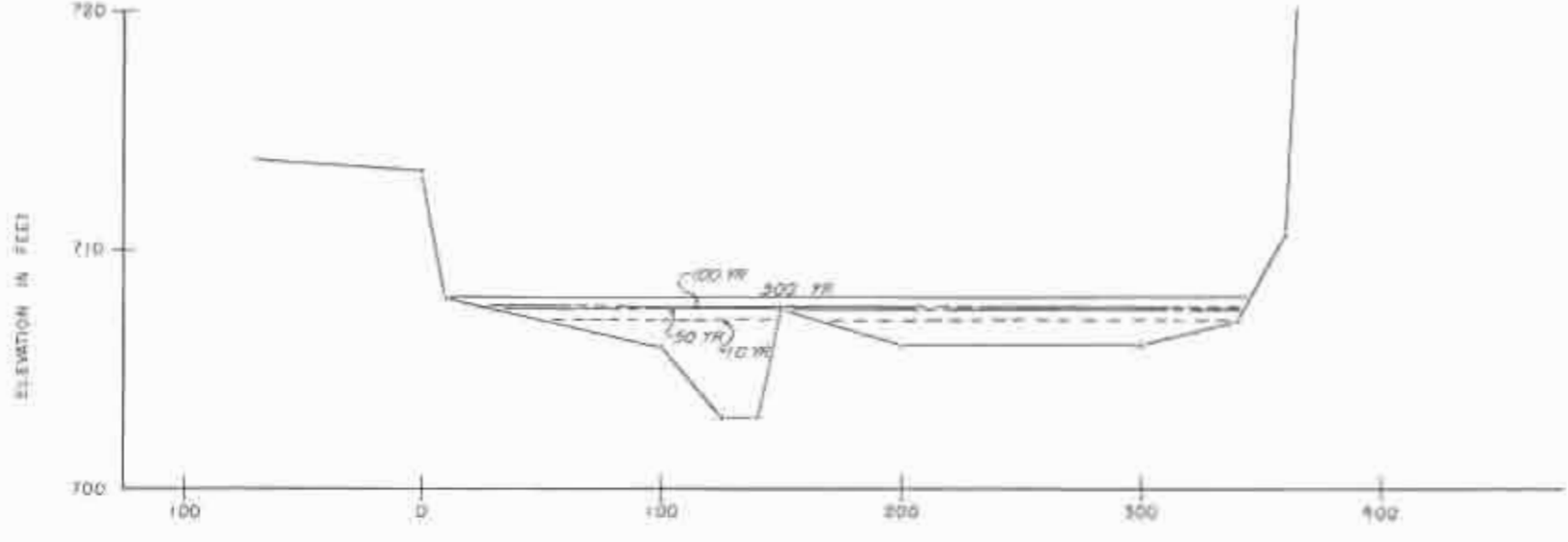
U.S. DEPARTMENT OF AGRICULTURE

TALKEETNA SUBBASIN

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 8

TYPICAL VALLEY SECTION
PRESENT CONDITIONS



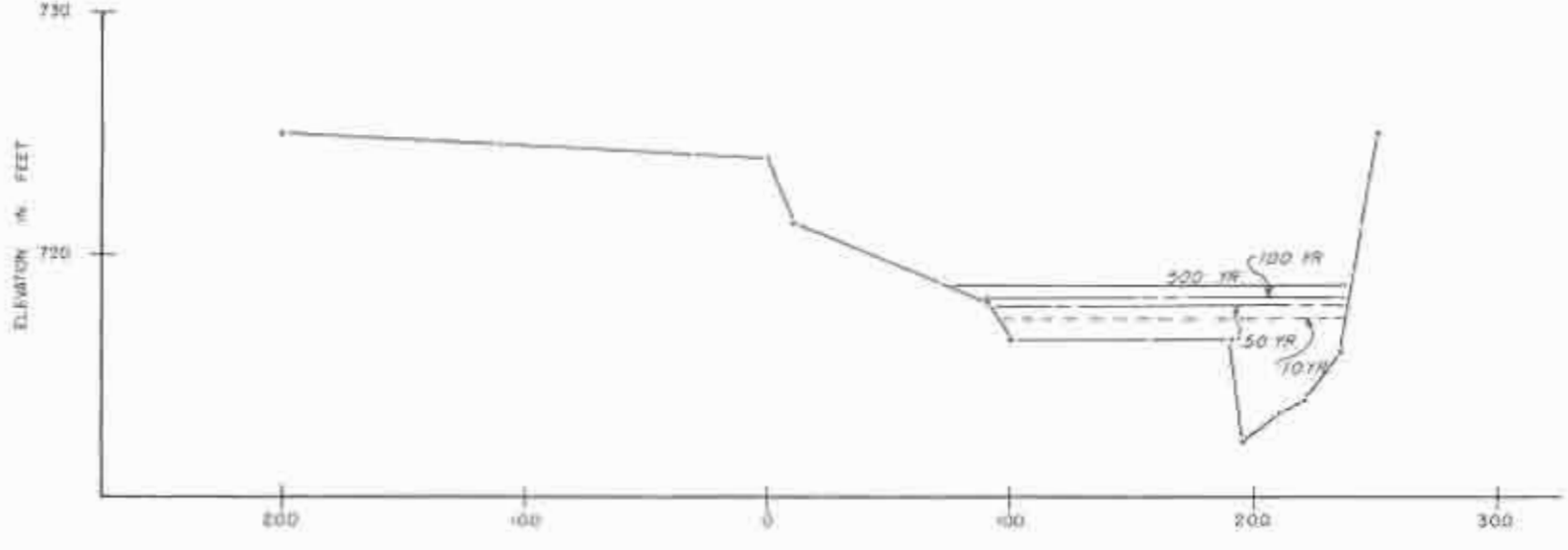
SECTION G-MG
GATE CREEK

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 7

TYPICAL VALLEY SECTION

PRESENT CONDITIONS

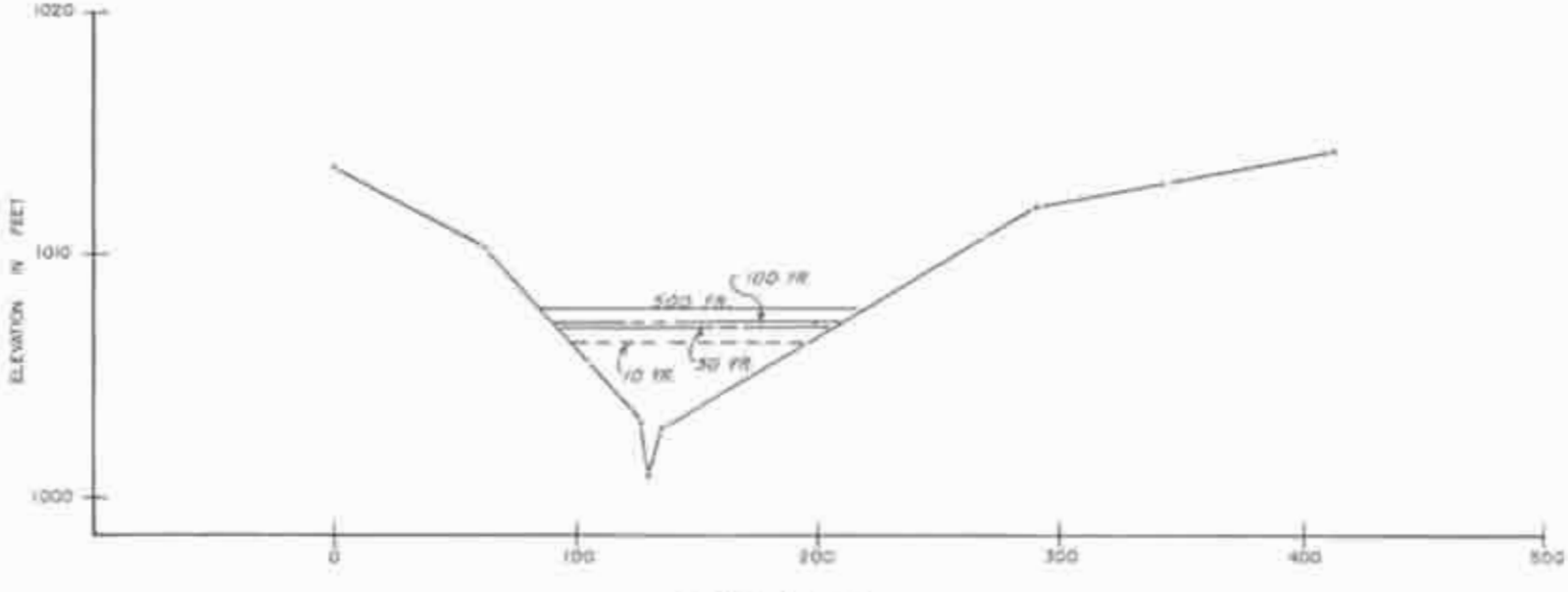


DISTANCE IN FEET
SECTION 3-MI
GATE CREEK

SOIL CONSERVATION SERVICE
U S DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA-SUSITNA BOROUGH, ALASKA
FIGURE 6

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



DISTANCE IN FEET

SECTION 20-GH

20 MILE CREEK

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

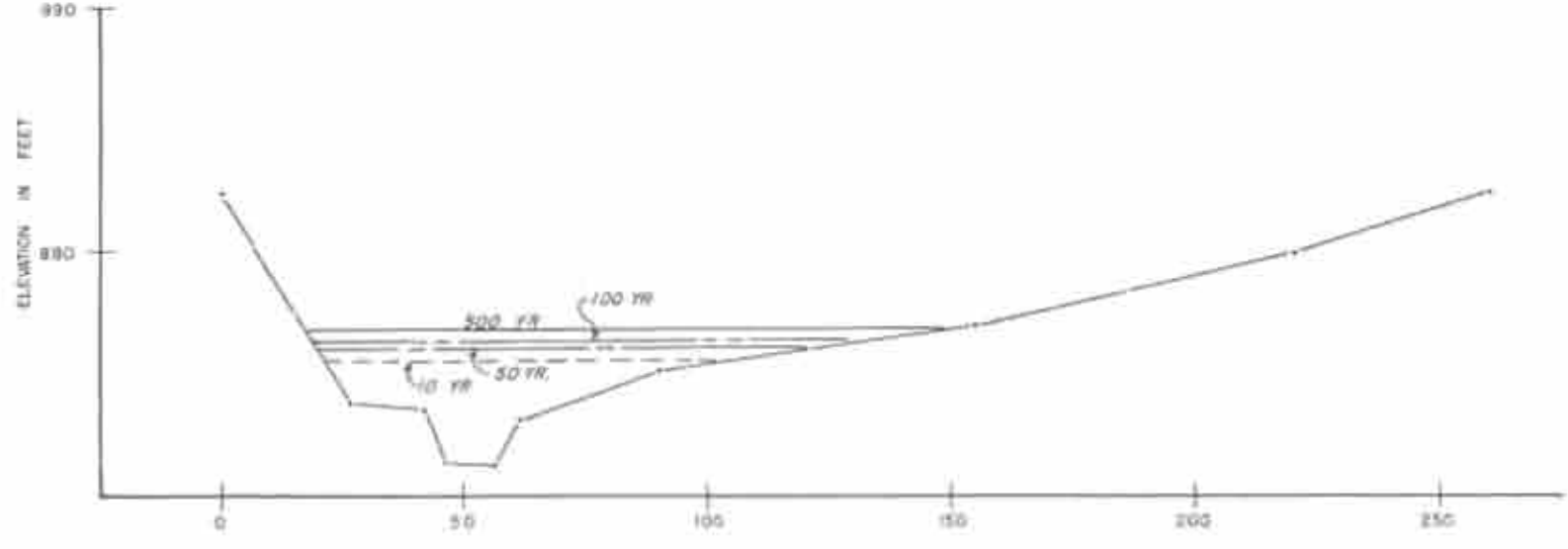
TALKEETNA SUBSTATION

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 9

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



SECTION 17-80

17 MILE CREEK

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

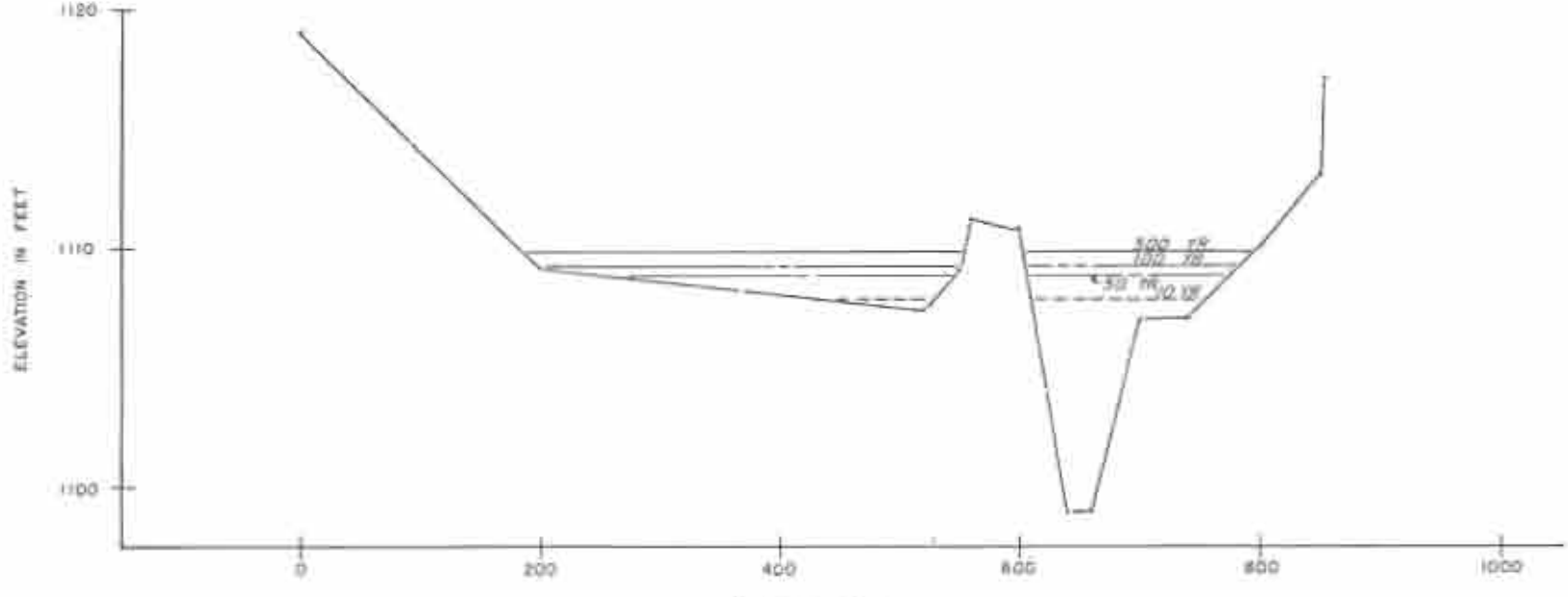
TALKEETNA SUBBASIN

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 10

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



DISTANCE IN FEET

SECTION P-6

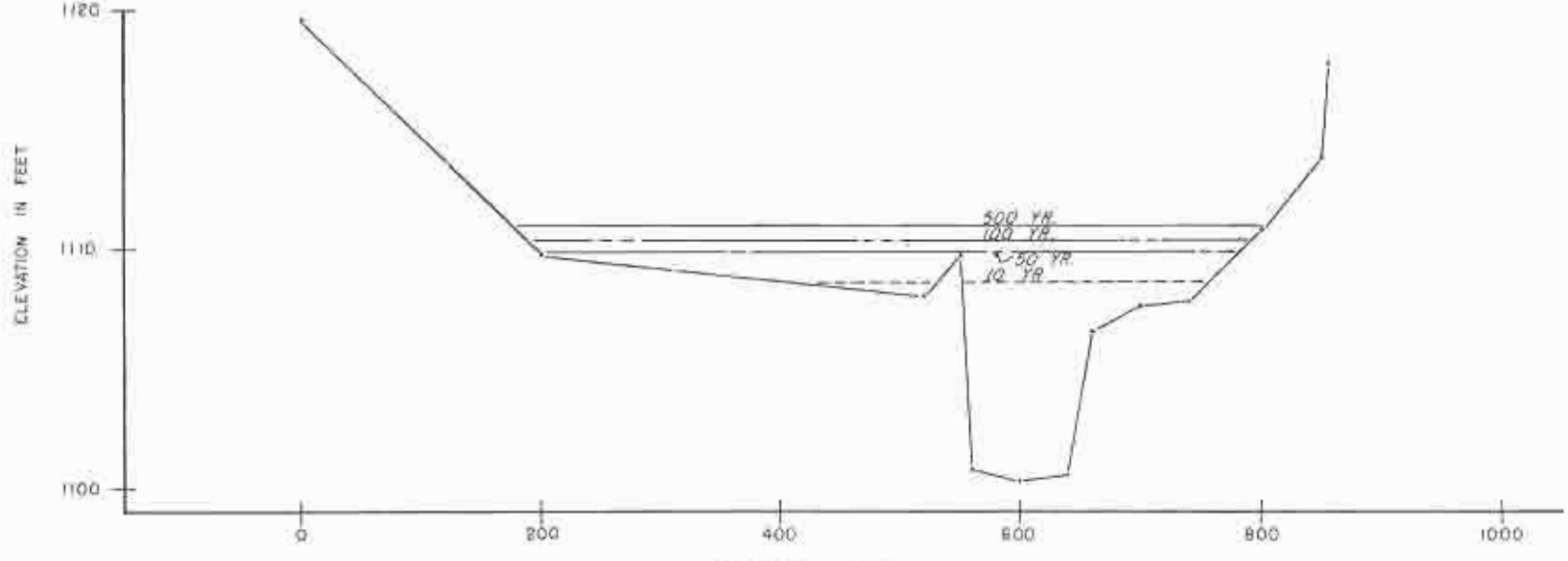
PETERS CREEK

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 11

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



SECTION P-1

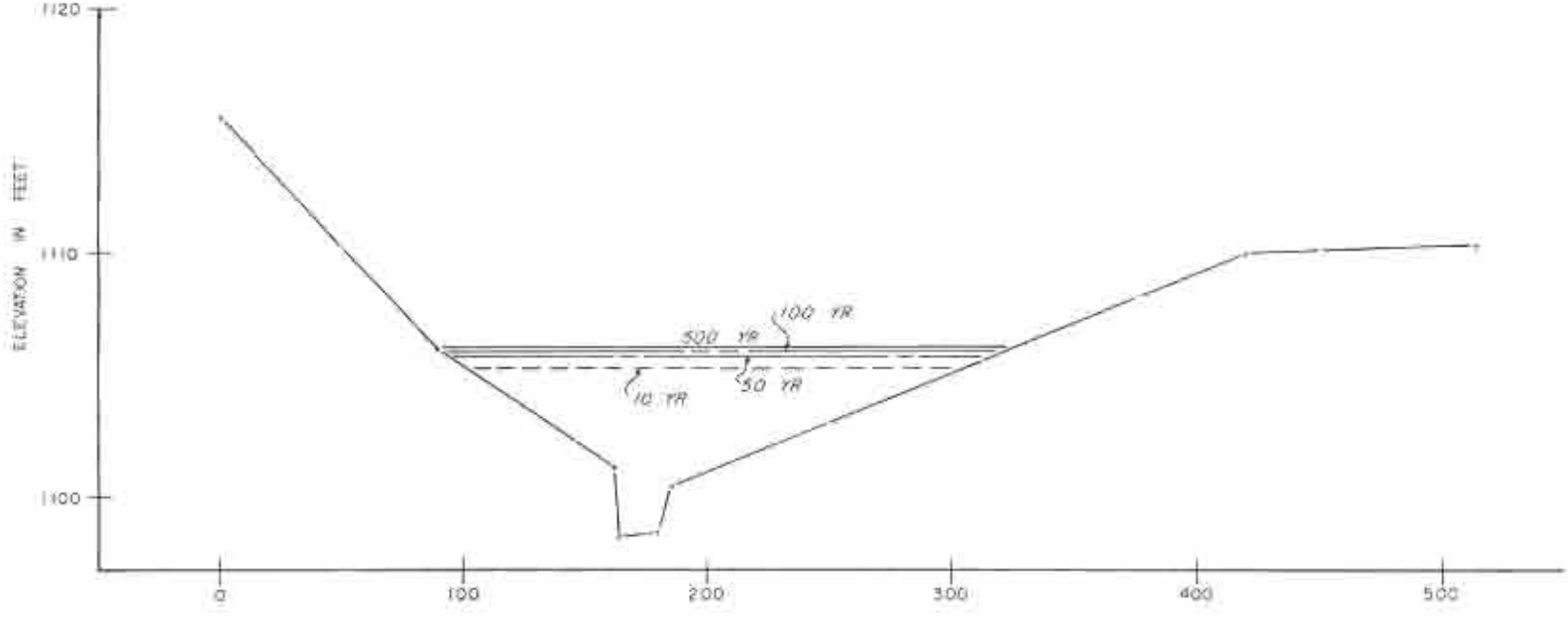
PETERS CREEK

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 12

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



SECTION K-CO

KENNY CREEK

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

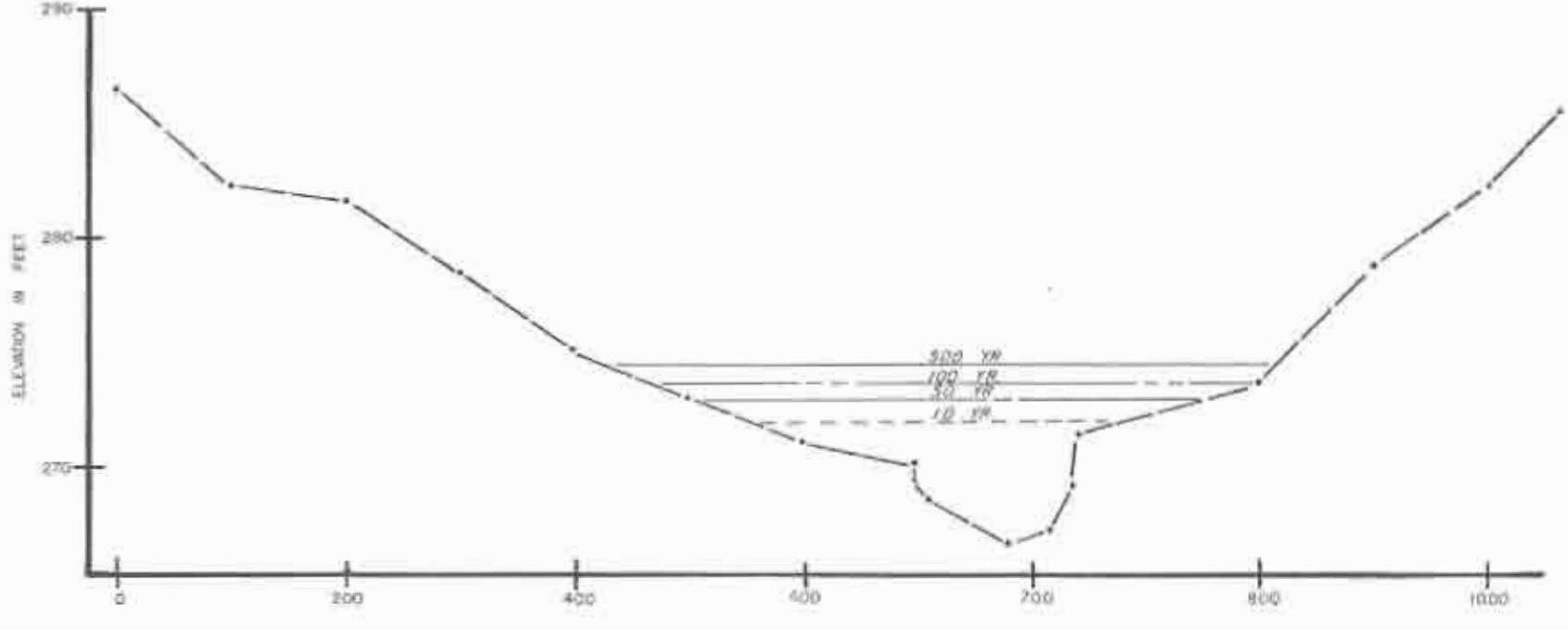
TALKEETNA SUBASIN

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 13

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



SECTION RX-E

RABIDEUX CREEK

SOIL CONSERVATION SERVICE

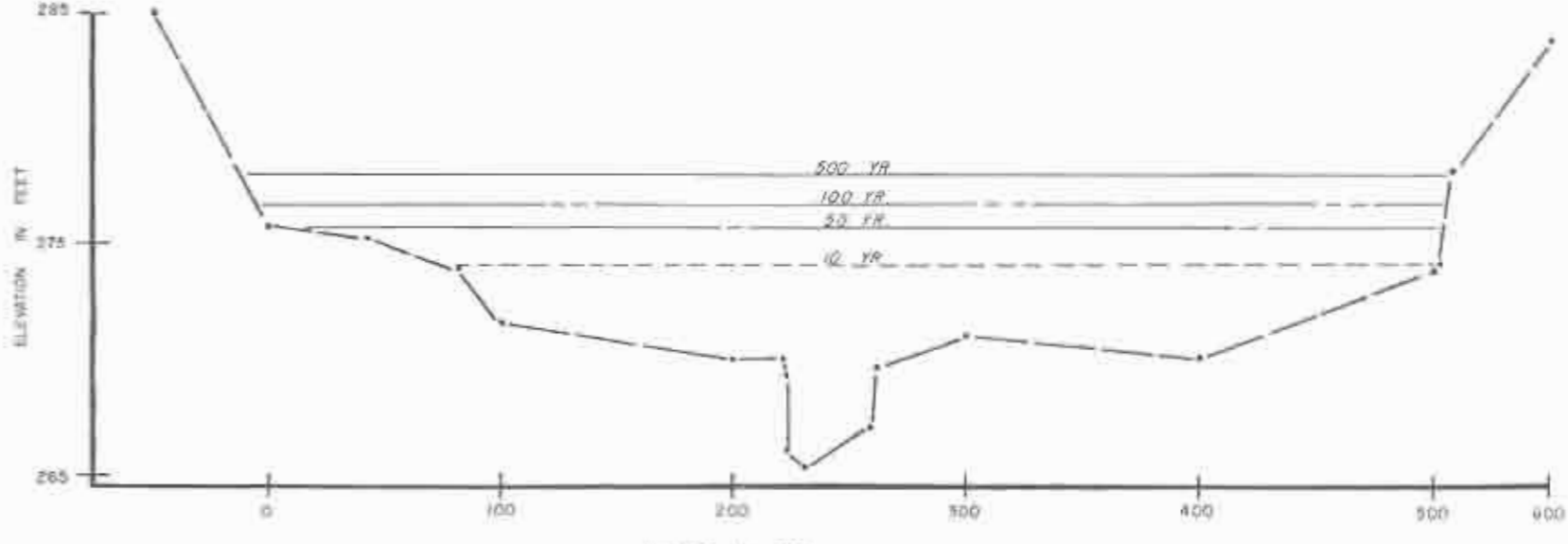
U.S. DEPARTMENT OF AGRICULTURE

TALKEETNA SUBBASIN

MATANUSKA - SUSITNA BOROUGH, ALASKA

FIGURE 14

TYPICAL VALLEY SECTION
PRESENT CONDITIONS



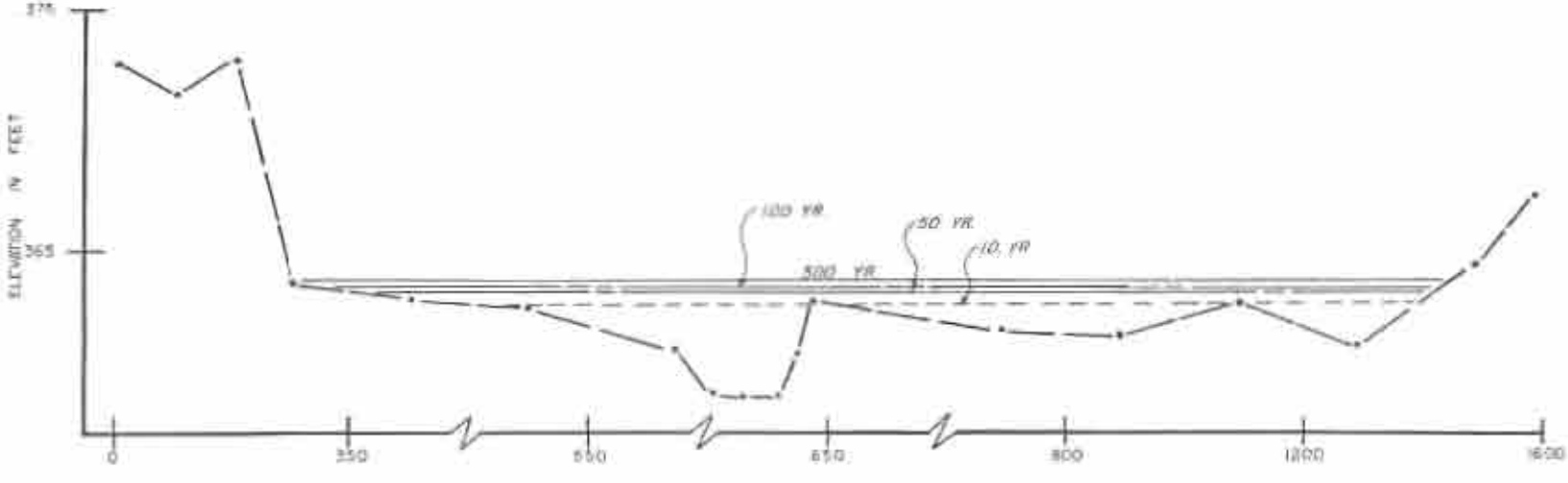
SECTION RX-H
RABIDEUX CREEK

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 15

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



DISTANCE IN FEET

SECTION T-P

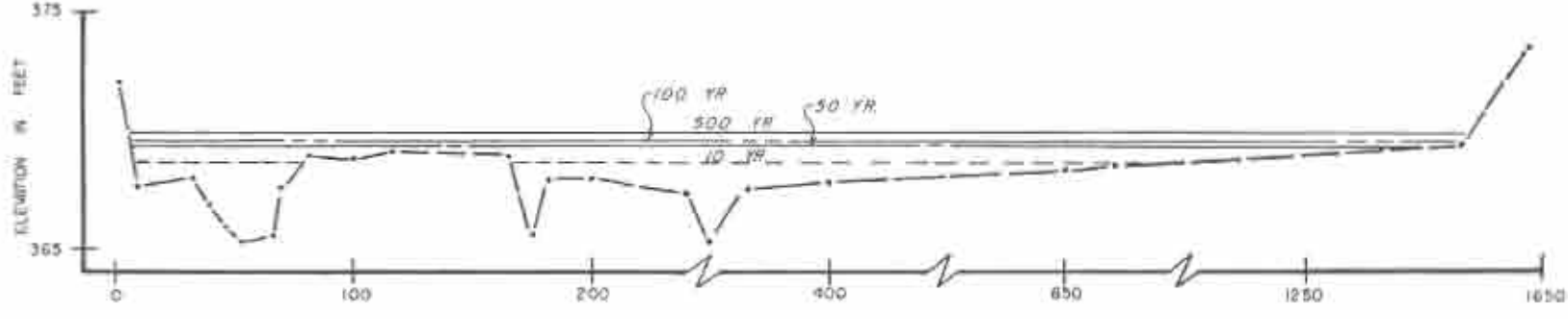
TRAPPER CREEK

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
TALKEETNA SUBBASIN
MATANUSKA - SUSITNA BOROUGH, ALASKA

FIGURE 16

TYPICAL VALLEY SECTION

PRESENT CONDITIONS



DISTANCE IN FEET

SECTION T-S

TRAPPER CREEK

SOIL CONSERVATION SERVICE

U.S. DEPARTMENT OF AGRICULTURE

TALKEETNA SUBBASIN

MATANUSKA-SUSITNA BOROUGH, ALASKA

FIGURE 17

APPENDIX A

Table 1 - Present Conditions Frequency, Discharge, Elevation

Data at Valley Cross Sections

Elevations are approximate

Table 1. Present Conditions: Frequency-Discharge Elevation Data at Valley Sections Kroto and Peters Creeks and Tributaries - Rabideux and Trapper Creeks Matanuska-Susitna Borough, Alaska

Valley Section	Photo-Sheet (No.)	Profile Sheet (No.)	Drainage Area (Sq. Mi.)	10-Year Storm Disch. (cfs)	10-Year Storm Elev. msl 1/ (feet)	50-Year Storm Disch. (cfs)	50-Year Storm Elev. msl 1/ (feet)	100-Year Storm Disch. (cfs)	100-Year Storm Elev. msl 1/ (feet)	500-Year Storm Disch. (cfs)	500-Year Storm Elev. msl 1/ (feet)	Channel Bottom Elev. msl 1/ (feet)
Kroto Creek												
KR-A	1	1	635.4	7950	80.0	11700	81.0	13500	87.0	18000	89.0	70.6
KR-B	1	2	635.4	7950	87.0	11700	88.5	13500	90.9	18000	92.7	76.0
KR-C	1	5	595.1	7950	95.2	11700	96.8	11700	97.9	18000	99.6	84.2
KR-D	1	7	595.1	7950	102.9	11700	104.4	11700	105.2	18000	106.7	92.1
KR-E	1	9	595.1	7950	107.6	11700	109.2	11700	110.1	18000	111.8	96.8
KR-F	2	11	595.1	7950	109.6	11700	111.1	11700	111.9	18000	113.6	100.0
KR-G	2	12	595.1	7950	121.2	11700	122.9	11700	123.8	18000	125.7	112.0
KR-H	2	16	586.8	6500	129.0	9600	129.7	11000	130.0	18000	130.9	123.0
KR-I	2	18	456.3	5700	143.3	8380	144.0	9600	144.2	14500	144.9	136.0
KR-J	2	20	373.3	5700	154.7	8380	155.5	9600	156.0	12700	156.9	148.0
KR-K	3	23	373.3	5700	188.6	8380	190.1	9600	190.8	12700	192.2	175.0
KR-L	3	25	330.5	5700	199.1	8380	200.2	9600	200.6	12700	201.6	188.4
KR-M	3	25	171.0	3380	205.1	4950	205.6	5700	205.7	7550	206.1	200.0
KR-N	3	30	171.0	3380	231.6	4950	232.7	5700	233.1	7550	234.1	225.0
KR-O	4	31	160.8	3380	246.5	4950	247.0	5700	247.3	7550	247.8	241.0
KR-P	4	37	97.9	2230	281.1	3300	281.9	3800	282.3	5050	283.0	275.0
KR-Q	4	41	97.9	2230	342.9	3300	343.5	3800	343.9	5050	344.6	337.5
KR-R	4	41	92.7	2230	349.9	3300	351.1	3800	351.6	5050	352.7	343.0
KR-S	5	42	92.7	2230	362.1	3300	363.0	3800	363.4	5050	364.1	355.3
KR-T	5	44	87.9	2230	416.9	3300	418.4	3800	419.0	5050	420.4	408.6
KR-U	5	48	70.4	1830	558.3	2700	559.5	3120	560.0	4120	561.2	550.0
KR-V	5	49	51.2	1460	580.7	2180	581.3	2520	581.5	3350	582.2	575.0
KR-W	5	50	51.2	1460	594.7	2180	595.9	2520	596.3	3350	597.4	587.0
KR-X	5	51	51.2	1460	615.3	2180	616.2	2520	616.5	3350	617.1	608.0
KR-Y	5	54	51.2	1460	659.7	2180	661.1	2520	661.8	3350	663.0	650.0
KR-Z	6	55	51.2	1460	662.0	2180	663.4	2520	664.0	3350	665.3	652.0
KR-AA	6	56	51.2	1460	696.9	2180	697.6	2520	697.9	3350	698.7	690.0
KR-AB	6	58	51.2	1460	724.3	2180	725.5	2520	726.1	3350	727.2	716.7

Table I. Present Conditions: Frequency-Discharge Elevation Data at Valley Sections Kroto and Peters Creeks and Tributaries - Rabideux and Trapper Creeks Matanuska-Susitna Borough, Alaska

Valley Section	Photo-Sheet (No.)	Profile Sheet (No.)	Drainage Area (Sq. Mi.)	10-Year Storm Disch. (cfs)	10-Year Storm Elev. msl 1/	50-Year Storm Disch. (cfs)	50-Year Storm Elev. msl 1/	100-Year Storm Disch. (cfs)	100-Year Storm Elev. msl 1/	500-Year Storm Disch. (cfs)	500-Year Storm Elev. msl 1/	Channel Bottom Elev. msl 1/
Kroto Creek (Cont.)												
KR-AC	6		51.2	1460	739.5	2180	740.8	2520	741.3		3350	742.4
KR-AD	6		51.2	1460	757.7	2180	759.0	2520	759.5		3350	760.5
KR-AE	6		51.2	1460	782.4	2180	783.2	2520	783.7		3350	784.5
KR-AF	7		51.2	1460	842.5	2180	843.3	2520	843.7		3350	844.5
KR-AGRD	7		24.7	900	843.0	1340	843.9	1540	844.3		2040	845.1
KR-AH	7		24.7	900	843.1	1340	844.0	1540	844.4		2040	845.3
KR-AI	7		24.7	900	904.5	1340	905.1	1540	905.3		2040	905.7
Moose Creek												
MO-GA	3		159.9	3000	199.3	4500	200.4	5200	200.8		6800	201.7
MO-GB	9		159.9	3000	229.7	4500	230.4	5200	230.6		6800	231.4
MO-GC	9		159.9	3000	256.8	4500	258.1	5200	258.8		6800	259.9
MO-GD	9		159.9	3000	281.1	4500	281.8	5200	282.1		6800	282.9
MO-GE	10		159.9	3000	306.7	4500	308.1	5200	308.6		6800	309.4
MO-GF	10		135.6	2800	330.8	4150	331.1	4800	331.4		6350	331.8
MO-GG	10		103.2	2360	332.0	3500	332.3	4000	332.5		5300	333.0
MO-GH	10		101.9	2360	348.3	3500	348.7	4000	348.9		5300	349.4
MO-GI	10		88.8	2150	363.2	3160	364.2	3620	364.4		4820	365.0
MO-GJ	11		88.8	2150	400.9	3160	401.2	3620	401.2		4820	401.6
MO-GK	11		88.8	2150	429.5	3160	430.0	3620	430.1		4820	430.5
MO-GL	11		88.8	2150	456.6	3160	457.6	3620	458.1		4820	458.9
MO-GLL	11		88.8	2150	460.5	3160	462.1	3620	462.7		4820	464.0
MO-GMRD	11		49.8	1400	461.2	2080	462.9	2400	463.5		3180	467.0
MO-GMM	11		49.8	1400	461.4	2080	463.1	2400	463.8		3180	467.1
MO-GN	11		49.8	1400	465.7	2080	466.5	2400	467.0		3180	468.5
MO-GO	11		32.3	1040	480.0	1550	480.7	1780	480.9		2370	481.5
MO-GP	11		32.3	1040	498.4	1550	499.3	1780	500.0		2370	500.1
MO-GQ	11		32.3	1040	516.6	1550	517.4	1780	517.8		2370	518.4
MO-LA	11		16.9	670	493.8	1000	494.3	1170	494.4		1550	495.0
MO-LB	11		15.5	670	535.2	1000	535.9	1170	536.2		1550	536.8

1/ All elevations based on interpolations from USGS quadrangles, Scale 1:63,360; Contour intervals = 50 feet and 100 feet.

Table 1. Present Conditions: Frequency-Discharge Elevation Data at Valley Sections Kroto and Peters Creeks and Tributaries - Rabideux and Trapper Creeks Matanuska-Susitna Borough, Alaska

Valley Section	Photo-Sheet (No.)	Profile Sheet (No.)	Drainage Area (Sq. Mi.)	10-Year Storm		50-Year Storm		100-Year Storm		500-Year Storm		Channel Bottom
				Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Elev. msl 1/ (feet)
Ninemile Creek												
9-NA	12	107	8.8	420	430.3	650	430.5	760	430.6	970	430.7	425.0
9-NB	12	107	8.8	420	437.3	650	438.0	760	438.2	970	438.8	431.3
9-NC	12	107	8.8	420	440.6	650	441.1	760	441.2	970	441.5	437.0
9-ND	12	108	8.8	420	446.8	650	447.2	760	447.5	970	448.0	443.8
9-NE	12	109	8.8	420	457.9	650	458.3	760	458.5	970	458.8	454.7
9-NFRD	12	109	7.6	420	465.7	650	465.8	760	466.0	970	466.2	456.6
9-NG	12	109	7.6	420	465.7	650	465.9	760	466.0	970	466.3	455.3
9-NH	12	109	7.6	420	466.7	650	467.0	760	467.2	970	467.6	462.5
9-NI	12	109	7.6	420	481.7	650	482.7	760	483.0	970	483.6	475.0
9-NJ	12	110	7.6	420	492.7	650	493.3	760	493.6	970	494.1	487.0
9-NK	12	110	7.6	420	506.2	650	506.4	760	506.4	970	506.6	503.0
Gate Creek												
G-MA	10	111	30.9	1040	401.0	1540	401.9	1770	402.2	2350	403.1	395.0
G-MB	10	111	30.9	1040	455.2	1540	456.0	1770	456.3	2350	457.2	450.0
G-MC	11	113	30.9	1040	506.7	1540	507.5	1770	507.8	2350	508.5	500.0
G-MD	11	114	30.9	1040	558.2	1540	559.2	1770	559.7	2350	560.7	550.0
G-ME	11	117	30.9	1040	607.1	1540	608.0	1770	608.4	2350	609.3	600.0
G-MF	11	118	30.9	1040	657.0	1540	657.7	1770	658.0	2350	658.7	650.0
G-MG	11	118	30.9	1040	707.1	1540	707.5	1770	707.6	2350	708.0	703.0
G-MGG	11	118	30.9	1040	708.3	1540	708.8	1770	709.0	2350	709.5	703.5
G-MHRD	11	118	22.1	810	711.8	1090	712.2	1370	712.4	1820	712.9	704.3
G-MII	11	118	22.1	810	712.1	1090	712.6	1370	712.8	1820	713.3	706.3
G-MI	11	118	22.1	810	717.3	1090	717.8	1370	718.2	1820	718.7	712.3
G-MJ	11	119	22.1	810	758.8	1090	759.3	1370	759.5	1820	760.0	754.3
G-MKPRD	11	120	22.1	810	760.9	1090	761.6	1370	761.8	1820	762.4	754.9
G-ML	11	120	22.1	810	761.6	1370	761.6	1370	761.9	1820	762.5	755.5
G-MM	11	121	22.1	810	824.8	1090	825.0	1370	825.1	1820	825.4	823.0

Table I. Present Conditions: Frequency-Discharge Elevation Data at Valley Sections Kroto and Peters Creeks and Tributaries - Rabideux and Trapper Creeks Matanuska-Susitna Borough, Alaska

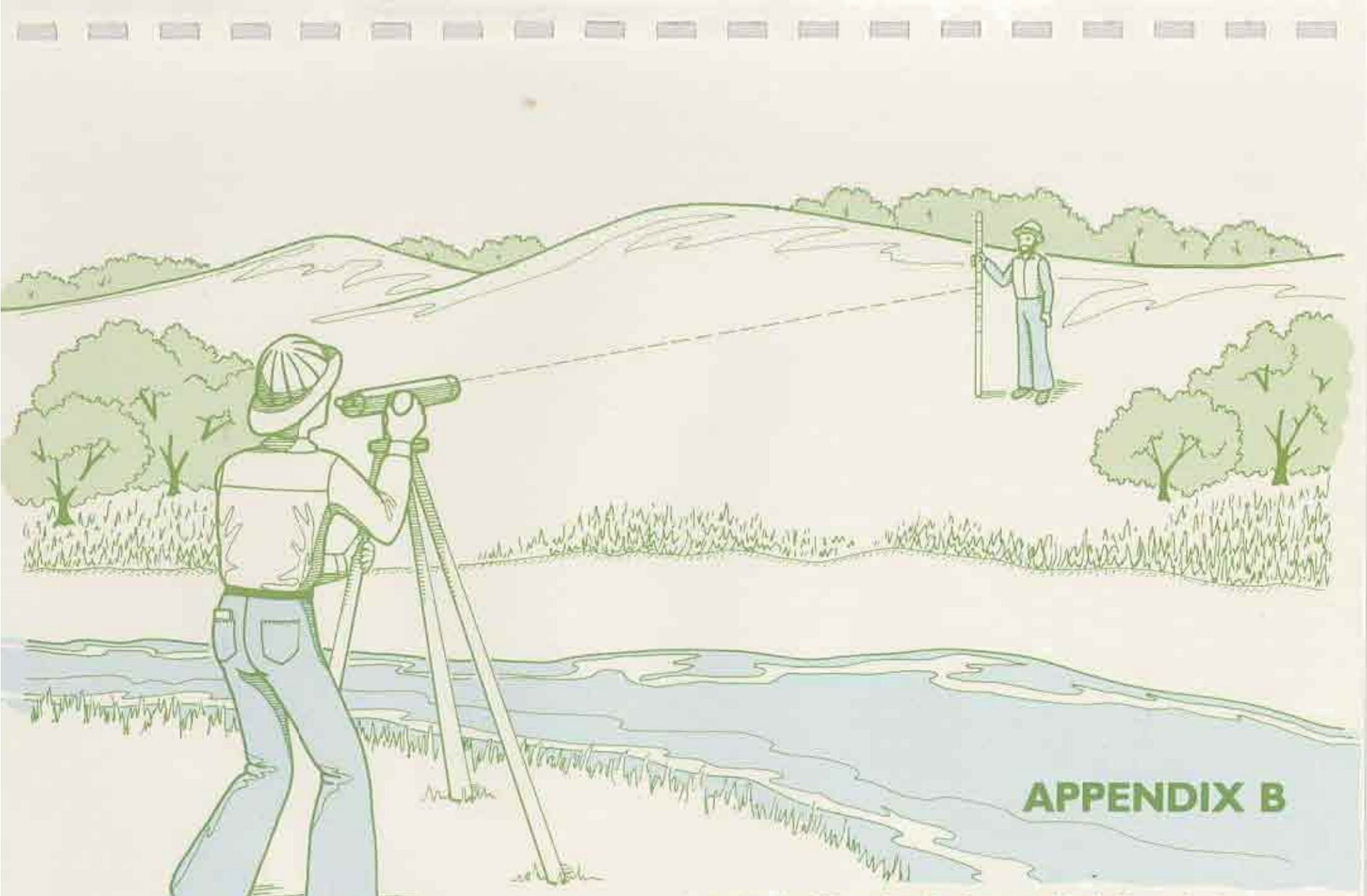
Valley Section	Photo-Sheet (No.)	Profile Sheet (No.)	Drainage Area (Sq. Mi.)	10-Year Storm		50-Year Storm		100-Year Storm		500-Year Storm		Channel Bottom
				Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Elev. msl 1/ (feet)
Twentymile Creek												
20-CA	6	122	19.2	790	704.6	1160	705.1	1320	705.2	1770	705.7	700.0
20-CB	6	123	19.2	790	729.5	1160	729.9	1320	730.1	1770	730.6	724.0
20-CC	6	124	19.2	790	748.1	1160	748.6	1320	748.9	1770	749.3	743.8
20-CD	6	125	19.2	790	779.6	1160	780.0	1320	780.4	1770	780.9	775.6
20-CE	7	126	19.2	790	799.2	1160	799.7	1320	799.9	1770	800.3	795.8
20-CF	7	128	19.2	790	854.5	1160	855.0	1320	855.2	1770	855.7	850.0
20-CG	7	129	19.2	790	899.4	1160	899.8	1320	899.9	1770	900.2	896.9
20-CH	7	130	19.2	790	1006.4	1160	1007.0	1320	1007.2	1770	1007.8	1000.9
20-CIRD	7	130	2.2	180	1012.1	270	1012.3	320	1012.4	430	1012.5	1003.2
20-CJ	7	130	2.2	180	1012.1	270	1012.3	320	1012.4	430	1012.5	1002.9
20-CK	7	131	2.2	180	1040.4	270	1040.8	320	1041.0	430	1041.4	1036.4
20-CL	7	132	2.2	180	1080.3	270	1080.6	320	1081.0	430	1081.3	1076.2
Seventeenmile Creek												
17-BA	6	133	10.5	520	733.8	770	734.9	890	735.4	1170	736.3	728.0
17-BB	6	134	10.5	520	755.4	770	756.4	890	756.7	1170	757.5	750.0
17-BC	6	134	10.5	520	780.0	770	780.7	890	781.1	1170	781.7	775.0
17-BD	8	136	5.3	325	875.5	480	876.0	550	876.3	730	876.8	871.3
17-BERD	8	136	5.3	325	879.5	480	879.8	550	879.9	730	880.1	871.3
17-BF	8	136	5.3	325	879.5	480	879.8	550	879.9	730	880.2	871.5
17-BG	8	136	5.3	325	906.7	480	907.3	550	907.5	730	908.0	903.0
17-BH	8	137	5.3	325	916.4	480	917.0	550	917.3	730	917.8	912.6
17-BI	8	138	5.3	325	942.2	480	942.8	550	943.1	730	943.7	938.0
Peters Creek												
P-A	7	139	102.5	4750	1032.0	6400	1036.0	7150	1038.0	8930	1042.0	1028.0
P-B	7	139	102.5	4750	1047.8	6400	1049.6	7150	1050.3	8930	1051.9	1041.2
P-C	7	140	102.5	4750	1061.5	6400	1062.7	7150	1063.1	8930	1064.4	1055.8

Table 1. Present Conditions: Frequency-Discharge Elevation Data at Valley Sections Kroto and Peters Creeks and Tributaries - Rabideux and Trapper Creeks Matanuska-Susitna Borough, Alaska

Valley Section	Photo-Sheet (No.)	Profile Sheet (No.)	Drainage Area (Sq. Mi.)	10-Year Storm Disch. (cfs)	10-Year Storm Elev. msl 1/ (feet)	50-Year Storm Disch. (cfs)	50-Year Storm Elev. msl 1/ (feet)	100-Year Storm Disch. (cfs)	100-Year Storm Elev. msl 1/ (feet)	500-Year Storm Disch. (cfs)	500-Year Storm Elev. msl 1/ (feet)	Channel Bottom Elev. msl 1/ (feet)
Peters Creek (Cont.)												
P-D	7	140	102.5	4750	1079.5	6400	1080.7	7150	1081.1	8930	1082.1	1073.5
P-E	7	141	102.5	4750	1090.7	6400	1092.0	7150	1092.4	8930	1093.6	1084.4
P-F	7	142	102.5	4750	1105.3	6400	1106.1	7150	1106.4	8930	1106.9	1099.0
P-G	7	142	102.5	4750	1107.8	6400	1108.8	7150	1109.2	8930	1109.8	1099.0
PHRD	7	142	95.1	4750	1108.5	6400	1109.8	7150	1110.2	8930	1110.9	1098.3
P-I	7	142	95.1	4750	1108.6	6400	1109.9	7150	1110.3	8930	1111.0	1100.3
P-J	7	142	95.1	4750	1112.4	6400	1113.3	7150	1113.5	8930	1113.9	1104.5
P-K	7	142	49.1	2850	1130.5	3850	1131.1	4300	1131.3	5330	1131.8	1125.0
P-L	7	143	49.1	2850	1135.2	3850	1135.7	4300	1135.7	5330	1136.1	1132.5
P-M	7	143	49.1	2850	1172.8	3850	1173.5	4300	1173.8	5330	1174.2	1167.5
P-N	7	143	49.1	2850	1190.2	3850	1191.2	4300	1191.6	5330	1192.4	1183.2
P-O	7	144	49.1	2850	1222.6	3850	1223.1	4300	1223.3	5330	1223.8	1216.0
Kenny Creek												
K-CA	7	145	7.4	385	1058.3	600	1059.5	700	1050.1	880	1060.5	1052.6
K-CB	7	146	7.4	385	1074.1	600	1095.3	700	1075.7	880	1076.0	1069.5
K-CC	7	146	7.4	385	1088.5	600	1089.2	700	1089.5	880	1089.7	1085.3
K-CD	7	146	7.4	385	1101.5	600	1102.4	700	1102.7	880	1102.8	1098.0
KCERD	7	146	7.4	385	1105.3	600	1105.8	700	1106.0	880	1106.1	1098.9
K-CF	7	146	6.2	385	1105.4	600	1105.8	700	1106.1	880	1106.2	1098.8
K-CG	7	147	6.2	385	1121.5	600	1122.4	700	1122.6	880	1123.0	1117.5
K-CH	7	147	6.2	385	1134.0	600	1134.9	700	1135.2	880	1135.5	1130.0
K-CI	7	148	6.2	385	1153.8	600	1154.8	700	1155.0	880	1155.3	1150.0
K-CJ	7	148	6.2	385	1173.9	600	1174.8	700	1175.0	880	1175.3	1170.0

Table 1. Present Conditions: Frequency-Discharge Elevation Data at Valley Sections Kroto and Peters Creeks and Tributaries - Rabideux and Trapper Creeks Matanuska-Susitna Borough, Alaska

Valley Section	Photo-Sheet (No.)	Profile Sheet (No.)	Drainage Area (Sq. Mi.)	10-Year Storm		50-Year Storm		100-Year Storm		500-Year Storm		Channel Bottom
				Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Disch. (cfs)	Elev. msl 1/ (feet)	Elev. msl 1/ (feet)
Rabideux Creek												
RX-A	13	149	38.2	1180	267.0	1780	269.0	2070	270.5	2800	272.0	261.3
RX-B	13	149	38.2	1180	267.9	1780	269.7	2070	271.0	2800	272.5	262.8
RX-C	13	149	38.2	1180	269.4 2/	1780	270.7 2/	2070	271.7 2/	2800	272.9 2/	264.1 2/
RX-D	13	149	38.2	1180	271.1 2/	1780	272.1 2/	2070	272.9 2/	2800	273.8 2/	264.7 2/
RX-E	13	150	38.2	1180	271.8 2/	1780	272.8 2/	2070	273.5 2/	2800	274.3 2/	266.2 2/
RXFPHY	13	150	38.2	1180	274.0 2/	1780	275.6 2/	2070	276.7 2/	2800	277.9 2/	267.0 2/
RX-G	13	150	38.2	1180	274.1 2/	1780	275.6 2/	2070	276.7 2/	2800	277.9 2/	266.4 2/
RX-H	13	150	38.2	1180	274.1	1780	275.7	2070	276.7	2800	278.0	265.2
RX-I	13	150	38.2	1180	279.4	1780	280.3	2070	280.9	2800	281.8	274.7
RX-J	13	150	38.2	1180	287.0	1780	287.7	2070	288.0	2800	288.4	283.1
RX-K	13	151	38.2	1180	296.5	1780	297.2	2070	297.6	2800	298.1	291.0
RX-L	13	151	38.2	1180	305.2	1780	306.0	2070	306.5	2800	306.9	300.0
RX-M	13	152	38.2	1180	312.3	1780	313.2	2070	313.8	2800	314.3	306.2
RX-N	13	153	38.2	1180	317.5	1780	318.1	2070	318.6	2800	319.1	312.5
RX-O	13	153	38.2	1180	324.0	1780	324.8	2070	325.3	2800	325.8	318.0
RX-P	13	154	38.2	1180	331.3	1780	332.2	2070	332.7	2800	333.2	325.0
RX-Q	13	155	38.2	1180	334.5	1780	335.3	2070	335.9	2800	336.4	328.0
RX-R	13	155	38.2	1180	337.5	1780	338.4	2070	338.9	2800	339.6	331.0
RX-S	14	156	38.2	1180	340.3	1780	341.2	2070	341.7	2800	342.2	334.0
RX-T	14	156	31.3	1020	342.7	1560	343.5	1800	343.9	2460	344.5	336.7
RX-V	14	156	31.3	1020	342.9	1560	343.7	1800	344.1	2460	344.6	337.3
RX-W	14	157	31.3	1020	346.6	1560	346.9	1800	347.0	2460	347.3	343.0
RX-X	14	157	31.3	1020	349.9	1450	350.2	1800	350.3	2460	350.4	347.0
RX-Y	14	158	31.3	1020	355.4	1560	356.0	1800	356.3	2460	356.8	350.0
RX-Z	14	159	31.3	1020	403.5	1560	403.9	1800	404.1	2460	404.3	400.0



APPENDIX B

Table 2 - Elevation Reference Mark Description.

(All elevations except at Rabideux and Parks highway crossing are estimated from USGS Topographic Sheets.)

TABLE 2 ELEVATION REFERENCE MARK DESCRIPTION KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS MATANUSKA-SUSITNA BOROUGH, ALASKA

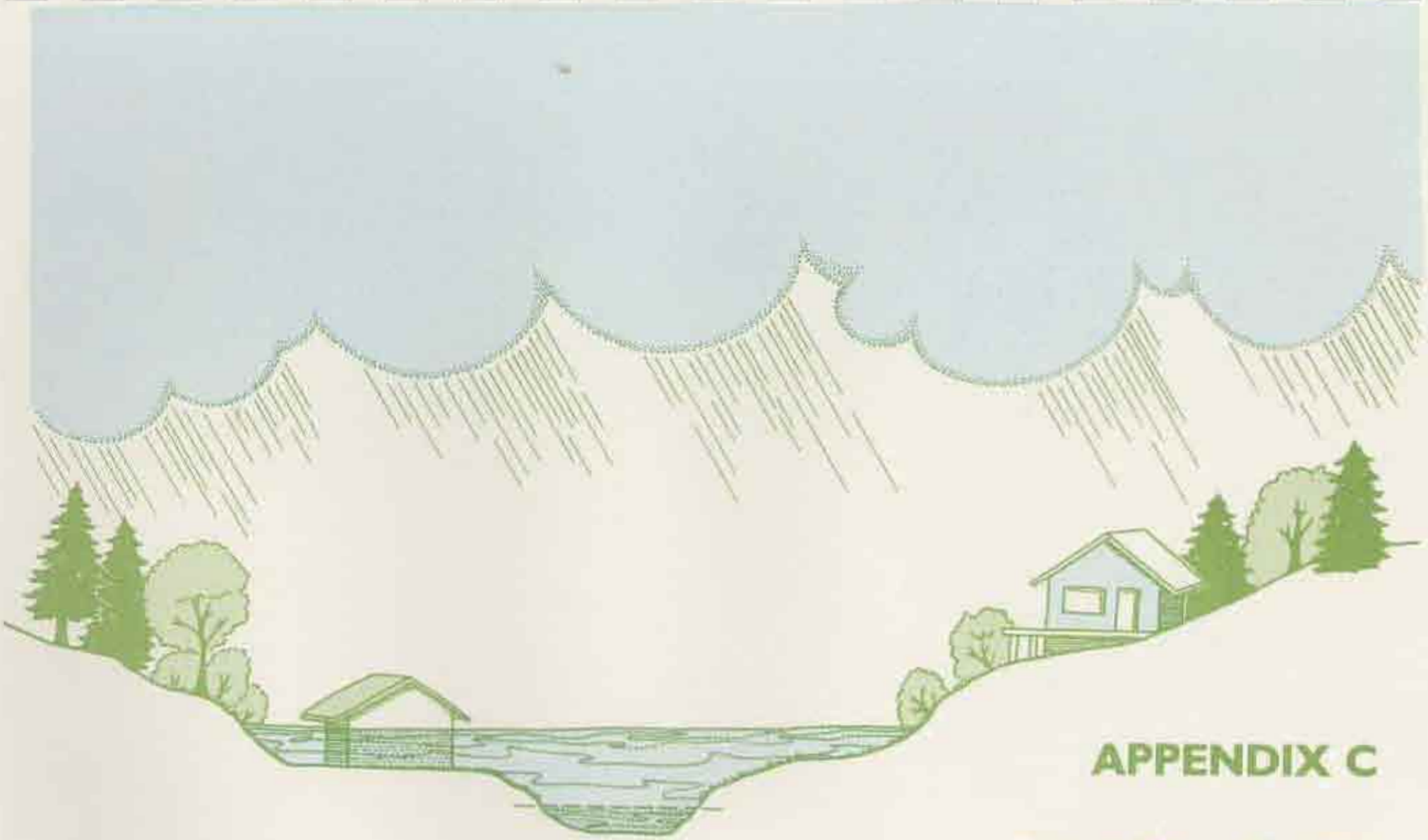
TBM No.	Sheet Photo (No.)	Elev.[1] msl (feet)	Description and Location of Elevation Markers
KR-1	7	848.7	Top of bolt on downstream side of the Petersville Road Bridge across Kroto Creek, at Station 1 + 18 of valley cross section KRAGRD.
20-1	7	1006.1	Top of upstream end of 2.9 feet diameter corrugated metal pipe culvert at the Petersville Road and Twentymile Creek crossing.
17-1	8	876.3	Top of downstream end of 4.9 feet diameter corrugated metal pipe culvert at the Petersville Road and Seventeenmile Creek crossing.
G-1	11	715.4	West along the Petersville Road about 9.9 miles from the Parks Highway intersection, on the top of a bolt on the Southeast corner and top of bridge rail, of the Petersville Road Bridge across the Gate Creek.
G-2	11	761.0	Along development road above Petersville Road on the upstream girder of the bridge across Gate Creek, at the center of the 42 feet bridge.
MO-1	11	469.7	7.1 miles west of Parks Highway along the Petersville Road on the top of a bolt for guardrail, most southerly guardrail post southeast end of bridge across Moose Creek.
9-1	12	461.6	Top of upstream end of 5.0 feet diameter corrugated metal pipe culvert at Petersville Road and Ninemile Creek crossing.

[1] Elevations are estimated from USGS topographic quadrangles; Scale = 1:63,360; Contour interval = 50 feet and 100 feet, except R-1 which is based on true S.L. Elevation.

TABLE 2 ELEVATION REFERENCE MARK DESCRIPTION KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS MATANUSKA-SUSITNA BOROUGH, ALASKA

TBM No.	Sheet Photo (No.)	Elev.[1] msl (feet)	Description and Location of Elevation Markers
P-1	7	1114.0	At bridge over Peters Creek on a horizontal bolt on the extreme northeast corner of the bridge.
K-1	7	1103.6	Top of upstream end of corrugated metal pipe culvert at Petersville Road and Kenny Creek crossing.
T-1		349.3	Top of upstream end of most easterly corrugated metal pipe culvert, 40 inch diameter, at Petersville Road and Trapper Creek crossing.
T-2	14	360.0	Top of upstream end of most northerly corrugated metal pipe culvert, 10.5 feet diameter, at the Parks Highway and Trapper Creek crossing.
R-1	14	278.6	Top of upstream end of most southerly 12 feet diameter corrugated metal pipe, on top of the 4th bolt back from the upstream end of the most southerly set of bolts, at the Parks Highway and Rabideux Creek crossing.

[1] Elevations are estimated from USGS topographic quadrangles; Scale = 1:63,360; Contour interval = 50 feet and 100 feet, except R-1 which is based on true S.L. Elevation.



APPENDIX C

Table 3 - 100-year Flood Data

—PRESENT CONDITIONS-

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (feet)	Flood Widths		Average Velocity (feet/sec.)
				Distance to Left (ft.)	Distance to Right (ft.)	
Kroto Creek						
KR-A	1	1	6100	1760	30	1.5
KR-B	1	2	17600	630	740	1.4
KR-C	1	5	34200	320	1220	1.5
KR-D	1	7	50000	880	220	1.4
KR-E	1	9	59800	40	280	1.7
KR-F	2	11	68500	2930	100	1.2
KR-G	2	12	75800	100	100	4.9
KR-H	2	16	97700	5951	500	0.6
KR-I	2	18	111900	3220	90	1.2
KR-J	2	20	127700	3340	480	1.6
KR-K	3	23	146200	500	800	2.8
KR-L	3	25	159200	40	870	1.6
KR-M	3	25	159300	520	500	6.4
KR-N	3	30	189100	170	10	2.6
KR-O	4	31	201200	1220	1500	1.0
KR-P	4	37	235400	640	216	1.44
KR-Q	4	41	260600	30	500	2.0
KR-R	4	41	263900	30	10	3.9
KR-S	5	42	269400	10	650	1.8
KR-T	5	44	283300	20	70	5.0
KR-U	5	48	309900	130	40	4.2
KR-V	5	49	316100	20	740	2.0
KR-W	5	50	318000	10	300	4.9
KR-X	5	51	324700	20	610	2.2
KR-Y	5	54	349500	200	10	2.9
KR-Z	6	55	351600	40	140	2.4

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (feet)	Flood Widths Distance to Left (ft.)	Flood Widths Distance to Right (ft.)	Average Velocity (feet/sec.)
Moose Creek (Cont.)						
MO-GO	11	97	372200	1090	160	2.0
MO-GP	11	98	378200	00	00	3.5
MO-GQ	11	99	383000	605	00	3.2
MO-LA	11		372200	00	10	3.2
MO-LB	11		378200	160	00	2.8
Ninemile Creek						
9-NA	12	107	277100	10	1220	0.7
9-NB	12	107	322700	30	80	1.9
9-NC	12	107	326600	100	290	0.9
9-ND	12	108	331500	10	30	2.2
9-NE	12	109	335300	00	120	1.6
9-NFRD	12	109	335400	80	220	8.8
9-NG	12	109	335500	80	220	0.2
9-NH	12	109	337800	400	00	0.7
9-NI	12	109	339900	270	20	4.2
9-NJ	12	110	343200	110	60	2.0
9-NK	12	110	346500	470	490	1.0
Gate Creek						
G-MA	10	111	312000	100	40	5.2
G-MB	10	112	316400	50	40	6.0
G-MC	11	113	325500	100	60	2.9
G-MD	11	114	336000	50	80	3.4
G-ME	11	117	344800	110	720	3.5
G-MF	11	118	351400	110	300	3.2
G-MG	11	118	355800	30	190	3.6

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (feet)	Flood Widths		Average Velocity (feet/sec.)
				Distance to Left (ft.)	Distance to Right (ft.)	
Gate Creek (Cont.)						
G-MGG	11	118	356200	80	200	2.3
G-MHRD	11	118	356300	80	200	9.0
G-MII	11	118	356400	120	20	3.9
G-MI	11	118	357100	110	20	3.8
G-MJ	11	119	363400	00	20	3.2
G-MKRD	11	120	363500	00	20	7.4
G-ML	11	120	363600	00	10	2.2
G-MM	11	121	374800	00	00	2.1
Twentymile Creek						
20-CA	6	122	351500	10	140	4.7
20-CB	6	123	357800	10	270	2.0
20-CC	6	124	365100	50	10	2.8
20-CD	6	125	372600	50	10	3.4
20-CE	7	126	380100	0	0	2.3
20-CF	7	128	390100	10	10	2.9
20-CG	7	129	396700	0	0	3.2
20-CH	7	130	404700	0	80	4.8
20-CIRD	7	130	404800	0	0	8.8
20-CJ	7	130	404900	70	0	0.4
20-CK	7	131	409200	30	10	2.6
20-CL	7	132	416200	30	50	2.3
Seventeenmile Creek						
17-BA	6	133	374500	10	180	2.7
17-BB	6	134	377700	20	20	4.7
17-BC	6	134	382100	10	90	3.4

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (feet)	Flood Widths		Average Velocity (feet/sec.)
				Distance to Left (ft.)	Distance to Right (ft.)	
Seventeenmile Creek (Cont.)						
17-BD	8	136	391600	30	40	3.8
17-BERD	8	136	391700	30	160	7.0
17-BF	8	136	391800	30	160	0.7
17-BG	8	136	395800	10	70	3.0
17-BH	8	137	399300	10	50	1.7
17-BI	8	138	406700	10	80	2.3
Peters Creek						
P-A	7	139	00	790	190	1.0
P-B	7	139	4800	10	220	4.7
P-C	7	140	8300	00	00	5.4
P-D	7	140	13000	0	0	5.5
P-E	7	141	16300	20	0	4.8
P-F	7	142	19200	815	110	3.4
P-G	7	142	19800	400	80	4.3
PHRD	7	142	19900	370	130	5.6
P-I	7	142	20000	370	130	4.1
P-J	7	142	21100	990	1030	1.7
P-K	7	142	25100	120	720	3.5
P-L	7	143	28300	10	1320	1.3
P-M	7	143	31700	440	160	4.2
P-N	7	143	36300	0	260	3.8
P-O	7	144	42900	430	60	2.7
Kenny Creek						
K-CA	7	145	6700	0	50	2.9
K-CB	7	146	10800	250	140	3.0

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

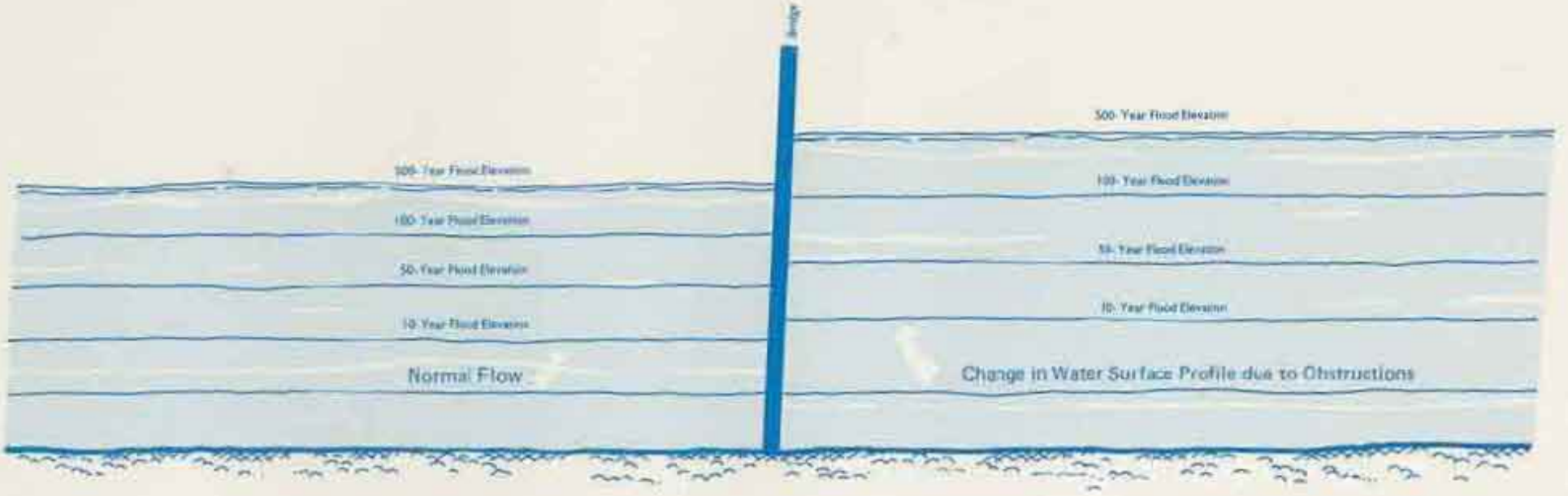
Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (Feet)	Flood Widths		Average Velocity (Feet/sec.)
				Distance to Left (ft.)	Distance to Right (ft.)	
Kenny Creek (Cont.)						
K-CC	7	146	13200	500	500	2.5
K-CD	7	146	14900	500	200	3.5
KCERD	7	146	15000	60	120	7.3
K-CF	7	146	15100	60	120	0.9
K-CG	7	147	19300	20	60	2.6
K-CH	7	147	22400	20	60	2.6
K-CI	7	148	27100	30	50	2.7
K-CJ	7	148	31000	30	50	2.9
Rabideux Creek						
RX-A	13	149	4500	220	30	0.6
RX-B	13	149	6200	60	0	1.6
RX-C	13	149	8200	0	0	0.8
RX-D	13	149	10300	50	390	1.2
RX-E	13	150	10800	200	80	1.9
RXFPHY	13	150	10900	378	150	6.4
RX-G	13	150	11000	378	150	0.7
RX-H	13	150	11200	240	250	0.5
RX-I	13	150	13500	50	150	2.3
RX-J	13	150	15500	100	170	2.1
RX-K	13	151	18100	160	70	2.8
RX-L	13	151	20600	160	30	2.8
RX-M	13	152	25900	160	70	1.8
RX-N	13	153	31100	320	140	1.1
RX-O	13	153	34900	0	90	2.2
RX-P	13	154	40500	160	30	1.9
RX-Q	13	155	43200	160	50	1.7

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (feet)	Flood Widths		Average Velocity (feet/sec.)
				Distance to Left (ft.)	Distance to Right (ft.)	
Rabideux Creek (Cont.)						
RX-R	13	155	46000	160	10	1.8
RX-S	14	156	49600	170	20	1.5
RX-T	14	156	53600	170	100	1.3
RX-V	14	156	53800	160	80	1.5
RX-W	14	157	59000	1380	550	0.5
RX-X	14	157	61700	200	500	0.6
RX-Y	14	158	64500	120	170	1.7
RX-Z	14	159	69500	150	390	2.0
Trapper Creek						
T-A	13	160	1700	2000	70	0.2
T-B	13	160	7100	1320	0	0.6
T-C	14	162	13900	426	0	1.2
T-D	14	163	21900	325	510	0.9
T-E	14	163	26500	1470	1140	0.4
T-F	14	164	28100	1210	770	1.1
T-G	14	164	31100	600	980	0.6
T-H	14	165	36100	1020	2940	0.4
T-I	14	165	37400	1070	2580	0.8
T-J	14	166	41300	1500	2550	0.8
TKPRD	14	166	41400	1500	1500	9.5
T-L	14	166	41500	2900	2400	0.8
T-M	14	166	44600	320	170	0.2
T-N	14	167	47000	210	260	1.9
T-O	14	167	50500	220	990	1.2
T-P	14	167	50700	230	580	1.8
TQPHY	14	167	50800	240	970	4.8

TABLE 3 100-YEAR FLOOD DATA
KROTO - PETERS CREEKS AND TRIBUTARIES - RABIDEUX AND TRAPPER CREEKS
MATANUSKA-SUSITNA BOROUGH, ALASKA

Valley Section	Photo Sheet (No.)	Profile Sheet (No.)	Profile Station (feet)	Flood Widths		Average Velocity (feet/sec.)
				Distance to Left (ft.)	Distance to Right (ft.)	
Trapper Creek (Cont.)						
T-R	14	167	50900	240	970	0.2
T-S	14	167	51600	0	1350	0.9
T-T	14	168	53900	0	50	0.9
T-U	14	168	57200	20	80	2.4
T-V	14	169	61100	50	150	2.3
T-W	14	170	69000	80	40	3.7
T-X	14	171	72800	120	30	3.0
T-Y	14	172	78700	120	50	3.0

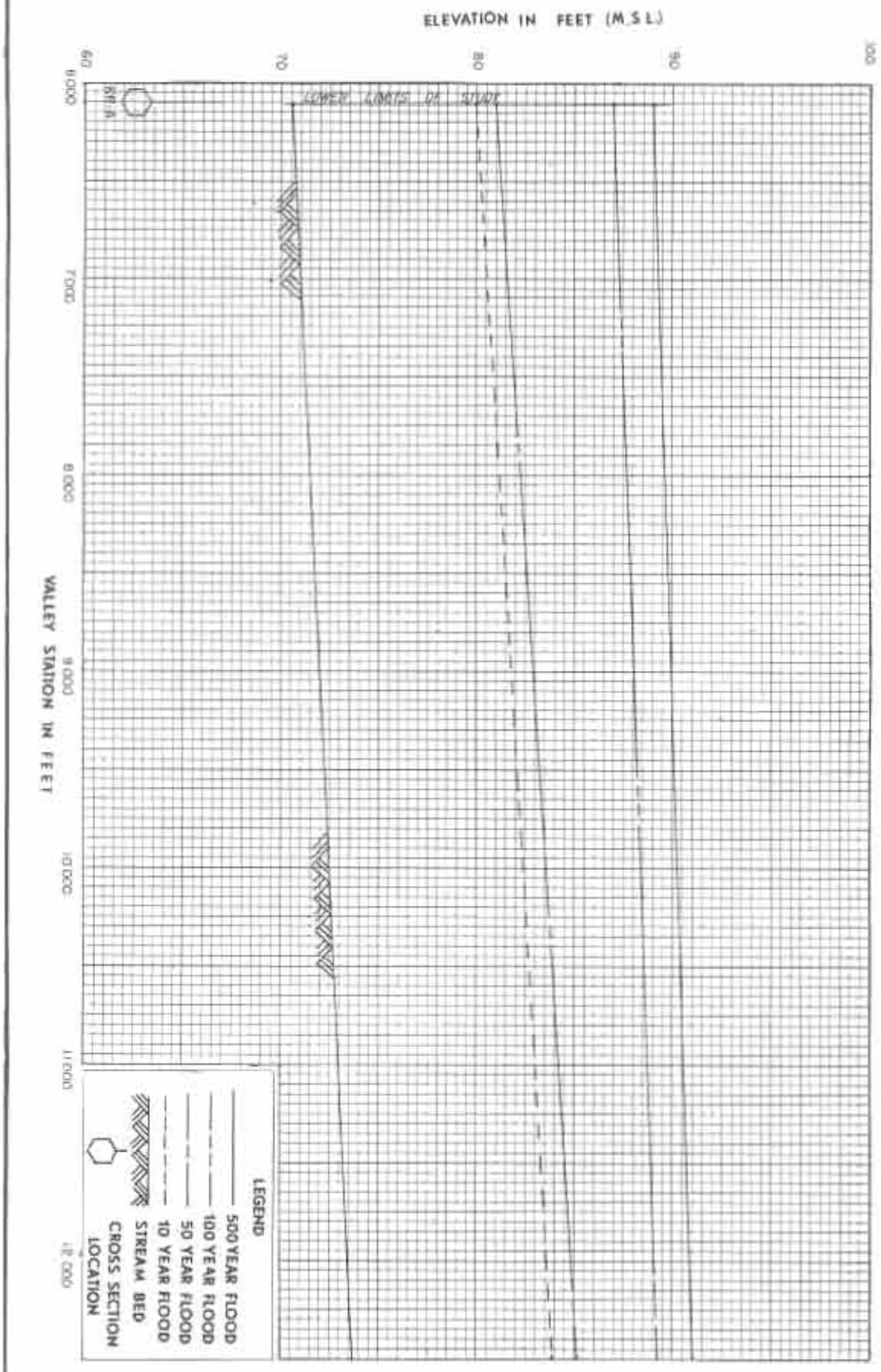


APPENDIX D

Exhibit 1 - Flood Profile Index

Exhibit 2 - Flood Profile Sheets

NOTE: ELEVATIONS ARE APPROXIMATE

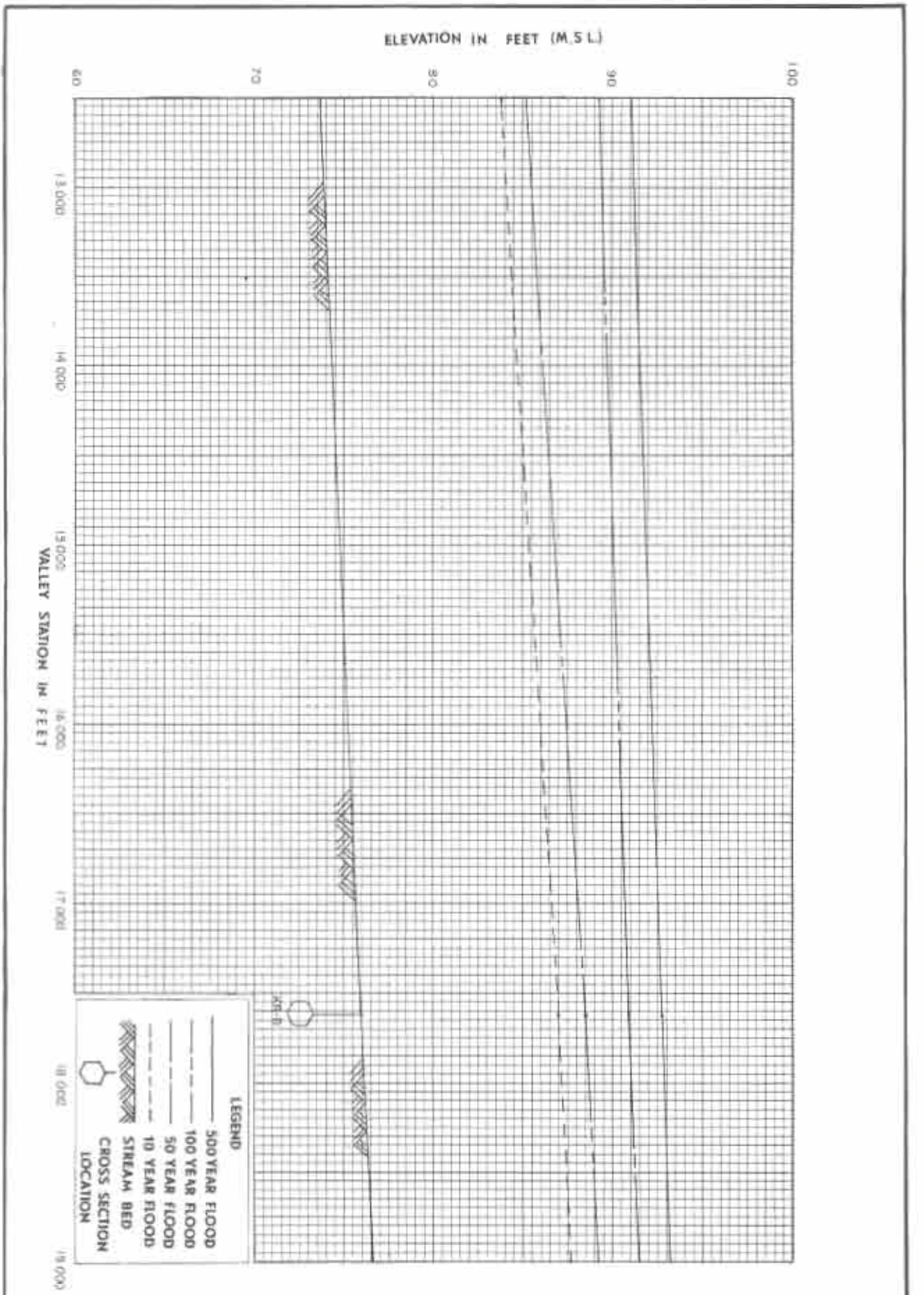


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 1 OF 12

FLOOD PROFILES

KNIK CREEK



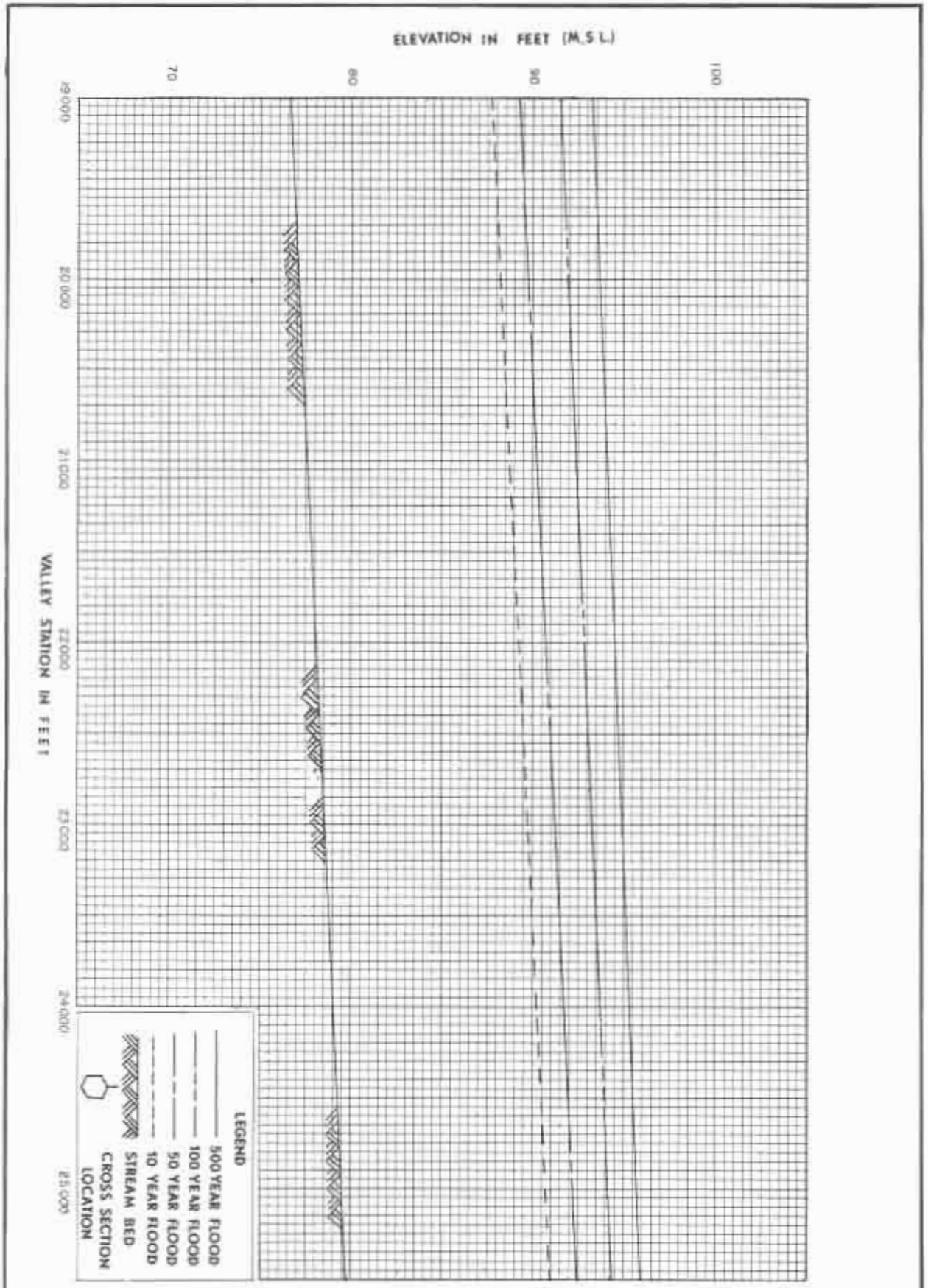
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 12

FLOOD PROFILES

KNOTO CREEK

EXHIBIT 2



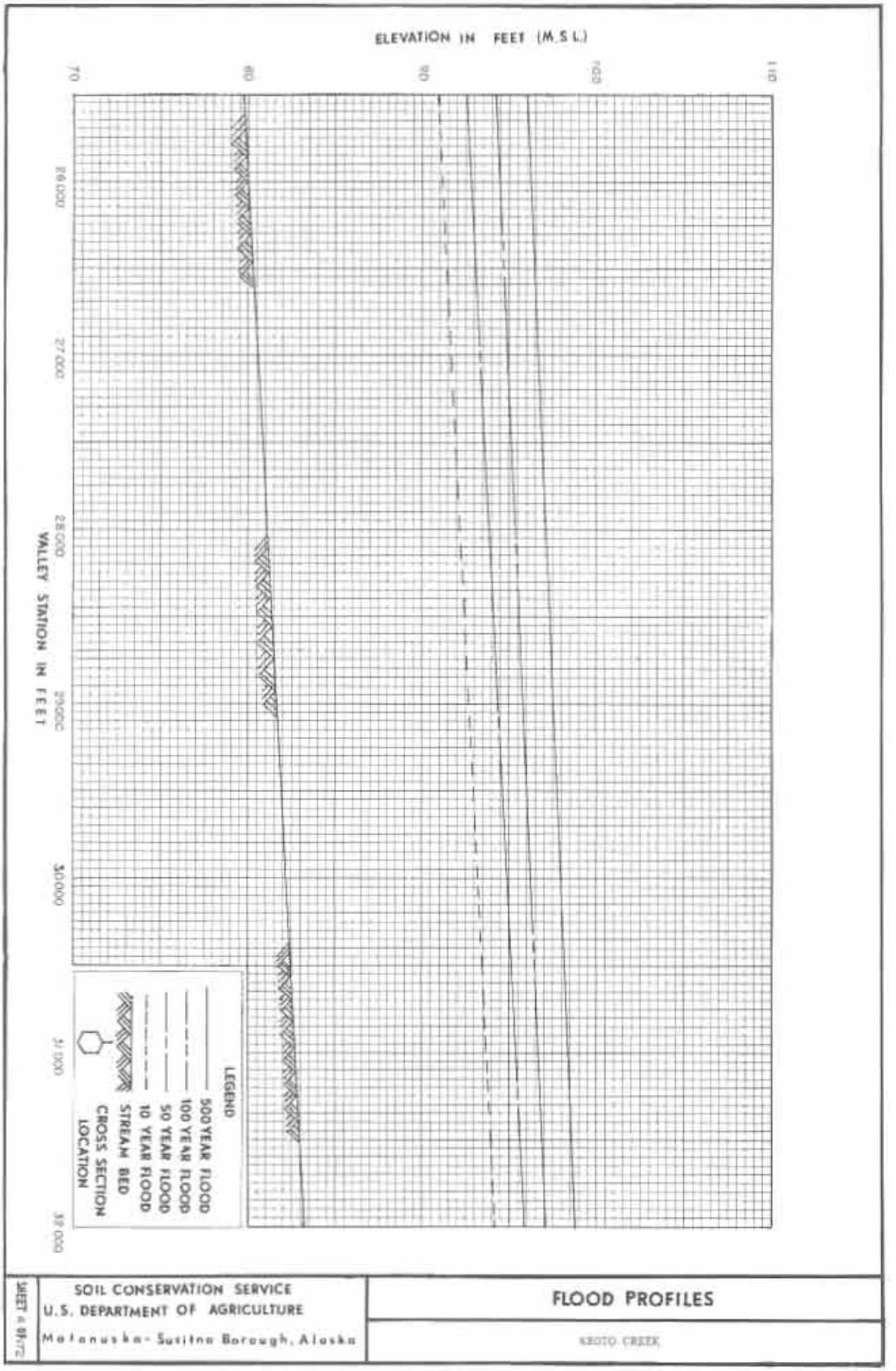
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 5 OF 22

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2

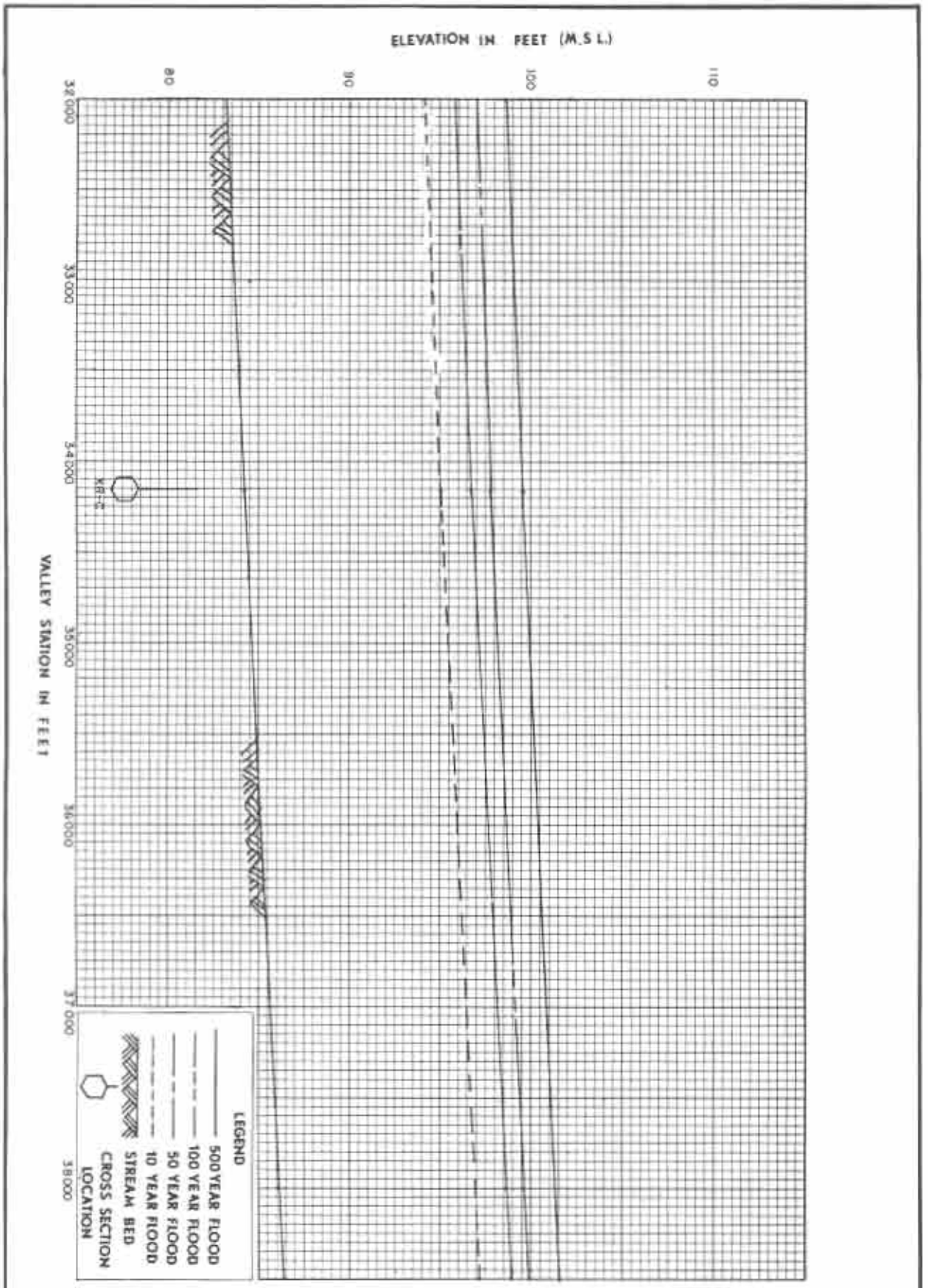


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET # 8 of 12

FLOOD PROFILES

KROTO CREEK



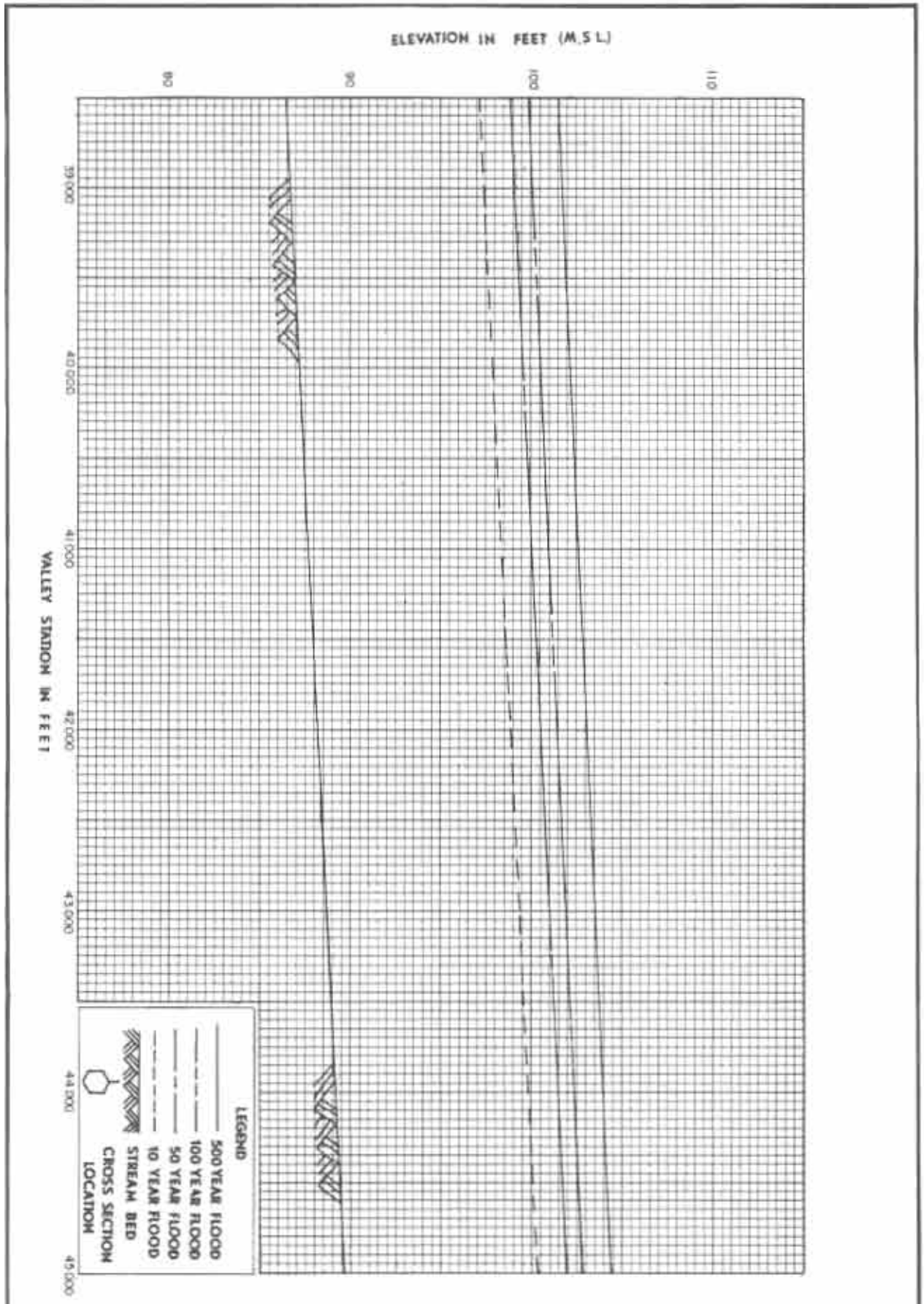
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 5 OF 12

FLOOD PROFILES

KROTO CREEK

EXHIBIT 7



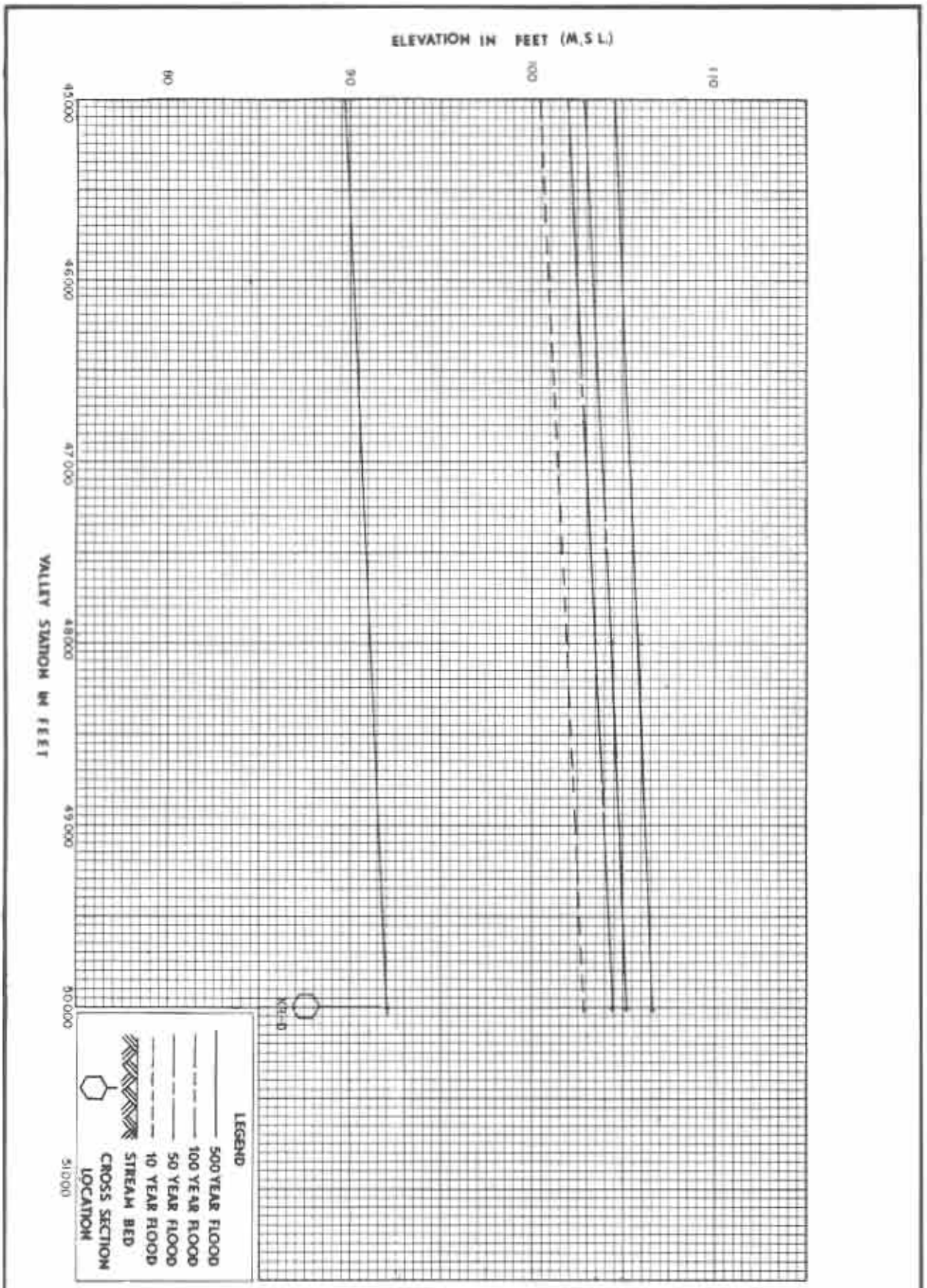
SHEET 9 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



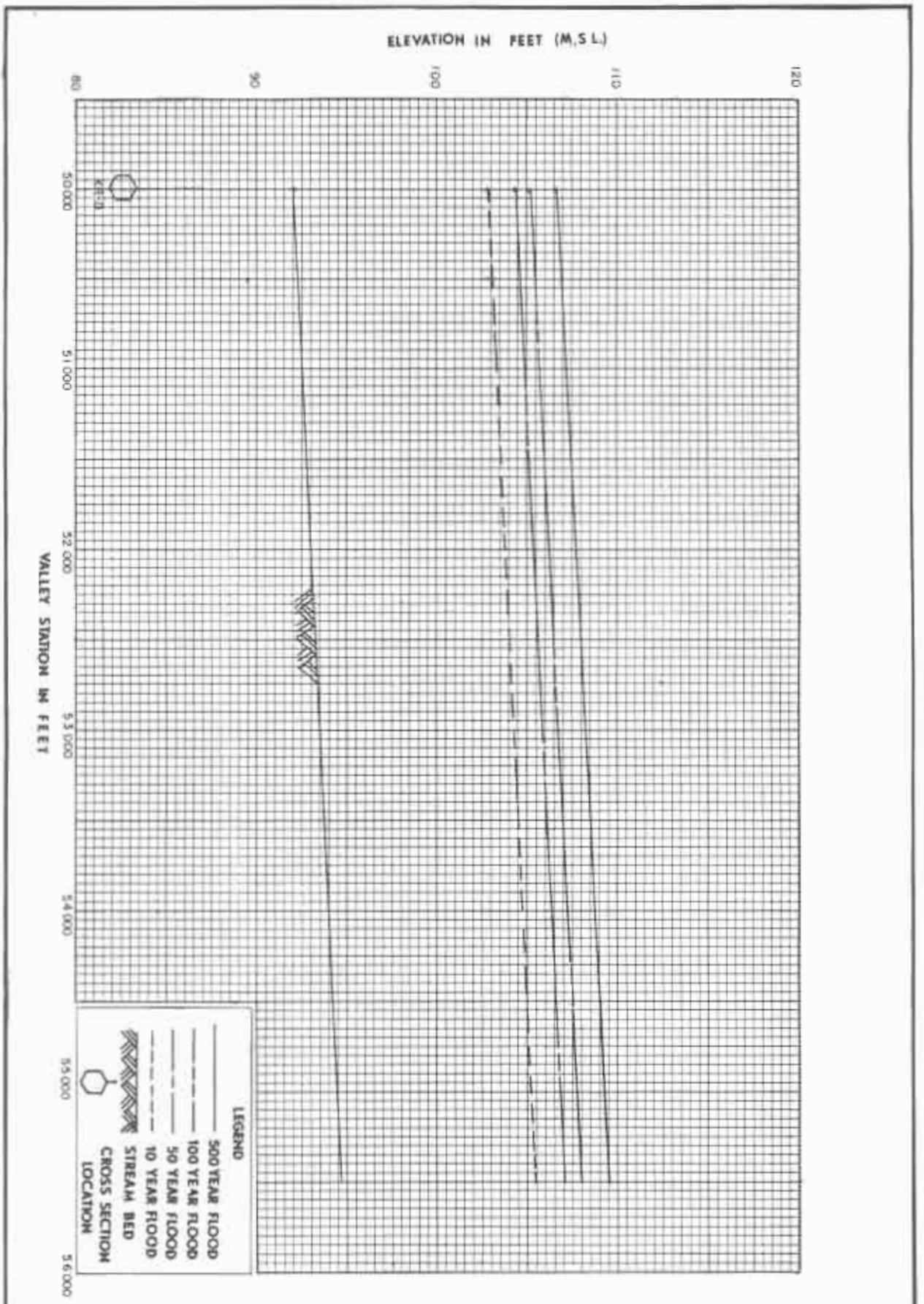
SHEET 7 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



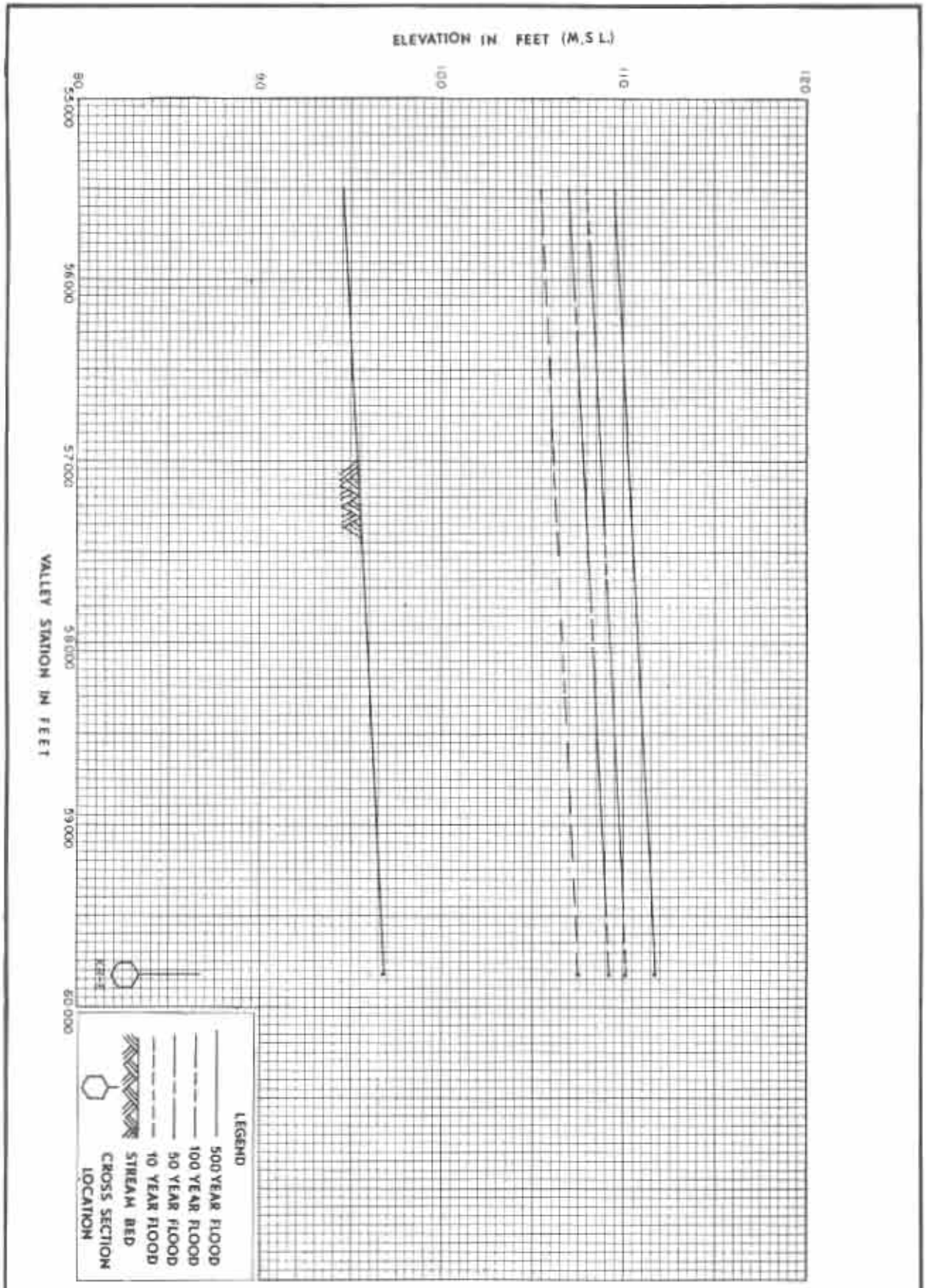
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 8 OF 12

FLOOD PROFILES

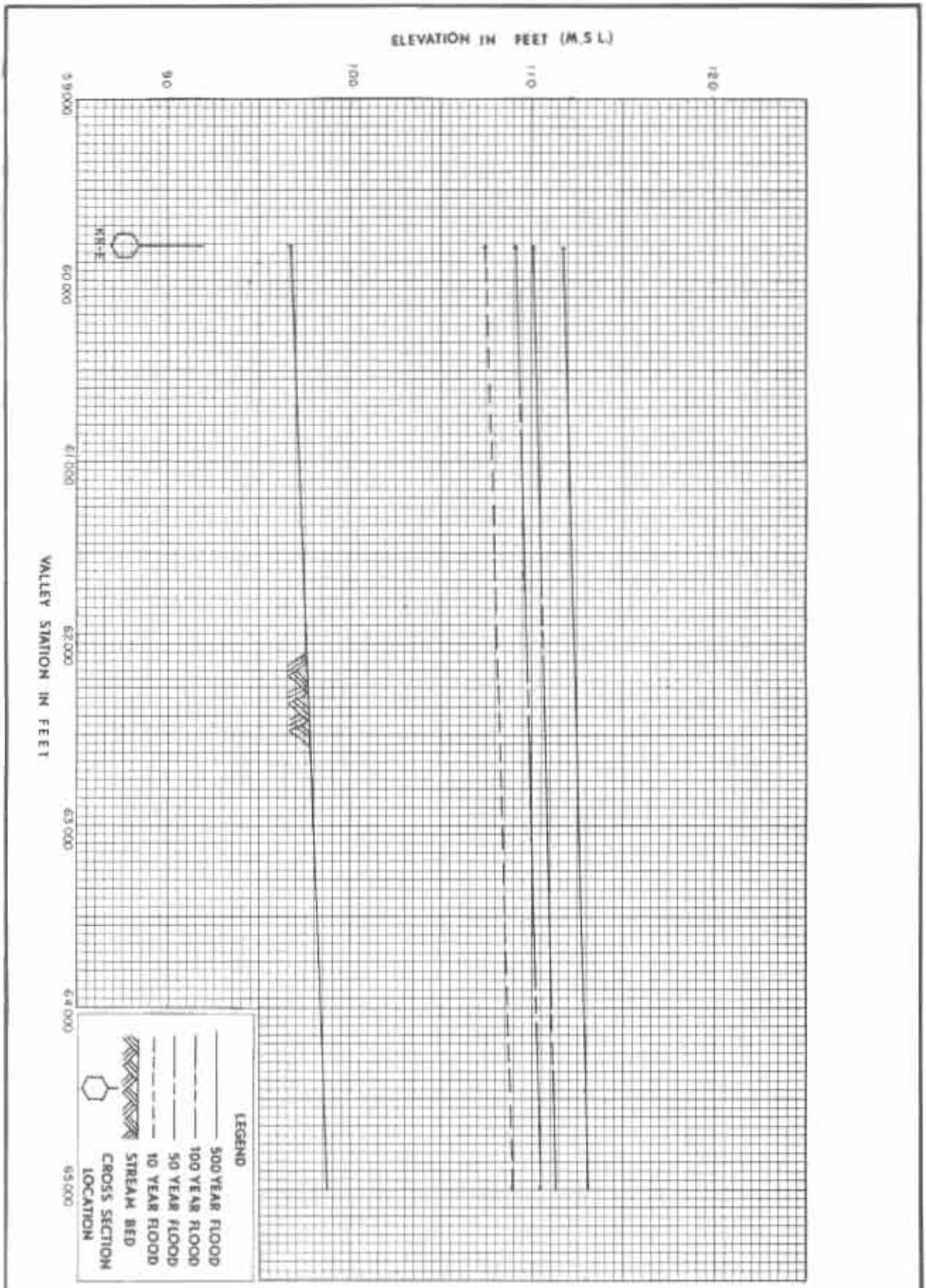
KROTO CREEK

EXHIBIT J



SHEET 9 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES KRUTO CREEK

EXHIBIT C



SHEET 10 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

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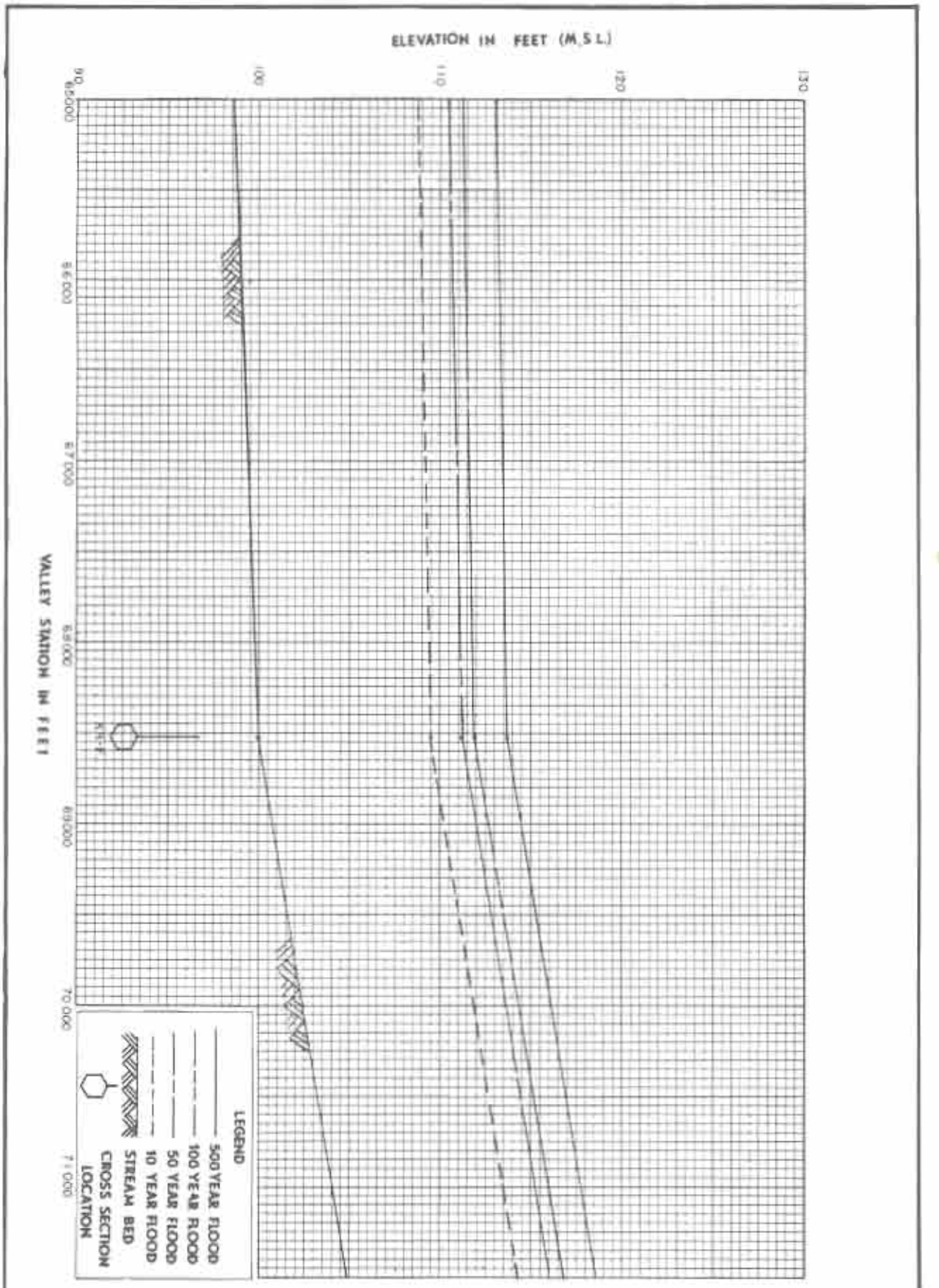


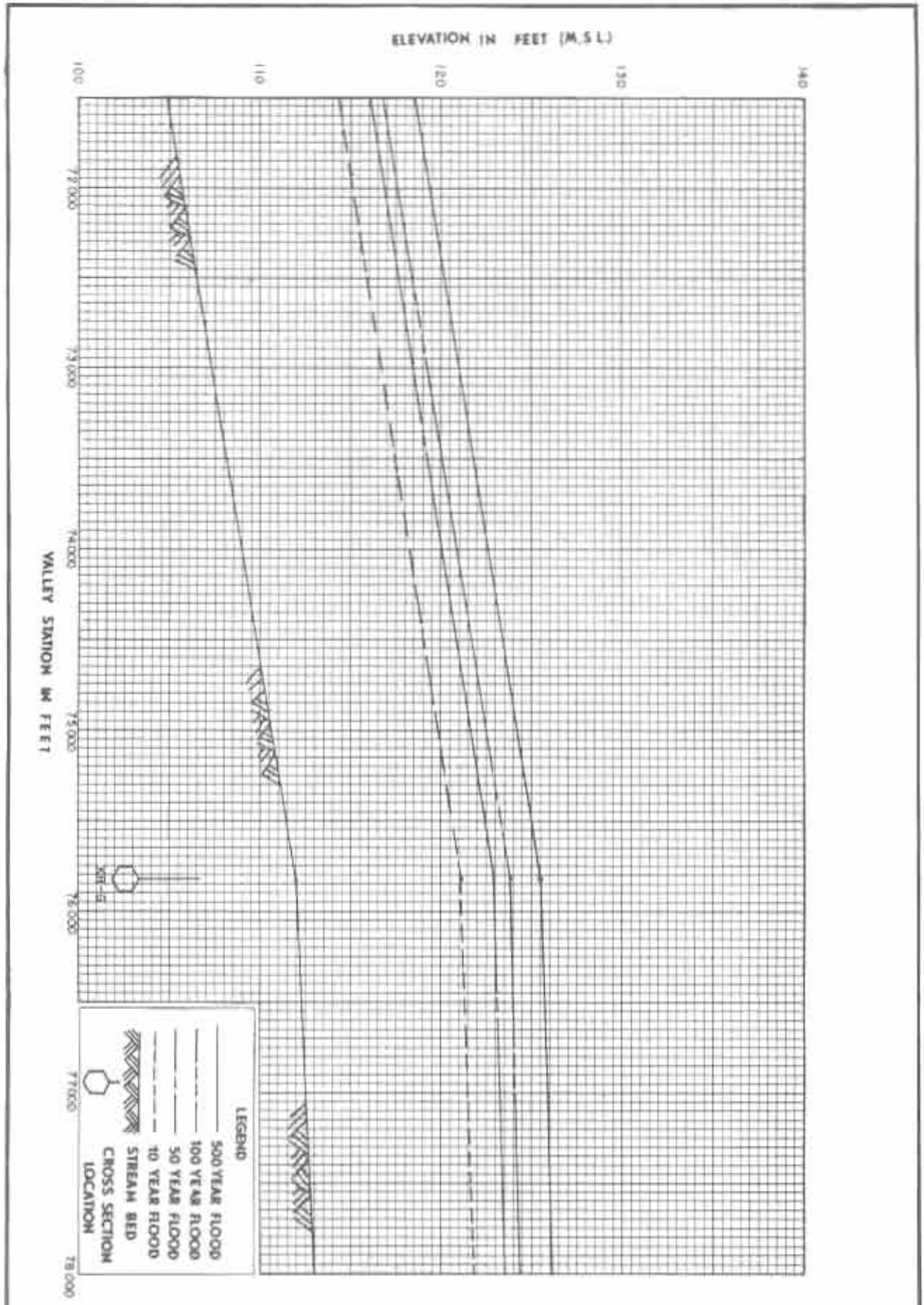
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 11 OF 12

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



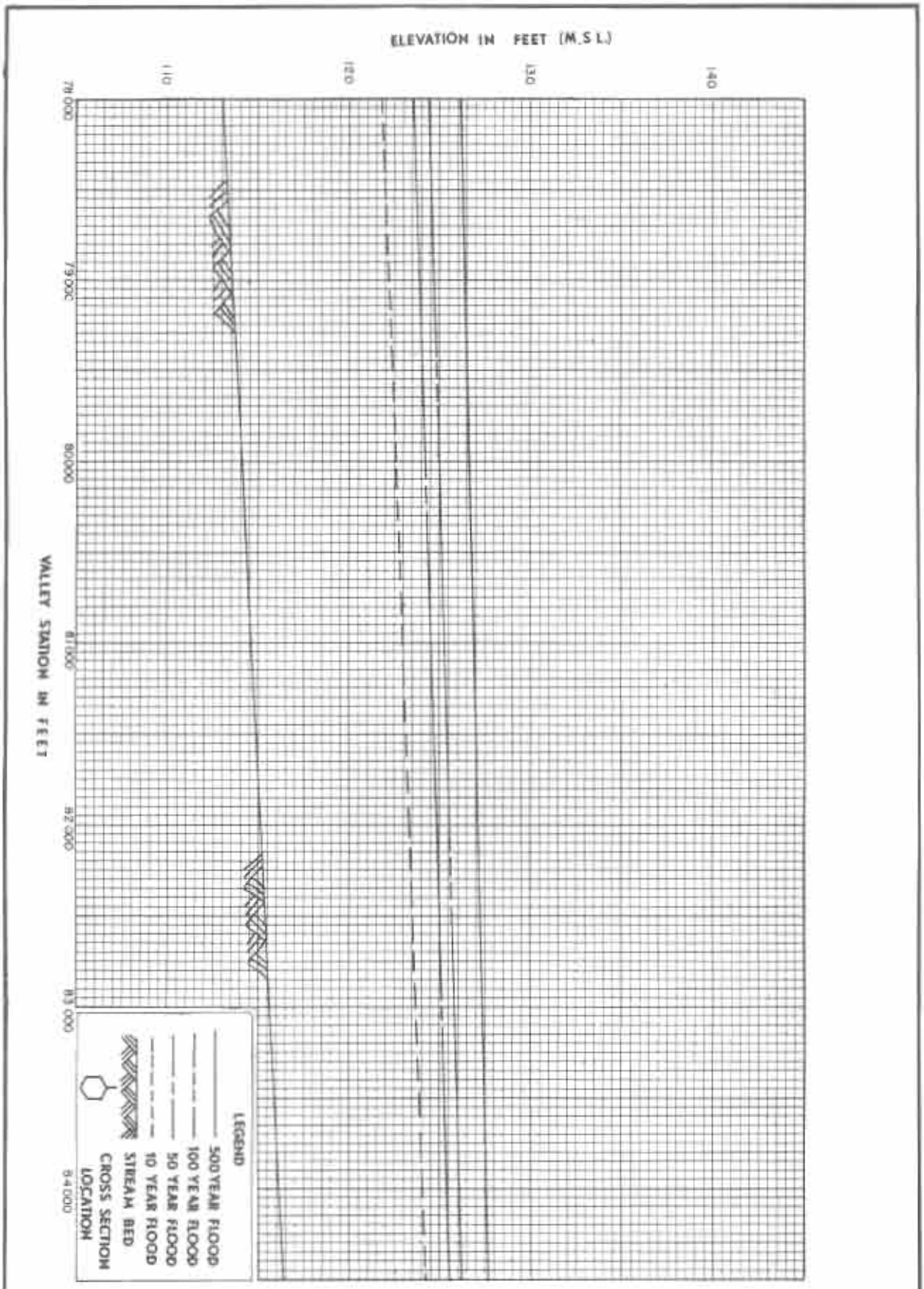
SHEET 18 OF 22

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 1



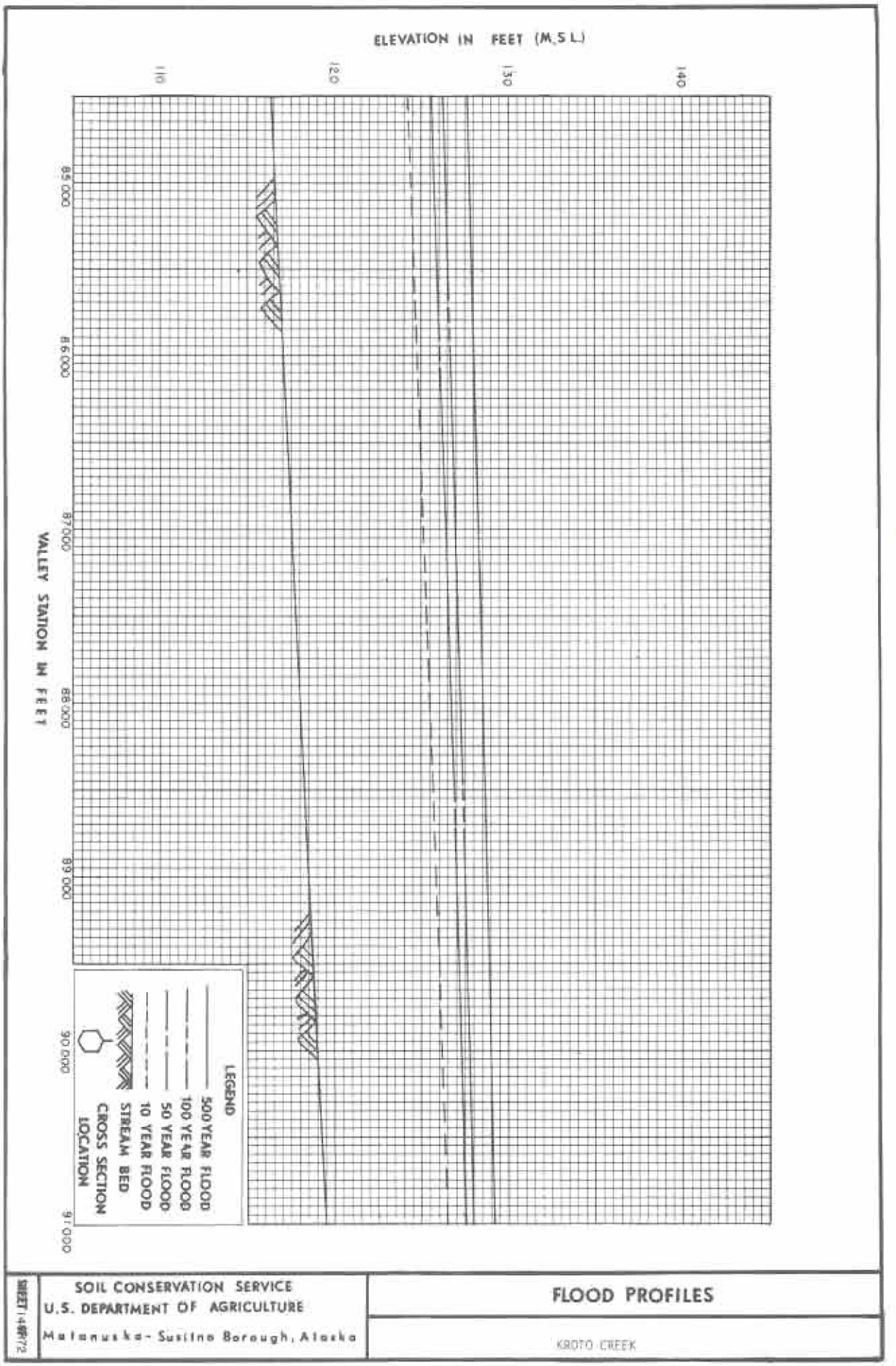
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 13 OF 72

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



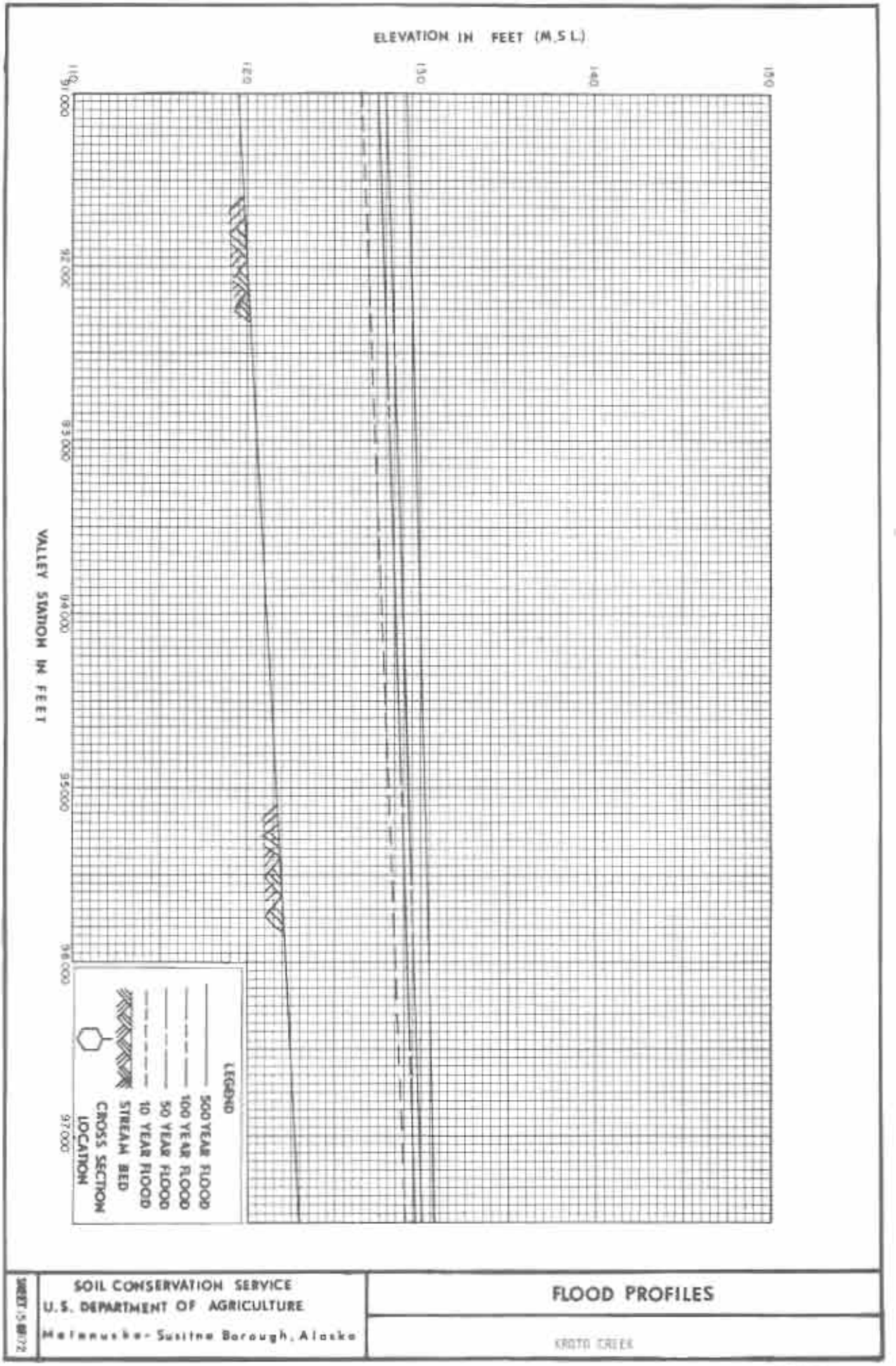
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 14 OF 72

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



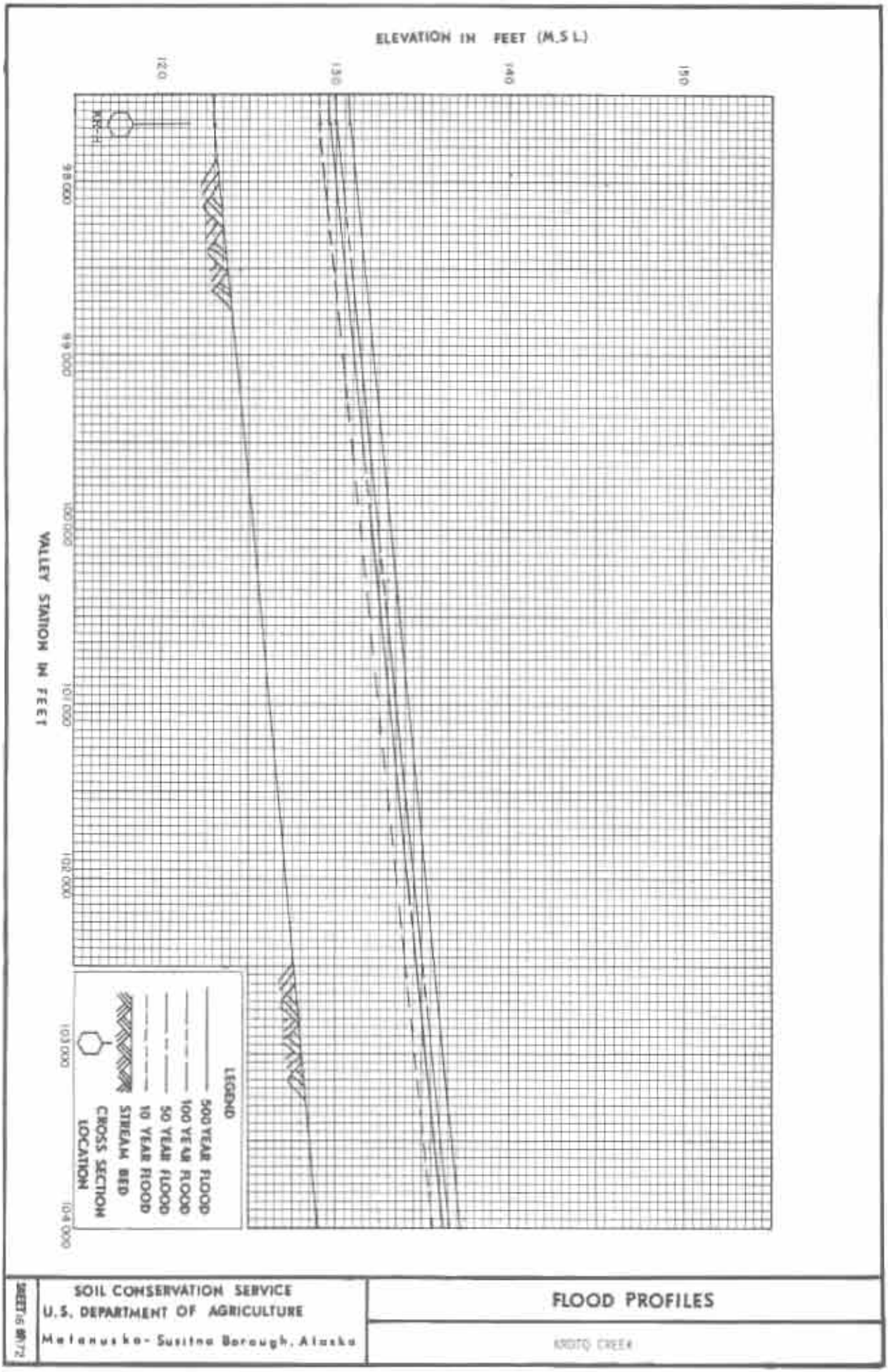
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 5 OF 12

FLOOD PROFILES

KROTO CREEK

EXHIBIT J



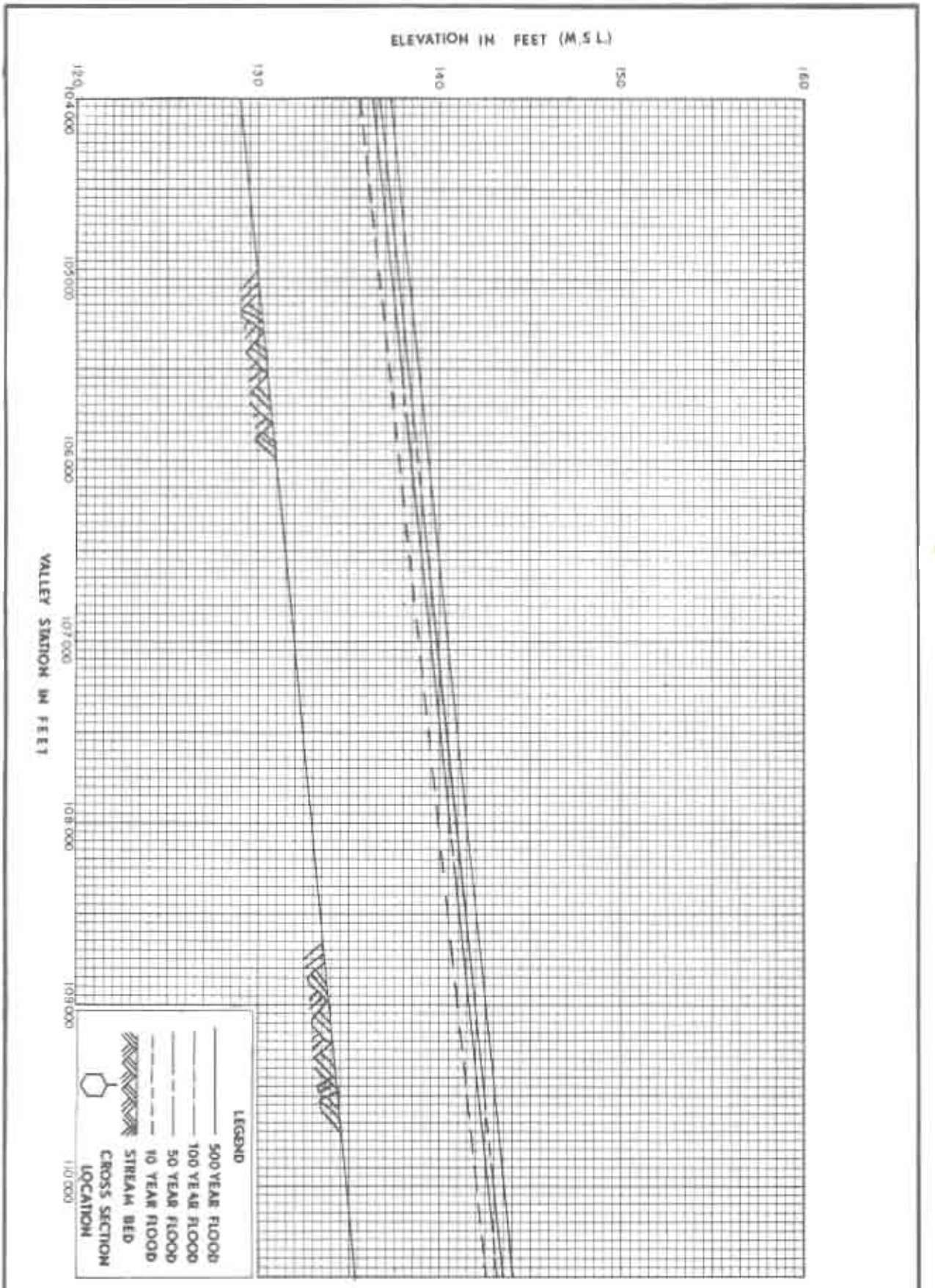
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 6 OF 72

FLOOD PROFILES

KROTO CREEK

EXHIBIT J



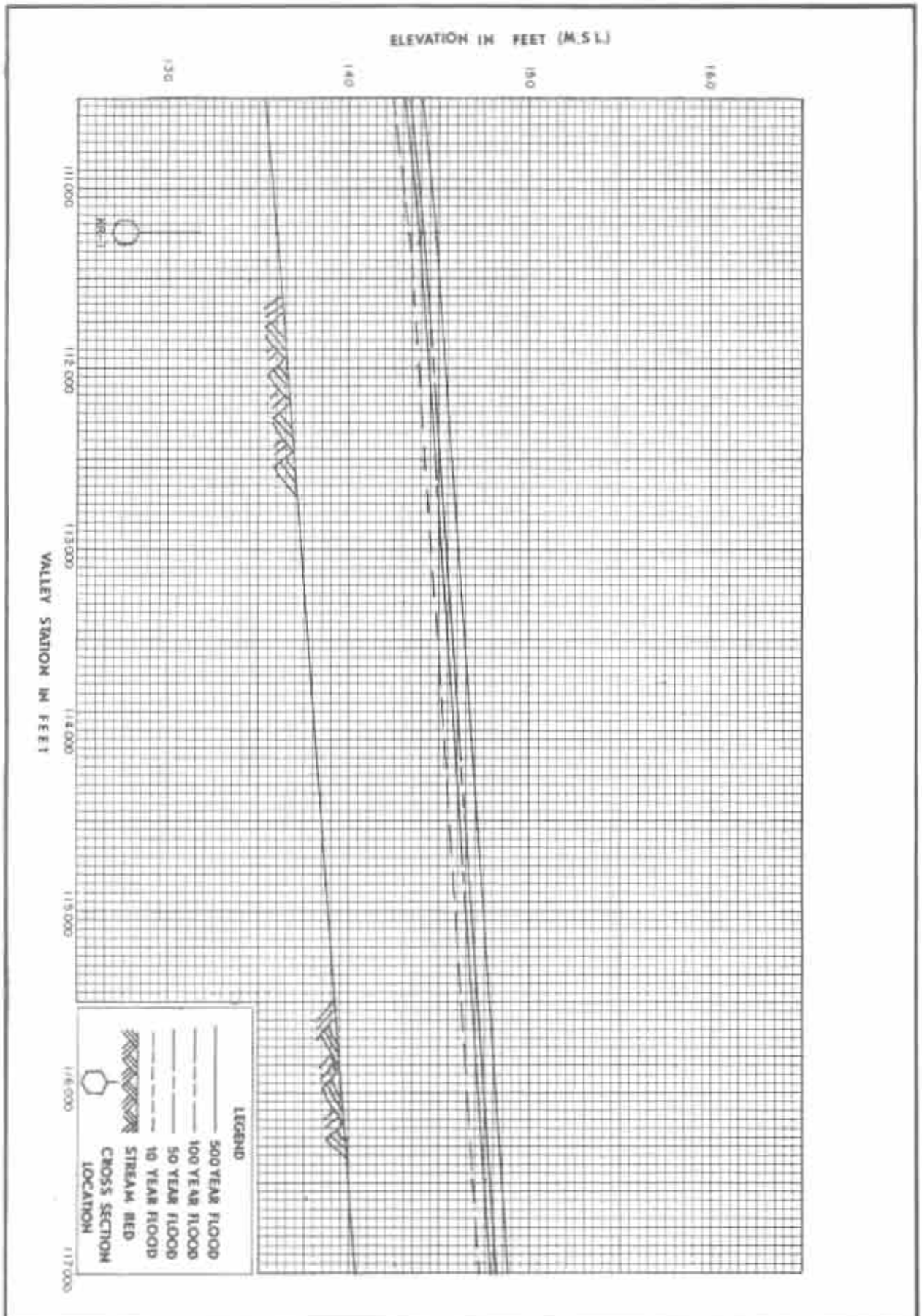
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 2

FLOOD PROFILES

KROTO CREEK

EXHIBIT J



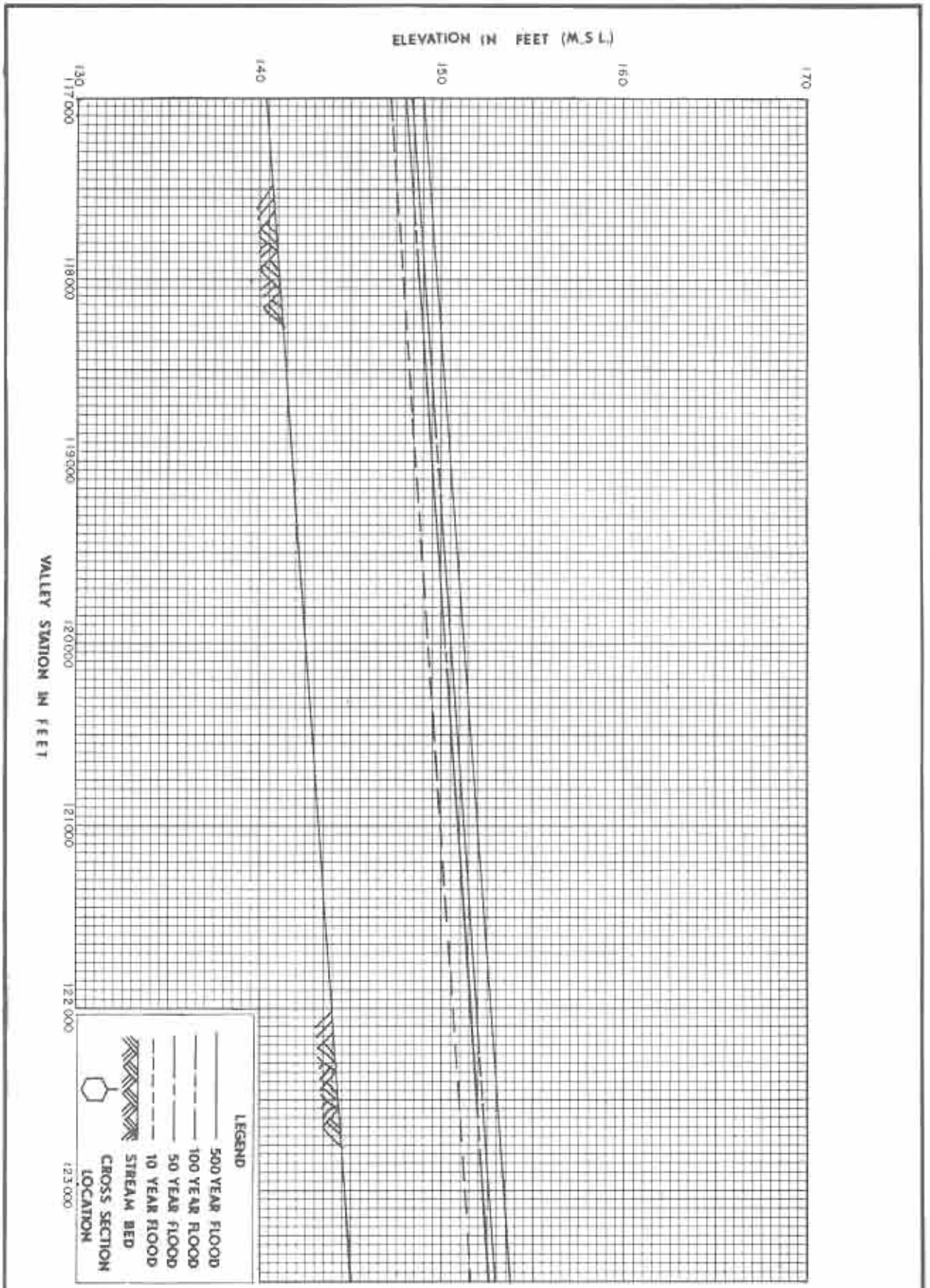
SHEET 18 OF 72

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT J



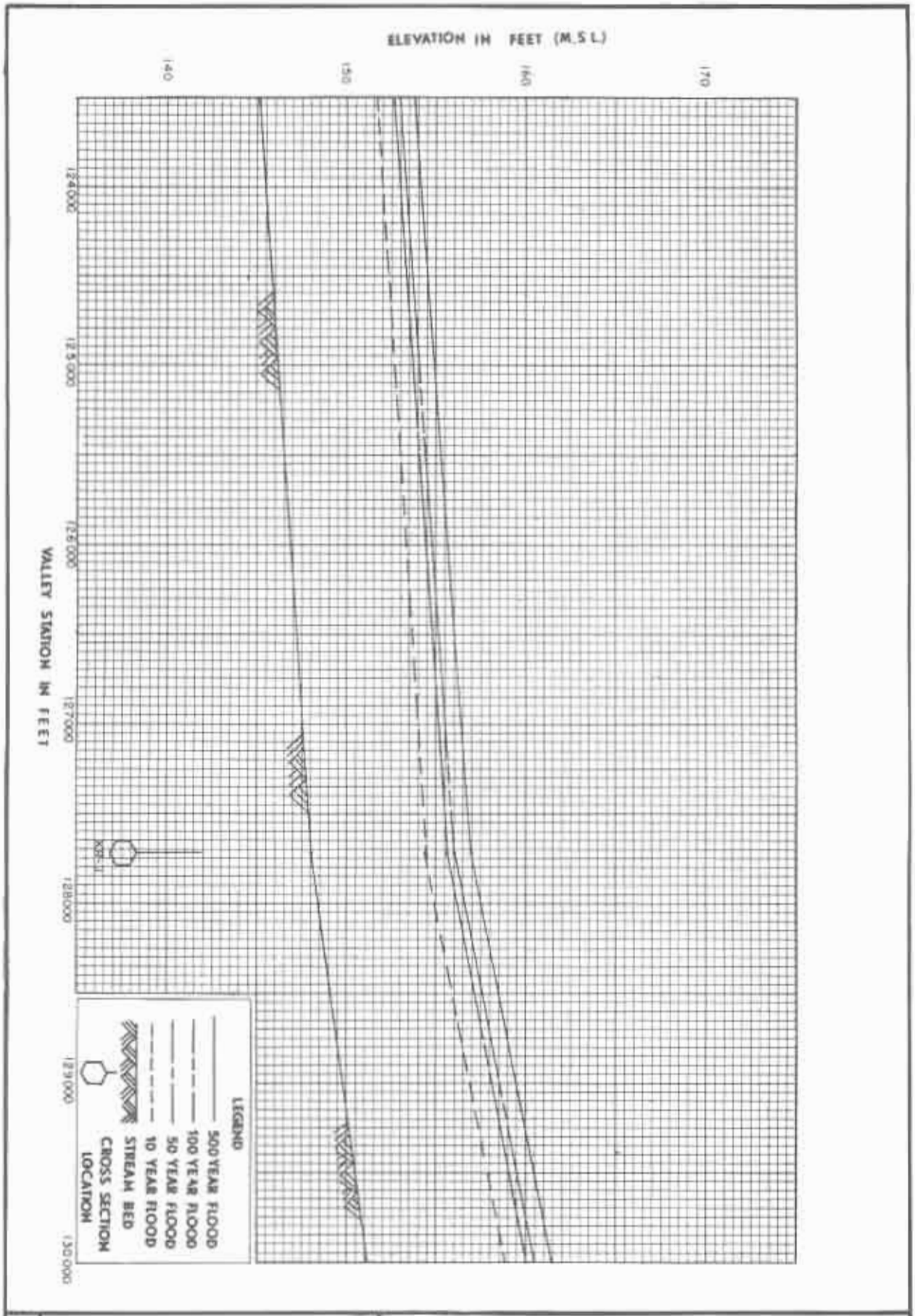
SHEET 9 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



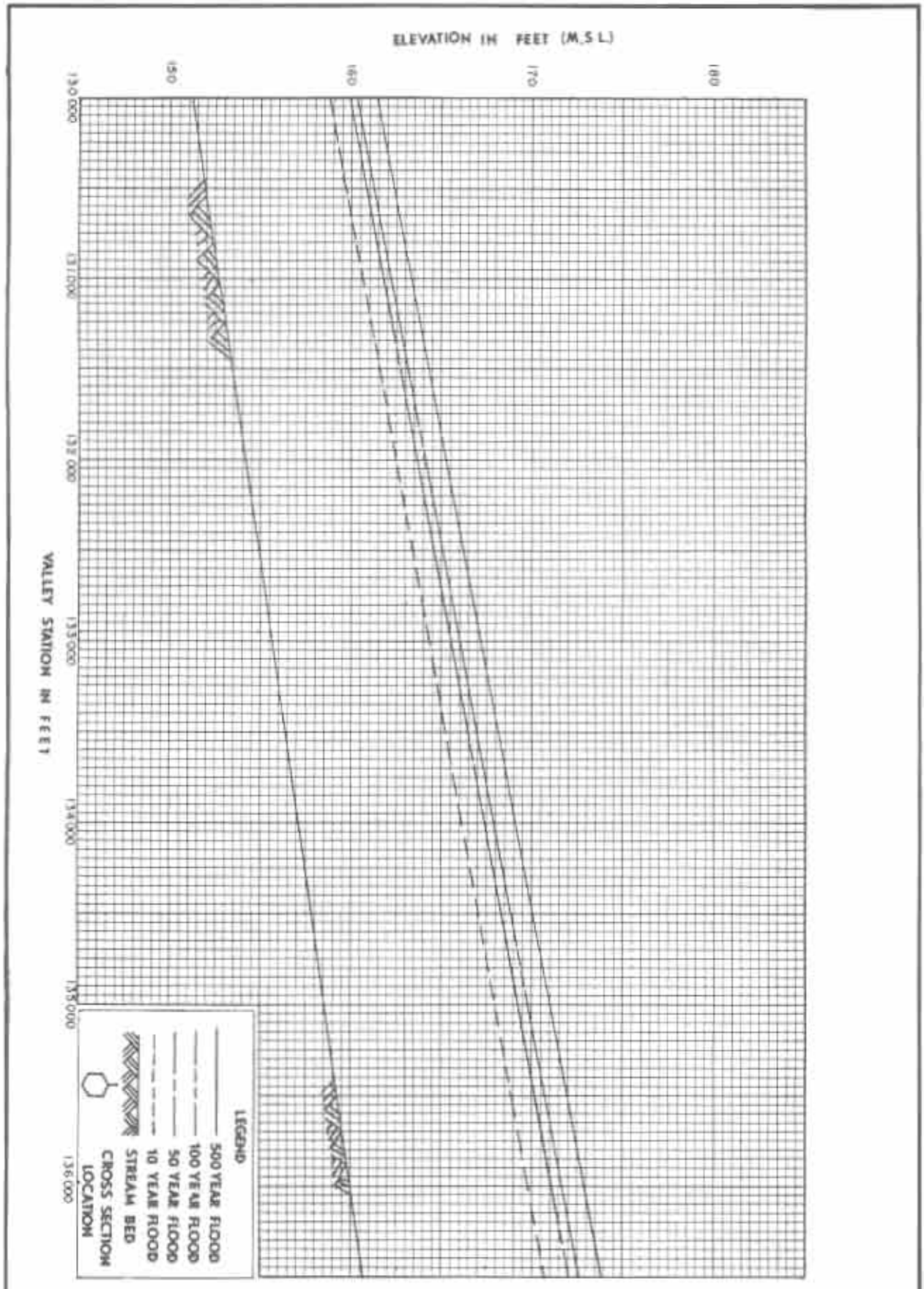
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 2

FLOOD PROFILES

KROTO CREEK

EXHIBIT 7



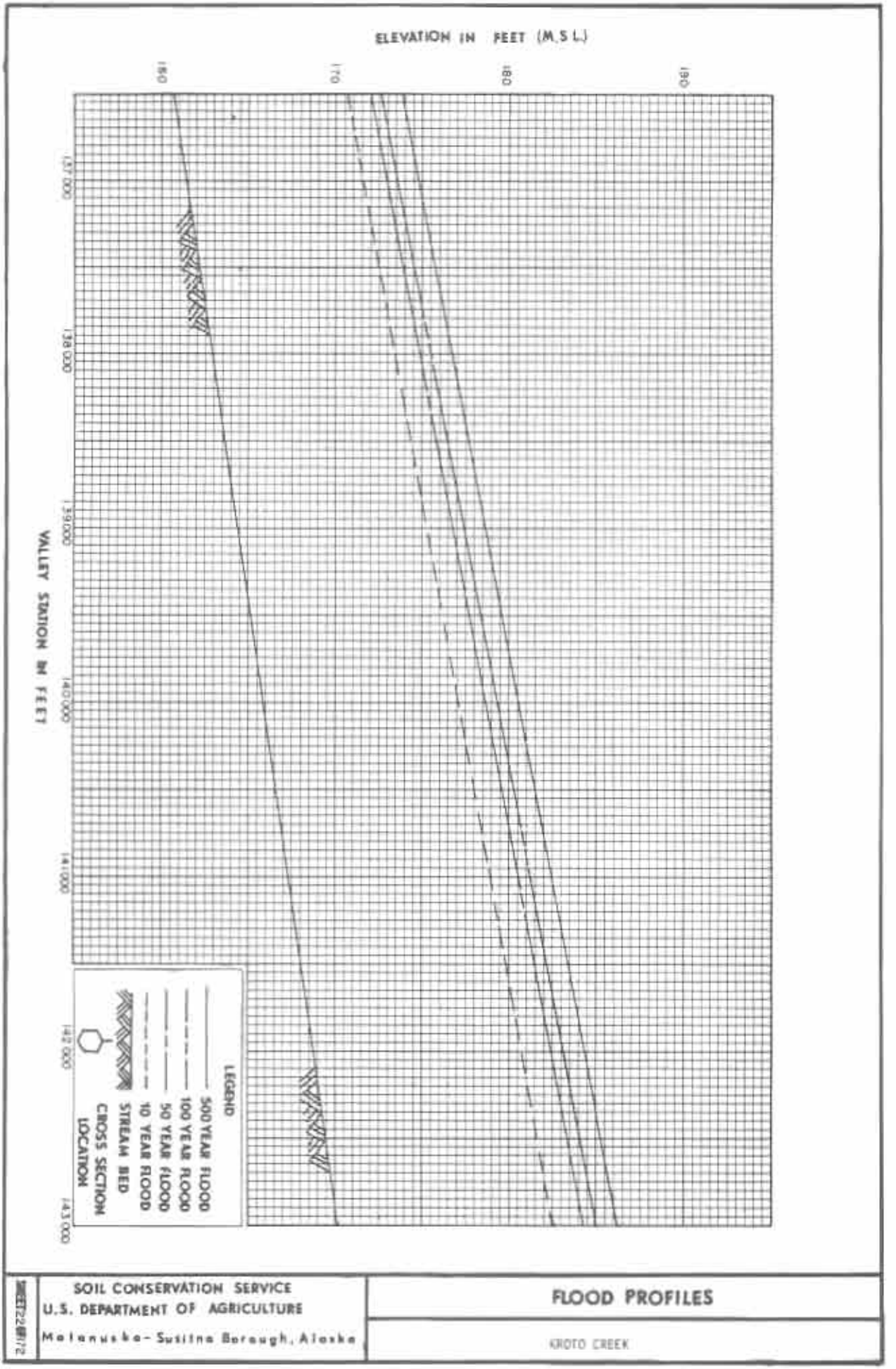
SHEET 2 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT J



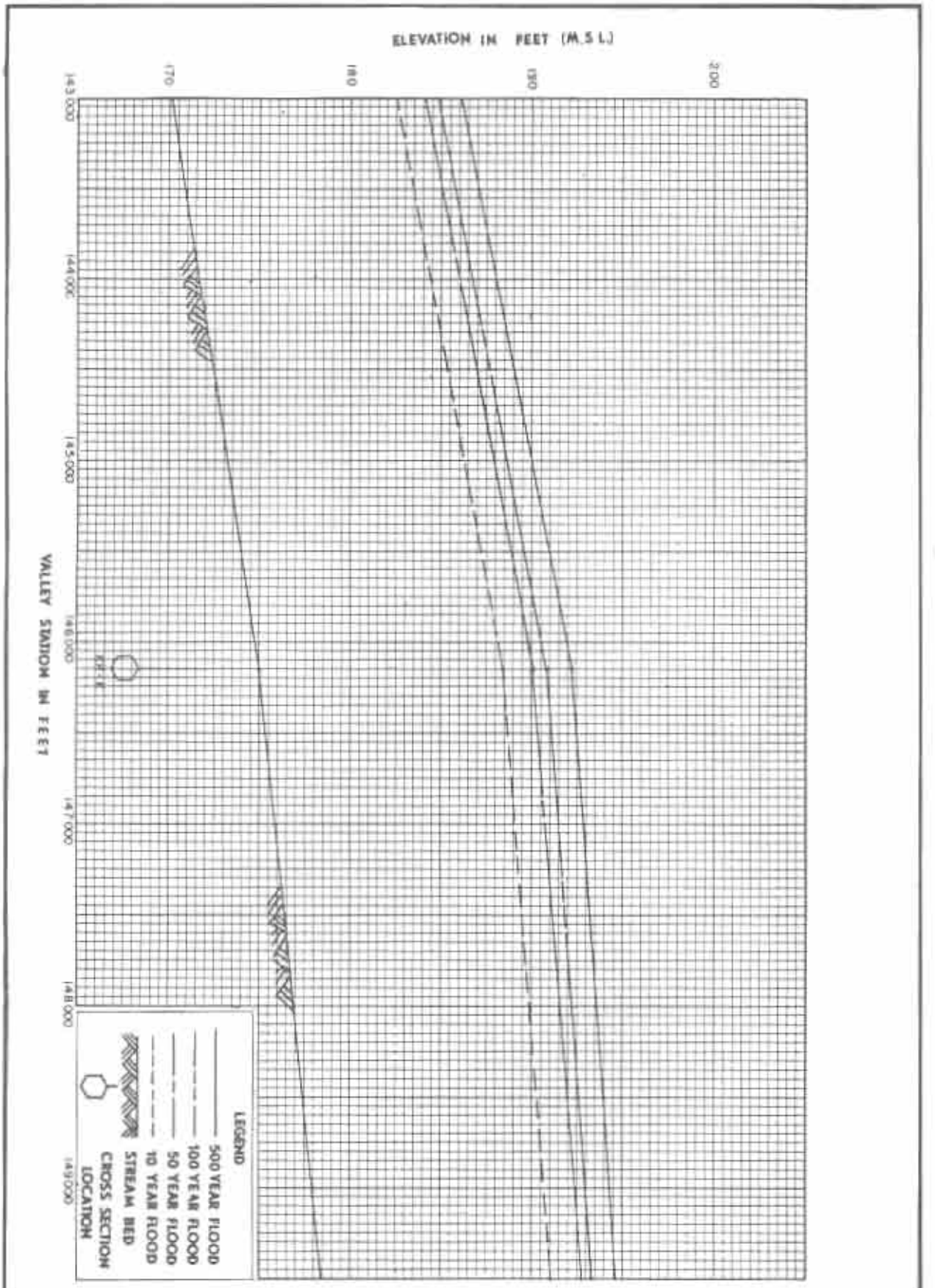
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 12

FLOOD PROFILES

KROTO CREEK

EXHIBIT J

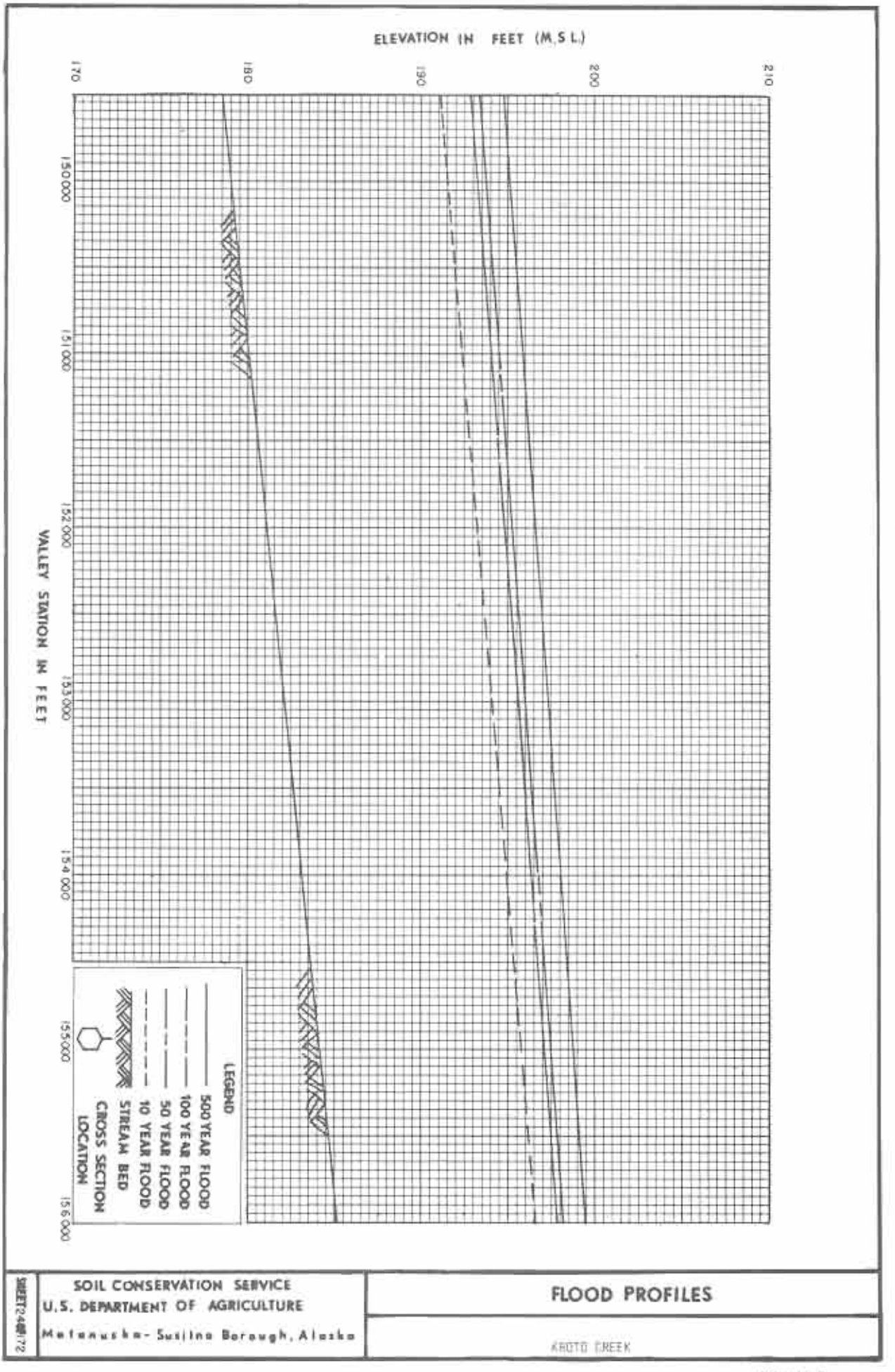


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KRUTO CREEK

EXHIBIT 2



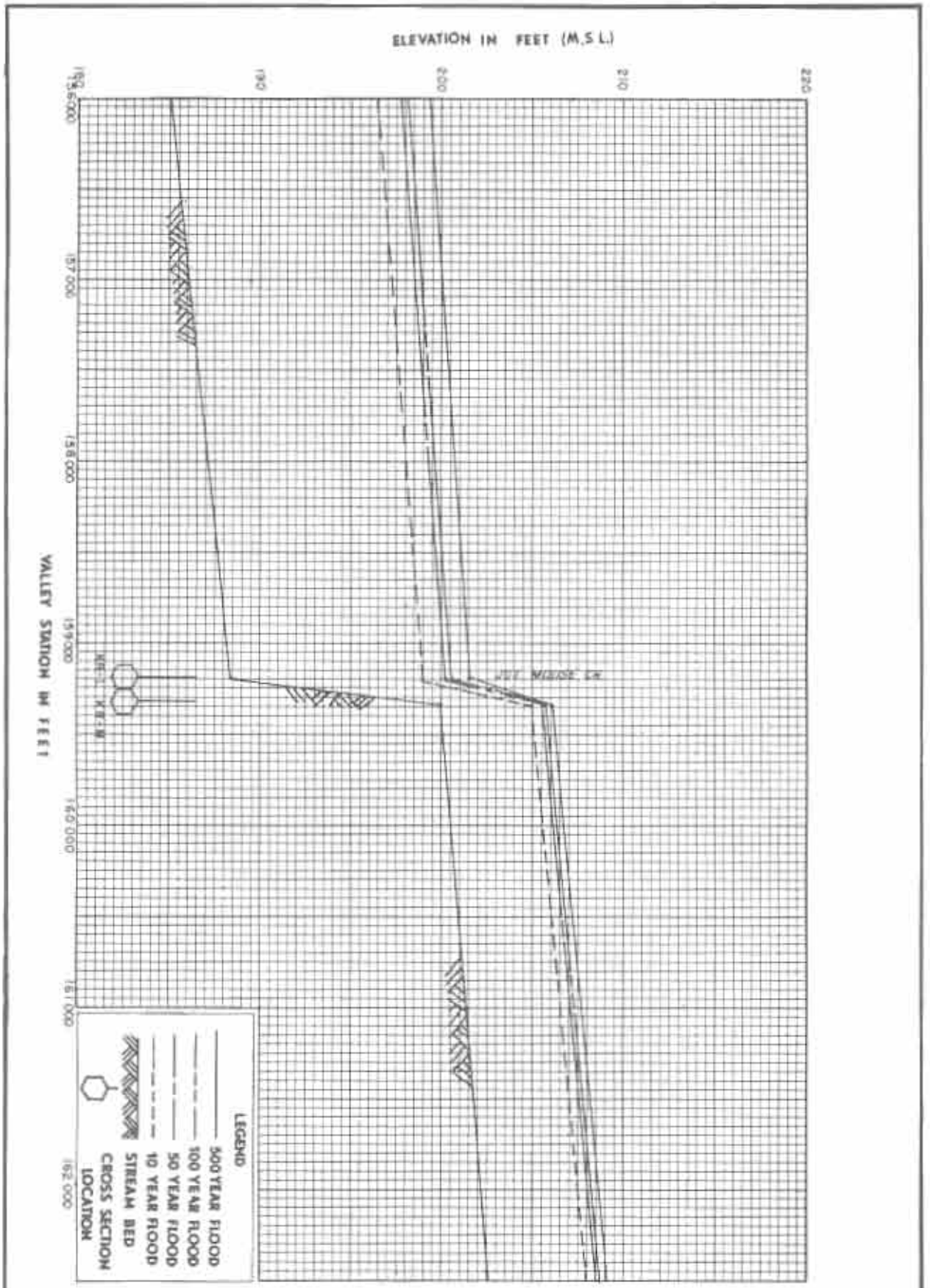
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 2

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



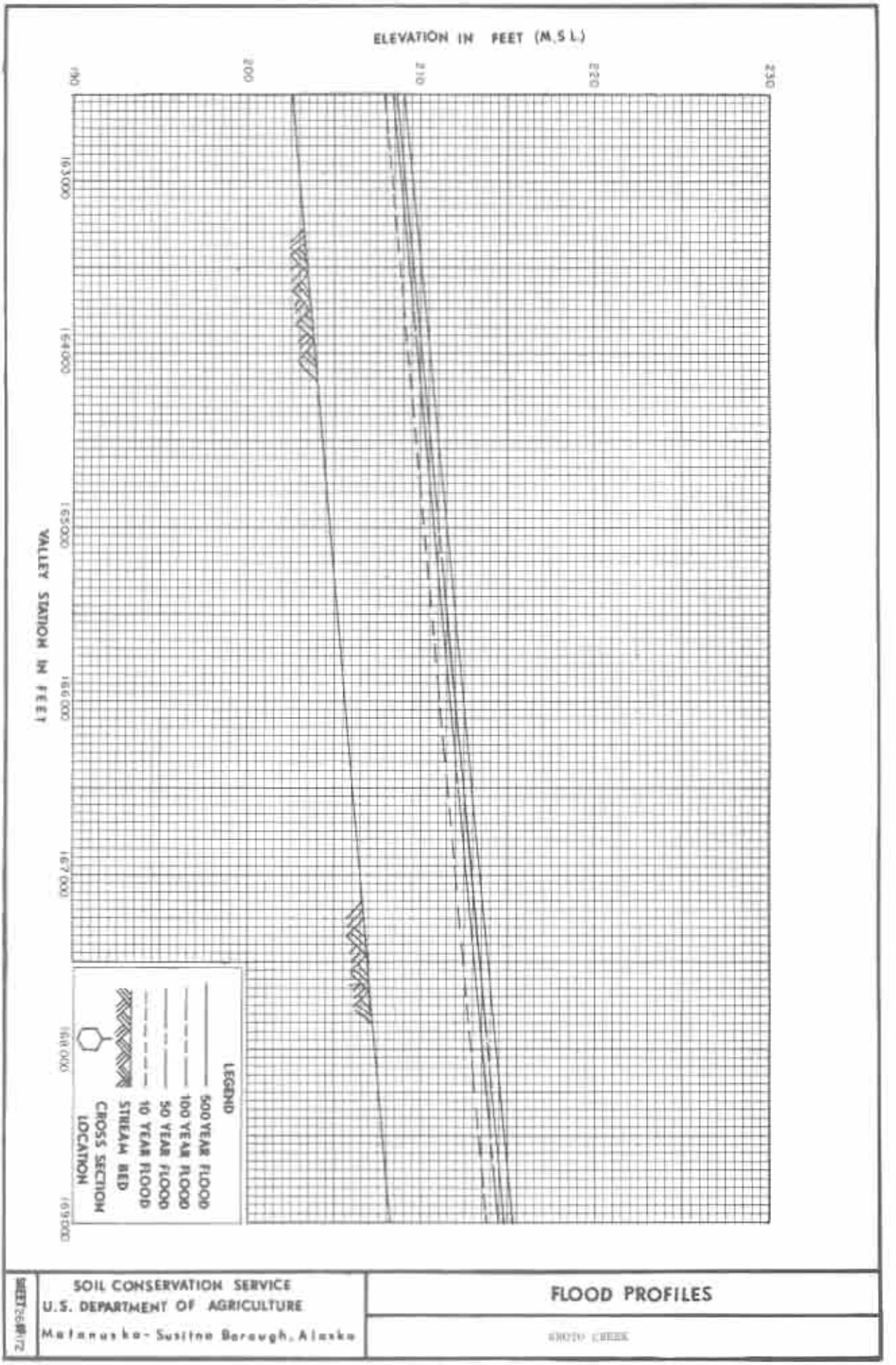
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 12

FLOOD PROFILES

ZOTO CREEK

EXHIBIT J



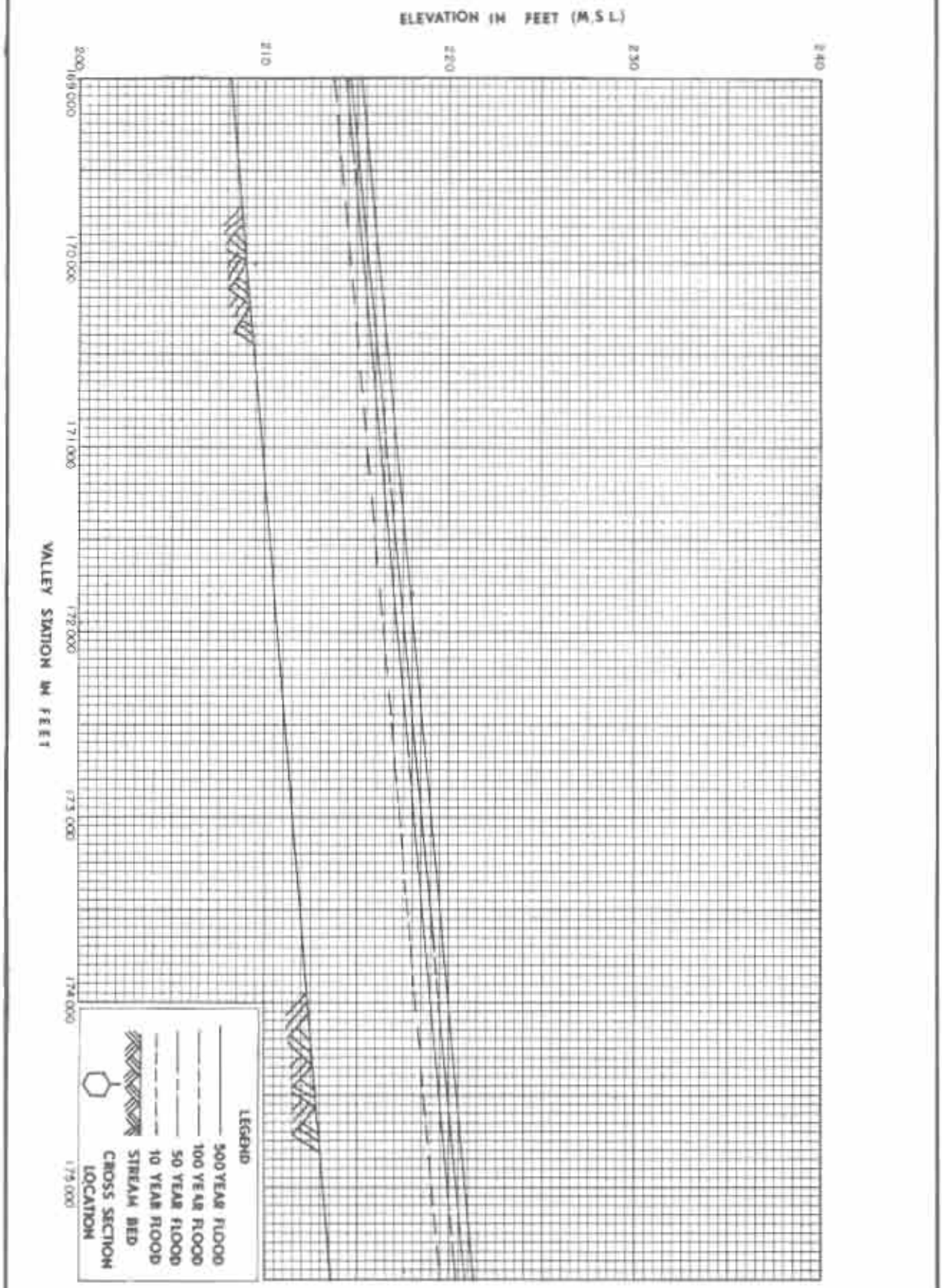
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

SHEET 12 OF 12

EXHIBIT 2

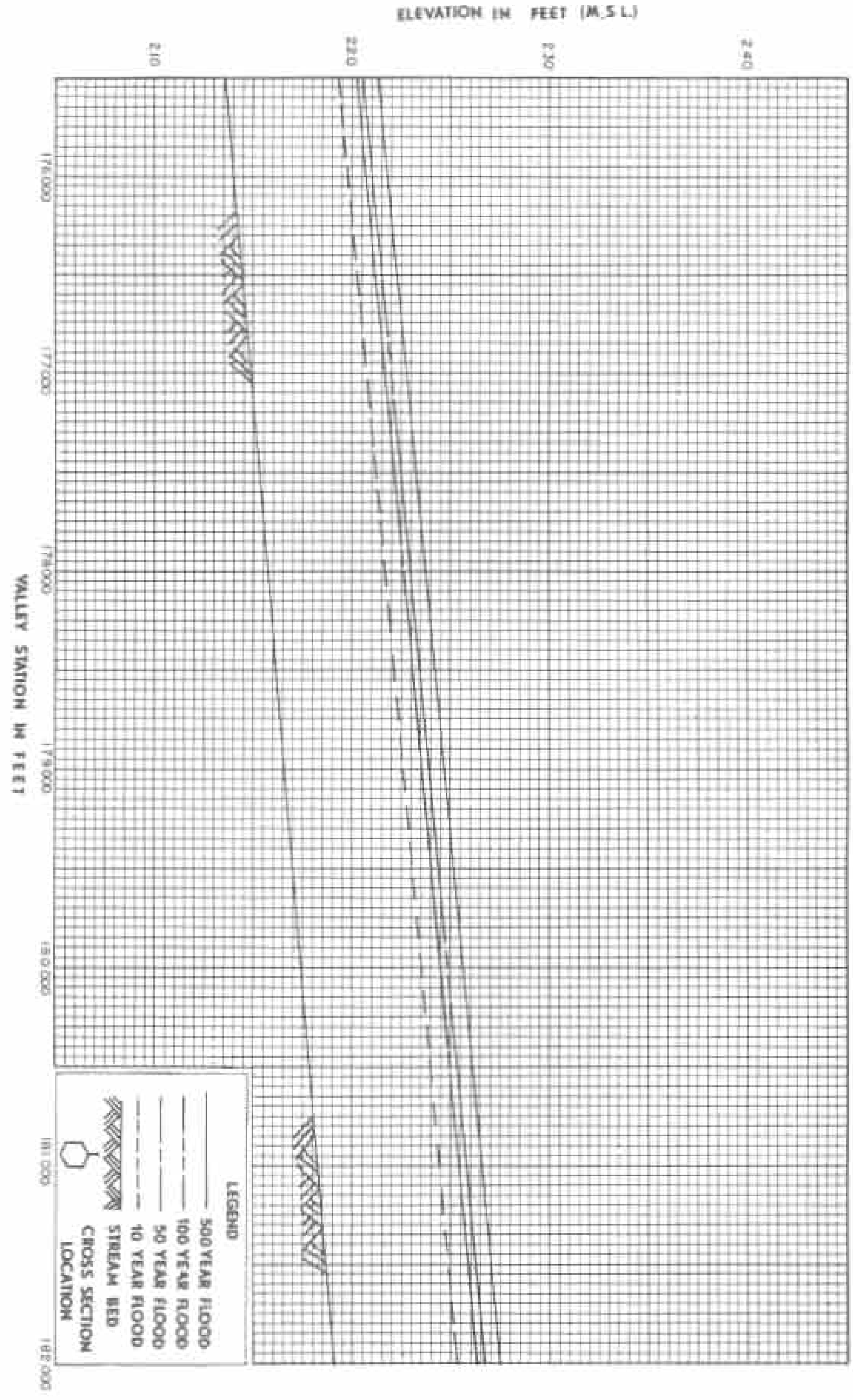


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 3

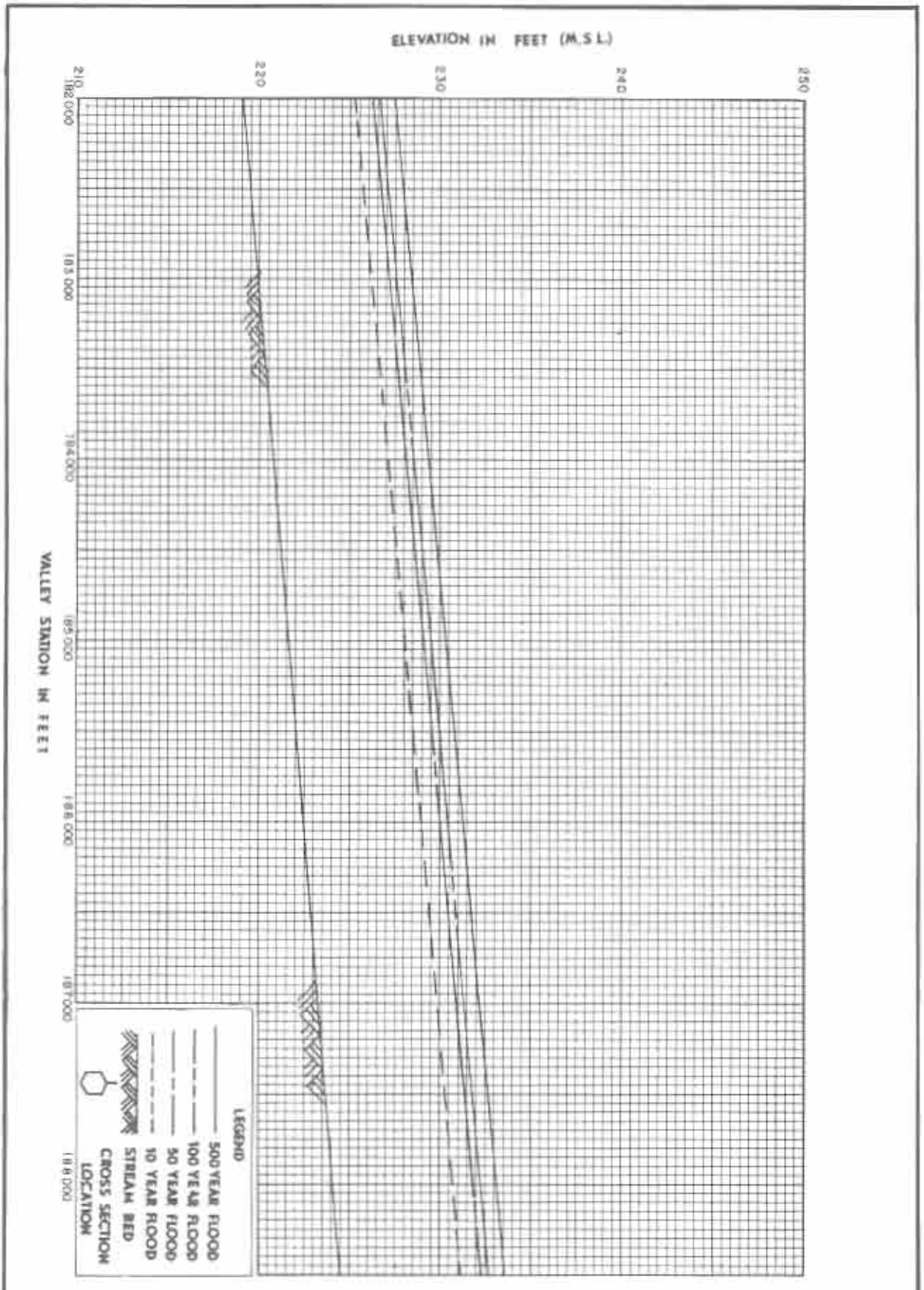


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

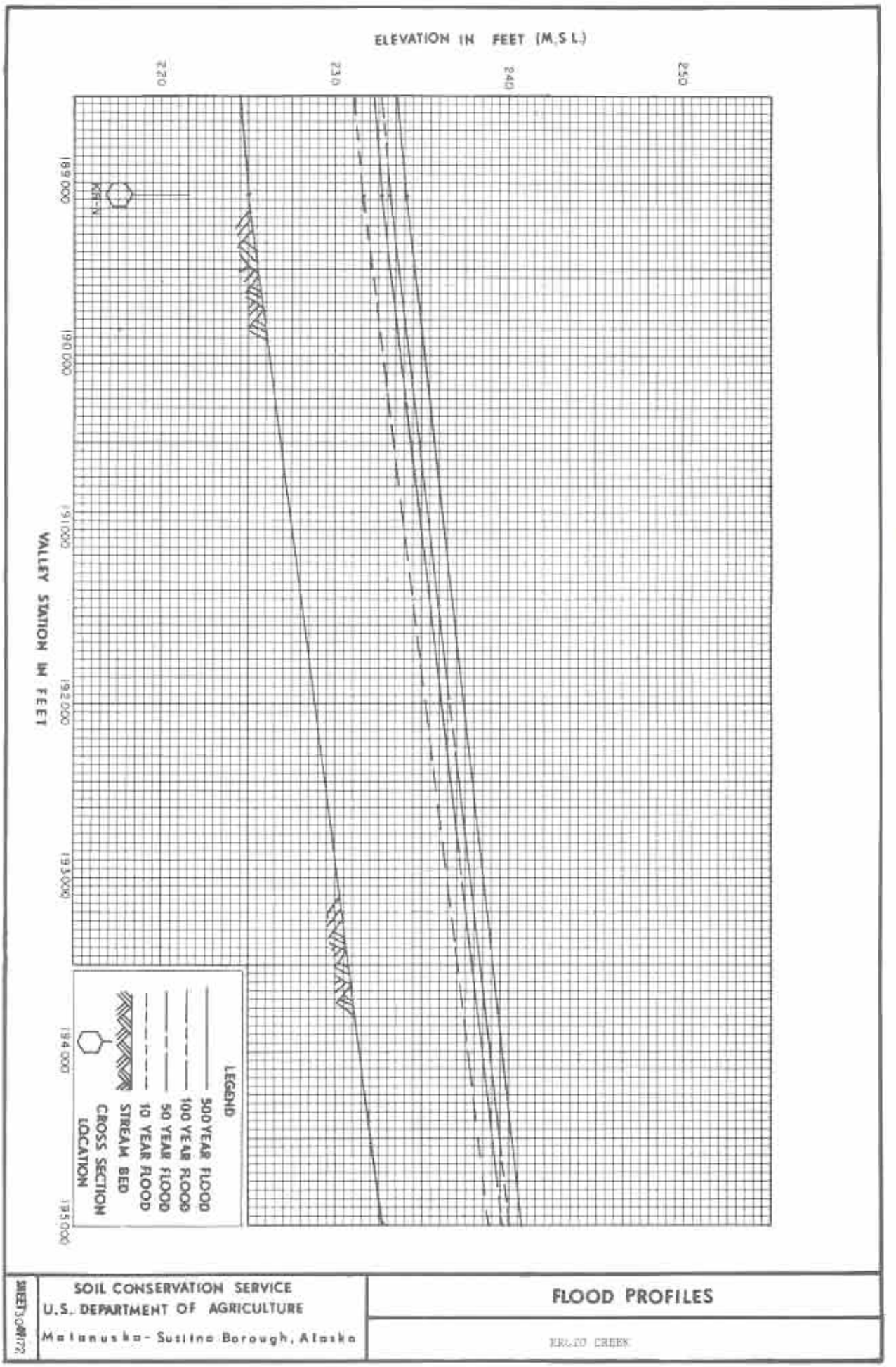
EXHIBIT 2



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

EXHIBIT 2



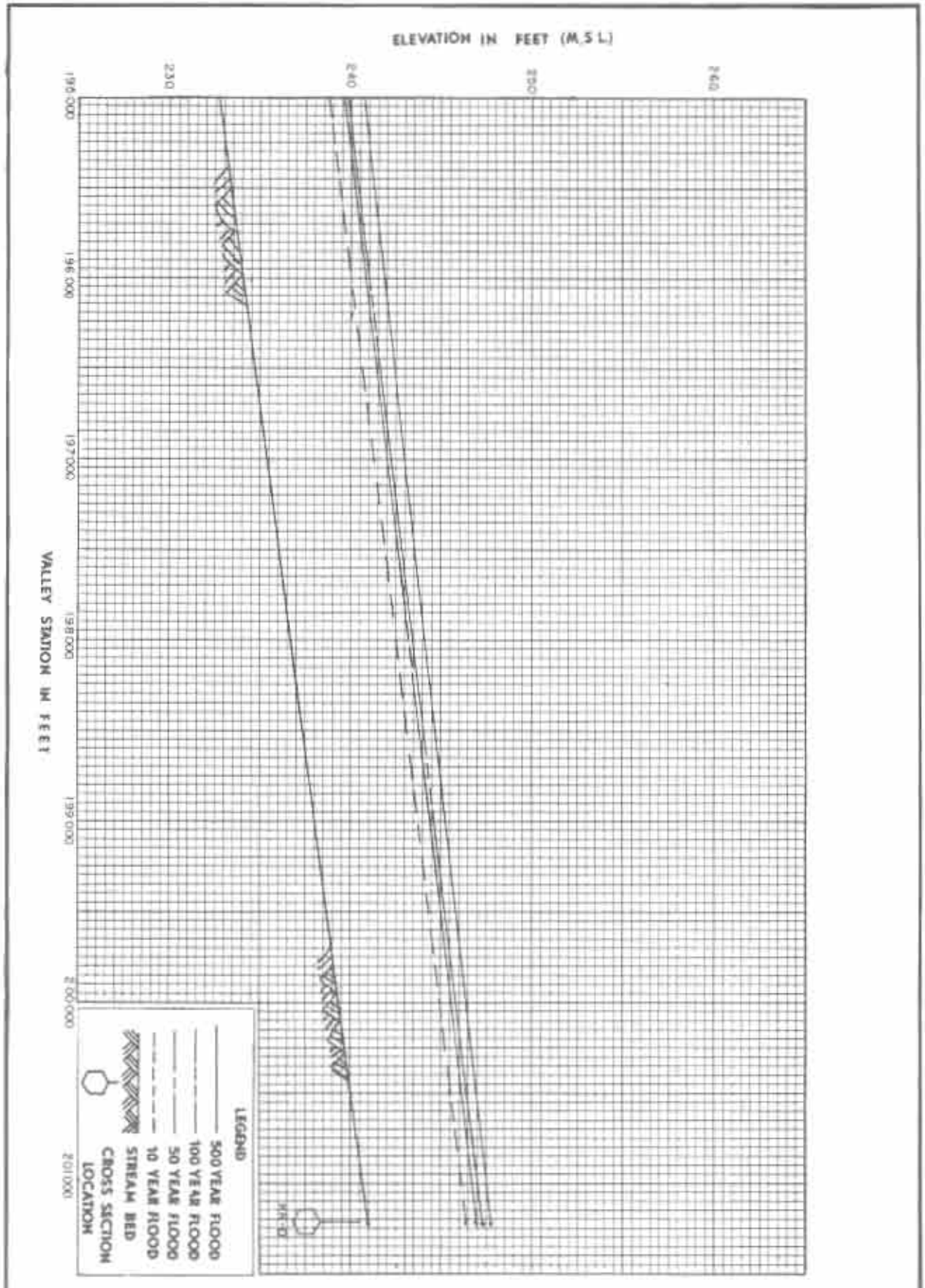
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 3 OF 22

FLOOD PROFILES

ERLCO CREEK

EXHIBIT 2



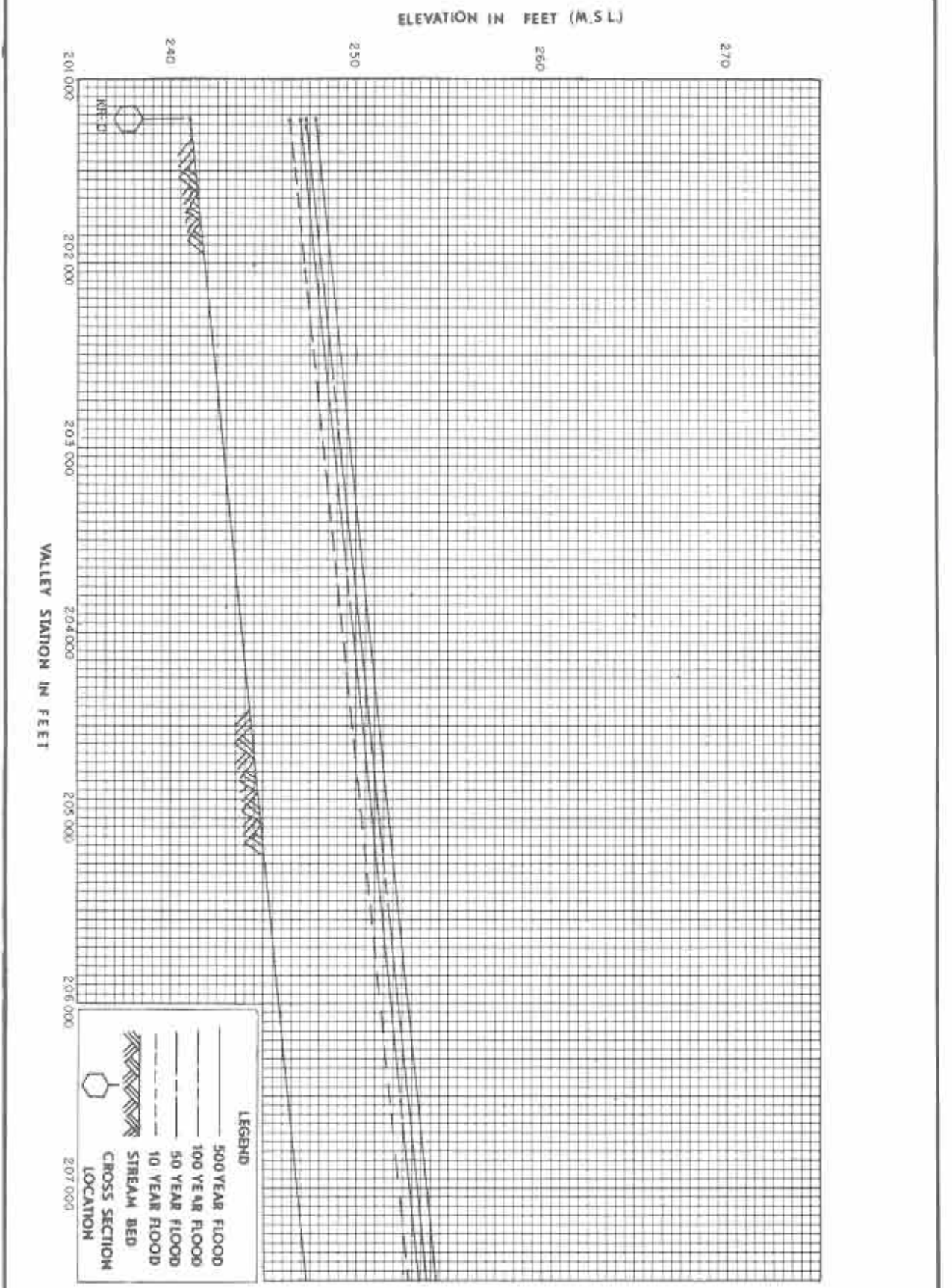
SHEET 1 OF 2

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

CHUTE CREEK

EXHIBIT 2



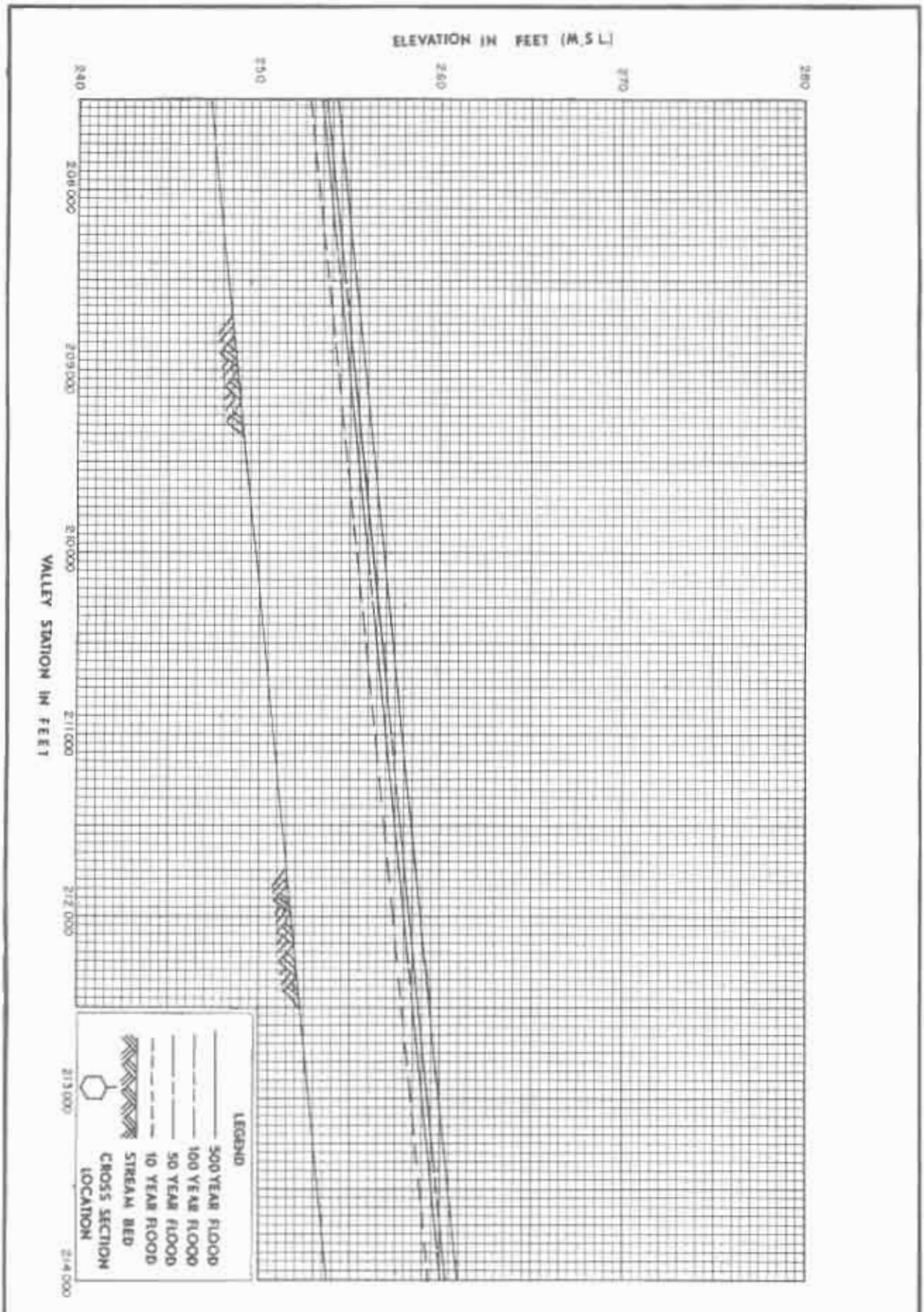
SHEET 2 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



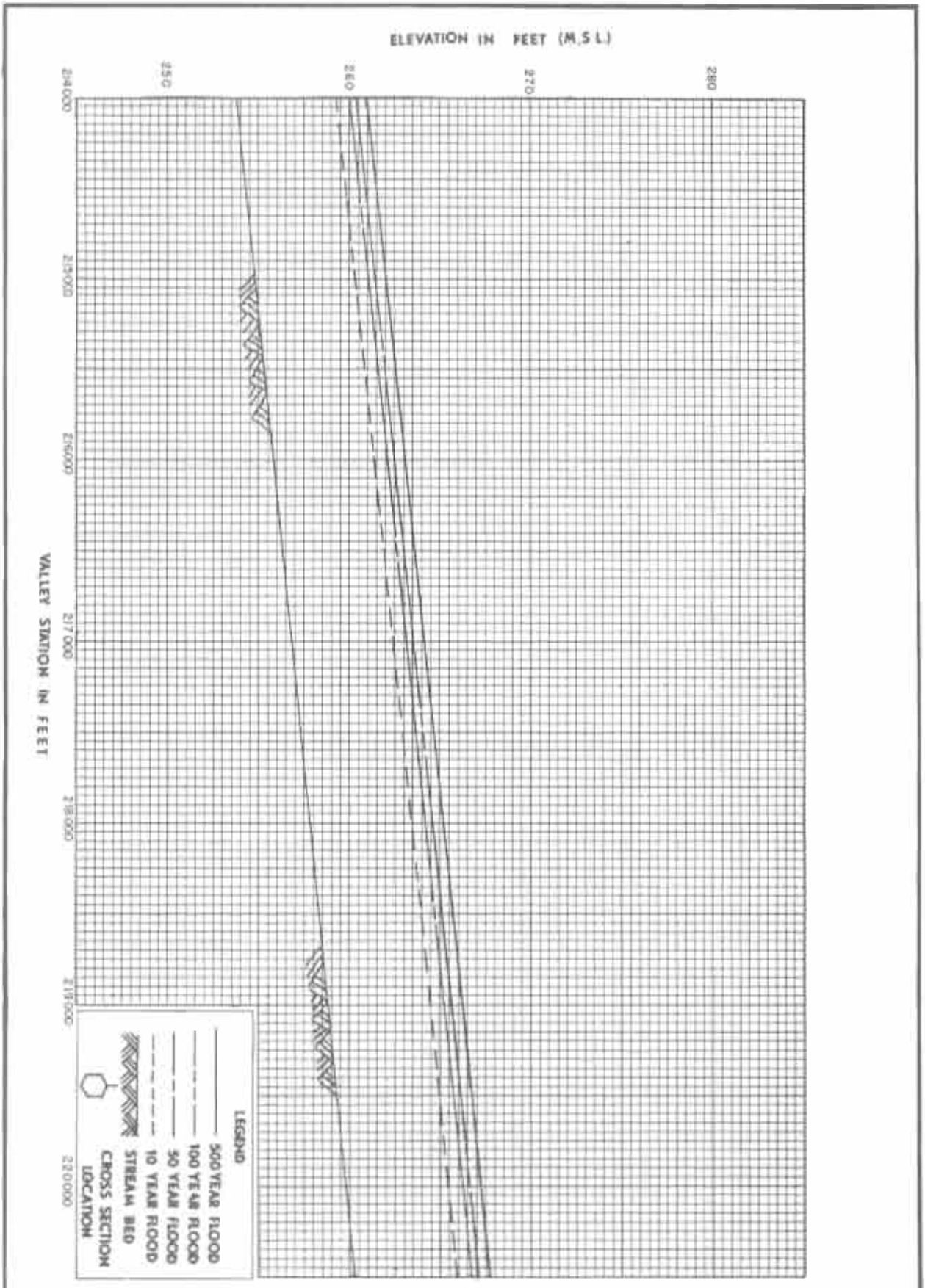
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 3 OF 12

FLOOD PROFILES

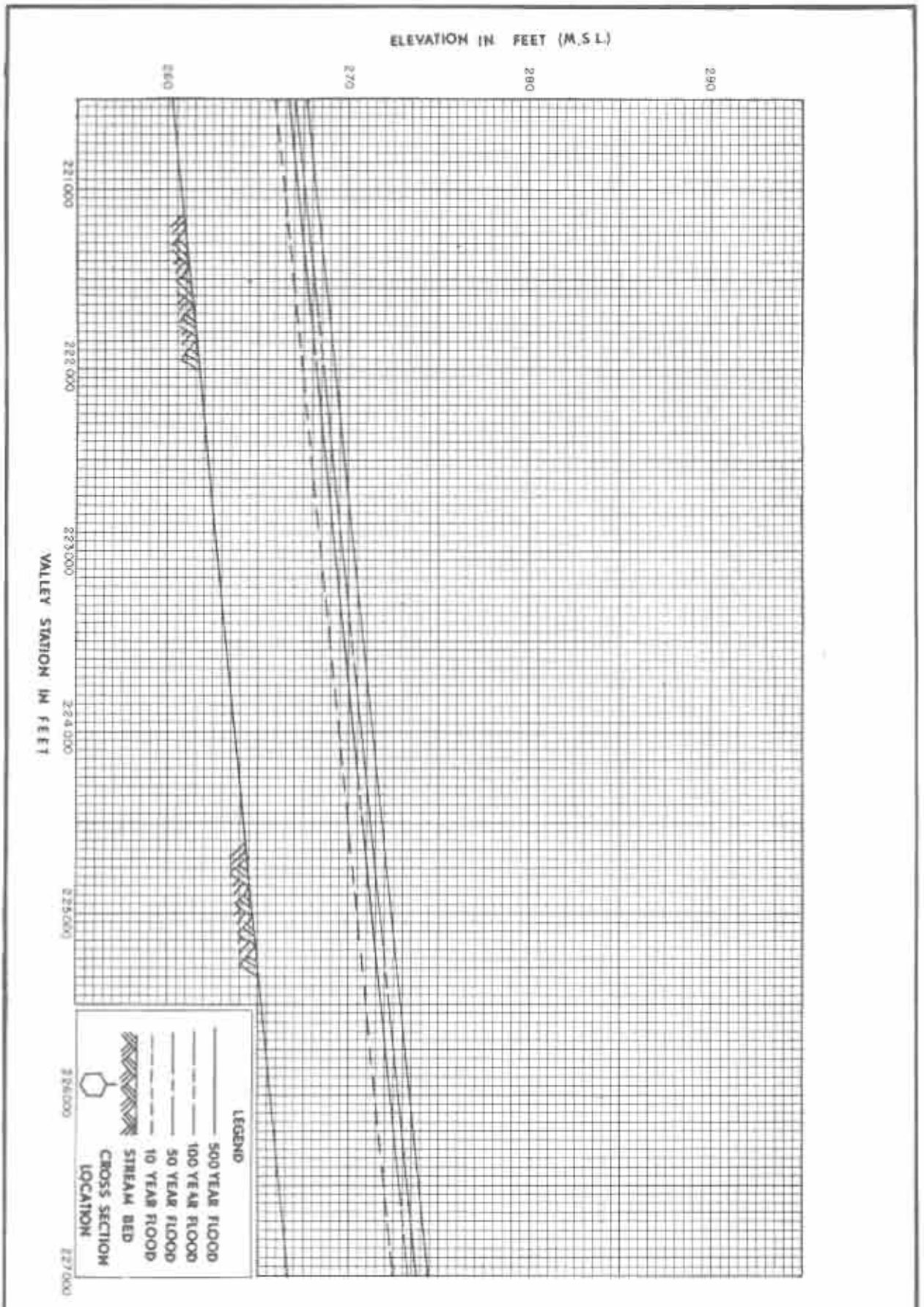
KNIK CREEK

EXHIBIT 2



SHEET 4 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES [illegible] CREEK

EXHIBIT 2

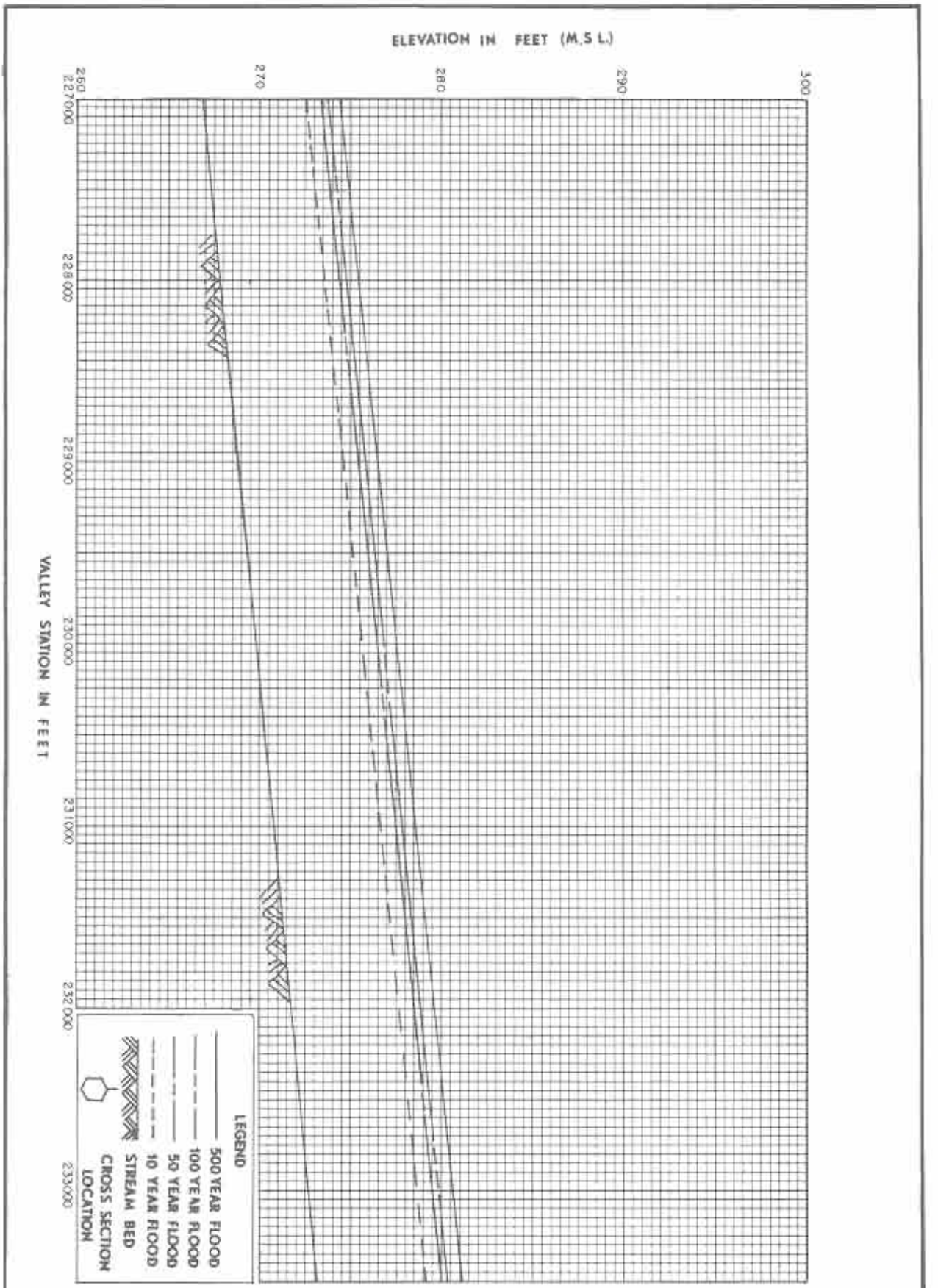


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 15 OF 72

FLOOD PROFILES

KROTO CREEK



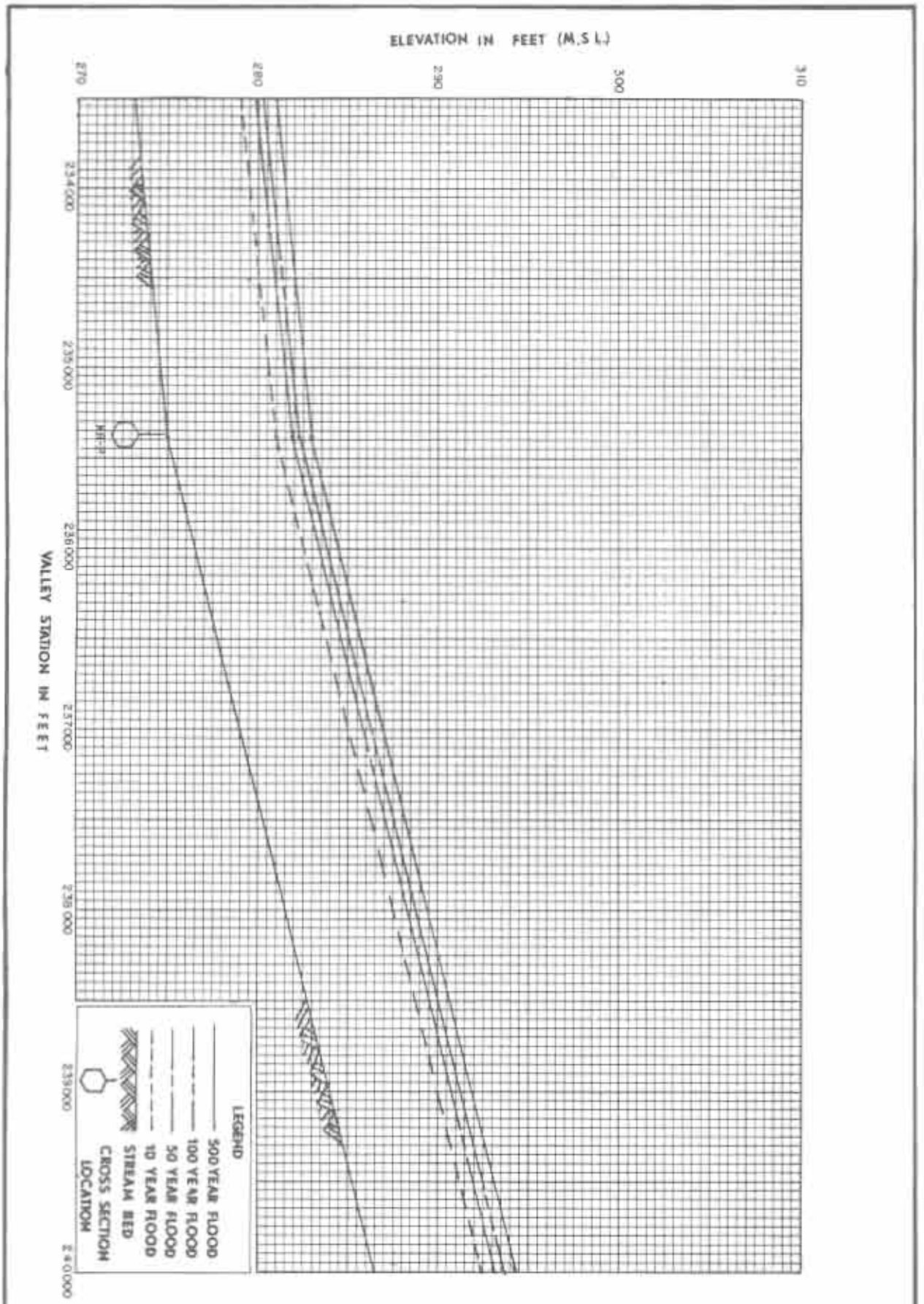
SHEET 6 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

GOTO CREEK

EXHIBIT 2



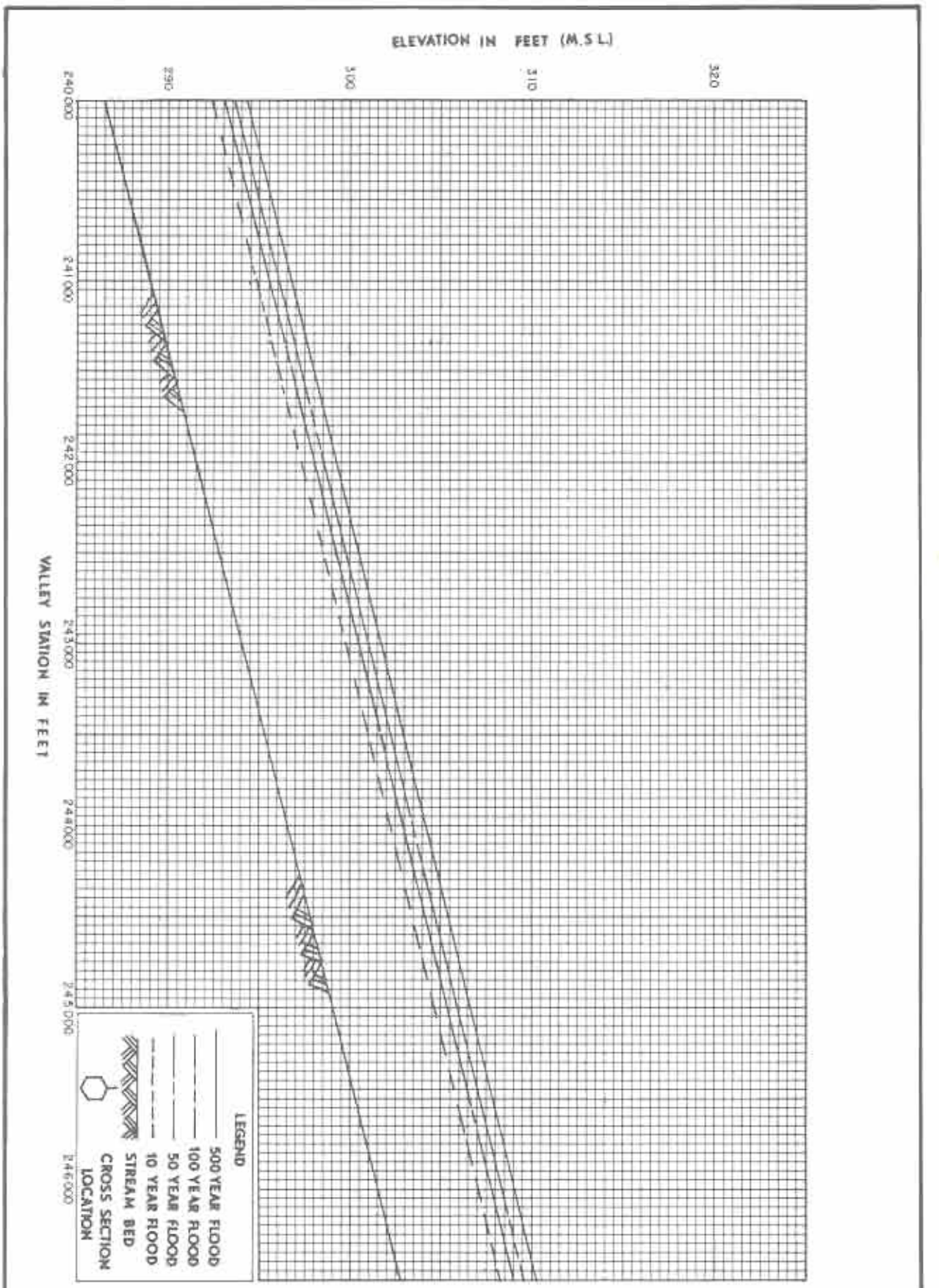
SHEET 1 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 3



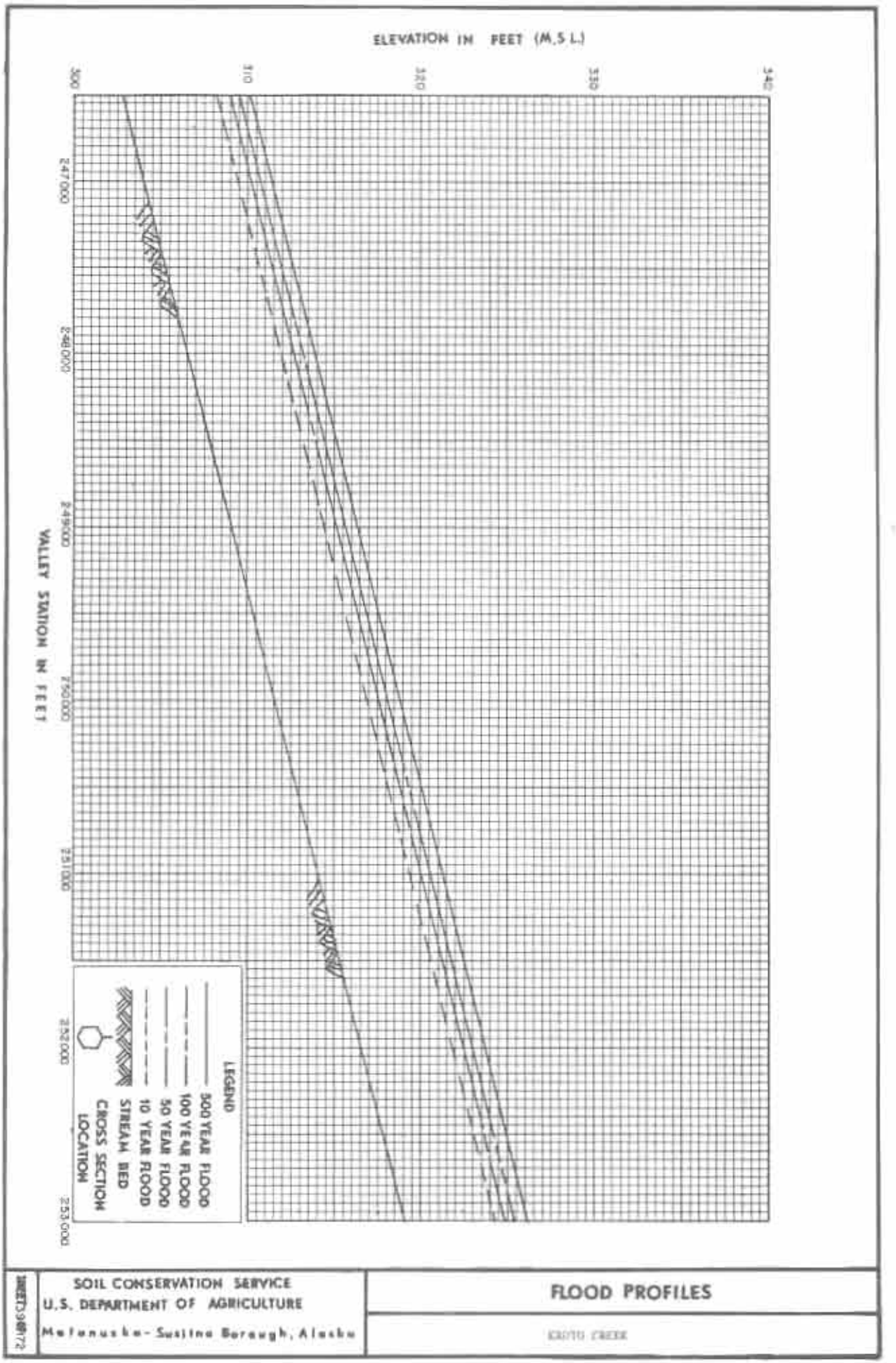
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

SHEET 9 OF 12

EXHIBIT 2



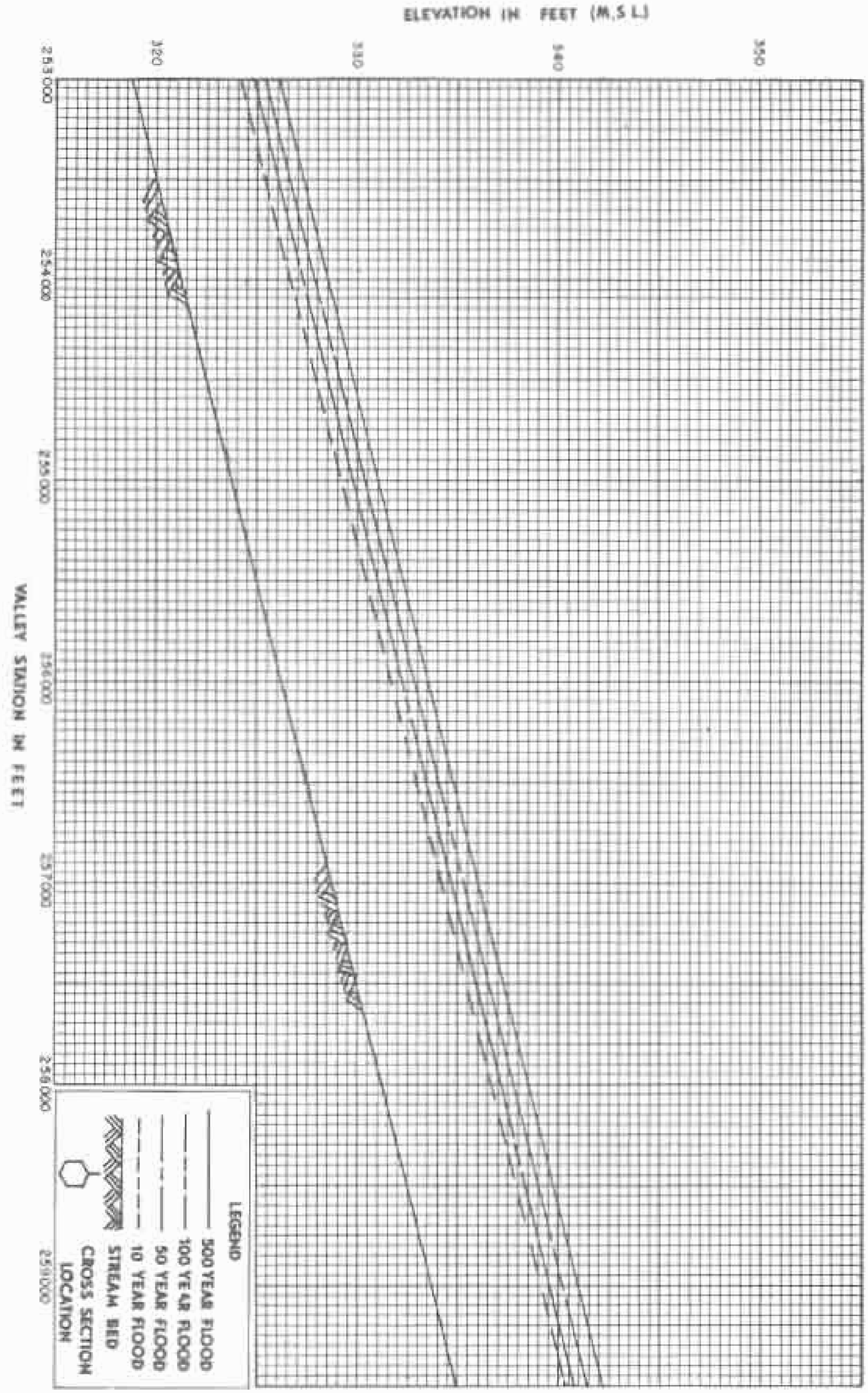
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 3 OF 12

FLOOD PROFILES

KOTO CREEK

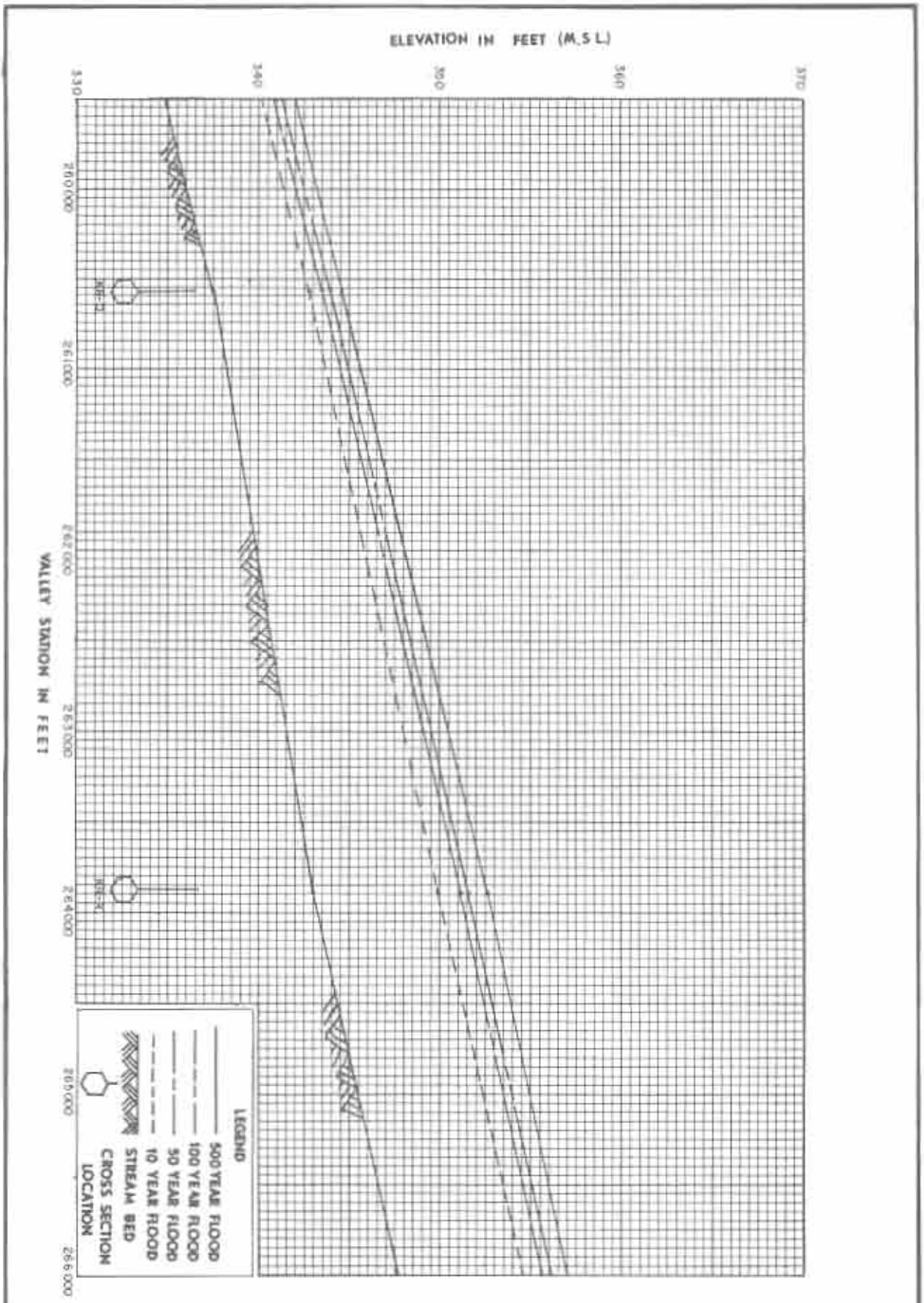
EXHIBIT 2



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

EXHIBIT 7



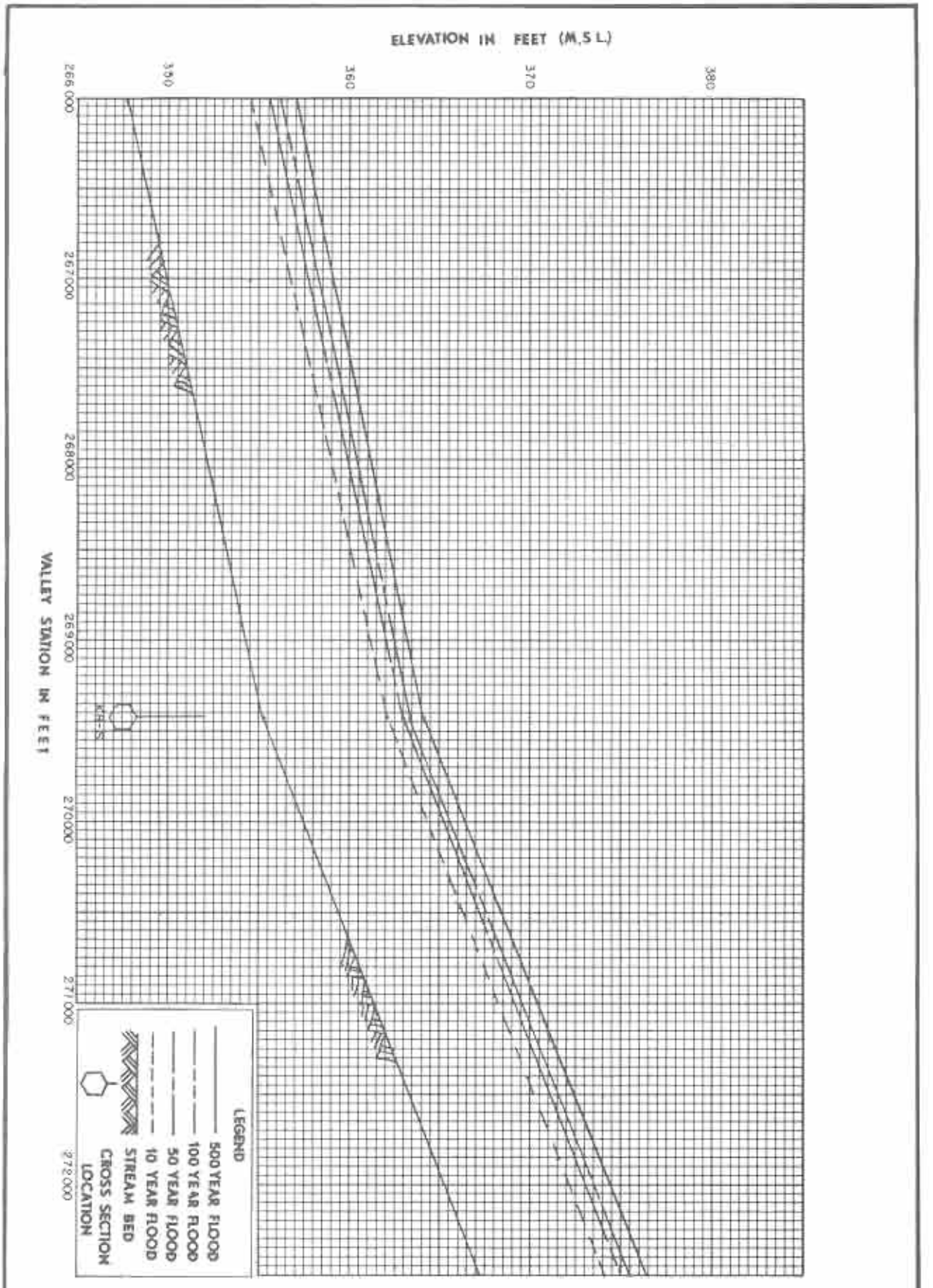
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 41 OF 72

FLOOD PROFILES

[illegible] CREEK

EXHIBIT 2



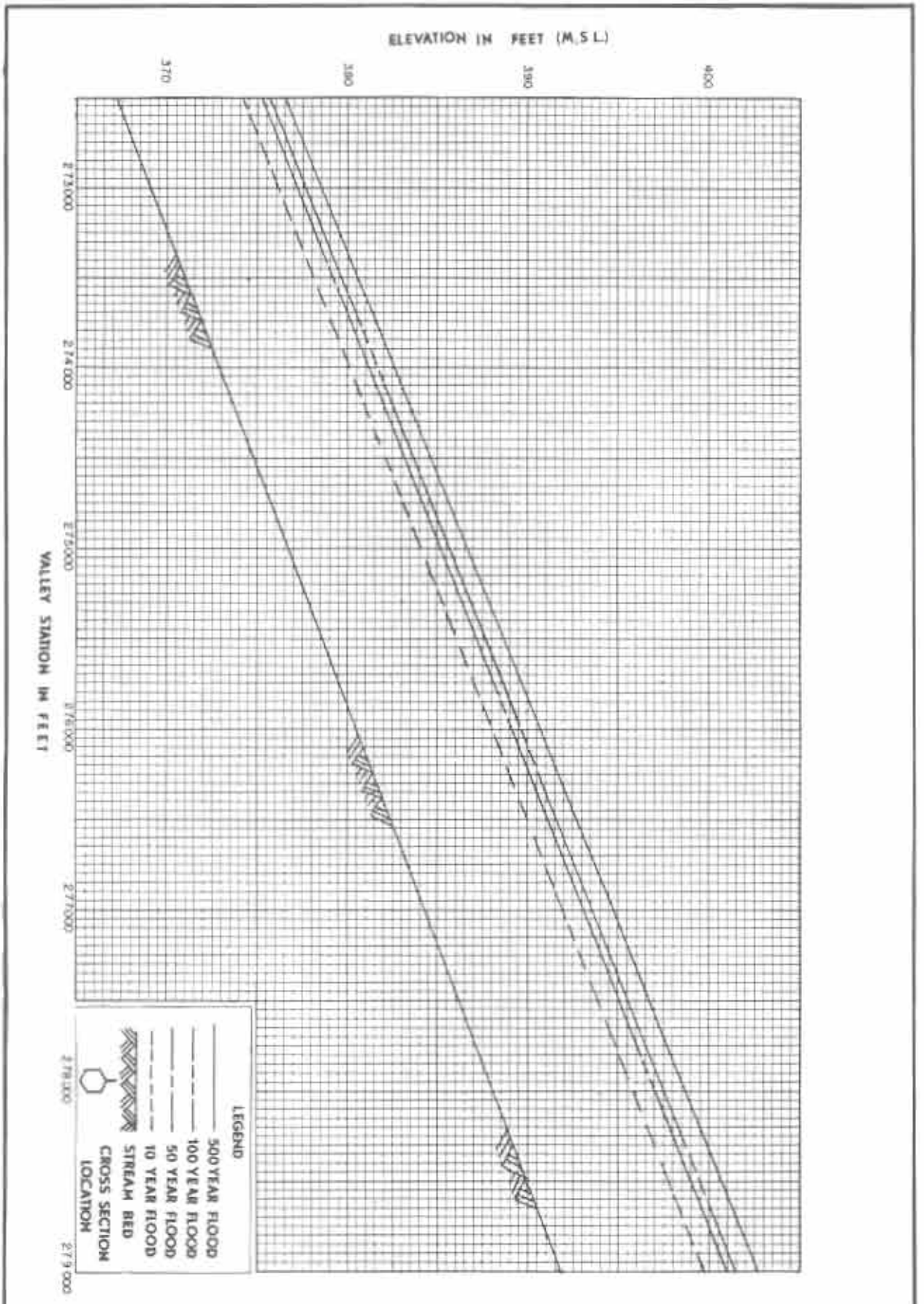
SHEET 2 OF 2

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



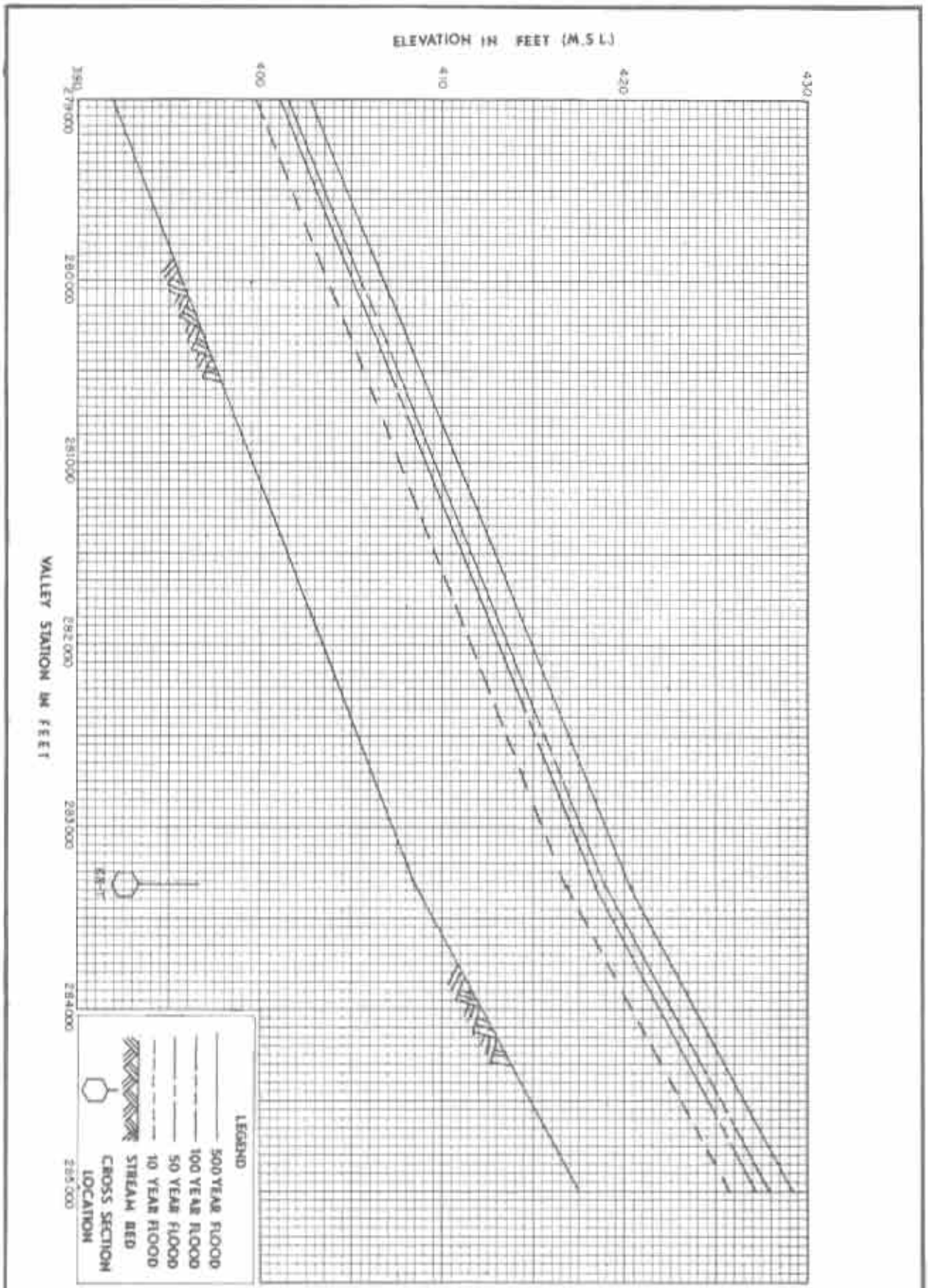
SHEET 4 OF 72

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTU CREEK

EXHIBIT 2

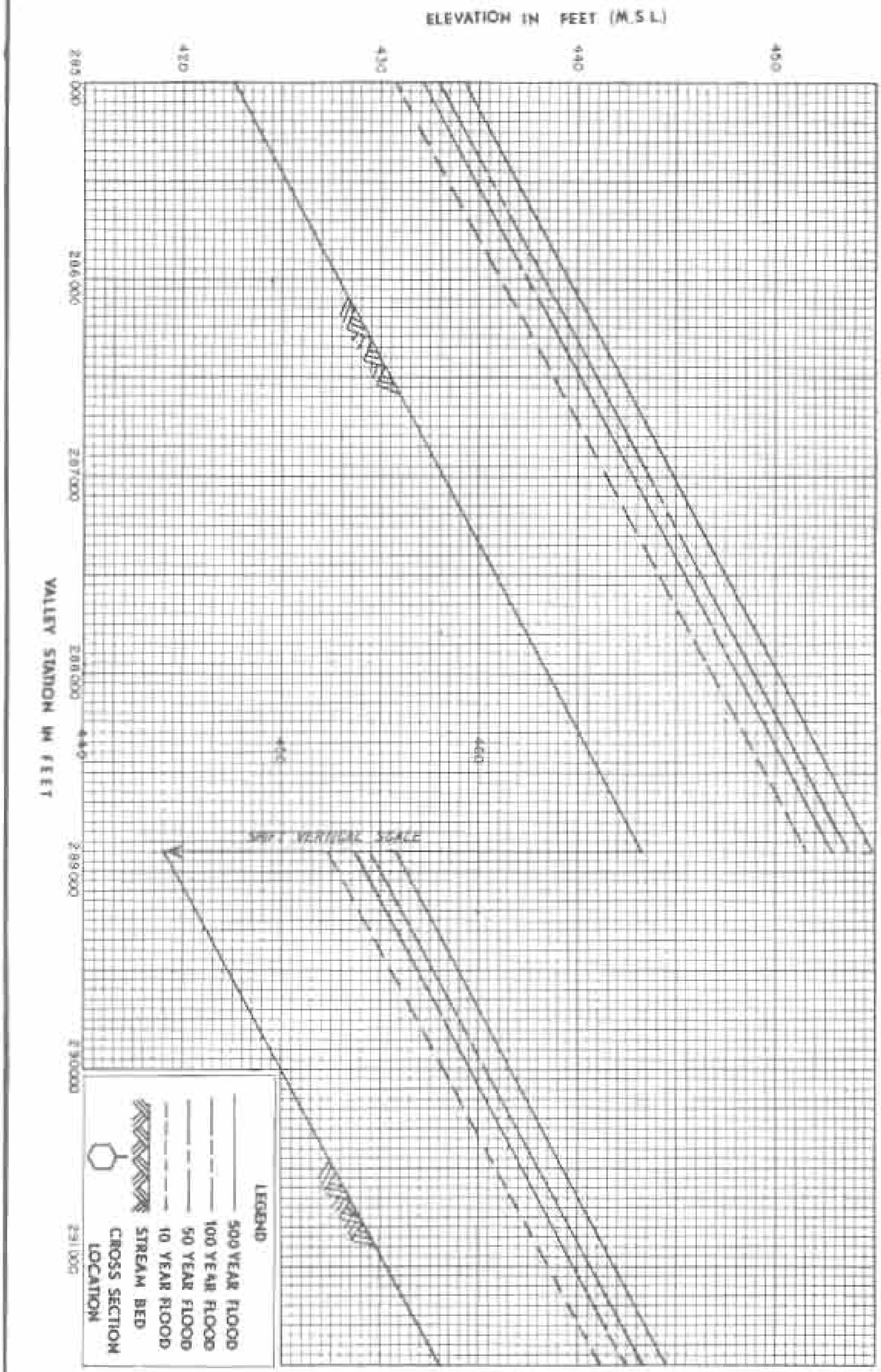


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

SMITH CREEK

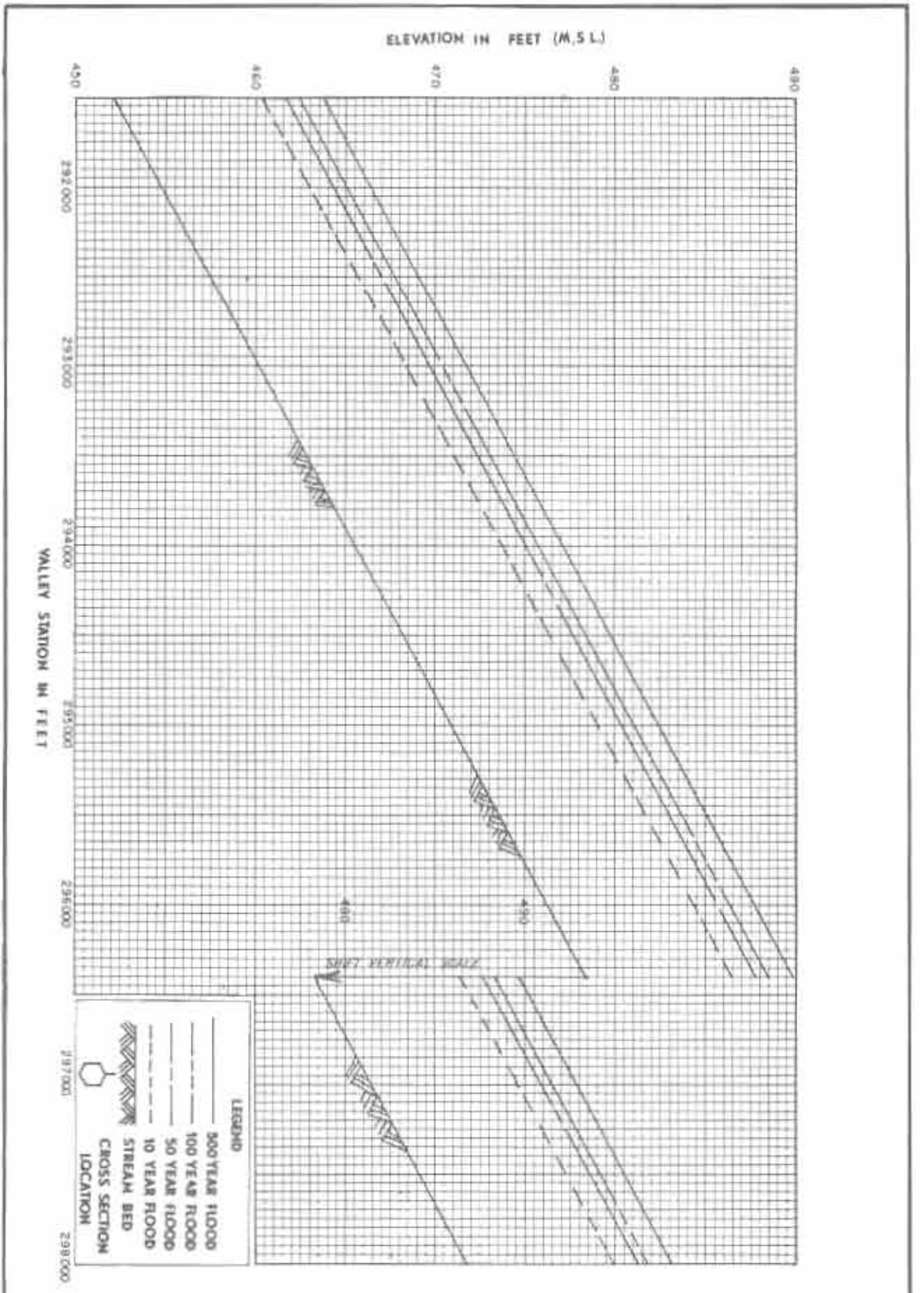
EXHIBIT I



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

EXHIBIT 2

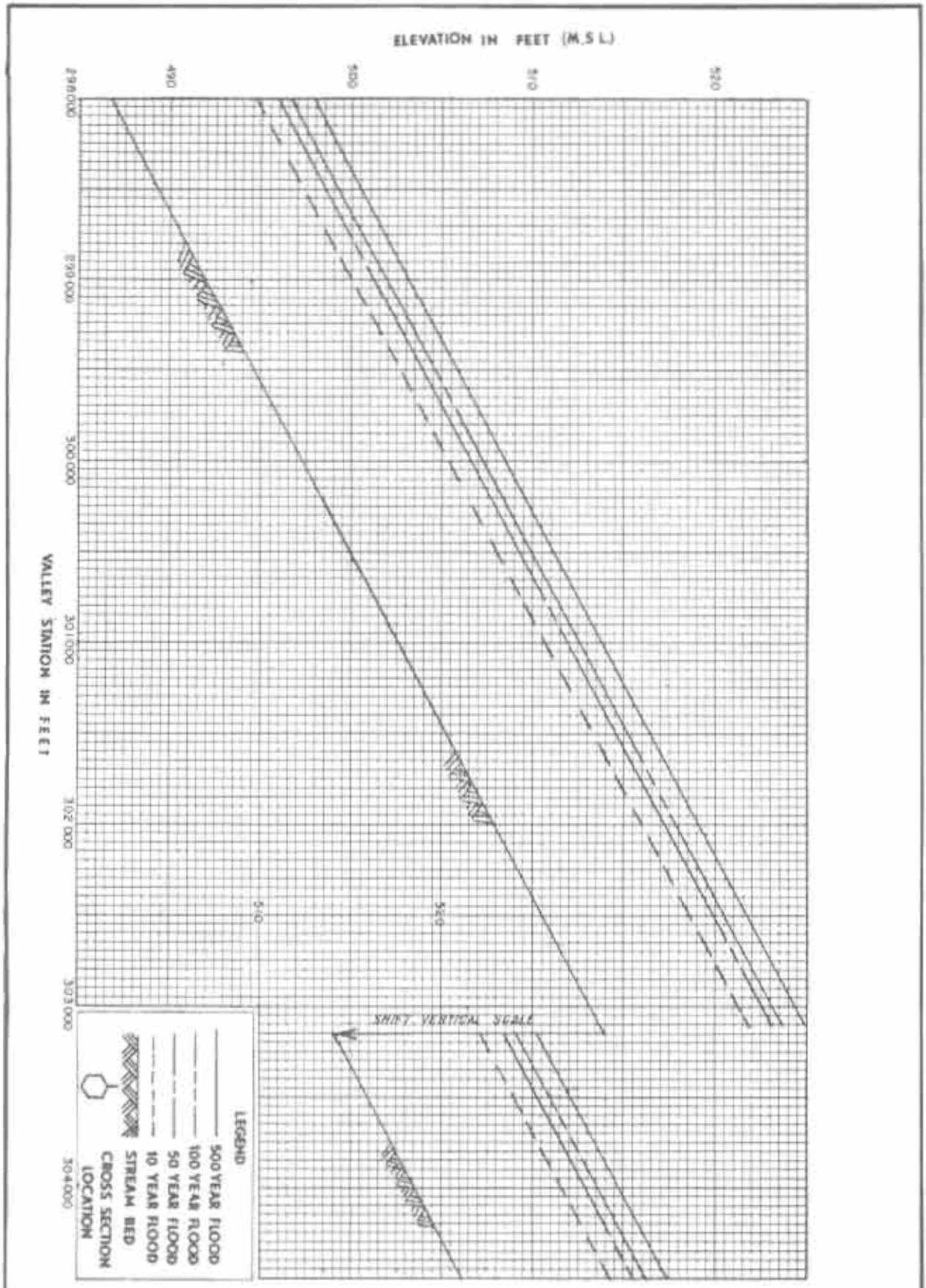


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

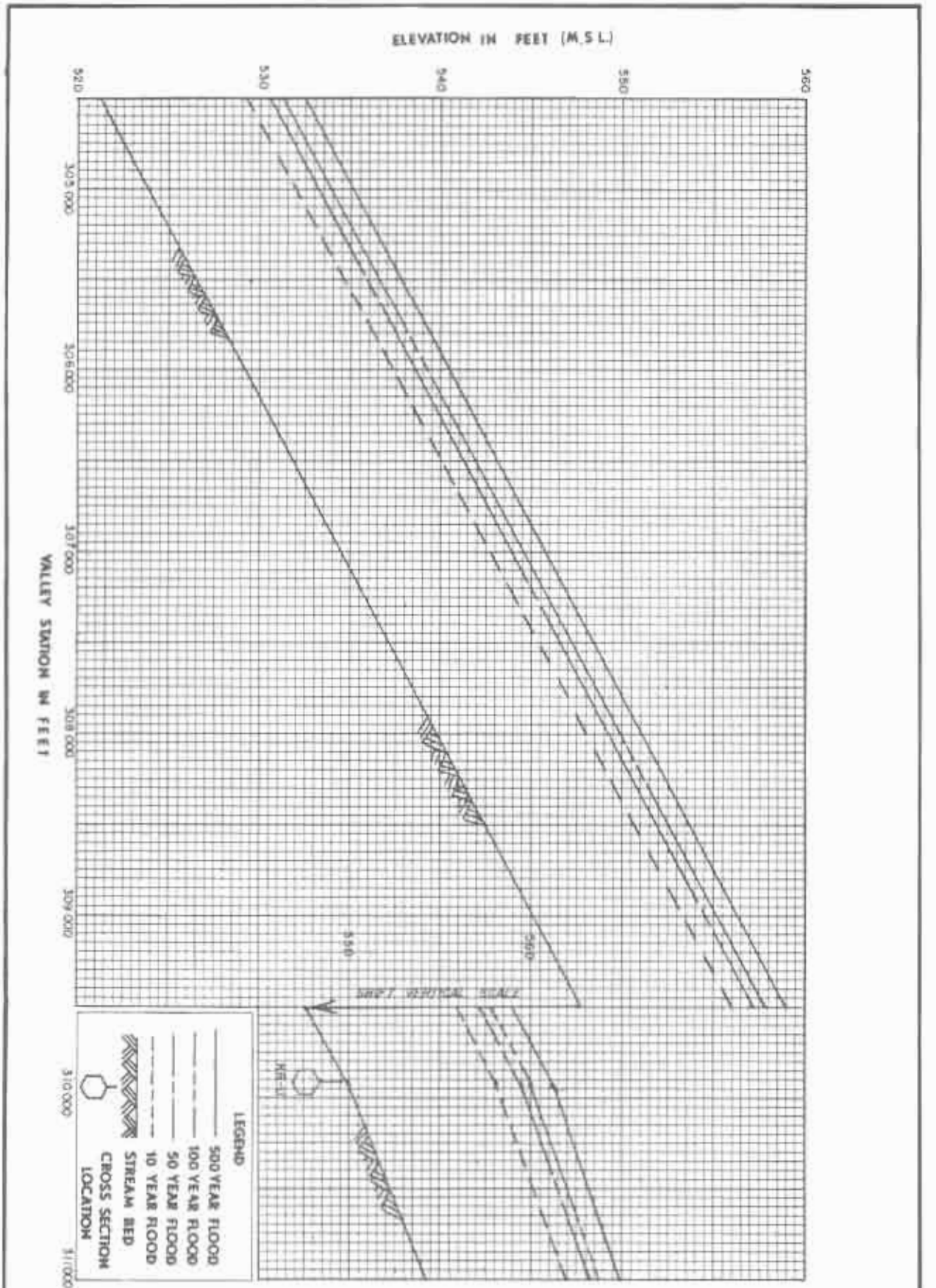
KRUTO CREEK

EXHIBIT F



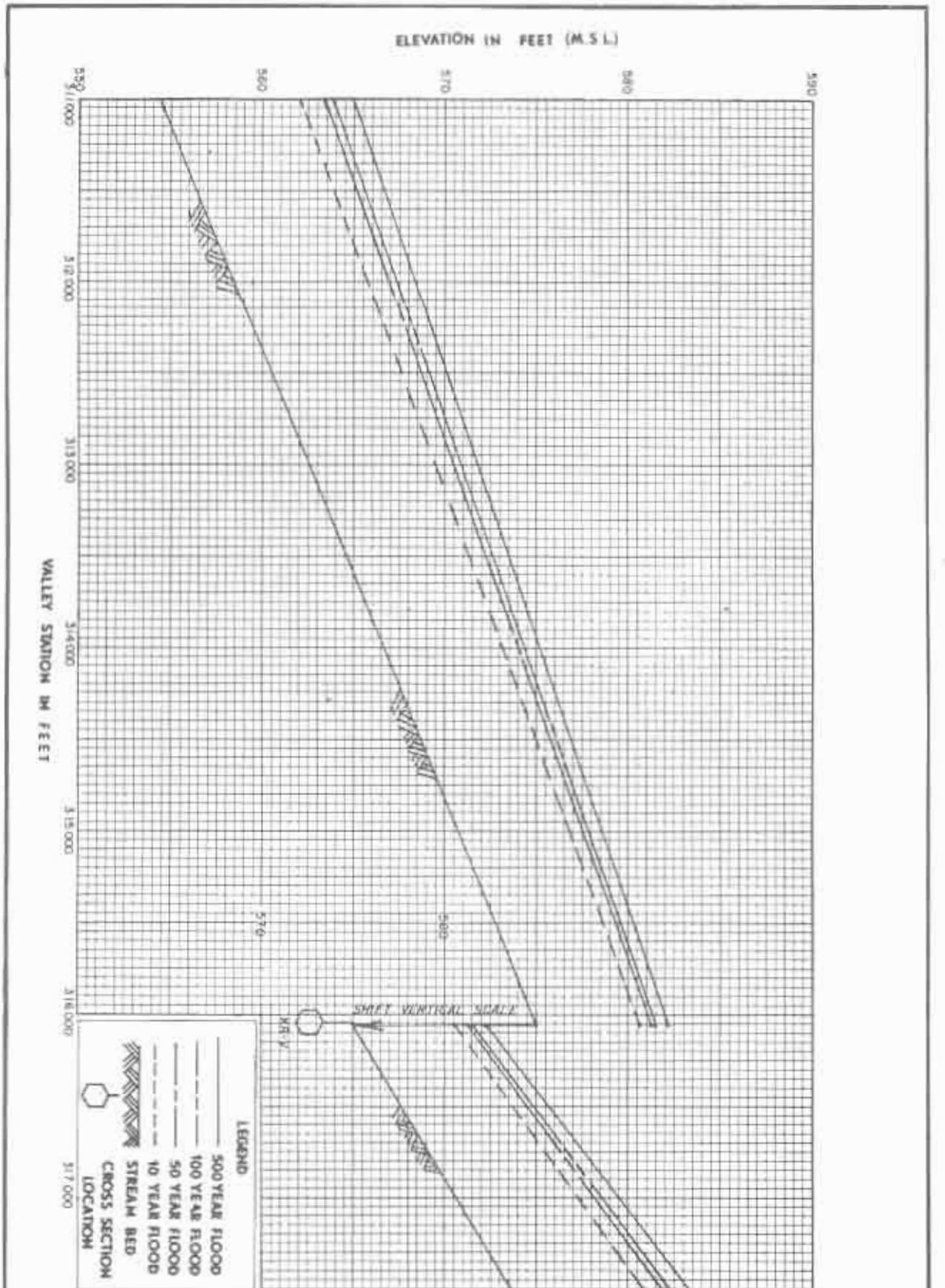
SHEET 1 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES IDITO CREEK

EXHIBIT 2



SHEET 16 OF 17	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES KROTO CREEK

EXHIBIT 2

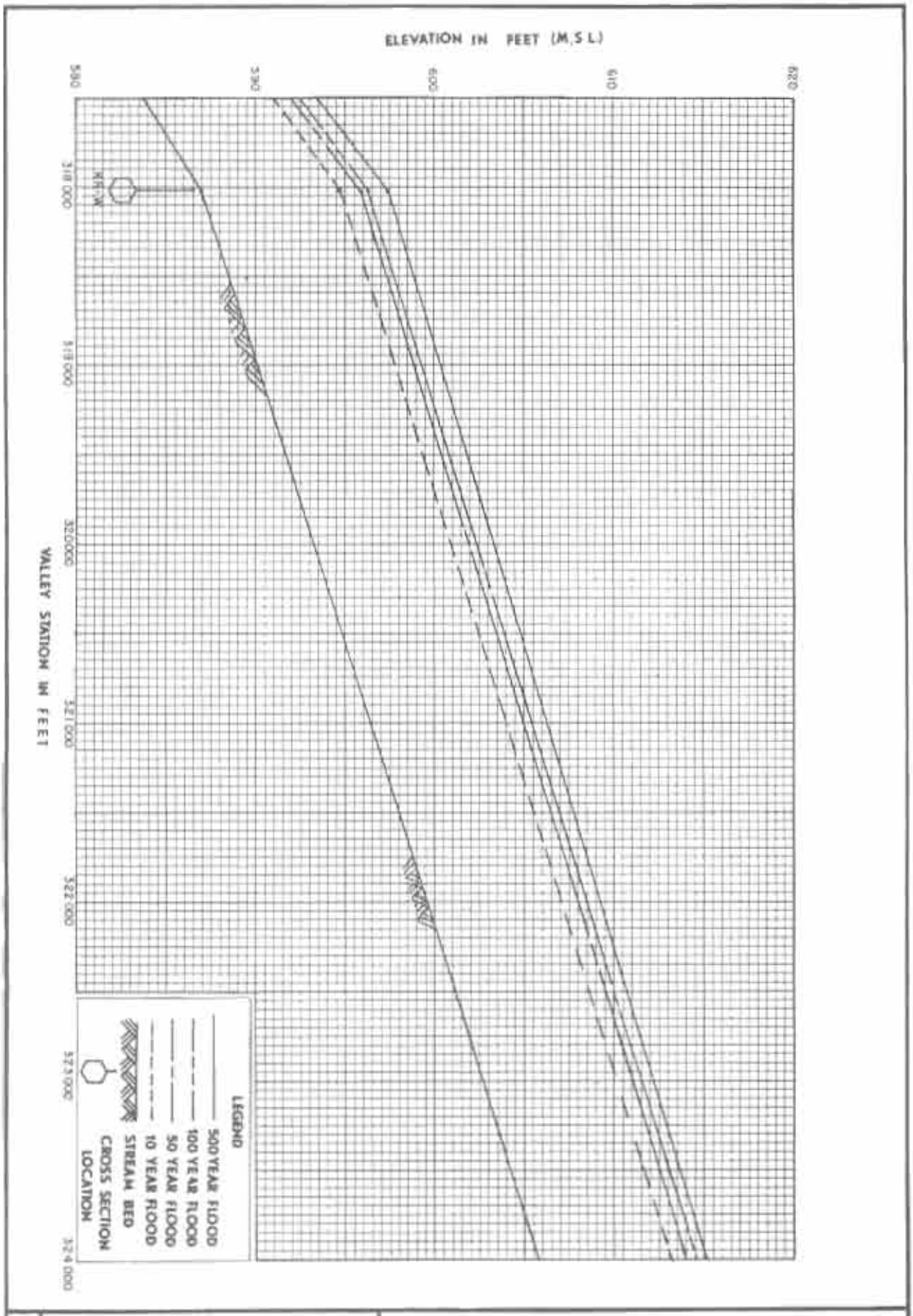


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KEUTH CREEK

EXHIBIT 2

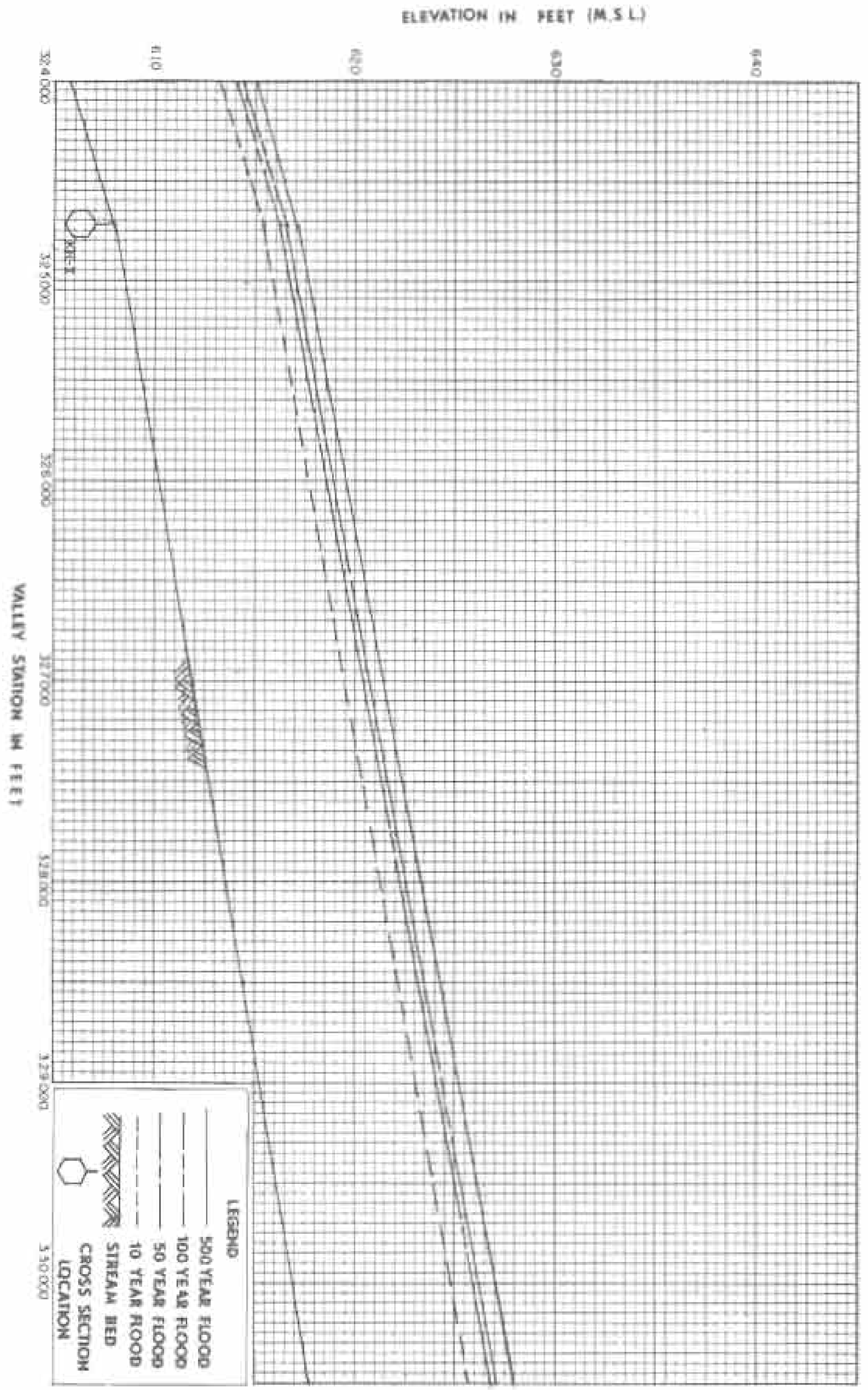


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET NO. 17

FLOOD PROFILES

KROTO CREEK

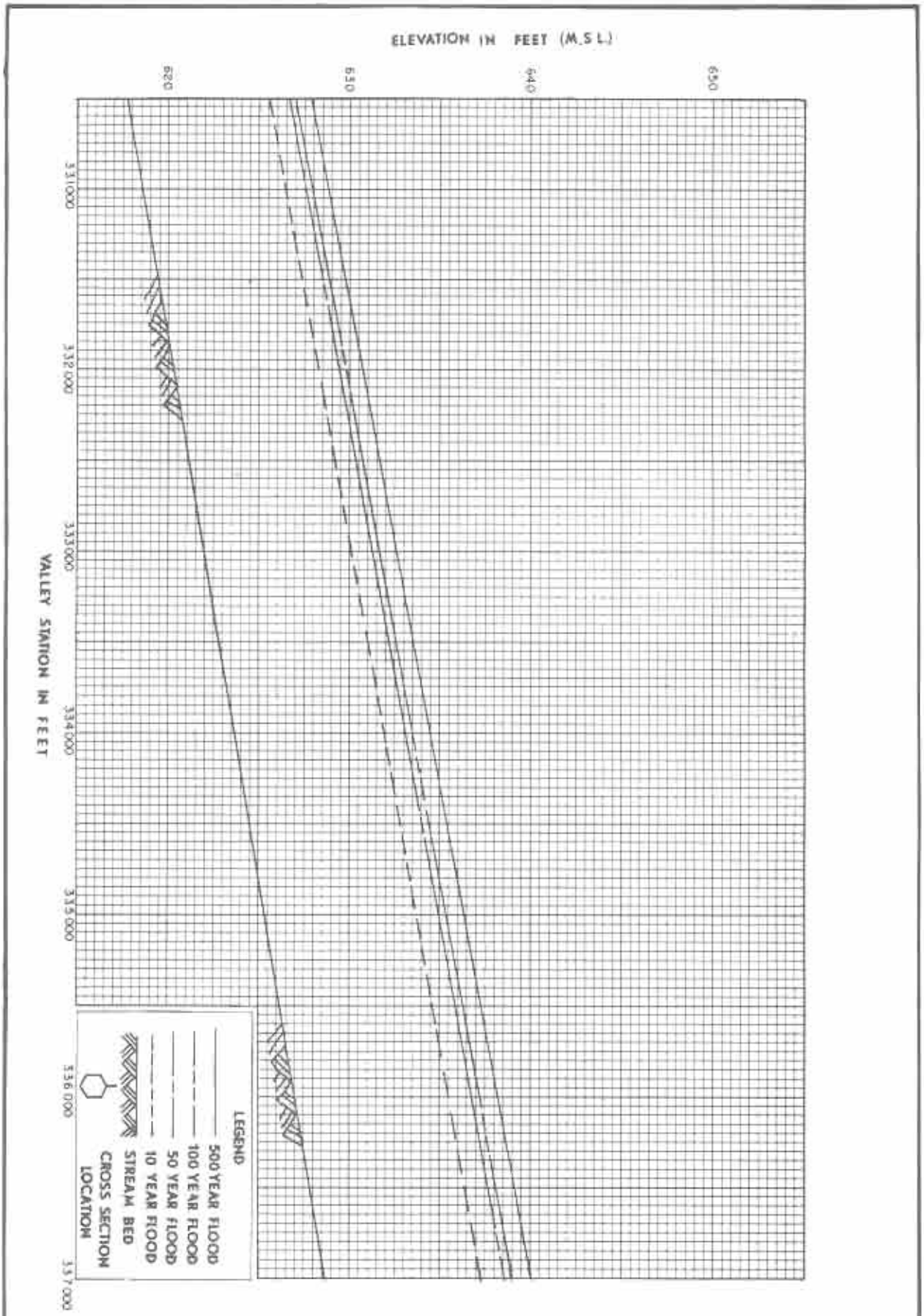


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



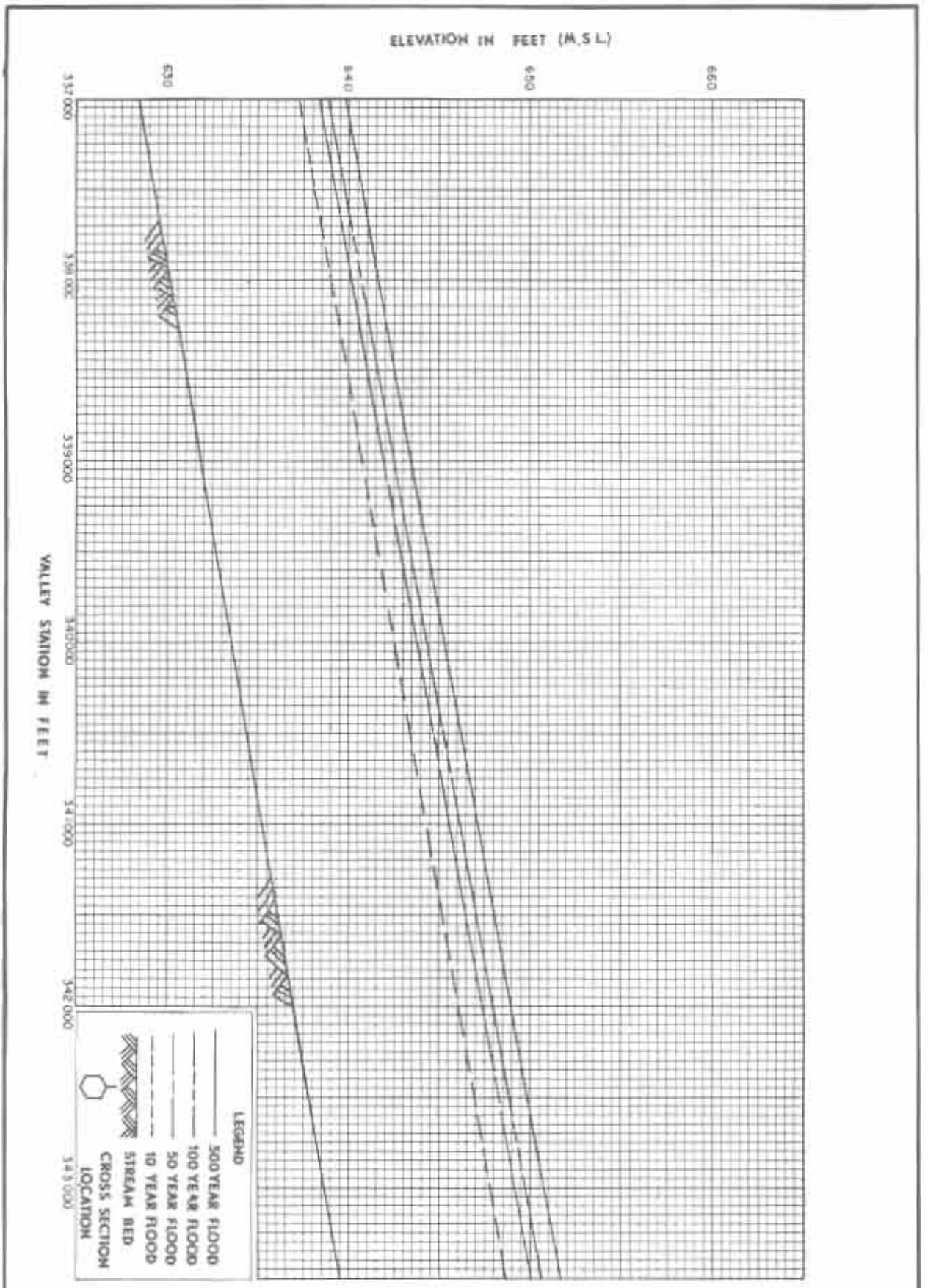
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 of 2

FLOOD PROFILES

KROTO CREEK

EXHIBIT 4



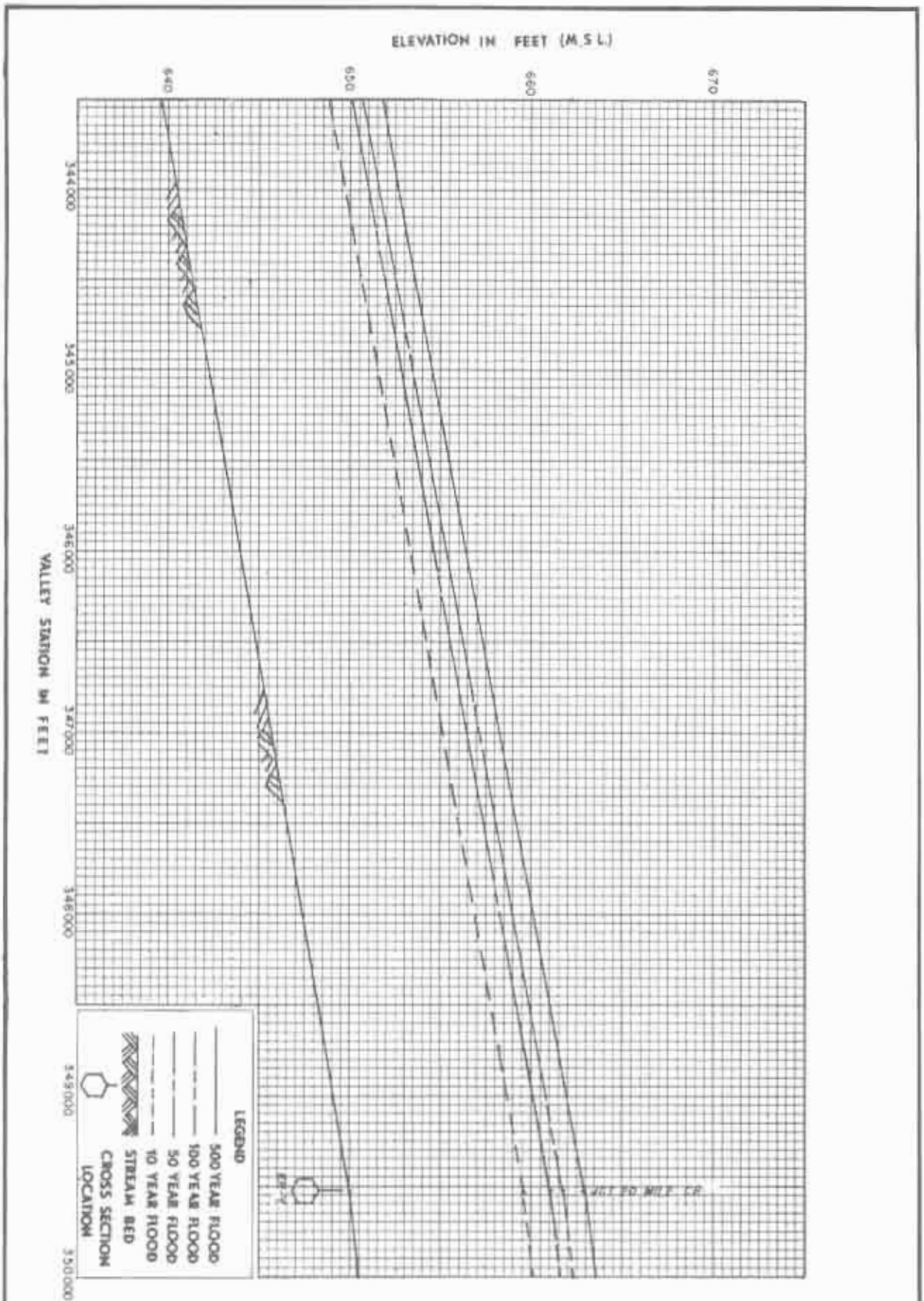
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 5 OF 12

FLOOD PROFILES

KNIK CREEK

EXHIBIT 2


ELEVATION IN FEET (M.S.L.)
640
650
660
670
344000
345000
346000
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348000
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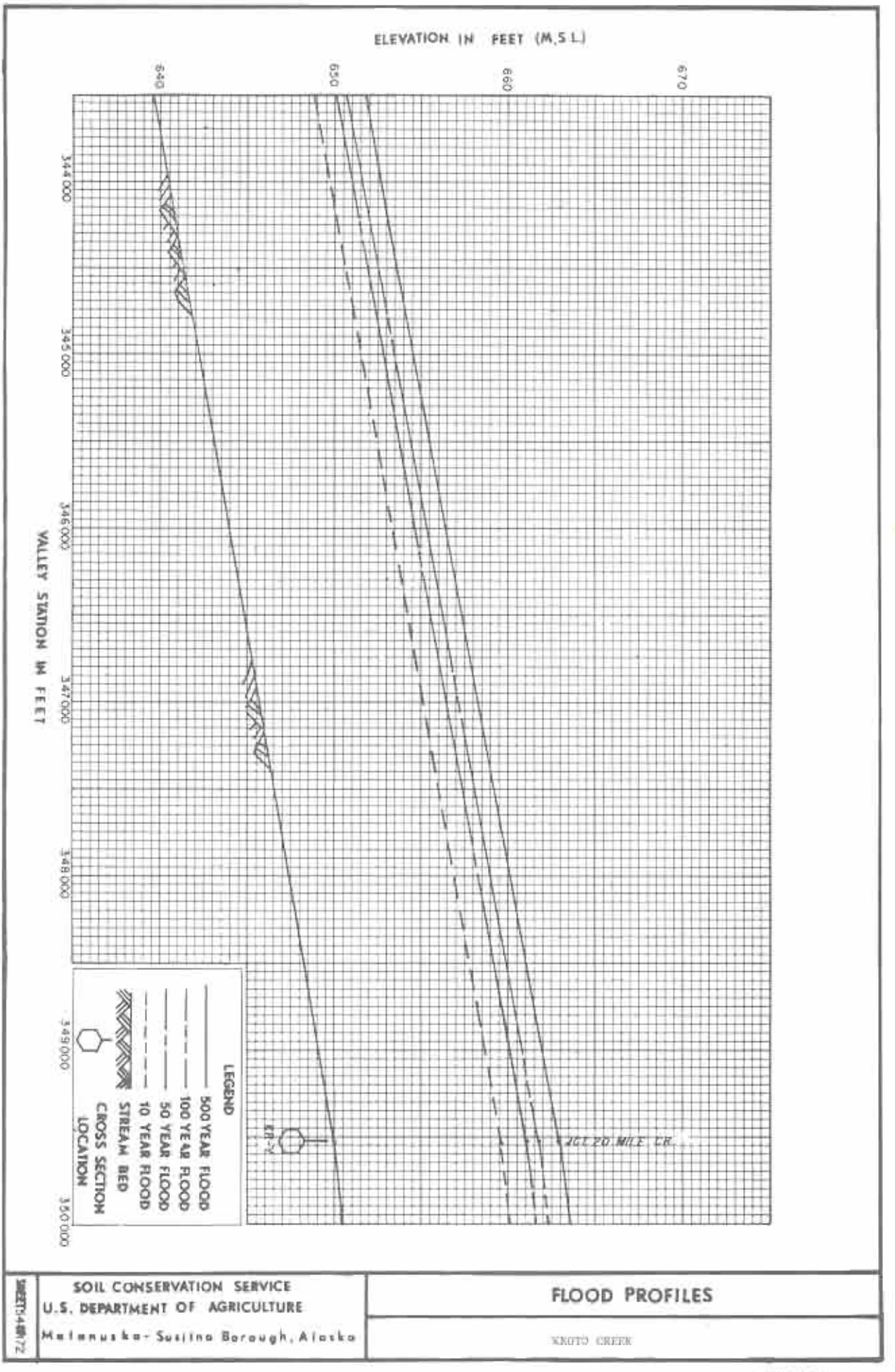
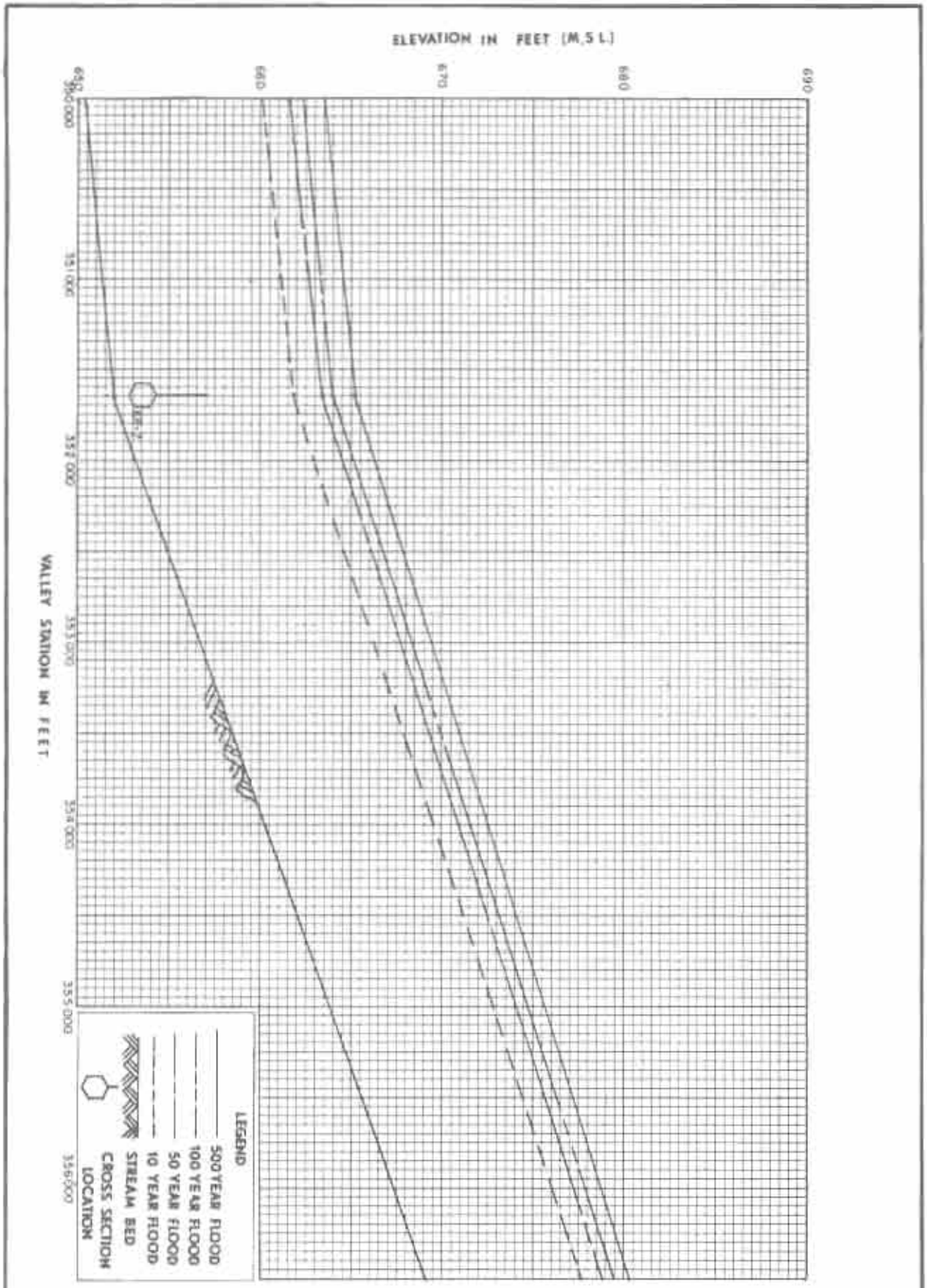
350000
VALLEY STATION IN FEET
LEGEND
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
EP-2
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska
FLOOD PROFILES
CRIPPLE CREEK

EXHIBIT 2



SHEET 4 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES KNOTO CREEK

EXHIBIT F



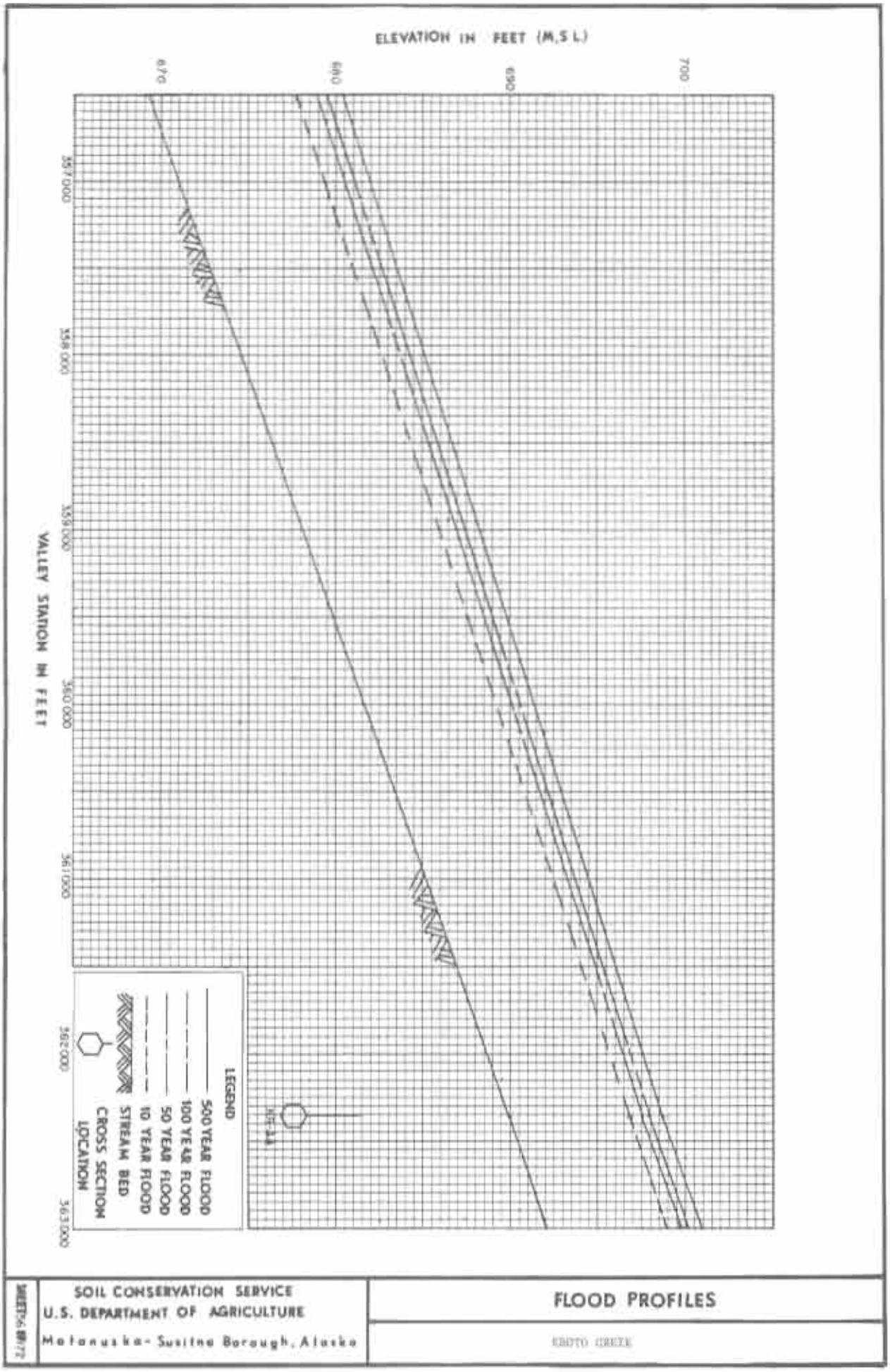
SHEET 5 OF 7

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KEOTO CREEK

EXHIBIT J



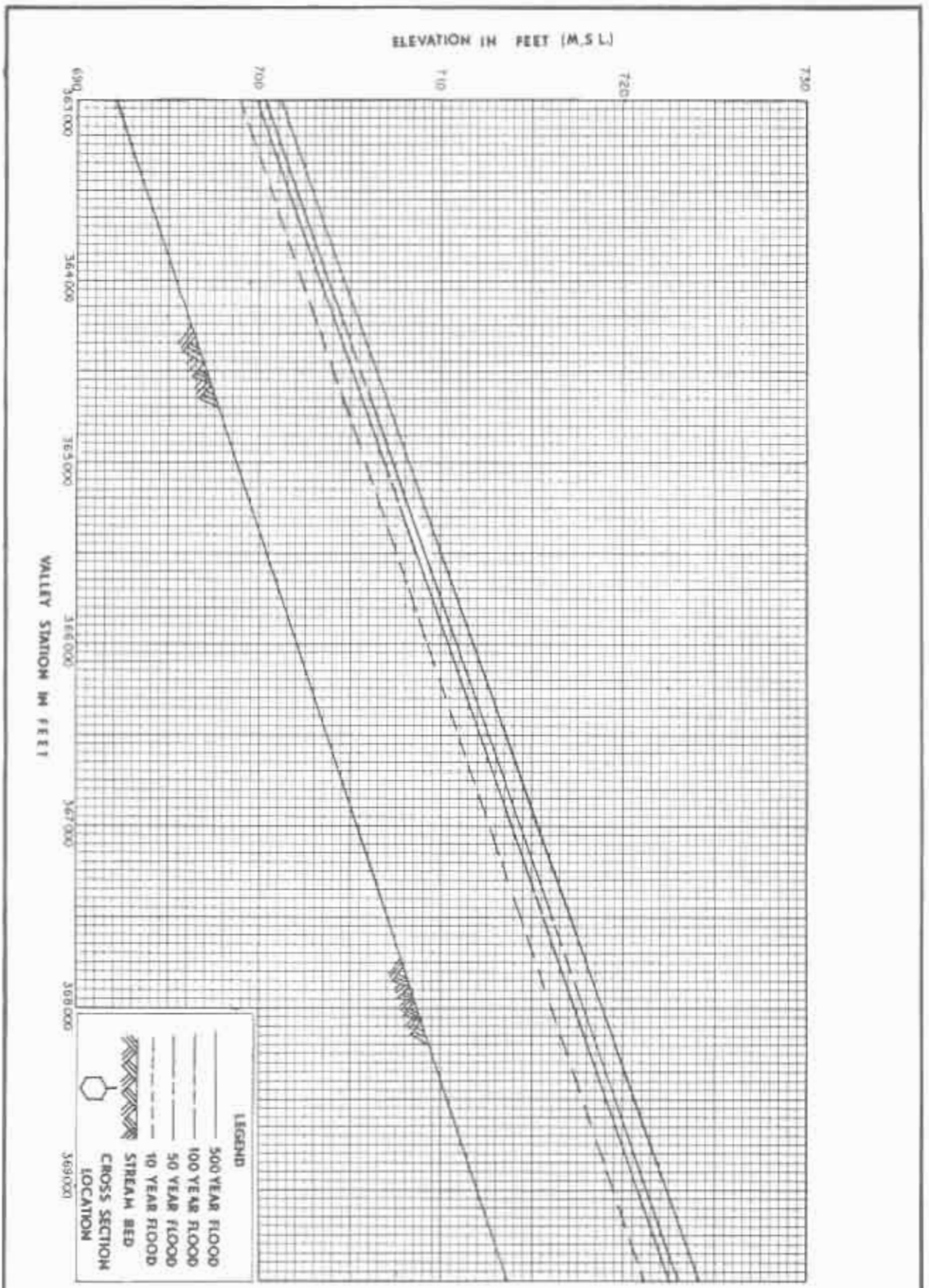
SHEET 6 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

EXHIBIT 2



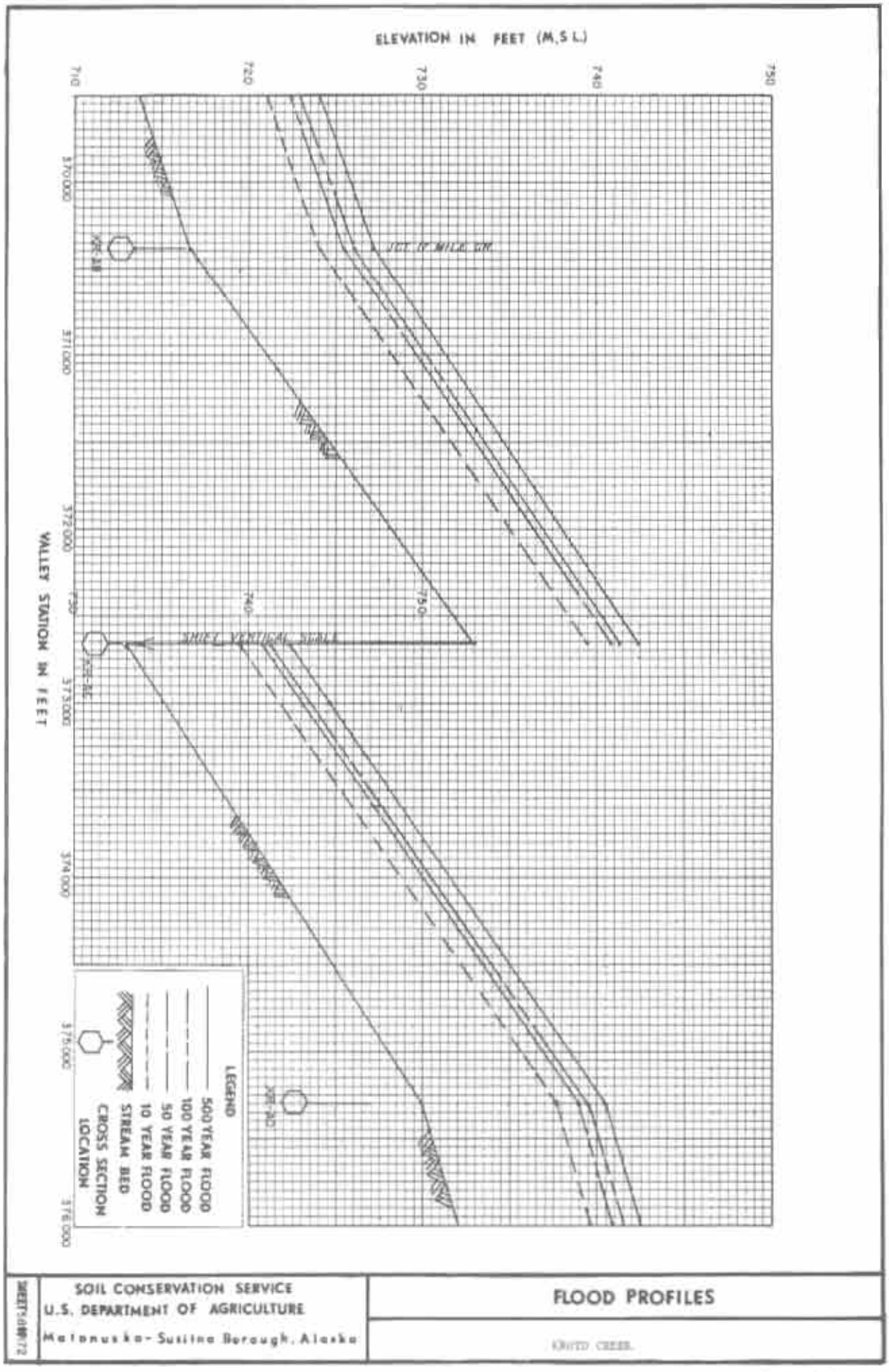
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 7 OF 12

FLOOD PROFILES

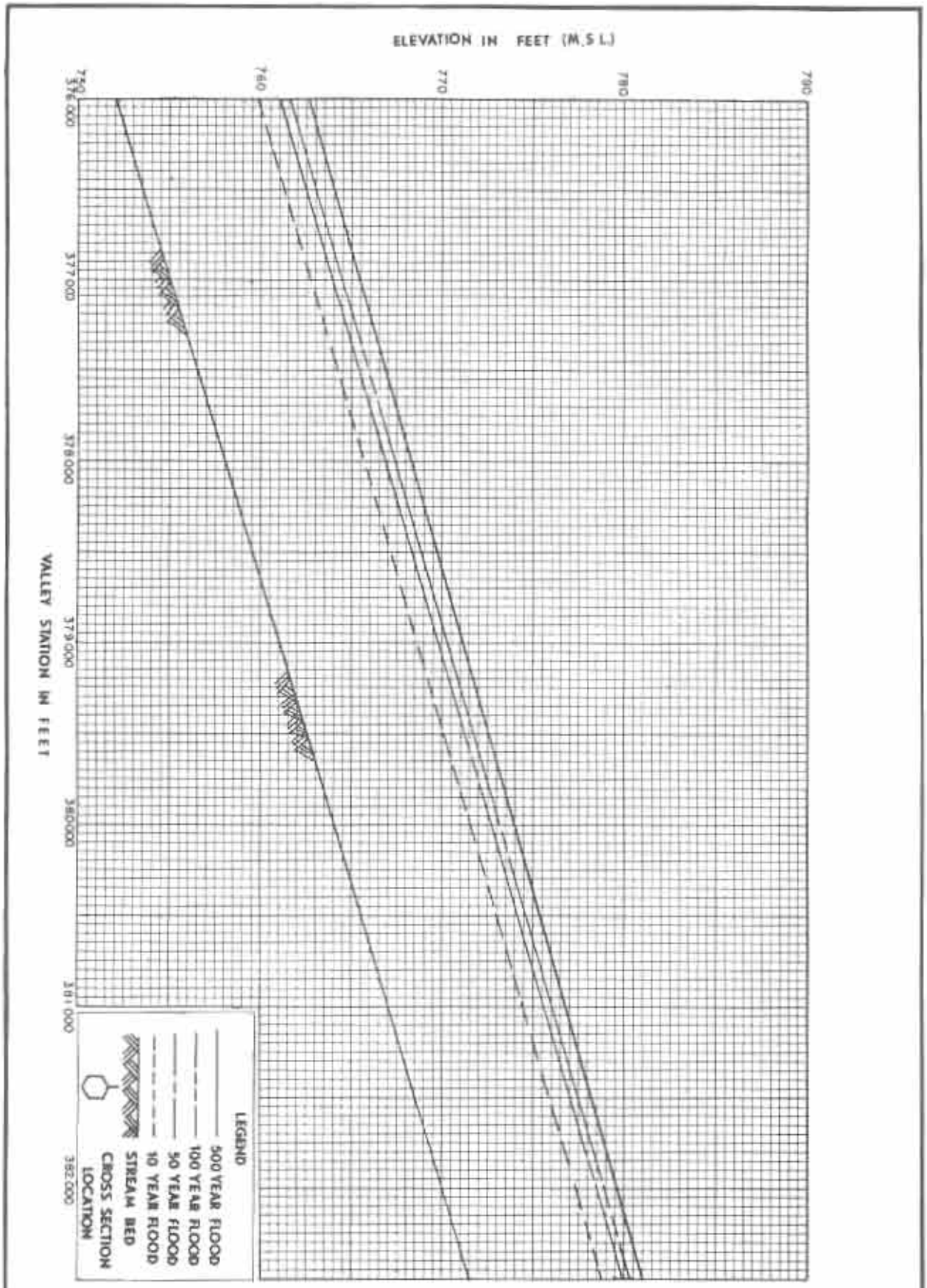
KNOTO CREE

EXHIBIT 2



SHEET 9 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES KNUTD CREEK

EXHIBIT 7

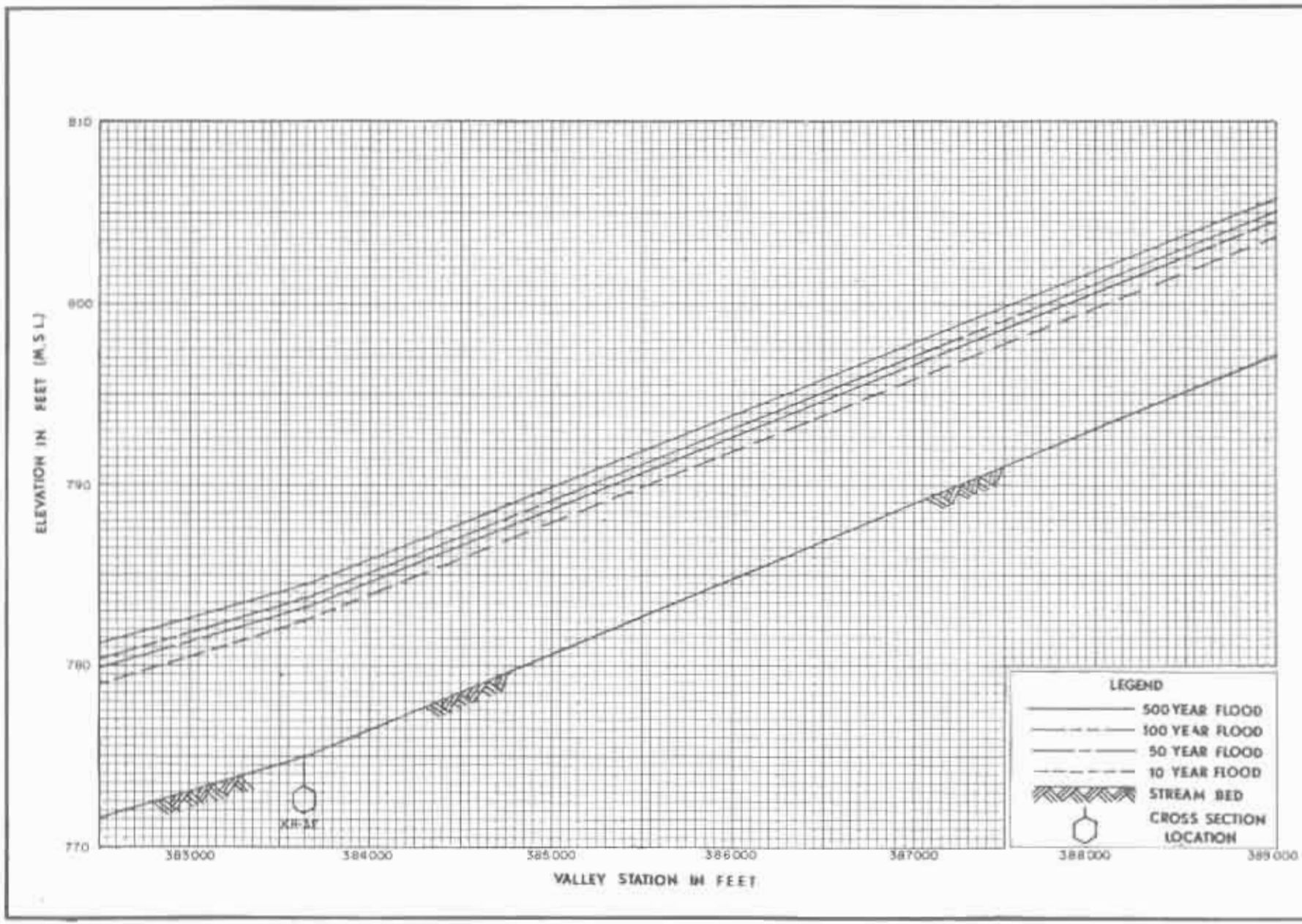


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTO CREEK

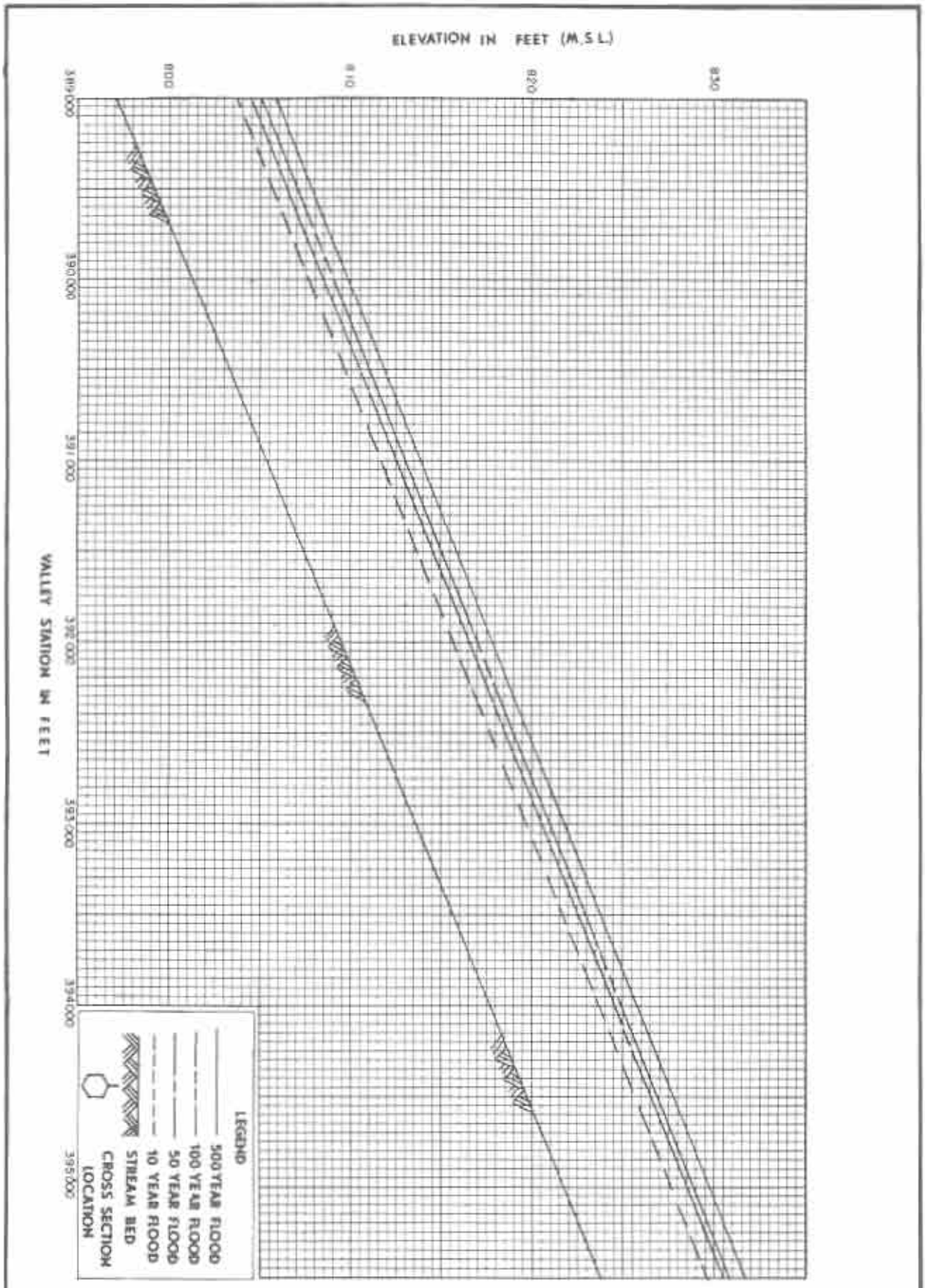
EXHIBIT 2



FLOOD PROFILES

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 60 OF 172



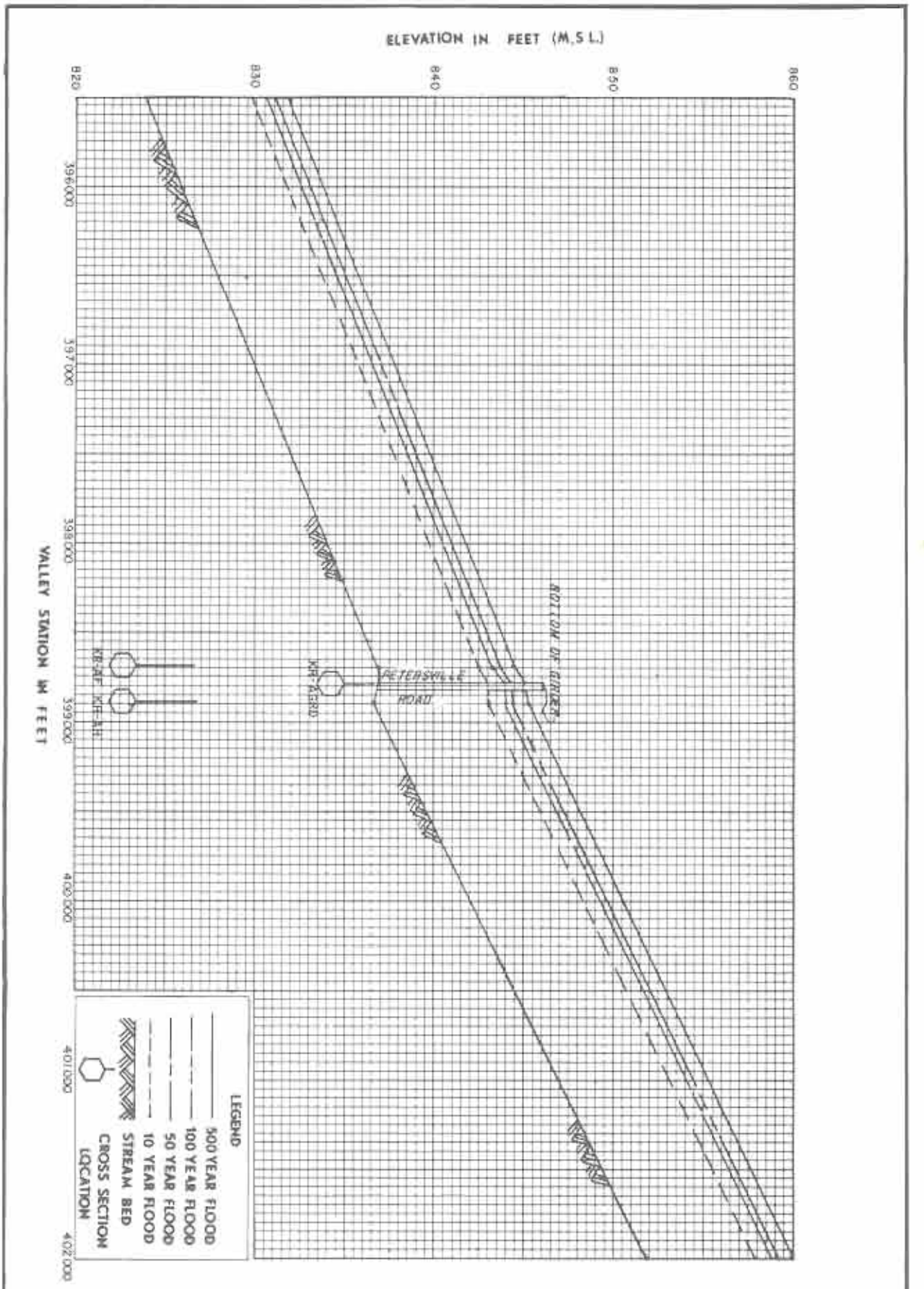
SHEET 1 OF 2

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

EKOTO CREEK

EXHIBIT J



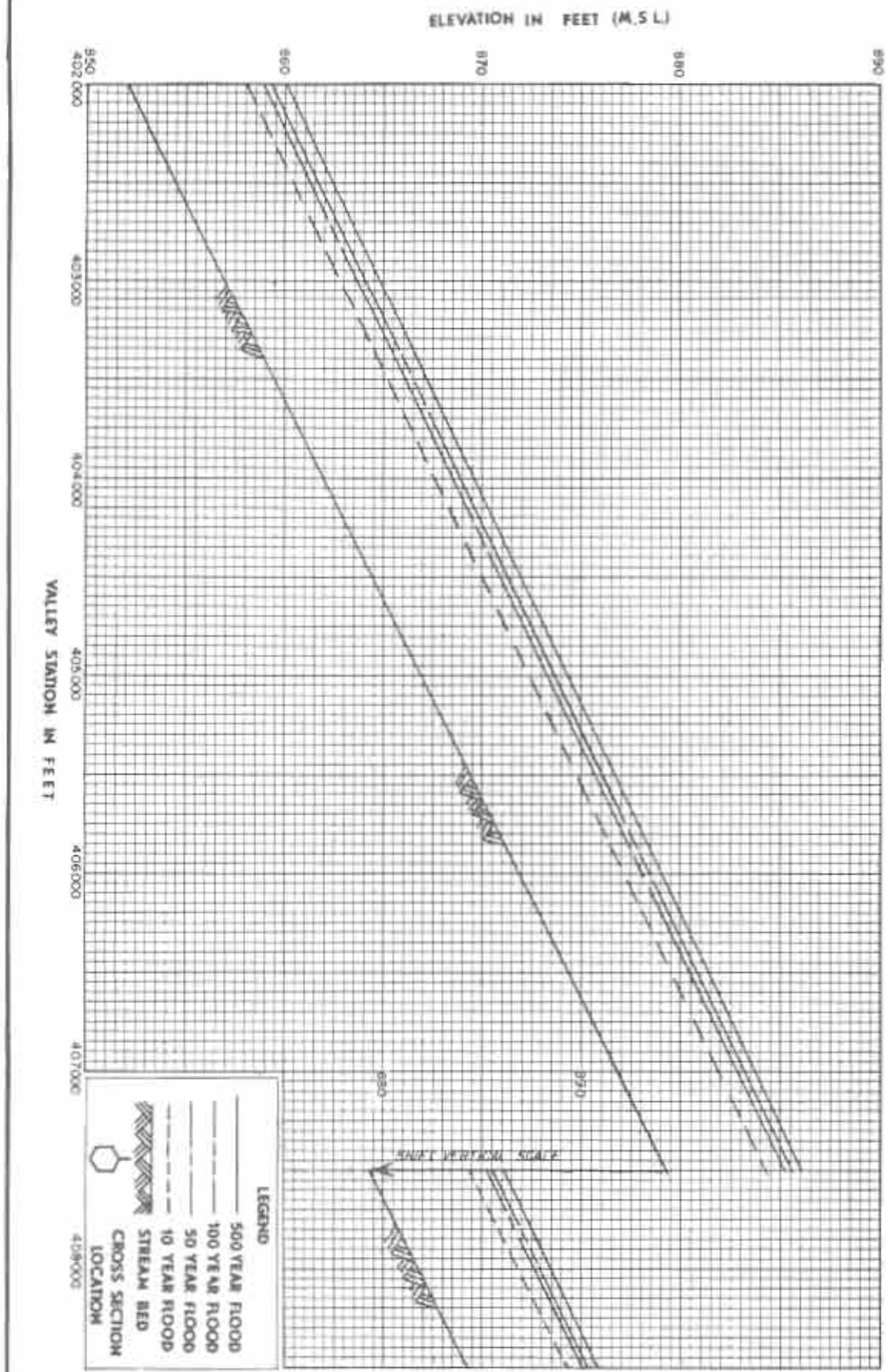
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 2

FLOOD PROFILES

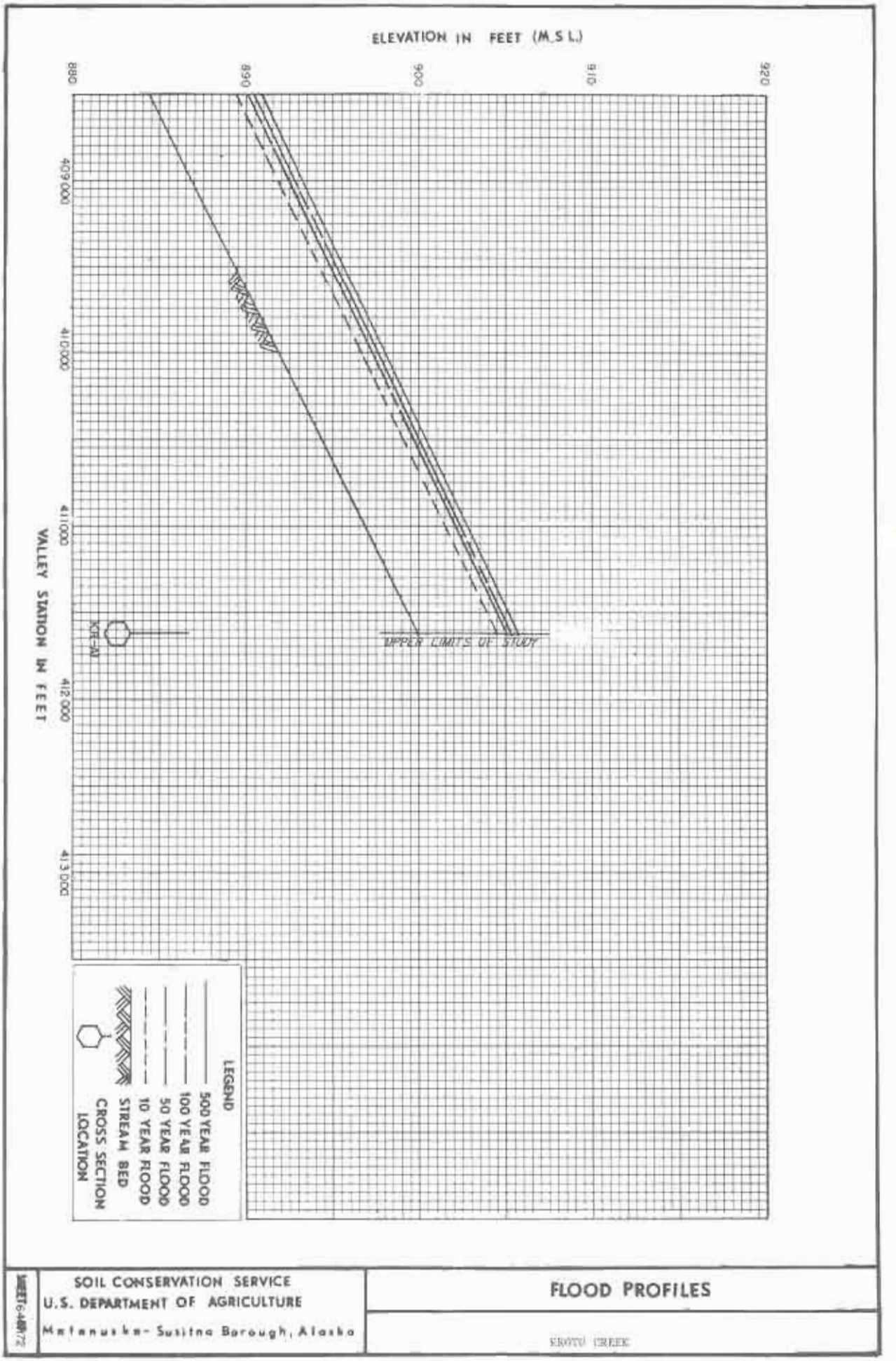
KNOTO CREEK

EXHIBIT 2



SHEET 8 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES CROSS CREEK

EXHIBIT 2

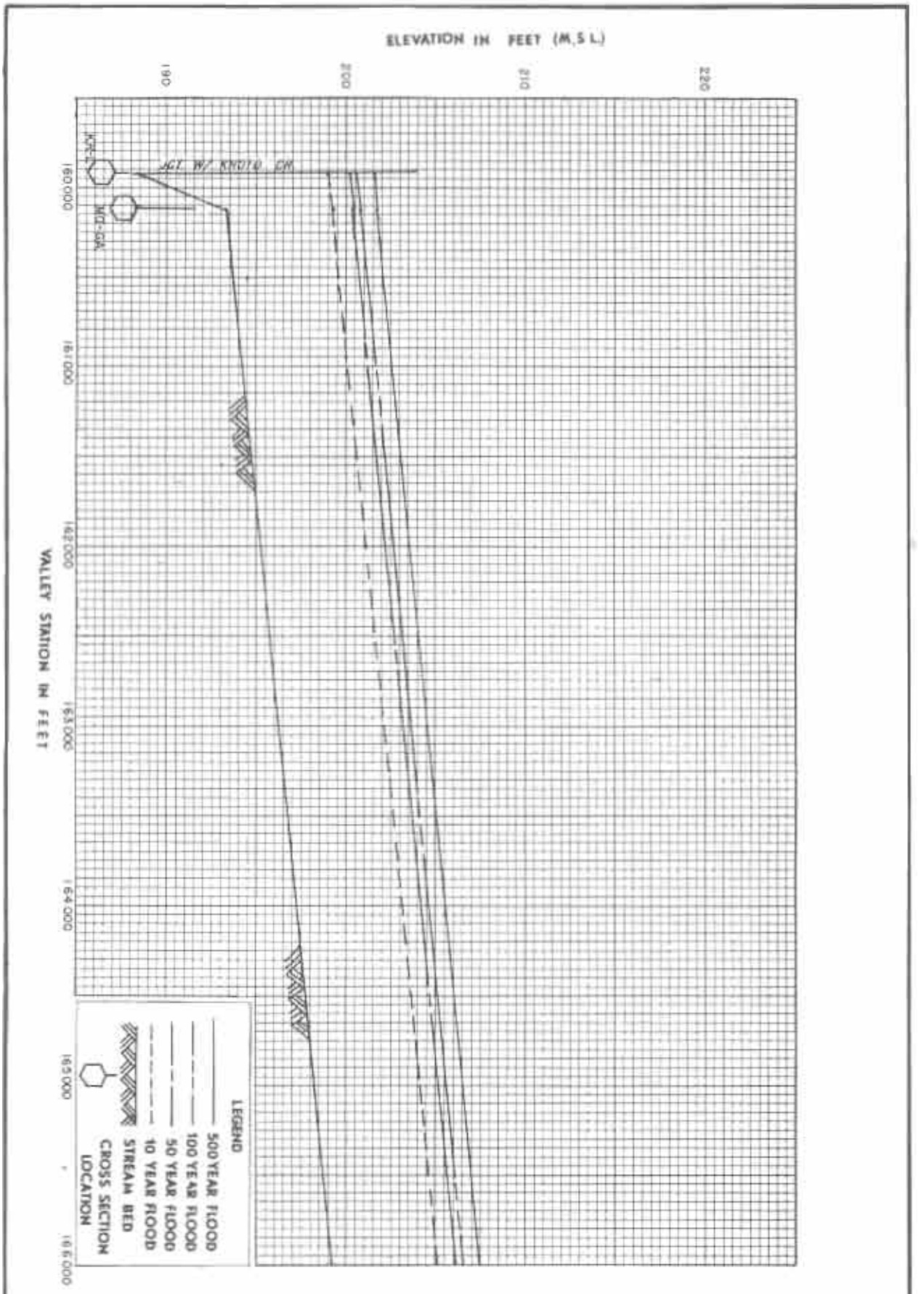


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KROTU CREEK

EXHIBIT 2



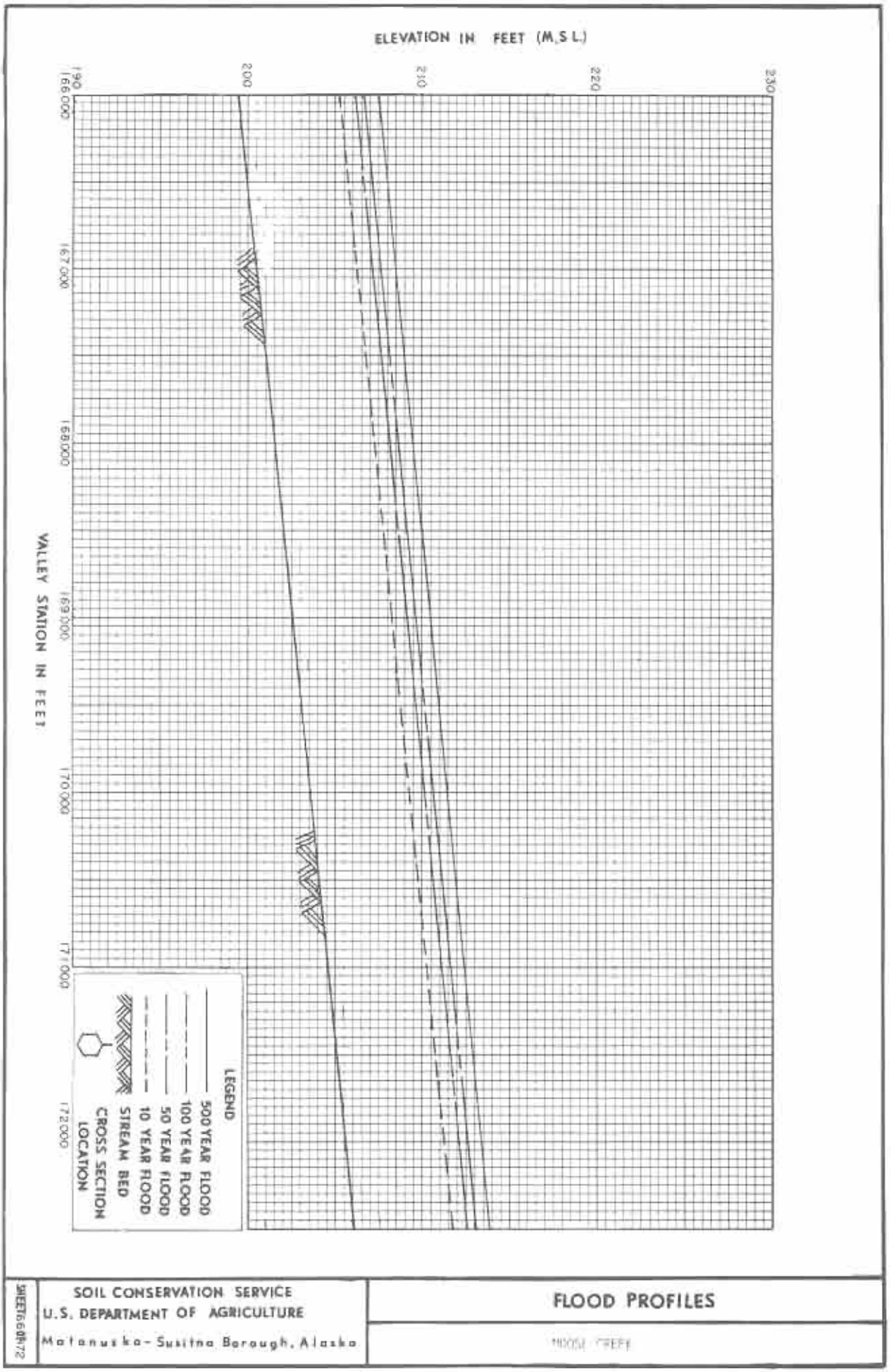
SHEET 6 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT J



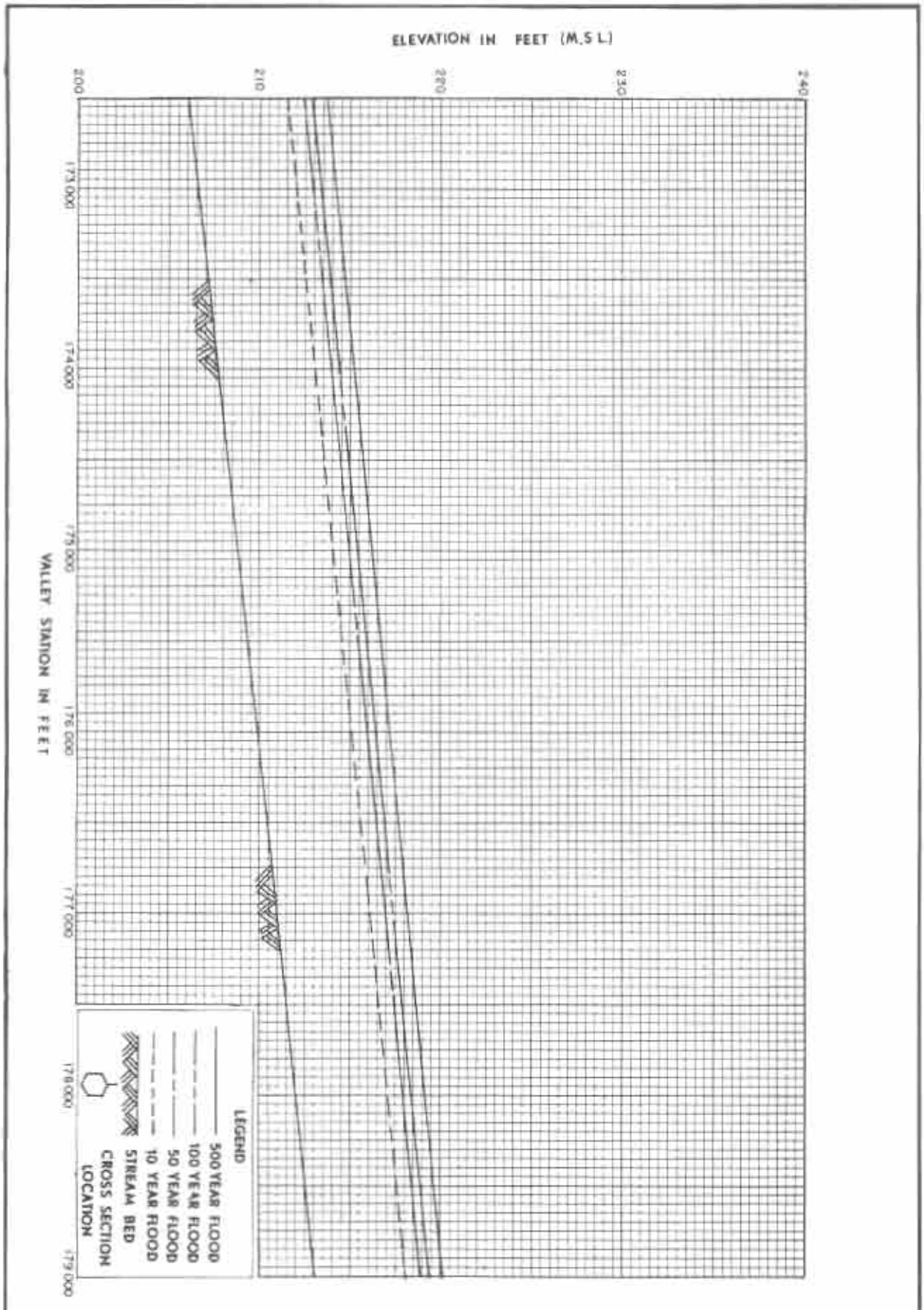
SHEET 6 of 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



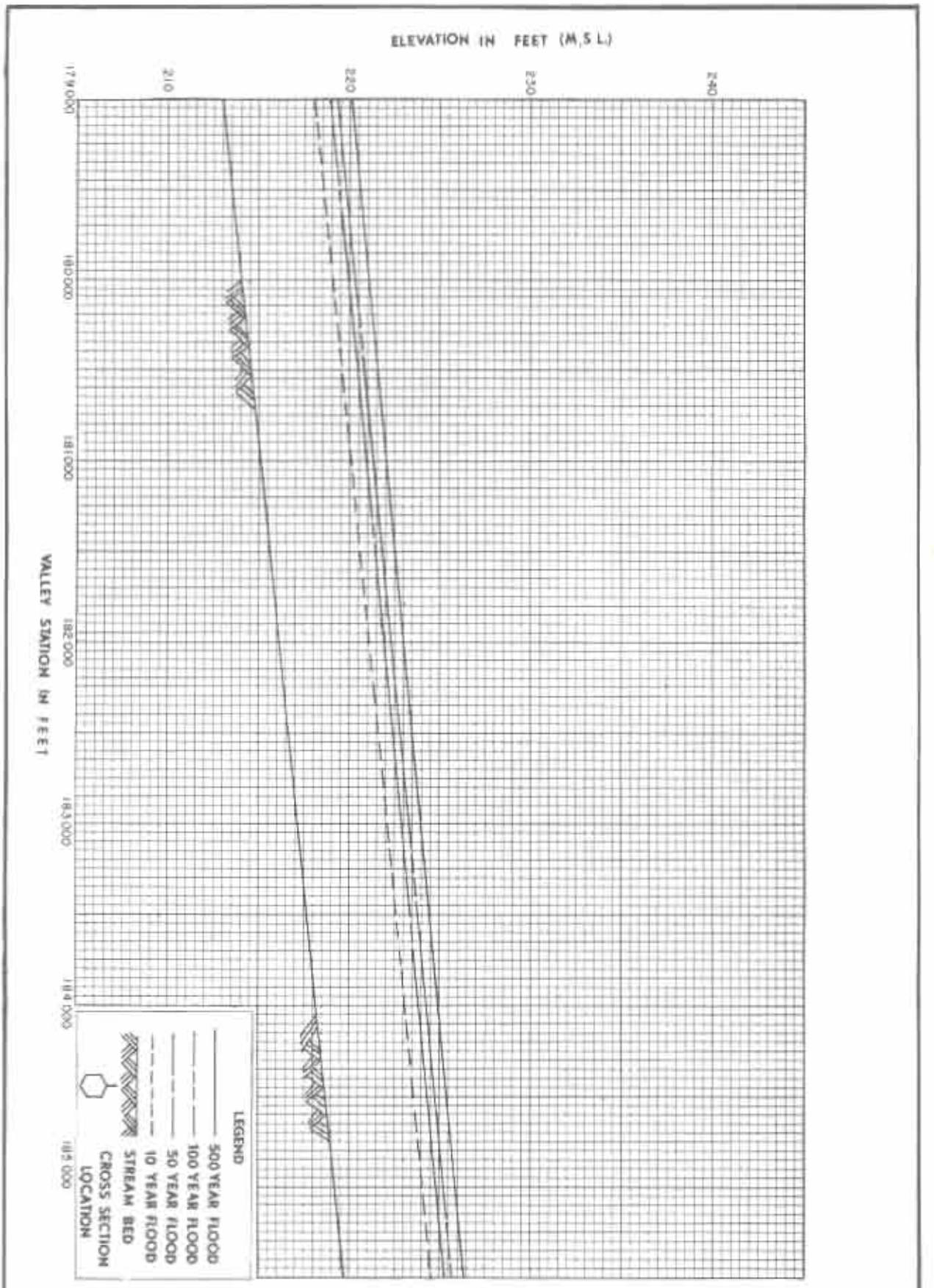
SHEET 07 08 72

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2

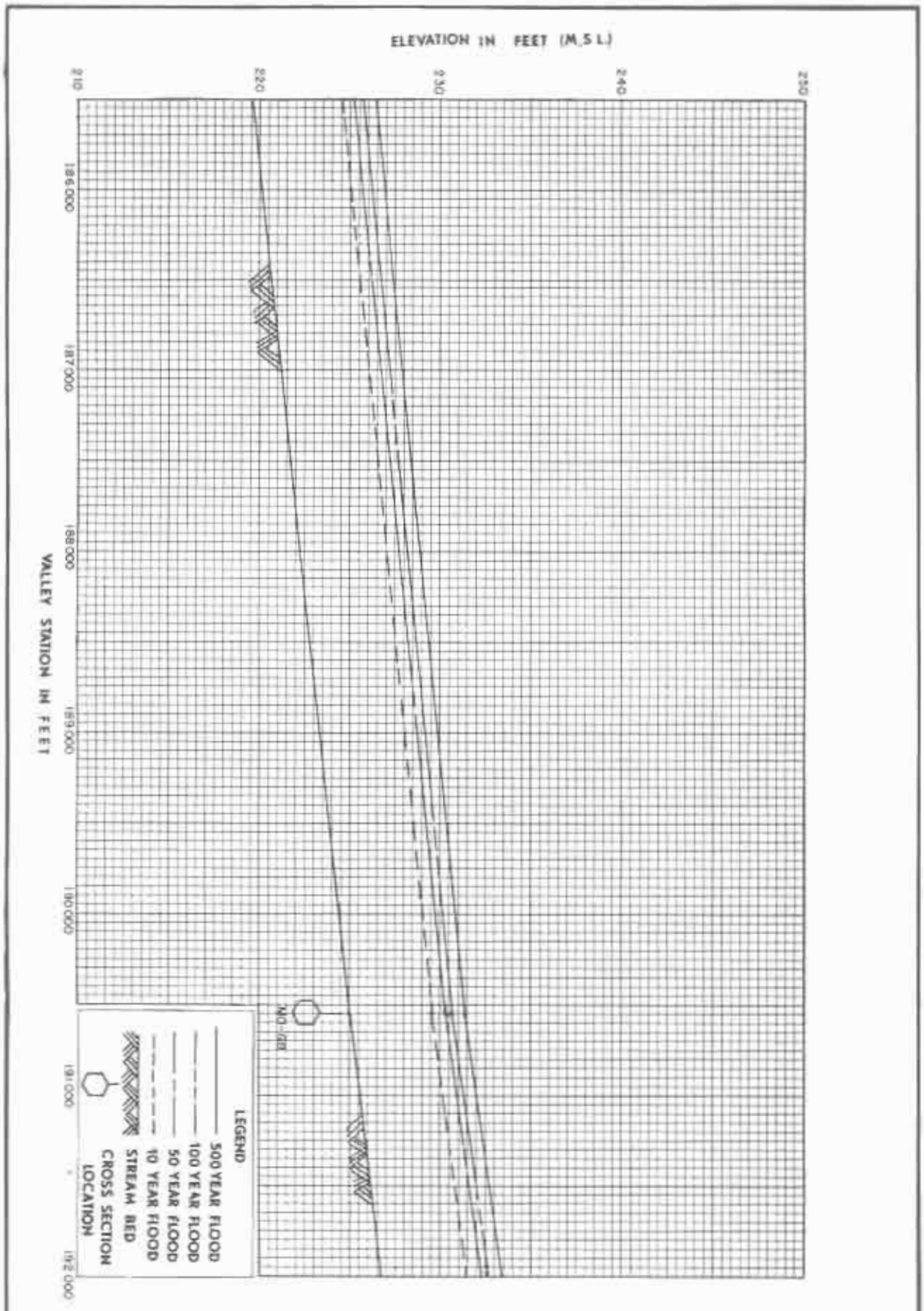


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



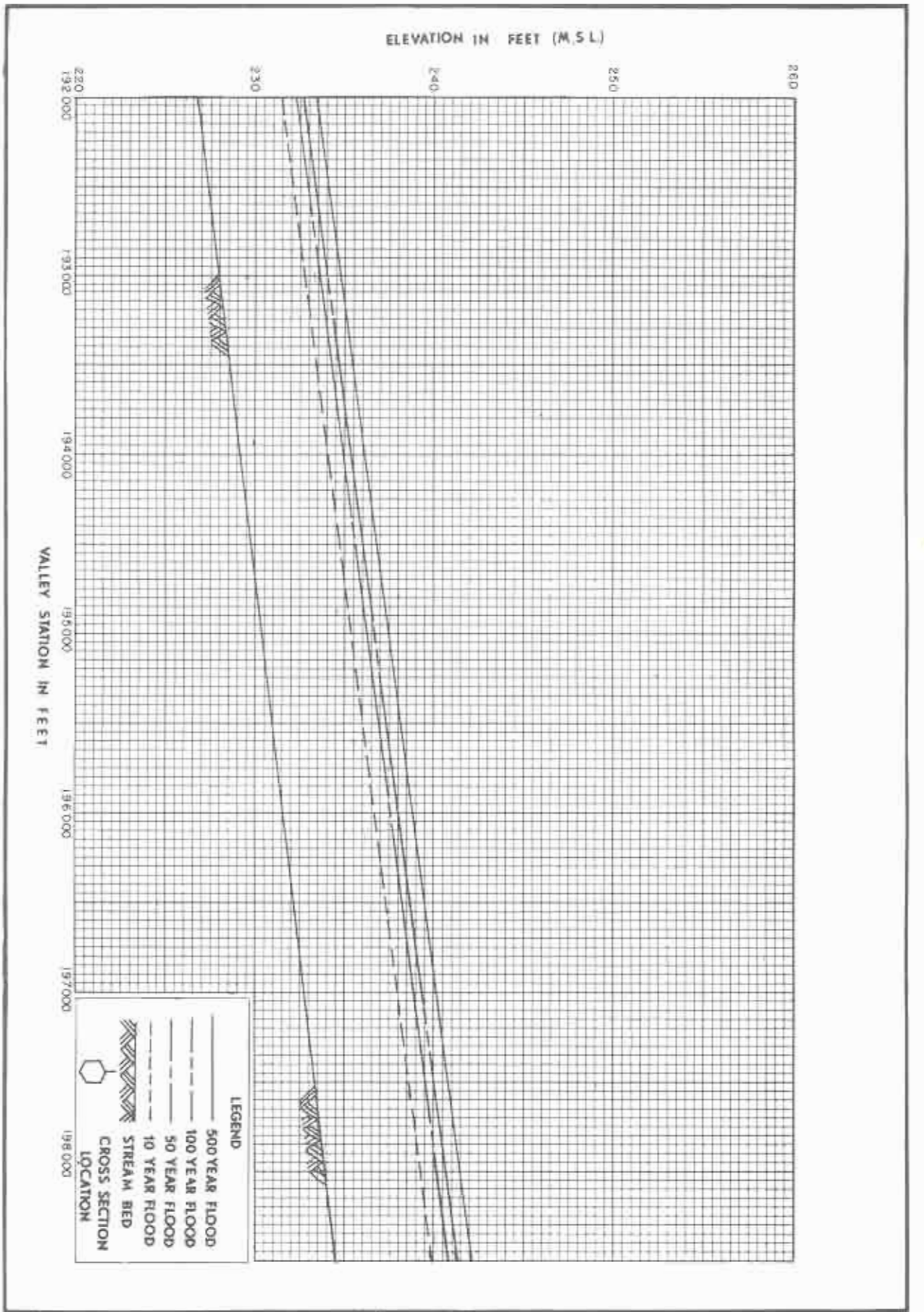
SHEET 69 OF 72

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



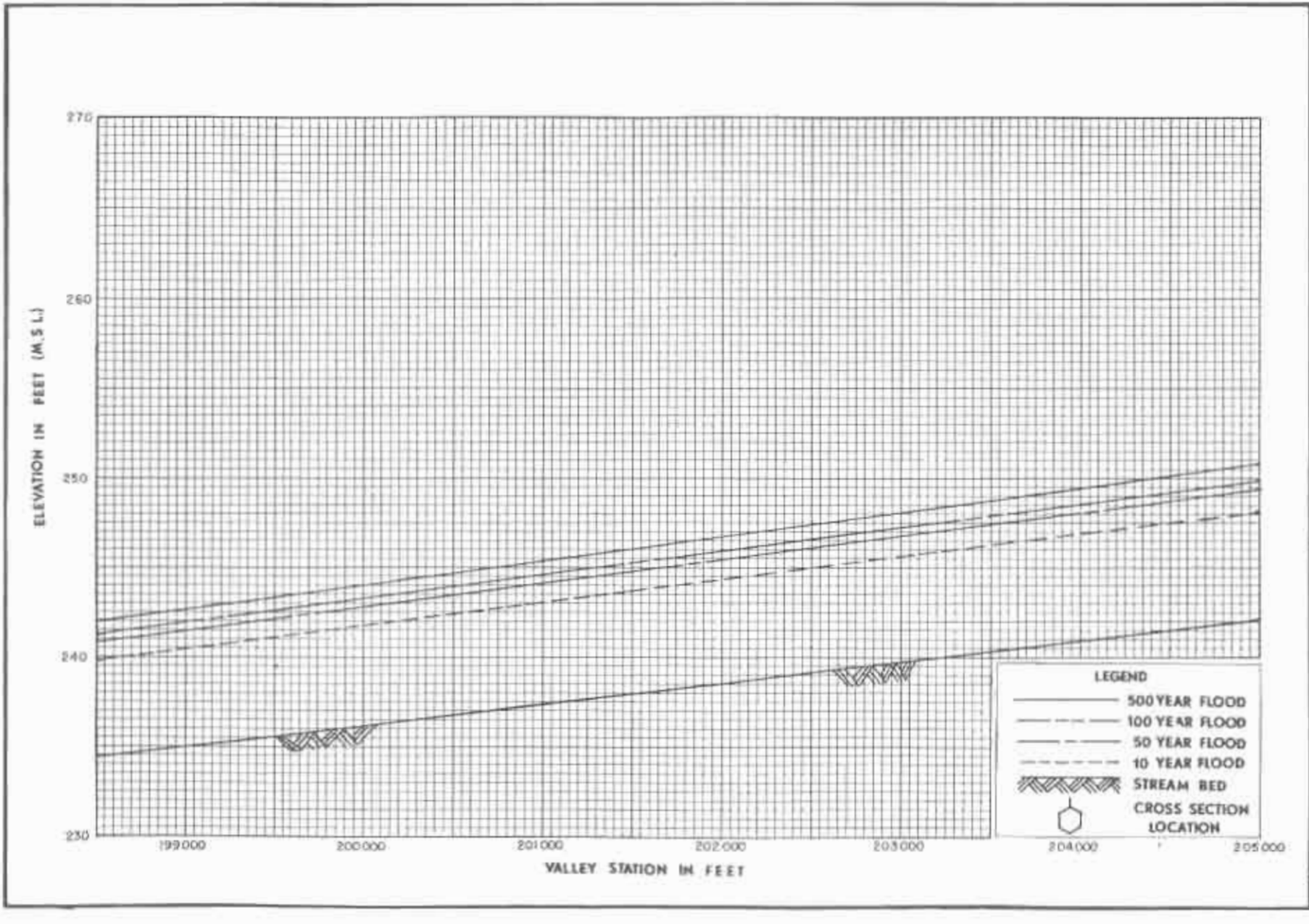
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 7008-72

FLOOD PROFILES

MOOSE CREEK

DISTRICT 2



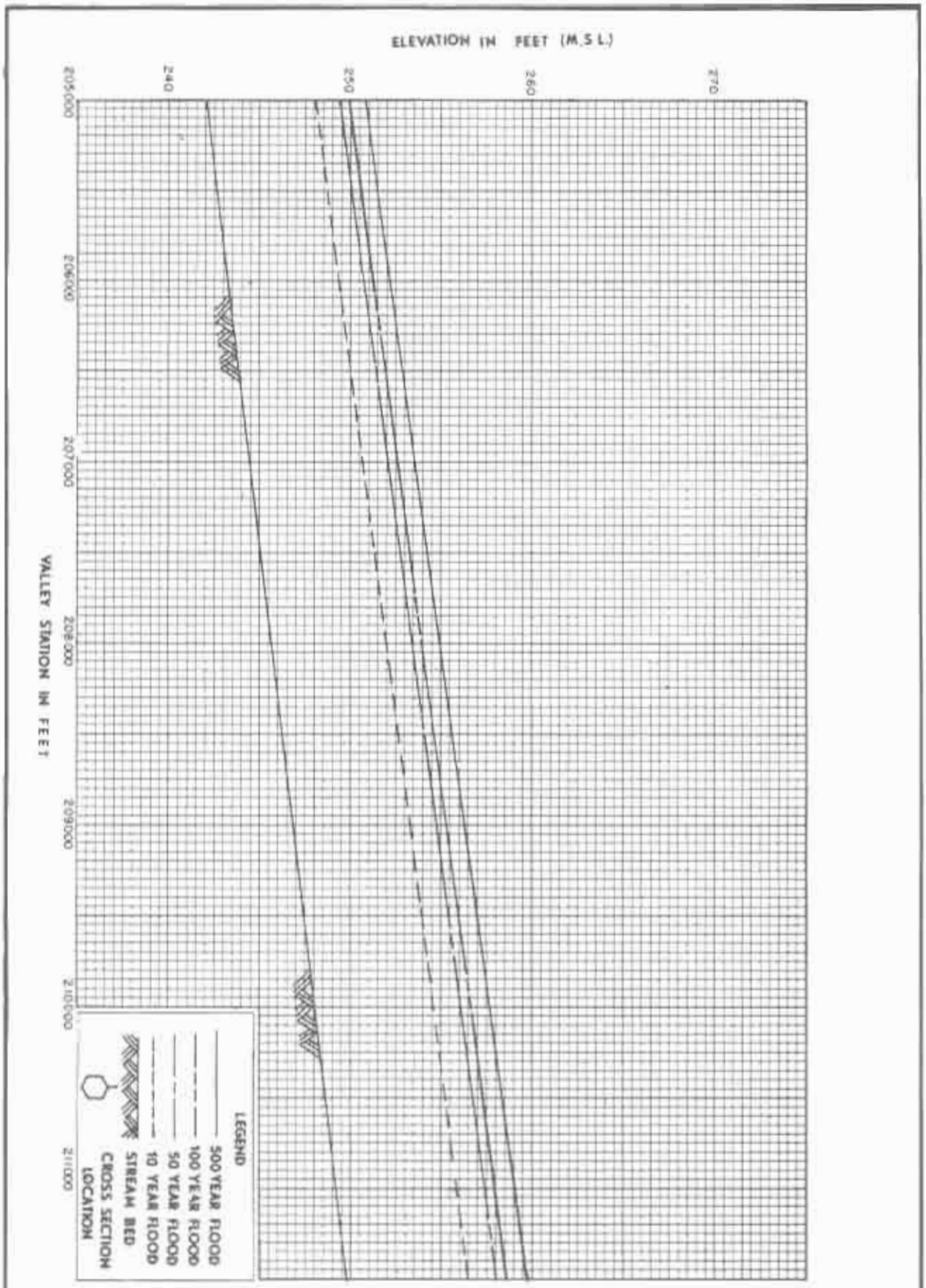
FLOOD PROFILES

MOOSE CREEK

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

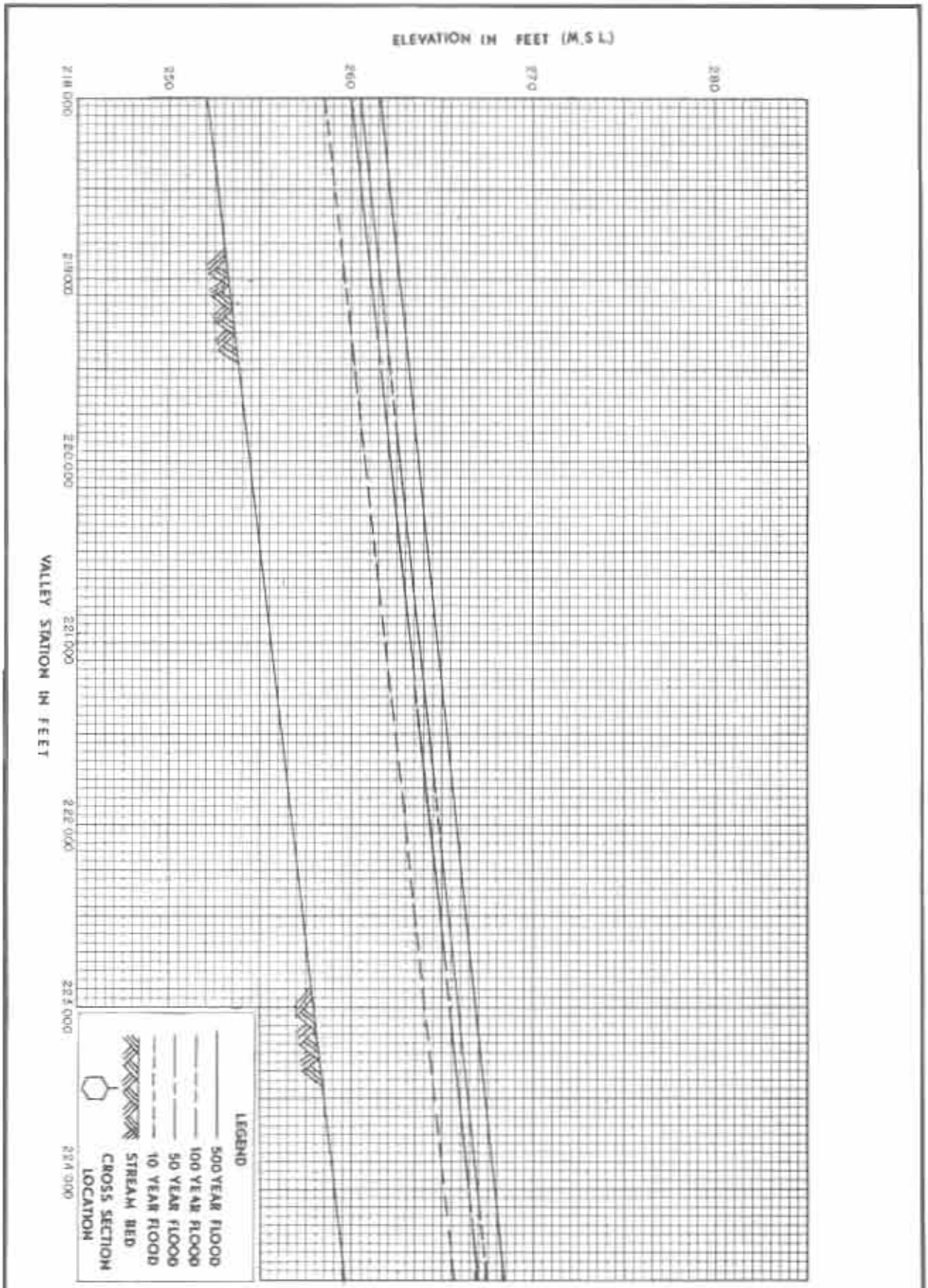
SHEET 71 OF 172

EXHIBIT 2



SHEET 2 OF 2	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	**FLOOD PROFILES** MOOSE CREEK

EXHIBIT J



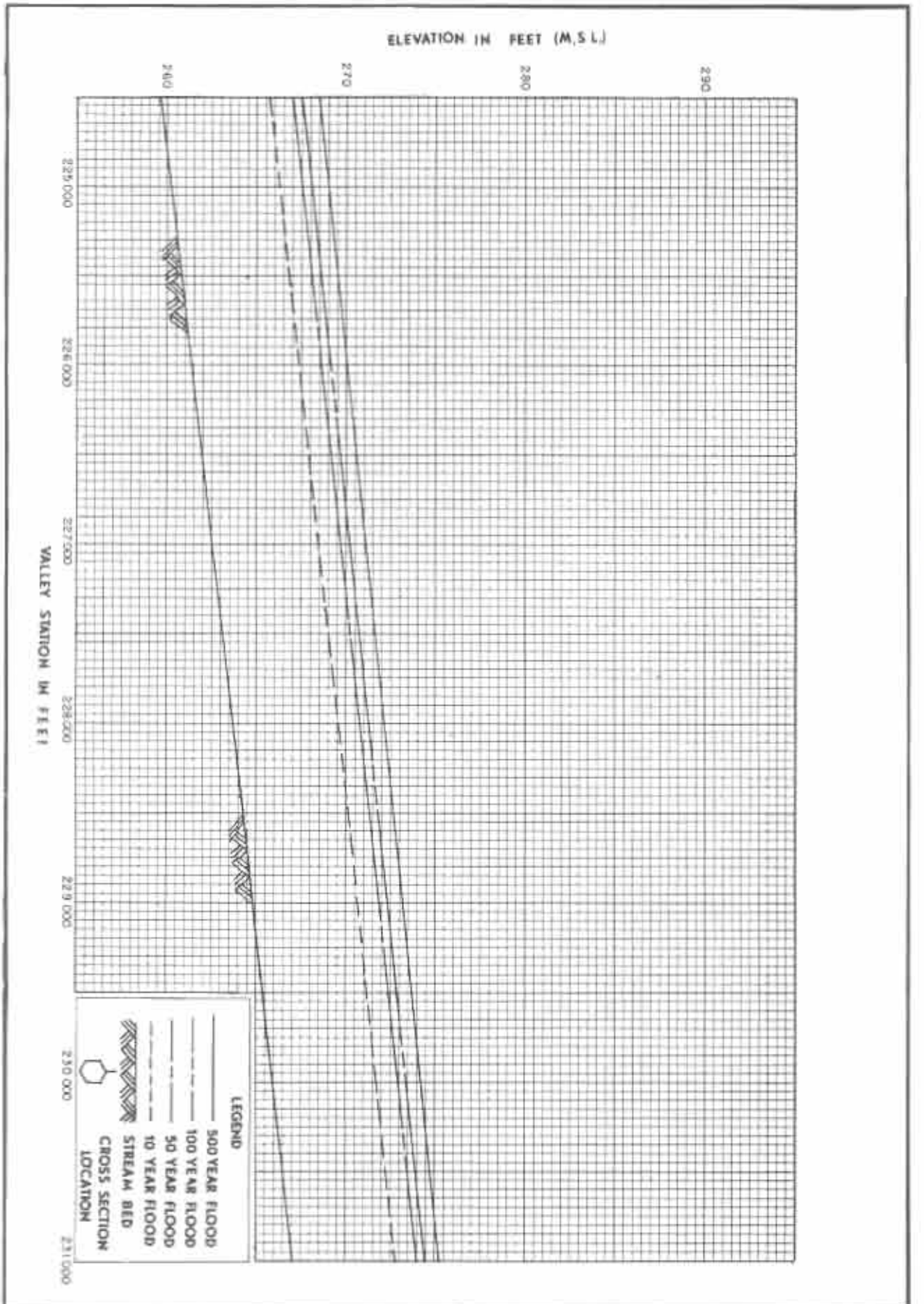
SHEET 4 OF 22

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2

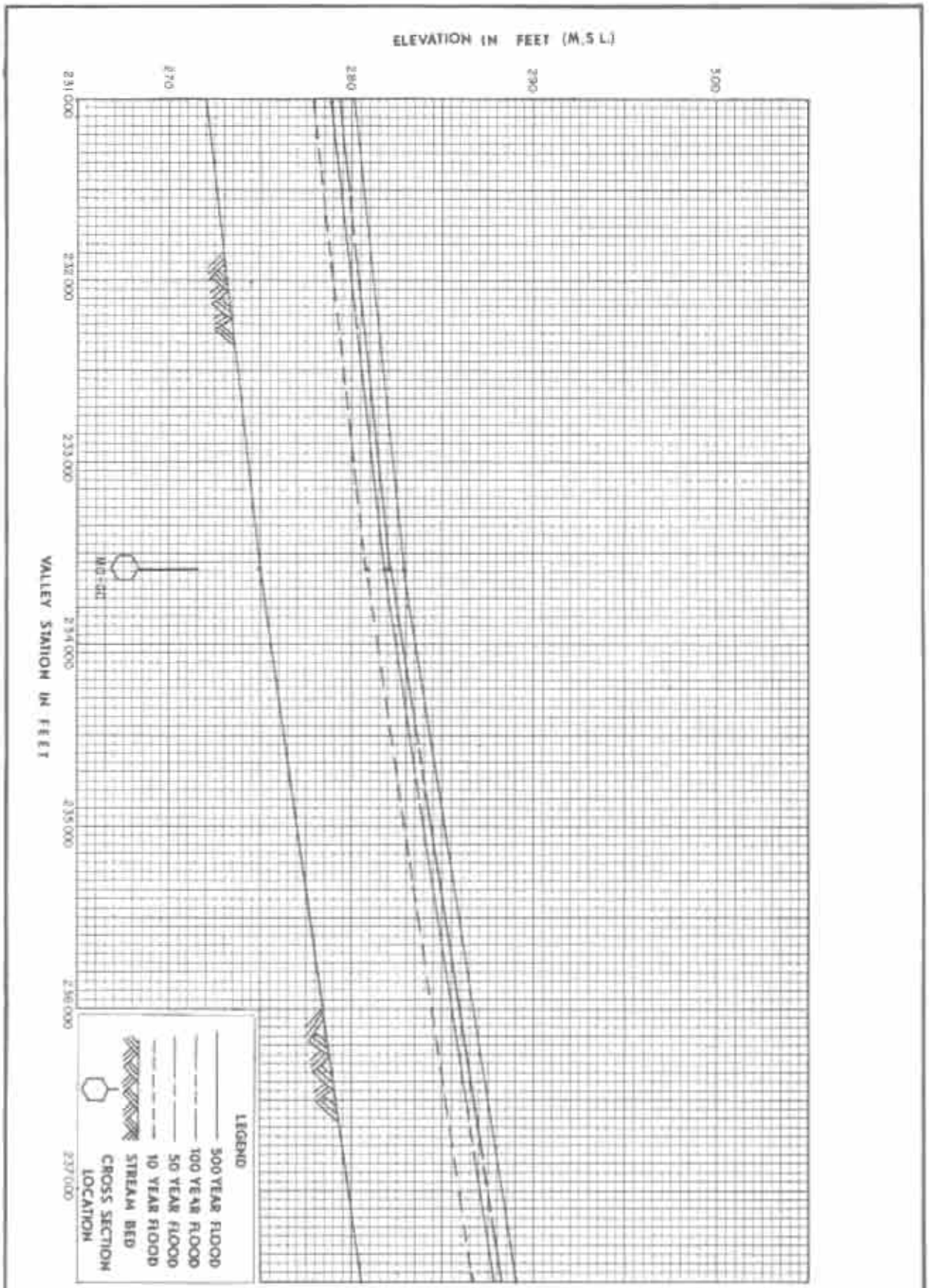


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT J



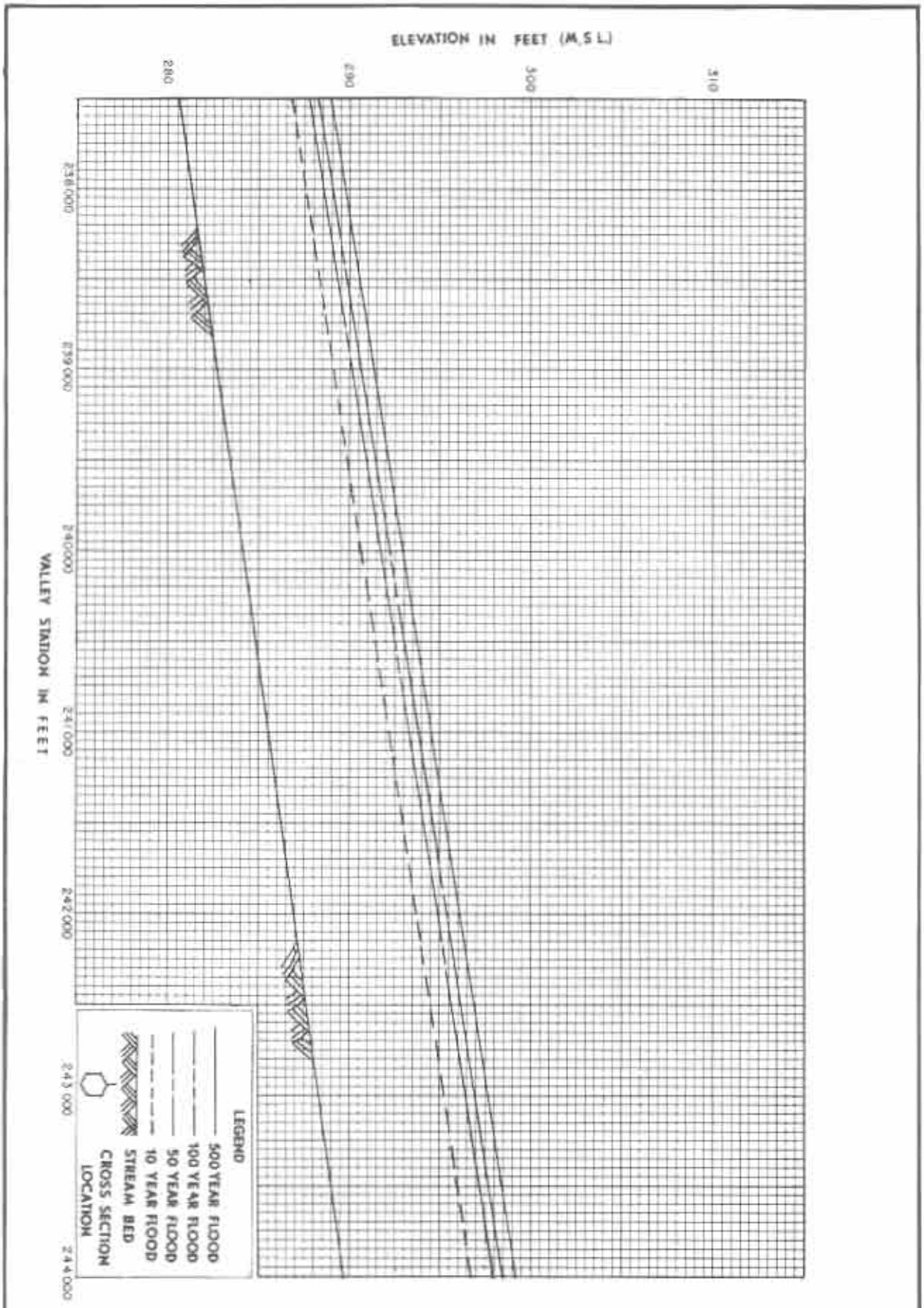
SHEET 6 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 3



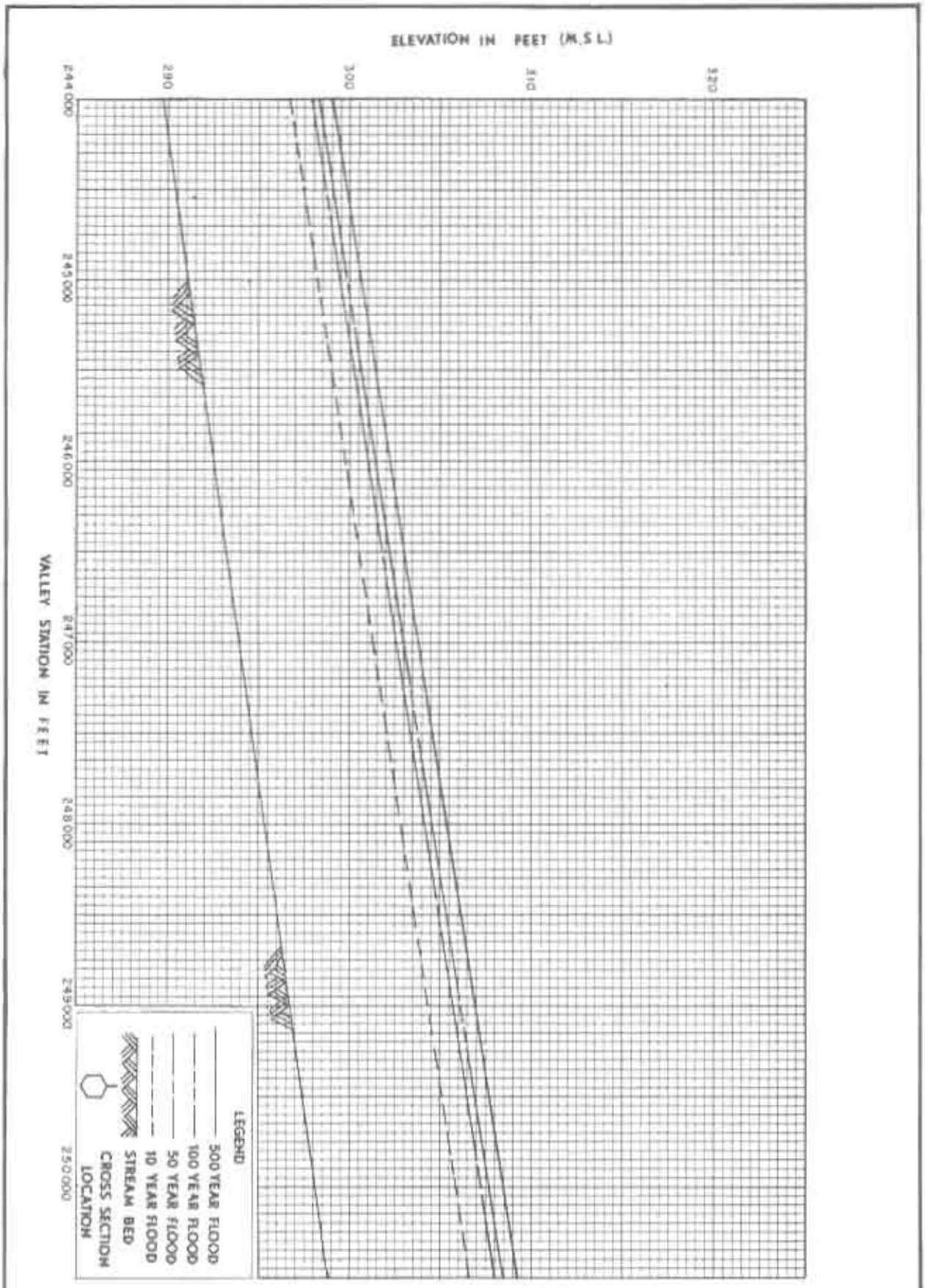
SHEET 7 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT J

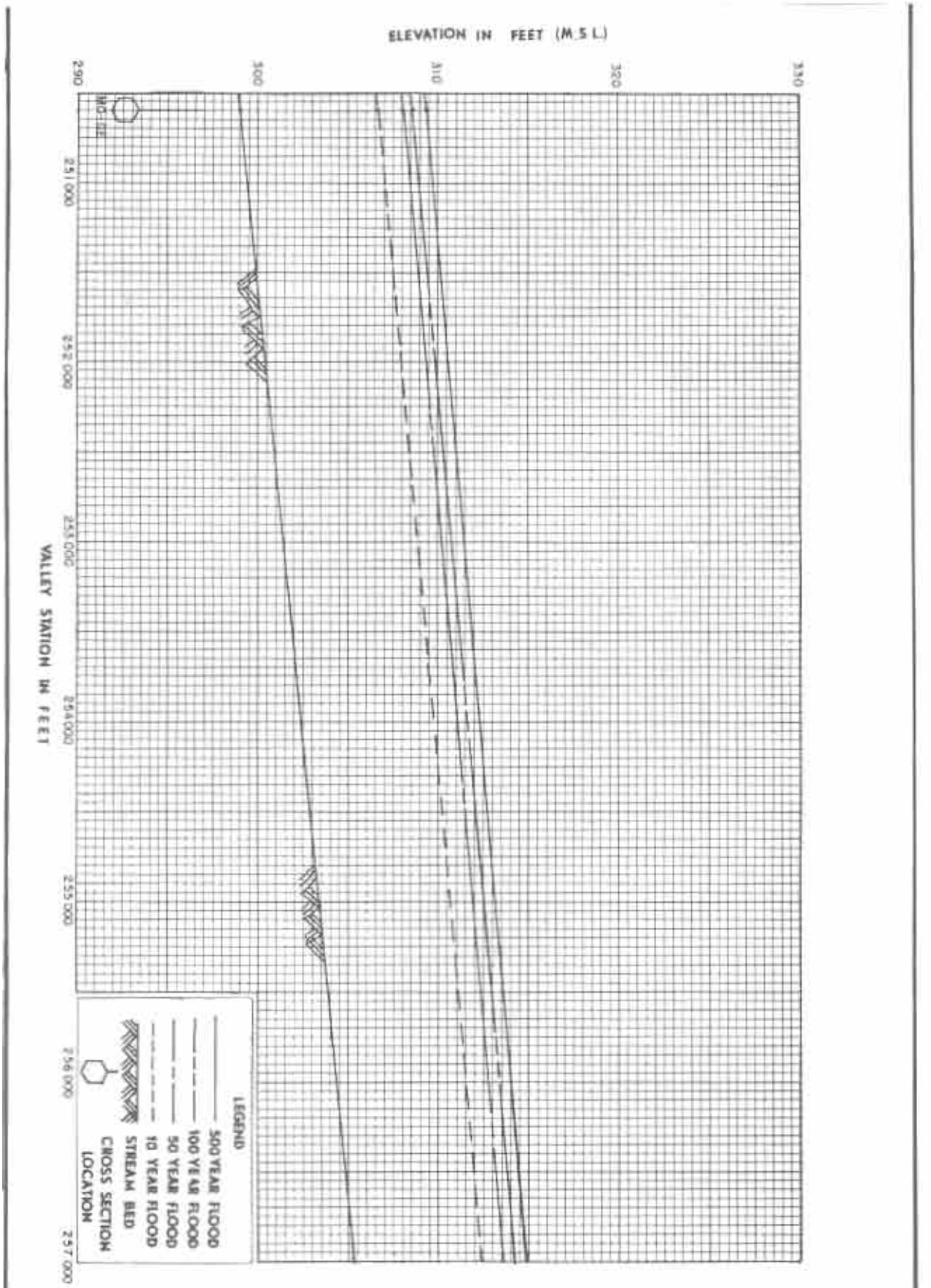


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

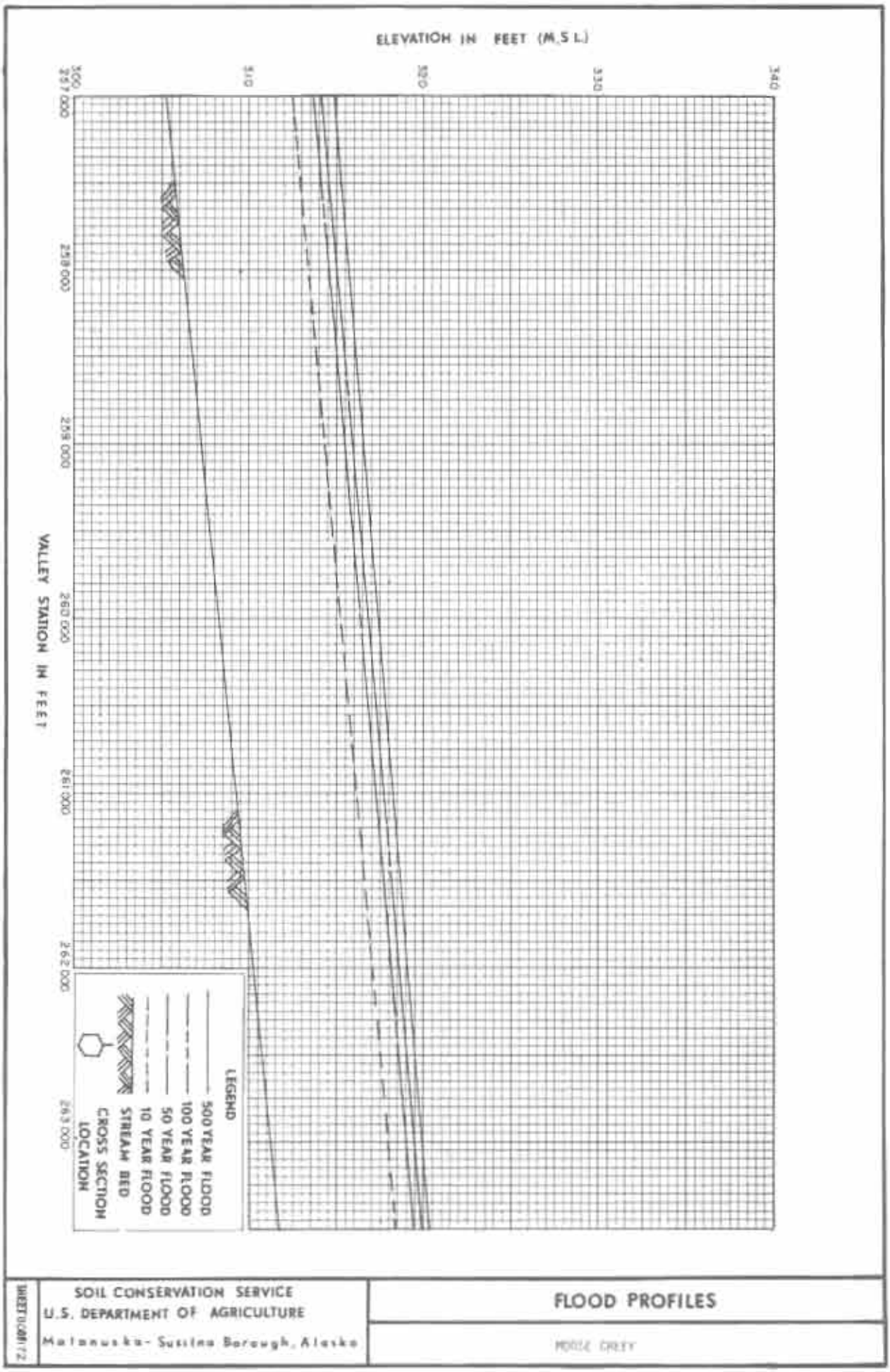
MOOSE CREEK

EXHIBIT 2



SHEET 7 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES MOOSE CREEK

EXHIBIT J



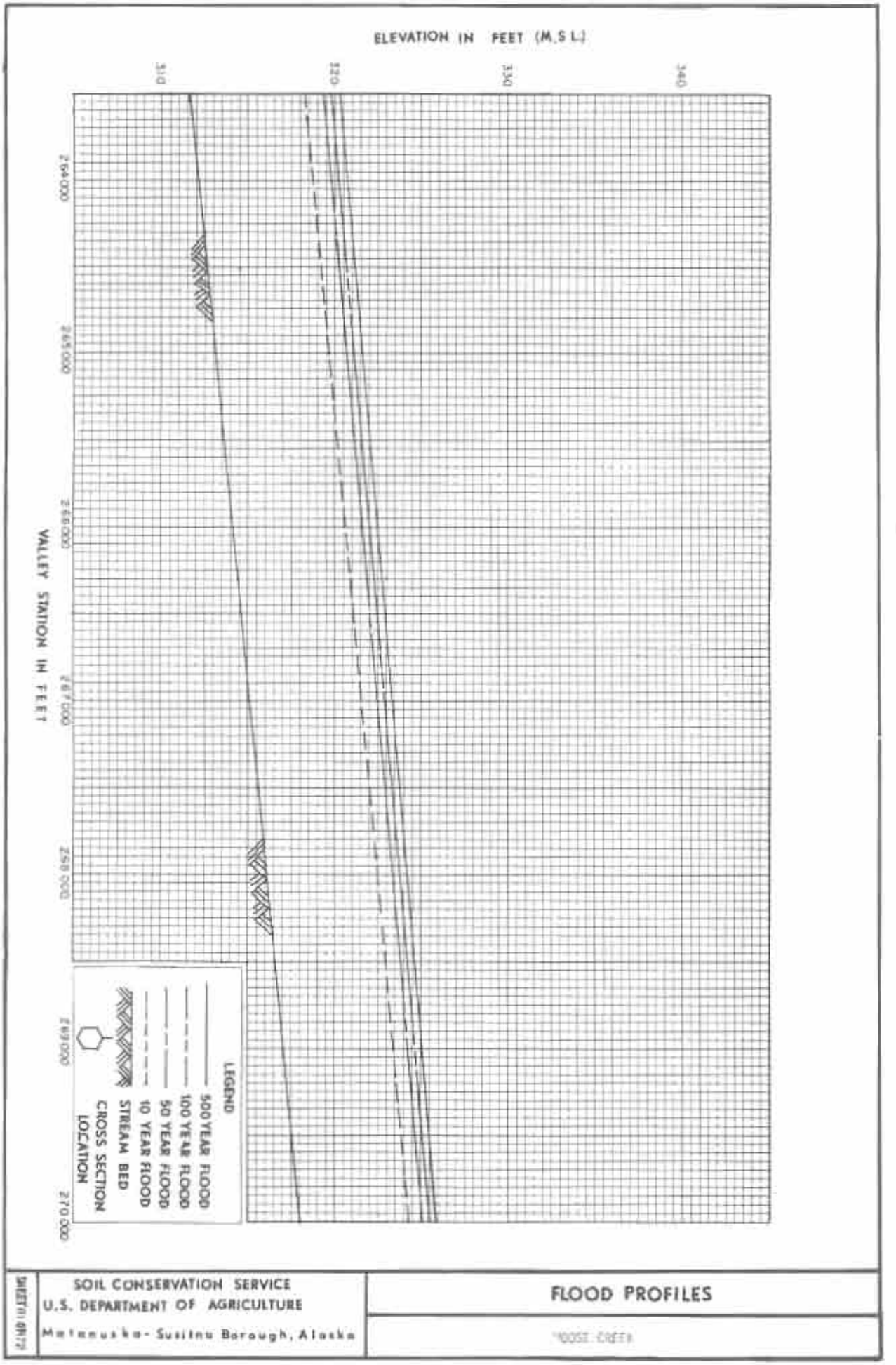
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

SHEET 6 OF 12

EXHIBIT 2



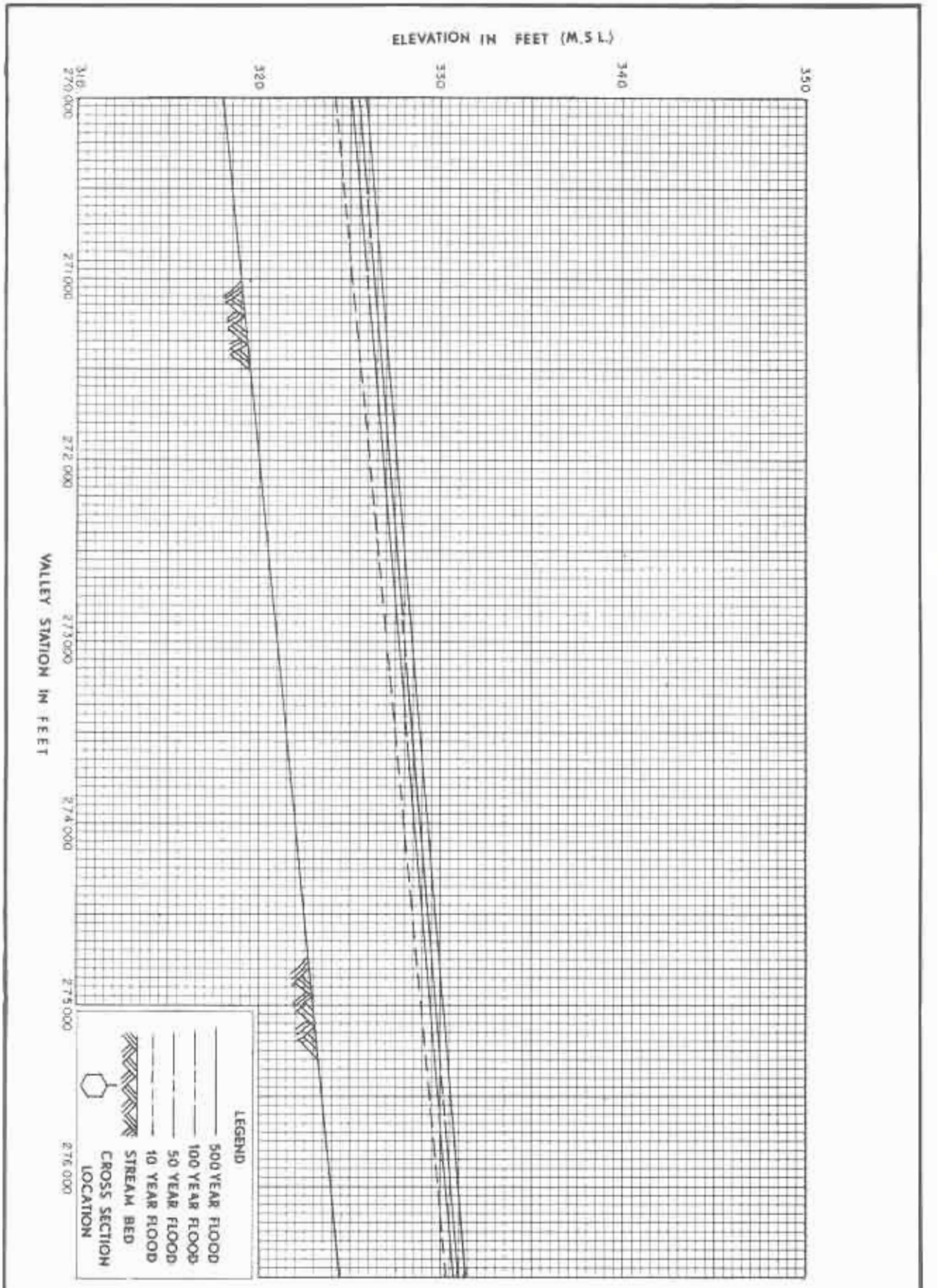
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 01 OF 02

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



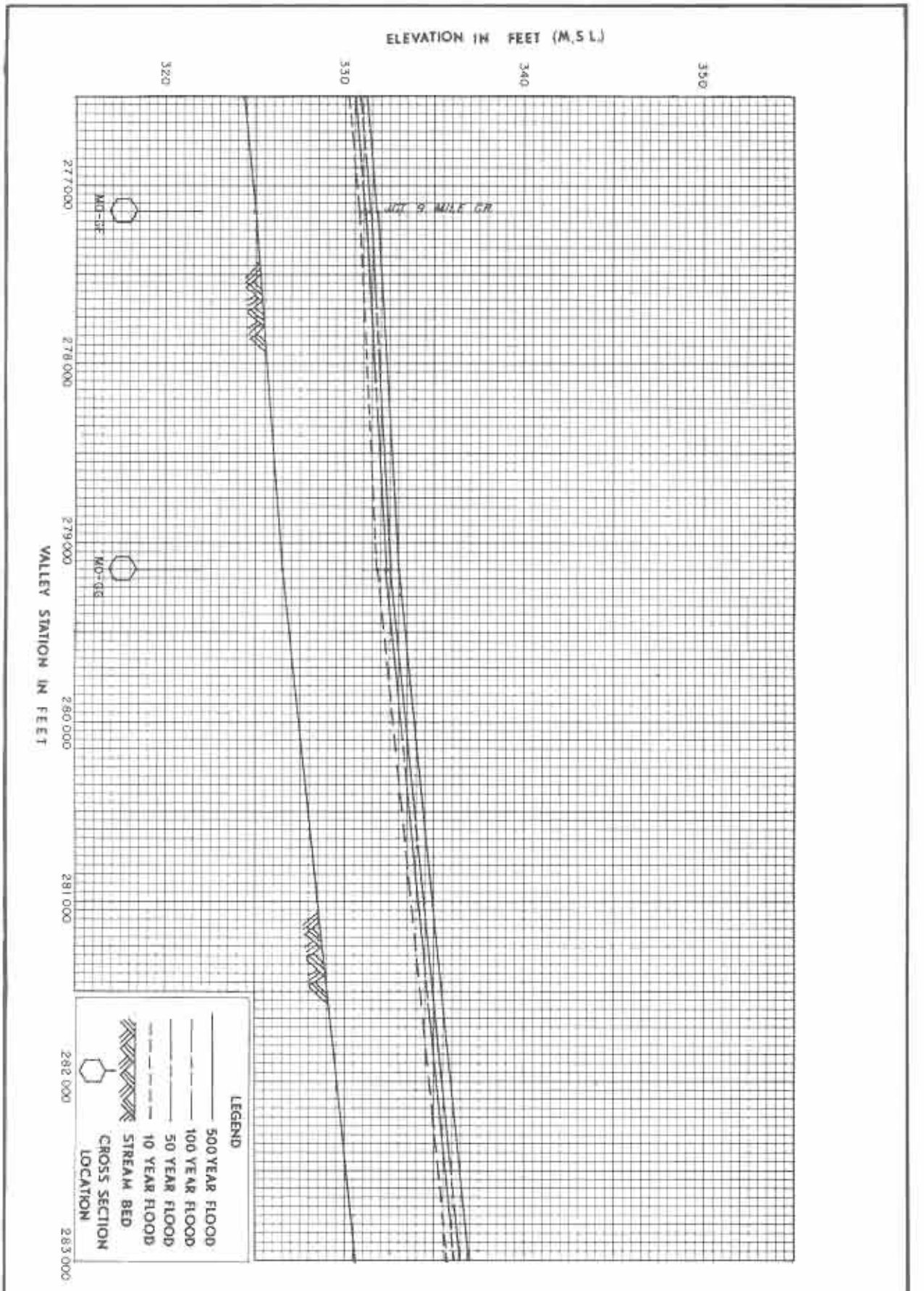
SHEET 02 8/72

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT J



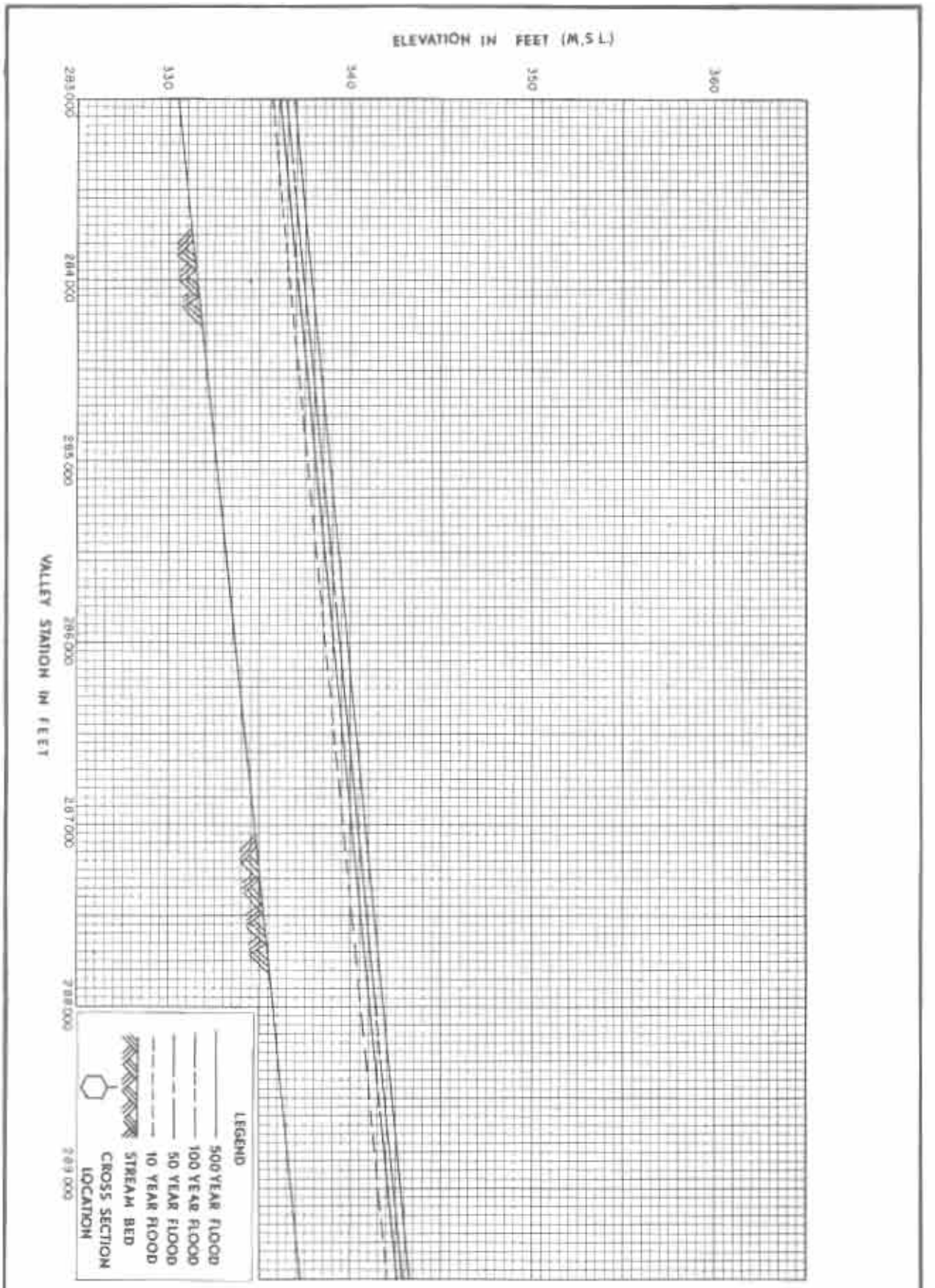
SHEET 3 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



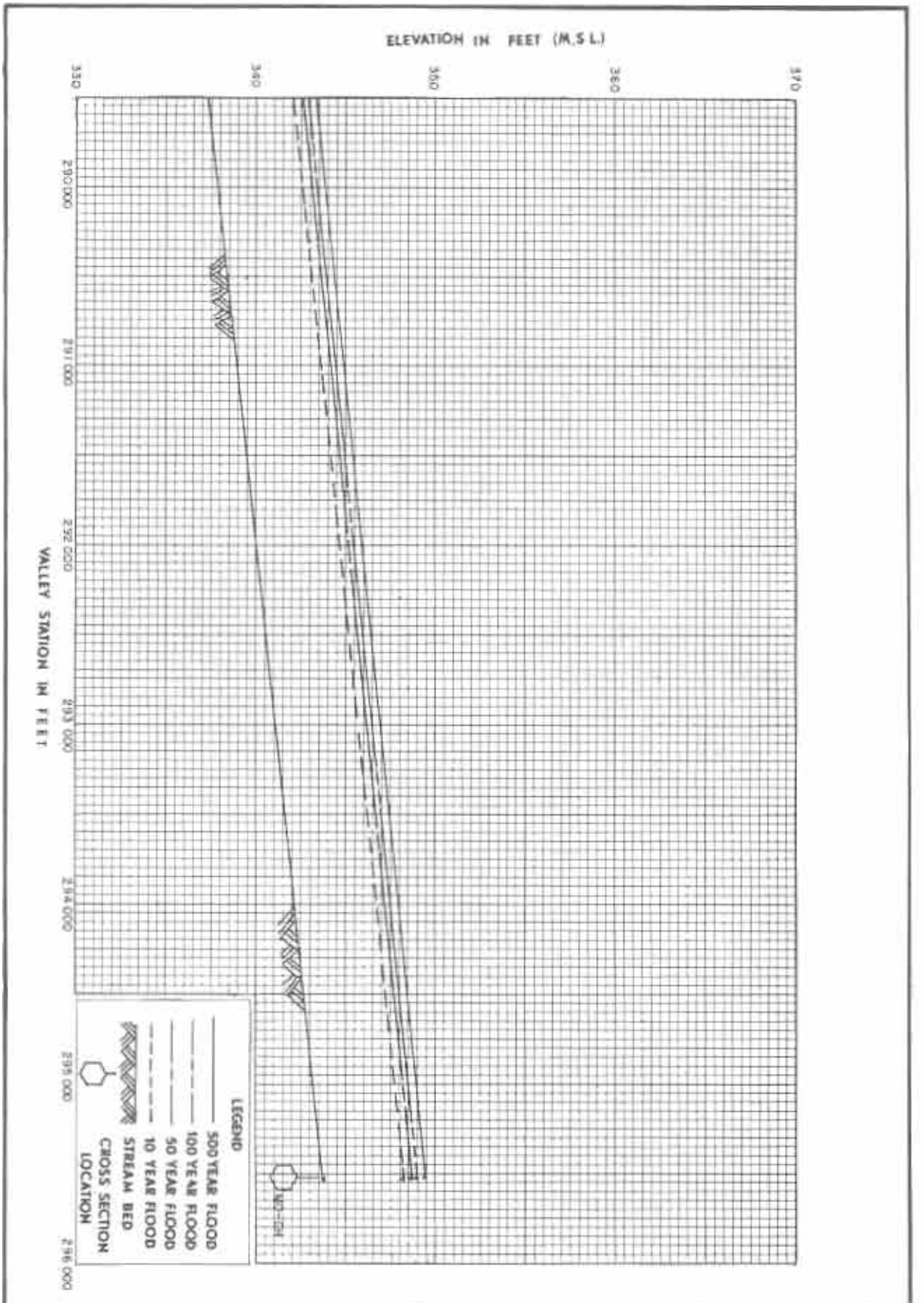
SHEET 4 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 7



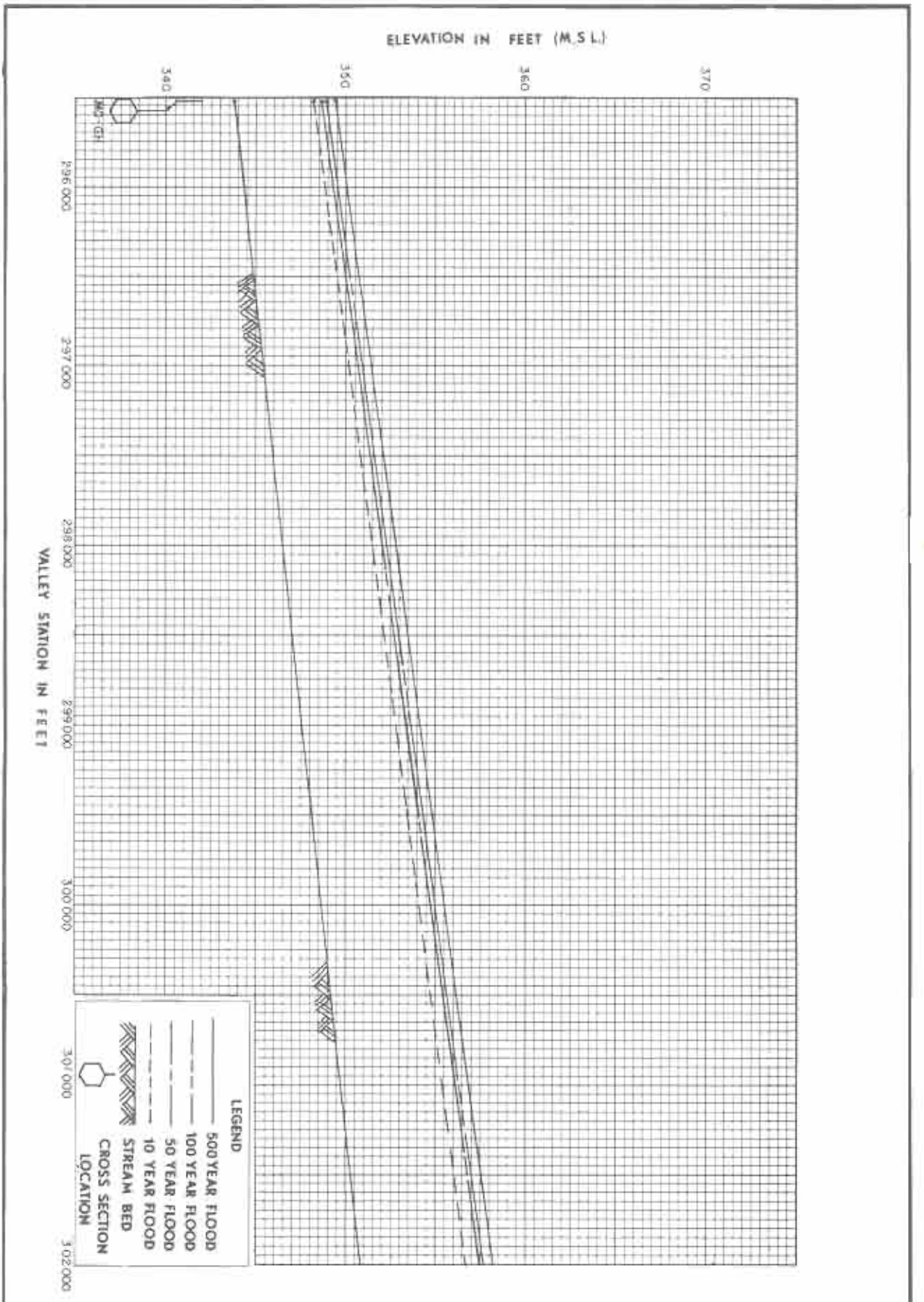
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

SHEET 04 OF 22

EXHIBIT J



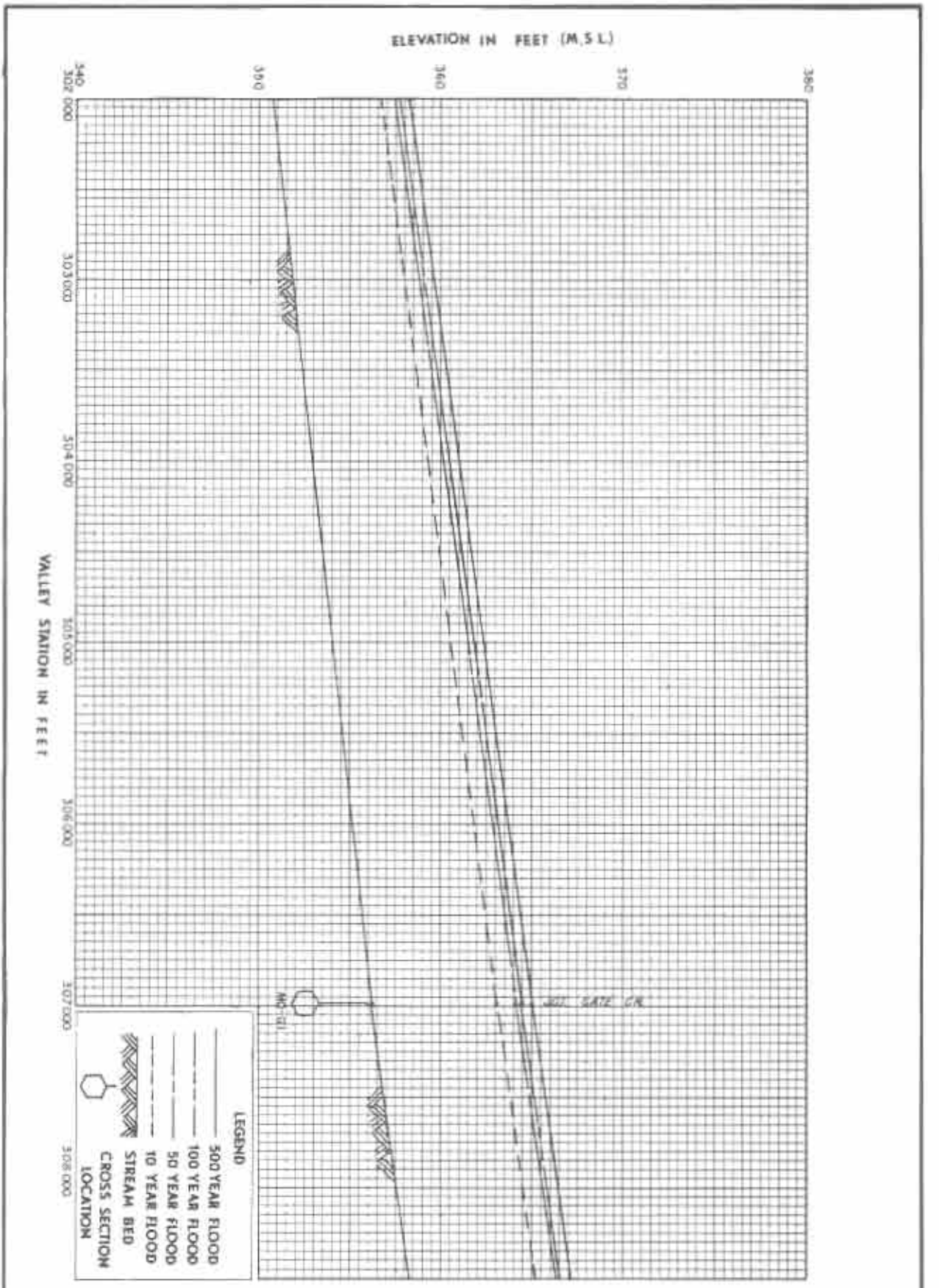
SHEET 8 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 9



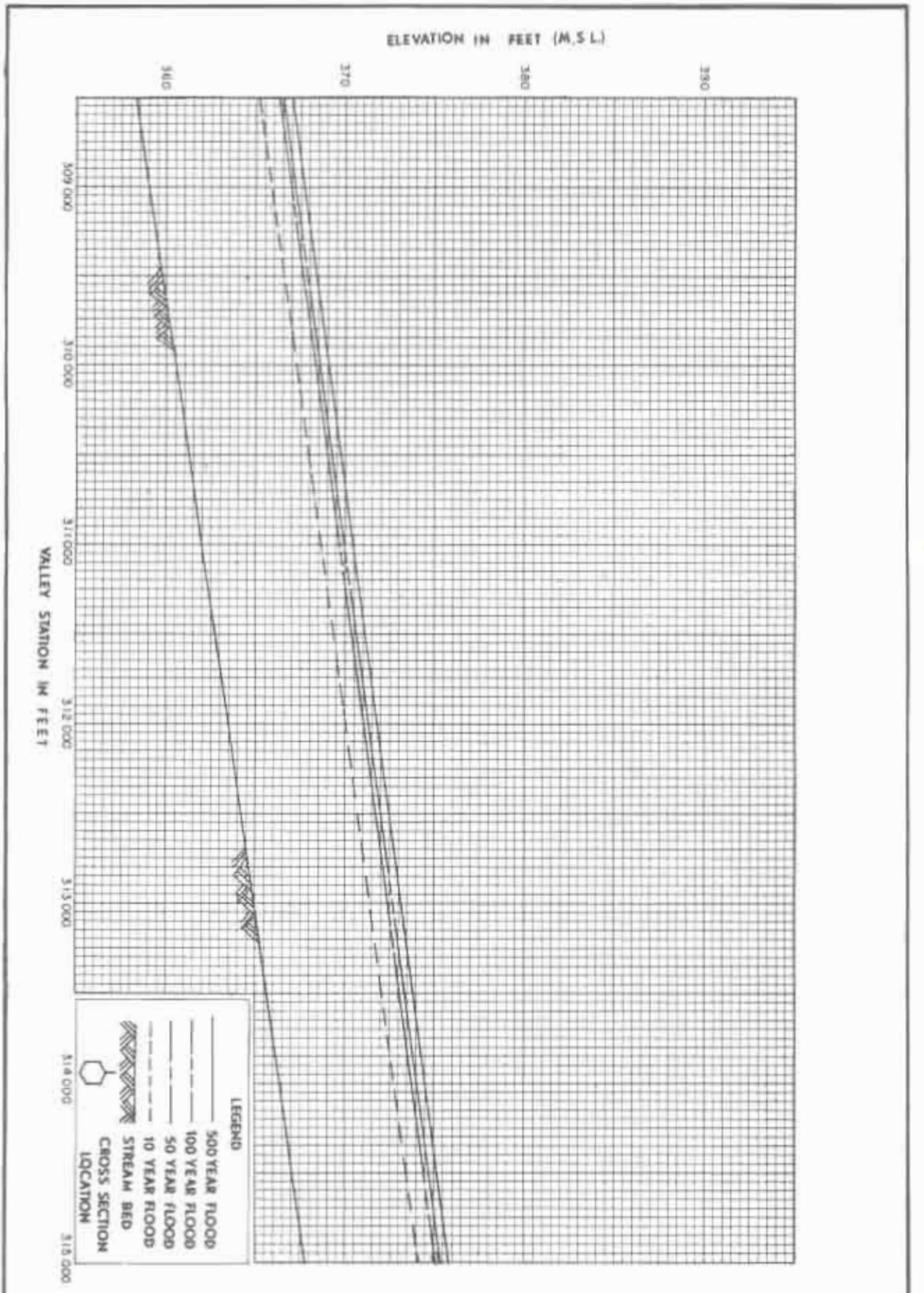
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 1 OF 12

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



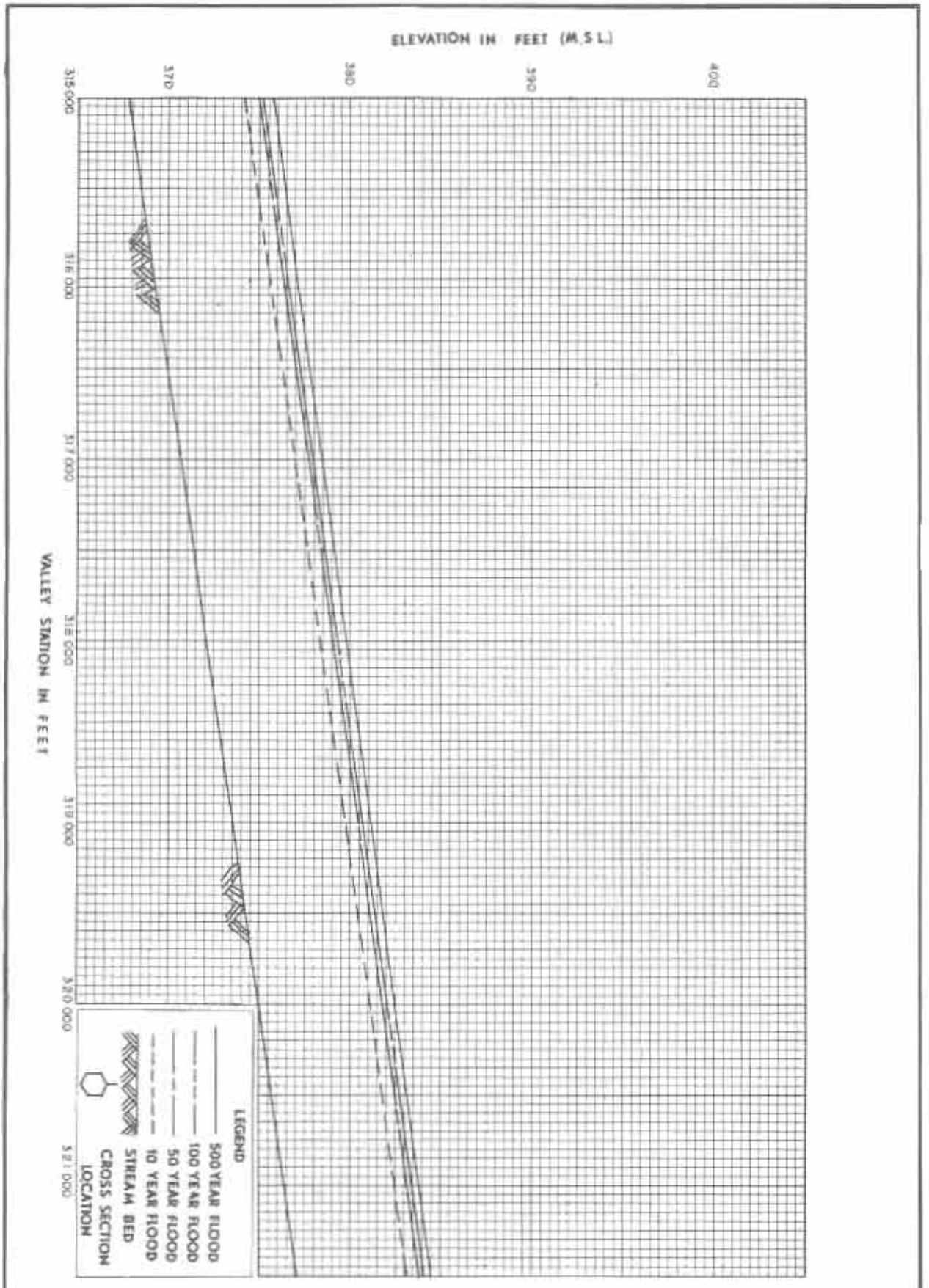
SHEET 10 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



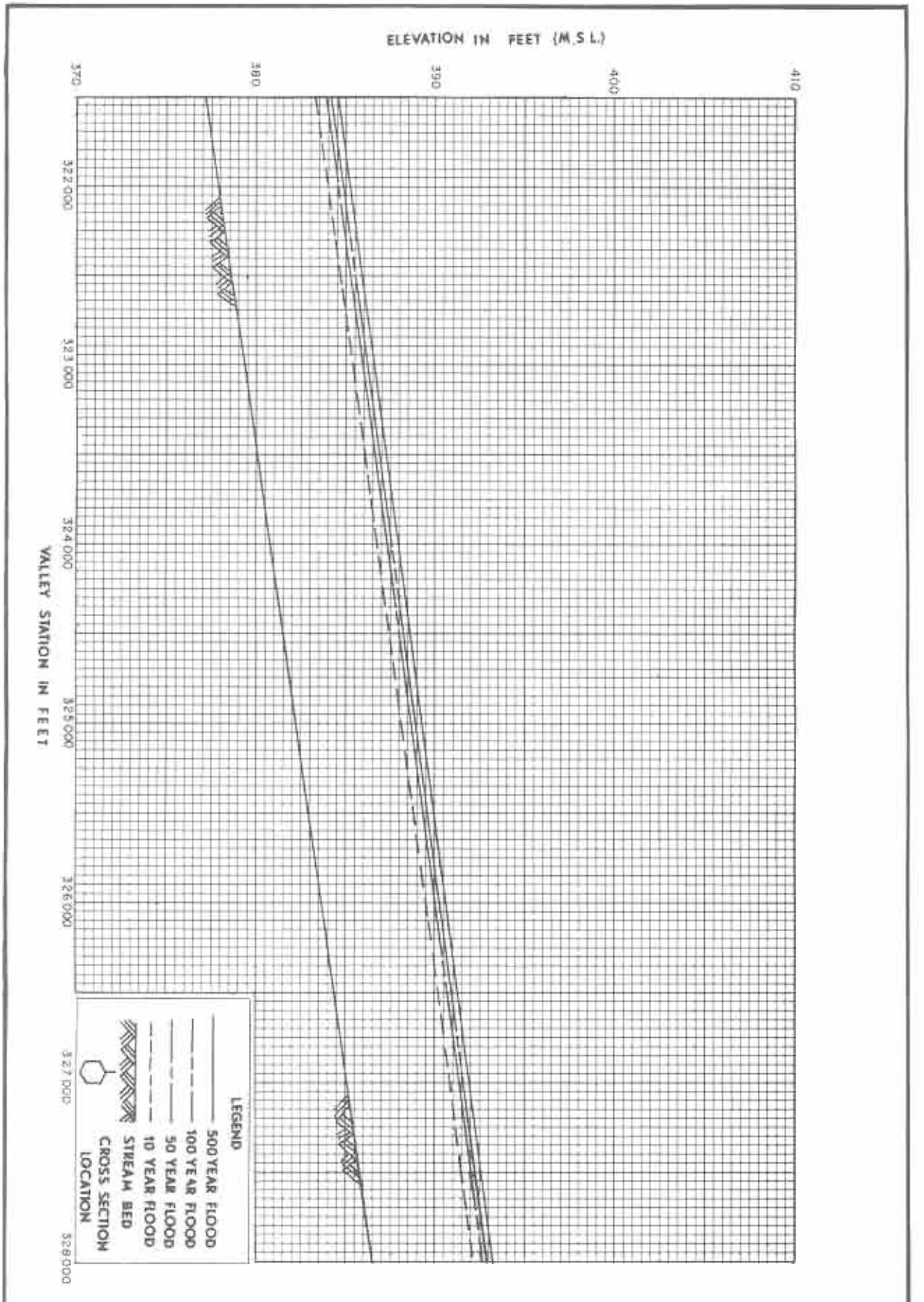
SHEET 9 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

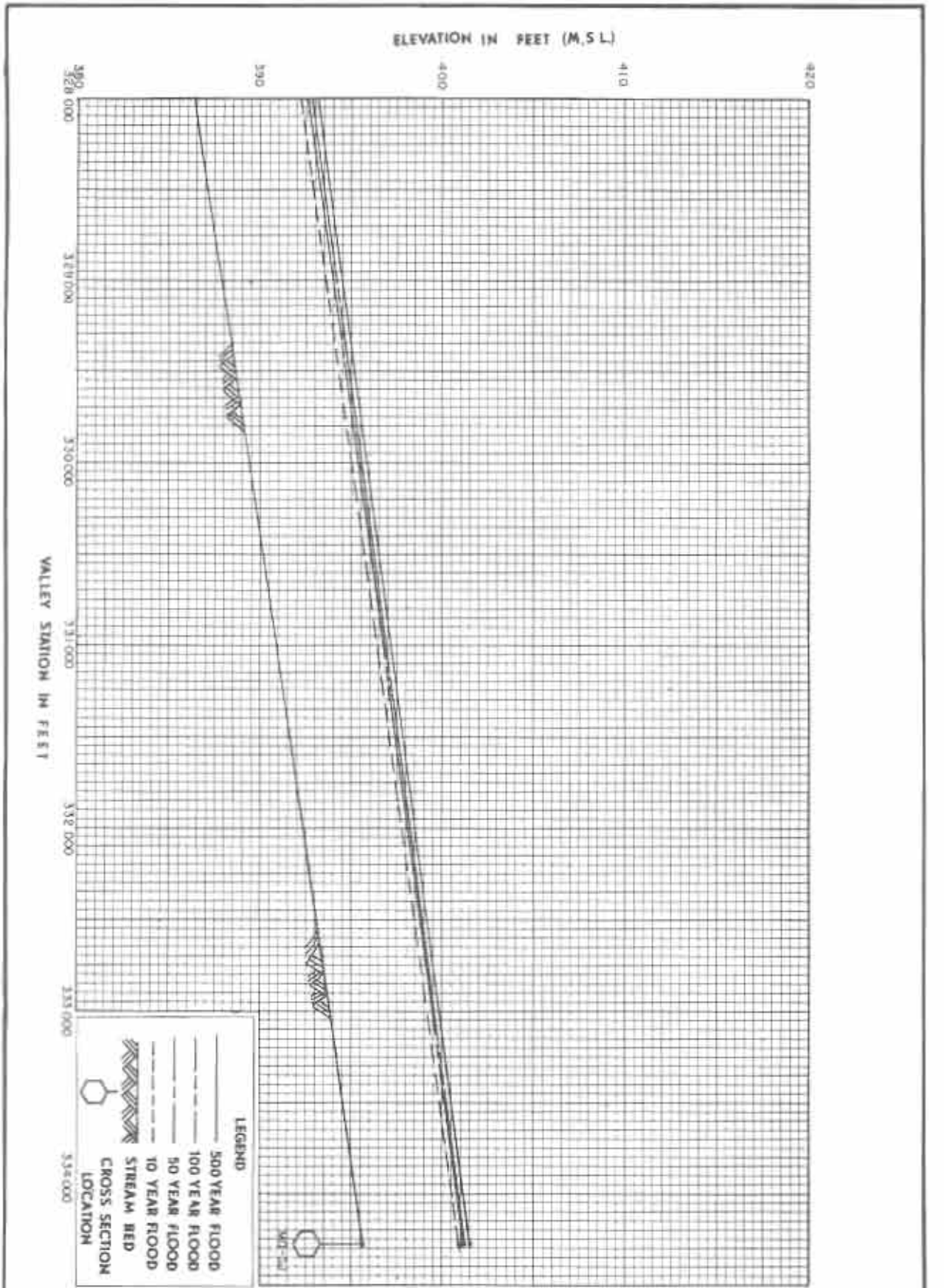
MOOSE CREEK

EXHIBIT 7



SHEET 9 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES MOOSE CREEK

EXHIBIT 2



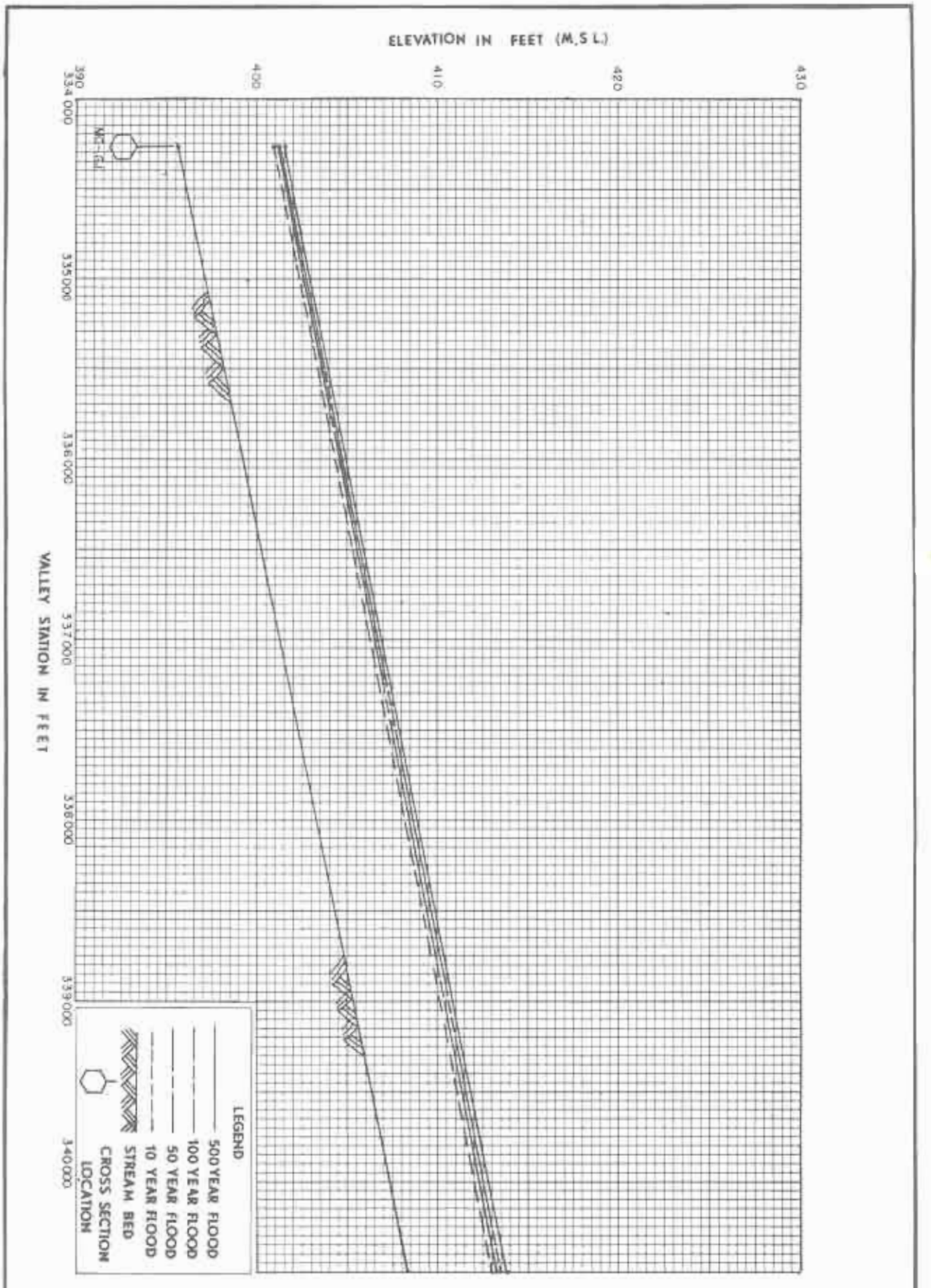
SHEET 9 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



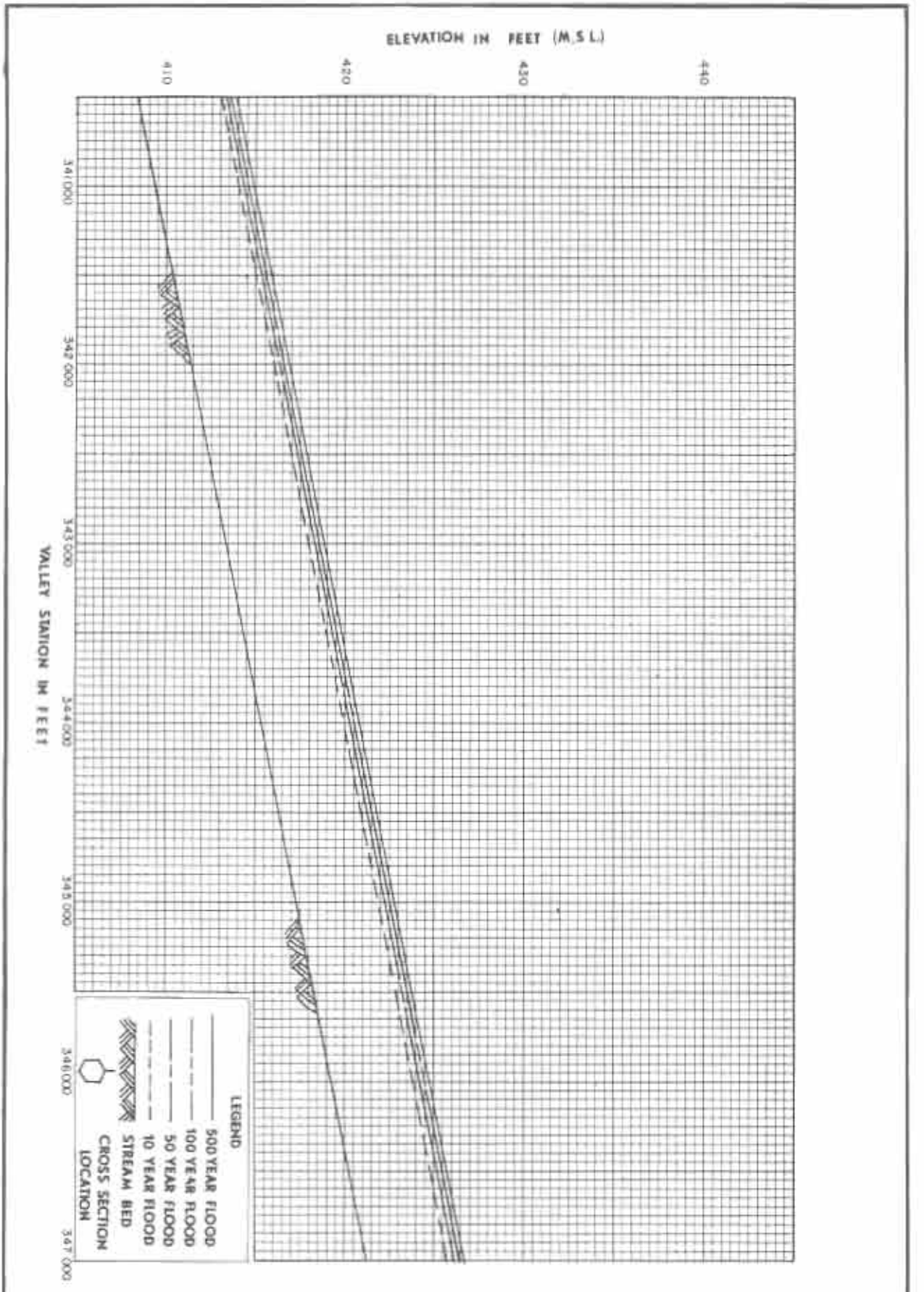
SHEET 2 OF 2

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



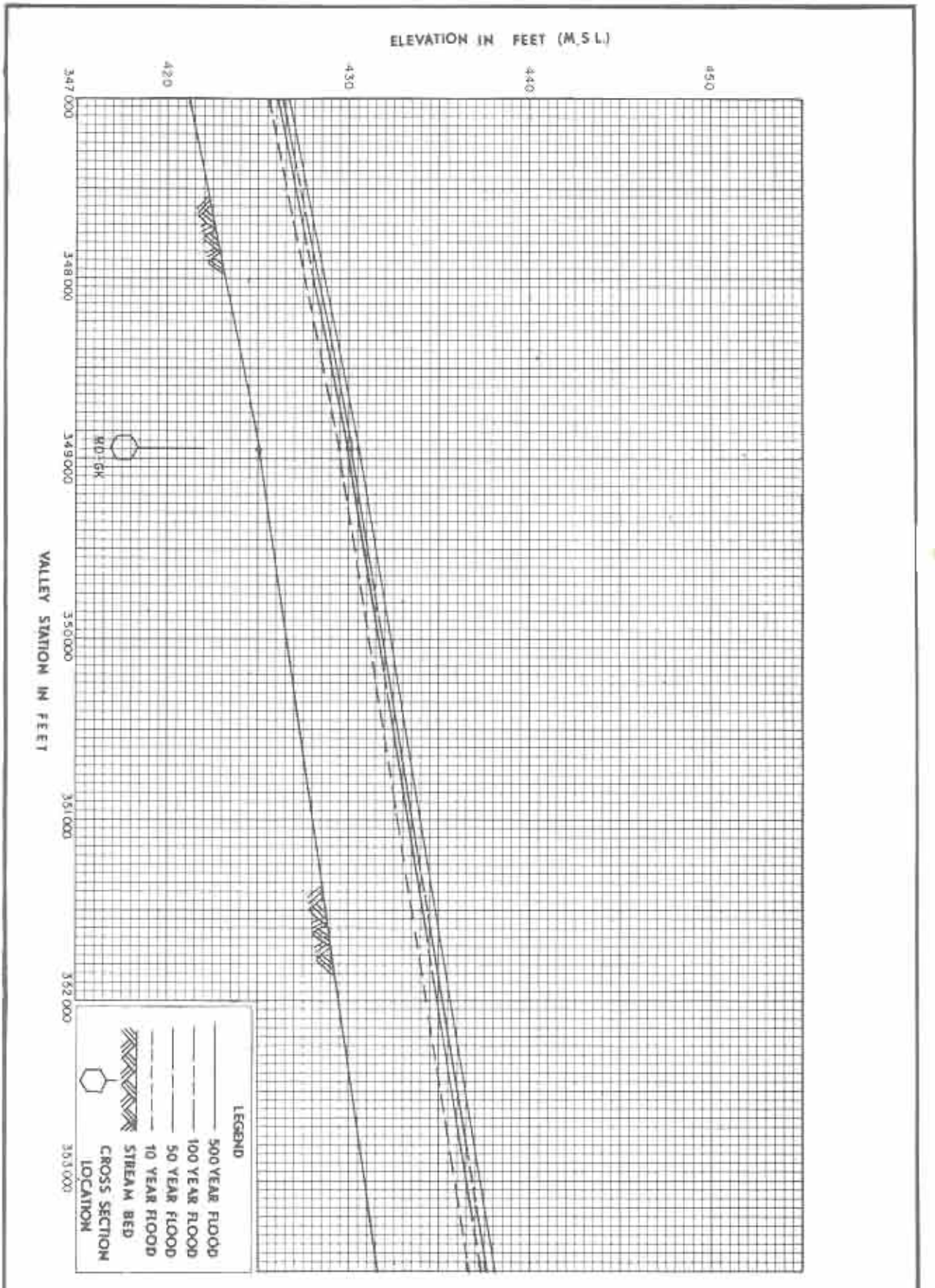
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 3 OF 12

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



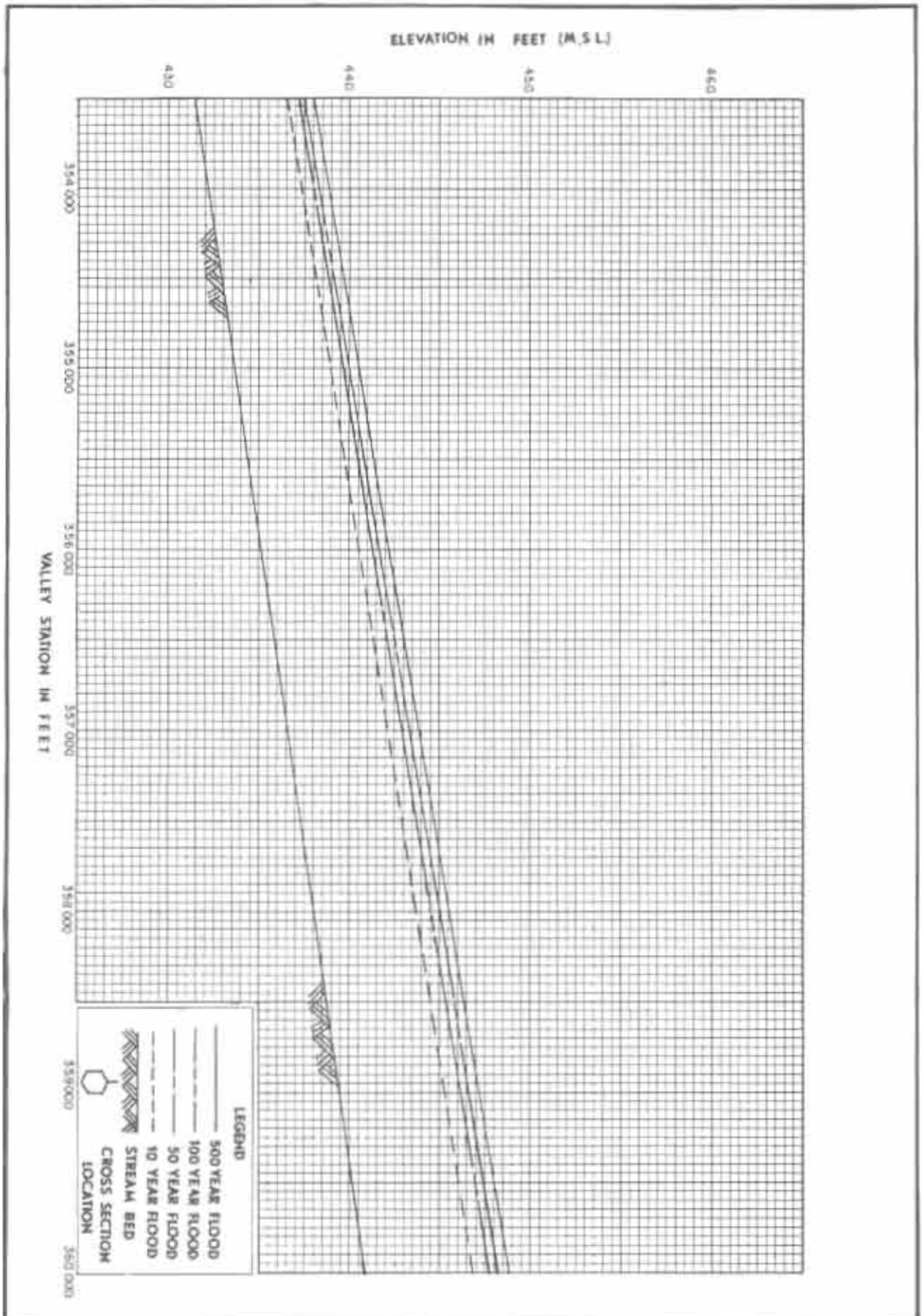
SHEET 9 of 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



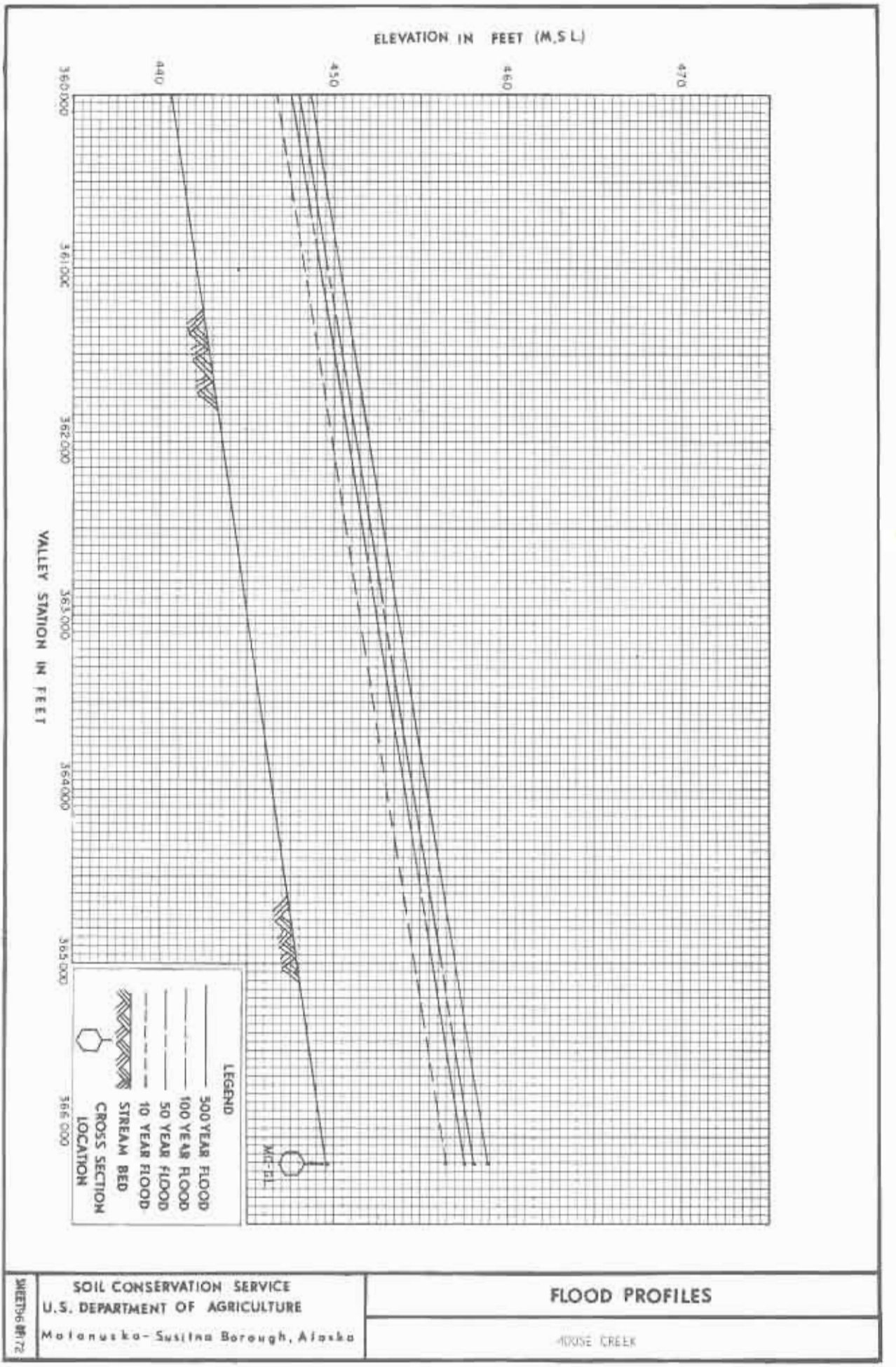
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 358-72

FLOOD PROFILES

MOOSE CREEK

EXHIBIT 2



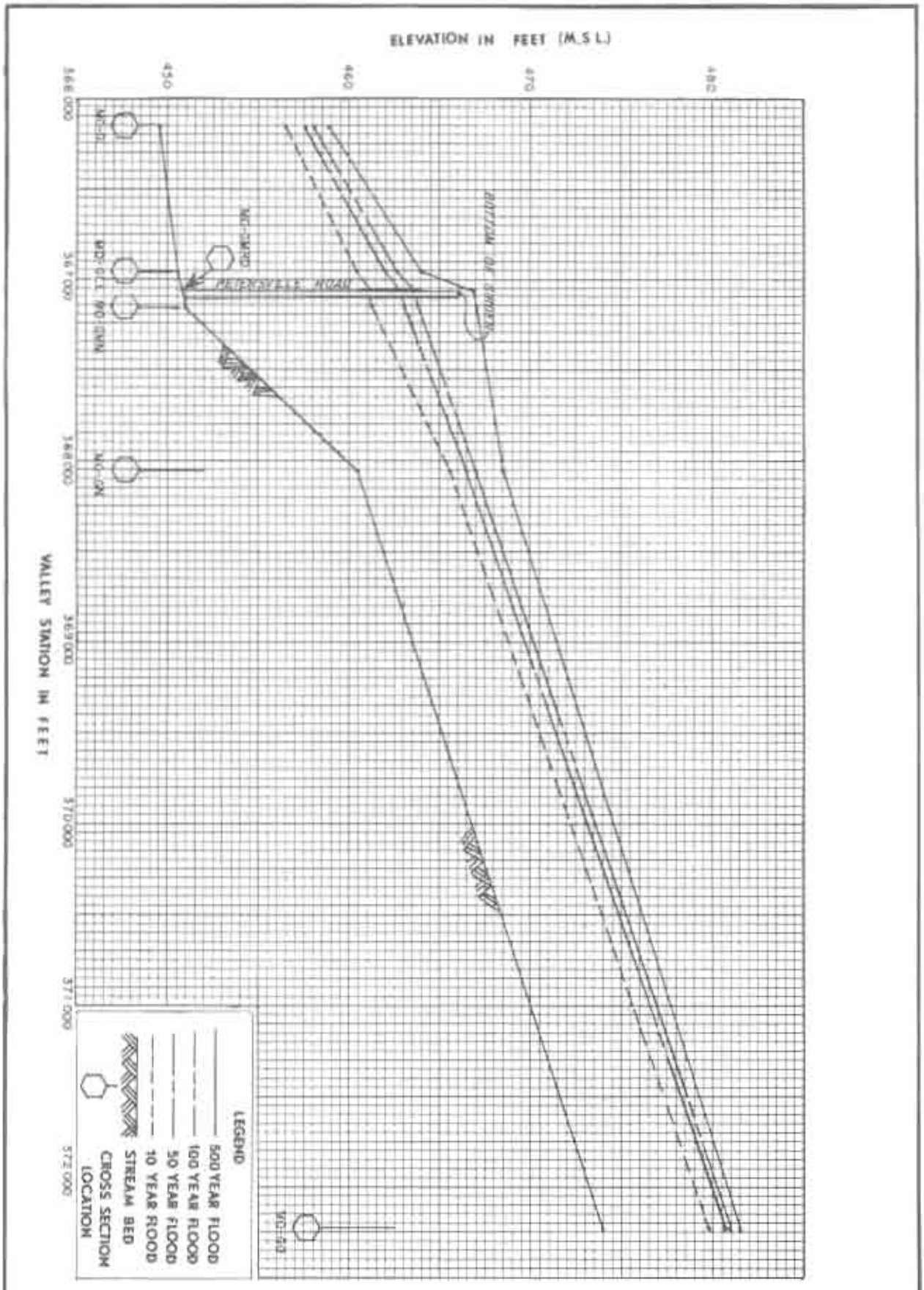
SHEET 96 OF 72

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

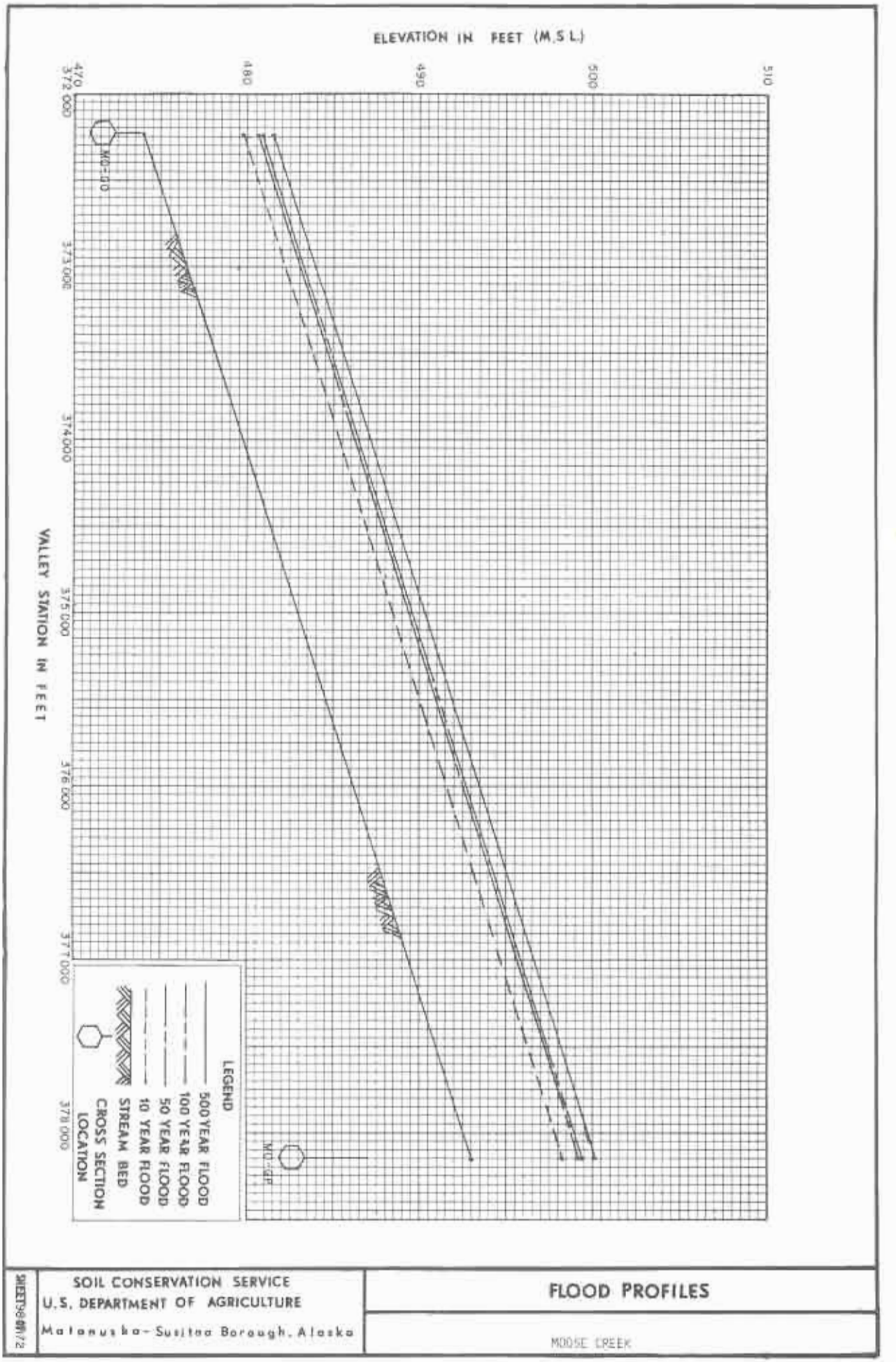
MOOSE CREEK

EXHIBIT 2



SHEET 7 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	**FLOOD PROFILES** MOOSE CREEK

EXHIBIT 2



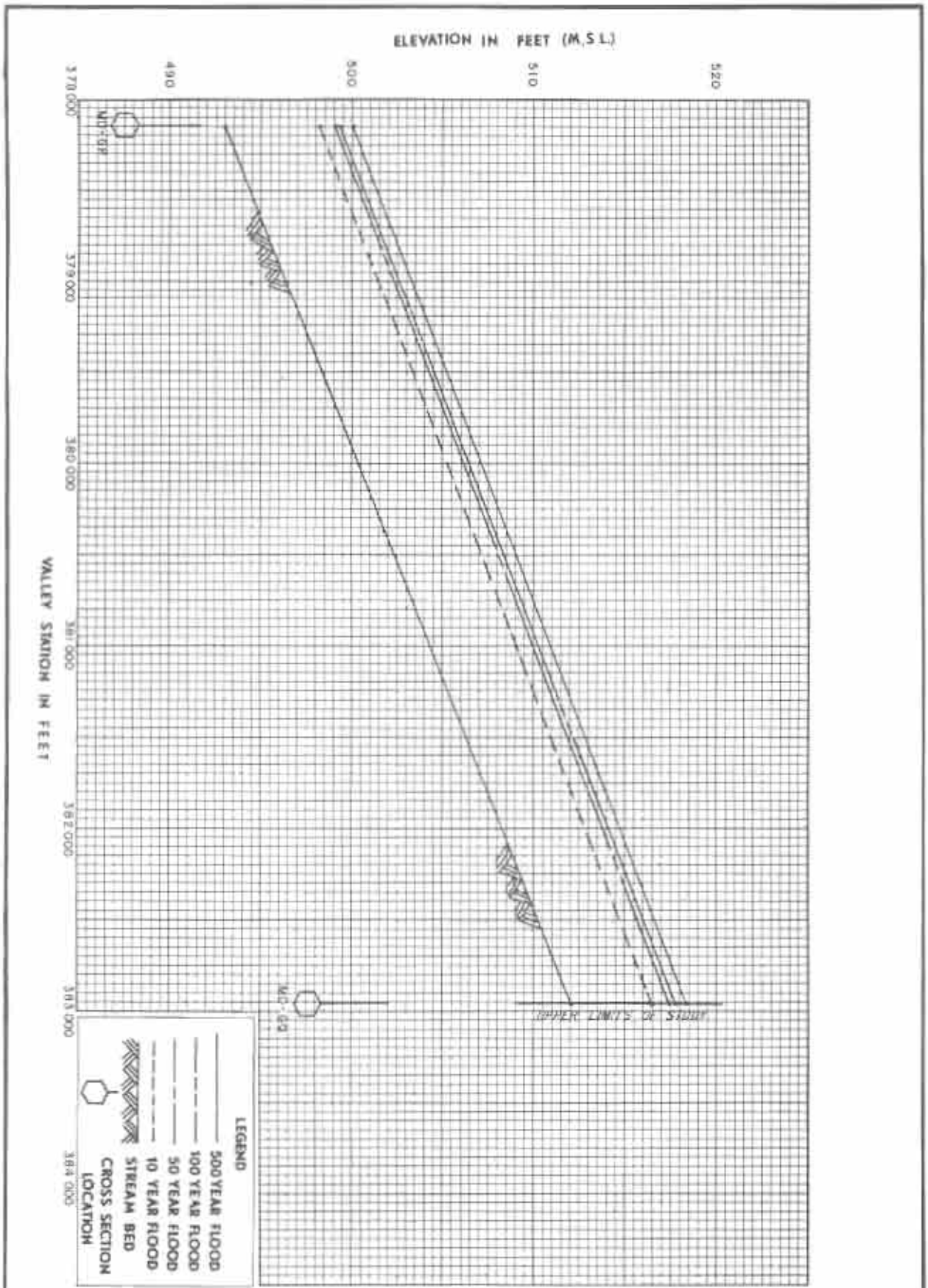
SHEET 9 of 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

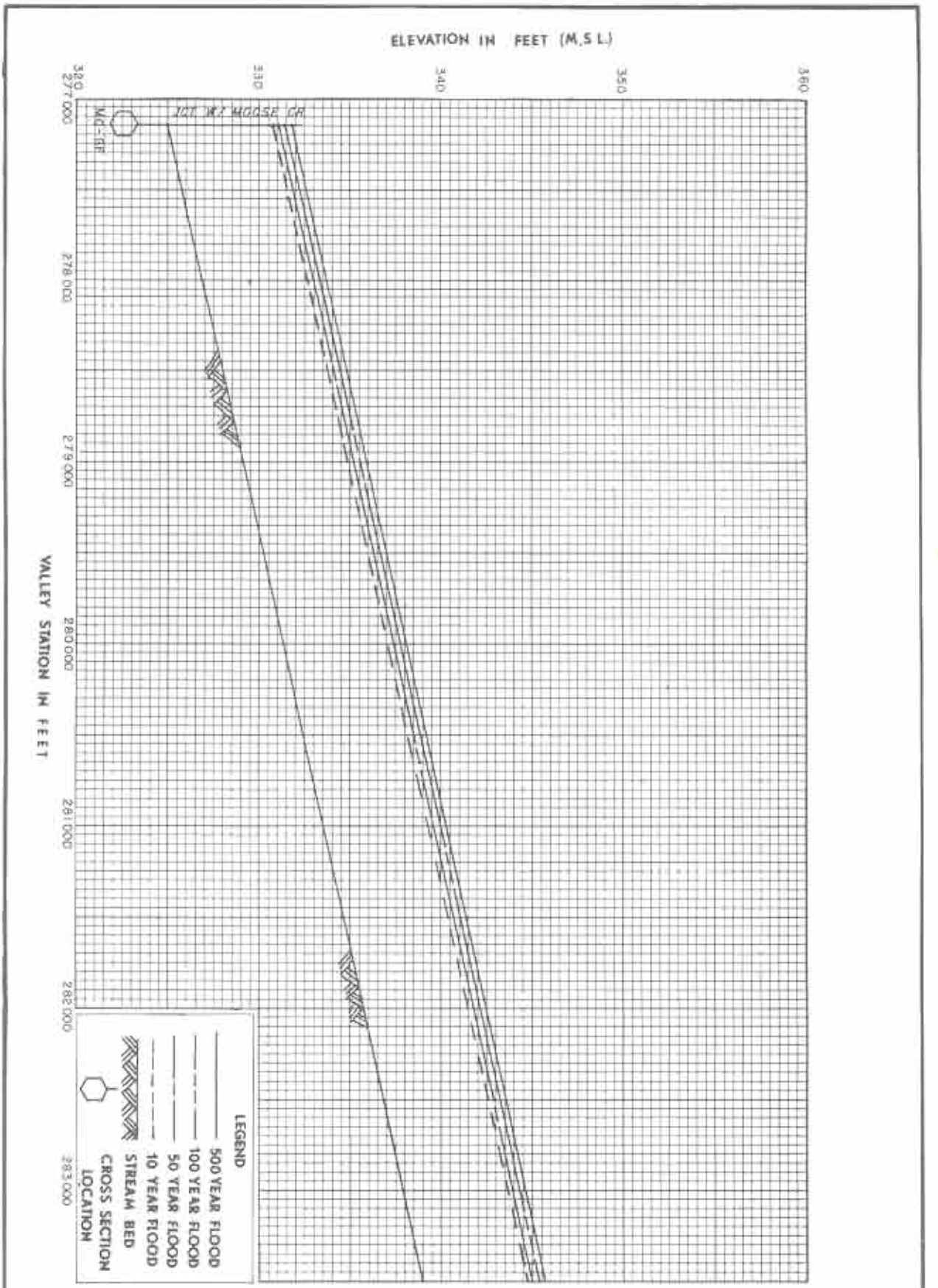
MOOSE CREEK

EXHIBIT 2



SHEET 9-8-72	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES MOOSE CREEK

EXHIBIT 2



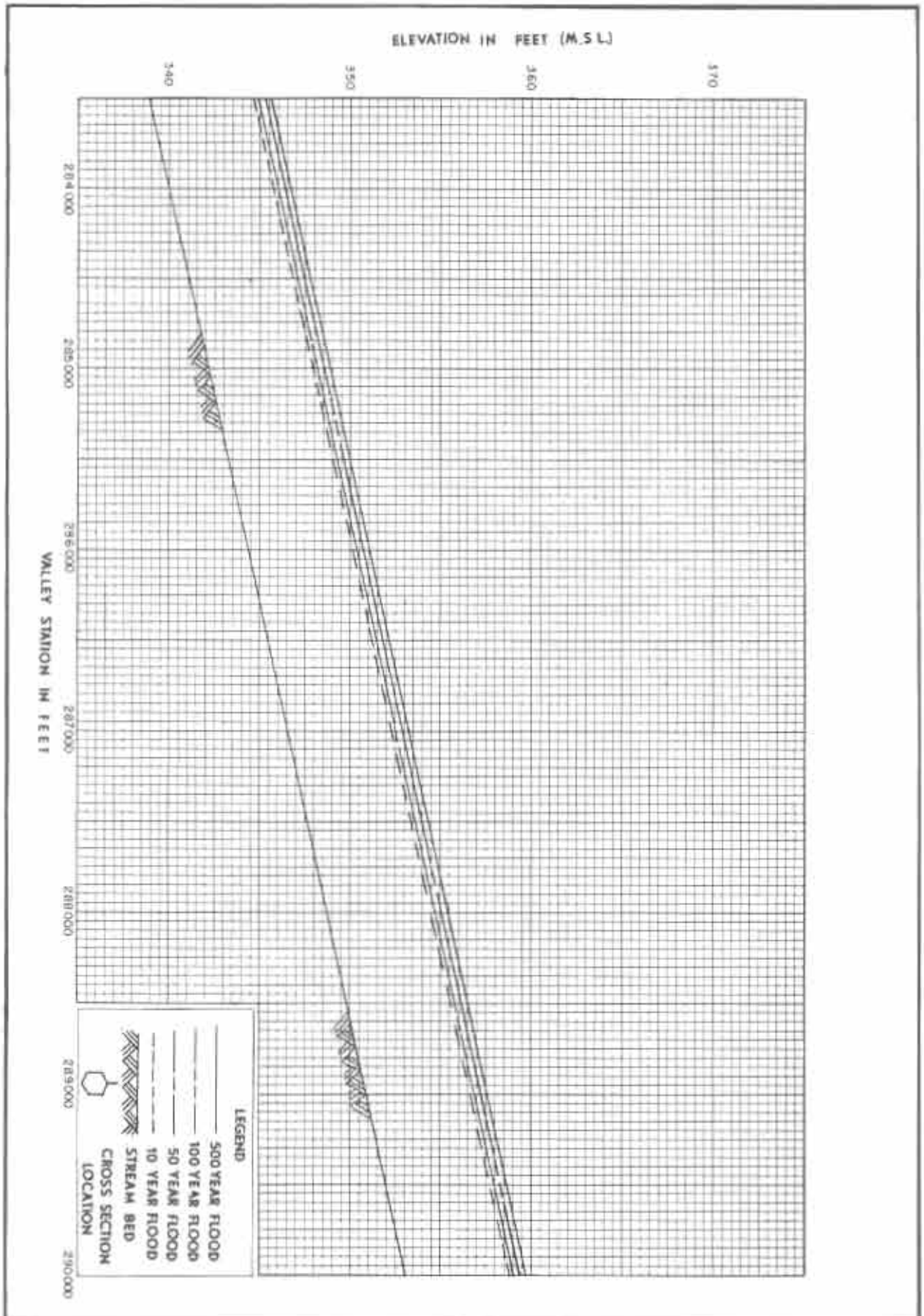
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

SHEET NO. 2

EXHIBIT 2

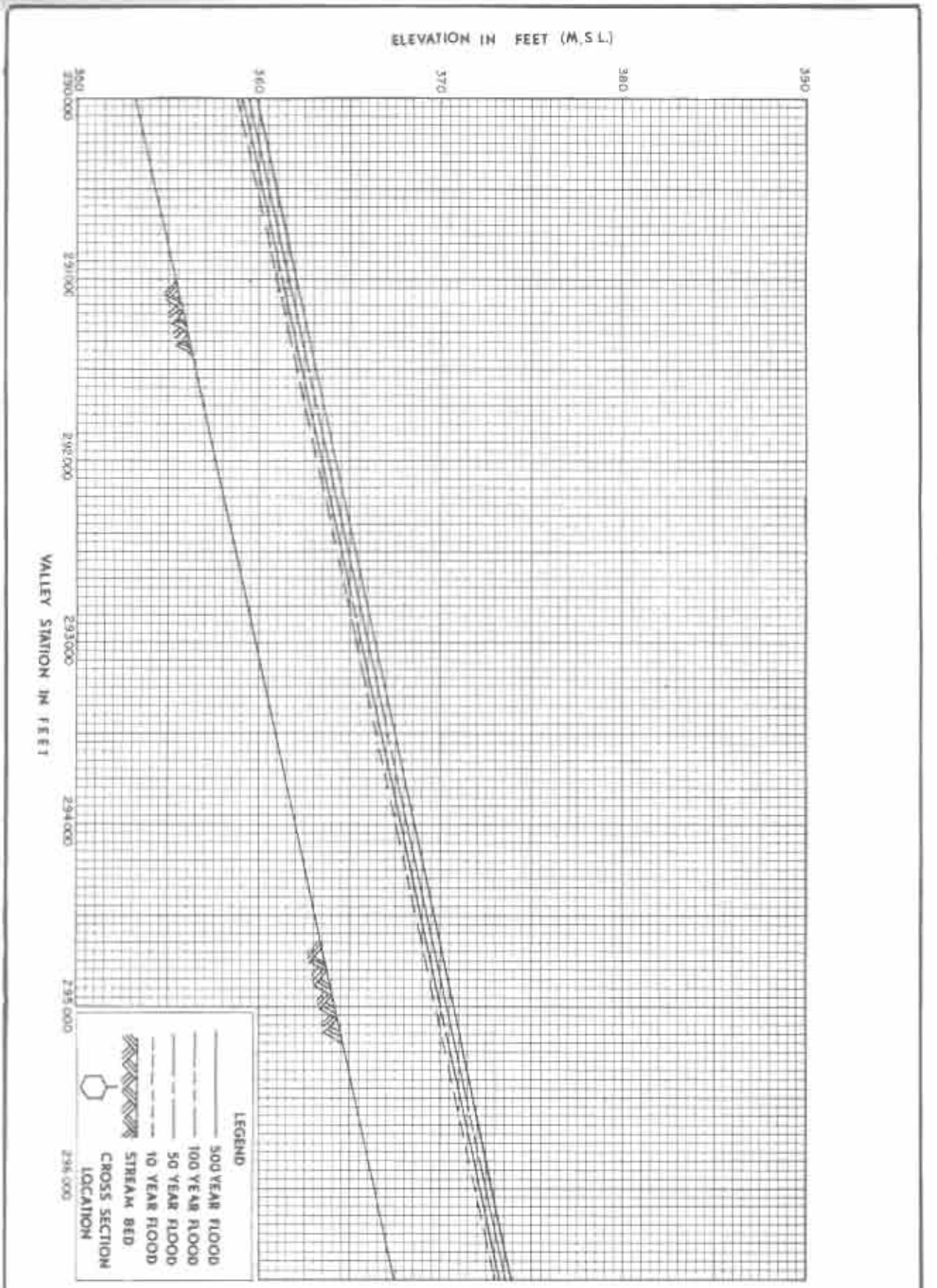


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

SHEET NO. 22



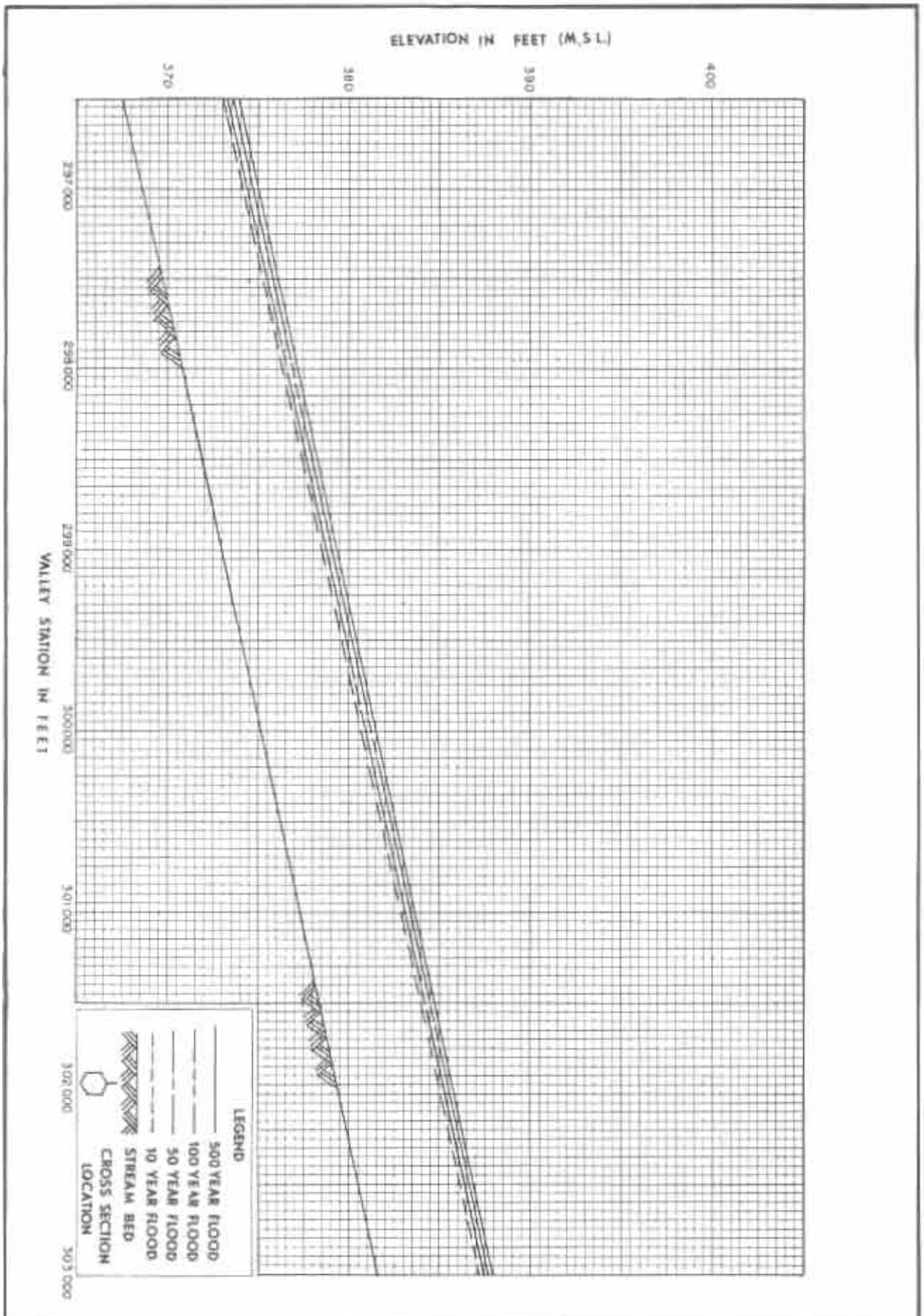
SHEET 10 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

EXHIBIT C



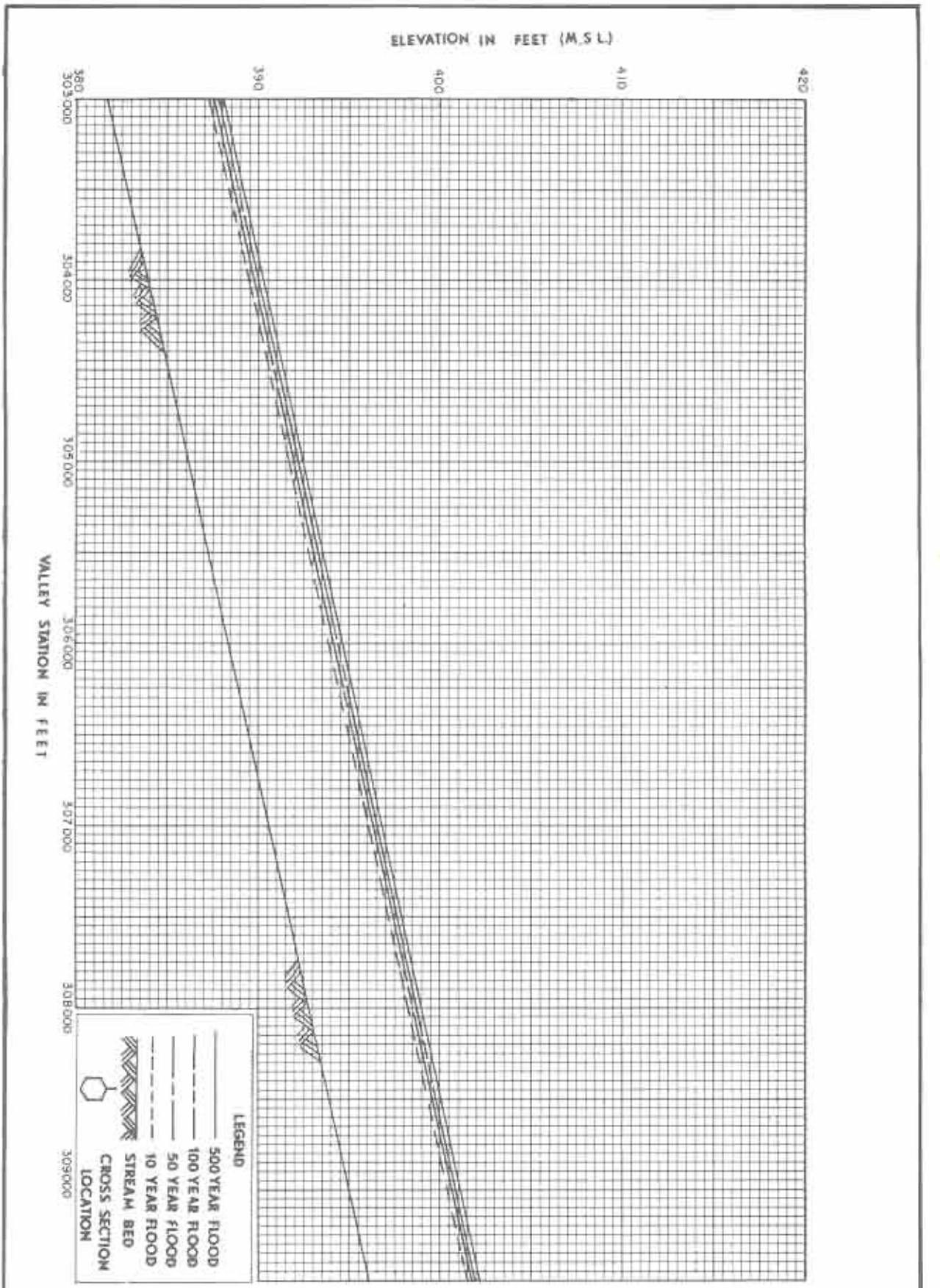
SHEET 03 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

EXHIBIT 7



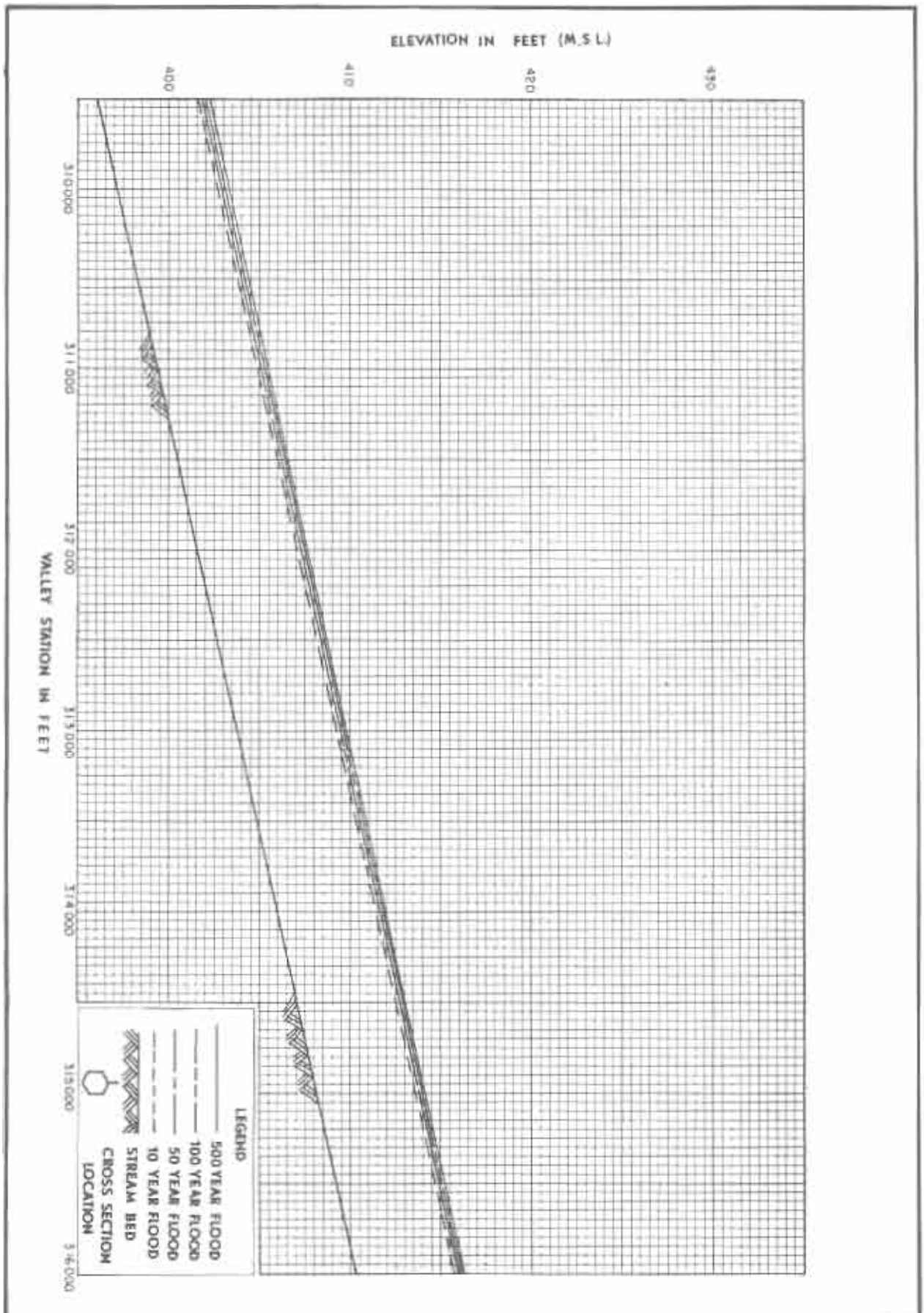
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET NO. 8 OF 12

FLOOD PROFILES

NINE MILE CREEK

EXHIBIT 3



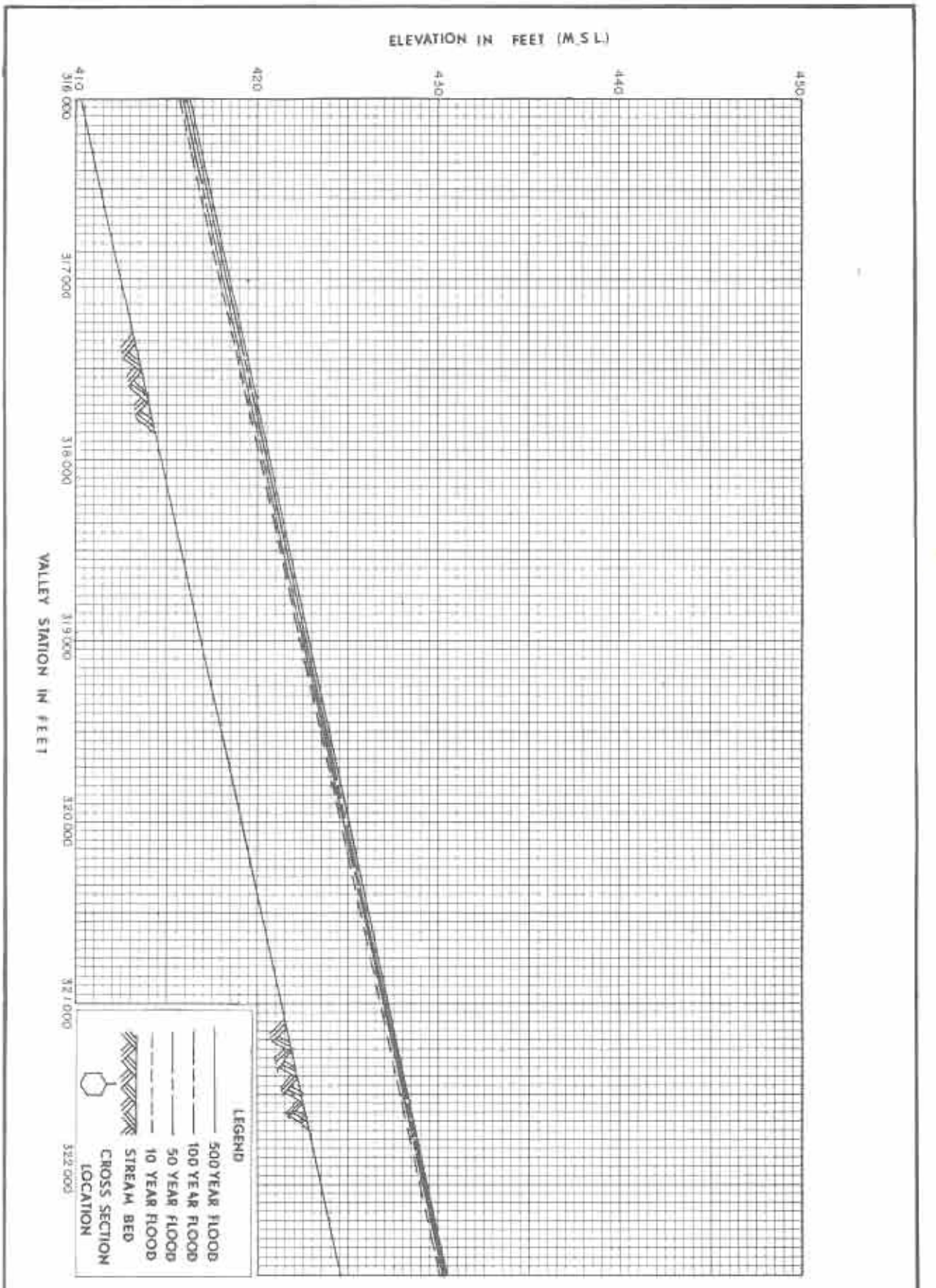
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

SHEET 10 OF 12

EXHIBIT J



SHEET 6 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

EXHIBIT E

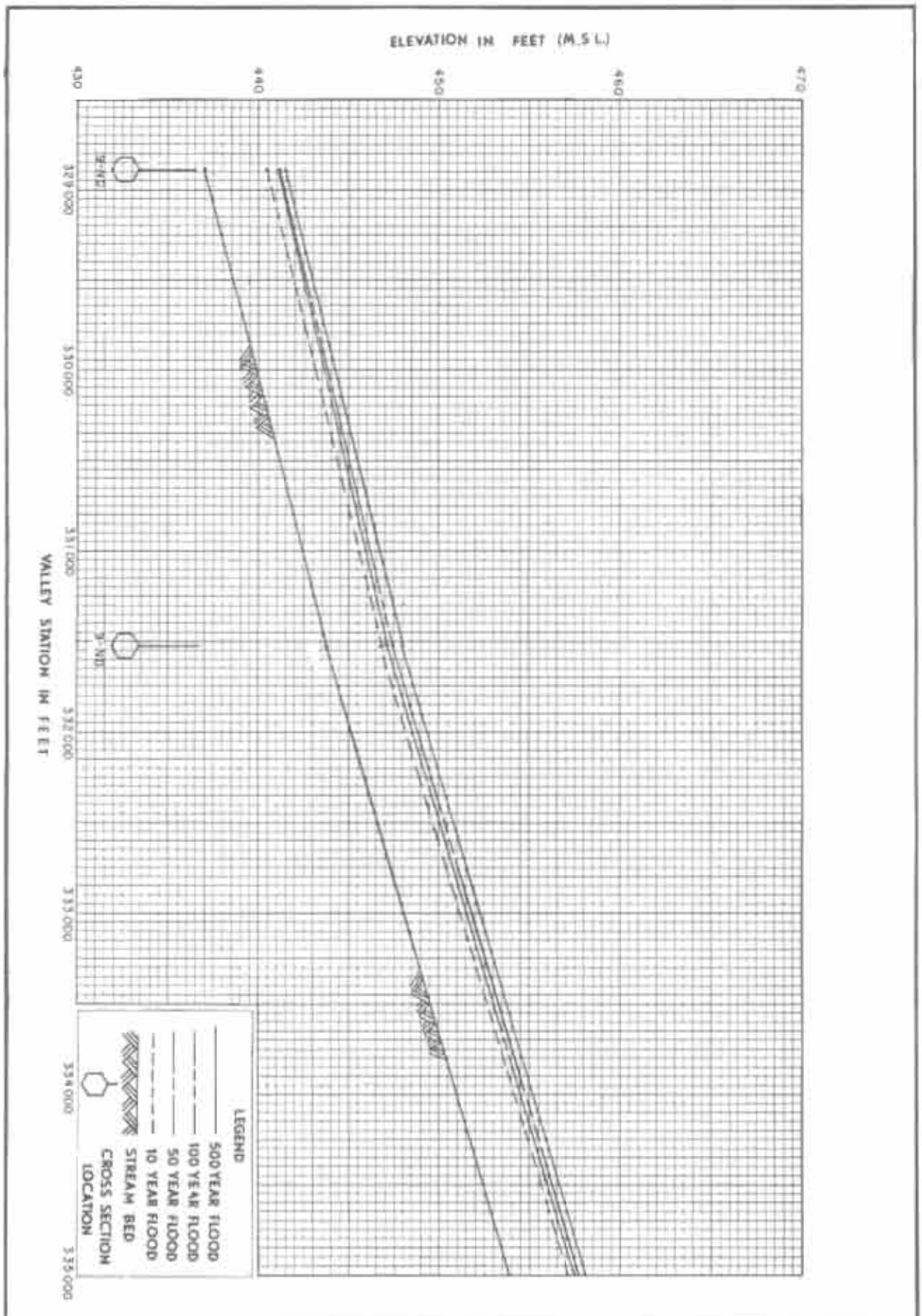
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

NINE MILE CREEK

SHEET 1 OF 2

EXHIBIT J

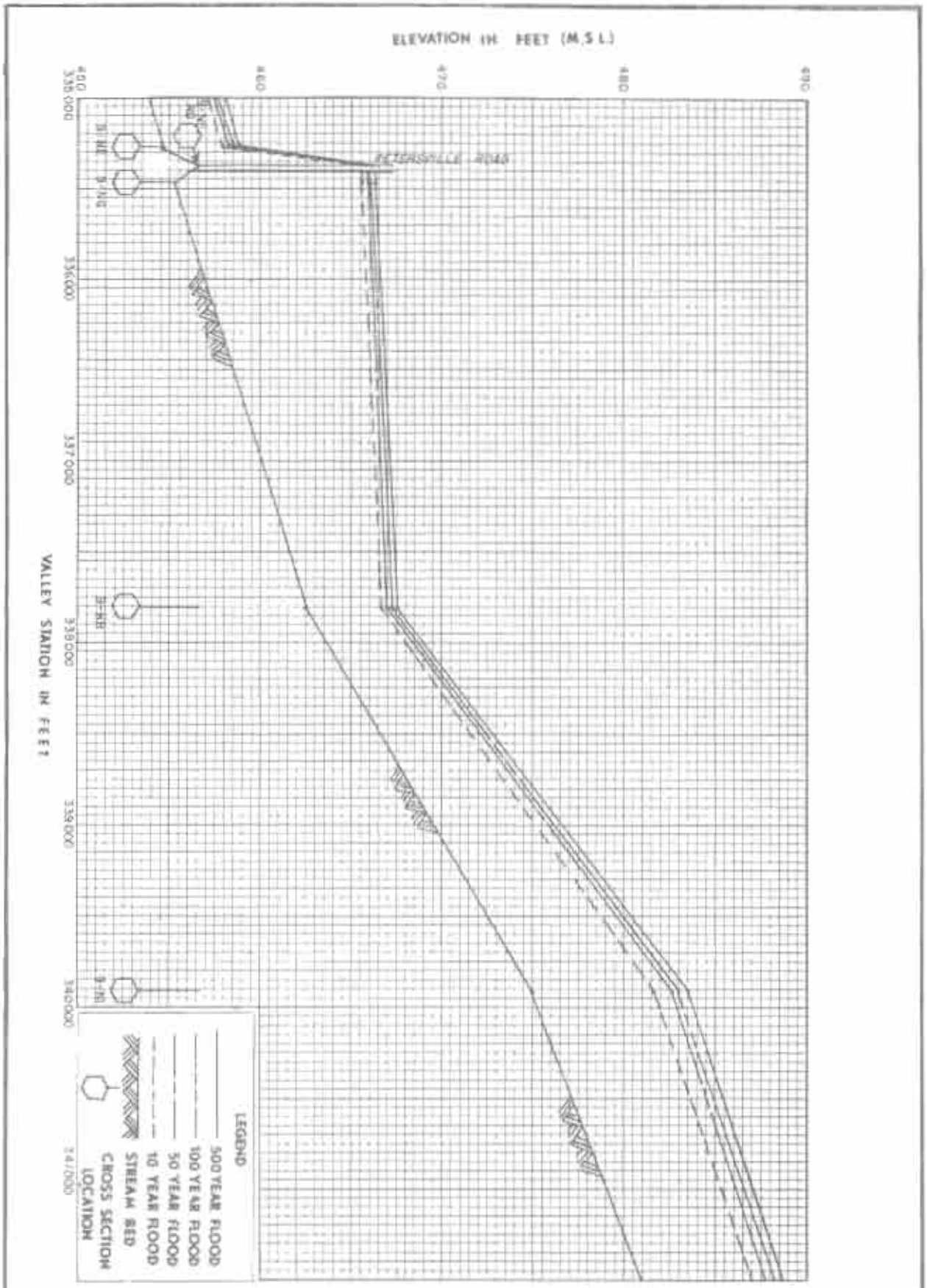


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET NO. 6 OF 12

FLOOD PROFILES

NINE MILE CREEK

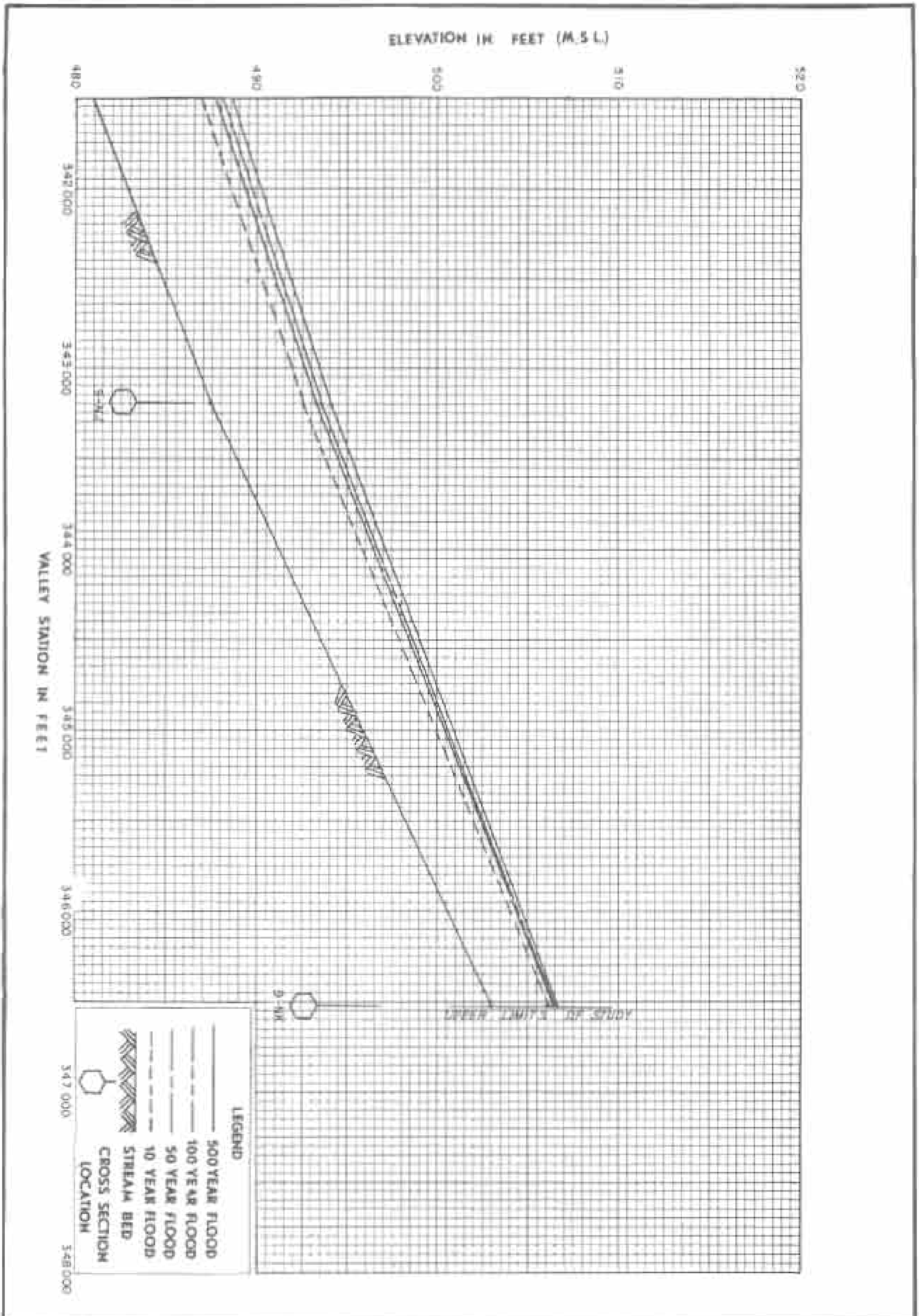


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

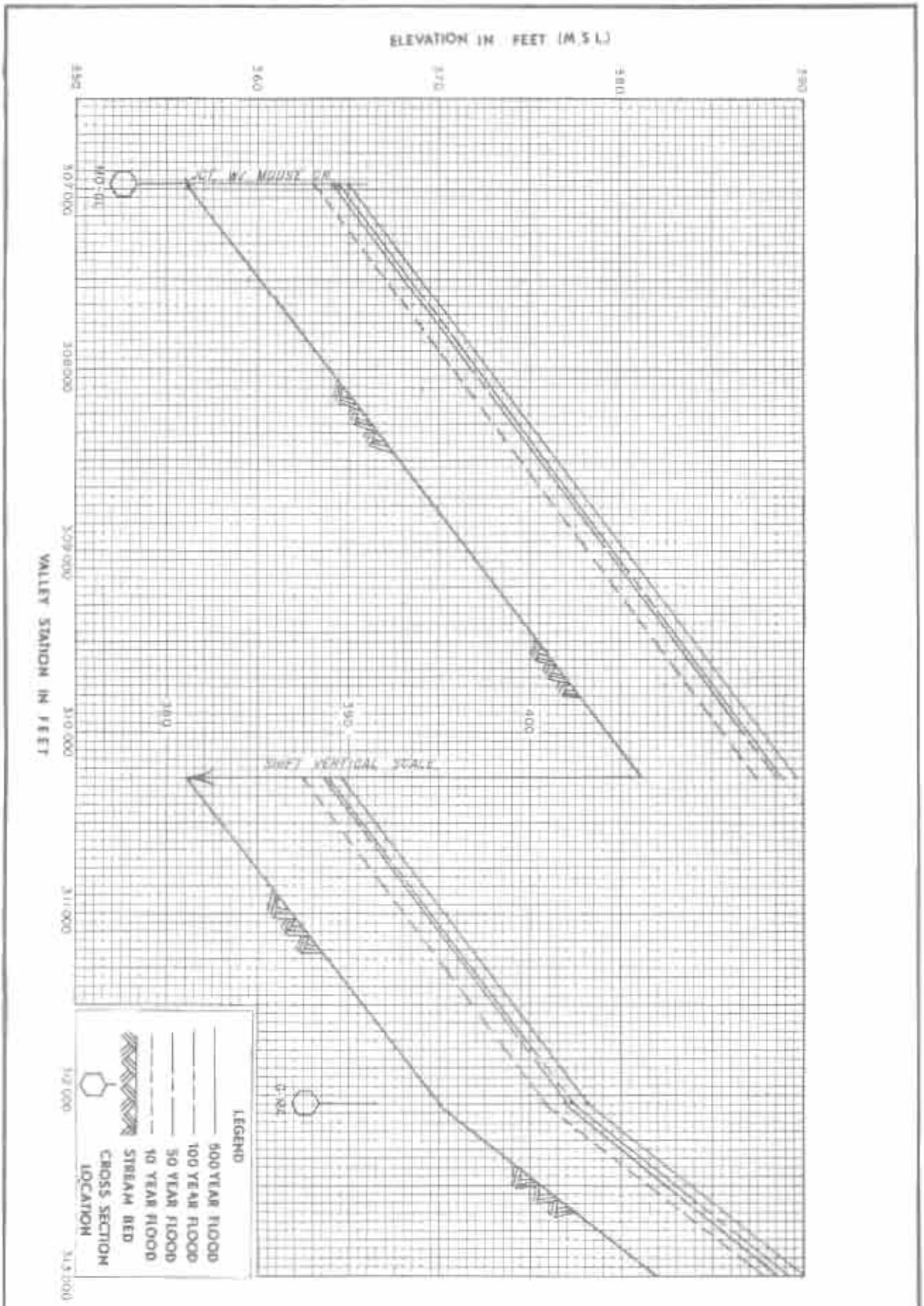
SHEET NO. 12

FLOOD PROFILES

NINE MILE CREEK



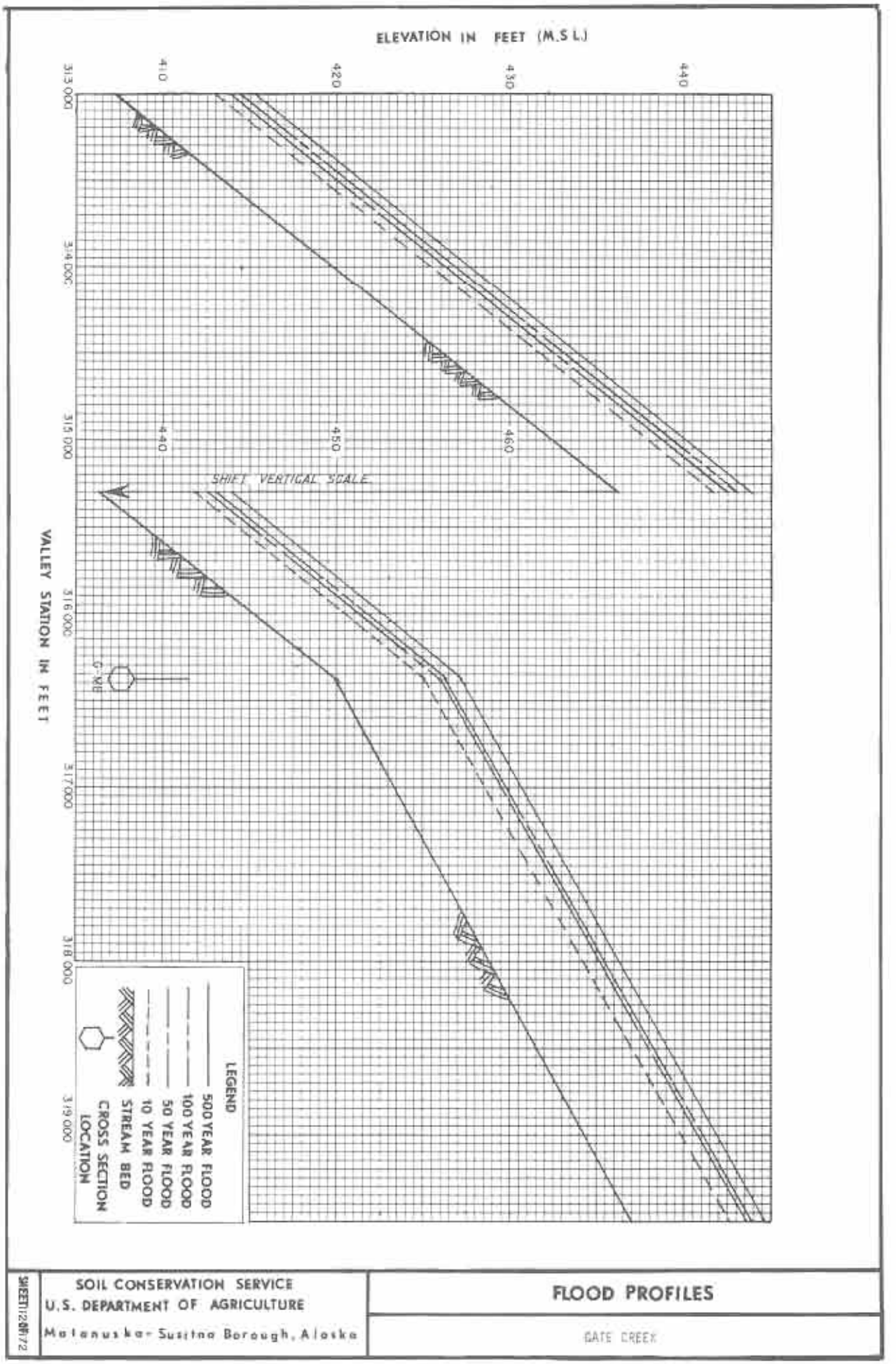
SHEET 10 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES NINE MILE CREEK



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

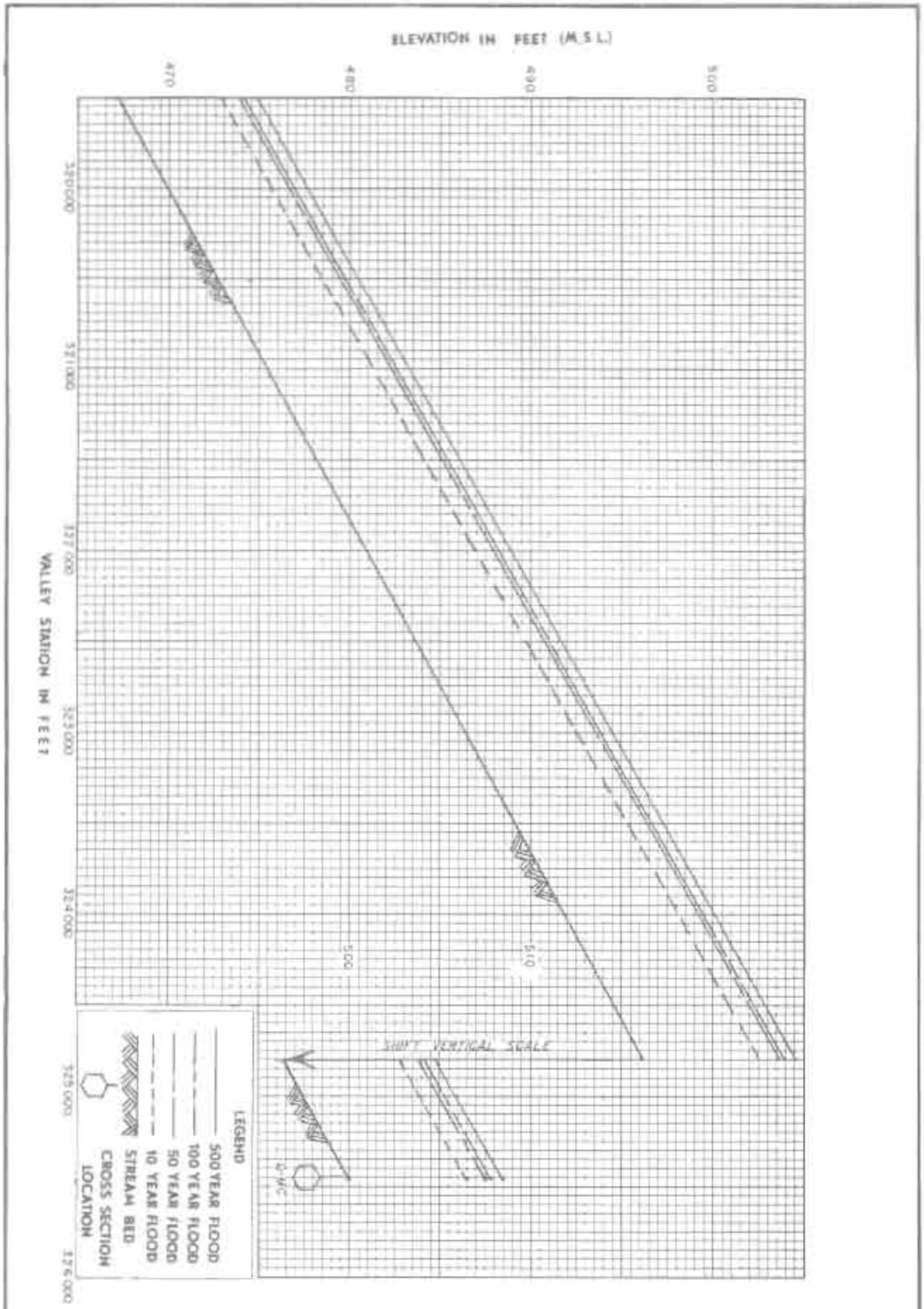
FLOOD PROFILES

EXHIBIT 2



SHEET 12 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES GATE CREEK

EXHIBIT 2

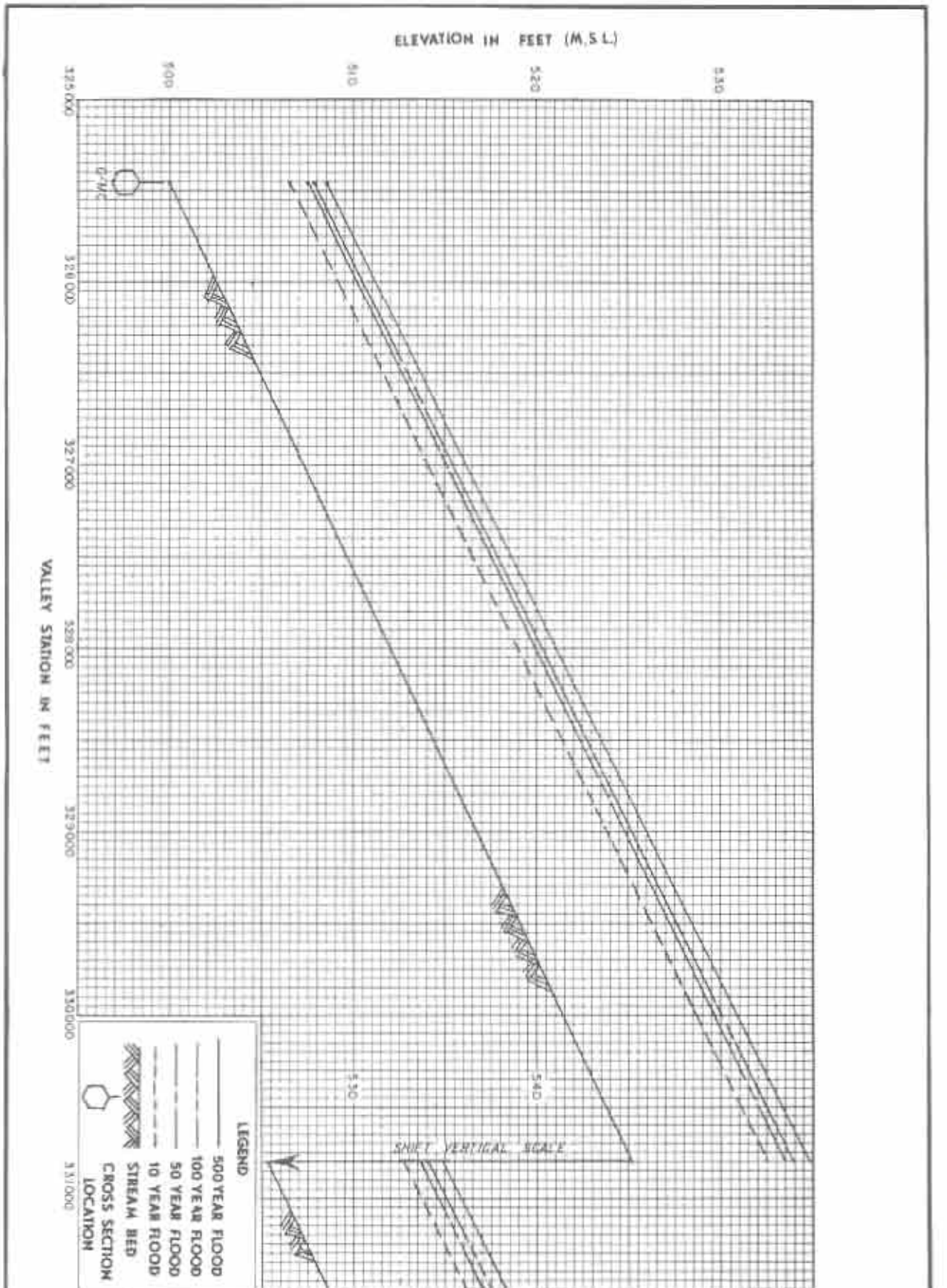


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 13 OF 22

FLOOD PROFILES

EXHIBIT 1



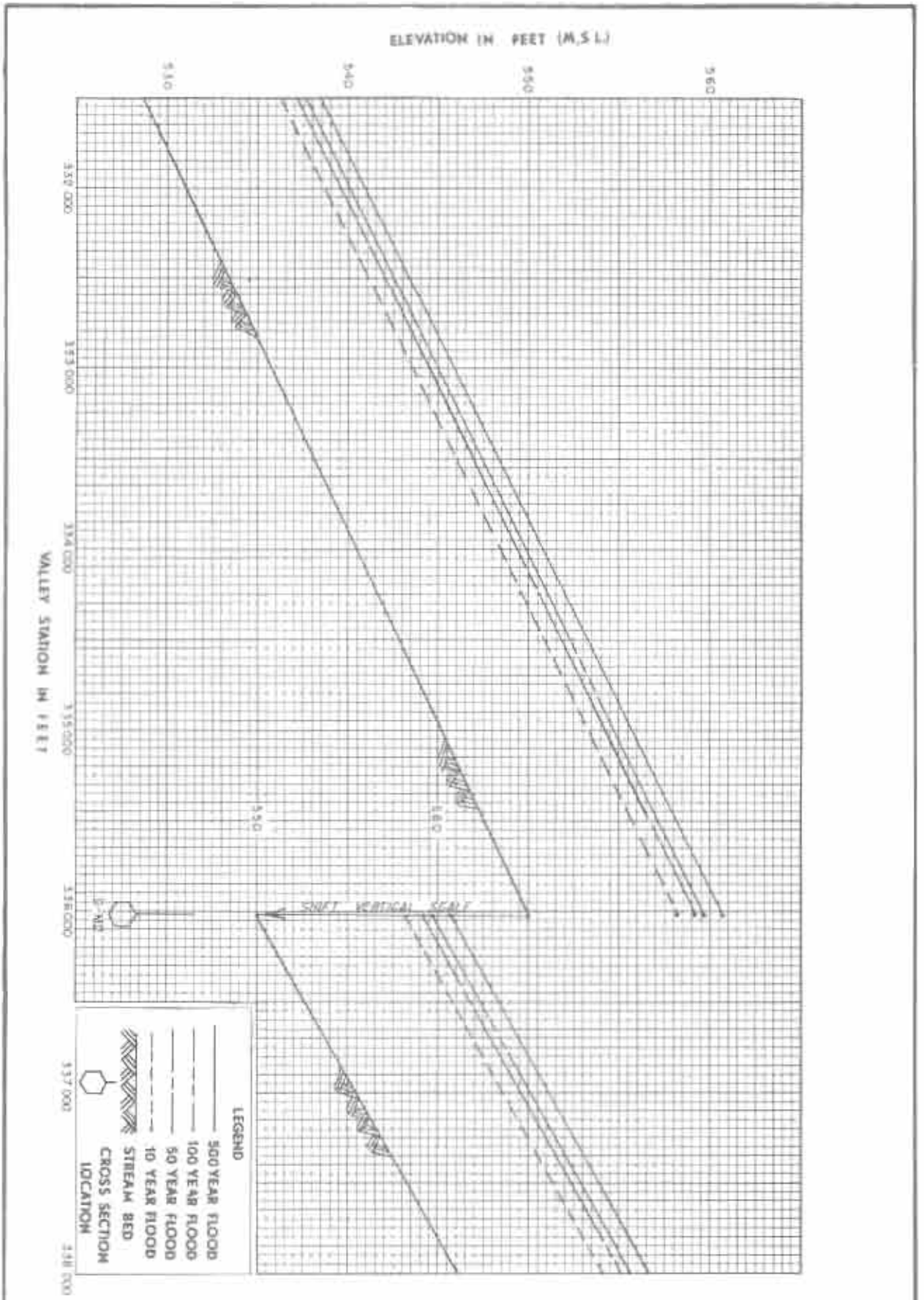
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 1 of 72

FLOOD PROFILES

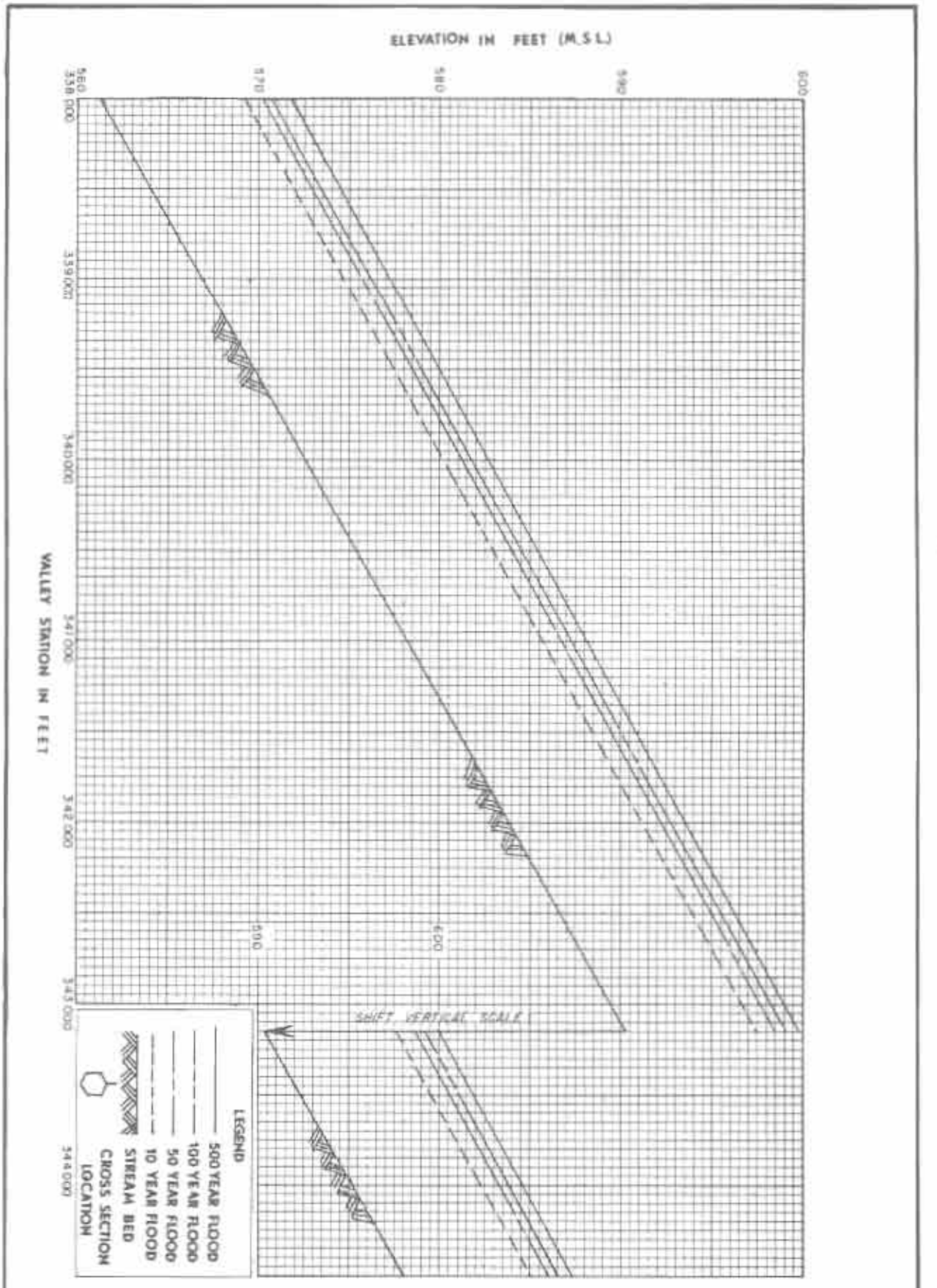
GATE CREEK

EXHIBIT 2



SHEET NO. #25	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES DATE CREEK

EXHIBIT C



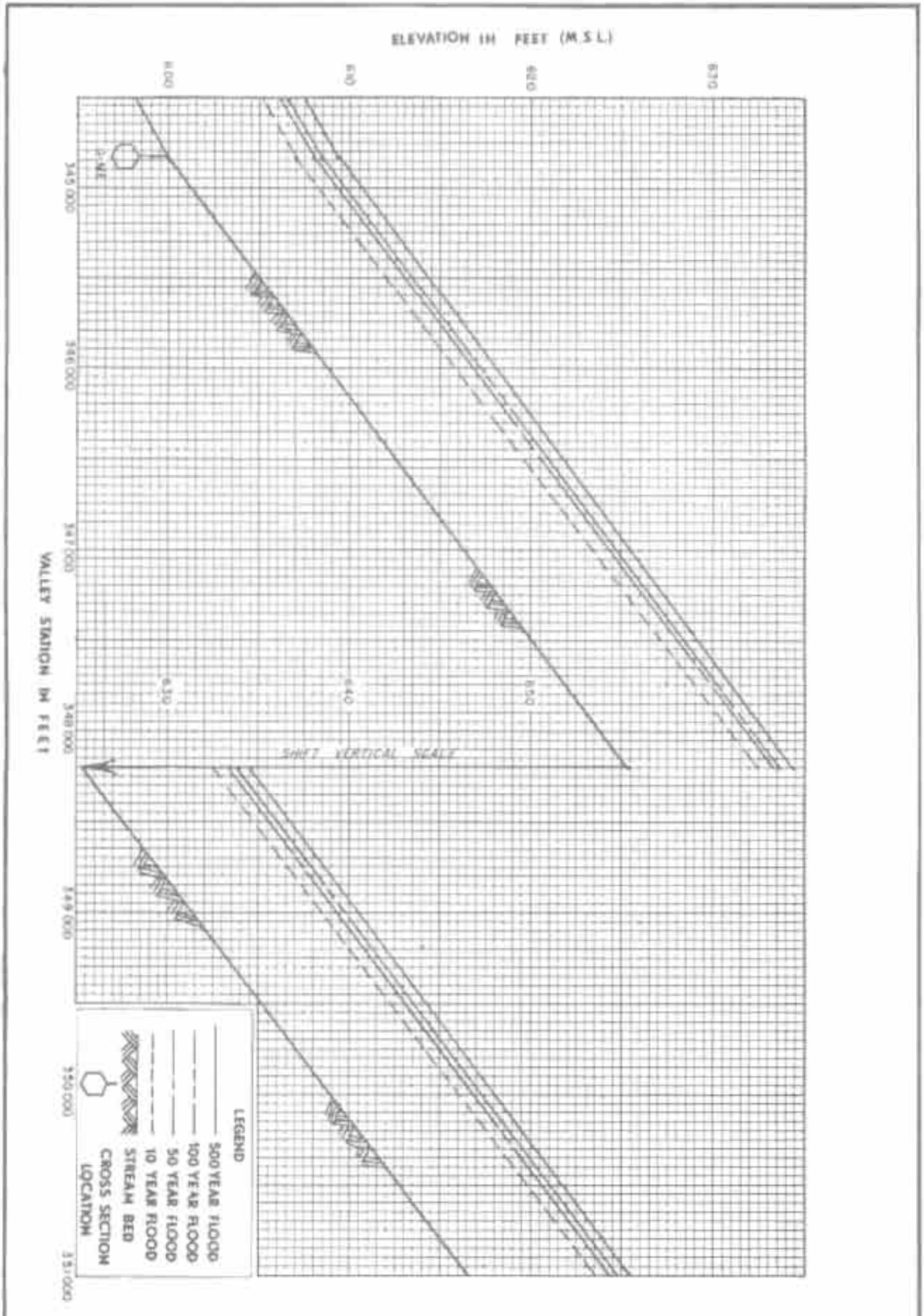
SHEET 10 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

GATE CREEK

3301 BTT J



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

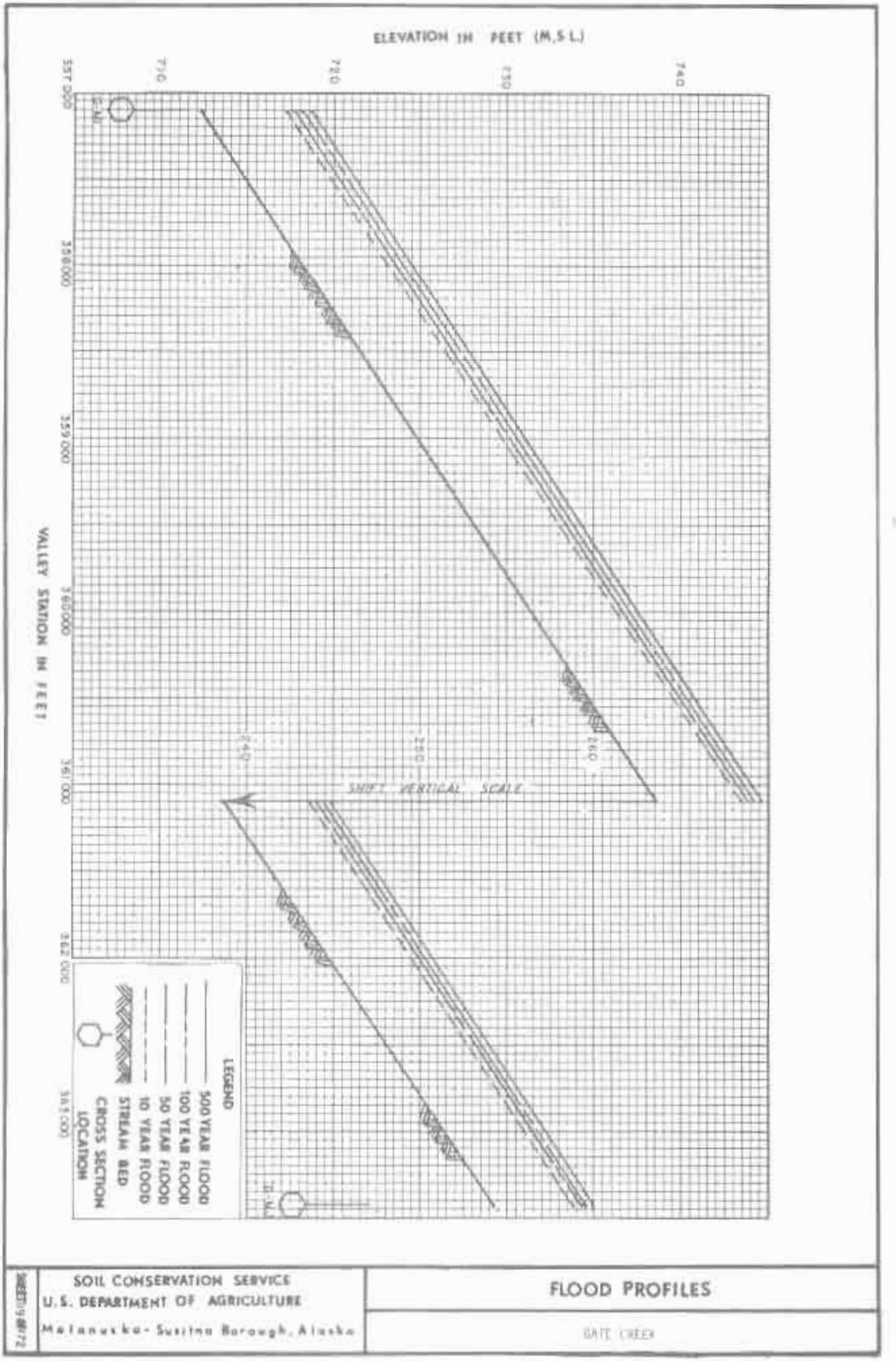
FLOOD PROFILES

GATE CREEK

SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES GATE CREEK

SHEET 10 OF 12

EXHIBIT 2

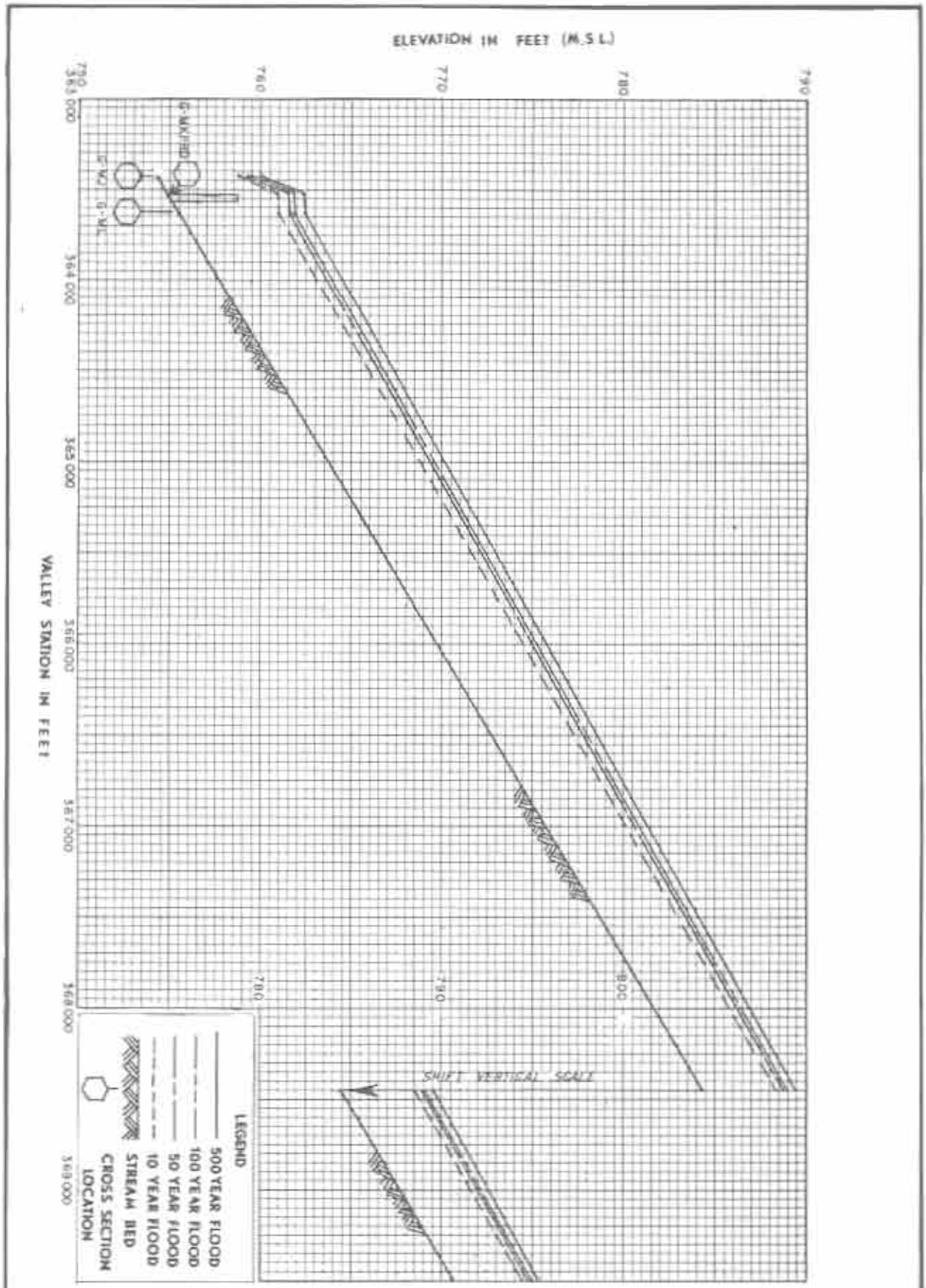


SHEET 19 OF 72

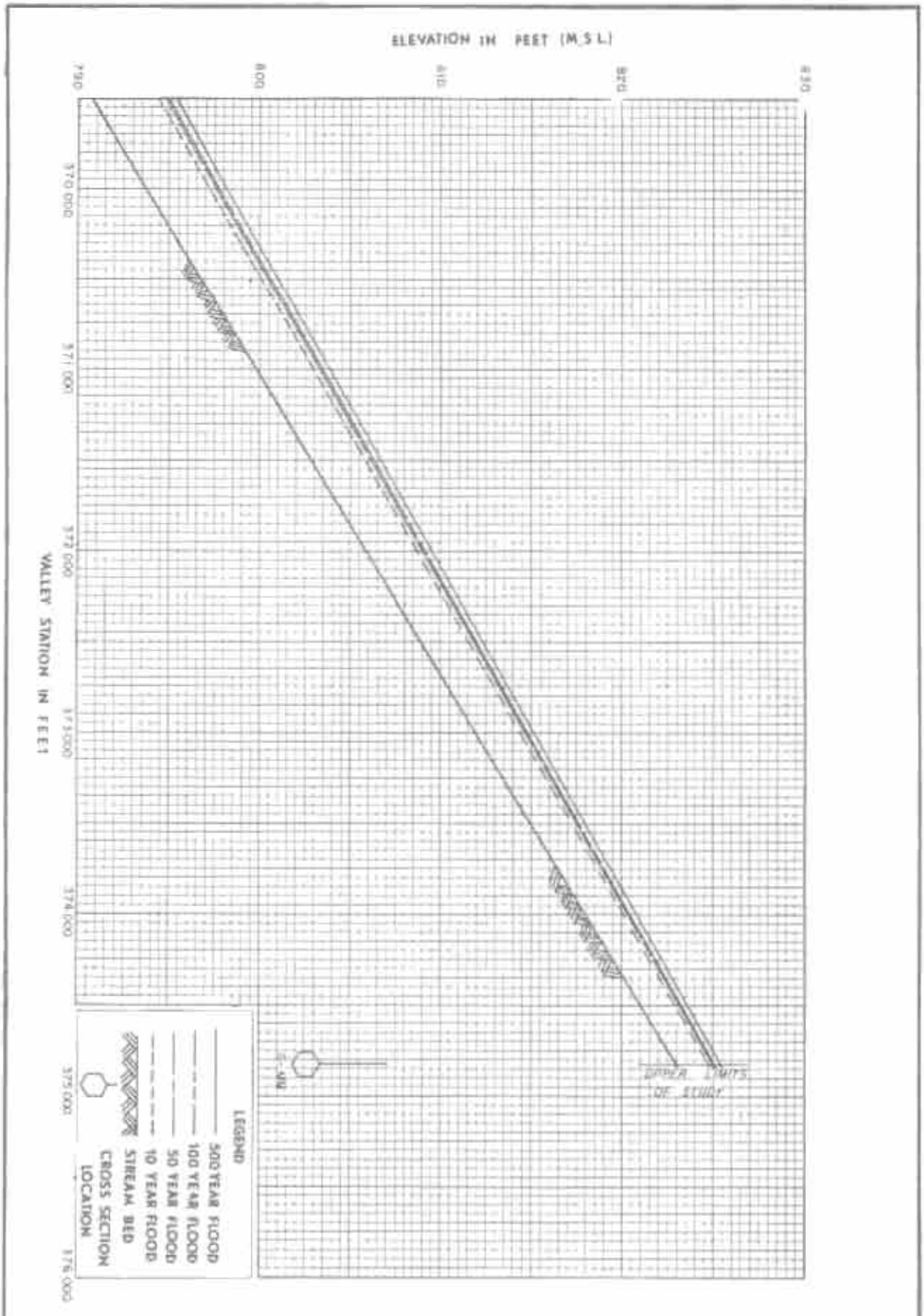
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

GATE CREEK



SHEET 2 OF 2	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES GATE CREEK

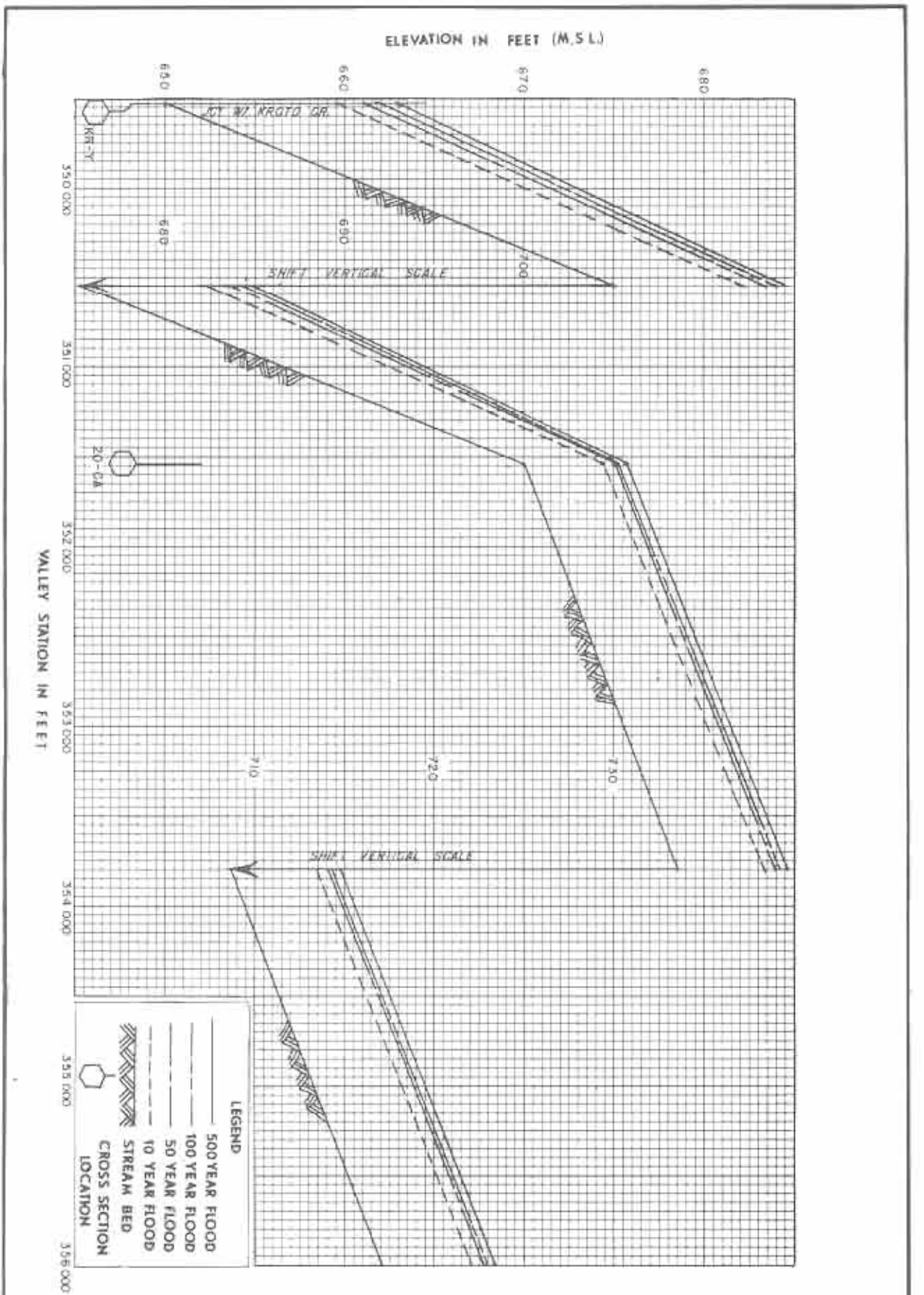


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

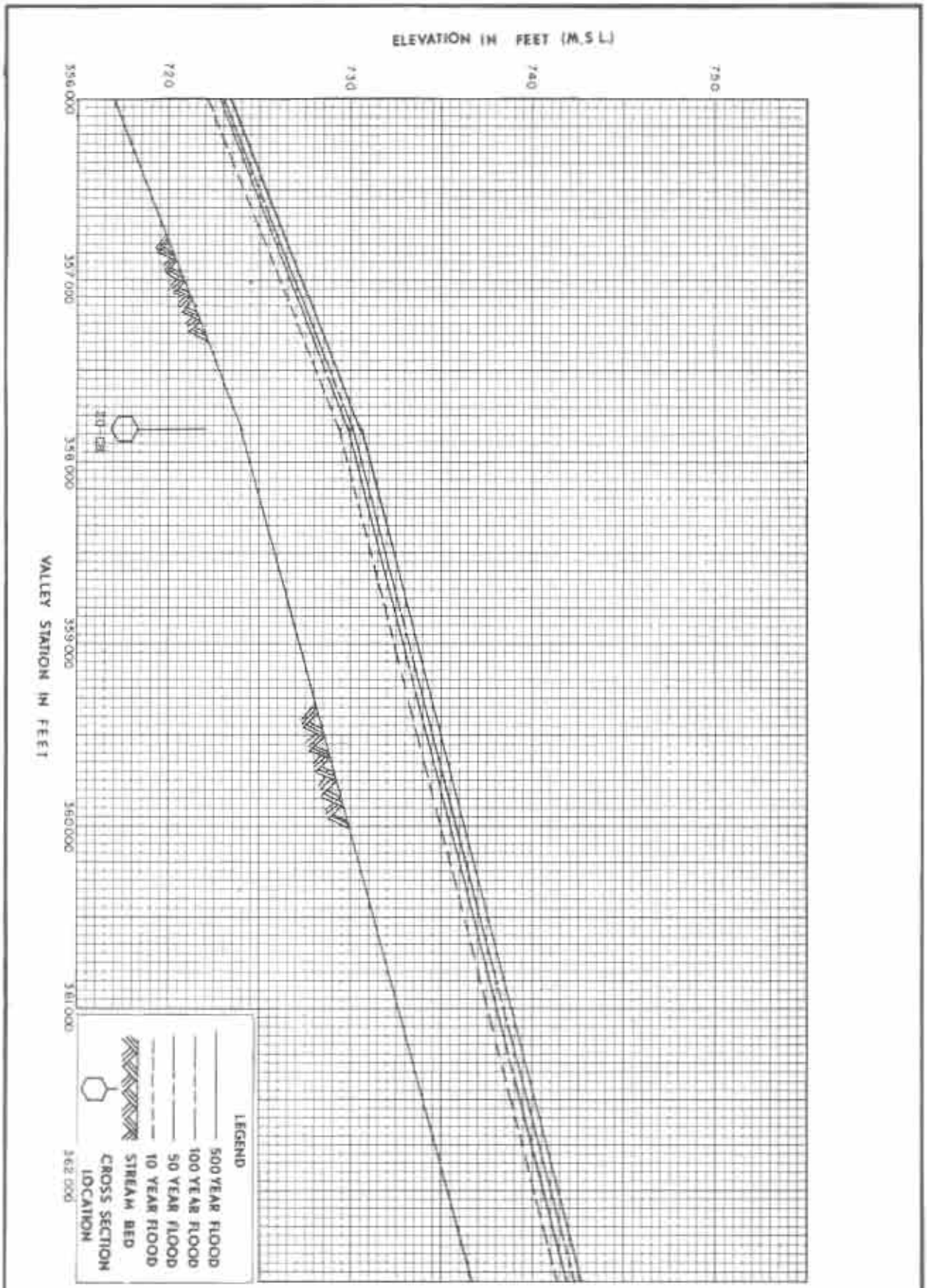
SHEET 12 OF 12

EXHIBIT 1



SHEET 22 OF 72	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	**FLOOD PROFILES** TWENTY MILE CREEK

EXHIBIT 2



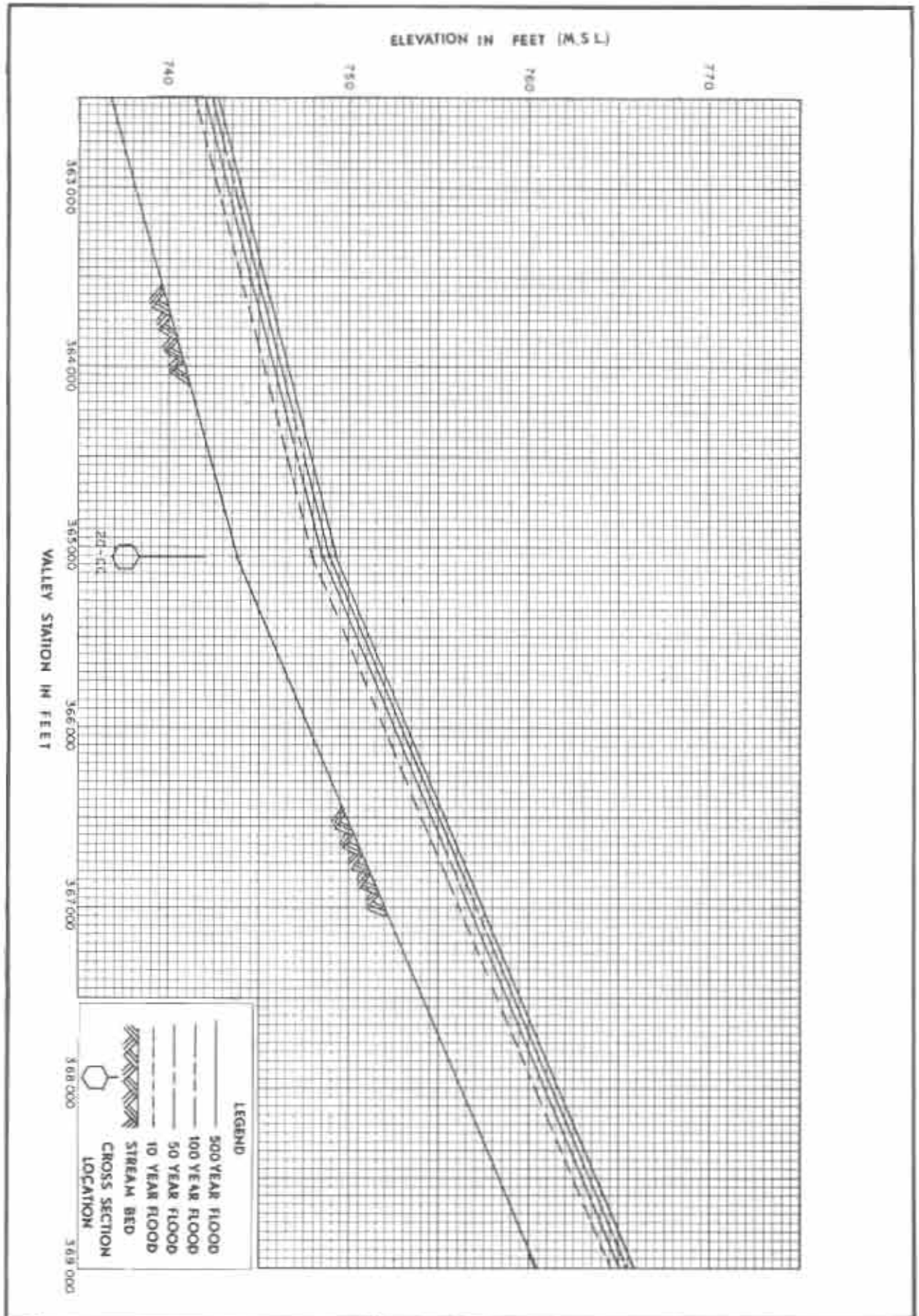
SHEET 2 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TWENTY MILE CREEK

EXHIBIT F



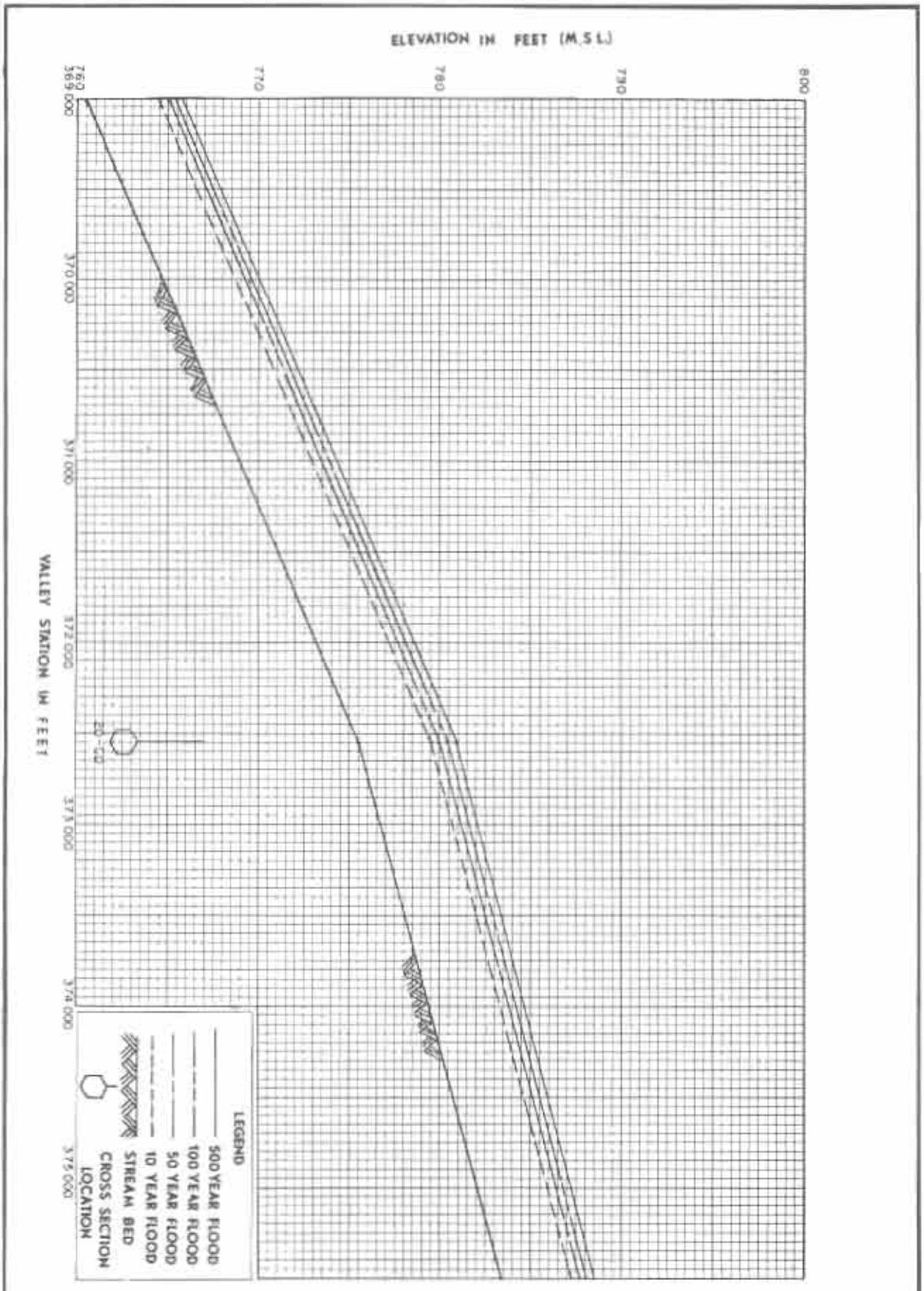
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 12-MAY 72

FLOOD PROFILES

TWENTY MILE CREEK

EXHIBIT 2



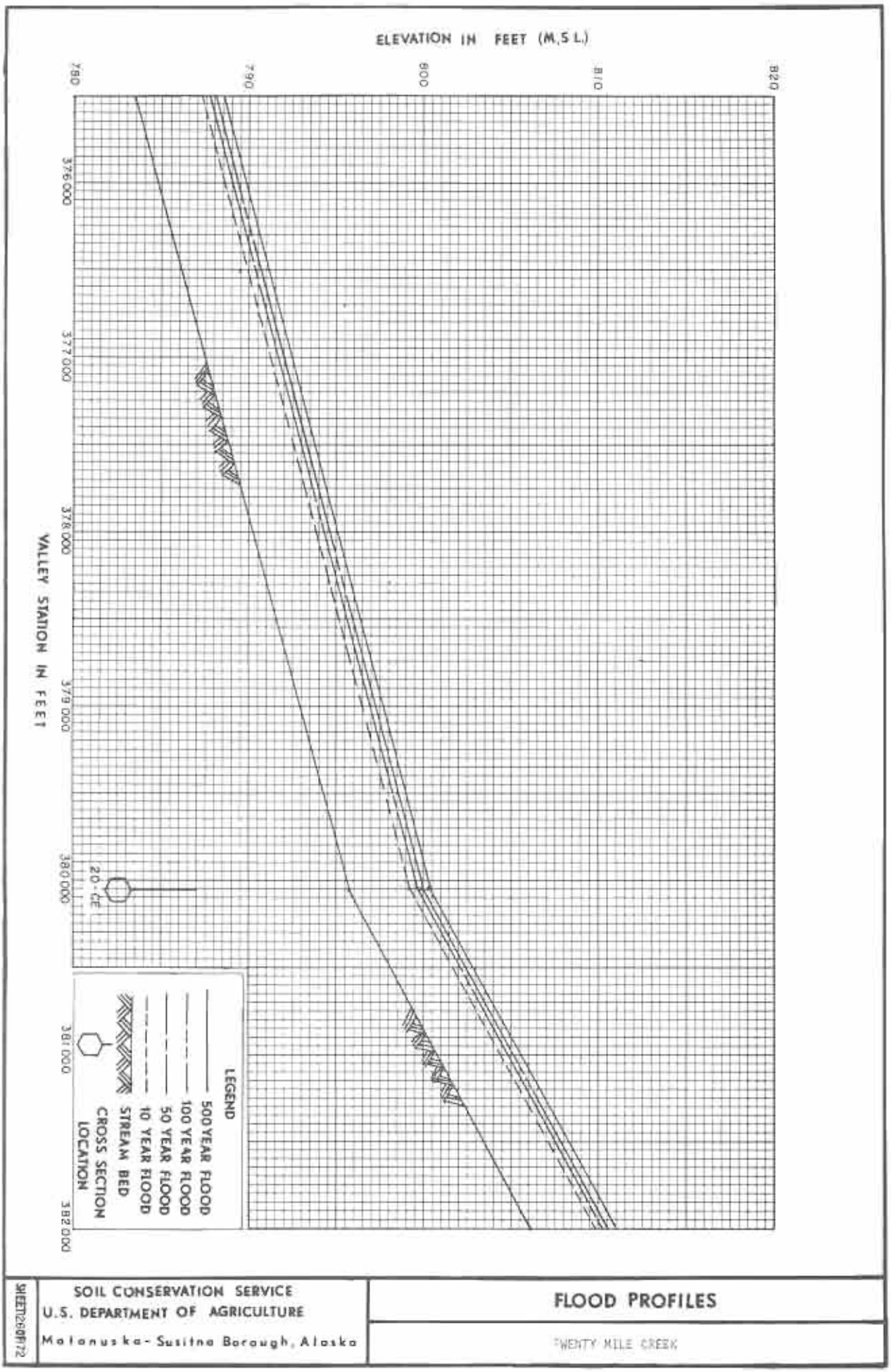
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TWENTY MILE CREEK

SHEET 12 OF 12

EXHIBIT J



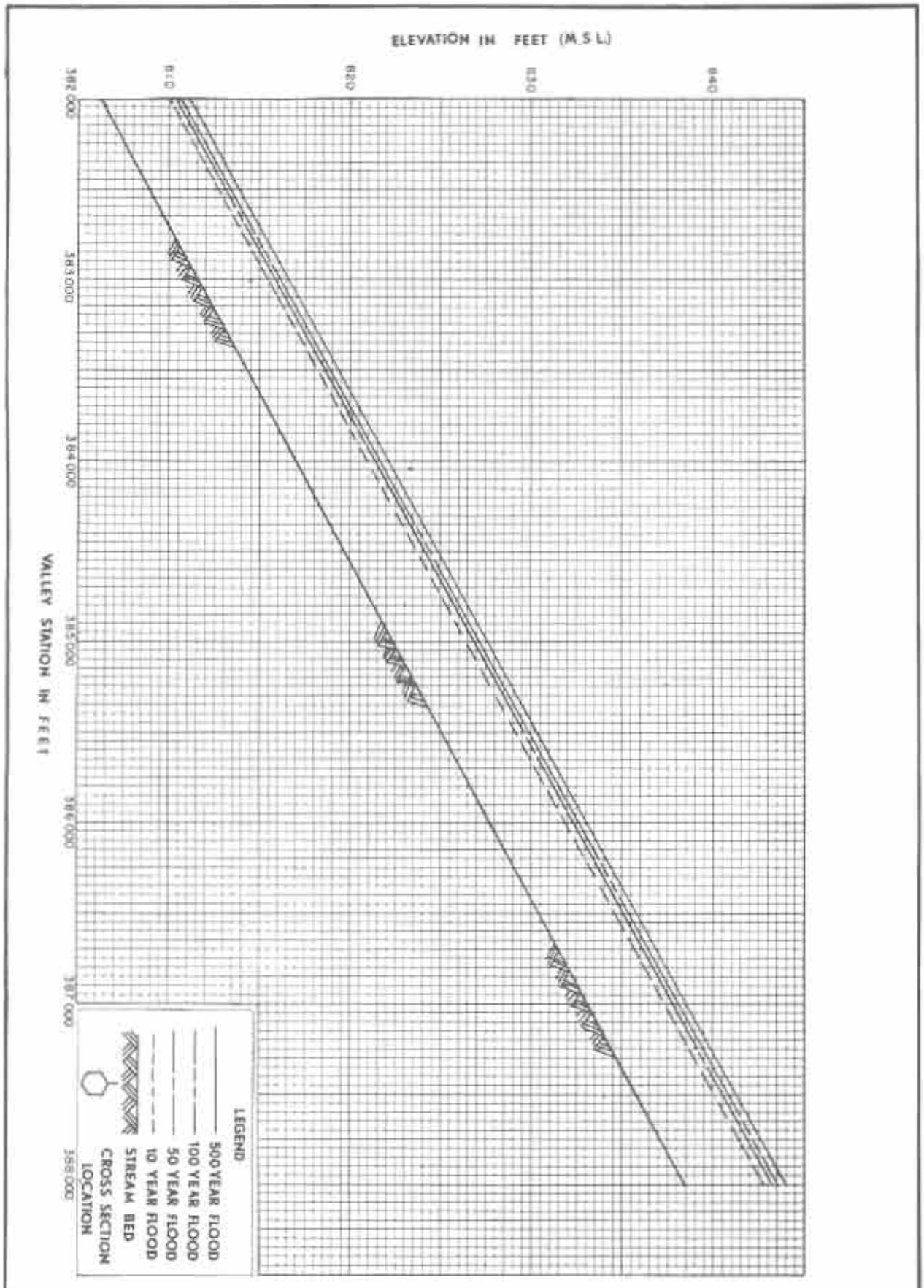
SHEET 2 OF 2

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TWENTY MILE CREEK

EXHIBIT 2

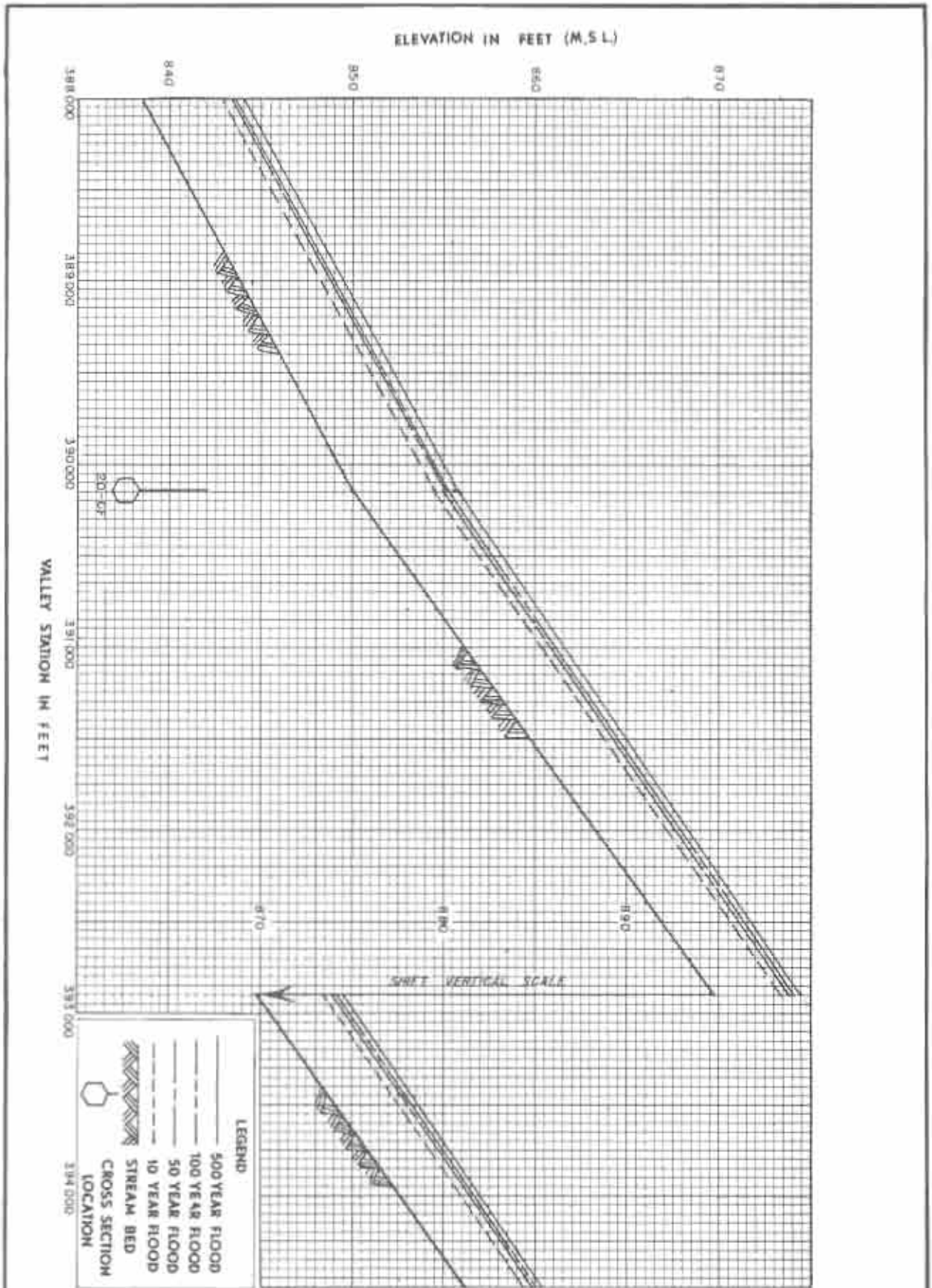


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TWENTY MILE CREEK

SHEET 2 OF 2

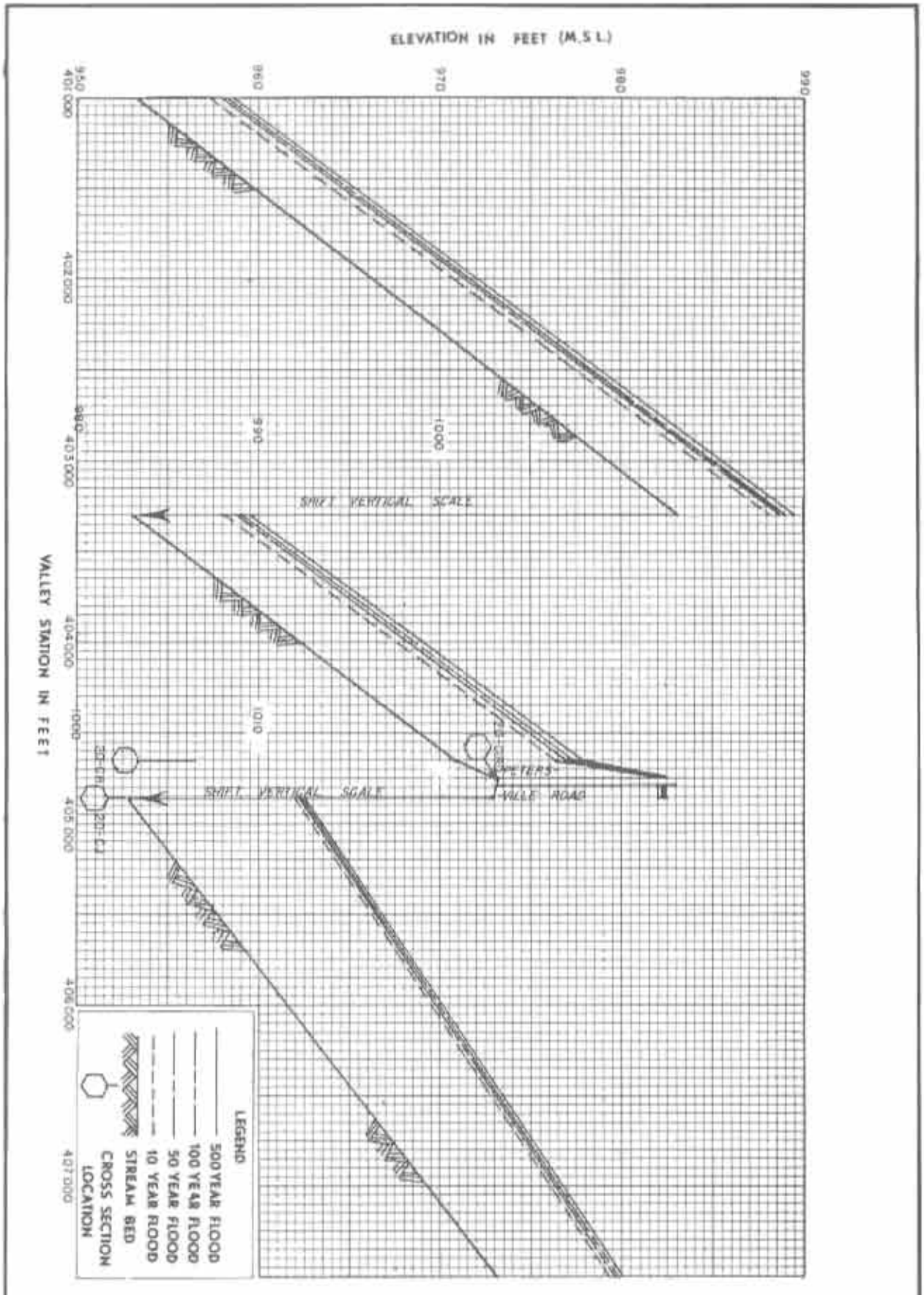


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 12

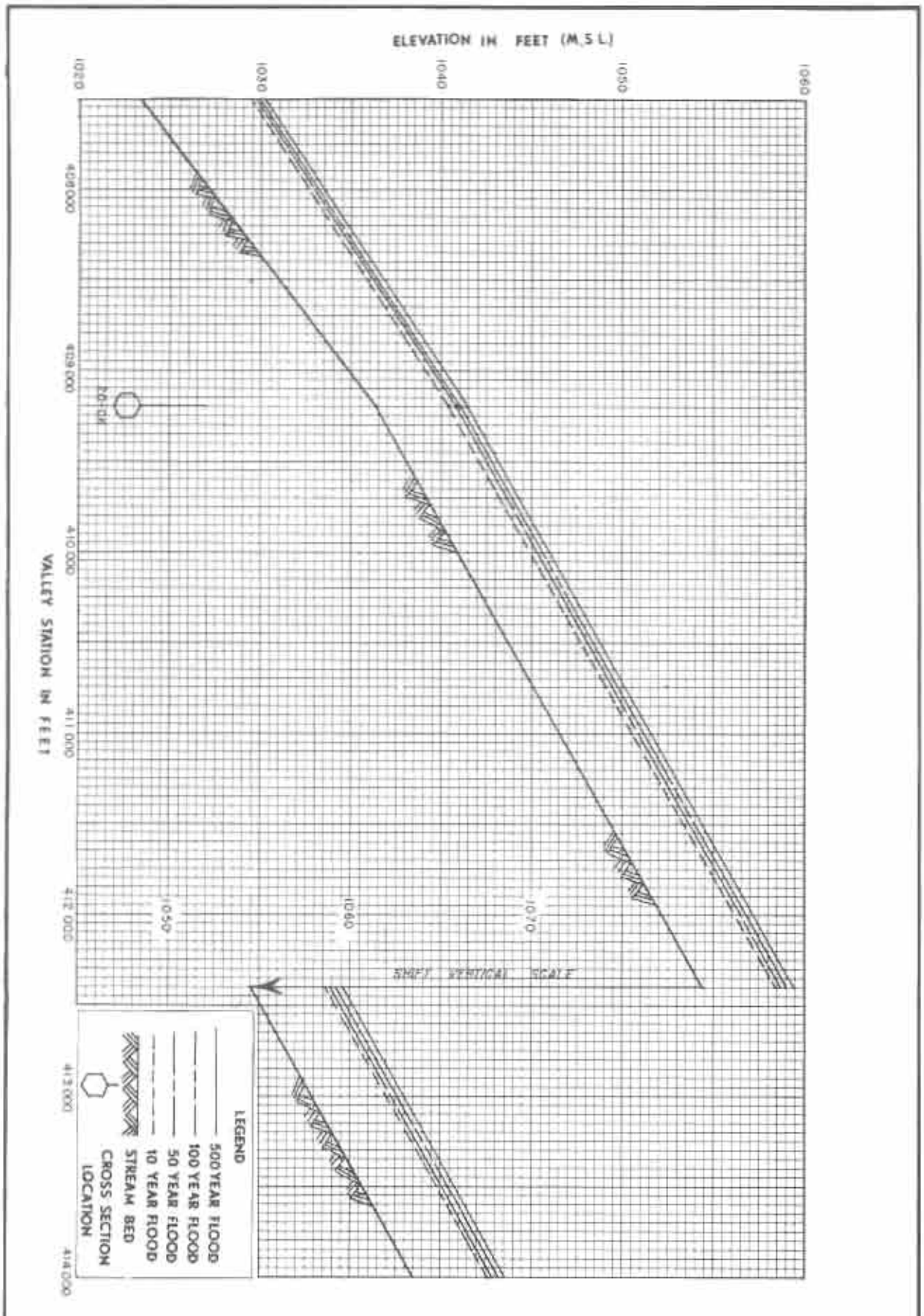
FLOOD PROFILES

TWENTY MILE CREEK



SHEET 5 of 8 '72	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TWENTY MILE CREEK

EXHIBIT 2



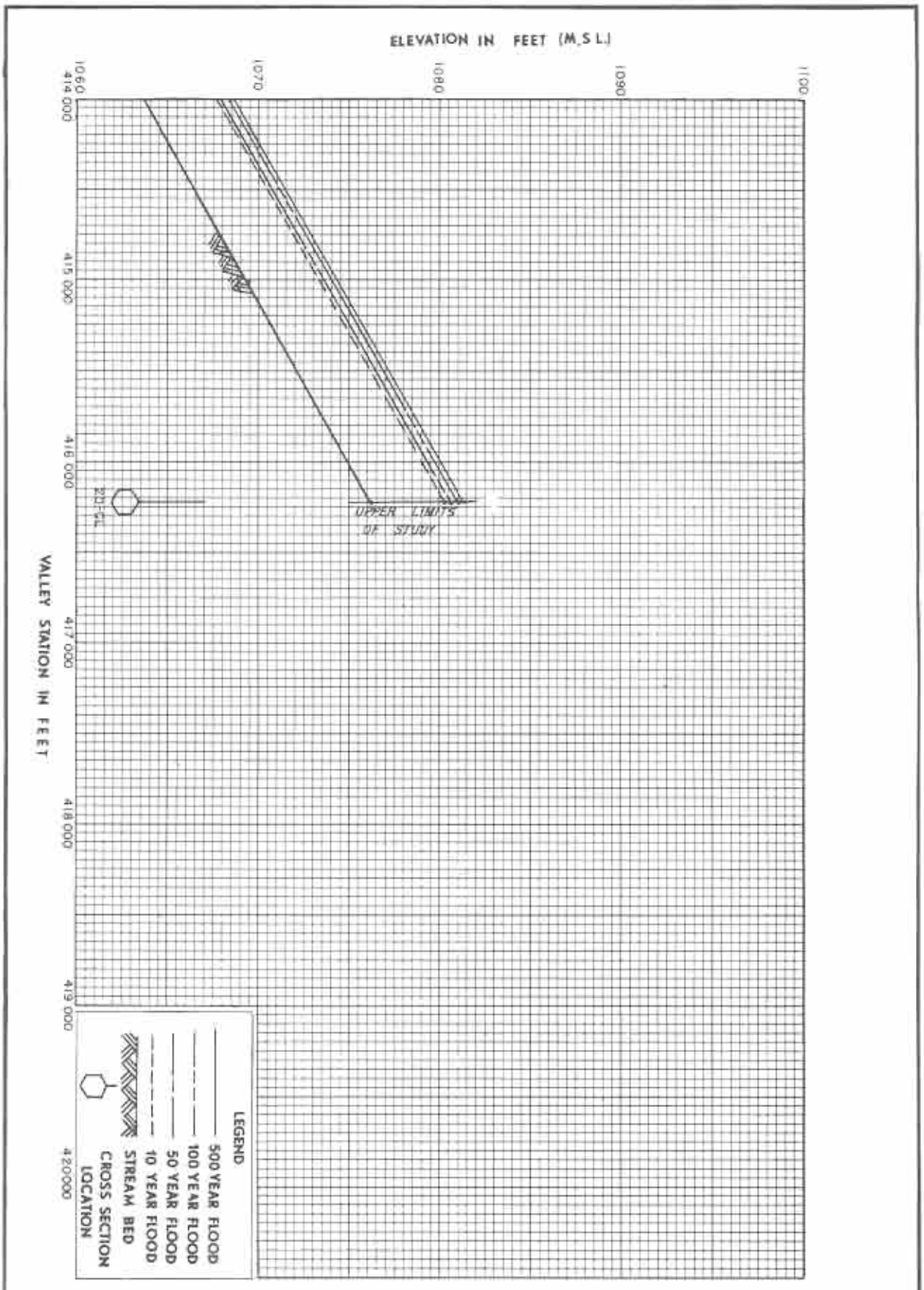
SHEET 1 OF 2

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TWENTY MILE CREEK

EXHIBIT J



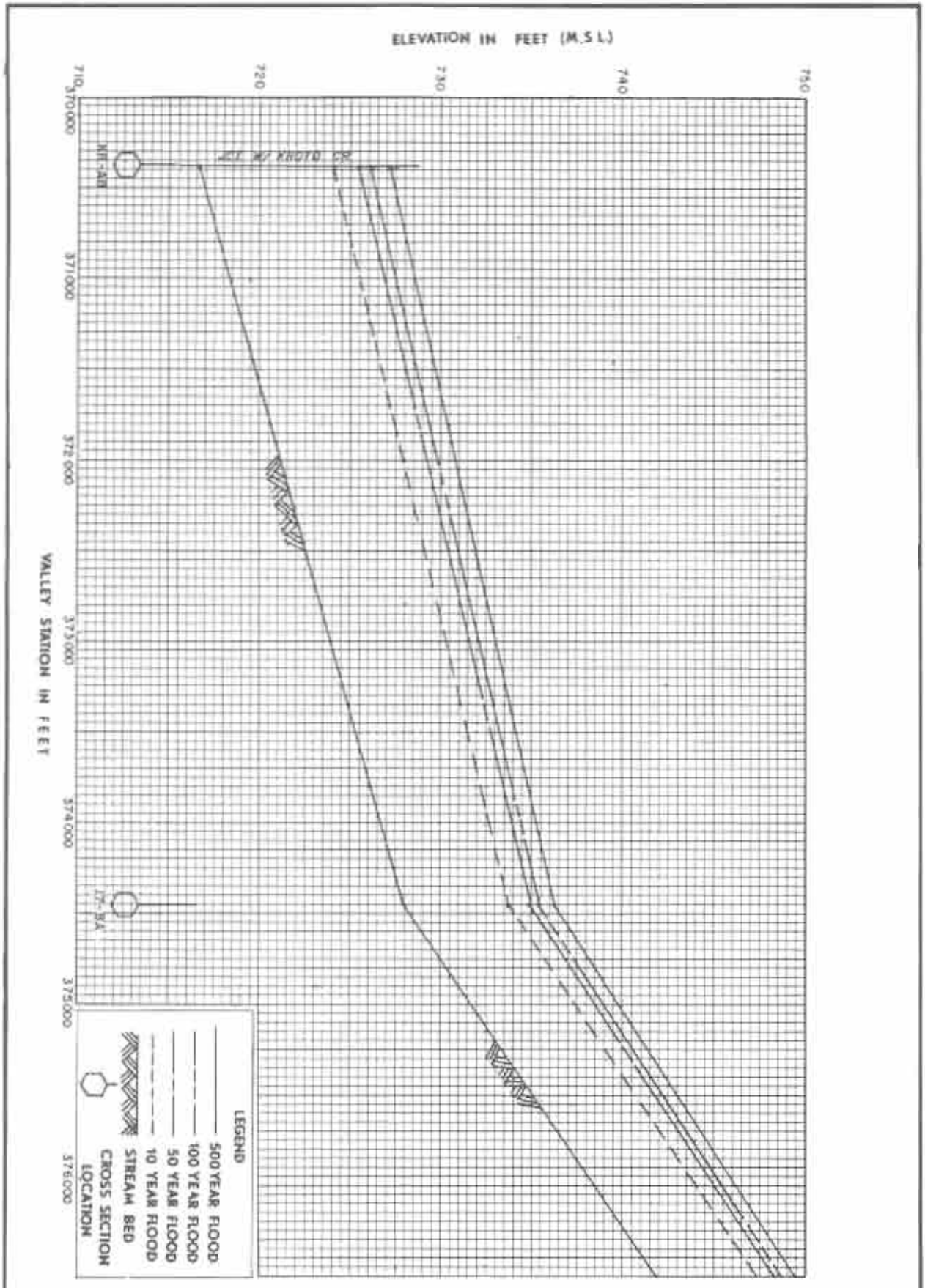
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 2 OF 12

FLOOD PROFILES

TWENTY MILE CREEK

EXHIBIT 2



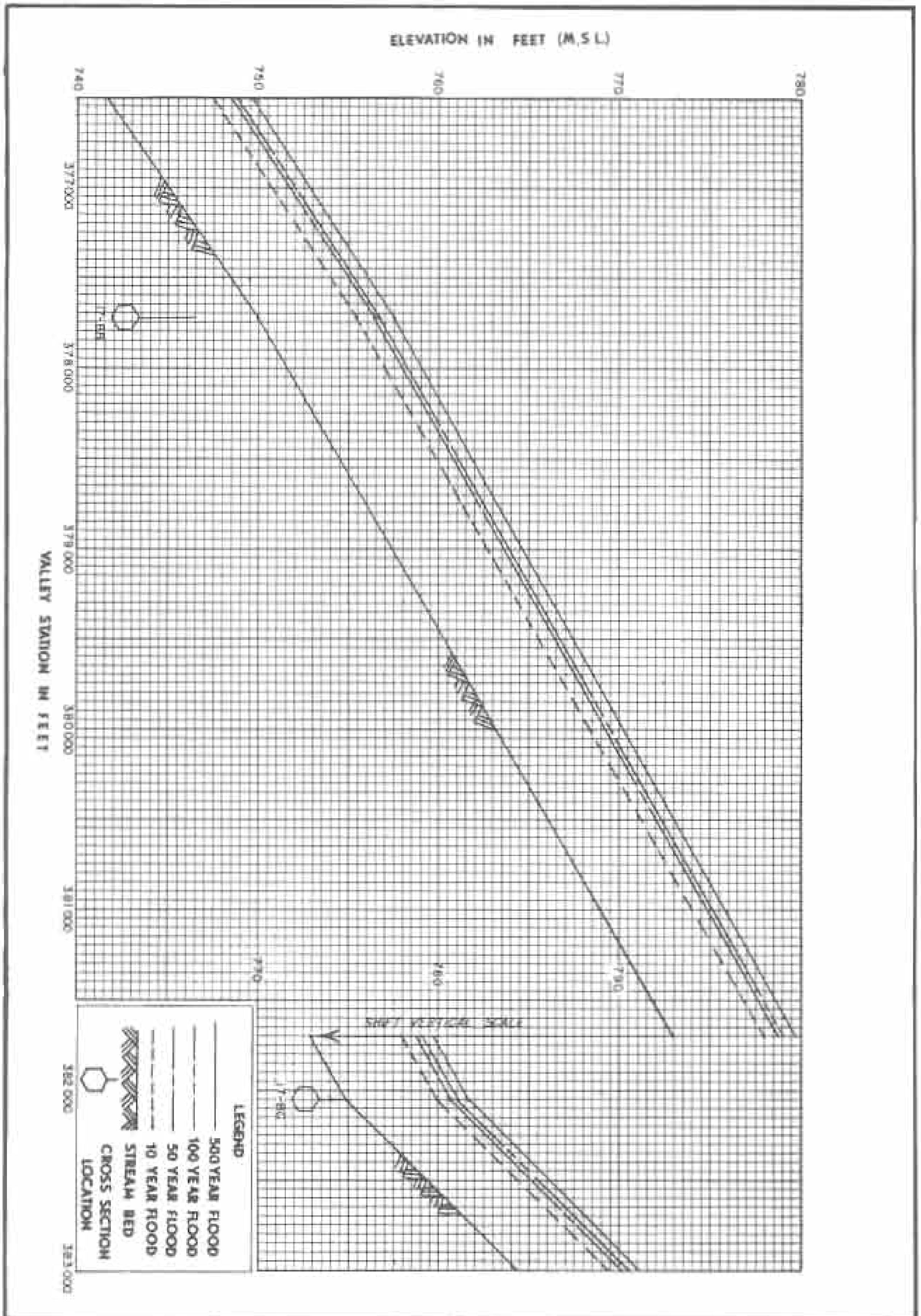
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

SEVENTEEN MILE CREEK

SHEET 3 OF 12

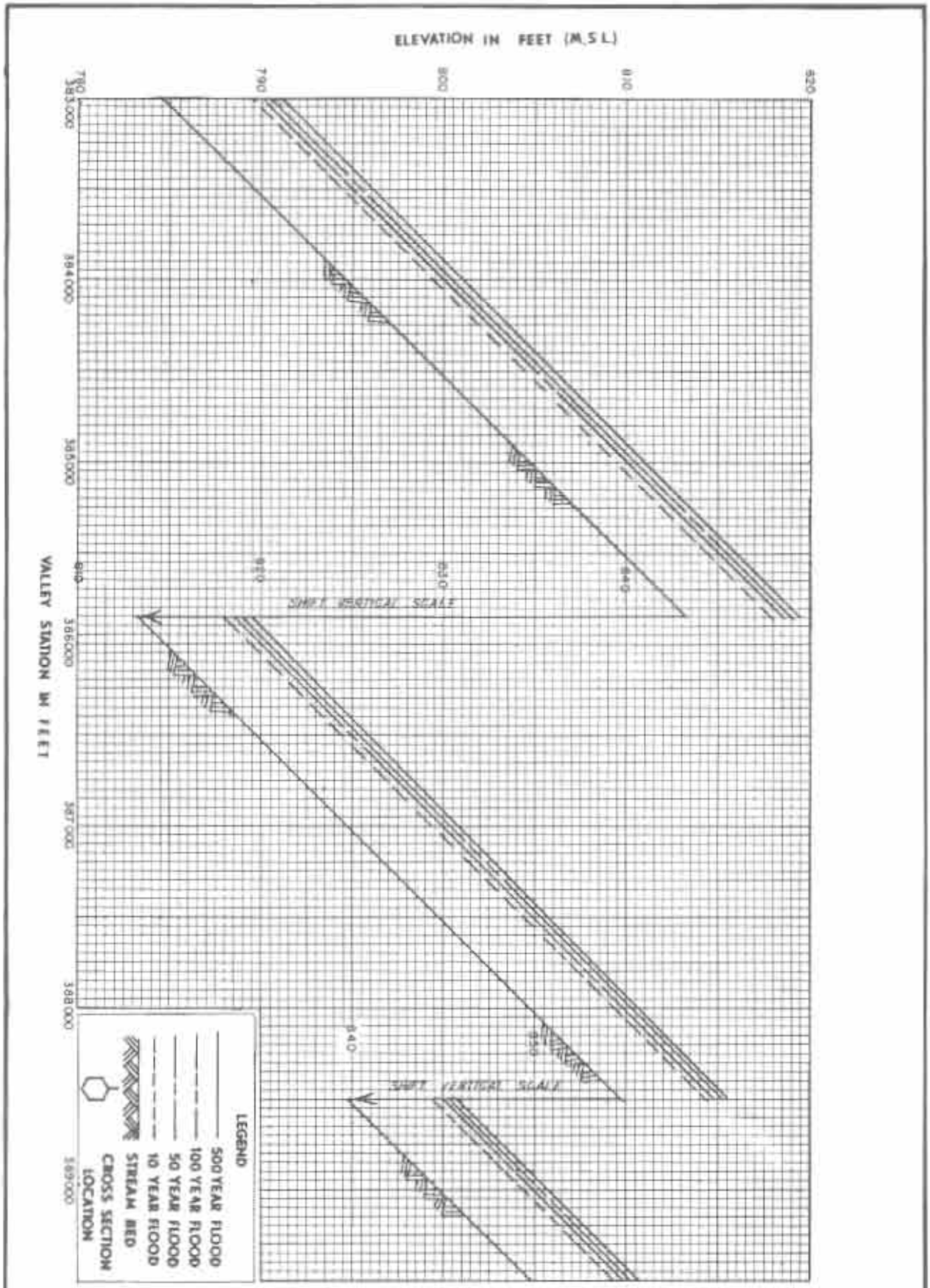
EXHIBIT 3



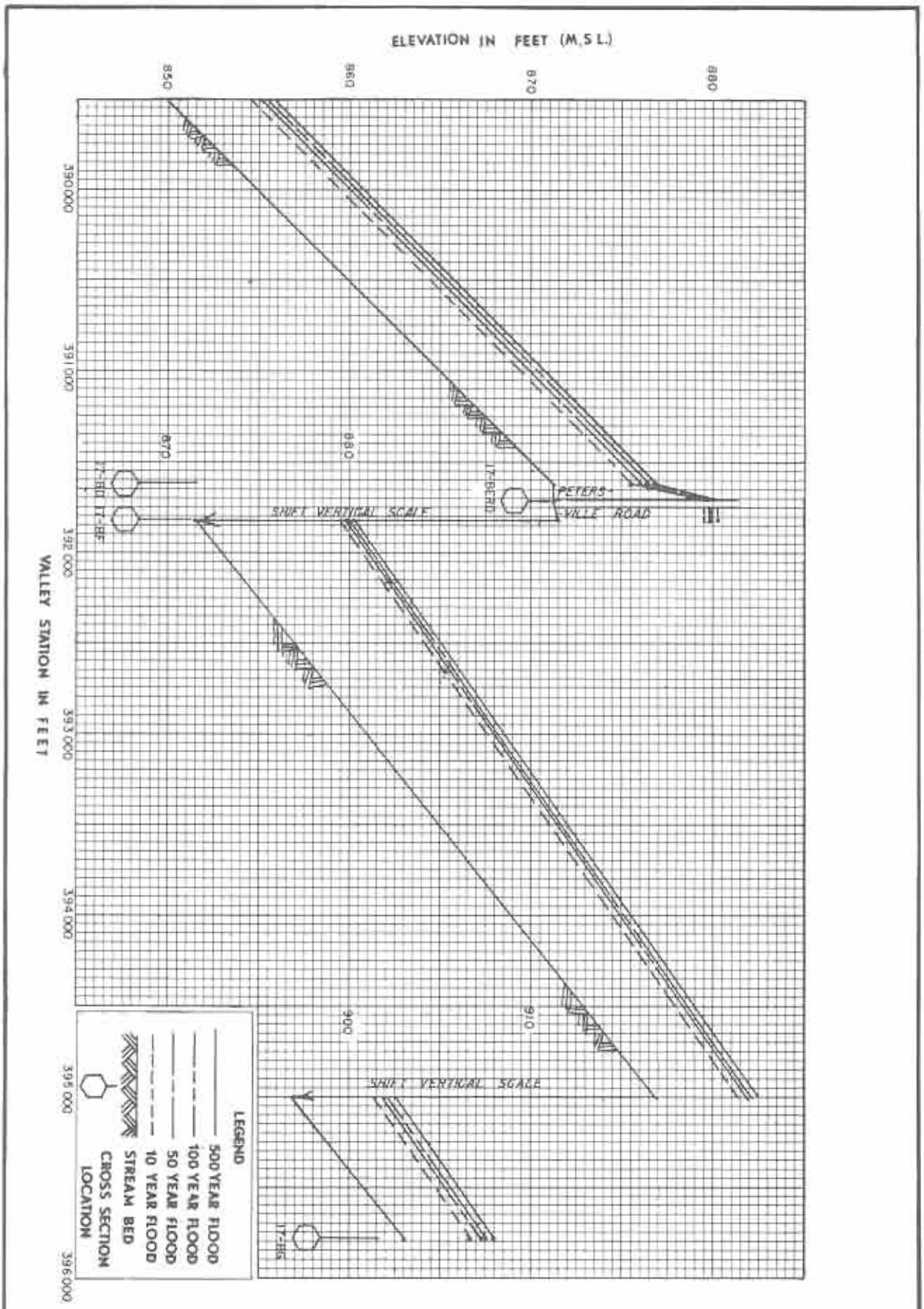
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

SEVENTEEN MILE CREEK



SHEET 15 OF 72	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES SEVENTEEN MILE CREEK



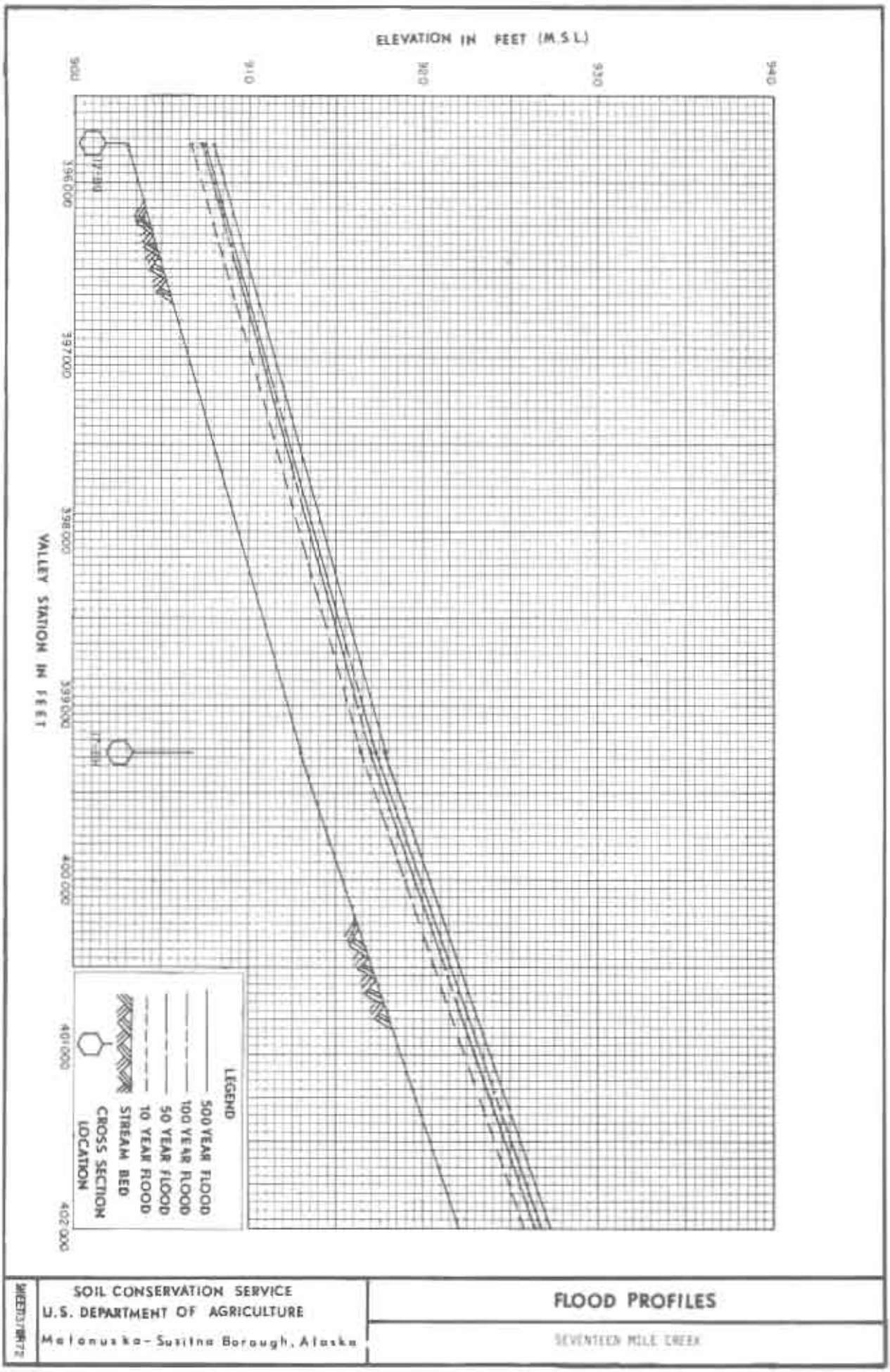
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 1 OF 1 SHEETS 72

FLOOD PROFILES

SEVENTEEN MILE CREEK

EXHIBIT 2



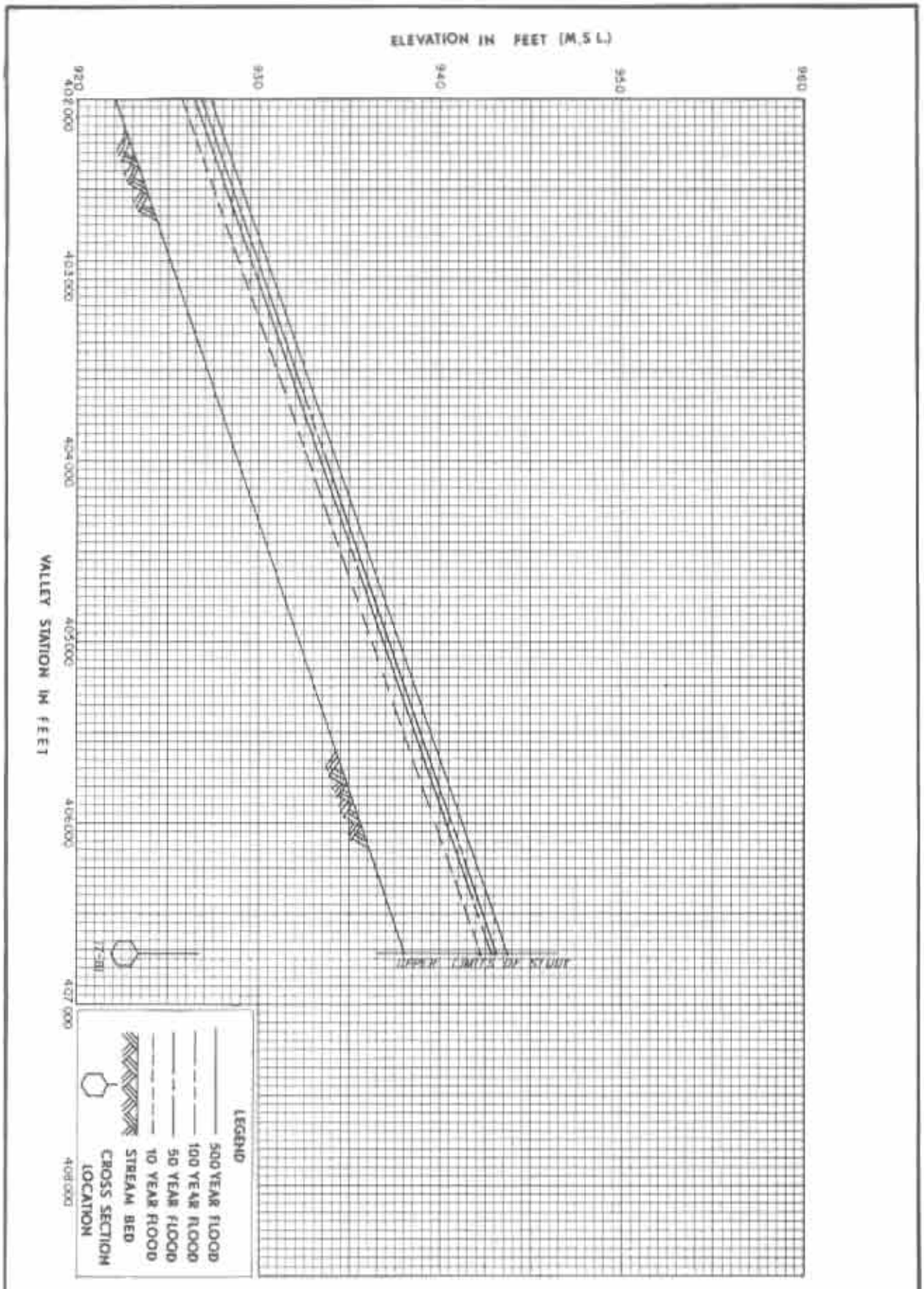
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

SEVENTEEN MILE CREEK

SHEET 3 OF 72

EXHIBIT J

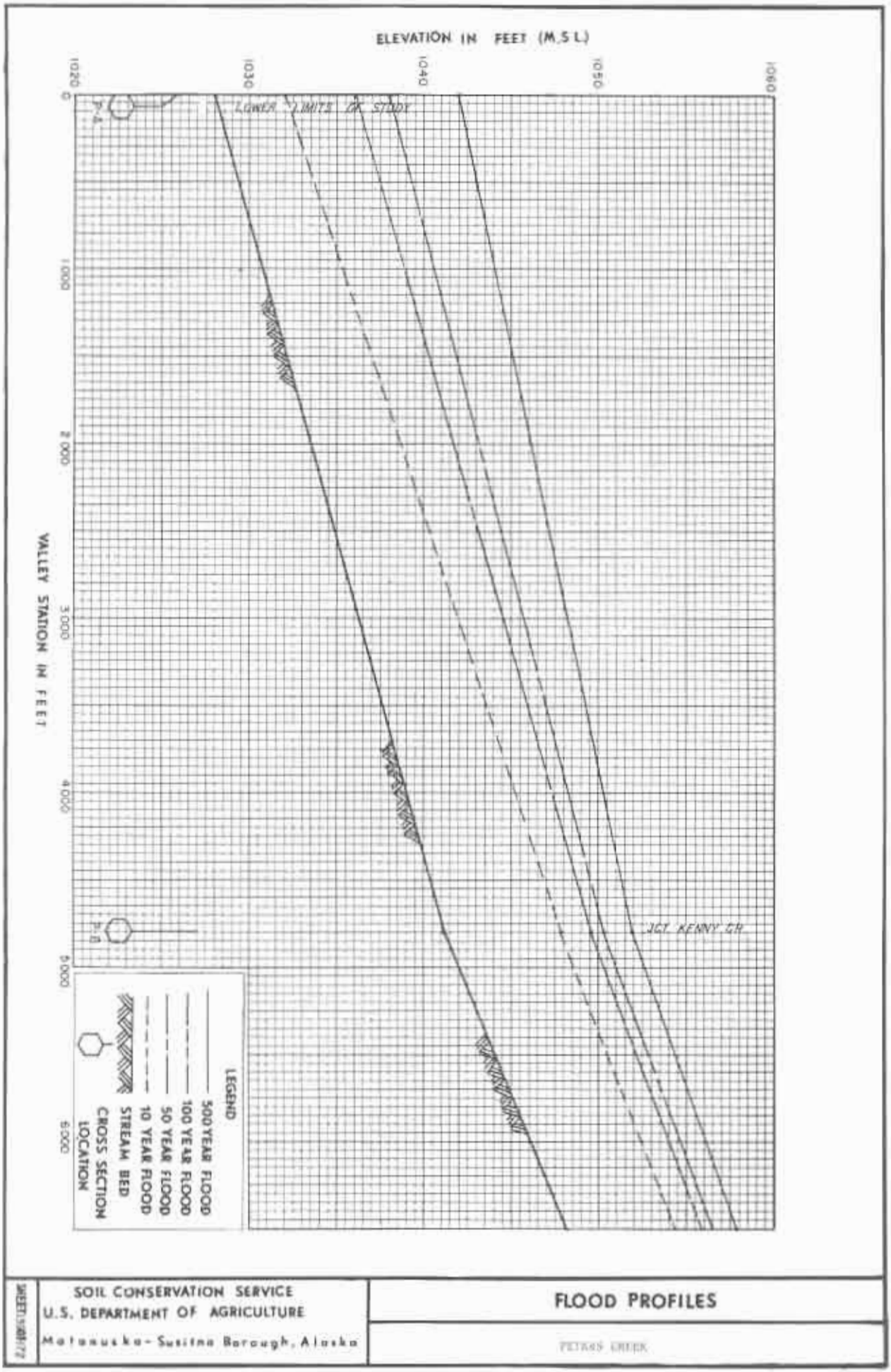


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

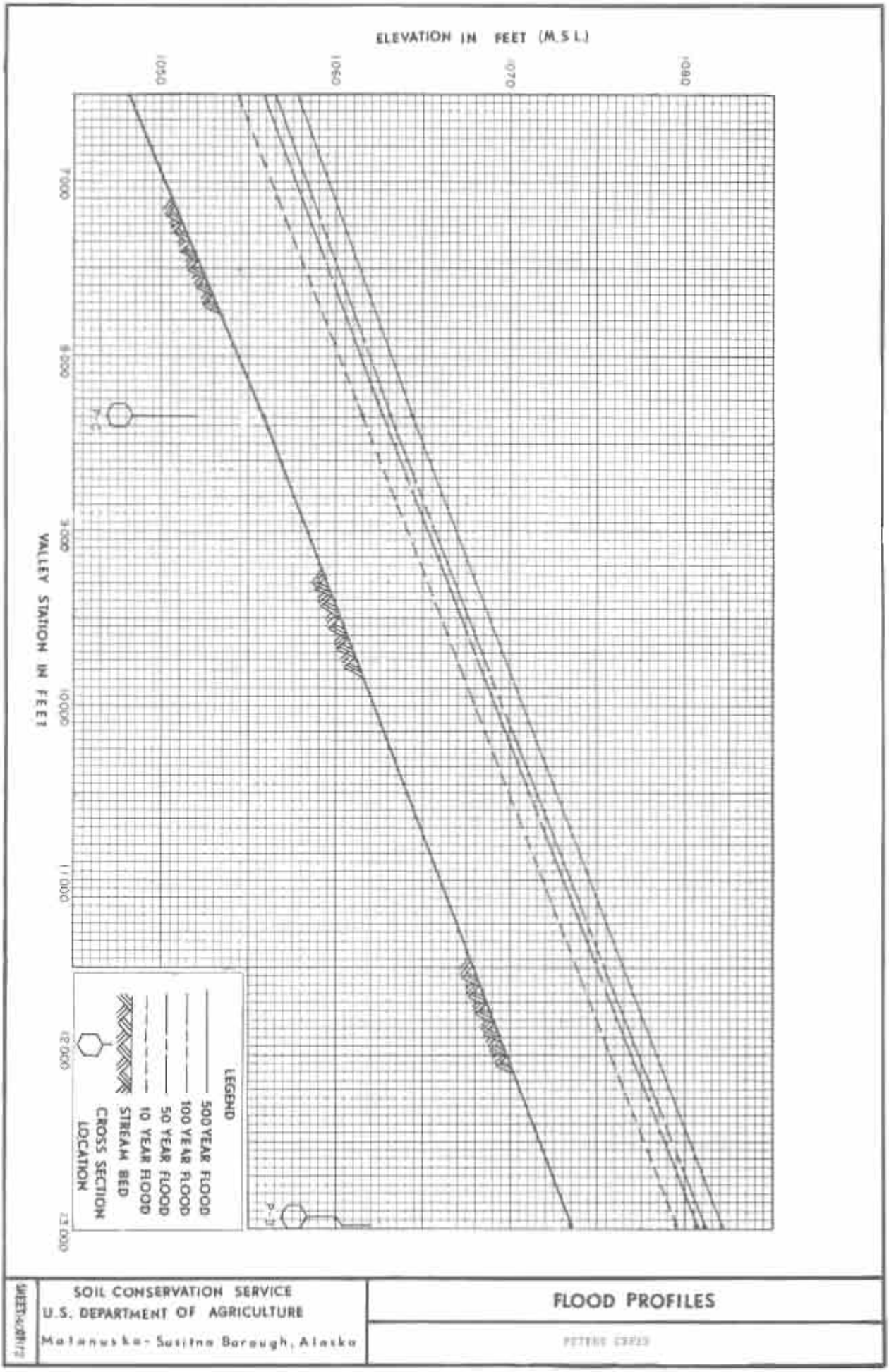
SEVENTEEN MILE CREEK

EXHIBIT 2



SHEET NO. 2 OF 2 SHEETS	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES PETRAS CREEK

EXHIBIT 7

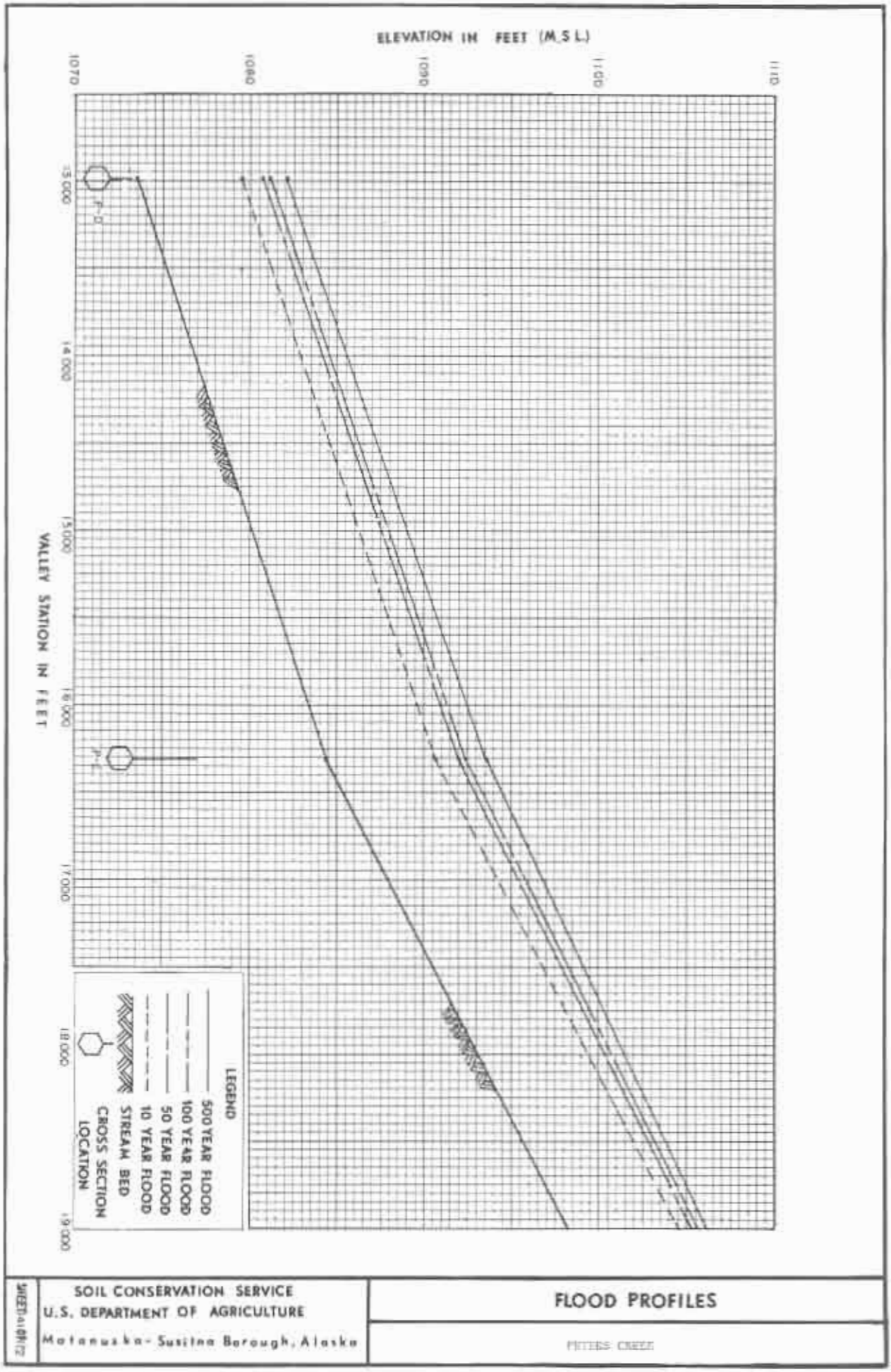


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

PETERS CREEK

EXHIBIT 2

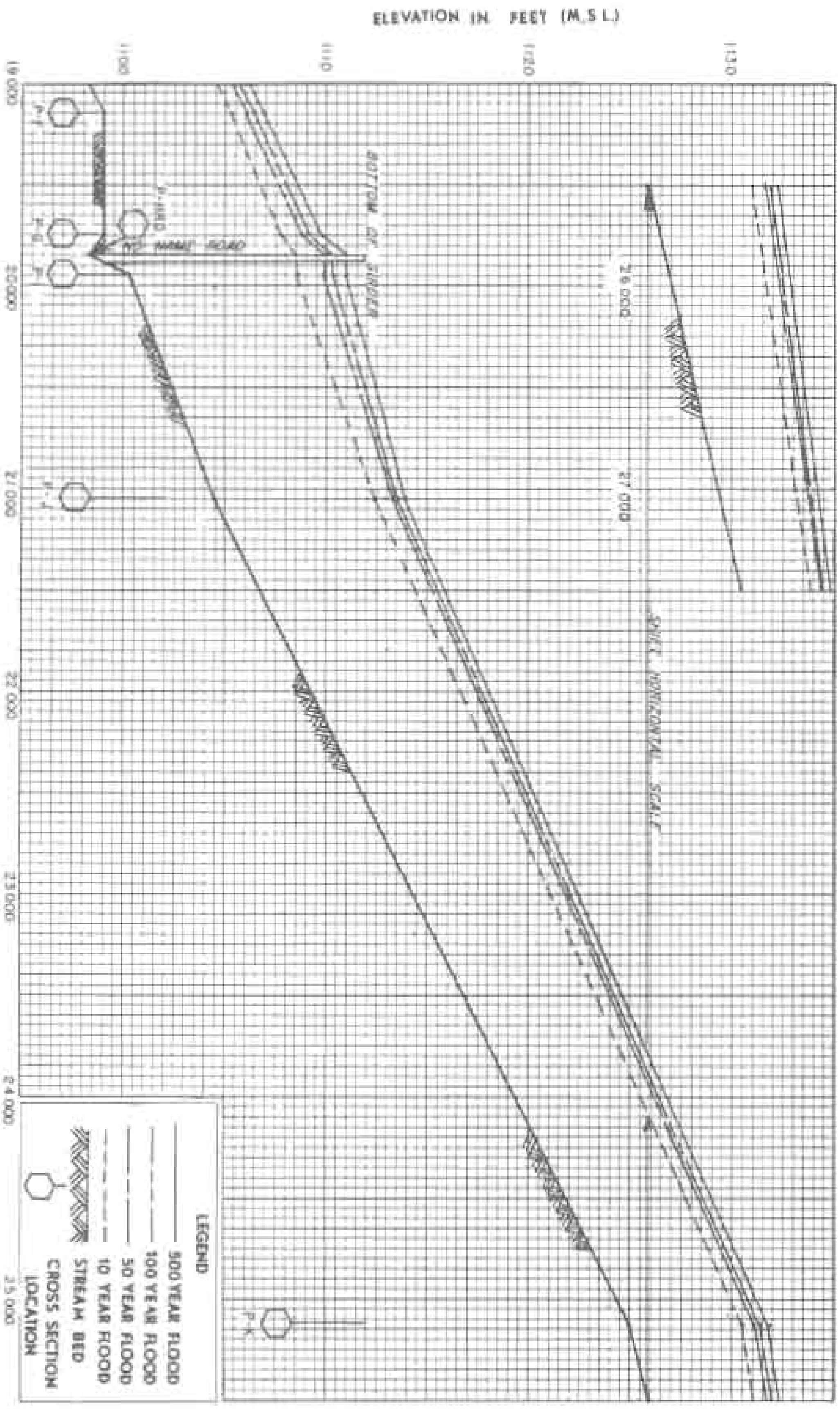


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

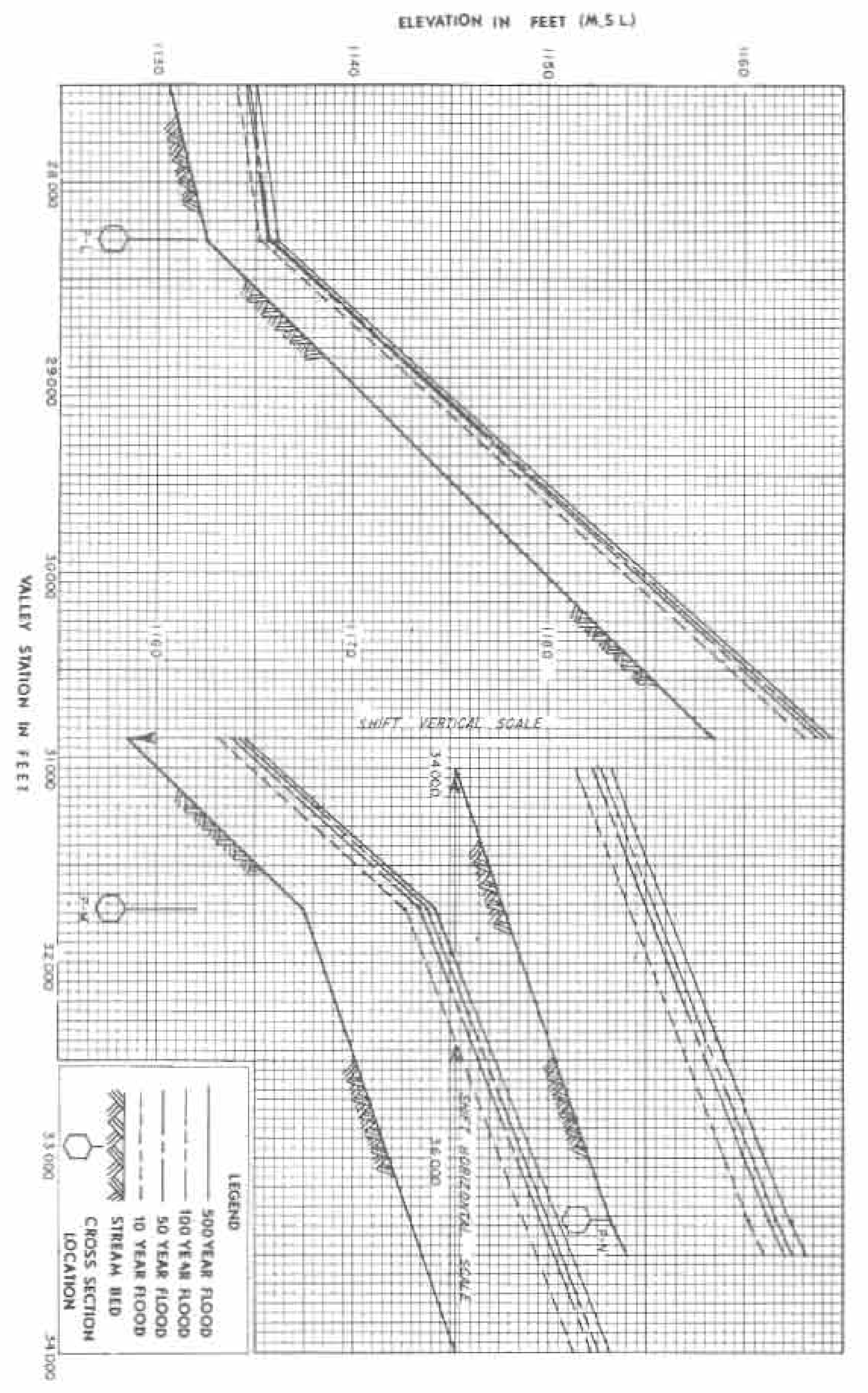
FLOOD PROFILES

PETERS CREEK

EXHIBIT 2

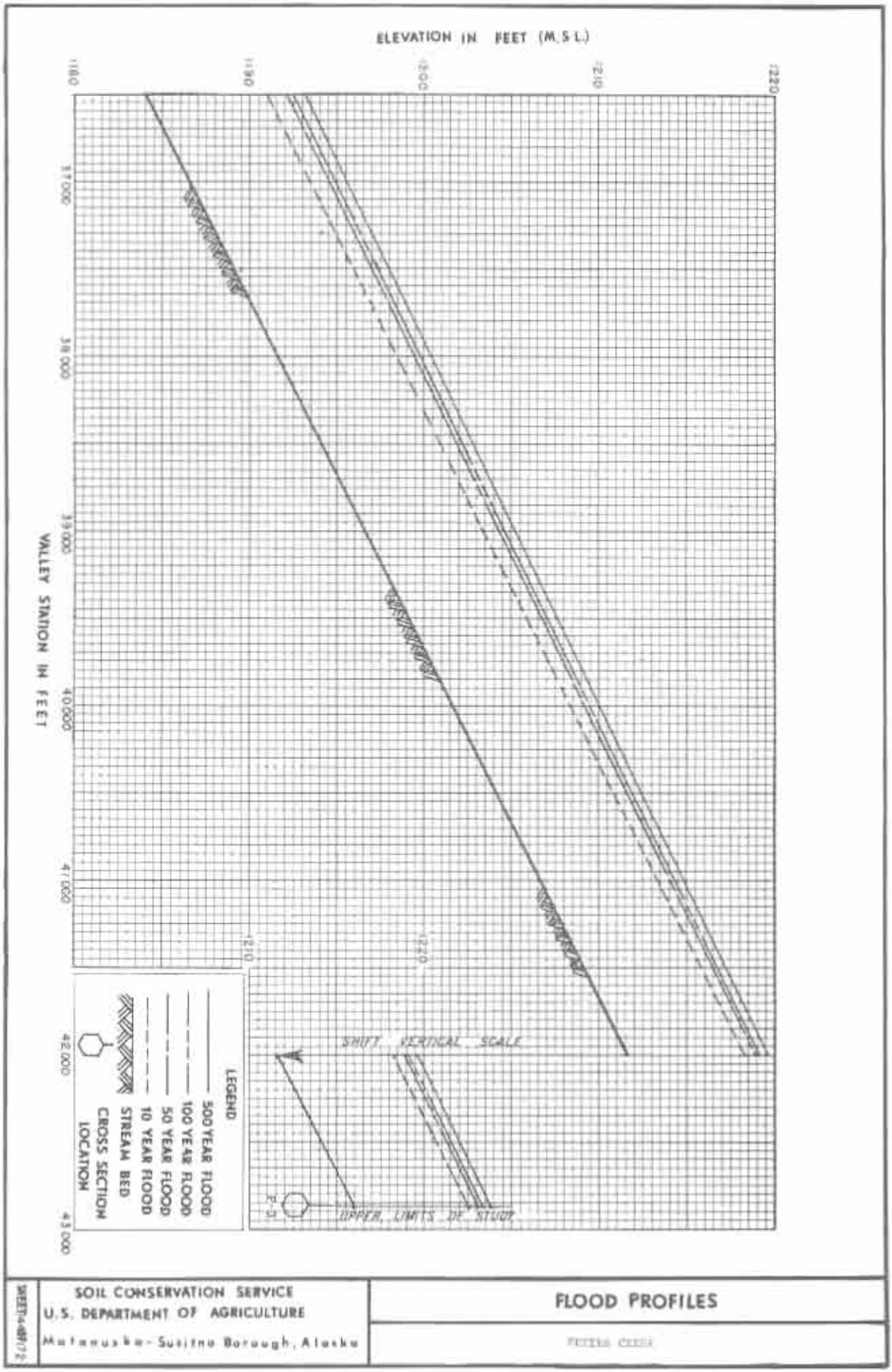


SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES PETERS CREEK



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES



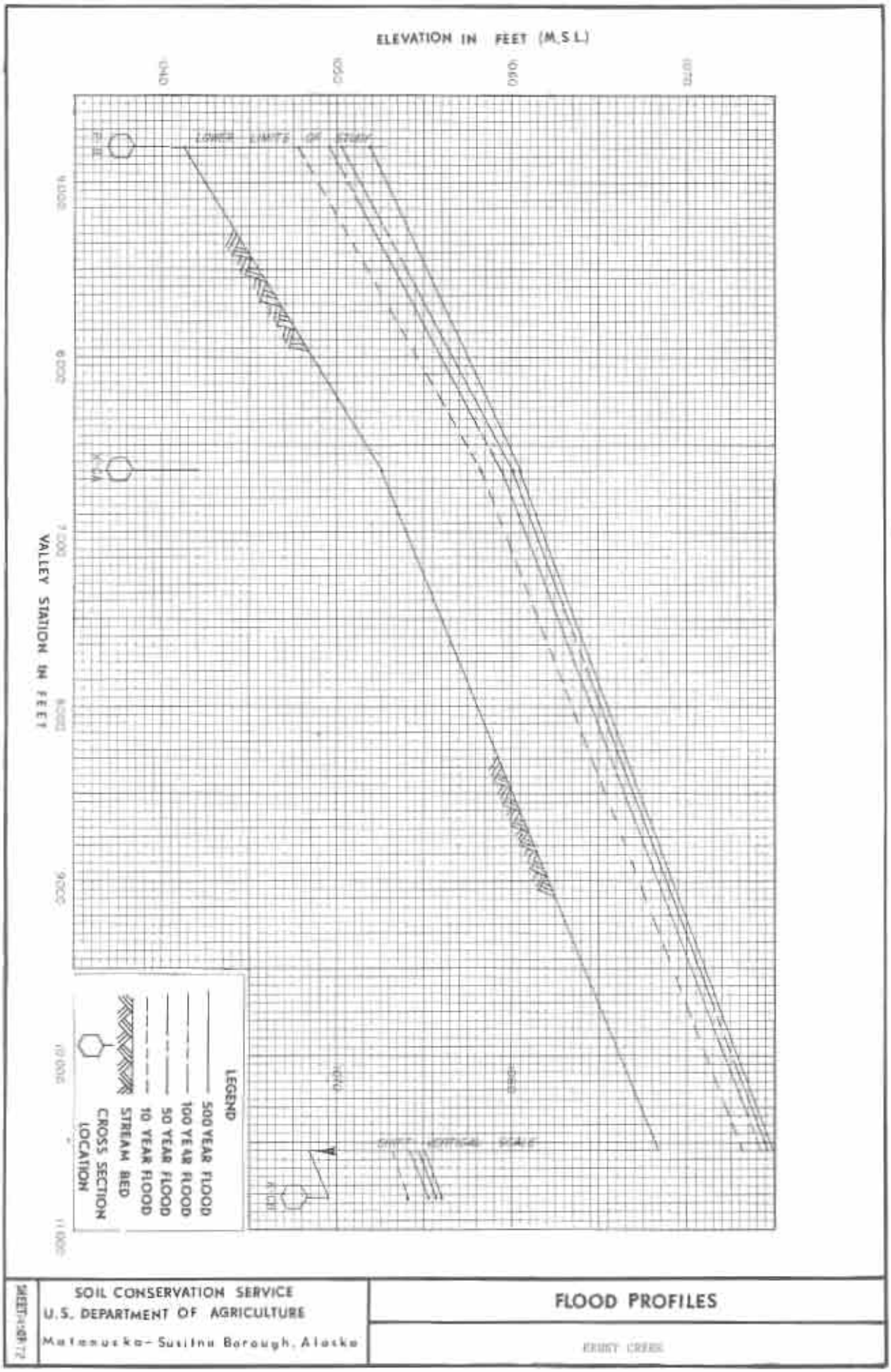
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 4 of 12

FLOOD PROFILES

Fuller Creek

EXHIBIT 2

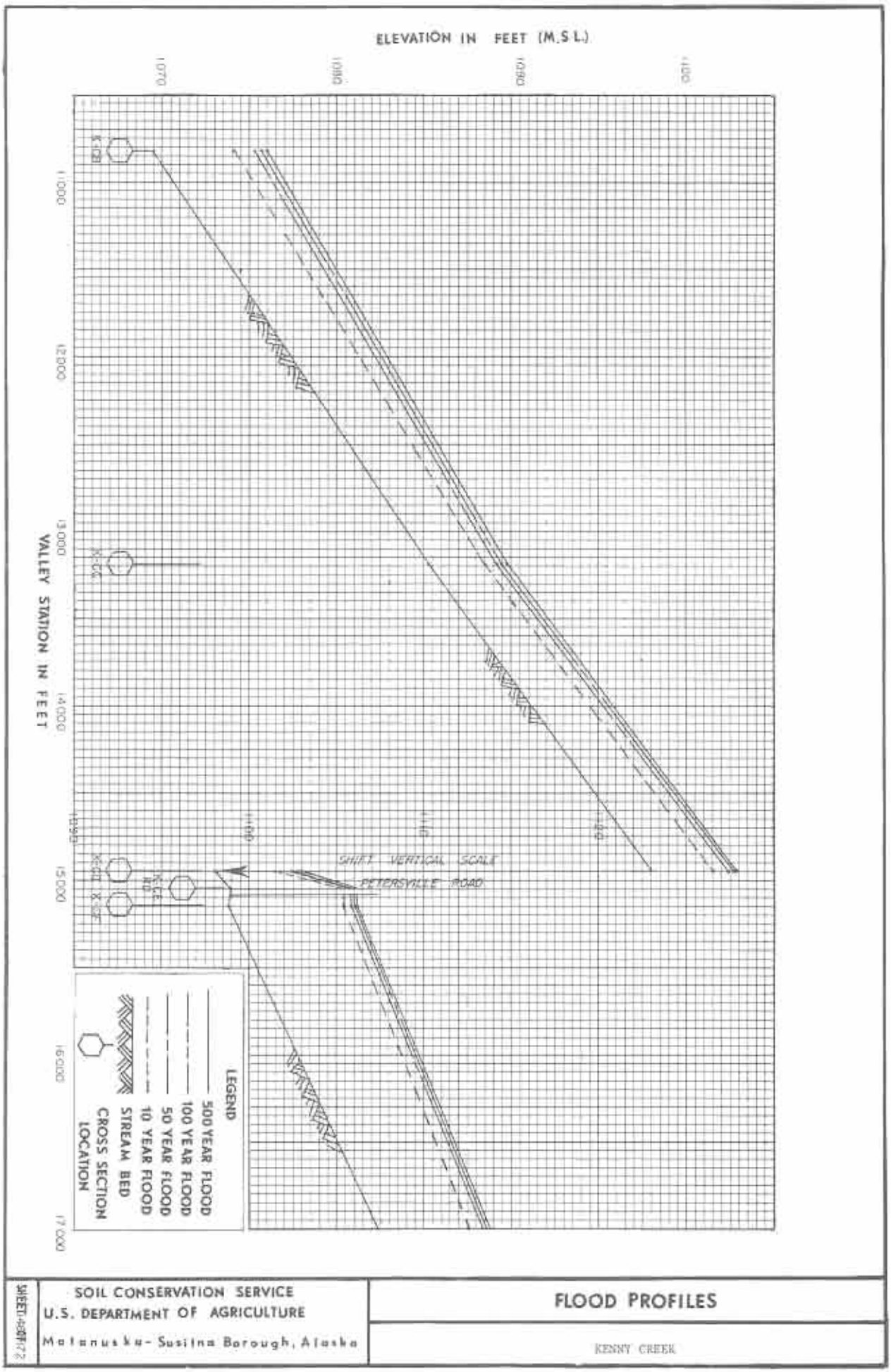


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

ERSKY CREEK

EXHIBIT C

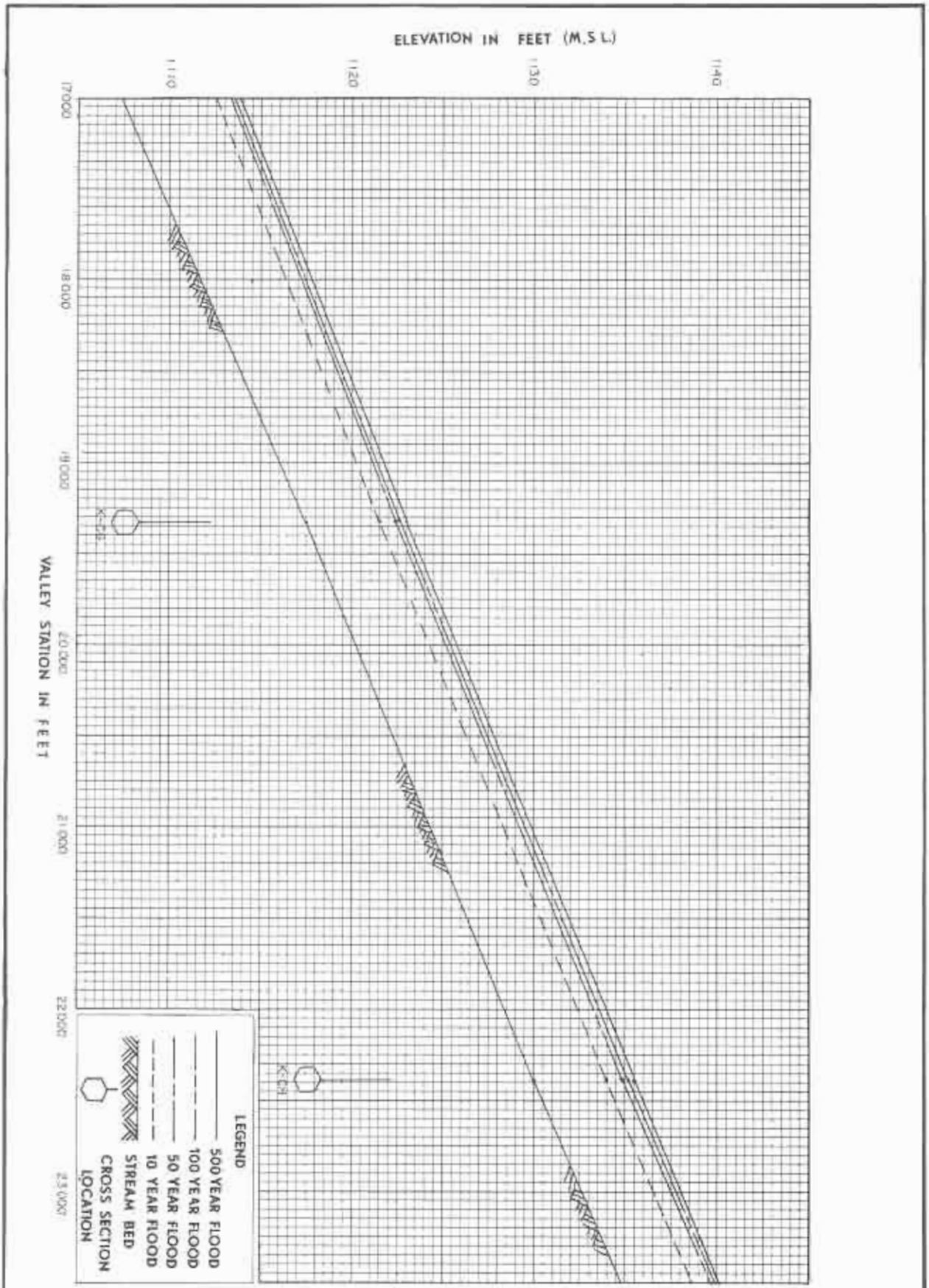


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

KENNY CREEK

EXHIBIT 2



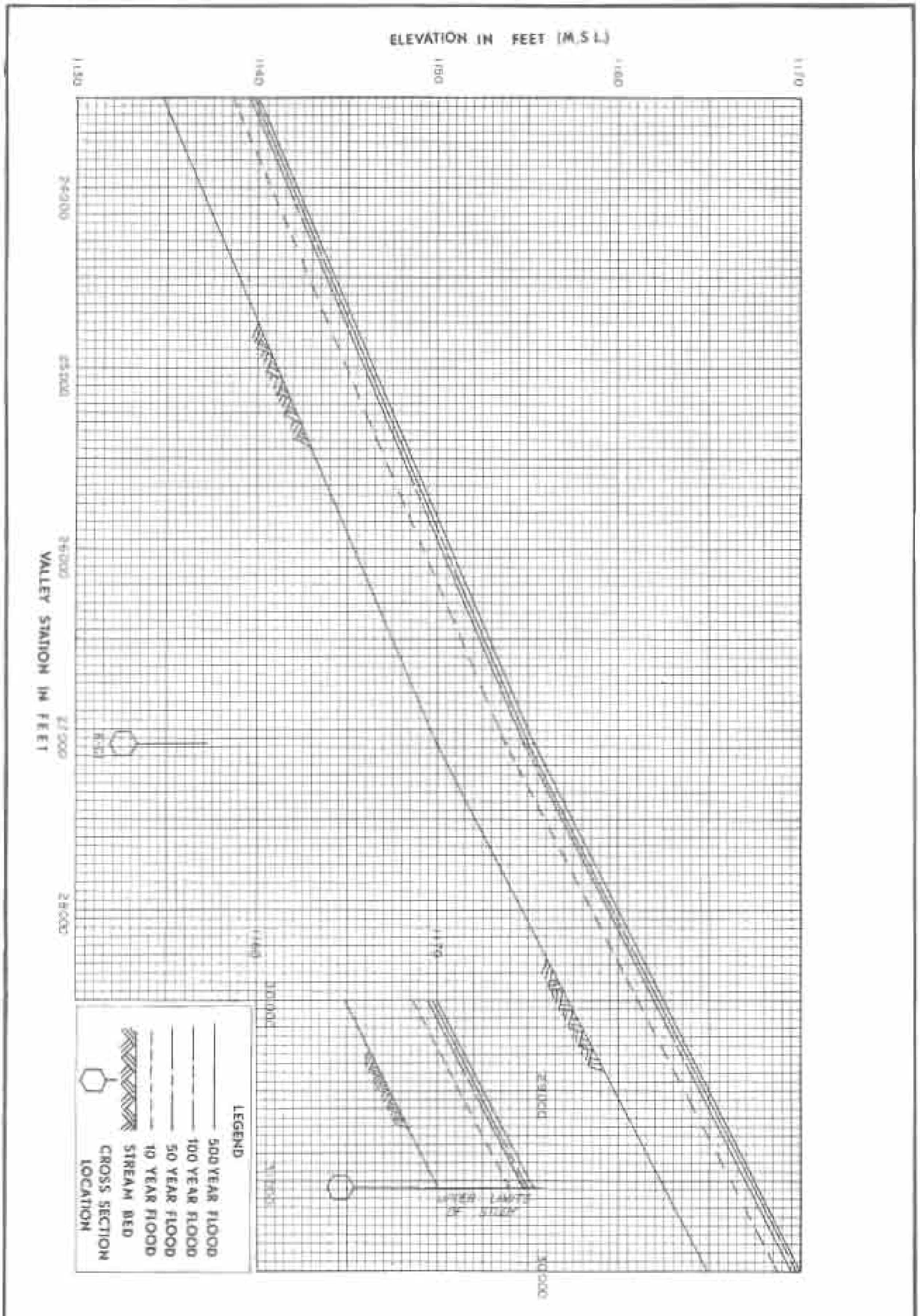
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 4 OF 12

FLOOD PROFILES

KENNY CREEK

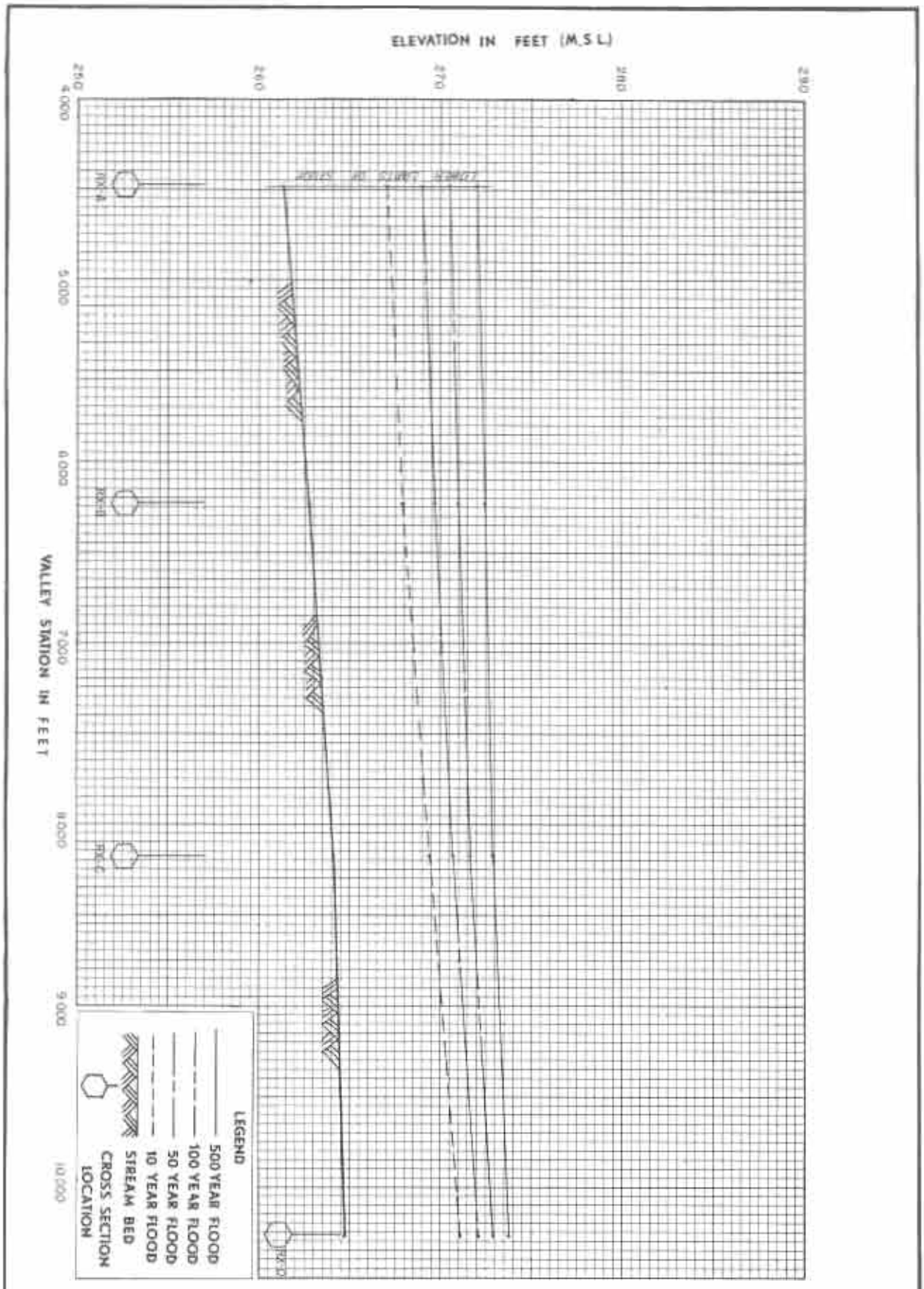
EXHIBIT 3



SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	**FLOOD PROFILES** [illegible] CREEK

SHEET [illegible]

EXHIBIT [illegible]



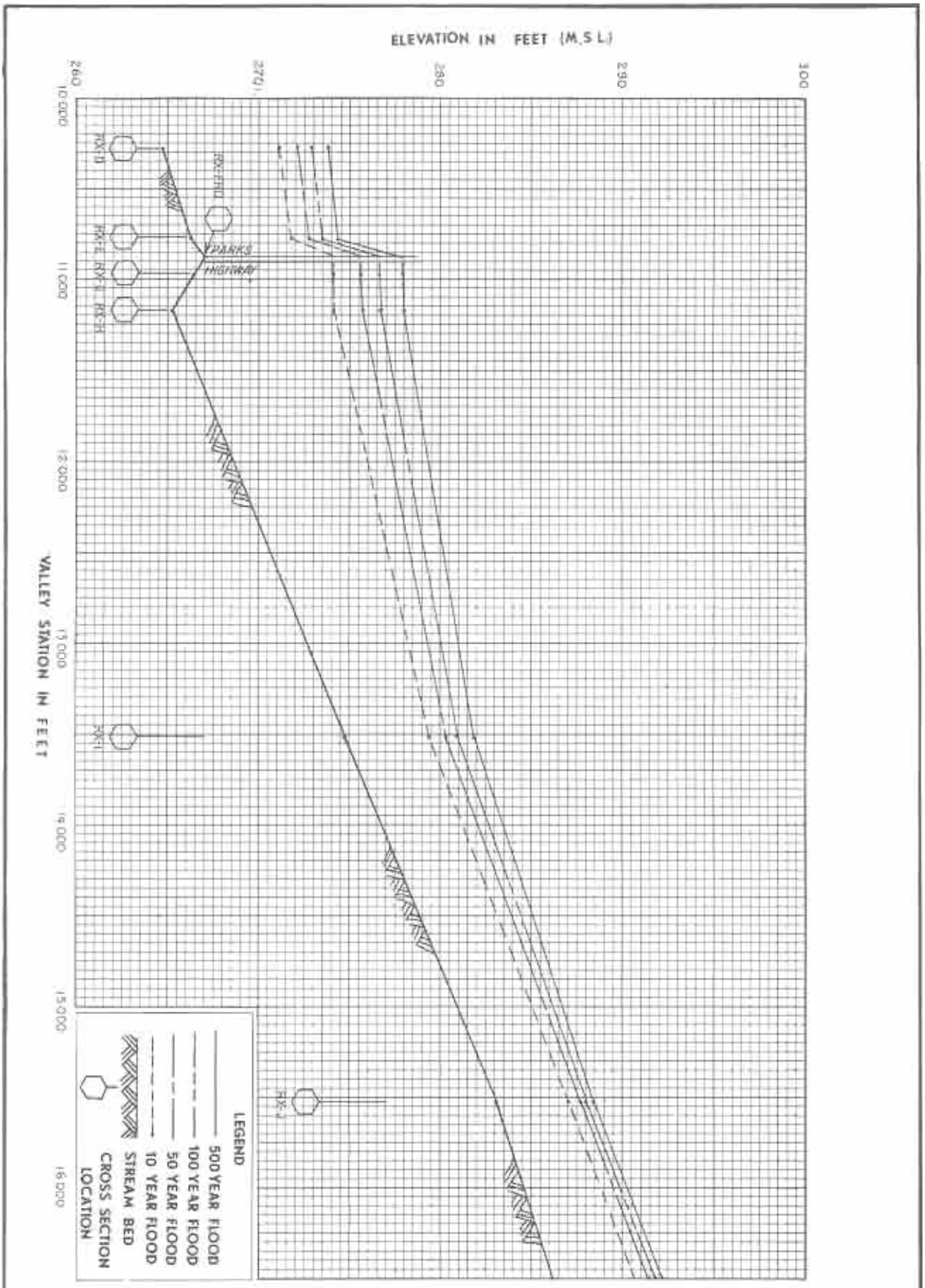
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

RABIDEUX CREEK

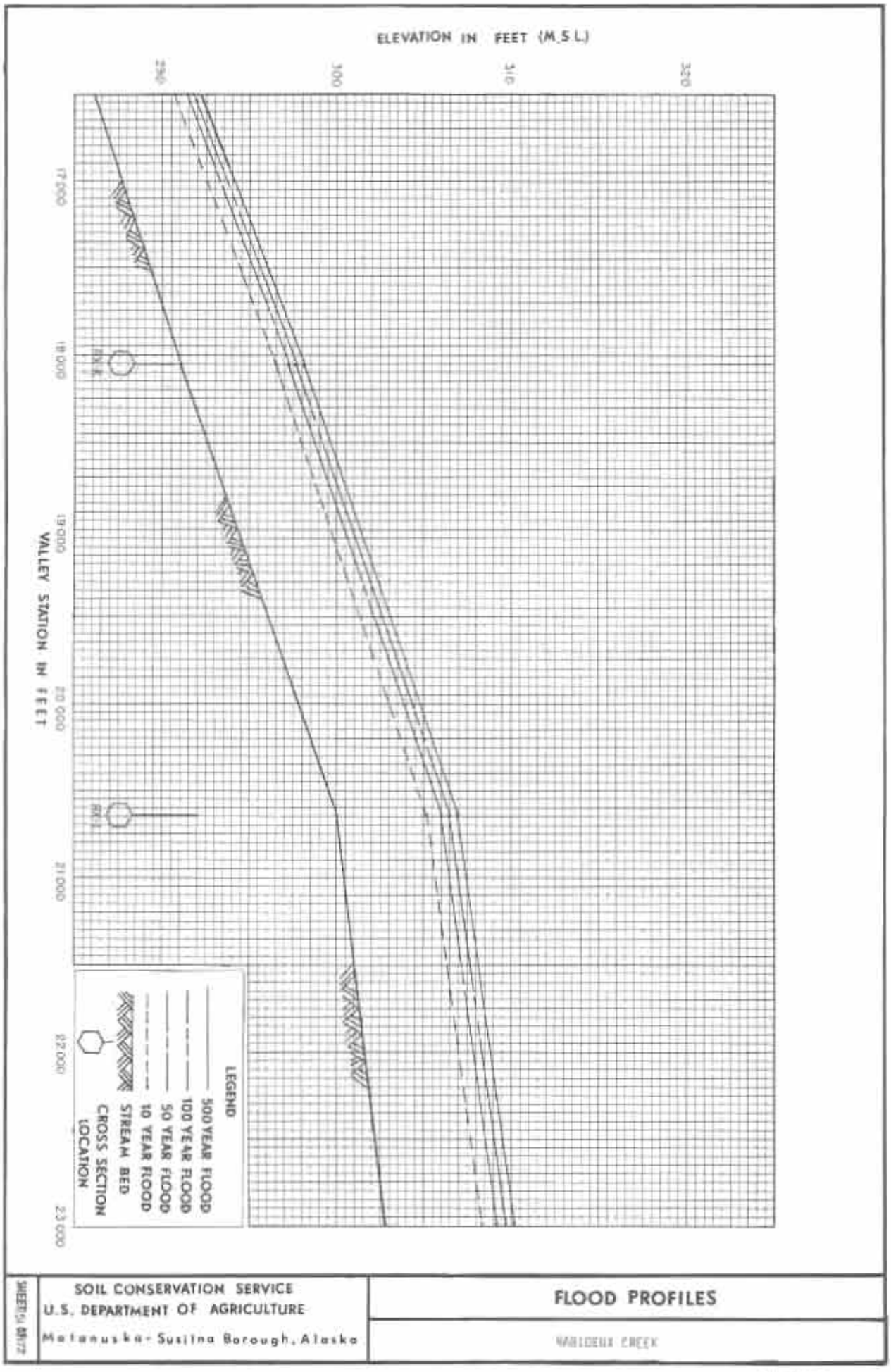
SHEET 4 OF 12

EXHIBIT J



SHEETS OF 72	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES RABIDEUX CREEK

EXHIBIT 2



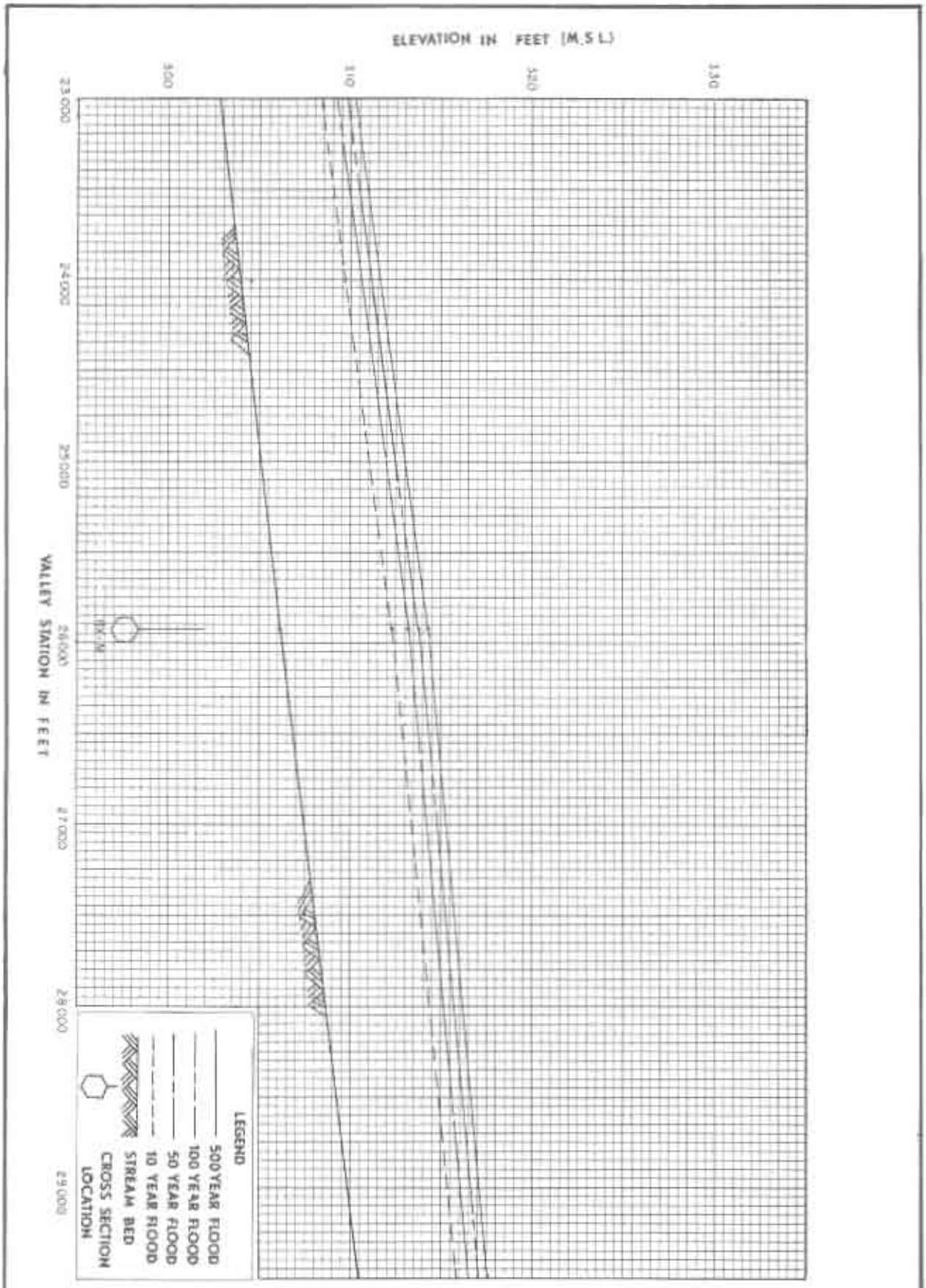
SHEET 16 OF 22

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

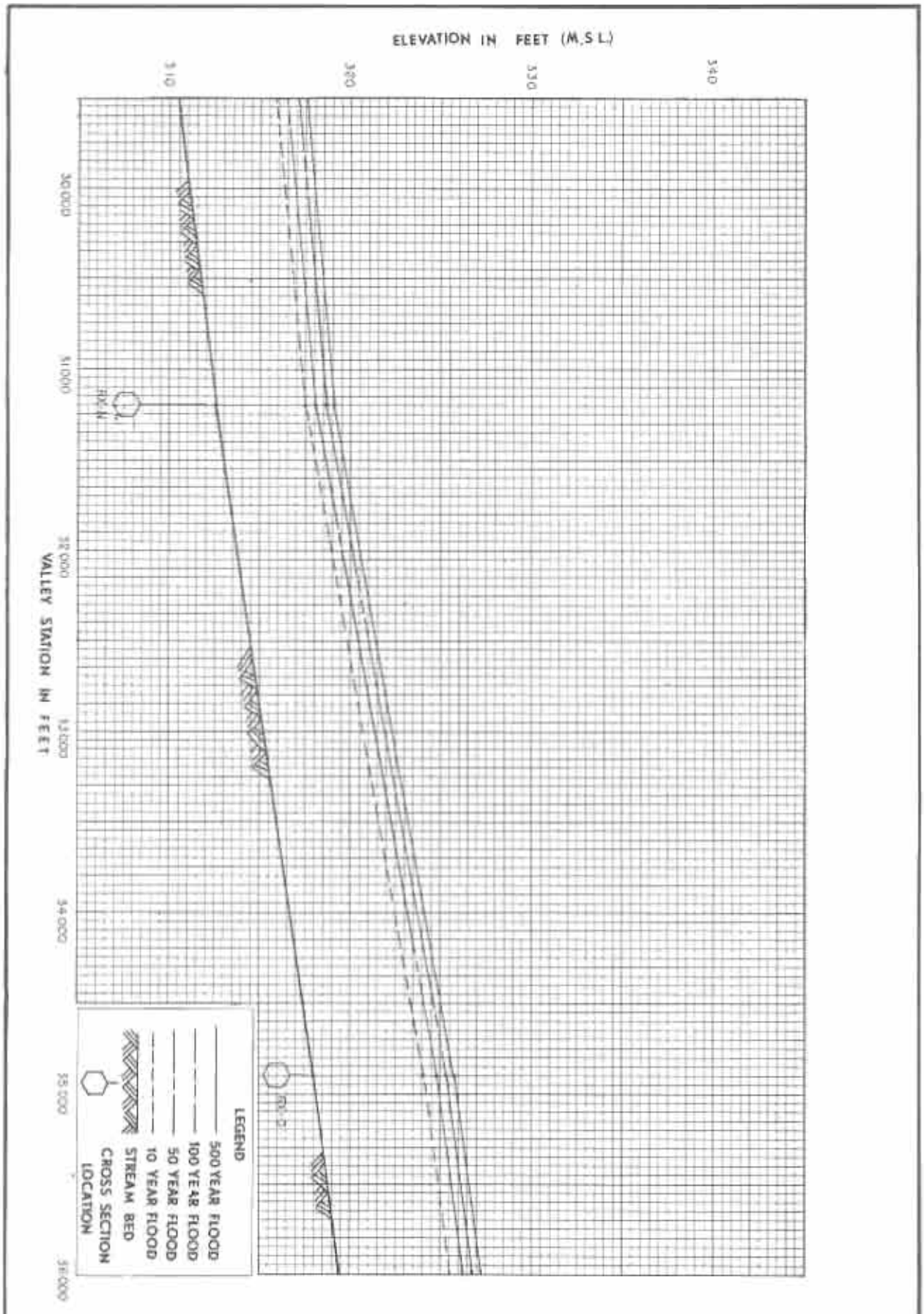
MARIGEUX CREEK

EXHIBIT 2



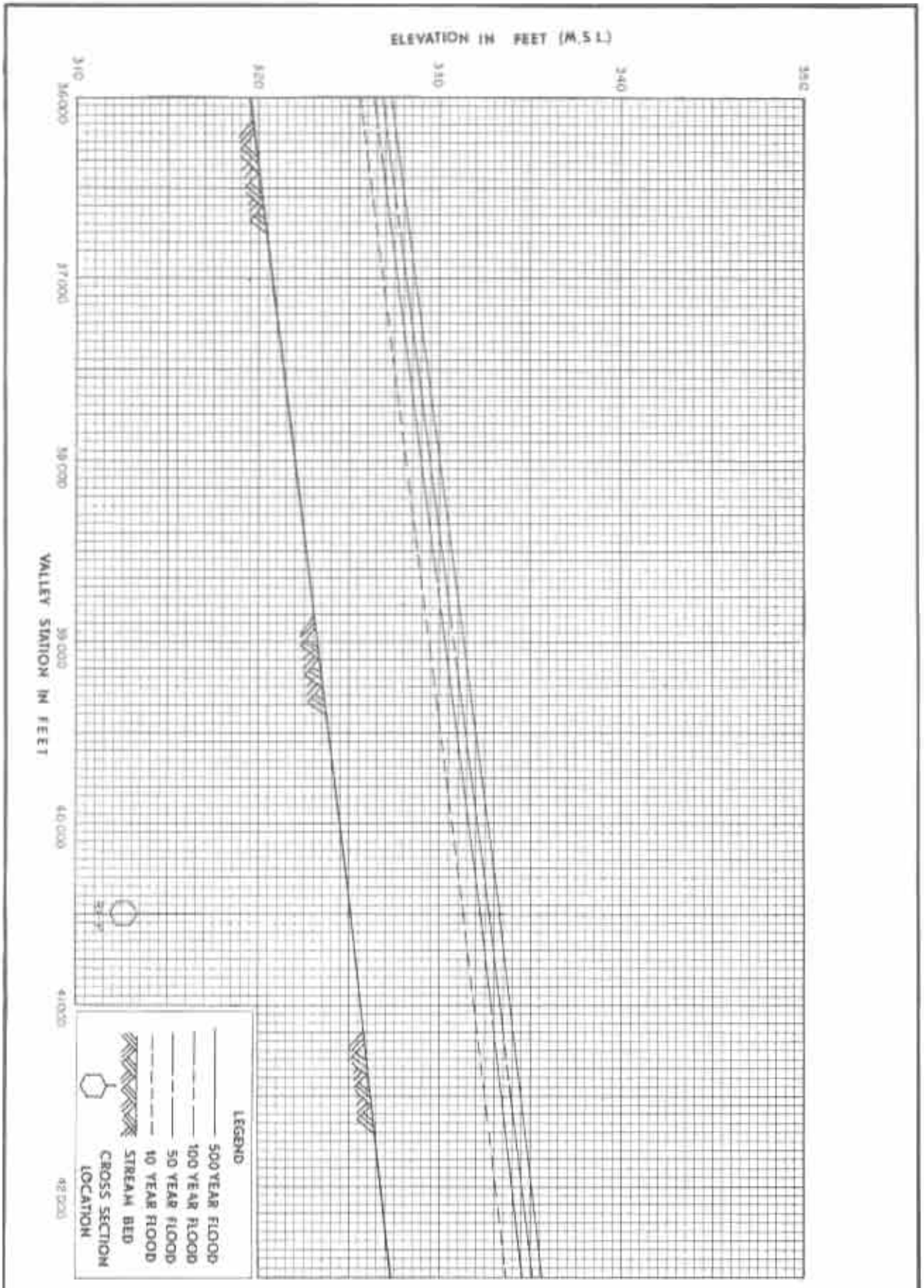
SHEET No. OF 72	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES PARISH CREEK

EXHIBIT 2



SHEET 5 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES RABIDEUX CREEK

EXHIBIT 7

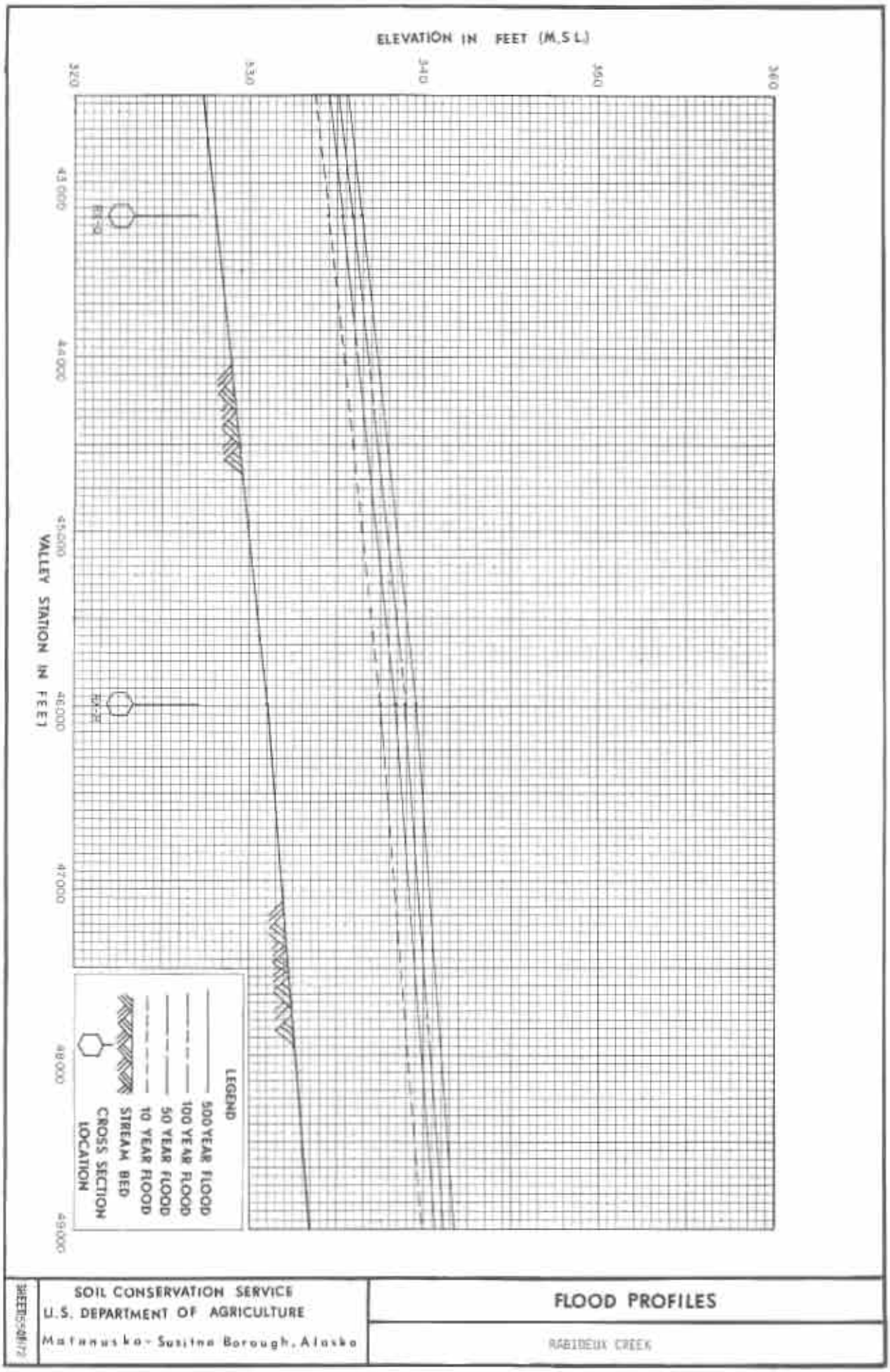


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

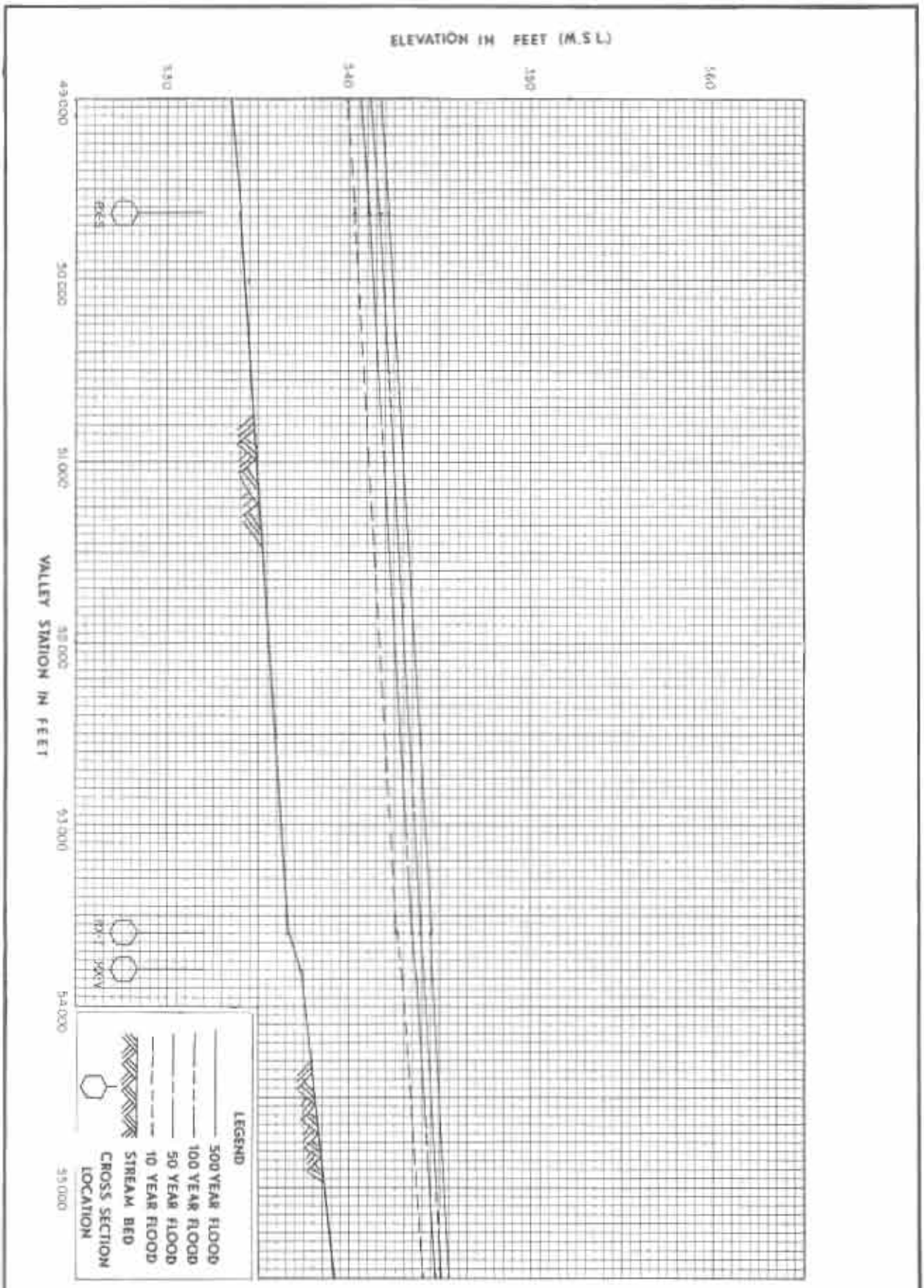
RABIDEUX CREEK

EXHIBIT 2



SHEET 5 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES RABIDEUX CREEK

EXHIBIT 7



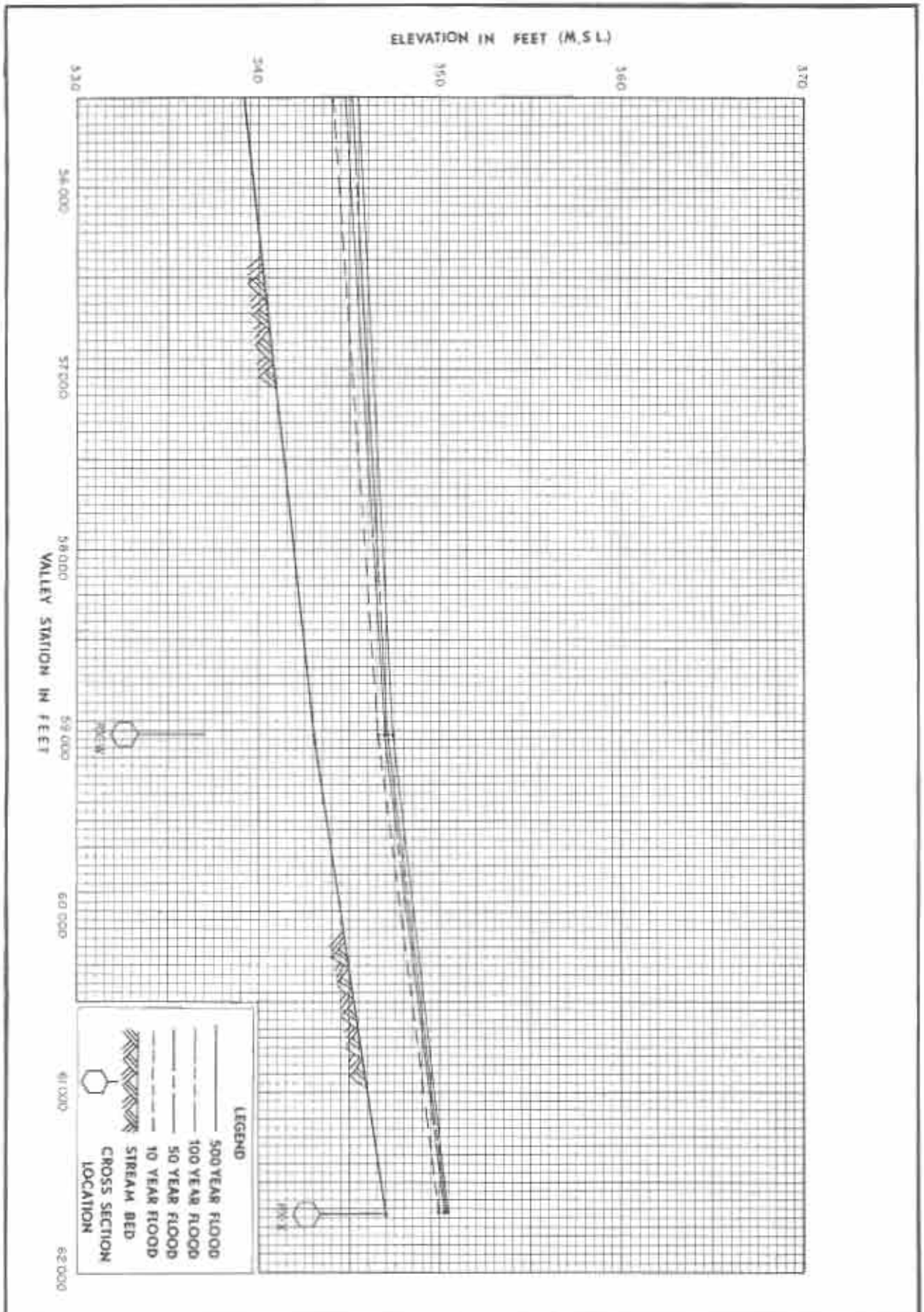
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 6 OF 12

FLOOD PROFILES

RABIDEUX CREEK

EXHIBIT 2

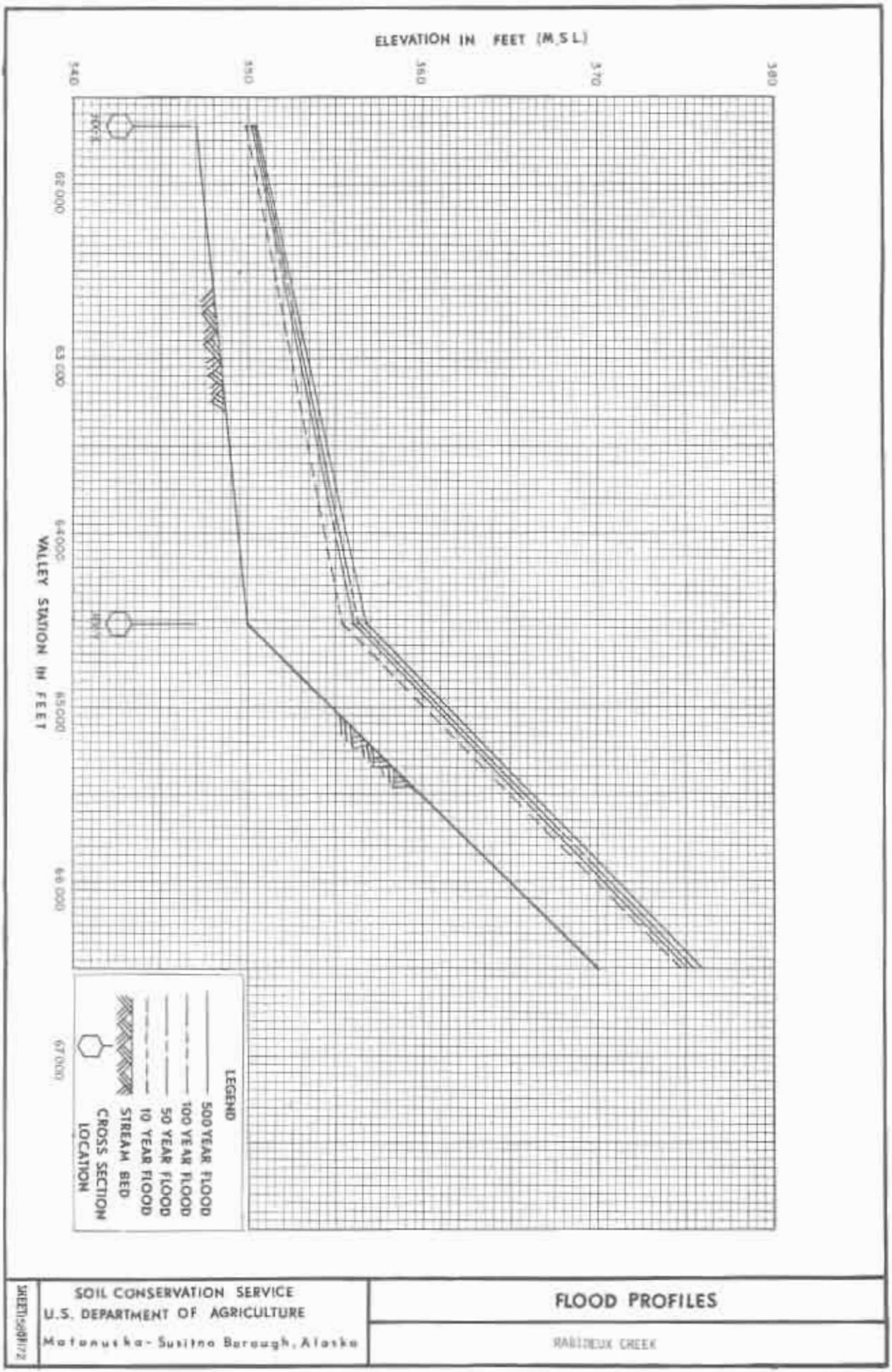


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

RADTREUX CREEK

EXHIBIT I



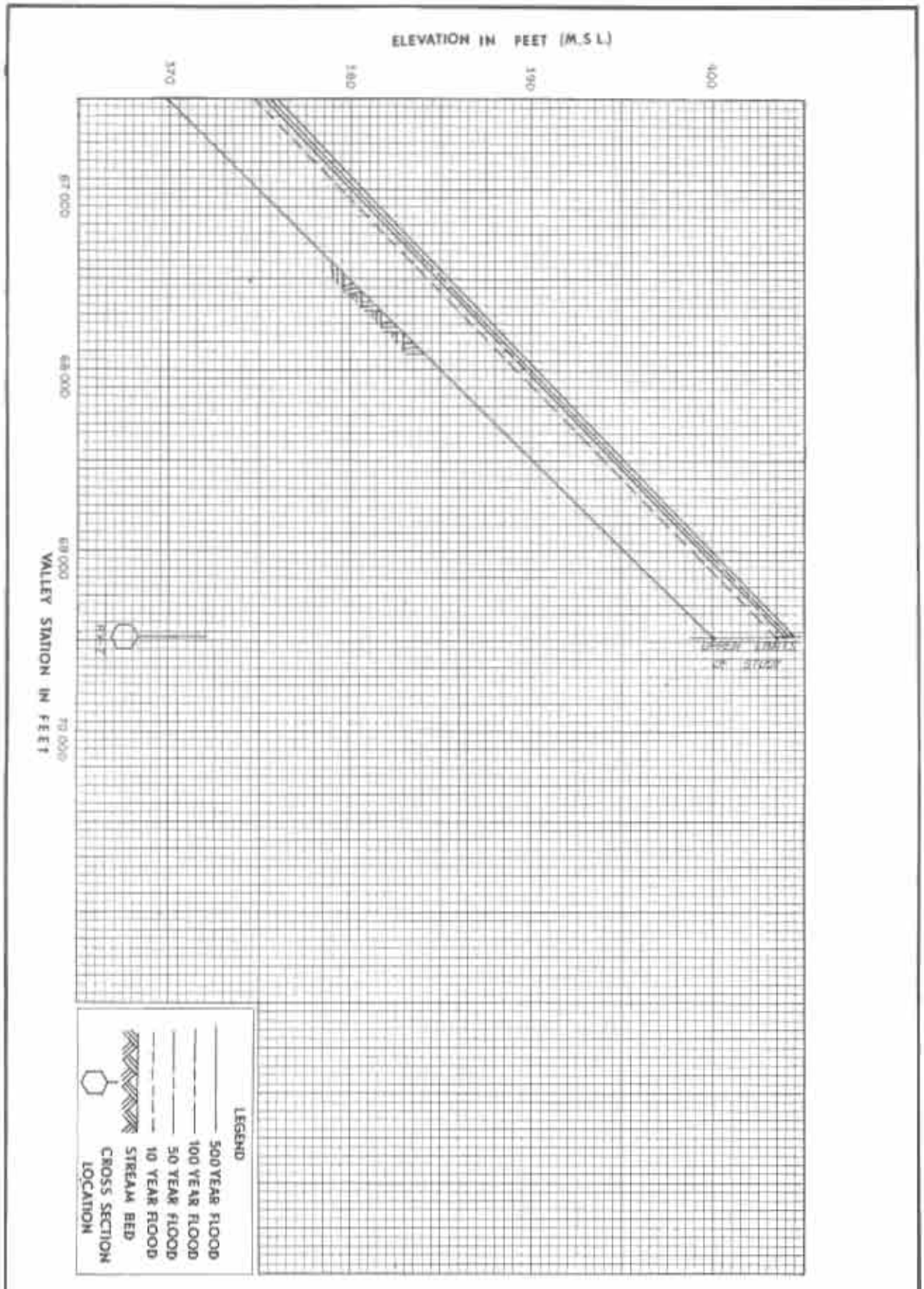
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

SHEET 1 of 1 SHEETS

FLOOD PROFILES

RABIDEUX CREEK

EXHIBIT 2



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

RABBIDEUX CREEK

EXHIBIT J

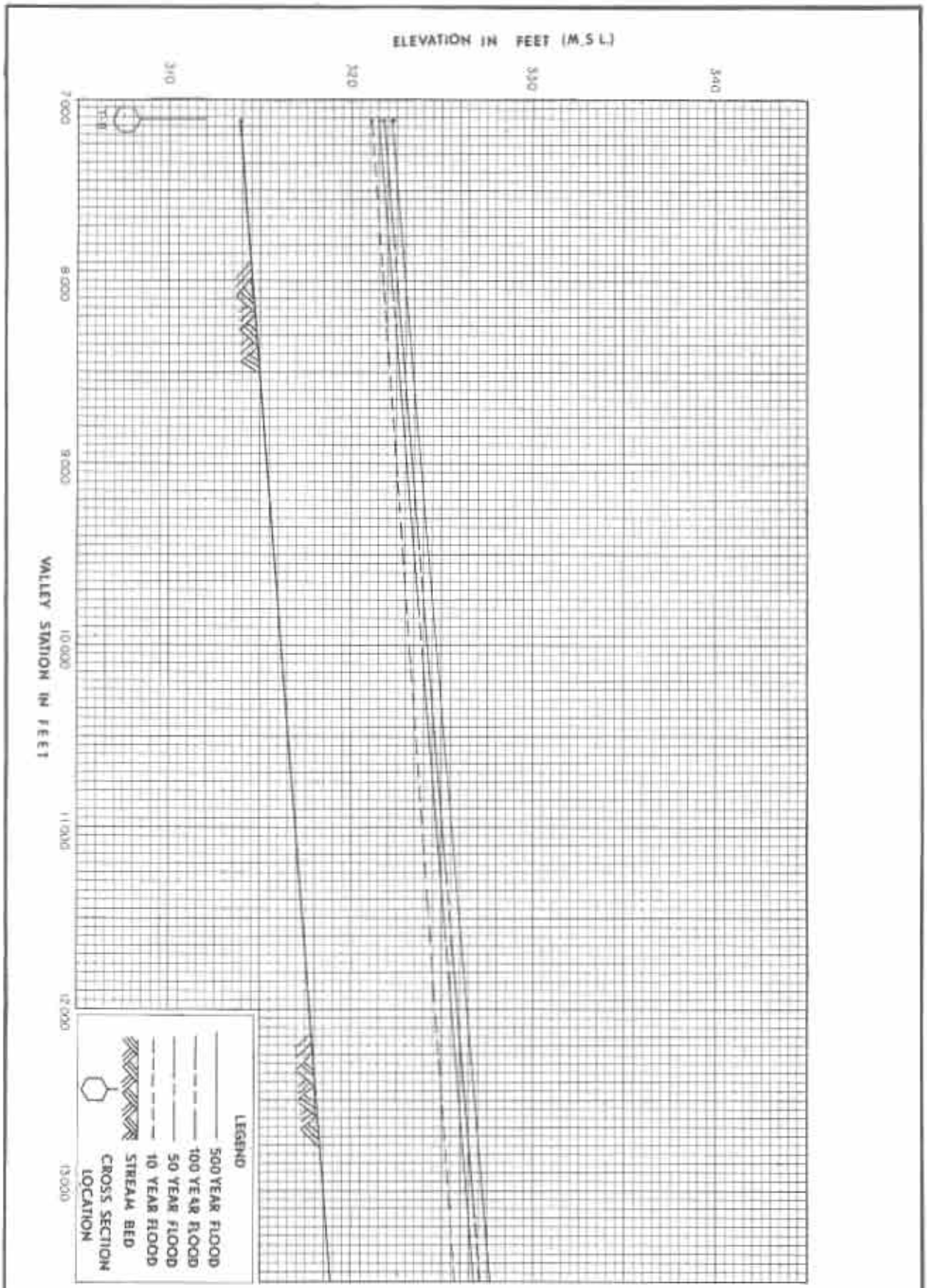
SHEET 6 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TRAPPER CREEK

EXHIBIT 2



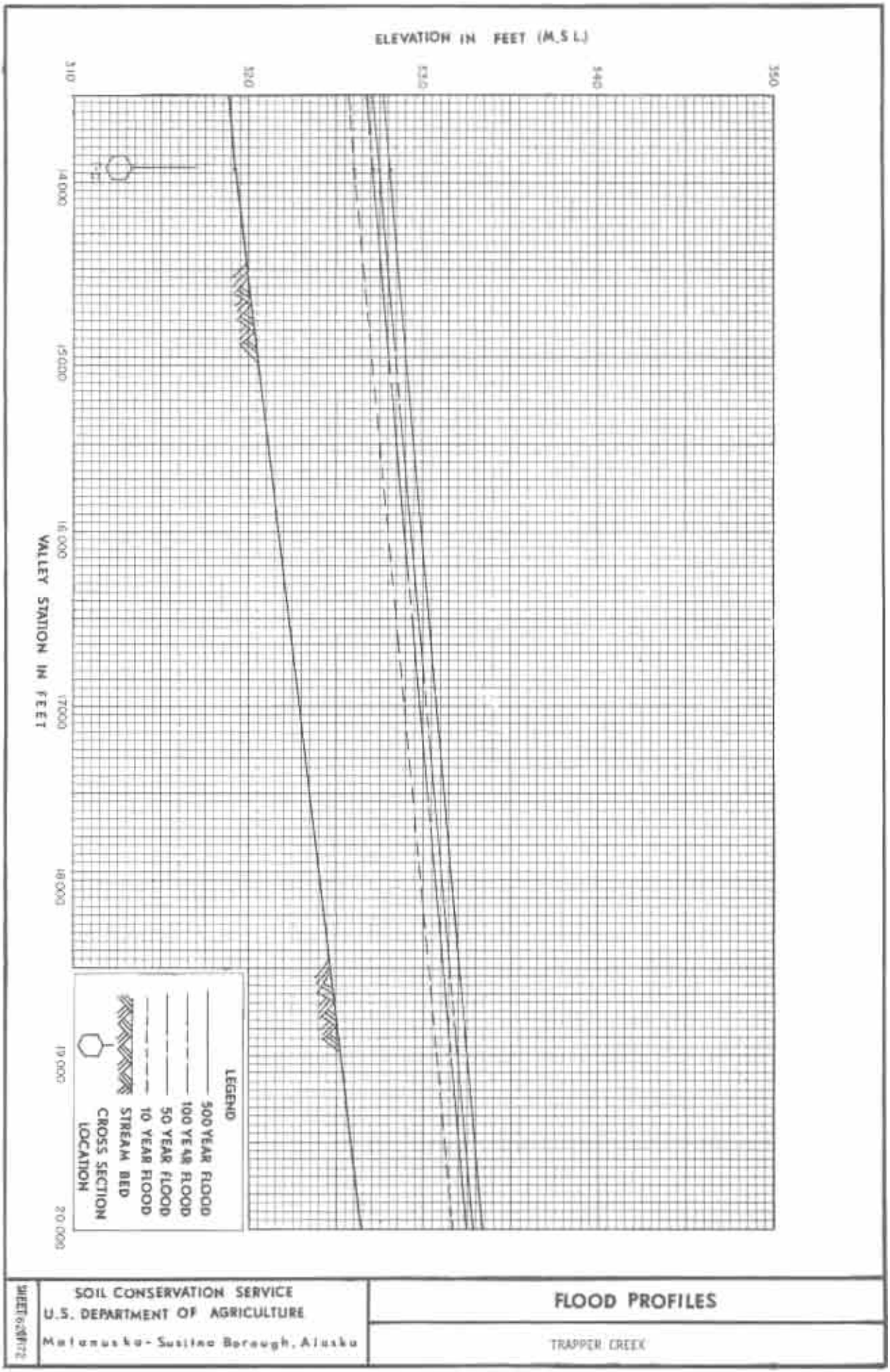
SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TRAPPER CREEK

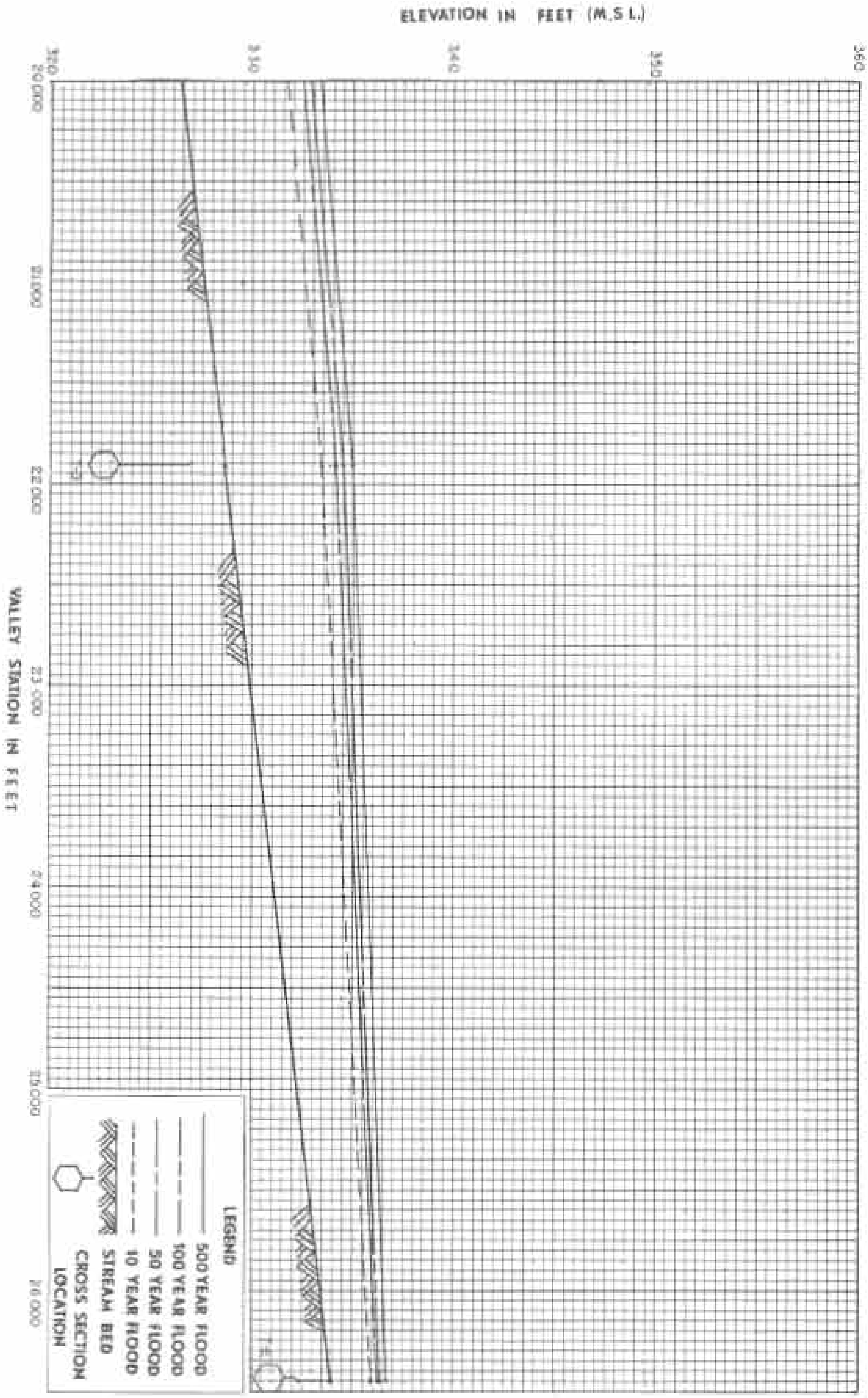
SHEET 8 OF 12

EXHIBIT 2



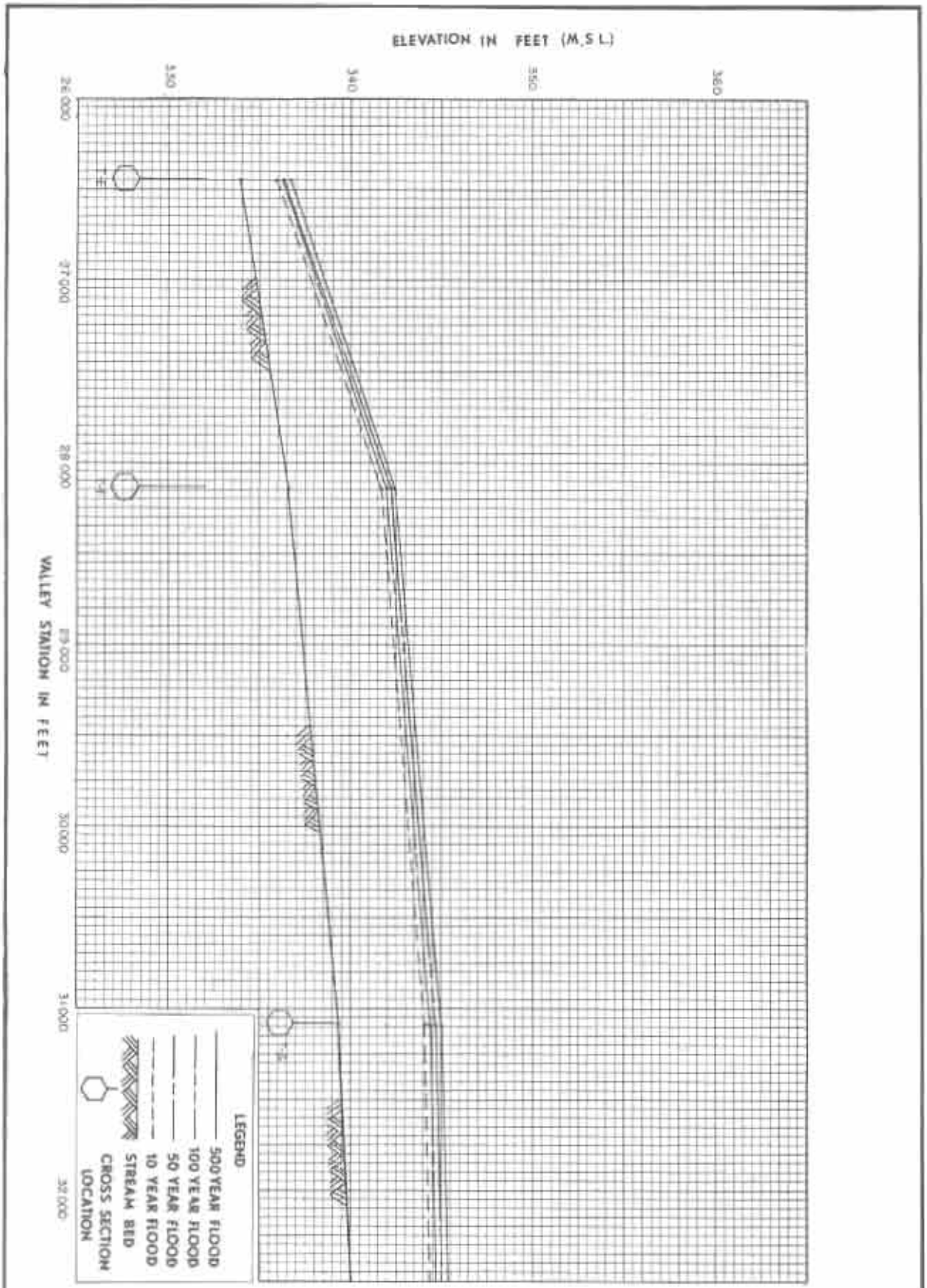
SHEET 6 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT 2



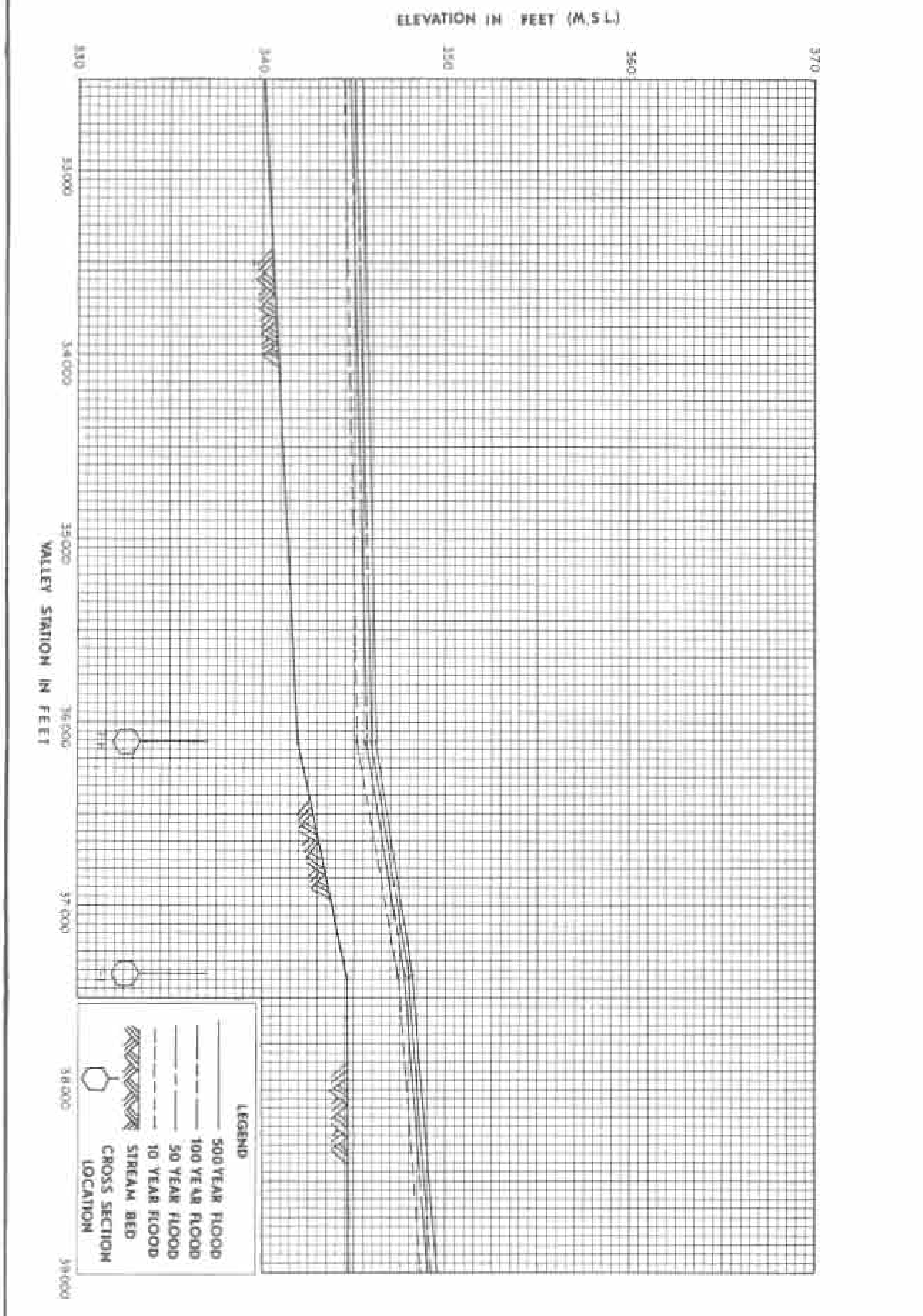
SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT 2

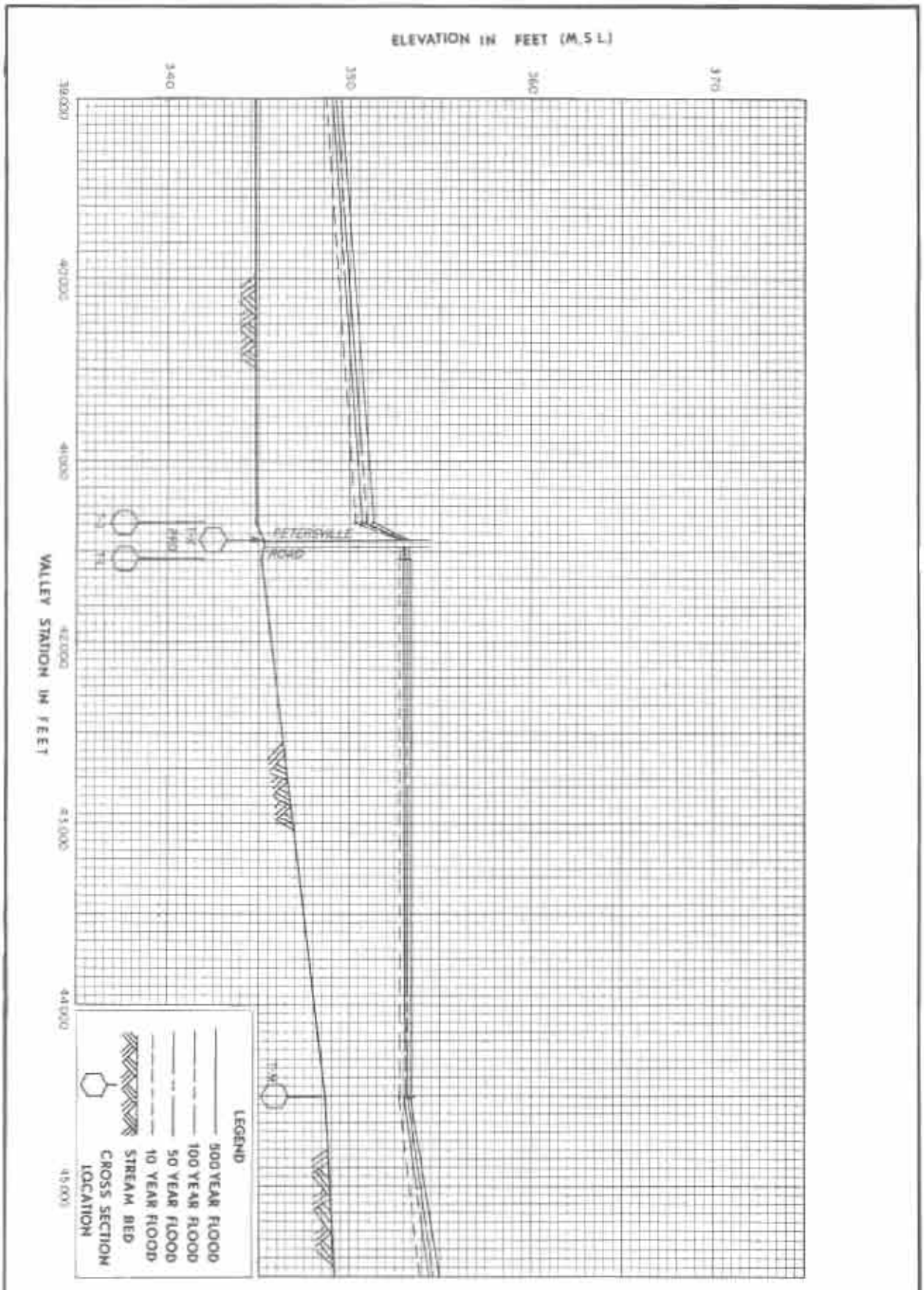


SHEET 4 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT J



SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE	**FLOOD PROFILES**
Matanuska-Susitna Borough, Alaska	TRAPPER CREEK

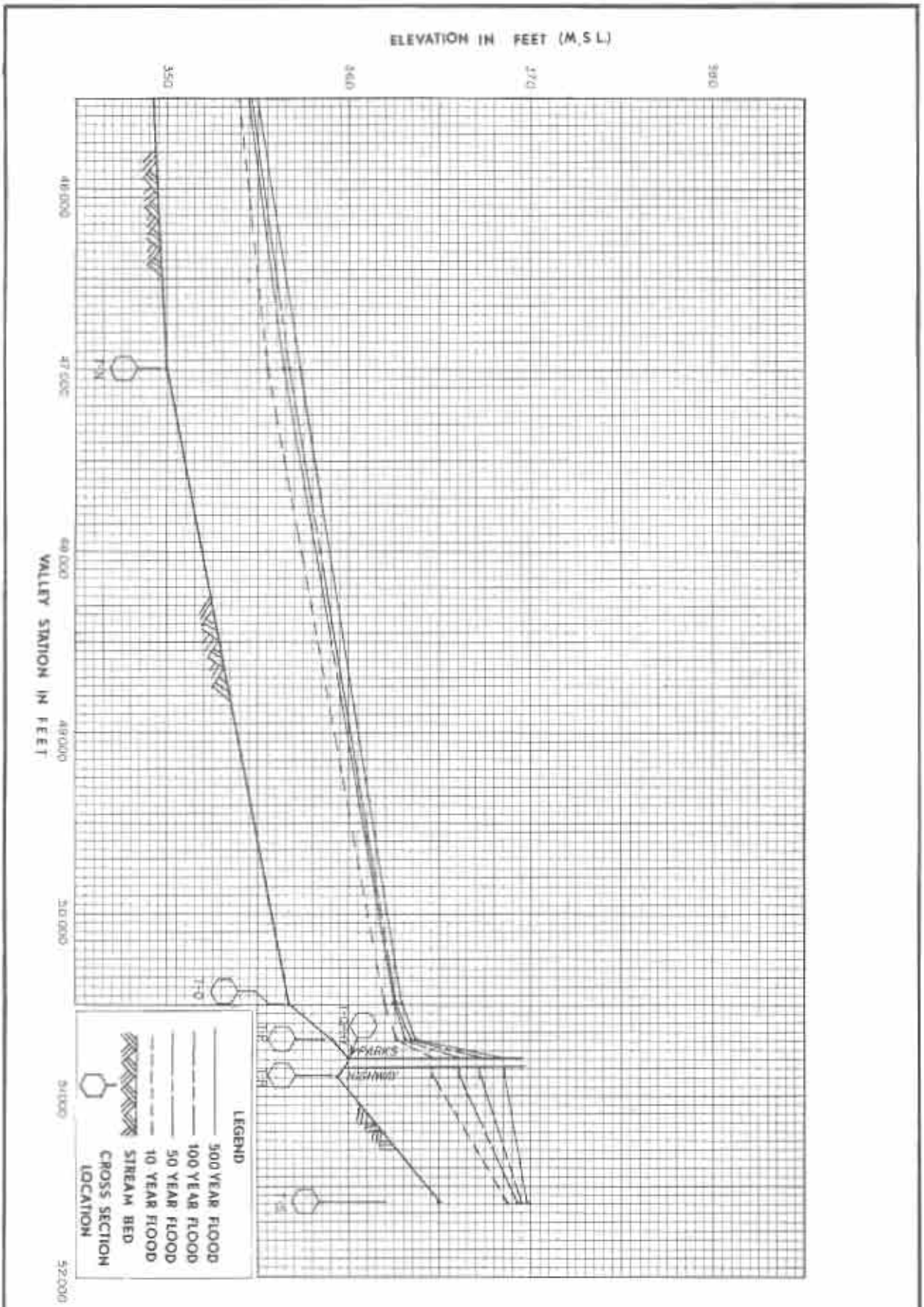


SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

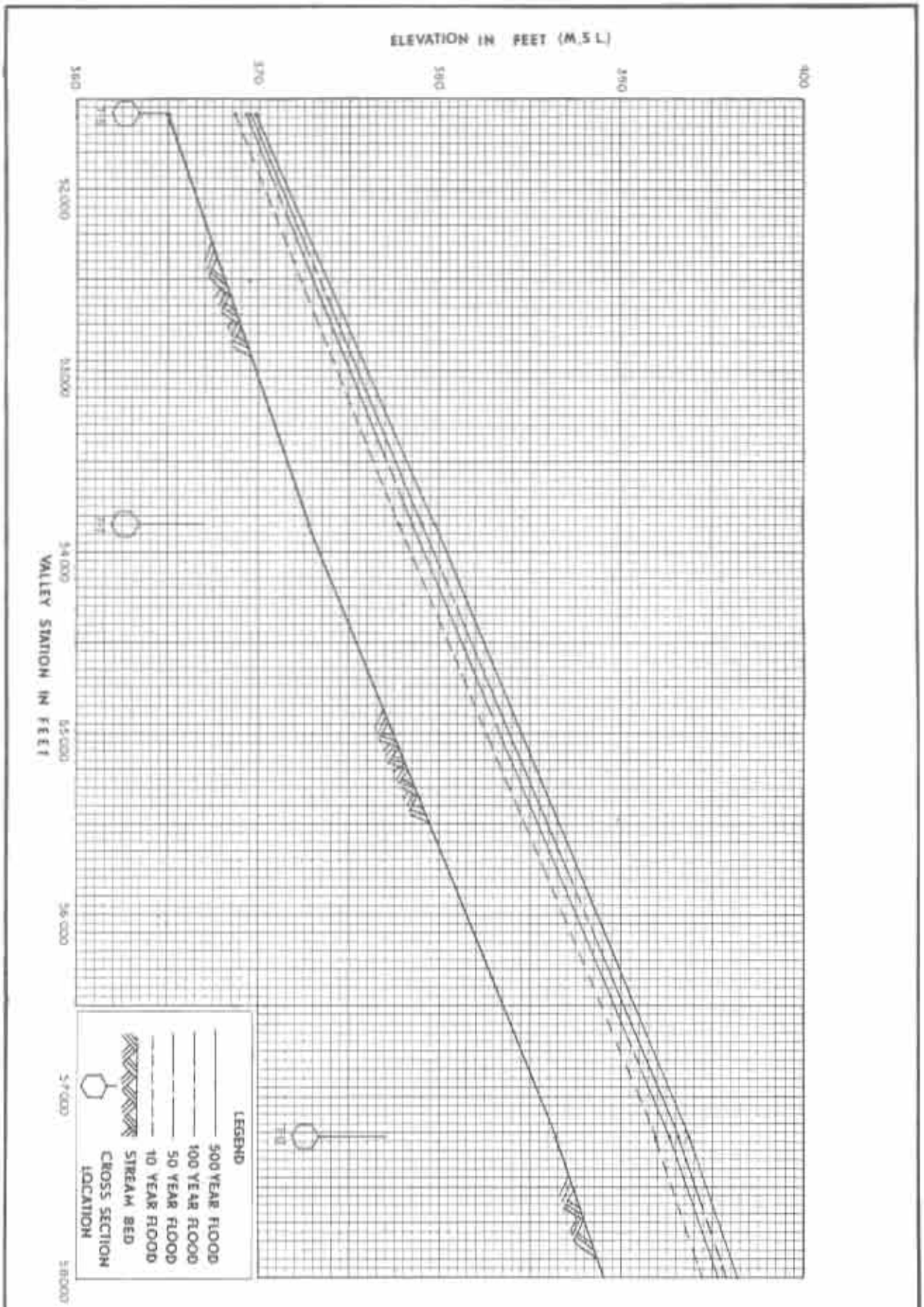
TRAPPER CREEK

EXHIBIT 2



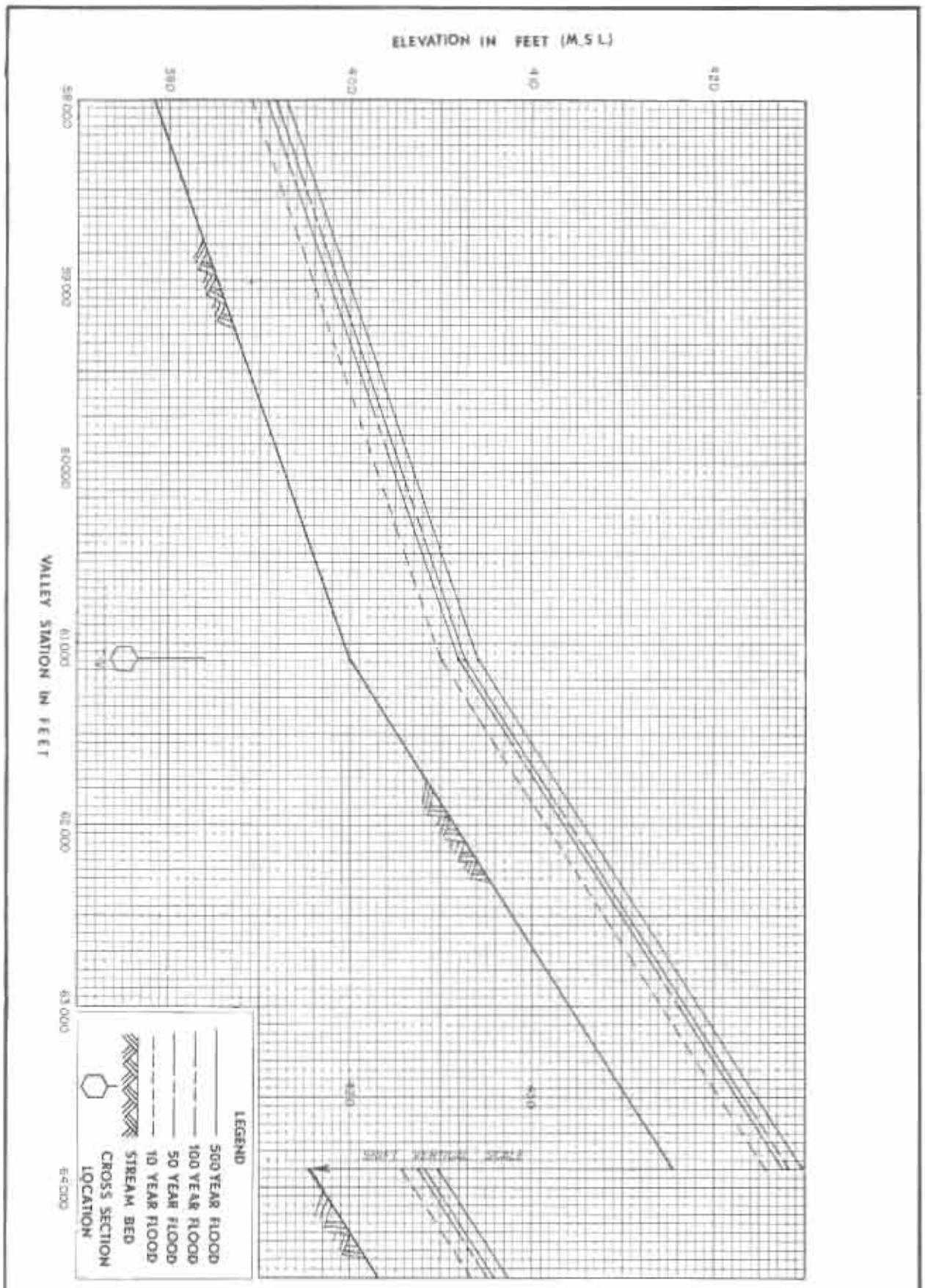
SHEET 6 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT J



SHEET 8 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT 3



SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

TRAPPER CREEK

EXHIBIT F

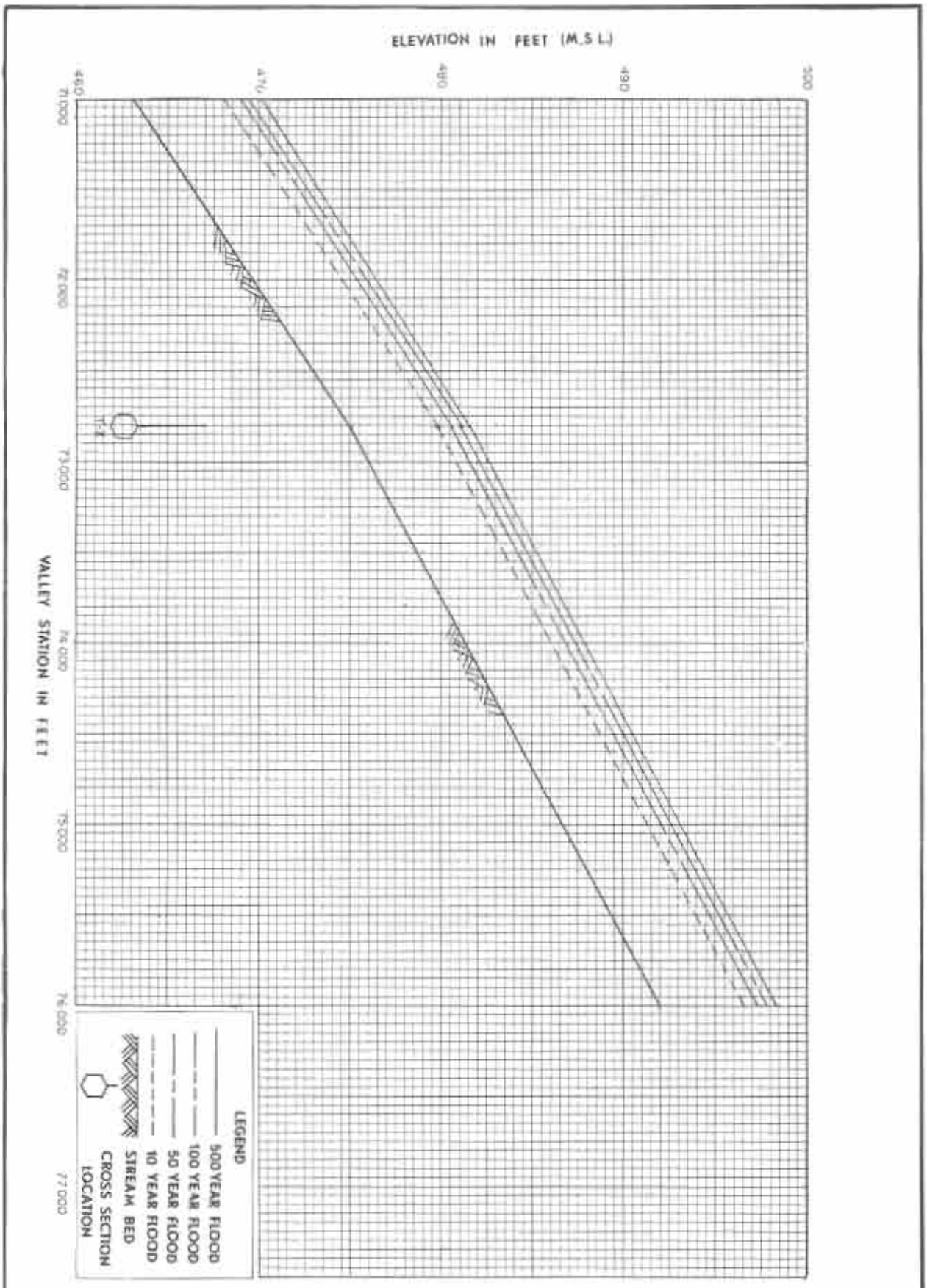
SHEET 10 OF 12

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
Matanuska-Susitna Borough, Alaska

FLOOD PROFILES

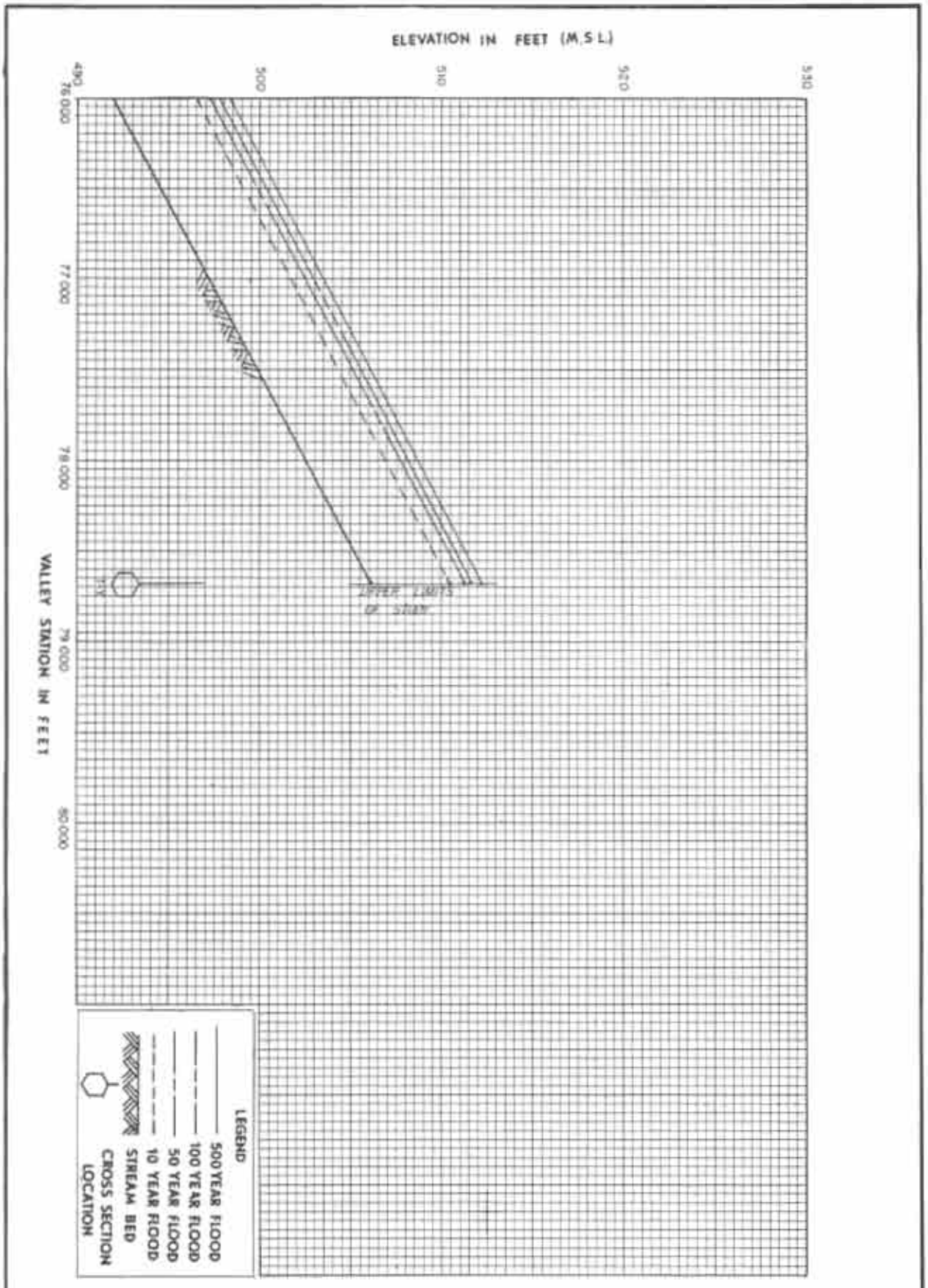
TRAPPER CREEK

EXHIBIT E



SHEET 1 OF 12	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT 2



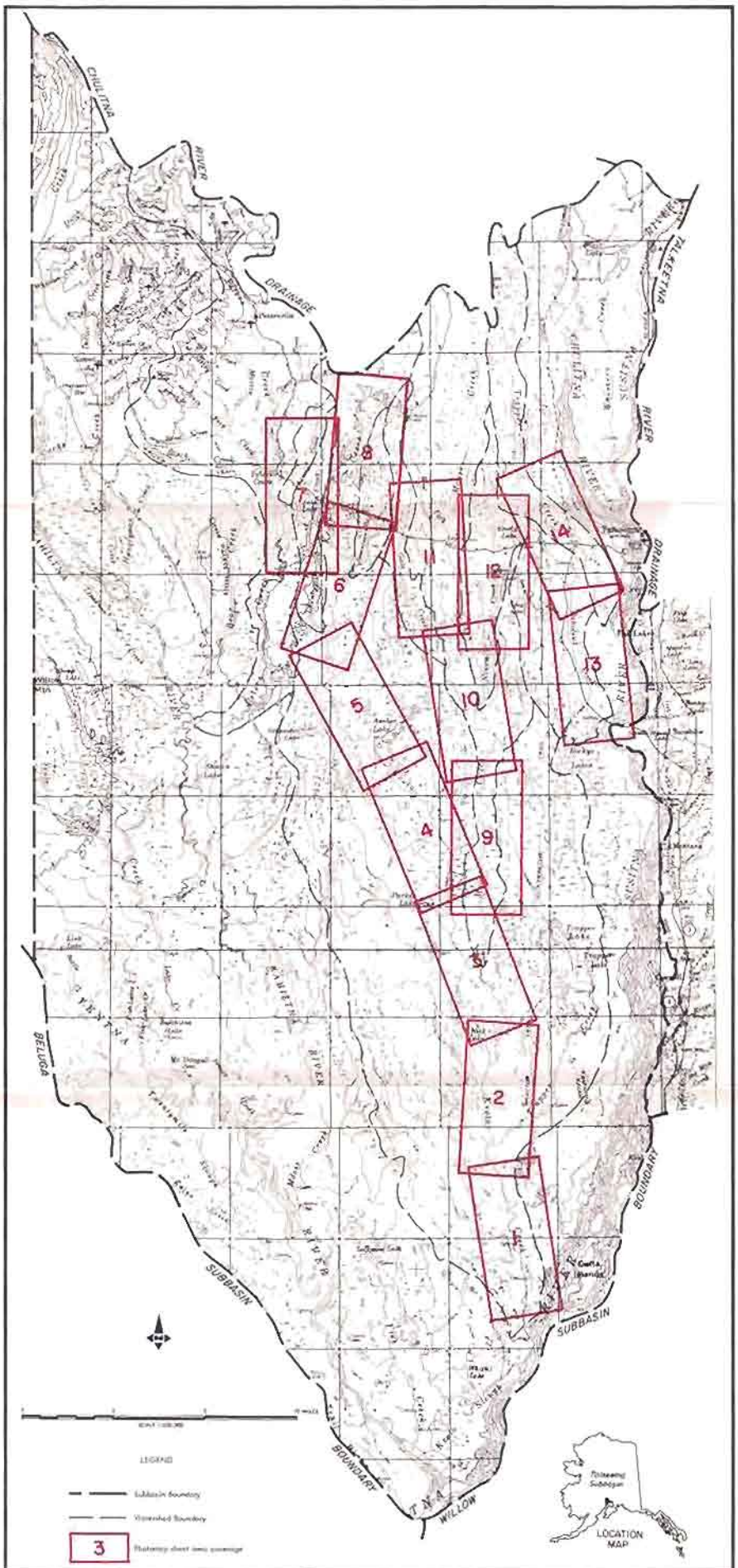
SHEET 2 OF 2	SOIL CONSERVATION SERVICE U.S. DEPARTMENT OF AGRICULTURE Matanuska-Susitna Borough, Alaska	FLOOD PROFILES TRAPPER CREEK

EXHIBIT 3

APPENDIX E

Exhibit 3 - Photo Map Index

Exhibit 4 - Flood Hazard Area Photomaps

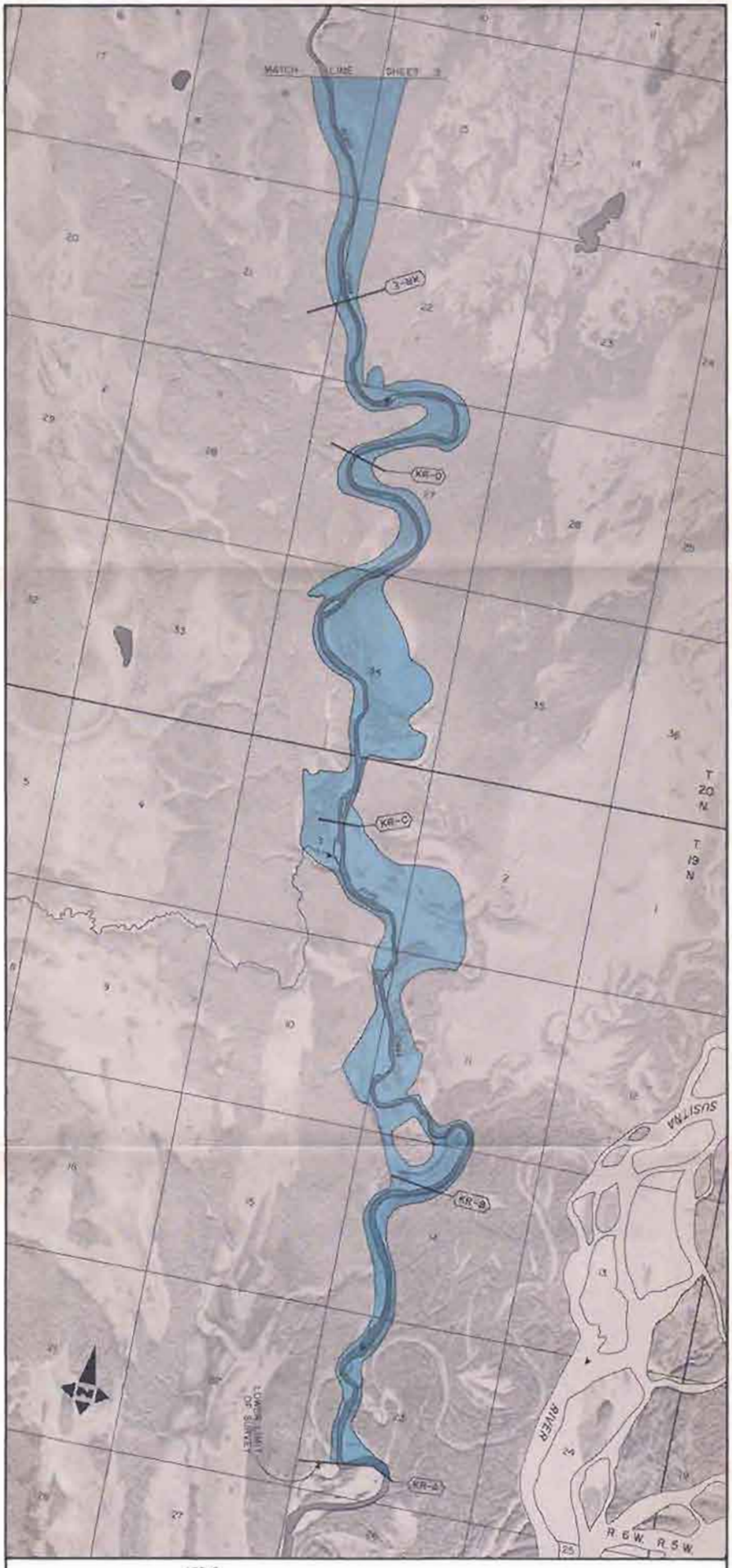


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

PHOTOMAP INDEX

KROTO, MOOSE, GATE, NINEMILE, TWENTYMILE, SEVENTEENMILE.

EXHIBIT



LEGEND

100 Year Flood Hazard Area

Stream Channel

(GS-B) Cross Section Location

X TBM 6 Elevation Reference Marks

Limits of flooding may vary from actual location on the ground

2000 0 2000

Scale in Feet

NASA Photography 8-75

U.S. DEPARTMENT OF AGRICULTURE

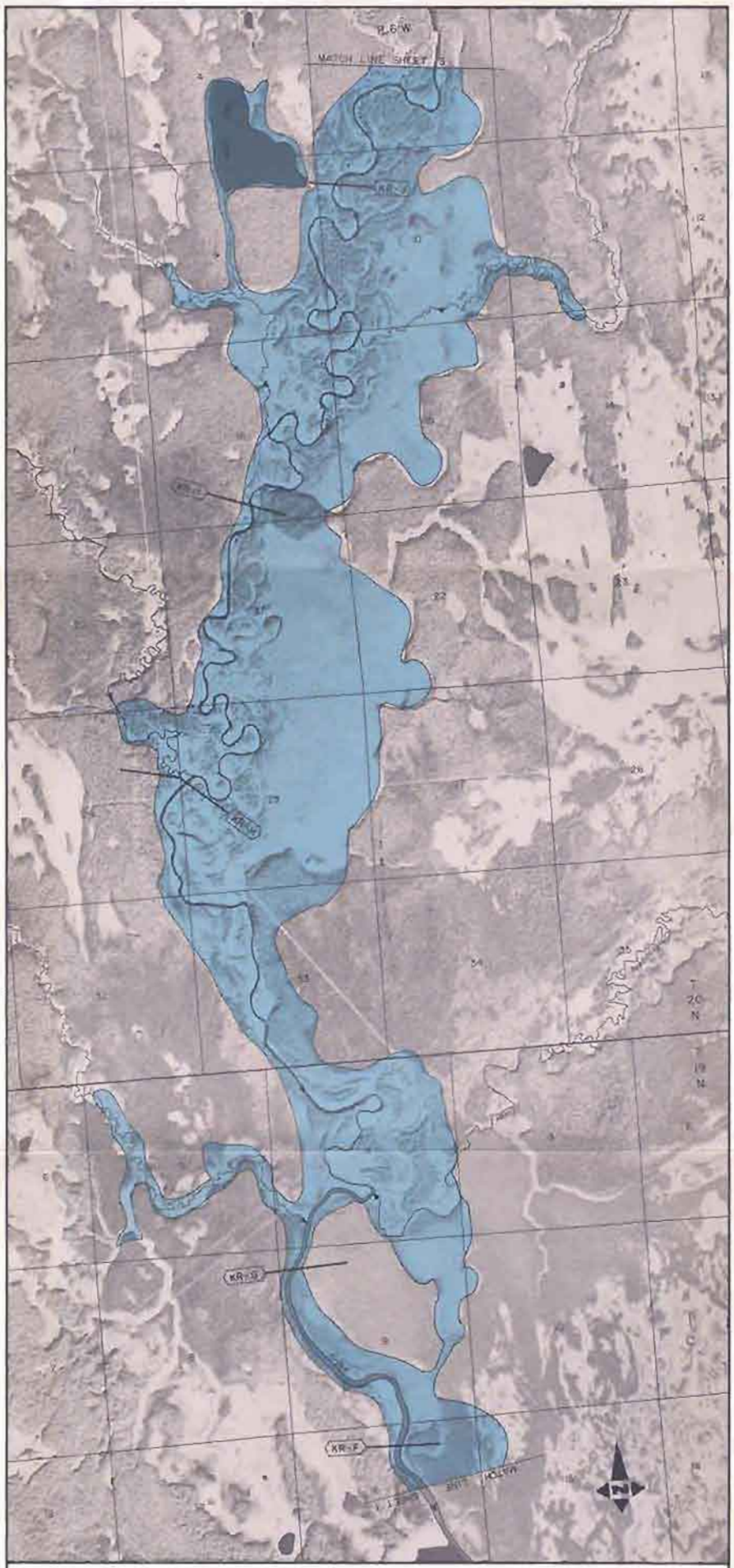
SOIL CONSERVATION SERVICE

TALKEETNA SUBBASIN

FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT



LEGEND

100 Year Flood Hazard Area

Stream Channel

GS-B Cross Section Location

X TBM A Elevation Reference Mark

Limit of flooding may vary from actual location on the ground

2000 0 2000

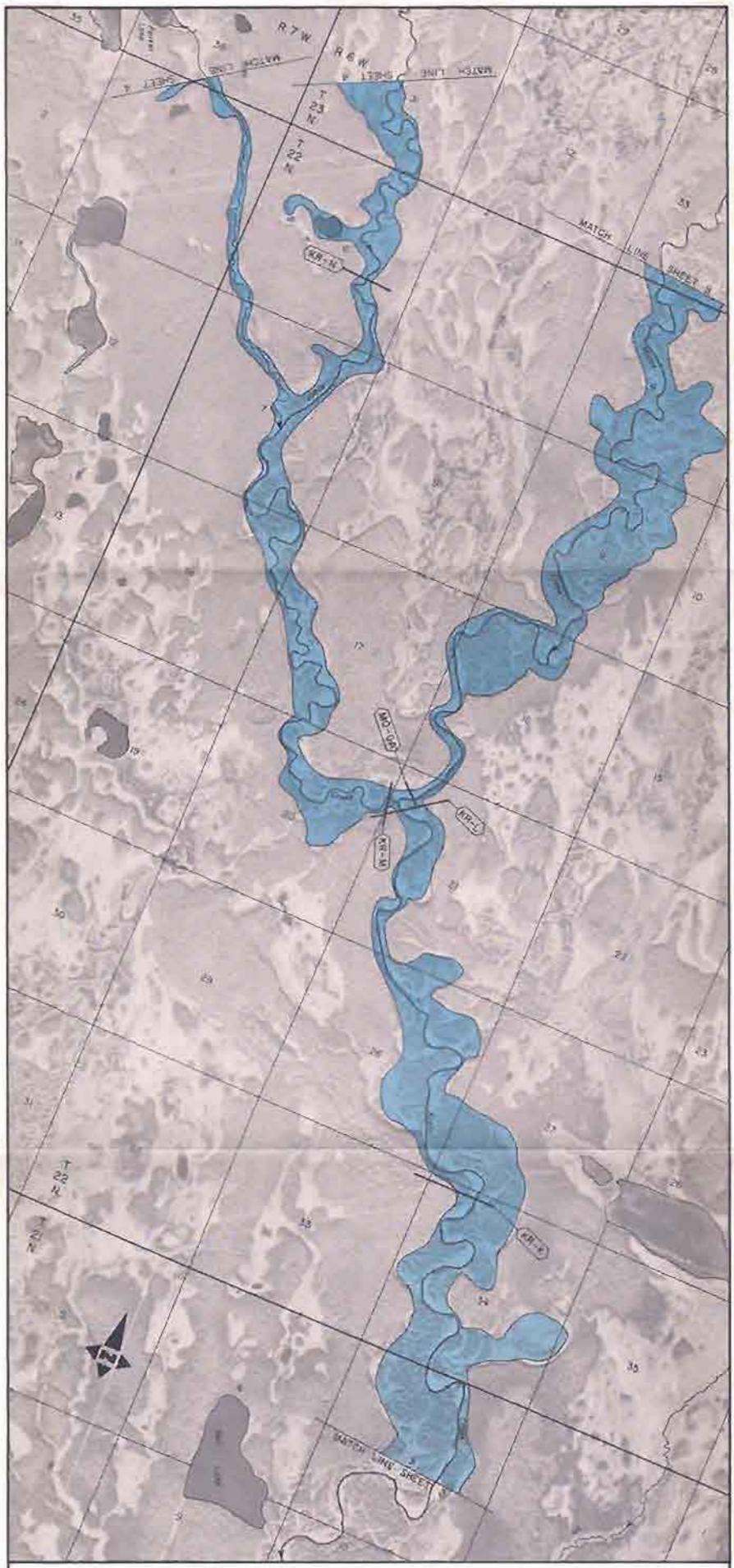
Scale in Feet

NASA Photography 8-76

EXHIBIT

SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA



LEGEND

100 Year Flood Hazard Area

Stream Channel

Limit of flooding may vary from actual location on the ground

GS-B Cross Section Location

X TSM 6 Elevation Reference Marks

2000 0 2000

Scale in Feet

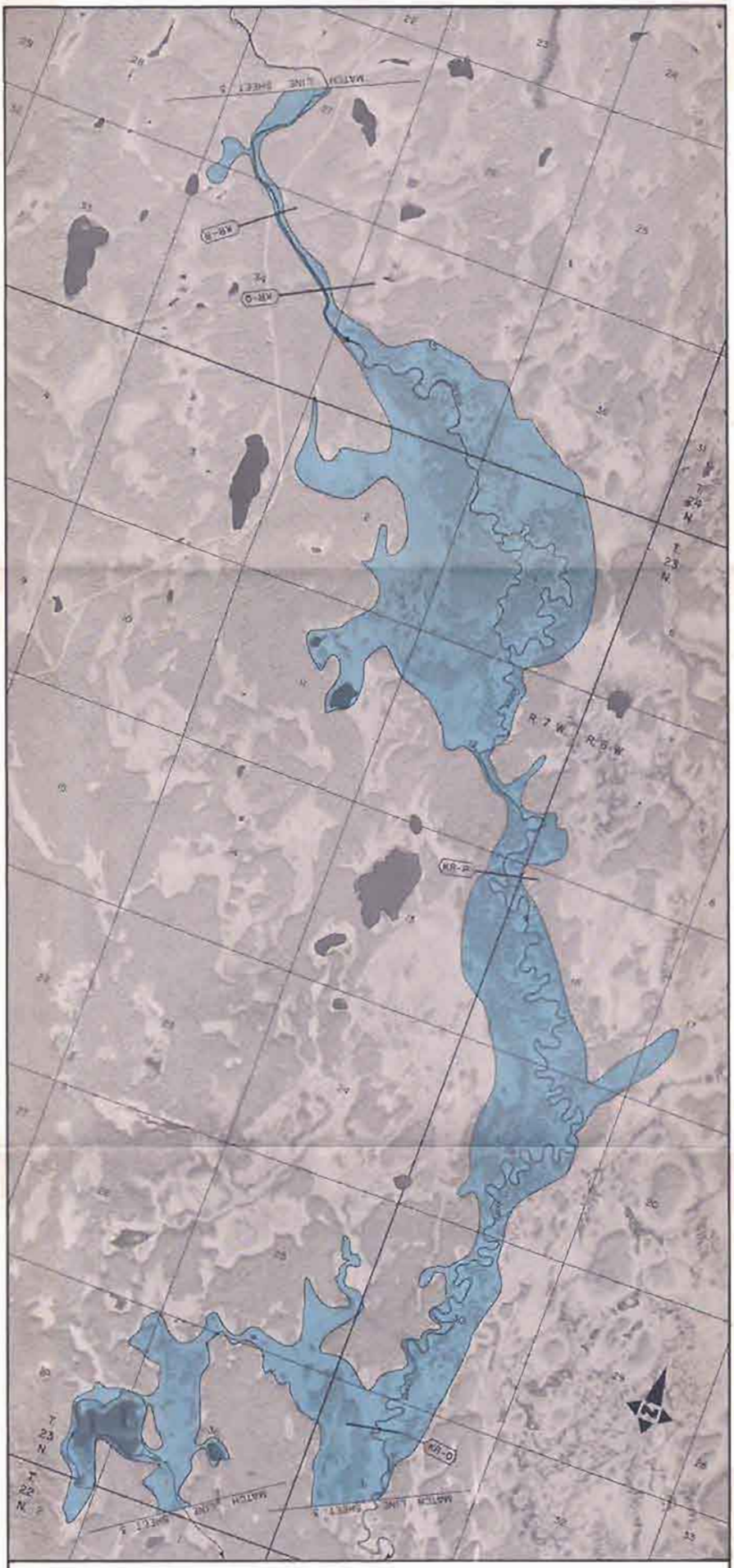
NASA Photography 8-76

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT 3



LEGEND

100 Year Flood Hazard Area

Stream Channel

Limits of flooding may vary from actual location on the ground

(GS-B) Cross Section location

X TBM 6 Elevation Reference Marks

2000 0 2000

Scale in Feet

NASA Photography 8-76

U.S. DEPARTMENT OF AGRICULTURE

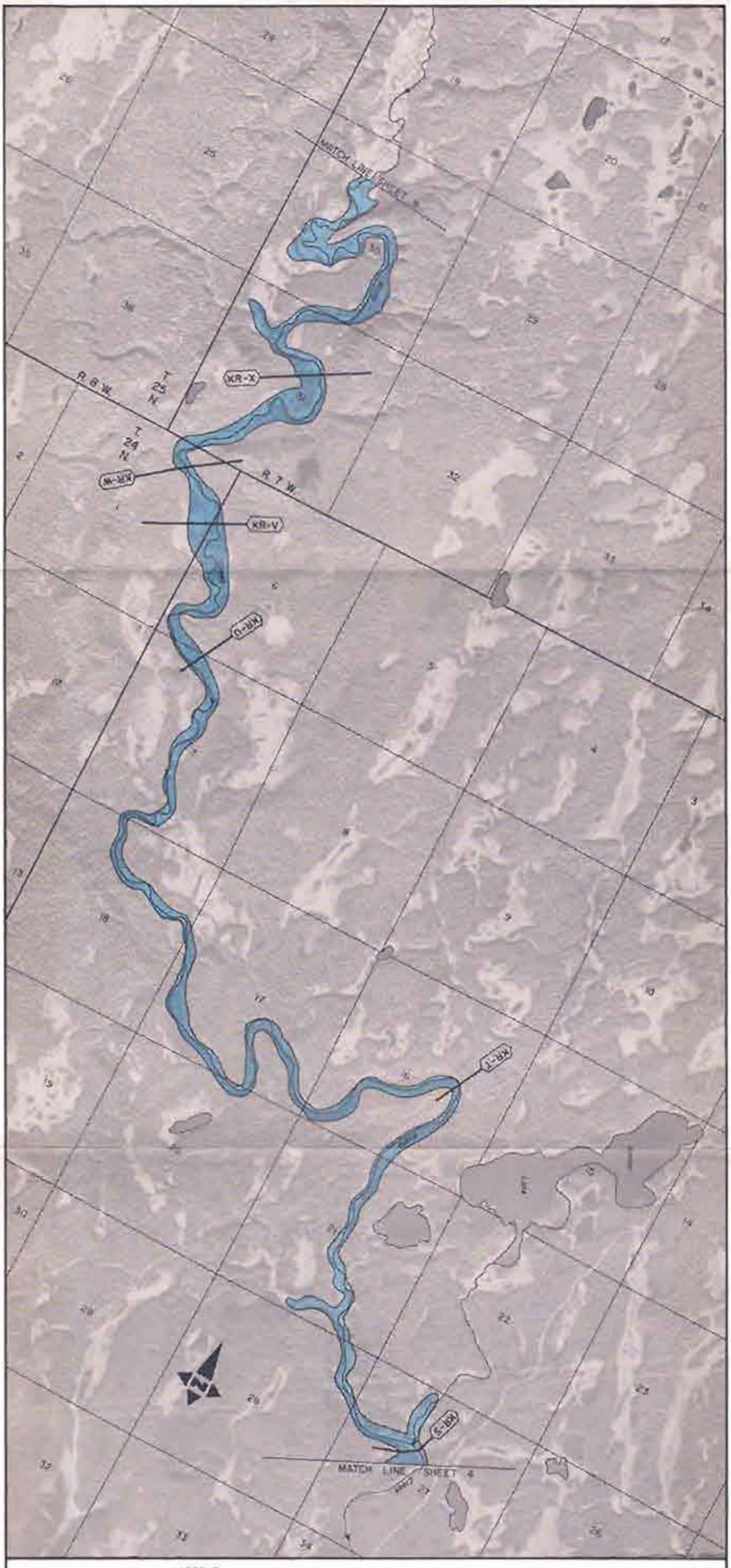
SOIL CONSERVATION SERVICE

TALKEETNA SUBBASIN

FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT



LEGEND

100 Year Flood Hazard Area

Stream Channel

GS-B Cross Section Location

X TBM 6 Elevation Reference Marks

Limits of flooding may vary from actual location on the ground.

2000 0 2000

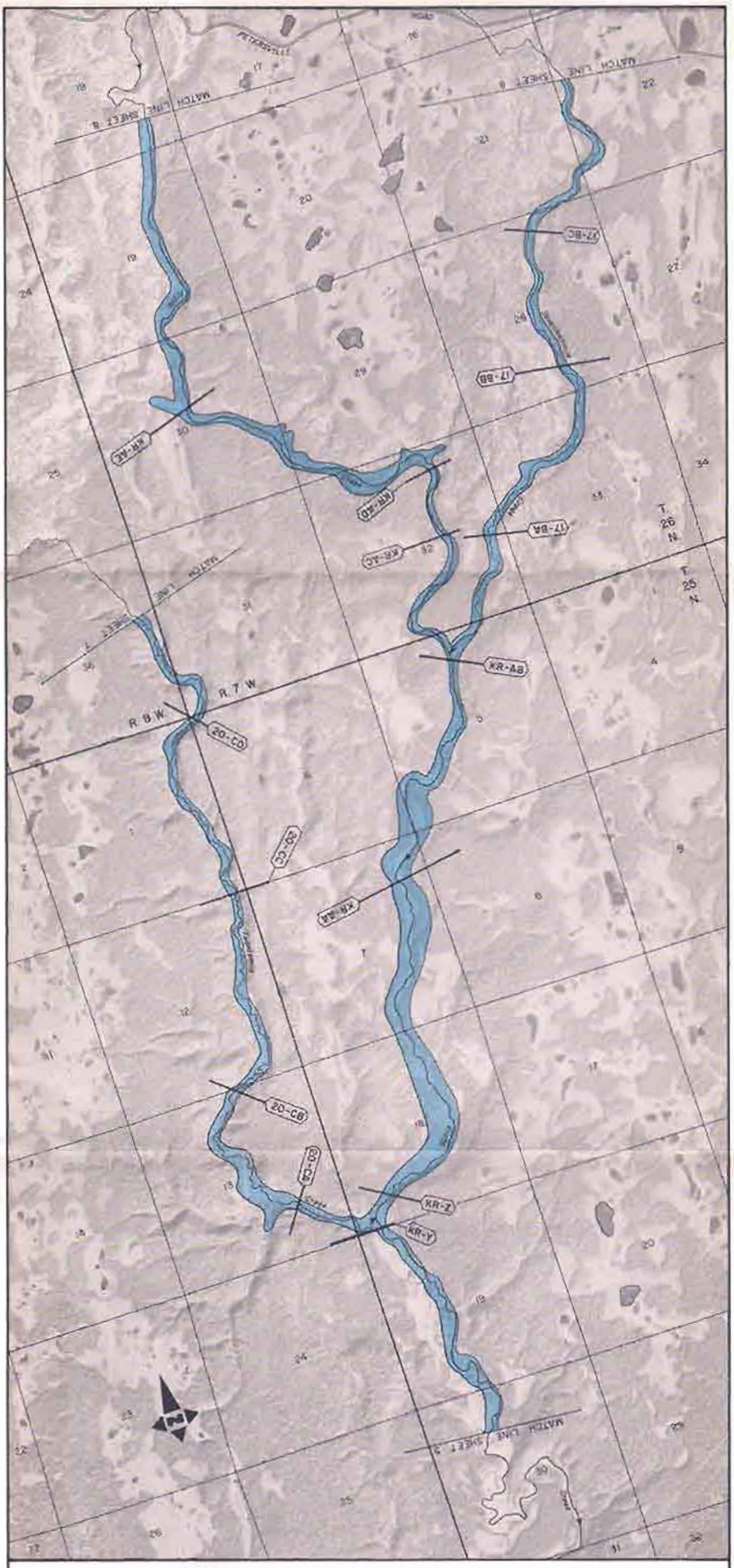
Scale in Feet

NASA Photograph 8-76

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT



LEGEND

100 Year Flood Hazard Area

Stream Channel

GS-B Cross Section Location

X TBM & Elevation Reference Marks

Limits of flooding may vary from actual location on the ground

2000 0 2000

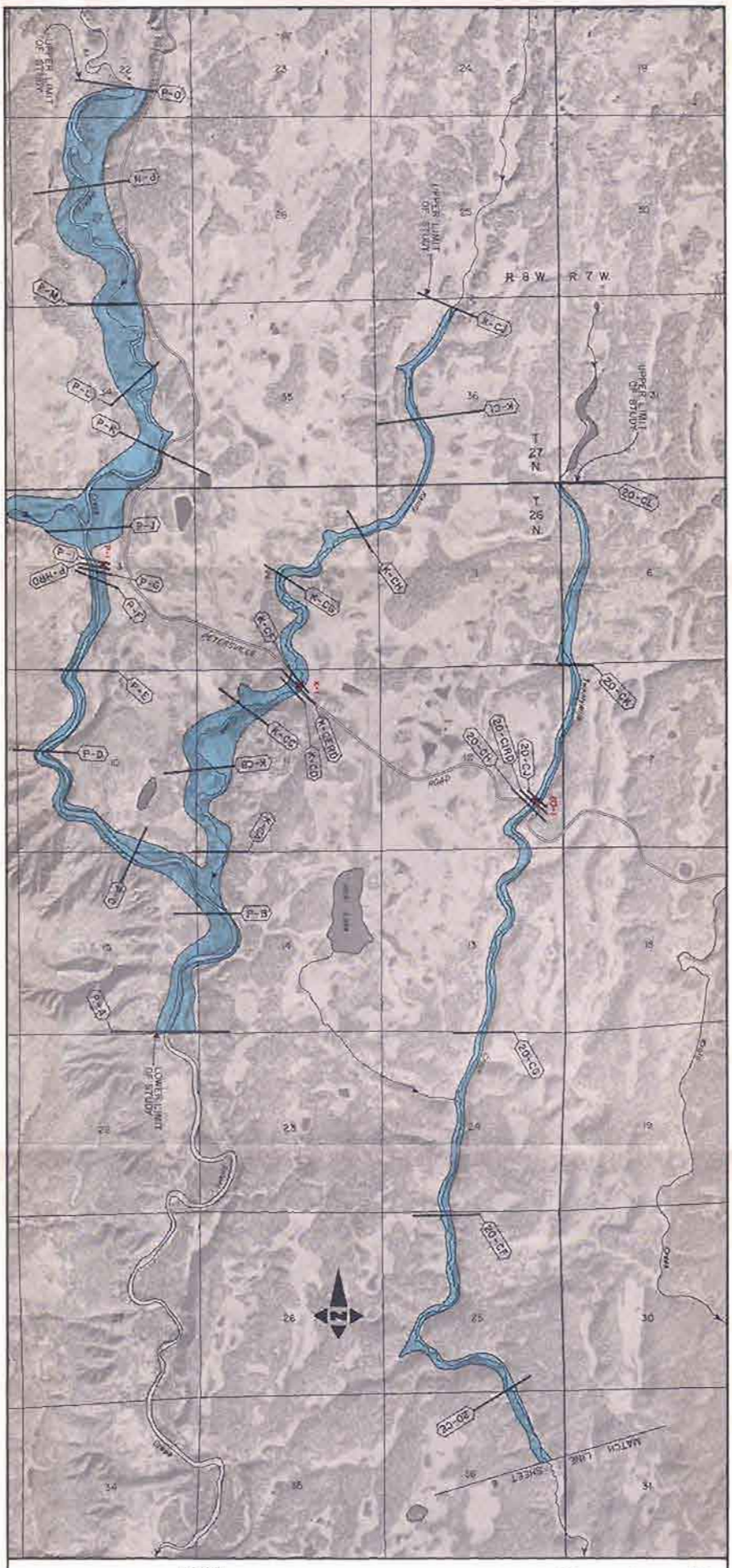
Scale in Feet

NASA Photography 8-76

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT



LEGEND

100 Year Flood Hazard Area

Stream Channel

Limit of flooding may vary from actual location on the ground

GS-B Cross Section Location

X 20-I Elevation Reference Marker

2000 0 2000

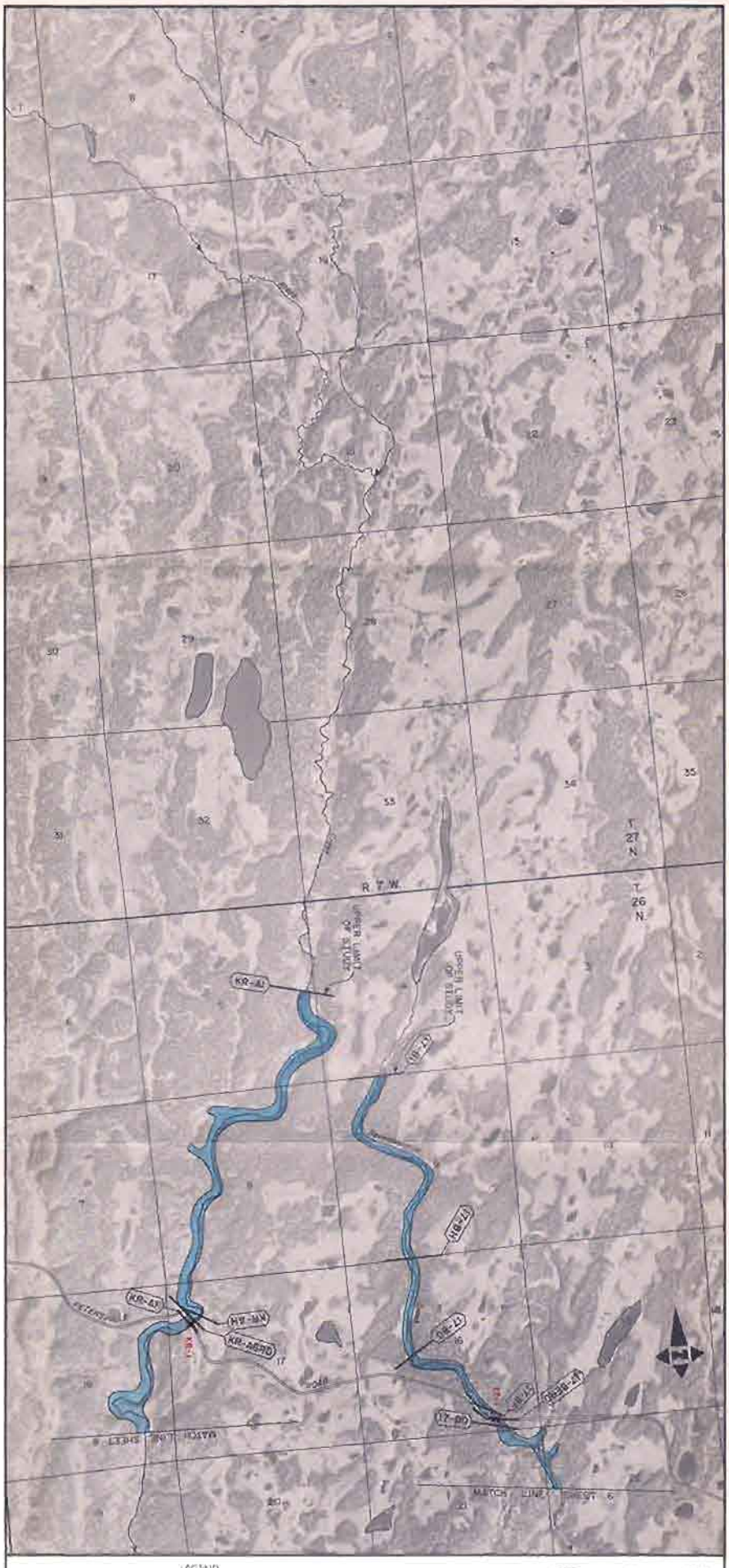
Scale in Feet

NASA Photography 8-7b

EXHIBIT

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

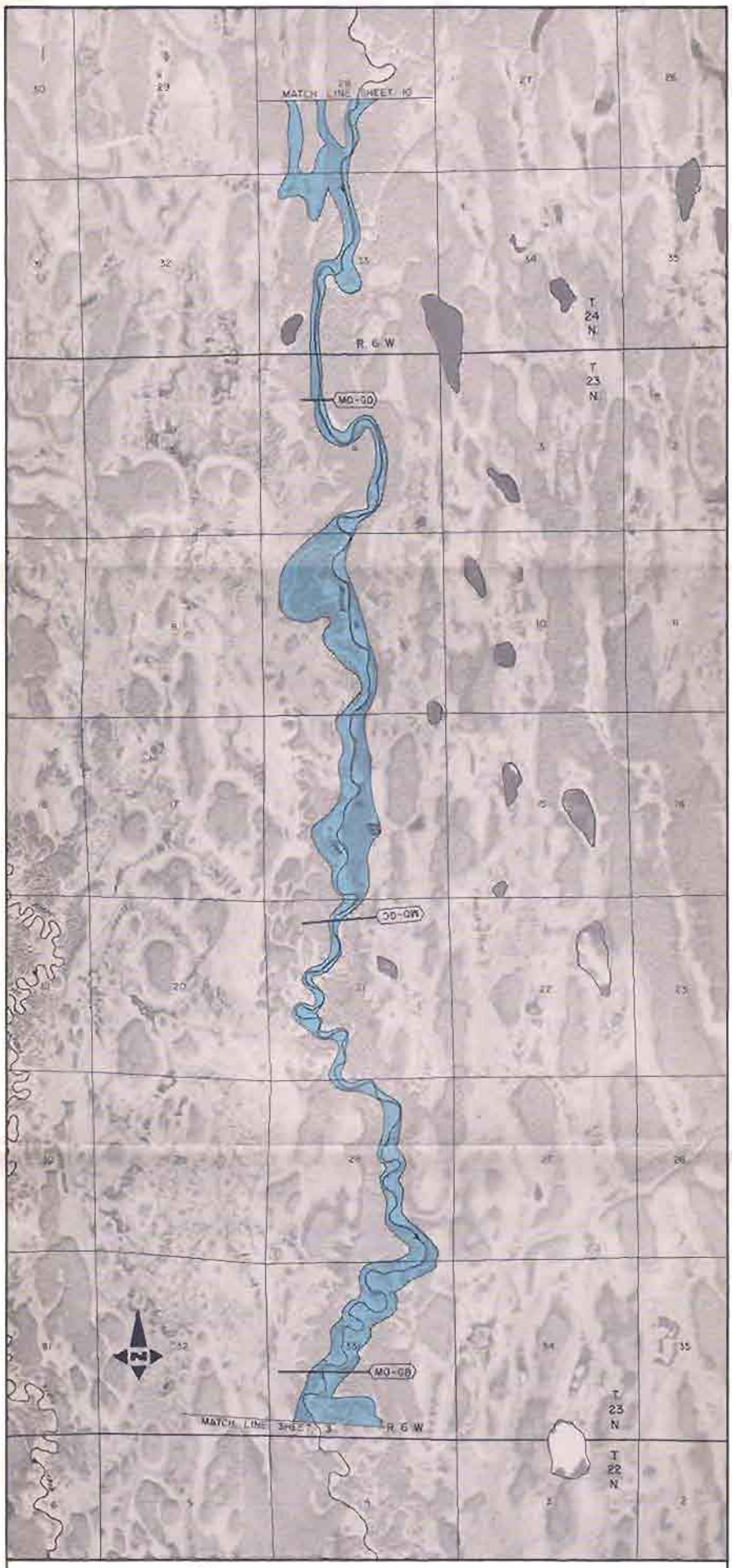
FLOOD HAZARD AREA



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT



LEGEND

100 Year Flood Hazard Area

Stream Channel

Limits of flooding may vary from actual location on the ground

GS-B Cross Section Location

X TBM 9 Elevation Reference Marks

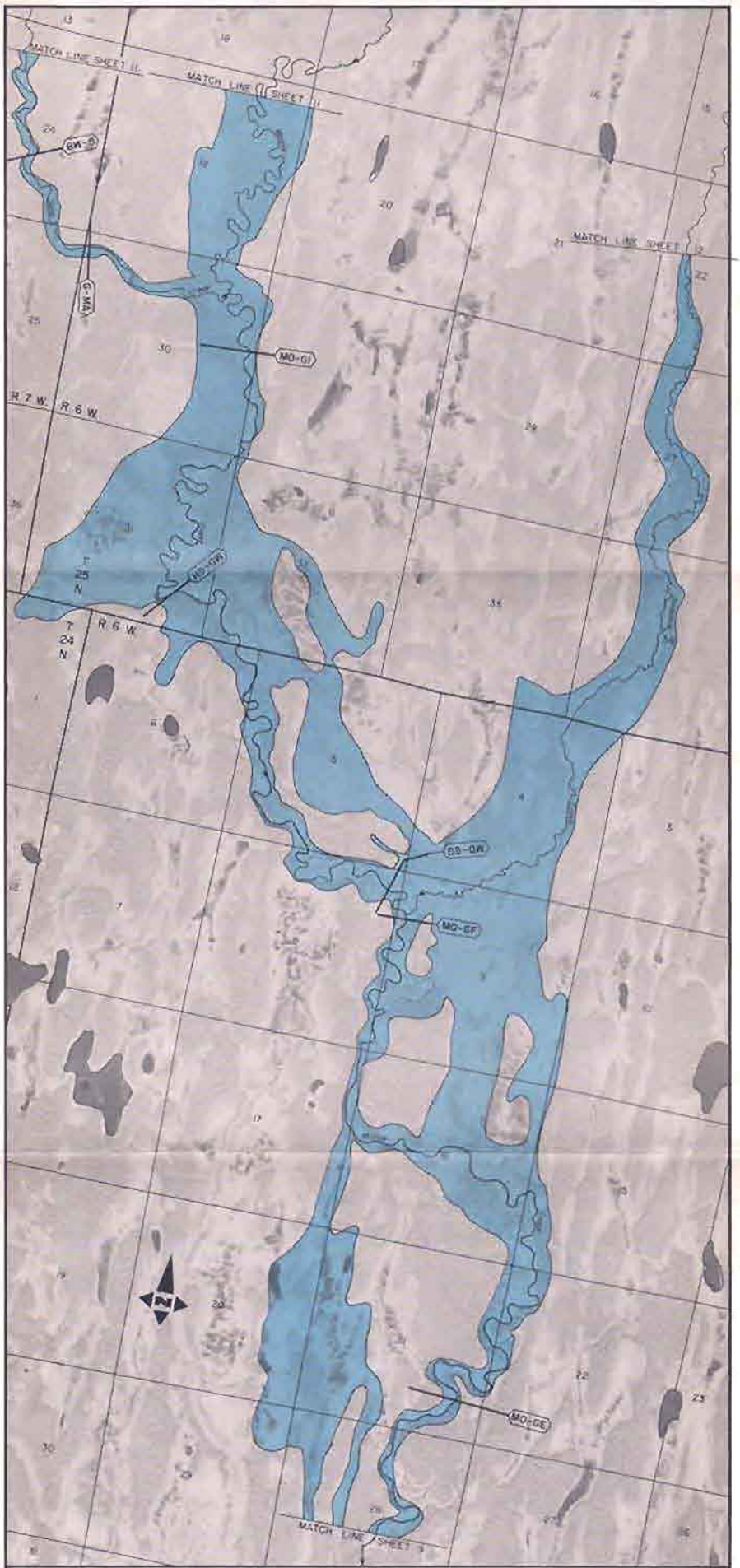
2000 0 2000

Scale in Feet

NASA Photography 6-72

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN

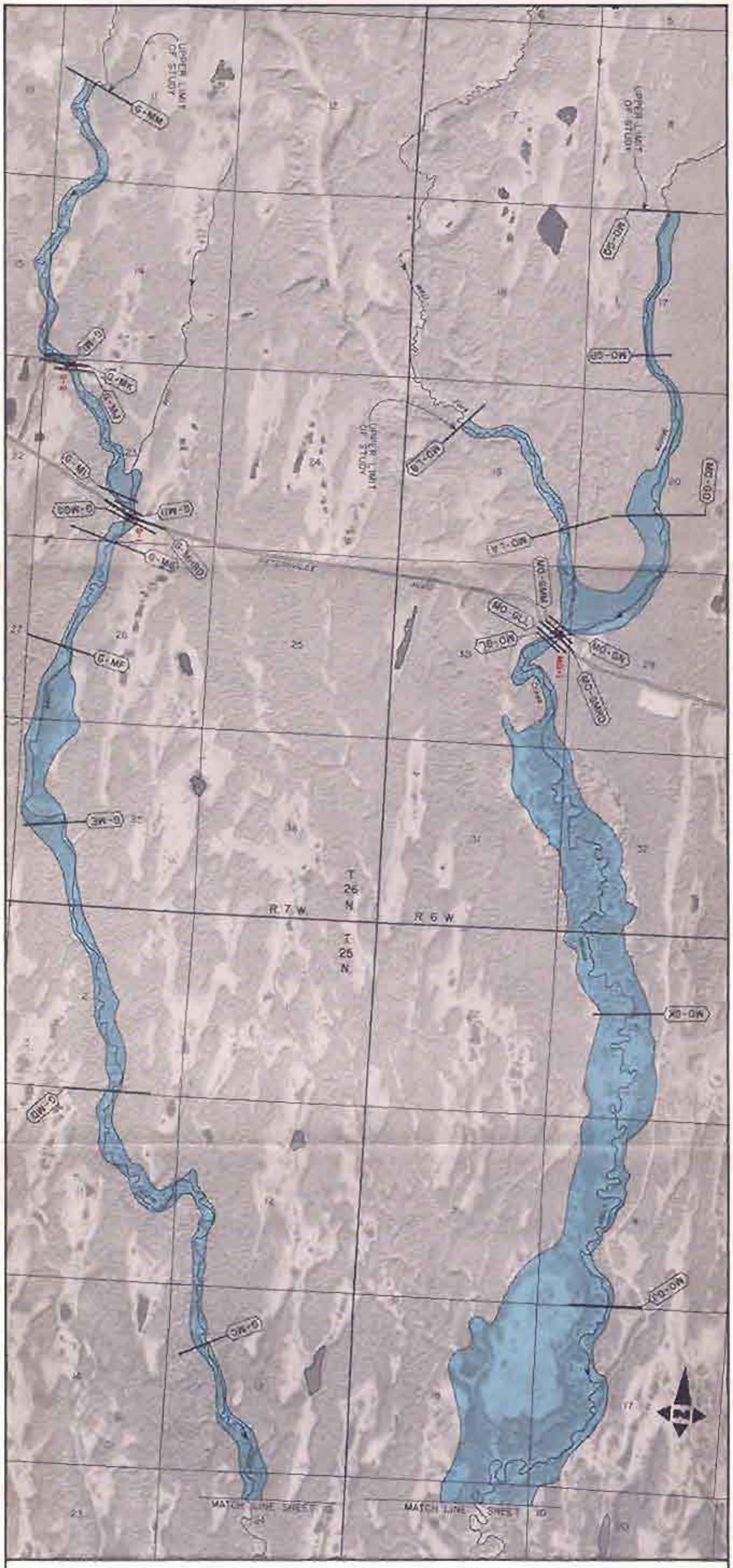
FLOOD HAZARD AREA



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES

FLOOD HAZARD AREA

EXHIBIT



LEGEND

100 Year Flood Hazard Area — Stream Channel

GS-B — Cross Section Location — X MO-1 Elevation Reference Marks

Limits of flooding may vary from actual location on the ground

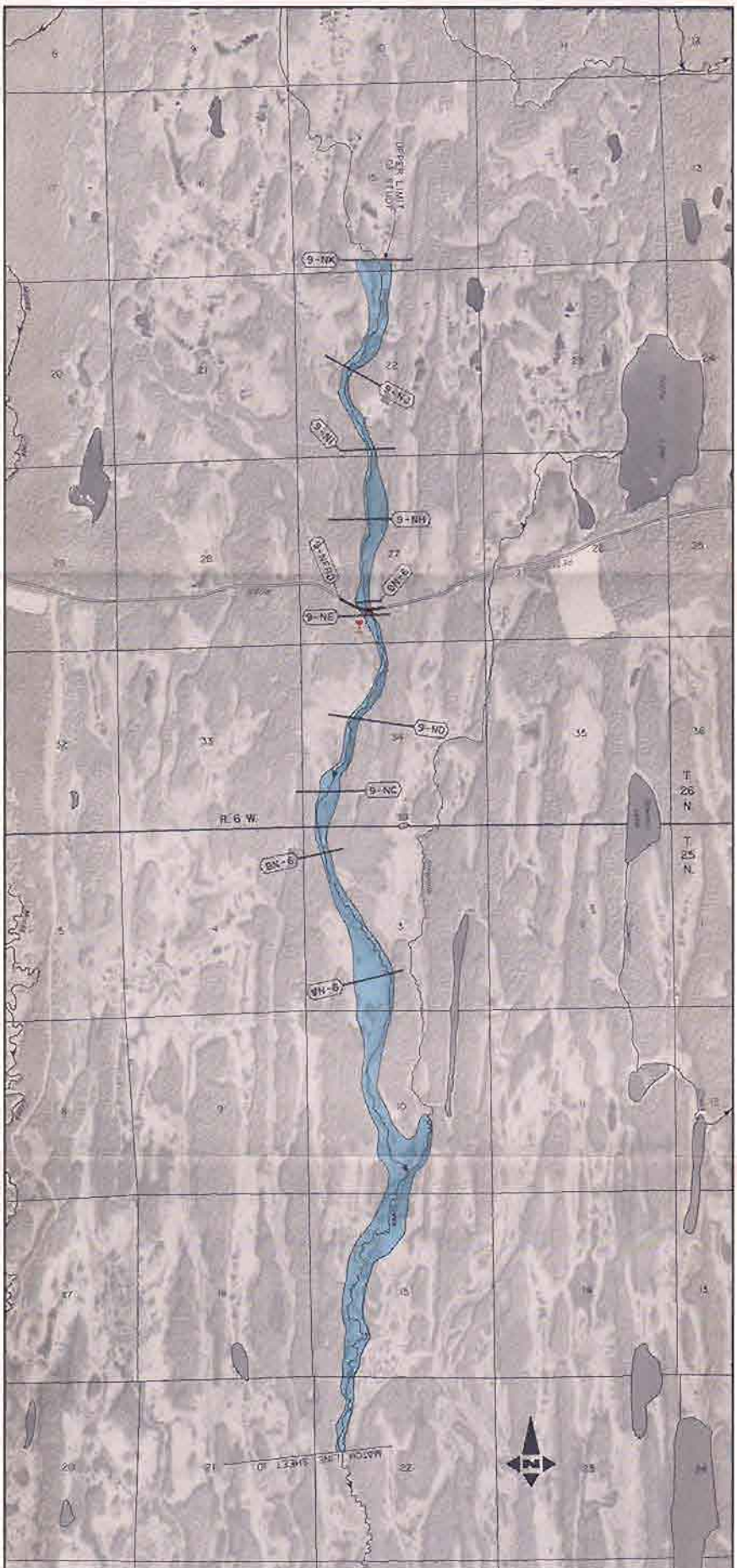
2000 0 2000

Scale in Feet

NASA Photography 876

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE TALKEETNA SUBBASIN FLOOD HAZARD ANALYSES ALASKA	FLOOD HAZARD AREA MOOSE AND GATE CREEKS

EXHIBIT 4



LEGEND

100 Year Flood Hazard Area

Stream Channel

Limits of flooding may vary from actual location on the ground

2000 0 2000

Scale in Feet

(GS-B) Cross Section Location

X 9-I Elevation Reference Marker

NASA Photography B-76

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES
ALASKA

FLOOD HAZARD AREA

NINEMILE CREEK

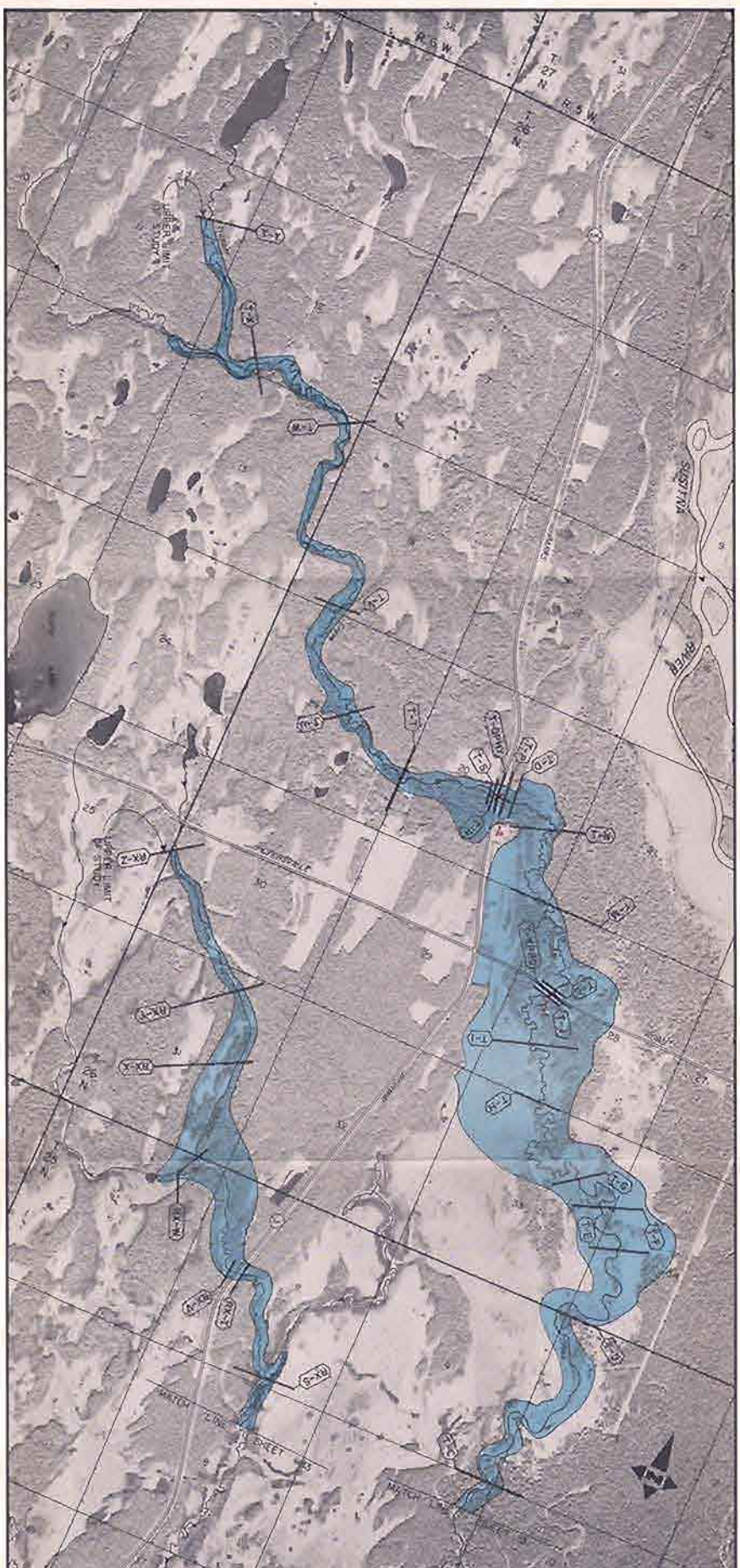
EXHIBIT A

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES
ALASKA

FLOOD HAZARD AREA

RABIDEUX AND TRAPPER CREEKS

EXHIBIT

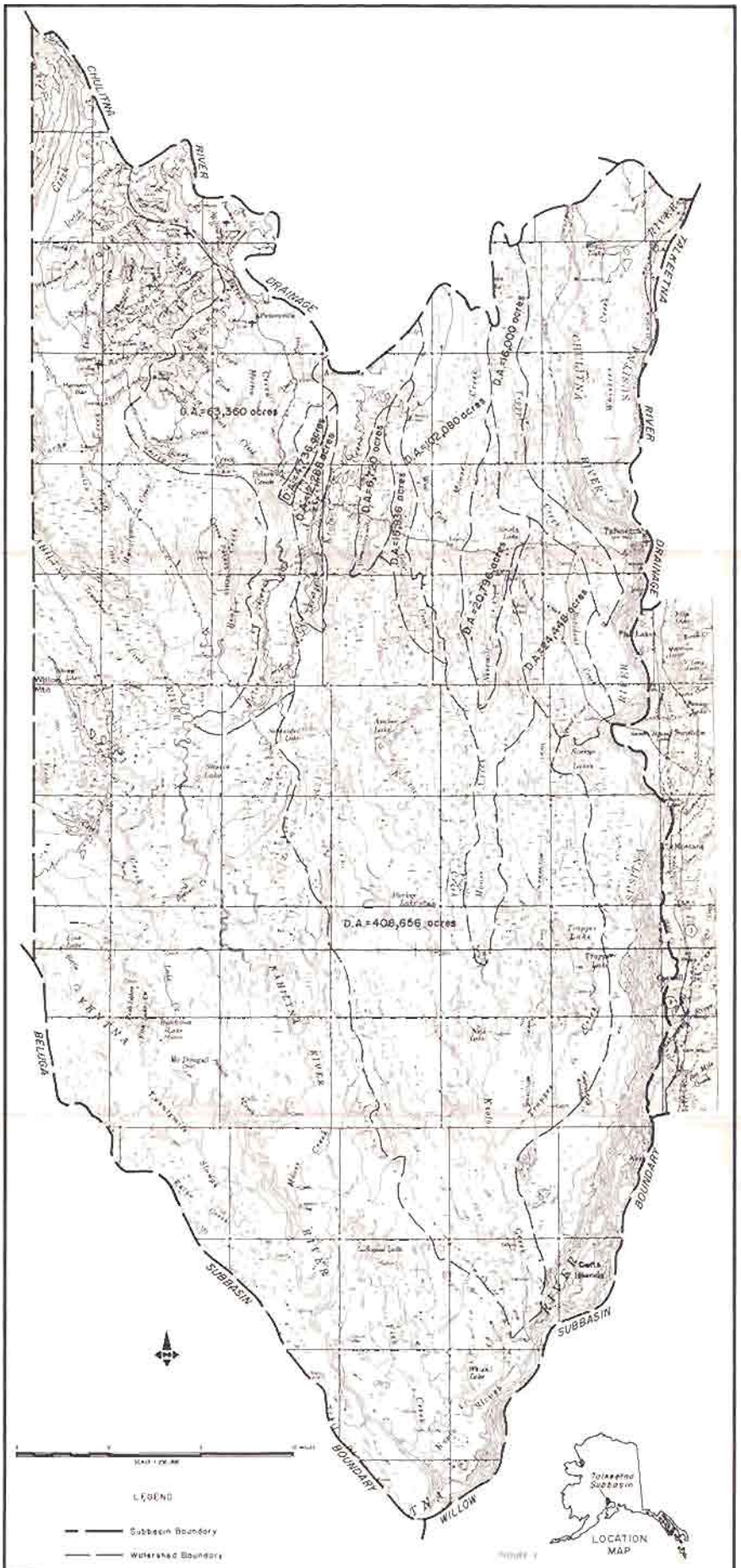


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES
ALASKA

FLOOD HAZARD AREA

RABIDEUX AND TRAPPER CREEKS

EXHIBIT 4



U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TALKEETNA SUBBASIN
FLOOD HAZARD ANALYSES
ALASKA

VICINITY MAP

KROTO AND PETERS CREEKS