FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

DENVER METROPOLITAN AREA

SAND CREEK TO OXFORD AVE.

PREPARED FOR

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

PREPARED BY

WRIGHT WATER ENGINEERS, INC.

SEPTEMBER 1985

FLOOD HAZARD AREA DELINEATION
SOUTH PLATTE RIVER
DENVER METROPOLITAN AREA
SAND CREEK TO OXFORD AVENUE

Prepared For

THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

Prepared by

WRIGHT WATER ENGINEERS, INC.
ENGINEERING CONSULTANTS
2490 WEST 26TH AVENUE, SUITE 55-A
DENVER, COLORADO 80211

SEPTEMBER 1985

TABLE OF CONTENTS

TABLE OF FIGURES AND TABLES

MAPS AND SURVEYS

Aerial photography and topographic maps for this study were provided by Delta Aerial Surveys. Mapping at the scale of 1 inch = 200 feet with 2-foot contour intervals was prepared by Delta Aerial Surveys under a contract with the Urban Drainage and Flood Control District. The ground control survey was performed to 3rd order accuracy standards or better as defined by the U.S. Department of Commerce, Federal Geodetic Control Committee. Mapping in this study complies with the "United States National Map Accuracy Standards."

The cross sections for the study were obtained by photogrammetic and field survey methods. These cross sections, whose alignments are shown on the mapping, were used in the hydraulic calculations by using the HEC-2 program to determine the water surface profiles shown in this report. All bridges and other significant structures that might divert or restrict flows significantly were field surveyed. Additionally, because the digitized cross sections indicate water surface elevations, some cross sections were corrected by field measurements to reflect streambed elevations.

Stream stationing is based on "Flood Hazard Delineation, South Platte River, Adams County" completed in September 1977.

CERTIFICATION

This Flood Hazard Area Delineation Report, South Platte River, Denver Metropolitan Area, was prepared under the supervision and direction of the undersigned whose seal as a professional engineer is affixed:

Kenneth R. Wright, President

The following members of the Wright Water Engineers, Inc., staff contributed to the preparation of this report:

Principal Engineer	Kenneth Wright, P.E.
Project Engineer	Curt Chandler, P.E.
Hydrologist	Mark Glidden, P.E.
Hydraulic Engineer	Denny Tuan, P.E.
Technician/Draftsman	Peter Moros
Technical Typist	Alice Duray

PREFACE

AUTHORIZATION

This report was authorized by the Urban Drainage and Flood Control District which makes floodplain information and mapping available to local agencies enabling them to adopt and administer their own floodplain regulations with the assistance of the District. The Urban Drainage and Flood Control District has the power to enact district-wide floodplains in cases where local governments fail to enforce their own regulations.

The Colorado Water Conservation Board has the power and duty

> "...to designate and approve storm or floodway runoff channels or basins, and to make such designations available to legislative bodies of cities and incorporated towns; to county planning commissions; and to boards of adjustments of cities; incorporated towns; and counties of this state..."

as stated in Section 37-60-1-6 (1) (c) of the Colorado Revised Statutes 1973. The cities, incorporated towns and counties within the study area may provide zoning regulations

> "...to establish, regulate, restrict and limit such uses on or along any storm or floodwater runoff channel or basin, as such storm or floodwater runoff or basin has been designated and approved by the Colorado Water Conservation Board, in order to lessen or avoid the hazards to persons and damage to property resulting from the accumulation of storm or floodwaters..."

as stated in Section 30-28-201 for county governments and Section 31-23-201 for municipal governments of the Colorado Revised Statutes 1973.

Upon acceptance of this report by the Urban Drainage and Flood Control District and the designation and approval of this report by the Colorado Water Conservation Board, the areas described as being inundated by the 100-year flood can be designated as flood hazard areas and their uses regulated accordingly. It should be noted that the terms "Intermediate Regional Flood," "100-year flood" and "one percent flood" can be used interchangeably as they all define the same type of flood event.

PURPOSE AND SCOPE

This report was prepared by Wright Water Engineers for the guidance of local officials in planning the land use and regulation of the floodplain. The report includes information on past floods and the nature and extent of probable future floods which can be reasonably expected on the respective study reaches. The 100-year flood should be given appropriate consideration before planning for development in the floodplain.

The 100-year floodplain is shown on the Flood Hazard Area Delineation Maps which delineate the areas that would be inundated by such a flood event. Flood profiles show the water surface elevations relative to the stream bed. Elevation reference data is given that can be applied across the full width of the river valley. Valley cross sections are presented to indicate ground level across the valley at specified locations and the overlying flood depths. The flood profiles and flooded area data presented are based on future, developed conditions in the basin as determined from current master planning maps. Possible future improvements to control floods are not a consideration of this report.

The information contained in this report does not imply any state action to zone or regulate the use of the floodplain. The Urban Drainage and Flood Control District has the authority to regulate floodplains, but has chosen to leave floodplain regulation responsibility with local governments. This report provides a suitable basis for the adoption of land use controls to guide floodplain management, with consideration for environmental attributes, and thereby prevent intensification of flood losses.

Flood water surface elevations and floodplain boundaries are often revised by road and bridge construction, floodplain development, flood control improvements, or natural processes. Prior to utilization of this report for planning or design purposes, the user is advised to contact the Urban Drain-

age and Flood Control District or the Colorado Water Conservation Board to determine if the information in this report has been amended.

ACKNOWLEDGMENTS

This report was prepared by Wright Water Engineers, Inc., Consulting Engineers, Denver, Colorado, at the request of the Urban Drainage and Flood Control District.

Assistance was obtained from Sellards and Grigg Engineers. McLaughlin Water Engineers of Denver provided data concerning the Third Avenue Dam.

STUDY AREA DESCRIPTION

DRAINAGE BASIN CHARACTERISTICS

The study area includes the reach of the South Platte River from Sand Creek to Oxford Avenue. Jurisdictions included in the study area are Adams County, Commerce City, Denver, Englewood and Sheridan.

The South Platte River drainage basin covers approximately 4,000 square miles of land at Sand Creek extending from the Continental Divide in the Rocky Mountain Range to the high plains and foothills of eastern Colorado as shown in Figure 1. The characteristics and hydrologic impact of the mountainous region and the high plains and foothills regions are quite different. The mountainous western portions of the basin produce heavy snow melt runoff during late spring but contribute little significant runoff during the remainder of the year. The high plains and foothills portions of the basin are more susceptible to high runoff during summer thunderstorms. The South Platte River has as its source the mountains of the Continental Divide. Tributary basins begin as narrow valleys and canyons in the mountainous areas and increase progressively in width towards the lower basin areas on the eastern plains. Basin elevations range from 14,200 feet at the Continental Divide to approximately 5,100 feet mean sea level at Sand Creek.

Soils in the basin range from mountainous rock outcrops to dense clays, alluvial sand and gravels. The various soil types and vegetated covers have been incorporated into the hydrologic analyses performed.

As mentioned, two distinct runoff sources exist within the basin: one, snow melt; and two, thunderstorm activity. The mountain and high foothill areas are generally responsible for peaks in the spring associated with snow melt while the high plains peak runoff is usually associated with summer thunder showers. The average annual precipitation at the Grant gage in South Park is 14.6 inches and the average annual precipitation at the Denver gage is 15.51 inches. The average annual temperature at the Grant gage in South Park is 38.8°F, and at the Denver it is 49.3°F.

Numerous reservoirs have been constructed in the South Platte River Basin for various reasons. While all exert some localized impact on the river, in most cases their impact, with the exception of major flood control facilities, is minimal on the response of the entire system. Five major water supply reservoirs are located within the study reach of the South Platte River: 1) Cheeseman; 2) Antero; 3) Eleven-Mile Canyon; 4) Strontia Springs; and 5) Spinney Mountain. Three major flood control reservoirs which provide significant control of the South Platte River exist within the study basin. These facilities are: 1) Chatfield; 2) Cherry Creek; and 3) Bear Creek. Cherry Creek Dam is located on Cherry Creek 12 miles upstream from the confluence with the South Platte River, Chatfield Reservoir is located on the South Platte River just downstream of its confluence with Plum Creek and upstream of the study area, and Bear Creek Dam is located on Bear Creek 8 miles upstream of its confluence with the South Platte River. Major South Platte River tributaries and reservoirs are shown on Figures 1 and 2.

STUDY REACH DESCRIPTION

In the reach of the South Platte River lying in Adams County, development in the floodplains is primarily agricultural with occasional sand and gravel mining operations. In the reach from Sand Creek to Franklin Street, floodplain development consists of meat processing plants, truck farms, and the Metropolitan Denver Sewage Disposal District treatment plant. The reach from Franklin Street to the confluence of Cherry Creek is characterized by railroad yards and industrial facilities. The reach from Cherry Creek to Colfax Avenue includes a large portion of the Central Platte Valley and is a largely undeveloped floodplain and railroad yards. From Colfax to Evans, the South Platte floodplain is heavily urbanized and the South Platte River itself is channelized. The reach from Evans Avenue to Oxford Avenue is suburban with large industrial facilities including the Littleton/Englewood Sewage Treatment Plant and a Public Service Company power generating plant. At the upper end of the study reach, the South Platte River divides a wildlife park and a golf course.

Obstructions to flood flows within the study reach consist mainly of manmade structures including bridges, drop structures, and diversion dams. During

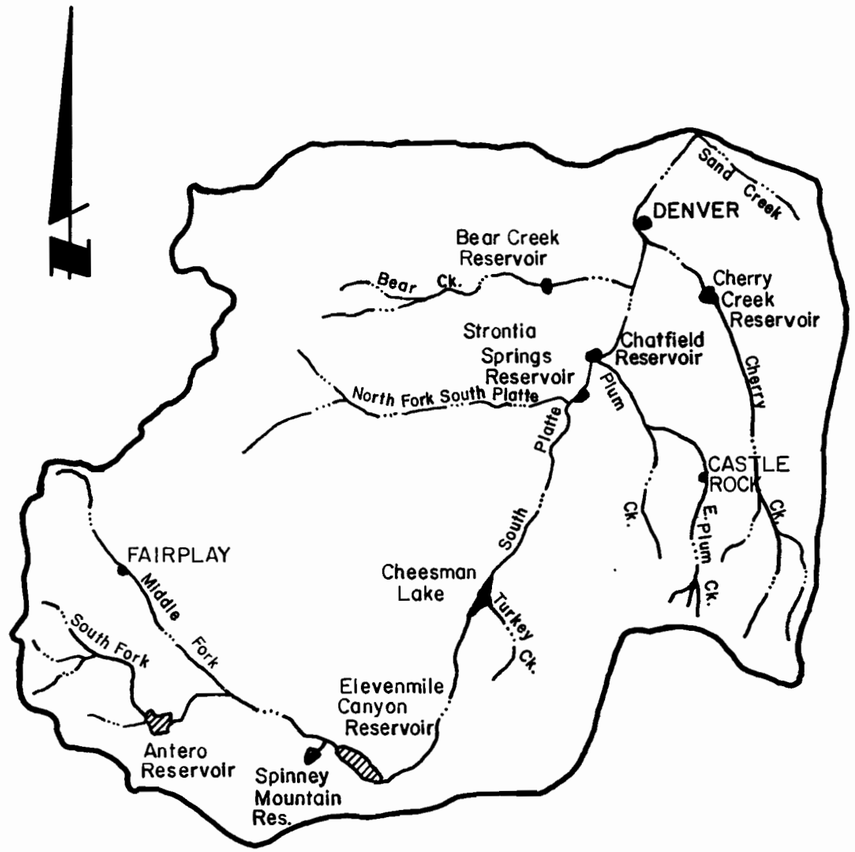


FIGURE 1

SOUTH PLATTE RIVER BASIN MAP

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE.-SUITE 55A
DENVER, COLORADO 80211

floods, these obstructions impede flood flows and cause backwater conditions that may increase flood heights upstream of the obstruction.

The U.S. Army Corps of Engineers has no authorized flood control structures in the study area. However, a Corps of Engineers project of stream channelization and improvement has been authorized and funded for the reach upstream of Oxford Avenue. It is not expected that this project will have any effect on flood flows in the study area.

HISTORY OF FLOODING

Major floods on the South Platte River and its tributaries have been observed and recorded since 1844.

The most significant floods of recent times on the South Platte River occurred in 1921, 1933, 1942, 1949, 1957, 1965, and 1973. High peak flow floods are most often associated with thunderstorms and sustained rains. Long duration flooding is most often associated with snow melt. Some significant past floods are described below.

June 1921 Flood

The flood of June 1921 was caused by heavy rains occurring over the entire basin. Although the peak discharge at Denver was a moderate 8,790 cfs, the flood volume was approximately 200,000 acre-feet. Overbank flooding occurred from Waterton to Brighton with flood widths of from 1/2 to 1 1/2 miles in the reach above Denver.

September 1933 Flood

The flood of September 1933 originated from intense rains on Plum Creek and on Big and Little Dry Creeks. The flood at Denver was a flash flood with a peak discharge of 22,000 cfs and a volume of 36,000 acre-feet.

May 1942 Flood

The May 1942 flood, which had a peak discharge of 9,720 cfs at Littleton and 10,200 cfs at Denver, caused extensive rural damages above and below the channelized reach through the City. The sustained high flows experienced

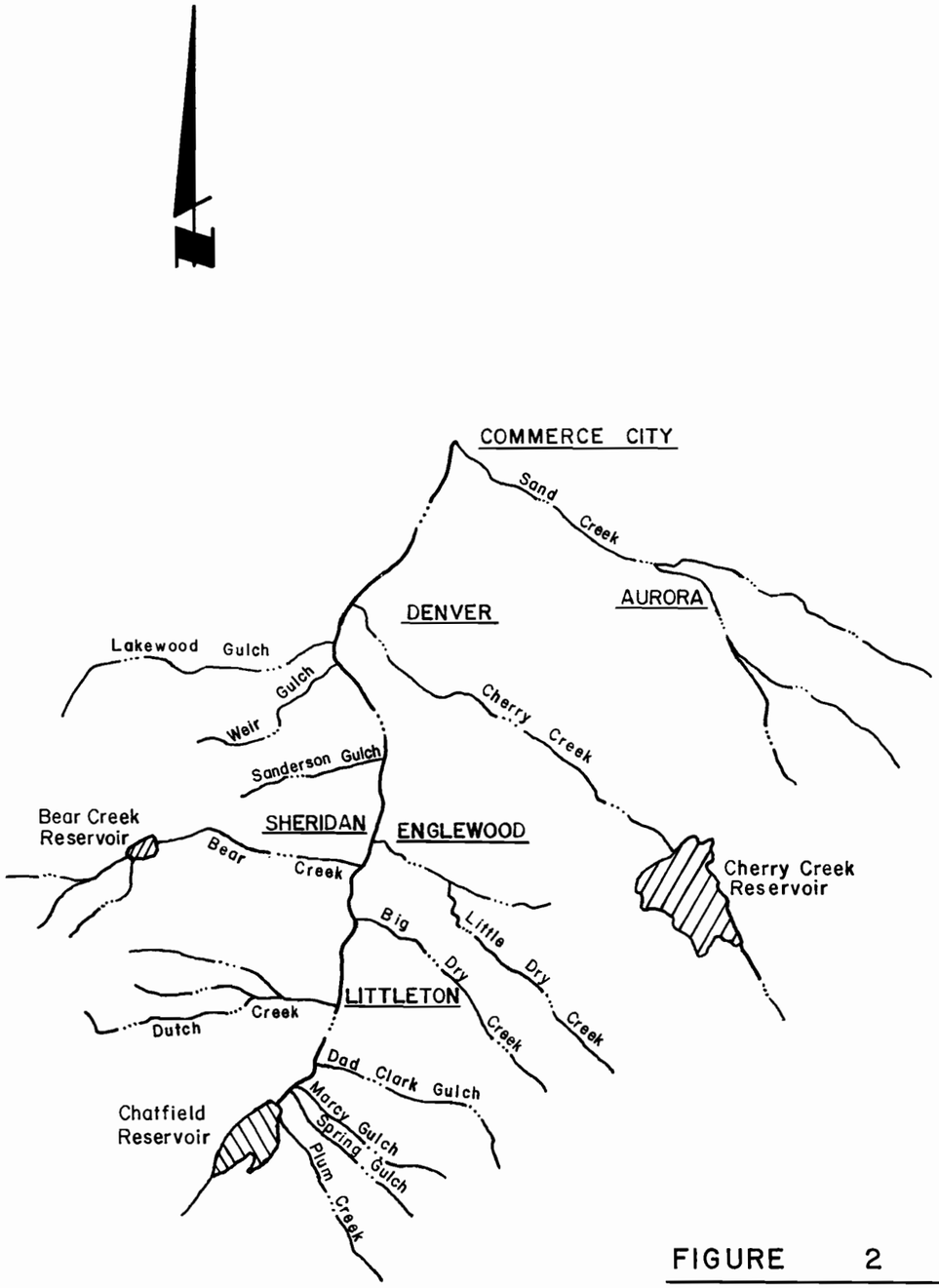


FIGURE 2

MAJOR SOUTH PLATTE RIVER TRIBUTARIES

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE.-SUITE 55A
DENVER, COLORADO 80211

during the 1942 flood caused destruction of five bridges and damages to three additional bridges in the channelized reach, and caused raveling of bank riprap and erosion of levee embankments in this reach even though the flood discharge caused only minor overtopping of the channel banks in Denver. The 1942 flood also breached the agricultural levees in the reach north of Denver and flooded about 350 acres of truck crops, causing heavy damages.

June 1949 Flood

The June 1949 flood was caused by general rain and snow melt. Although the discharge at Littleton was only 5,980 cfs, the flood resulted in extensive rural damages upstream of Denver.

June 1965 Flood

This flood was caused by severe thunderstorms over Plum Creek and Cherry Creek which later joined other thunderstorms over the Kiowa and Bijou Creek basins. This combination of events resulted in flows of 110,000 cfs at Littleton and 40,300 cfs at Denver. These flows caused $300 million in damages in the Denver metropolitan region alone.

May 1973 Flood

A snowpack of up to 170 percent of normal combined with early warm temperatures at high elevations and prolonged rainfall caused the May 1973 flood. The flood had a peak at Henderson of 33,000 cfs, about double the peak at Denver of 18,500 cfs. This flood caused extensive agricultural damage due to erosion and sediment. Sources indicate that the base flow in the South Platte from snow melt was approximately 1,000 cfs, indicating that the majority of the flooding was attributed to runoff which originated in the metropolitan area below the flood control dams.

HYDROLOGIC AND HYDRAULIC DETERMINATIONS

FLOOD CHARACTERISTICS

Flood flows on the South Platte River may result from rapid runoff of snow melt from the higher foothills and mountain peaks in the late spring; however, these flood peaks are often reduced by Chatfield Dam. Snow melt in the lower foothills and high plains is not normally associated with flood peaks.

Most major flood events on the South Platte River have been associated with thunderstorm activity. Recurrent major storm tracks have been identified which cross the South Platte River watershed and generate most flood flows.

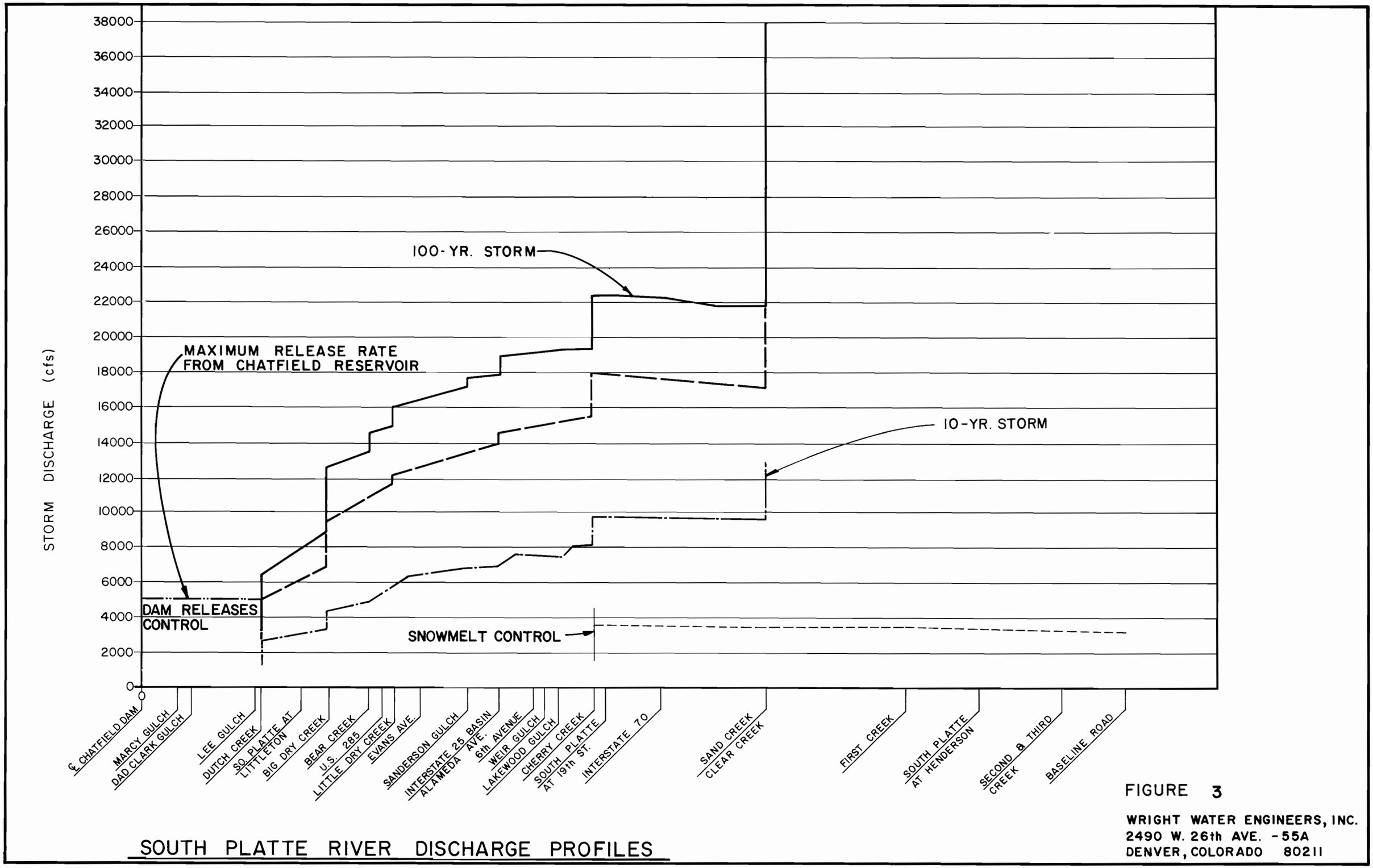
HYDROLOGIC ANALYSIS

A hydrologic analysis was carried out to establish the peak discharge/frequency relationships for floods of 10-, 50- and 100-year recurrence intervals for the South Platte River in the study area. The 100-year discharges used in this report were supplied by a study by Merrick and Company in May 1983. The 100-year flood flows developed by Merrick were based on the Storm Water Management Model (SWMM) computer program developed by the Environmental Protection Agency and modified by the U.S. Army Corps of Engineers and Urban Drainage and Flood Control District. The discharges provided by the Merrick study are based on fully developed conditions.

The 50-year discharge profile for the South Platte River from Chatfield to Sand Creek has been estimated by plotting the 10-year and 100-year peak discharges on probability paper and interpolating between these events at various locations. The two-year discharge profile was extrapolated in the same manner. The discharge profile is shown on Figure 3. Typical South Platte River 100-year storm hydrographs are shown on Figures 4 and 5.

HYDRAULIC ANALYSIS

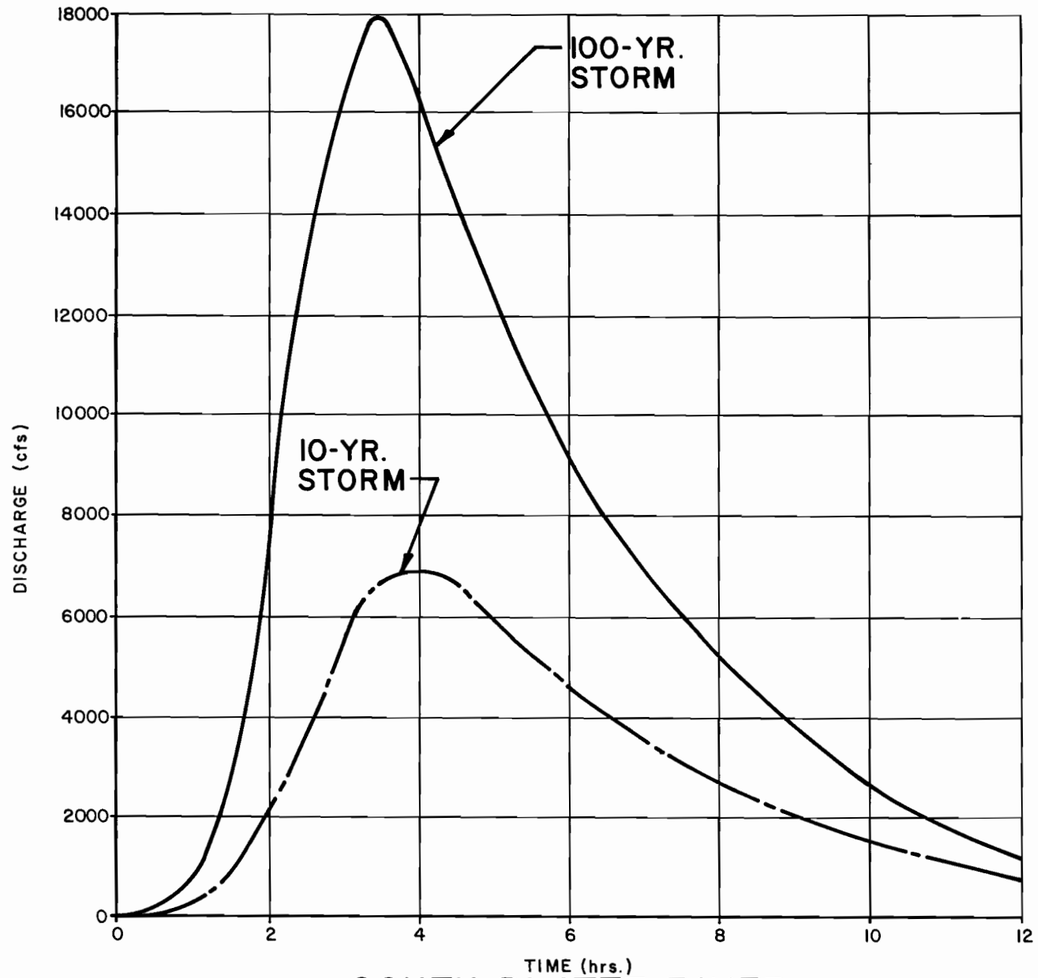
A hydraulic analysis was performed to determine the water surface elevations for the 10- and 100-year storm events. The elevations were computed using



SOUTH PLATTE RIVER DISCHARGE PROFILES

FIGURE 3

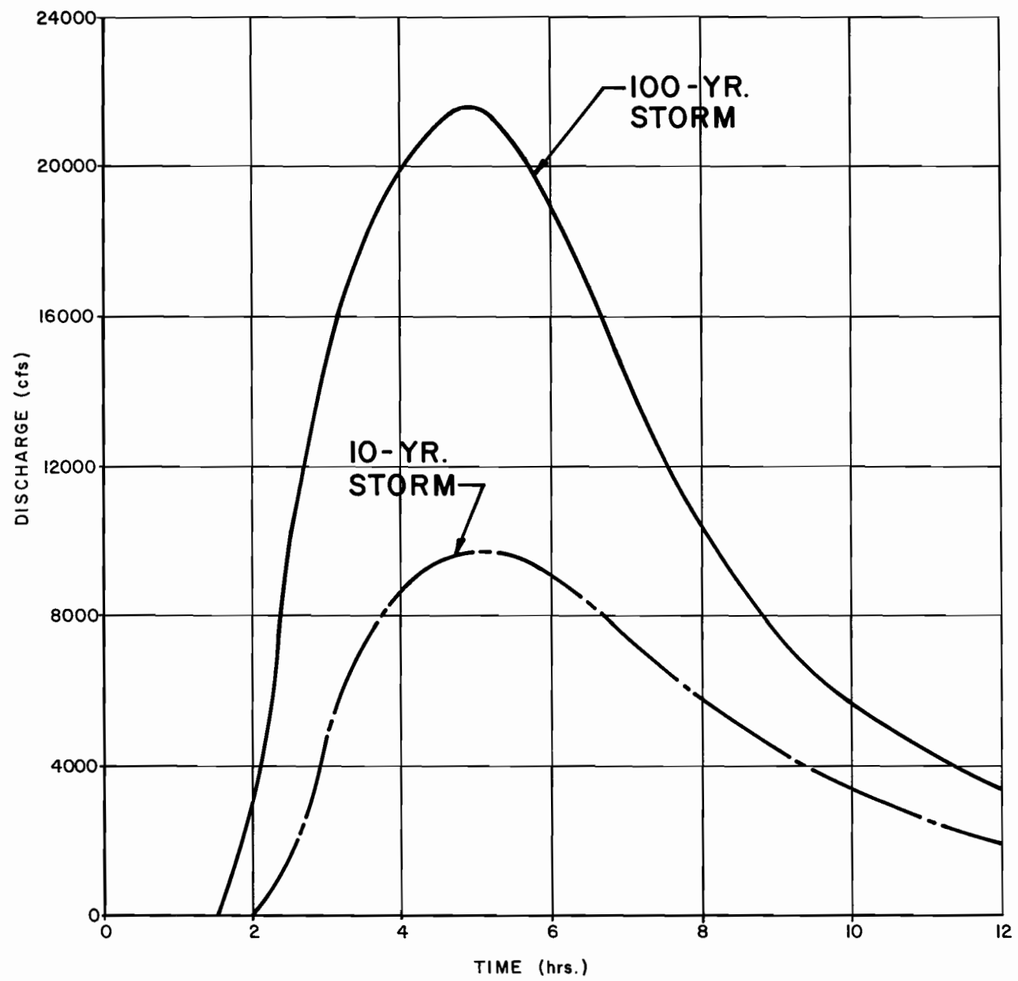
WRIGHT WATER ENGINEERS, INC.
2490 W. 26th AVE. - 55A
DENVER, COLORADO 80211



SOUTH PLATTE RIVER DISCHARGE HYDROGRAPH DOWNSTREAM OF SANDERSON GULCH

FIGURE 4

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE. - SUITE 55A
DENVER, COLORADO 80211



SOUTH PLATTE RIVER DISCHARGE HYDROGRAPH UPSTREAM OF SAND CREEK

FIGURE 5

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH AVE. - SUITE 55A
DENVER, COLORADO 80211

the U.S. Army Corps of Engineers HEC-2 water surface profiles computer program. Valley cross sections were developed using digitized cross sections obtained from aerial photography flown on April 16, 1983. The channel bottom elevation shown on these cross sections was actually the water surface elevation on that day, rather than the actual stream thalweg. Since there was a significant flow in the South Platte River on that day, it was believed that in certain cases as much as two-feet of difference could exist between the water surface elevation on April 16, 1983 and the actual stream thalweg. In those areas where the water surface profiles for the 100-year flood showed that overbank flooding would occur, the thalweg was surveyed in the field or adjusted by assuming a 1.5 foot depth of flow. In addition, in cases where the channel bottom profile obtained from the April 16, 1983 mapping varied significantly from the channel inverts used by the Army Corps of Engineers in their floodplain analysis in 1977, surveys were performed to confirm the correctness of the cross section information used in this report. Sellards and Grigg Engineers have performed a detailed hydraulic study for the reach from Cherry Creek to Colfax Avenue. As part of that detailed study, they surveyed river cross sections from approximately Cherry Creek to Interstate 25. These surveyed cross sections were incorporated into the digitized cross sections obtained from the April 16, 1983 mapping. In general, the areas where the digitized cross sections were modified are from York Street to Franklin Street, from 23rd Avenue to 15th Street, from Cherry Creek to Interstate 25, at the 3rd Avenue Dam, and at the drop structures near Mississippi and Florida Avenues.

The locations of the field surveyed cross sections, the digitized cross sections from the topographic maps, and the assumed inverts are shown on the flood hazard area delineation maps. All hydraulic analysis was done on the basis of existing channel conditions.

Estimates of channel and overbank roughness factors were made by field inspection and use of photographs. Typical roughness, or Manning's "n" values, used in this study are: for the channel .03 to .035, for the overbank .04 to .07. The 100-year flood elevations computed for this study were compared to the 100-year flood elevations developed by the U.S. Army Corps of Engineers in their 1977 study. The results of this study were consistent with the results of the Corps study except in areas where there were differences in discharges and stream thalweg elevations.

Starting elevations were obtained from the "Flood Hazard Delineation, South Platte River, Adams County" completed in September 1977. A detailed description of the hydraulic analysis is included in the Technical Addendum.

A floodway was also defined for the study reach of the South Platte River. A floodway represents the channel and adjacent floodplain which is required to pass the 100-year flood without raising the flood profile more than an acceptable amount. It also represents that part of the floodplain most hazardous to personal safety and welfare. In this study, the floodway defines a flow area required to convey the 100-year flood without increasing the 100-year energy grade line, and, therefore, the water surface elevation by more than 1.0 feet. Floodway widths, which represent the maximum limits of encroachment into the floodplain, are tabulated in Table 1.

In Table 1 the rise in the 100-year flood water surface elevation is greater than 1.0 feet at sections 780 to 860. This occurs because under existing conditions part of the 100-year flood flow is carried in a separate channel on the east side of Interstate 25 from Eighth Avenue to Speer Boulevard. By the time the east channel reaches Colfax Avenue it carries almost 20 percent of the total flow. When this flow is confined to the main channel, the water surface elevation is increased more than 1.0 feet, even without any encroachment.

FLOOD PROBLEMS

FLOODED AREAS

In the reach between Sand Creek and York Street, the floodplain is generally confined by manmade facilities including levees, railroad embankments and roadway embankments. Floodplain widths are generally about 200 feet. In the reach from York Street to Interstate 70, there is extensive flooding of the left (west) bank of the South Platte River. The right bank is protected by natural high banks and highway and railroad embankments. In some cases in this reach the floodplain may be as wide as 3,000 feet.

The reach from Cherry Creek to Interstate 25 is subject to extensive flooding on the right bank. The floodplain in this area is as much as 3,200 feet wide. Depths, however, are low over most of the floodplain.

From Interstate 25 to 13th Avenue flood water from the South Platte is split by the Interstate 25 embankment. Water enters the area east of Interstate 25 at 13th Avenue, the railroad north of 13th Avenue, and at the Colfax Avenue-Interstate 25 junction. These flows east of Interstate 25 are independent of flows in the South Platte River. They return to the South Platte River between Interstate 25 and Speer Boulevard.

From 13th Avenue to 6th Avenue there is flooding on both sides of the South Platte River. On the right bank water spills onto Interstate 25 at about 10th Avenue. A low spot in the bank at about 8th Avenue allows water to leave the channel and flow under Interstate 25 where it flows north to join the flows from 13th Avenue. Because of the small flows, flood depths are shallow. On the left bank the floodplain is as much as 1,400 feet wide. The source of flooding is water coming under 6th Avenue west of the river and the low river banks from 6th Avenue to 8th Avenue.

From 6th Avenue to the 3rd Avenue Dam major flooding occurs on the left bank. The floodplain in this area is as much as 2,400 feet wide. The source of flooding is the low bank of the river and the restriction of the 6th Avenue Bridge.

Upstream of the 3rd Avenue Dam previous studies have shown flooding of the left bank, but analysis using the plans for the dam as it has recently been modified hows that this flooding would no longer occur.

An area on the left bank of the South Platte River receives flood flows which leave the channel upstream of the Evans Avenue Bridge and return to the river about 1/3 mile downstream.

In the remaining reaches, the 100-year flood would be confined to the channel.

FLOOD PROBLEMS

Dams, bridges, and low banks are the causes of flooding between York Street and Interstate 70. A low bank on the left side of the river, in combination with the Gardener's Diversion Dam upstream of York Street, allows water to enter low areas to the left of the river. The Burlington Diversion Dam downstream of Franklin Street causes a significant obstruction to 100-year flood flows. The Franklin Street Bridge is overtopped and causes a significant rise in the 100-year water surface elevation. In addition, the adjacent railroad bridge consists of numerous piers which block flow. This rise in water surface elevation causes the left bank to be overtopped in numerous places upstream to Interstate 70.

Flooding between Cherry Creek and Interstate 25 is the result of the Farmers and Gardeners Dam upstream of the confluence of the South Platte River and Cherry Creek, combined with inadequate channel capacity.

Inadequate channel capacity also causes flooding from Interstate 25 to the 3rd Avenue Dam. The problem with inadequate capacity is compounded by the 6th Avenue, 13th Avenue, and Old Colfax bridges which will not pass the 100-year flood.

Flooding upstream of Evans Avenue is caused by inadequate capacity of the Evans Avenue Bridge, the constricted channel downstream of the bridge, and backwater from the Florida Avenue Diversion Dam.

INTERPRETATION AND USE OF REPORT DATA

FLOOD FREQUENCY AND DISCHARGE

The 10- and 100-year flood events were used as the flood frequencies for this floodplain analysis. Thus the data developed in this report will be compatible not only for regulation purposes and H.B. 1041 designations, but also for Federal Insurance Administration flood insurance rate studies.

These various flood events have an average occurrence of once in the number of years as indicated. For example, the 100-year flood will be equaled or exceeded an average of once in a 100 year period. It has a one percent chance of being equaled or exceeded in any given year.

The particular uses for the various flood events in addition to those stated are as follows in the Glossary.

GLOSSARY

Backwater Effect. The rise in surface elevation of flowing water upstream from and as a result of an obstruction to flow.

Channel. A natural or artificial watercourse of perceptible extent with definite bed and banks to confine and conduct continuously or periodically flowing water.

Flood. An overflow on lands not normally covered by water and that are used or usable by man. Floods have two essential characteristics; the inundation of land is temporary; and the land is adjacent to and inundated by overflow from a river, stream, ocean, lake, or other body of standing water.

Normally a flood is considered as any temporary rise in streamflow or stage, but not the ponding of surface water, that results in significant adverse effects in the vicinity. Adverse effects may include damages from overflow of land areas, temporary backwater effects in sewers and local drainage channels, creation of unsanitary conditions or other unfavorable situations by deposition of materials in stream channels during flood recessions, use of groundwater coincident with increased streamflow, and other problems.

Flood, 100-Year. A type of flood, including the water surface elevation and territorial occupation thereof, which can be expected to occur at any time in a given area based upon recorded historical precipitation and other valid data, but with an average statistical one percent chance of being equaled or exceeded during any one year. The term is used interchangeably with a one percent flood or Intermediate Regional Flood.

Flood Crest. The maximum stage or elevation reached by the waters of a flood at a given location.

Flood Frequency. (See Probability.) The average recurrence interval of specific discharges or water stages which cause flooding.

Flood Peak. The maximum instantaneous discharge of a flood at a given location. It usually occurs at or near the time of the flood crest.

100-Year Floodplain. An area in and adjacent to a stream which is subject to flooding as the result of the occurrence of a 100-year flood and thus is so adverse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health and safety or to property.

Flood Profile. A graph showing the relationship of water surface elevation to location, the latter generally expressed as distance above mouth for a stream of water flowing in an open channel. It is generally drawn to show surface elevation for the crest of a specific flood, but may be prepared for conditions at a given time or stage.

Floodway. The channel of a stream and those portions of the adjoining floodplain which are reasonably required to pass a 100-year flood without raising the flood profile more than an acceptable amount. It is that portion of the floodplain most hazardous to personal safety and welfare. In this study, the floodway defines a flow area required to convey the 100-year flood without increasing the 100-year water surface elevation by more than ten feet.

Left Bank. The bank on the left side of a river, stream or water course as the observer looks downstream.

Probability. The annual chance of occurrence of specific hydrologic events, such as rainfall over a specified area or peak discharge at a specified location expressed in percent, e.g., 5 percent representing one chance in 20 of the event occurring in any year or an average recurrence of once in twenty years.

Reference Point. A numbered point identifying a specific location for correlating data shown in various forms throughout the report.

Right Bank. The bank on the right side of a river, stream or water course, looking downstream.

Shallow Flooding, or Sheet Flow. Broad, shallow overland flood flows varying from a few inches to two feet in depth.

Stream. Any natural channel or depression through which water flows either continuously, intermittently or periodically including any artificial modification of the natural channel or depression.

Watershed. The drainage area situated above a specified point on a stream including the area drained by tributary streams which enter the main stream above this point.

TABLE I

FLOODPLAIN AND FLOODWAY DATA

Notes:

Stations are distance, in feet, from Adams/Weld County Line.

Cross section stationing is from left to right when looking downstream.

TABLE 1
FLOODPLAIN AND FLOODWAY DATA

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
3	946+60	38.0	5113.0	412	8.3	5094.0					
5	953+80	38.0	5113.8	245	12.3	5097.0					
7	955+40	38.0	5115.5	255	10.7	5097.0					
10	957+00	38.0	5115.5	360	12.4	5097.8			Floodway in Channel		
20	961+65	21.8	5118.2	240	6.1	5098.6					
30	965+00	21.8	5118.3	230	6.9	5100.1					
31	965+49	21.8	5118.6	230	5.3	5100.1					
40	968+40	21.8	5118.7	220	6.7	5100.2					
50	976+70	21.8	5119.3	250	6.6	5101.0					
70	981+89	21.6	5119.5	220	7.5	5103.9					
80	922+00	21.8	5120.6	195	8.1	5104.9					
90	992+97	21.8	5120.7	205	8.3	5106.0					
110	995+90	21.8	5120.8	190	9.5	5107.1					
120	996+59	21.8	5118.8	180	15.0	5109.3					
130	1004+00	21.8	5123.2	200	8.6	5109.3					
140	1008+05	21.8	5123.6	210	10.1	5110.0					
150	1015+40	21.8	5125.6	230	9.2	5112.4					
151	1015+70	21.8	5126.4	225	8.5	5112.4					
160	1017+72	21.8	5126.7	910	8.5	5112.5	5126.7	210	115	95	8.5
170	1019+70	21.8	5127.5	1020	7.4	5112.5	5127.6	210	110	100	7.4
171	1021+05	21.8	5127.6	1020	9.2	5112.5	5127.8	205	115	90	9.2

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
180	1021+80	21.8	5128.2	1540	7.4	5112.5	5128.2	201	120	81	7.4
190	1022+25	21.8	5127.3	2000	15.0	5119.6	5127.3	208	120	88	15.0
200	1034+38	21.8	5132.9	2510	7.8	5118.4	5132.9	240	140	100	7.8
210	1044+40	21.8	5134.3	2610	8.0	5119.3	5134.3	236	30	206	8.0
220	1053+60	21.8	5135.6	2870	7.2	5119.7	5135.6	253	120	133	7.2
230	1060+00	21.8	5135.7	3080	9.0	5120.0	5135.7	220	150	70	9.0
250	1060+00	21.8	5136.4	3020	8.3	5120.6	5136.4	222	120	102	8.3
260	1062+55	21.8	5136.9	2400	7.5	5121.2	5136.9	221	170	51	7.5
270	1063+15	21.8	5137.4	2585	14.3	5130.2	5137.4	320	135	185	14.3
280	1066+90	21.8	5141.2	2205	8.8	5127.4	5141.2	200	115	85	8.8
281	1068+30	21.8	5141.2	2360	11.1	5127.4	5141.2	240	80	160	11.1
290	1071+00	22.0	5142.5	2670	9.1	5127.4	5142.5	180	55	125	9.1
300	1075+65	22.0	5143.1	2560	8.4	5128.2	5143.1	232	103	129	8.4
310	1081+95	22.0	5143.9	2420	7.9	5128.4	5143.9	215	88	127	7.9
311	1082+10	22.0	5144.9	2420	7.3	5128.4	5144.9	220	85	135	7.3
320	1083+75	22.0	5145.1	2340	7.1	5128.9	5145.1	254	95	159	7.1
330	1089+80	22.0	5145.4	2205	8.1	5129.5	5145.4	255	78	177	8.1
340	1092+48	22.0	5145.5	1705	9.0	5129.9	5145.5	230	85	145	9.0
341	1092+65	22.0	5145.7	1705	8.8	5129.9	5145.7	230	85	145	8.8
350	1095+40	22.0	5146.2	1820	8.2	5130.2	5146.2	210	65	145	8.2

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
360	1103+70	22.0	5147.0	1445	7.7	5131.0	5147.0	207	105	102	7.7
370	1108+10	22.0	5147.4	1410	7.1	5132.0	5147.4	229	165	64	7.1
371	1108+40	22.0	5147.8	1410	7.6	5132.0	5147.8	220	160	60	7.6
380	1110+85	22.0	5147.8	2530	11.5	5132.3	5147.8	180	120	60	11.5
390	1115+50	22.0	5148.7	2480	8.9	5133.3	5148.7	253	80	173	8.9
391	1116+10	22.0	5148.8	2480	8.8	5133.3	5148.8	254	85	169	8.8
392	1117+20	22.0	5149.0	265	8.6	5133.3	5149.0	255	80	175	8.6
400	1118+10	22.3	5149.2	260	9.3	5133.7	5149.2	260	75	185	9.3
401	1119+50	22.3	5149.9	295	8.7	5134.7	5149.9	280	100	180	8.7
410	1120+20	22.3	5150.1	285	8.1	5135.1	5150.1	283	100	183	8.1
420	1122+40	22.3	5150.5	1070	7.5	5135.3	5150.5	230	120	110	7.5
430	1124+70	22.3	5150.6	1055	7.8	5135.8	5150.6	250	100	150	7.8
431	1126+15	22.3	5150.8	1055	7.6	5135.8	5150.8	200	85	115	7.6
440	1130+45	22.3	5150.8	295	9.6	5137.1	5150.8	195	80	115	9.6
450	1134+30	22.3	5151.9	215	7.7	5138.5					
451	1135+40	22.3	5151.9	215	7.7	5138.5		Floodway in Channel			
460	1138+20	22.3	5151.9	225	9.3	5140.6					
470	1153+55	22.3	5153.9	235	10.2	5141.8					
480	1165+00	22.3	5156.2	230	9.4	5142.4					
490	1168+50	22.3	5156.5	200	11.7	5143.3					

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
491	1169+00	22.3	5156.6	180	11.6	5143.3					
500	1172+00	22.3	5157.6	165	10.8	5143.4					
510	1179+00	22.3	5158.6	160	14.1	5143.6					
520	1189+90	22.3	5162.2	240	7.2	5144.5					
530	1191+55	22.3	5162.3	310	7.3	5144.9					
531	1193+00	22.3	5162.4	319	10.4	5144.9					
540	1197+80	22.3	5163.7	235	7.2	5146.1					
550	1200+60	22.3	5163.9	295	7.2	5146.4					
551	1201+60	22.3	5164.0	270	8.9	5146.4		Floodway in channel			
570	1206+80	22.3	5164.8	220	7.1	5147.5					
571	1207+50	22.3	5165.3	220	6.9	5147.5					
580	1209+50	22.3	5165.3	235	7.9	5148.2					
590	1213+90	22.3	5165.7	225	9.4	5148.8					
591	1214+30	22.3	5166.5	225	12.8	5148.8					
600	1219+30	22.3	5169.1	320	5.9	5148.7					
610	1225+30	22.3	5169.5	210	9.5	5152.5					
611	1226+05	22.3	5170.1	210	9.0	5152.5					
620	1227+25	22.3	5170.5	240	8.4	5155.2					
630	1230+40	22.3	5170.3	175	16.4	5157.2					
631	1230+90	22.3	5172.5	175	13.0	5157.2					

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
640	1232+50	22.3	5174.1	181	10.2	5158.5		Floodway in Channel			
650	1241+00	22.3	5176.1	230	9.6	5162.3					
670	1245+00	22.3	5177.2	200	9.7	5162.7					
671	1245+70	22.3	5177.2	200	10.0	5162.7					
672	1246+30	22.3	5177.4	195	9.8	5162.7					
680	1247+20	22.3	5177.6	195	10.4	5162.5					
690	1249+90	22.3	5178.3	180	10.2	5160.0					
691	1250+60	22.3	5178.3	192	10.1	5162.4					
700	1253+60	19.4	5179.7	240	7.0	5162.0					
710	1254+70	19.4	5181.0	220	15.0	5174.2					
720	1258+40	19.4	5184.8	260	9.2	5170.5					
730	1261+60	19.4	5185.1	2055	9.4	5171.3	5185.2	295	145	150	9.7
740	1268+40	19.4	5186.9	2780	5.0	5170.9	5186.9	950	235	715	8.2
750	1280+00	19.4	5187.3	3400	6.9	5172.7	5188.3	960	120	840	7.5
760	1292+30	19.4	5188.6	2440	7.7	5173.4	5189.0	637	90	547	9.4
770	1298+40	19.4	5188.7	2100	11.3	5176.9	5189.7	282	132	150	11.2
771	1298+60	19.4	5189.5	2100	9.5	5176.9	5190.0	275	125	150	10.4
772	1301+60	19.4	5189.5	240	13.2	5176.7	5190.0	240	120	120	15.6
773	1302+00	19.4	5190.8	289	9.1	5176.0	5192.3[2]	297	170	127	8.8
774	1302+90	19.4	5191.3	292	8.5	5176.0	5192.6[2]	296	169	127	8.5
775	1303+50	19.4	5191.4	292	8.6	5176.1	5192.7[2]	299	172	127	8.5

[1] Measured from stationing line looking downstream

[2] Total 100-year discharge confined to channel area in floodway computation resulting in an increase in floodway depth of more than 1.0 feet.

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
780	1304+00	19.2	5191.4	1250	9.0	5176.9	5192.7[2]	370	250	120	9.1
790	1306+90	19.2	5192.9	1770	5.7	5178.7	5194.2[2]	820	600	220	5.5
800	1313+50	19.2	5193.0	2050	9.0	5179.5	5194.6[2]	1525	820	705	6.9
810	1316+30	19.2	5193.5	2040	8.4	5179.6	5194.8[2]	1470	720	750	7.5
811	1317+10	19.2	5196.7	1500	4.9	5179.6	5197.4	1435	695	740	5.2
820	1317+90	19.2	5196.7	1590	5.0	5180.6	5197.5	1345	605	740	5.2
830	1322+30	19.2	5196.8	1740	7.0	5180.9	5197.6	1475	480	995	6.9
840	1325+20	19.2	5196.8	1550	8.1	5181.3	5197.6	1345	410	935	8.2
850	1326+00	19.2	5196.8	1520	8.5	5184.2	5197.6	1320	410	910	8.7
860	1327+60	19.2	5197.1	1500	7.2	5183.9	5197.8	1275	415	860	7.5
861	1328+00	19.2	5198.1	1520	6.7	5183.9	5198.1	1255	400	855	7.2
870	1334+30	19.2	5198.2	685	9.9	5184.8	5198.3	600	120	480	10.0
880	1339+05	19.2	5200.0	1190	7.4	5186.2	5200.1	395	130	265	7.4
890	1347+60	19.2	5200.4	300	11.6	5187.0	5200.5	200	140	60	11.7
900	1354+90	19.2	5202.8	720	8.3	5187.9	5202.9	160	90	70	8.3
901	1355+90	19.2	5202.9	555	8.3	5187.9	5202.9	180	100	80	8.2
1000	1358+50	19.2	5202.9	1455	9.6	5188.4	5203.0	190	60	130	9.5
1010	1363+60	19.2	5204.0	1630	8.5	5188.8	5204.0	220	110	110	8.8
1020	1369+50	19.2	5205.3	425	6.8	5188.9	5205.3	190	90	100	7.0
1021	1371+40	19.2	5207.1	580	5.2	5188.9	5207.0	190	70	120	5.5

[1] Measured from stationing line looking downstream

[2] Total 100-year discharge confined to channel area in floodway computation resulting in an increase in floodway depth of more than 1.0 feet.

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
1030	1375+80	19.2	5207.2	1290	6.3	5189.1	5207.2	383	260	123	6.6
1040	1383+60	19.2	5207.9	1340	6.0	5190.6	5207.9	260	60	200	7.5
1050	1388+70	19.2	5207.9	1390	9.1	5192.6		Floodway in channel			
1060	1390+00	19.2	5208.2	1440	9.5	5194.5					
1070	1390+70	19.2	5208.0	190	13.9	5202.3					
1080	1393+60	19.2	5209.6	285	12.1	5199.8					
1090	1396+70	19.2	5212.0	160	9.0	5200.4					
1091	1397+60	19.2	5212.7	190	8.4	5200.4					
1100	1399+40	19.2	5212.7	200	9.8	5200.4					
1110	1411+30	19.0	5212.7	190	11.7	5200.4					
1120	1418+30	19.0	5214.8	165	10.9	5201.3					
1130	1433+80	19.0	5218.2	203	9.6	5206.2					
1140	1438+60	19.0	5219.1	180	9.8	5206.4					
1150	1439+70	18.9	5219.1	185	15.0	5210.9					
1160	1440+80	18.0	5222.1	185	9.2	5111.0					
1161	1442+30	18.0	5223.5	211	8.1	5211.0					
1170	1445+10	18.0	5223.7	190	8.8	5211.4					
1180	1455+00	18.0	5225.3	400	8.2	5211.9					
1190	1464+70	18.0	5226.8	278	6.5	5212.3					

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
1200	1473+40	18.0	5227.7	200	6.8	5213.9		Floodway in Channel			
1201	1474+20	18.0	5227.7	140	9.1	5213.9					
1210	1476+90	18.0	5227.9	149	10.2	5213.9					
1220	1479+05	18.0	5228.3	170	10.1	5213.9					
1230	1479+70	18.0	5228.3	170	16.0	5217.7					
1240	1481+90	18.0	5230.2	165	10.0	5217.4					
1250	1488+40	18.0	5231.4	166	9.8	5218.2					
1260	1492+90	18.0	5232.2	155	10.1	5219.7					
1270	1493+40	18.0	5232.2	155	15.1	5221.5					
1280	1495+40	18.0	5233.7	165	10.3	5222.4					
1290	1499+70	18.0	5235.0	185	8.6	5222.7					
1291	1500+70	18.0	5235.4	199	8.3	5222.7					
1300	1504+60	18.0	5235.8	194	9.0	5223.3					
1310	1510+50	18.0	5236.7	199	9.1	5223.5					
1320	1516+10	18.0	5237.9	160	8.4	5224.1					
1321	1517+20	18.0	5238.6	180	9.1	5224.1					
1330	1519+90	18.0	5238.6	180	7.8	5224.2					
1340	1524+50	18.0	5239.1	190	7.9	5224.2					
1350	1524+90	18.0	5239.1	190	8.5	5225.7					
1360	1526+10	18.0	5239.1	180	9.4	5226.4					

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
1370	1533+00	17.75	5240.8	500	6.8	5226.7	5240.7	150	70	80	6.8
1380	1536+40	17.3	5240.9	165	10.6	5227.8		Floodway in Channel			
1381	1537+10	17.3	5242.3	175	9.3	5227.8					
1390	1539+30	17.3	5242.5	175	10.0	5229.7					
1400	1540+20	17.3	5242.5	200	14.5	5233.1					
1410	1544+70	17.3	5245.5	215	9.2	5234.4					
1420	1561+70	17.3	5247.8	195	9.8	5235.4					
1430	1566+10	17.3	5249.1	210	7.9	5235.5					
1440	1567+90	17.3	5249.1	195	9.2	5236.5					
1450	1573+40	16.5	5250.0	195	10.2	5236.9					
1460	1579+30	16.5	5251.6	450	8.0	5238.0	5251.6	190	95	95	8.1
1461	1580+20	16.5	5254.2	1860	4.3	5238.0	5254.2	220	120	100	4.4
1470	1585+40	16.5	5254.3	1585	5.0	5238.1	5254.3	285	120	165	5.1
1480	1594+70	16.5	5254.6	690	7.3	5239.9	5254.6	220	130	90	7.3
1490	1598+00	16.5	5255.0	220	6.8	5240.4		Floodway in Channel			
1500	1600+40	16.5	5255.1	220	7.5	5241.1					
1510	1606+10	16.5	5255.5	185	9.7	5244.0					
1520	1620+00	16.5	5258.2	180	9.2	5245.7					
1530	1625+40	16.5	5259.1	183	8.5	5245.7					
1540	1626+00	16.5	5259.1	200	11.5	5249.3					
1550	1627+80	16.5	5259.1	200	12.3	5249.7					
1560	1631+70	16.5	5261.1	210	10.0	5249.7					

[1] Measured from stationing line looking downstream

TABLE 1
(CONTINUED)

Cross-Section Number	Station	100-Year Discharge [1000 cfs]	100-Year Water Surf. Elev.	Floodplain Top Width [ft]	Channel Velocity [ft/sec]	Stream Thalweg Elev.	Floodway Water Surf. Elev.	Top Width Floodway [ft]	Floodway[1] Width Left [ft]	Floodway[1] Width Right [ft]	Floodway Velocity [ft/sec]
1570	1635+90	16.5	5262.3	200	8.8	5250.7		Floodway in Channel			
1580	1638+40	16.5	5262.5	195	10.2	5251.9					
1590	1641+70	16.5	5263.5	195	9.0	5251.9					
1600	1642+30	16.5	5263.5	175	9.3	5251.9					
1610	1643+80	16.5	5263.7	185	9.8	5251.9					
1620	1650+00	16.5	5265.2	185	8.8	5253.3					
1630	1655+40	16.5	5266.5	200	6.1	5253.9					
1631	1656+40	16.5	5267.1	220	5.8	5253.9					
1640	1659+60	16.0	5267.2	204	6.7	5254.4					
1650	1675+20	15.0	5268.4	189	7.8	5255.2					
1660	1681+60	15.0	5269.1	184	8.5	5258.1					
1661	1682+10	15.0	5269.2	180	8.5	5258.1					
1670	1685+30	15.0	5270.1	258	6.4	5259.5					
1680	1696+60	15.0	5271.1	315	5.7	5259.6	5271.1	210	115	95	6.6
1690	1707+90	14.6	5271.8	710	2.2	5260.2	5272.0	450	360	90	2.9
1700	1719+00	13.5	5271.9	780	3.9	5261.2	5272.1	350	250	100	4.5
1710	1726+60	13.5	5272.2	325	6.4	5261.8	5272.3	250	170	80	7.2
1720	1731+70	13.5	5272.6	230	8.1	5262.5		Floodway in Channel			
1721	1731+90	13.5	5272.7	220	8.0	5262.5					
1730	1738+10	13.5	5273.8	176	10.1	5263.9					
1731	1738+50	13.5	5273.8	176	10.0	5263.9					

[1] Measured from stationing line looking downstream

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

I-270 TO OXFORD AVENUE

2000 0 2000 4000
Scale in Feet

LEGEND

PLAN

- 700 — SECTION
- 700 5132.7 — ELEVATION IN OVERBANK
- ——— 100-YR. FLOODPLAIN LIMIT
- 1270 — RIVER STATION X 100
- — — — — LIMIT OF AREA HYDRAULICALLY CONNECTED TO CHANNEL

PROFILE

- ——— LEFT BANK (LOOKING DOWNSTREAM)
- ——— RIGHT BANK (LOOKING DOWNSTREAM)
- ——— 100-YR. WATER SURFACE PROFILE
- — — — 10-YR. WATER SURFACE PROFILE
- ——— THALWEG OR WATER SURFACE ON 4/16/83

BRIDGE AS SHOWN IN PROFILE

- TOP OF RAILING
- TOP OF BRIDGE
- LOW CHORD

CAUTION

FLOOD WATER SURFACE ELEVATIONS AND FLOODPLAIN BOUNDARIES ARE OFTEN REVISED BY ROAD AND BRIDGE CONSTRUCTION, FLOODPLAIN DEVELOPMENT, FLOOD CONTROL, IMPROVEMENTS, OR NATURAL PROCESSES. PRIOR TO UTILIZATION OF THIS REPORT FOR PLANNING OR DESIGN PURPOSES, THE USER IS ADVISED TO CONTACT THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT TO DETERMINE IF THE INFORMATION IN THIS REPORT HAS BEEN AMENDED.

SHEET INDEX

FLOOD HAZARD AREA DELINEATION STUDY | INDEX MAP | URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH. AVE., B5-A DENVER, CO. 80211

DESIGN WWE | DETAIL | CHECK | DATE 1/85 | PROJECT NUMBER 831-036.00C | DRAWING NUMBER 1 OF 25

FLOOD HAZARD AREA DELINEATION STUDY

INDEX MAP

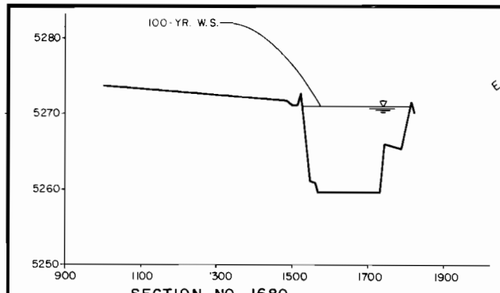
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

WRIGHT WATER ENGINEERS, INC.
2490 W. 26TH. AVE., 5B-A DENVER, CO. 80211

DESIGN WSC
DETAIL SEM
CHECK MWH
DATE 1/85

PROJECT NUMBER 831-036.000

DRAWING NUMBER 1A OF 25



SECTION NO. 1680
STA. 1696+60

SEE SHEET 2A

BEAR CREEK

100-YEAR FLOODPLAIN LIMITS

NOTE:
THIS AREA IS LOWER THAN THE 100-YR. FLOOD WATER SURFACE IN THE CHANNEL AND MAY BE SUBJECT TO FLOODING FROM LARGER FLOODS, CHANNEL OBSTRUCTIONS, EMBANKMENT FAILURES, OR SEWER BACKUP.

MATCH SEE SHEET STA. 1686+00 LINE

PLATTE RIVER

N. GIRARD AVE.

HAMILTON PL.

HWY 285

OXFORD AVE.

PARKING

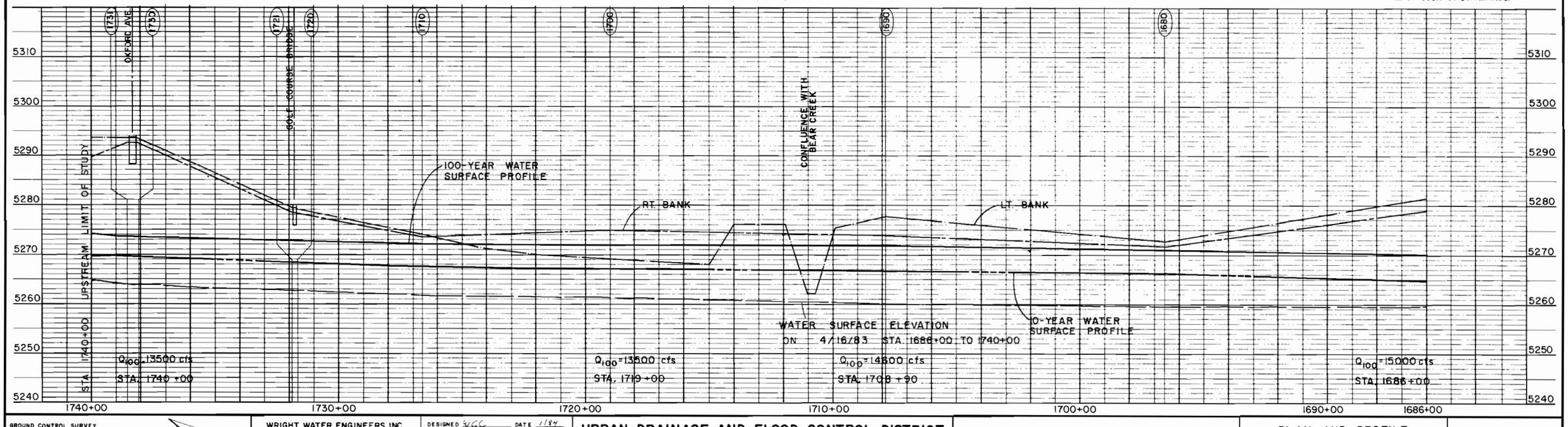
GREEN

UPSTREAM LIMIT OF STUDY

DATUM IS MEAN SEA LEVEL

SCALE OF FEET: 200 0 200 400 600

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY Delta Aerial Surveys, Inc.
2345 SO. FEDERAL BLVD. SUITE 195
DENVER, COLORADO 80219
(303) 934-5500
CONTOUR INTERVAL = 2 FEET

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED	WCC	DATE	1/84
DRAWN	[illegible]	DATE	1/84
CHECKED	[illegible]	DATE	[illegible]
REVISED		DATE	

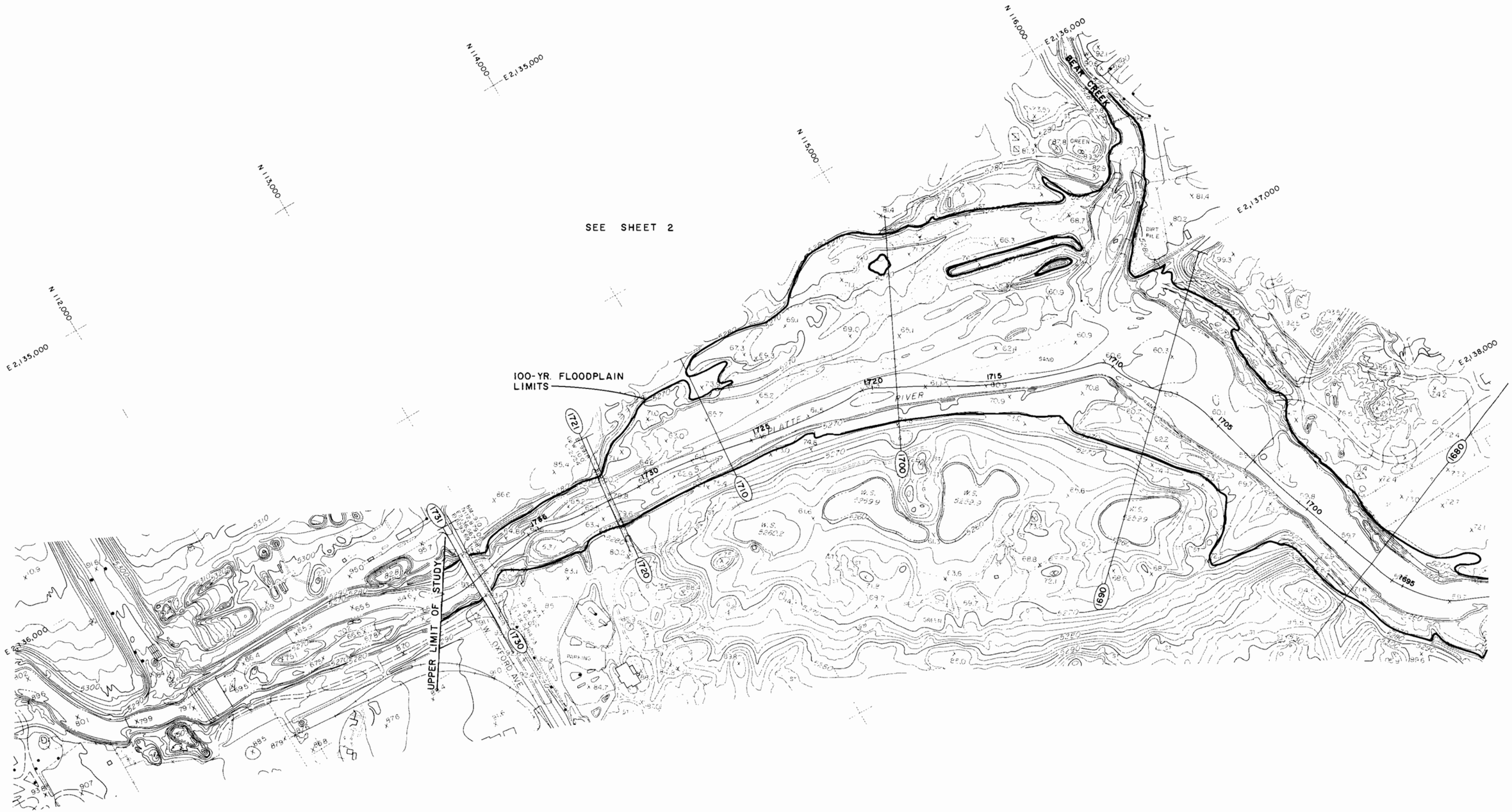
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1686+00 TO STA. 1740+00

SHEET 2 OF 25

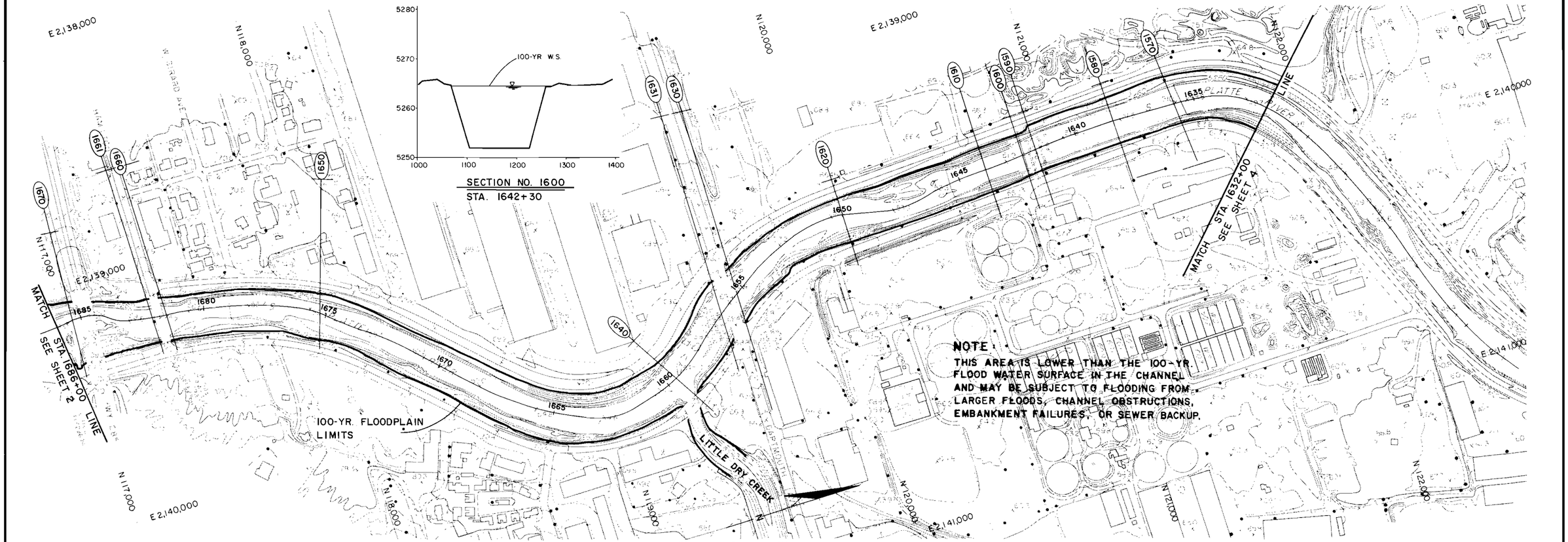


DATUM IS MEAN SEA LEVEL

200 0 200 400 600
SCALE OF FEET

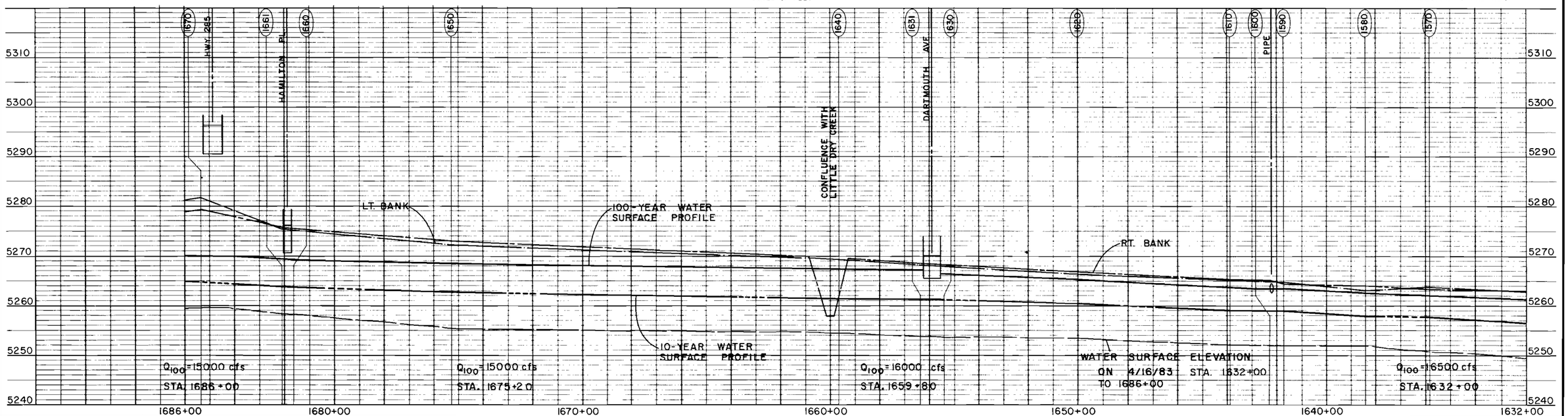
THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.

GROUND CONTROL SURVEY, AERIAL PHOTOGRAPHY APRIL 16,1983 TOPOGRAPHIC MAPPING BY **Dalta Aerial Surveys, Inc.** CONTOUR INTERVAL = 2 FEET 2345 SO. FEDERAL BLVD SUITE 195 DENVER, COLORADO 80219 (303) 934-5500	WRIGHT WATER ENGINEERS, INC. CONSULTING ENGINEERS 2490 W. 26th Ave, Suite 55A Denver, Colorado 80211 (303) 480-1700	DESIGNED WCC DATE 1/84 DRAWN GLM DATE 1/84 CHECKED [illegible] DATE 3/86 REVISED ____ DATE ____	**URBAN DRAINAGE AND FLOOD CONTROL DISTRICT** FLOOD HAZARD AREA DELINEATION	SOUTH PLATTE RIVER	PLAN FOR PROFILE SEE SHEET 2	SHEET 2A OF 25



DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL: 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 1/84
DRAWN GRM DATE 1/84
CHECKED [illegible] DATE 5/85
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

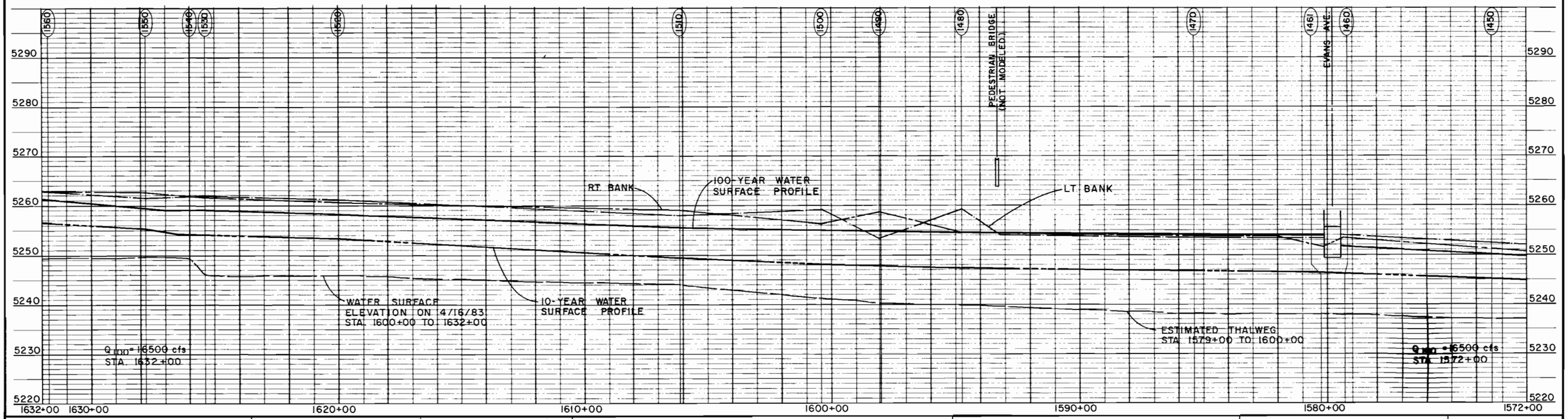
PLAN AND PROFILE
STA. 1632+00 TO STA. 1686+00

SECTION NO. 1490
STA. 1598+00

200 0 200 400 600
SCALE OF FEET

DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 1/84
DRAWN RJM DATE 1/84
CHECKED [illegible] DATE 1/85
REVISED ____ DATE ____

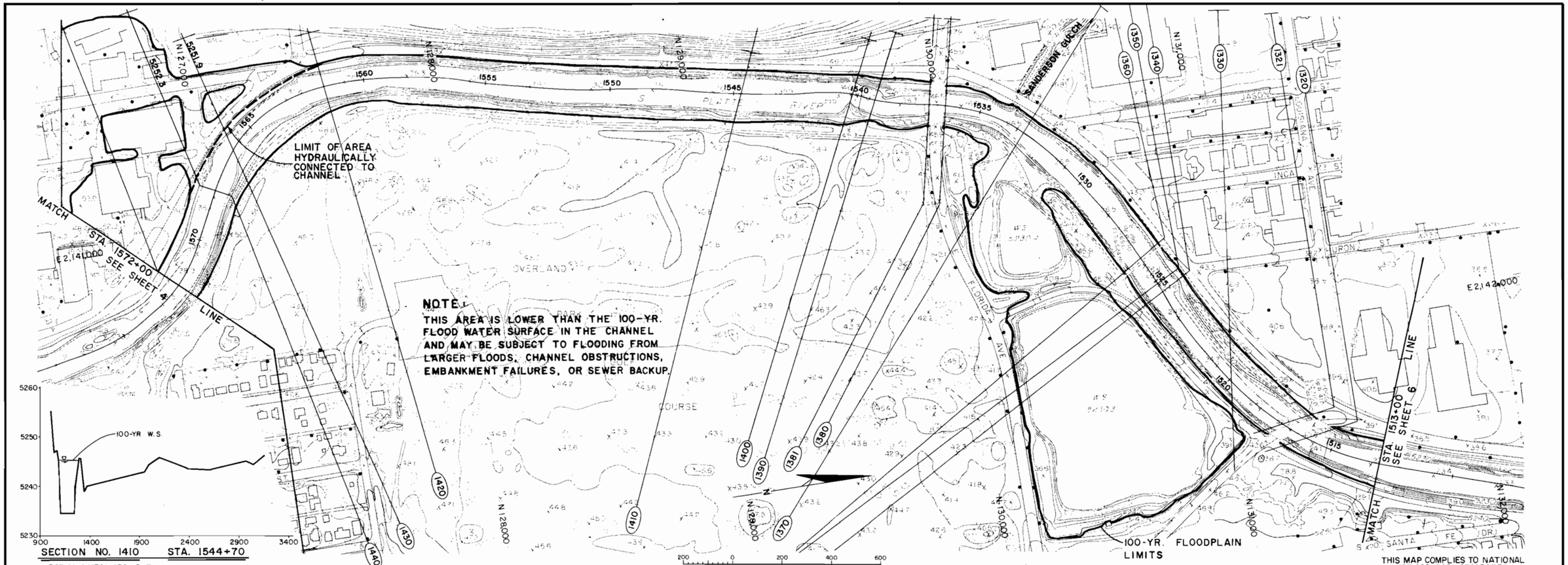
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

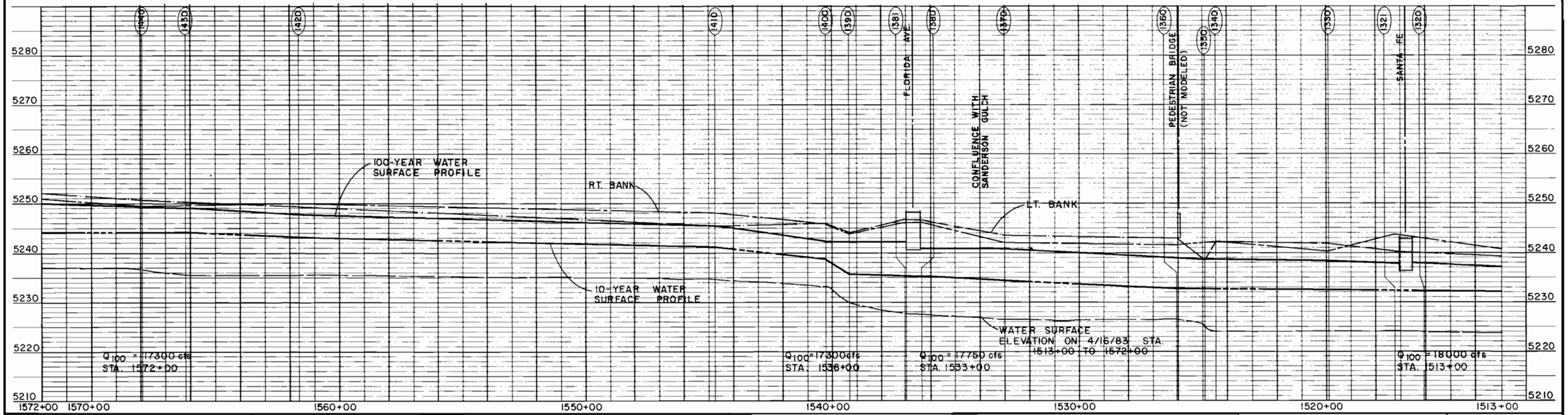
FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1572+00 TO STA. 1632+00

SHEET 4 OF 25





GROUND CONTROL SURVEY, AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY Dalta Aerial Surveys, Inc.
2345 SO. FEDERAL BLVD. SUITE 195 DENVER, COLORADO 80219 (303) 934-5500
CONTOUR INTERVAL = 2 FEET

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 11/84
DRAWN GLM DATE 11/84
CHECKED RWB DATE 3/86
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1513+00 TO STA. 1572+00

SHEET 5 OF 25

NOTE:
THIS AREA IS LOWER THAN THE 100-YR. FLOOD WATER SURFACE IN THE CHANNEL AND MAY BE SUBJECT TO FLOODING FROM LARGER FLOODS, CHANNEL OBSTRUCTIONS, EMBANKMENT FAILURES, OR SEWER BACKUP.

LIMIT OF AREA HYDRAULICALLY CONNECTED TO CHANNEL

THIS AREA ALSO SUBJECT TO SHALLOW FLOODING DUE TO OVERFLOW FROM STA. 1467+00 TO STA. 1472+00 DEPTHS COULD BE UP TO 1.0 FT.

100-YR FLOODPLAIN LIMITS

SEE SHEET 5 MATCH STA. 1513+00 LINE

SEE SHEET 7 MATCH STA. 1456+00 LINE

S. SANTA FE DRIVE

SANTA FE DRIVE

SOUTH PLATTE RIVER

N 132,000 N 133,000 N 134,000 N 135,000 N 136,000 N 137,000

E 2,142,000 E 2,143,000 E 2,141,000 E 2,140,000

SECTION NO. 1250
STA. 1488+40
DATUM IS MEAN SEA LEVEL

100-YR W.S.

5250 5240 5230 5220

900 1400 1900 2400 2900 3400 3900

SCALE OF FEET
200 0 200 400 600

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS

MISSISSIPPI AVE.

SANTA FE DR.

LT. BANK

RT. BANK

10-YEAR WATER SURFACE PROFILE

100-YEAR WATER SURFACE PROFILE

WATER SURFACE ELEVATION ON 4/16/83 STA. 1456+00 TO 1513+00

Q_{100} = 18000 cfs STA. 1513+00

Q_{100} = 18000 cfs STA. 1456+00

5260 5250 5240 5230 5220 5210 5200 5190

1510+00 1500+00 1490+00 1480+00 1470+00 1460+00

GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195 DENVER, COLORADO 80219 (303) 934-5500
CONTOUR INTERVAL = 2 FEET

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WGC DATE 11/84
DRAWN GBM DATE 11/84
CHECKED MWA DATE 11/84
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

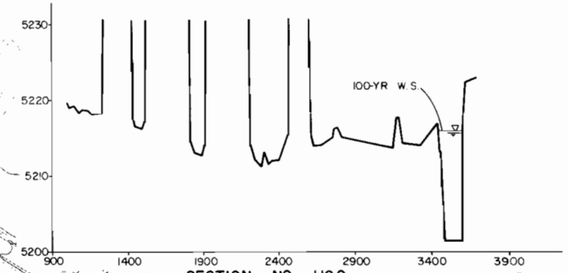
SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1456+00 TO STA. 1513+00

SHEET 6 OF 25

THIS AREA ALSO SUBJECT TO PONDING DUE TO OVERFLOW FROM STATIONS 1467+00 TO 1472+00. FLOOD DEPTHS COULD BE UP TO 1.0 FT.

NOTE:
THIS AREA IS LOWER THAN THE 100-YR FLOOD WATER SURFACE IN THE CHANNEL AND MAY BE SUBJECT TO FLOODING FROM LARGER FLOODS, CHANNEL OBSTRUCTIONS, EMBANKMENT FAILURES, OR SEWER BACKUP.



SECTION NO. 1120
STA. 1418+30

100-YR. FLOODPLAIN LIMITS

MATCH SEE SHEET 6 STA. 1456+00 LINE

MATCH SEE SHEET 8 STA. 1403+00 LINE

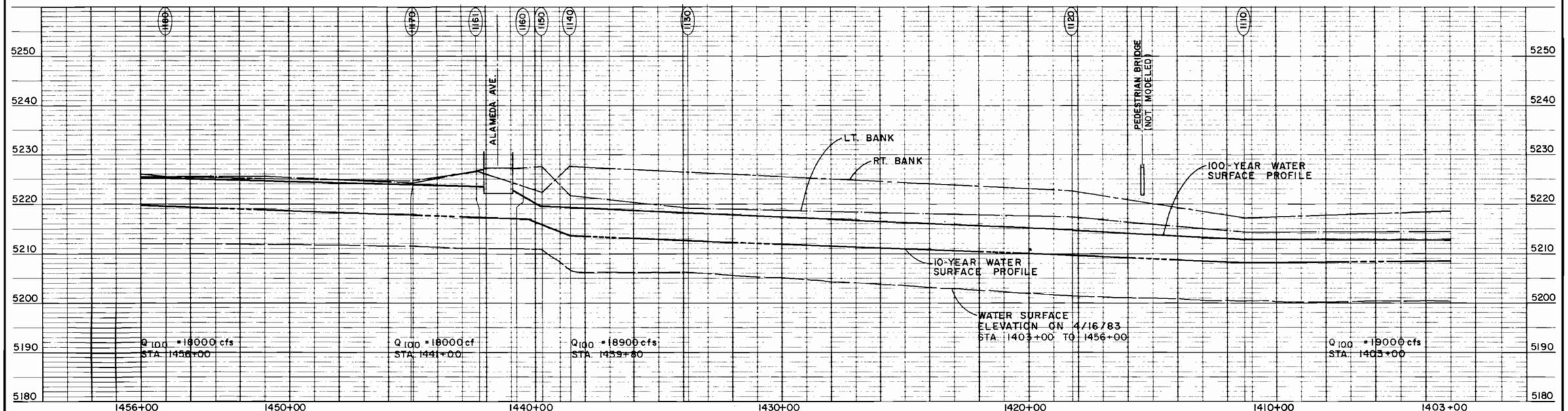
SEE SHEET 8A

N 137,000
E 2,142,000
N 138,000
E 2,141,000
N 139,000
E 2,140,000
N 140,000
E 2,139,000
N 141,000
N 142,000

200 0 200 400 600
SCALE OF FEET

DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY CONTOUR INTERVAL = 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 11/87
DRAWN CTM DATE 1/88
CHECKED [illegible] DATE [illegible]
REVISED ____ DATE ____

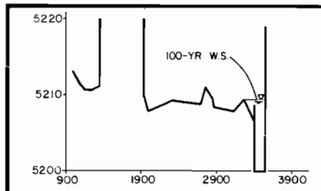
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1403+00 TO STA. 1456+00

SHEET 7 OF 25



SECTION NO. 1080
STA. 1393+60

NOTE:
THIS AREA IS LOWER THAN THE 100-YR. FLOOD WATER SURFACE IN THE CHANNEL AND MAY BE SUBJECT TO FLOODING FROM LARGER FLOODS, CHANNEL OBSTRUCTIONS, EMBANKMENT FAILURES, OR SEWER BACKUP.

SEE SHEET 8A

SEE SHEET 9A

WEIR GULCH

LIMIT OF AREA HYDRAULICALLY CONNECTED TO CHANNEL

100-YR. FLOODPLAIN LIMITS

MATCH STA. 1403+00 SEE SHEET 7 LINE

MATCH STA. 1348+00 SEE SHEET 9 LINE

SEE SHEET 9A

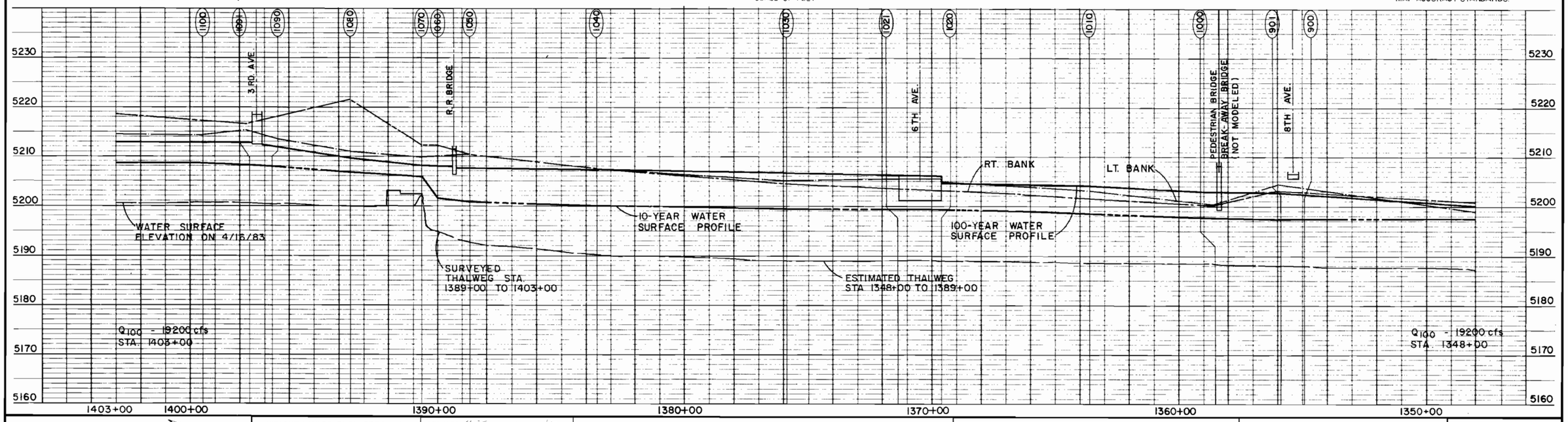
N 141,000
N 142,000
N 143,000
N 144,000
N 145,000
N 146,000
E 2,136,000
E 2,137,000
E 2,138,000

5200.6

SCALE OF FEET: 200 0 200 400 600

DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY **Delta Aerial Surveys, Inc.**
2345 SO. FEDERAL BLVD. SUITE 195
DENVER, COLORADO 80219
(303) 934-5500
CONTOUR INTERVAL = 2 FEET

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED ____ DATE 1-84
DRAWN ____ DATE 1/84
CHECKED ____ DATE 1/84
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1348+00 TO STA. 1403+00

SHEET 8 OF 25

GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL: 2 FEET

Data Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 1/84
DRAWN DSM DATE 1/84
CHECKED RWS DATE 3/84
REVISED ____ DATE ____

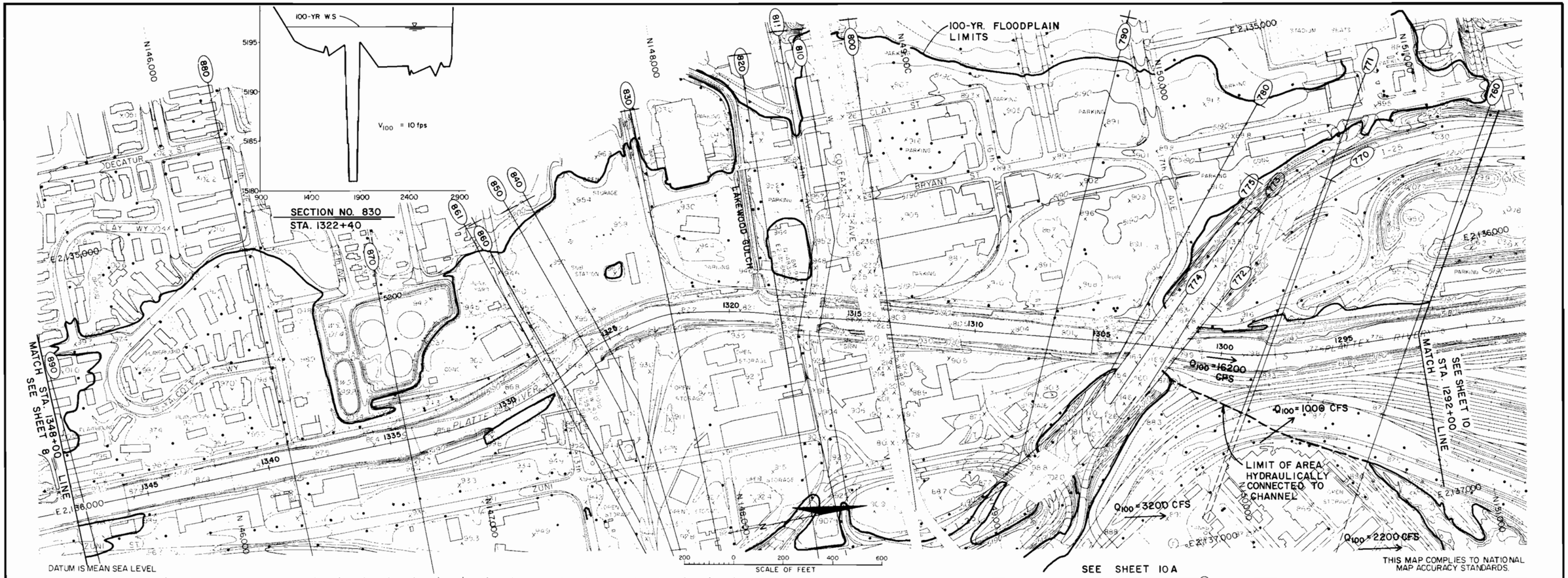
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

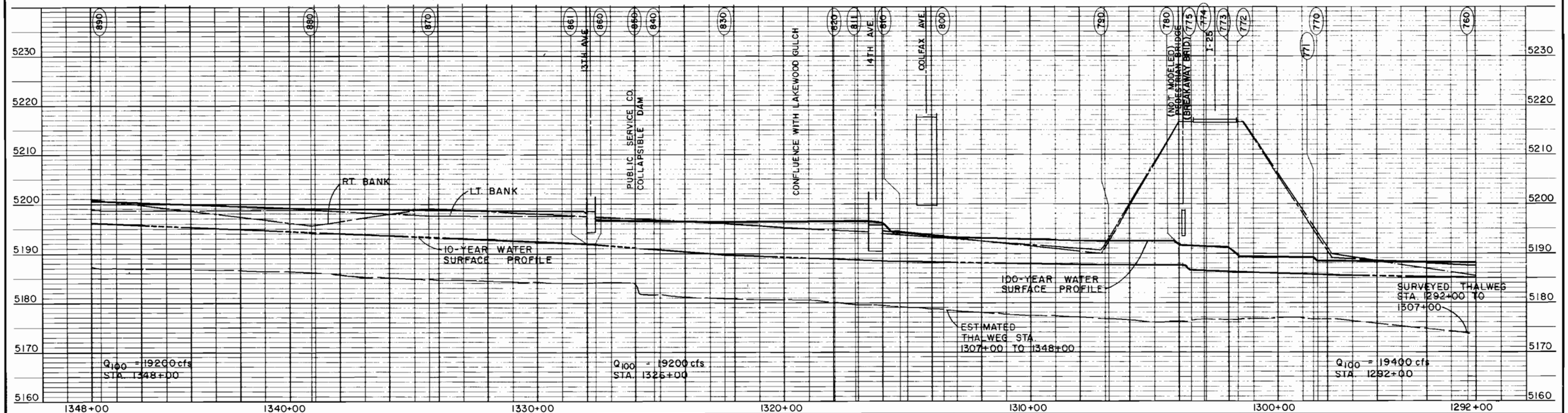
FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN
FOR PROFILE SEE SHEETS 7 & 8

SHEET 8A OF 25





GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER COLORADO 80219
(303) 934-5500
CONTOUR INTERVAL = 2 FEET

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 11/84
DRAWN GAM DATE 1/85
CHECKED DATE 3/85
REVISED DATE

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1292+00 TO STA. 1348+00

SHEET 9 OF 25

N 144,000
N 145,000
N 146,000
N 147,000
N 148,000
N 149,000
E 2,135,000
E 2,136,000
E 2,137,000
E 2,138,000
MATCH LINE SEE SHEET 8A
MATCH LINE SEE SHEET 10A
DECATUR
WEIR GULCH
LAKEWOOD GULCH
COLFAX AVE
CLAY ST
BRYANT
LIMIT OF AREA HYDRAULICALLY CONNECTED TO CHANNEL
MEDIAN BARRIER PREVENTS HYDRAULIC CONNECTION
FLOOD AREA NOT HYDRAULICALLY CONNECTED TO CHANNEL
Q_{100} = 200cfs
Q_{100} = 1750cfs
Q_{100} = 600cfs
Q_{100} = 2550cfs
5200
5198.1
5196.3
5196.2
5200.6
5192.8
880
890
900
901
1000
1001
870
861
863
850
840
830
820
811
810
40
35
30
25
15
10
N
200 0 200 400 600
SCALE OF FEET
DATUM IS MEAN SEA LEVEL
THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.

GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Data Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WWC DATE 84
DRAWN CDS DATE
CHECKED MWA DATE 11/84
REVISED DATE

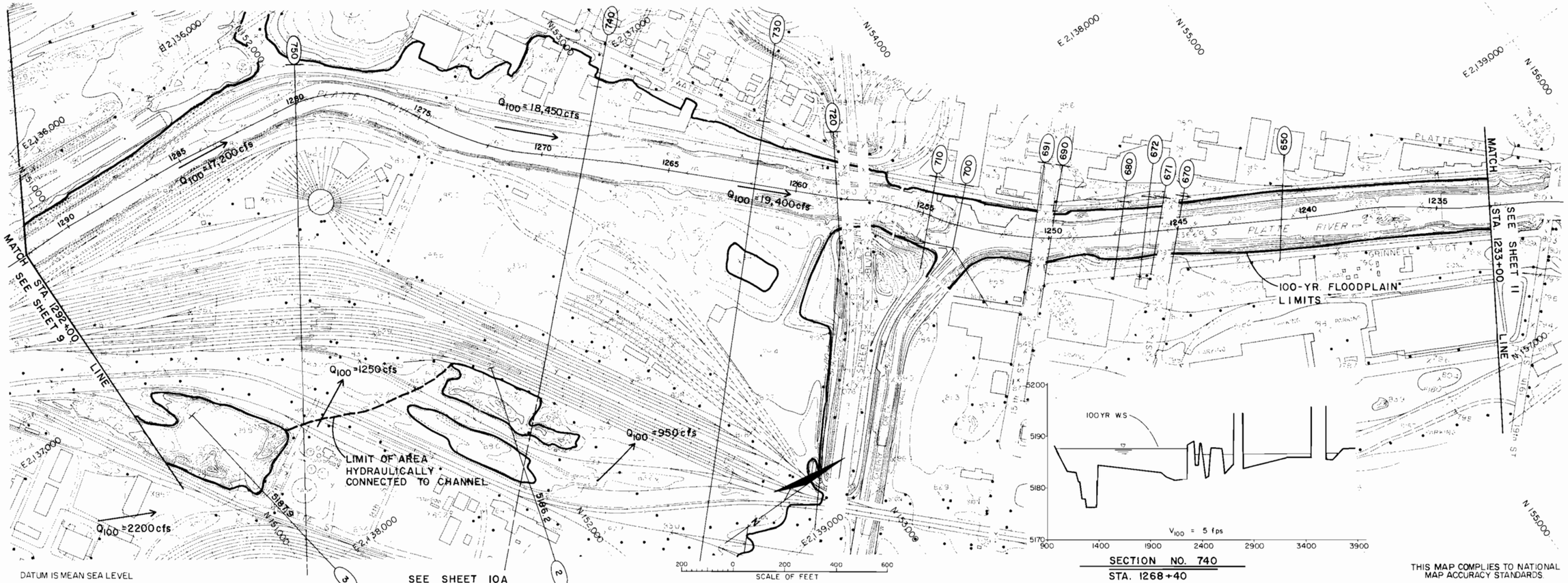
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN
FOR PROFILE SEE SHEETS 8 & 9

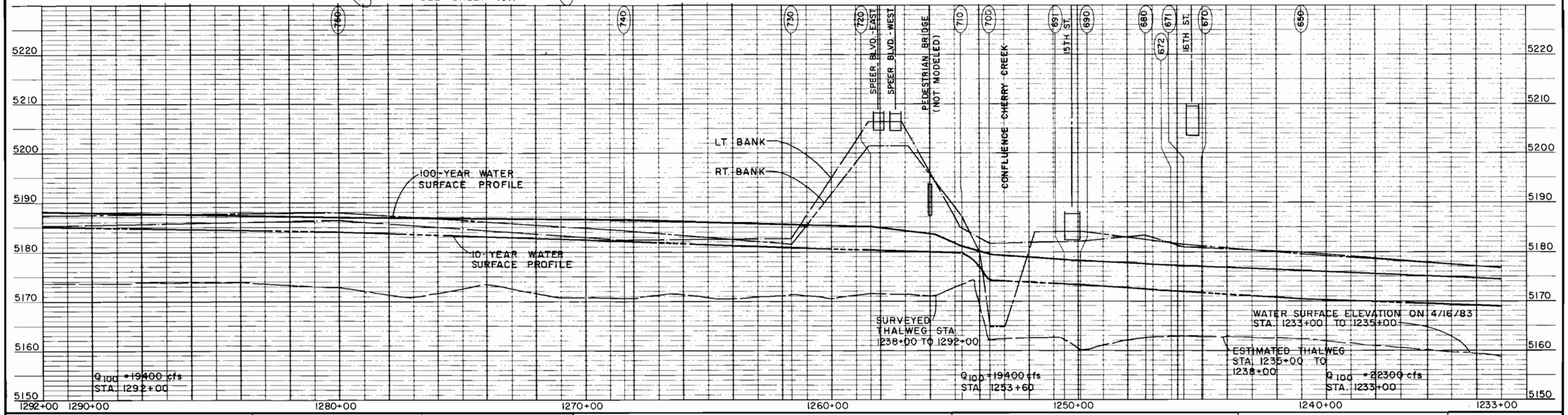
SHEET 9A OF 25



DATUM IS MEAN SEA LEVEL

SECTION NO. 740
STA. 1268+40

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS



GROUND CONTROL SURVEY, AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY Data Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195 DENVER, COLORADO 80219 (303) 934-5500
CONTOUR INTERVAL = 2 FEET

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WLC DATE 1/84
DRAWN DLM DATE 1/84
CHECKED [illegible] DATE 2-85
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1233+00 TO STA. 1292+00

SHEET 10 OF 25

DATUM IS MEAN SEA LEVEL

200 0 200 400 600
SCALE OF FEET

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.

GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 1184
DRAWN GRM DATE 1184
CHECKED LHP DATE 2-85
REVISED ____ DATE ____

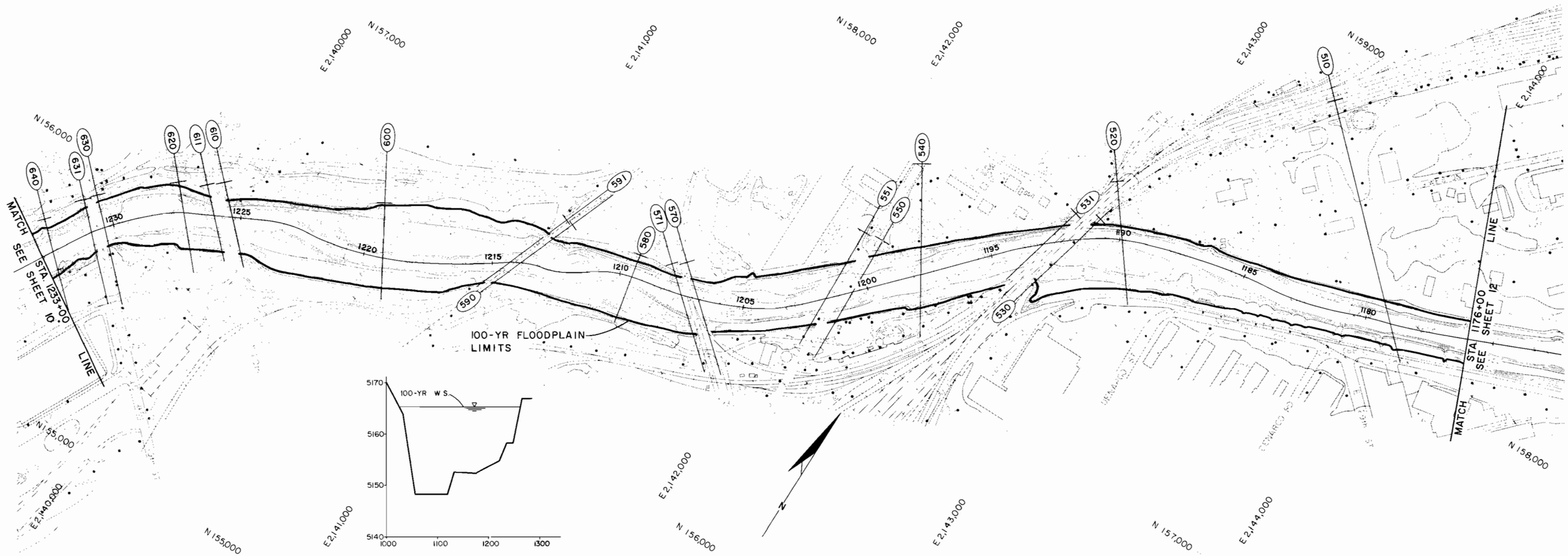
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN
FOR PROFILE SEE SHEETS 9 & 10

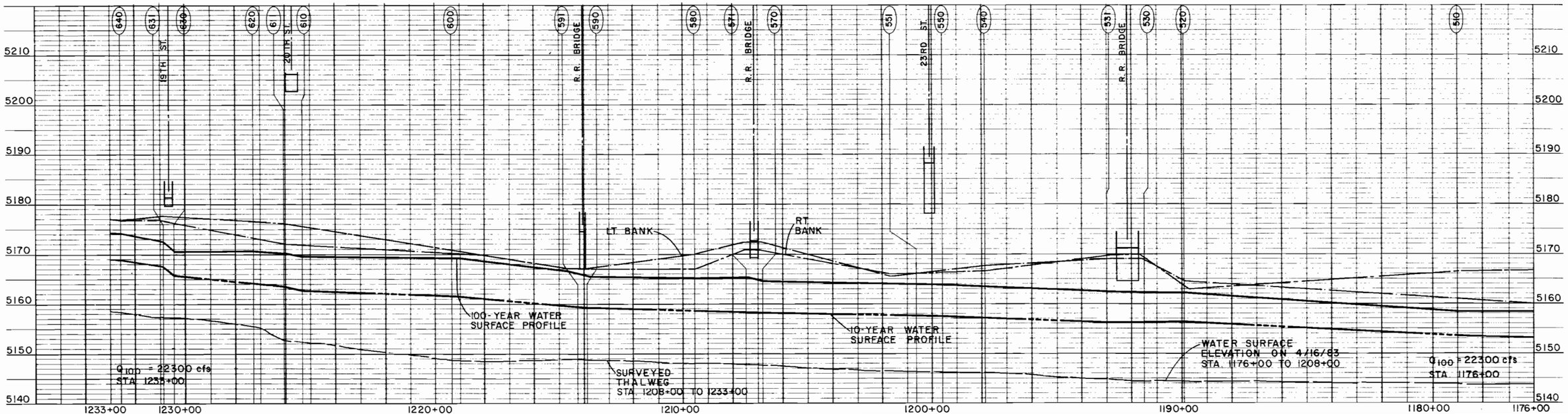
SHEET 10A OF 25



DATUM IS MEAN SEA LEVEL

SECTION NO. 580
STA. 1209+50

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Data Aerial Surveys, Inc.
2345 S0 FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED	WCC	DATE	11/84
DRAWN	[illegible]	DATE	1/84
CHECKED	[illegible]	DATE	3/85
REVISED		DATE	

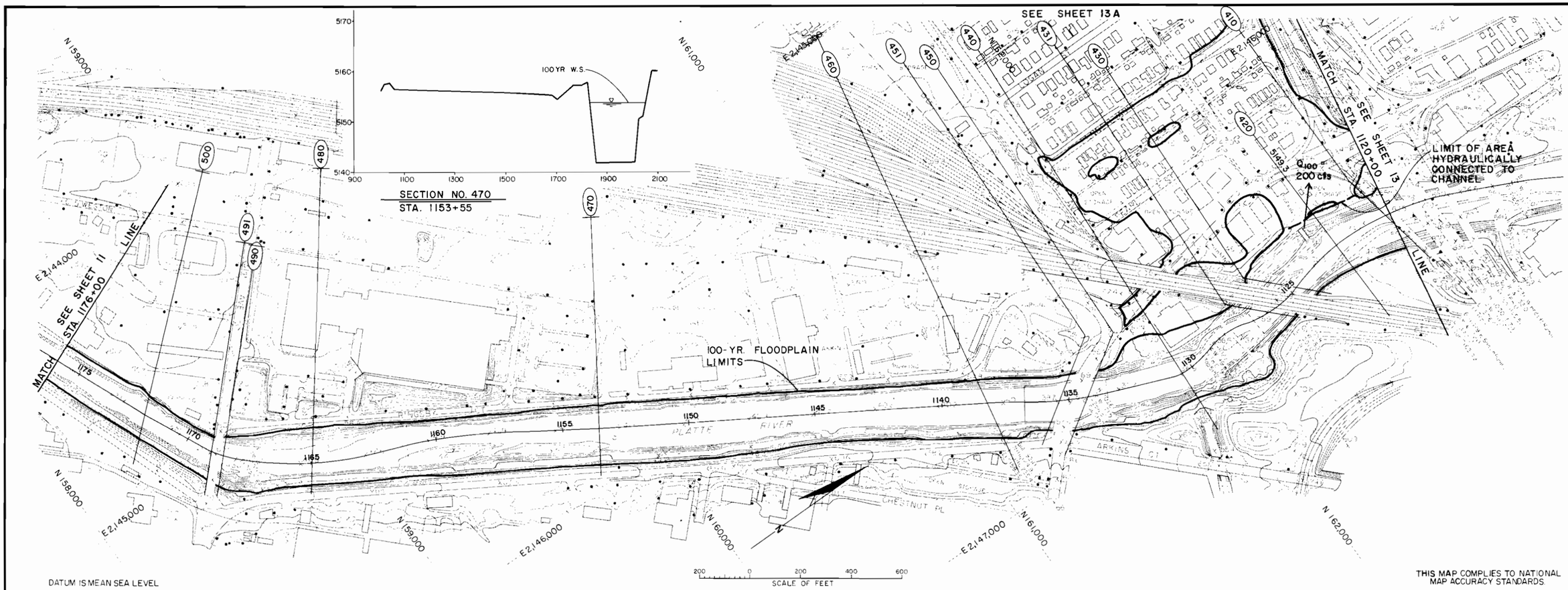
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1176+00 TO STA. 1233+00

SHEET 11 OF 25



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16,1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL= 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 1/84
DRAWN [illegible] DATE 1/84
CHECKED [illegible] DATE 2/84
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1120+00 TO STA. 1176+00

SHEET 12 OF 25

SEE SHEET 13A

SEE SHEET 14A

Q_{100} = 100 cfs

Q_{100} = 1300 cfs

Q_{100} = 1200 cfs

Q_{100} = 60 cfs

Q_{100} = 100 cfs

Q_{100} = 1000 cfs

Q_{100} = 100 cfs

Q_{100} = 1360 cfs

Q_{100} = 1600 cfs

Q_{100} = 260 cfs

LIMIT OF AREA HYDRAULICALLY CONNECTED TO CHANNEL

100-YR. FLOODPLAIN LIMITS

NOTE:
THIS AREA IS LOWER THAN THE 100-YR. FLOOD WATER SURFACE IN THE CHANNEL AND MAY BE SUBJECT TO FLOODING FROM LARGER FLOODS, CHANNEL OBSTRUCTIONS, EMBANKMENT FAILURES, OR SEWER BACKUP.

MATCH STA 1120+00 SEE SHEET 12 LINE

MATCH STA 1066+00 SEE SHEET 14 LINE

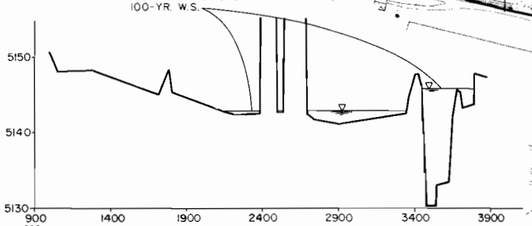
DATUM IS MEAN SEA LEVEL

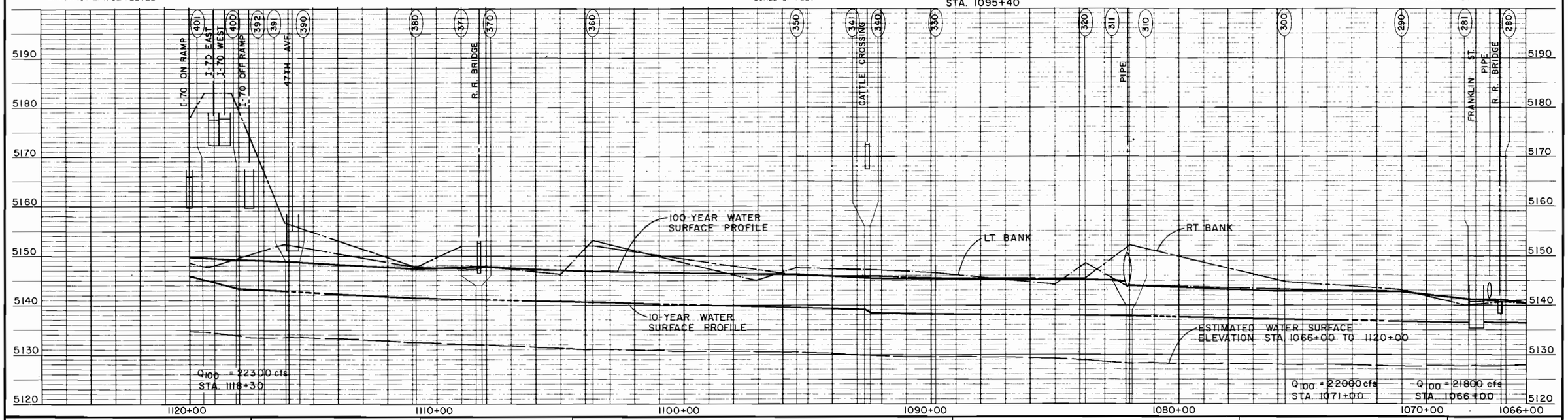
SCALE OF FEET

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.

SECTION NO. 350
STA. 1095+40

100-YR. W.S.





GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55 A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WEC DATE 1/84
DRAWN RRM DATE 1/84
CHECKED [illegible] DATE [illegible]
REVISED ____ DATE ____

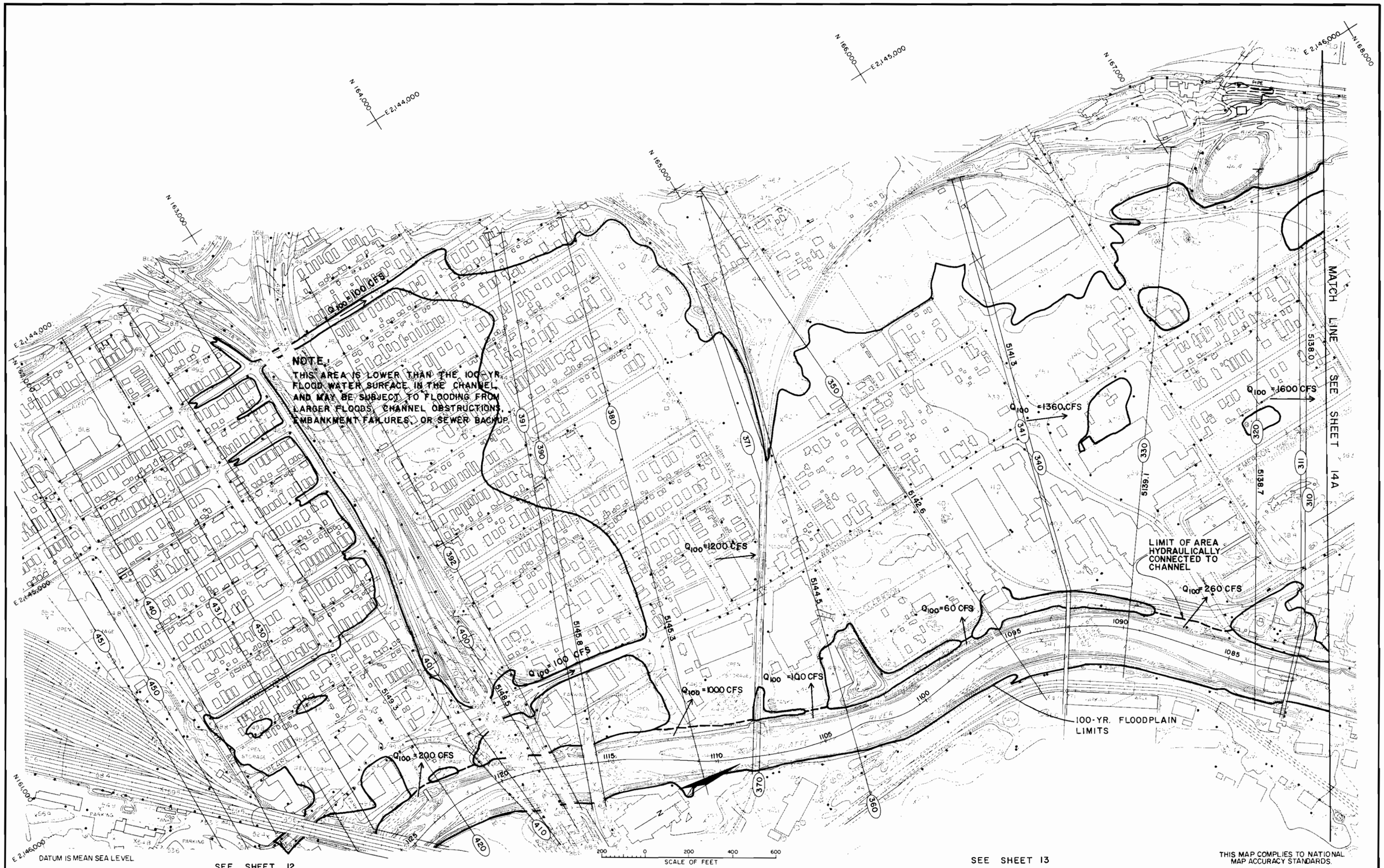
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1066+00 TO STA. 1120+00

SHEET 13 OF 25



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Data Aerial Surveys, Inc.
2345 S0 FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED	WCC	DATE	1/84
DRAWN	DRM	DATE	1/84
CHECKED	[illegible]	DATE	2/8
REVISED		DATE	

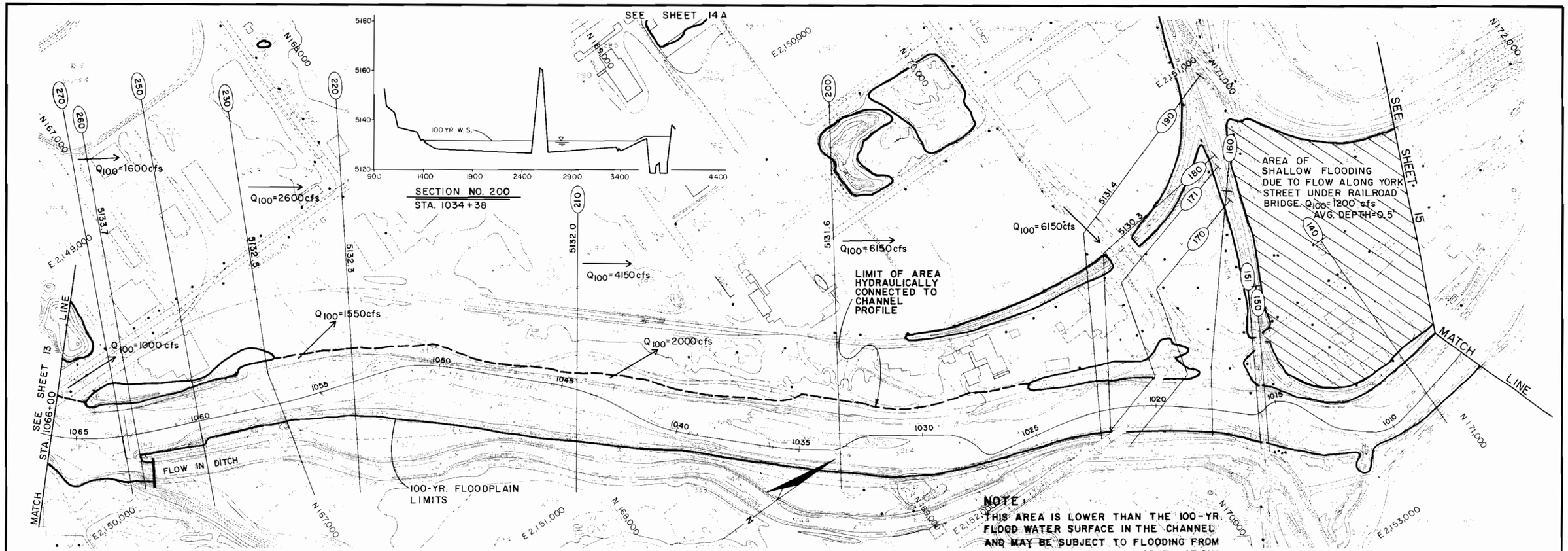
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN
FOR PROFILE SEE SHEET 12 & 13

SHEET 13A OF 25



GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL= 2 FEET

Delta Aerial Surveys, Inc.
2145 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED	WCC	DATE	1/84
DRAWN	[illegible]	DATE	1/86
CHECKED	[illegible]	DATE	1/86
REVISED		DATE	

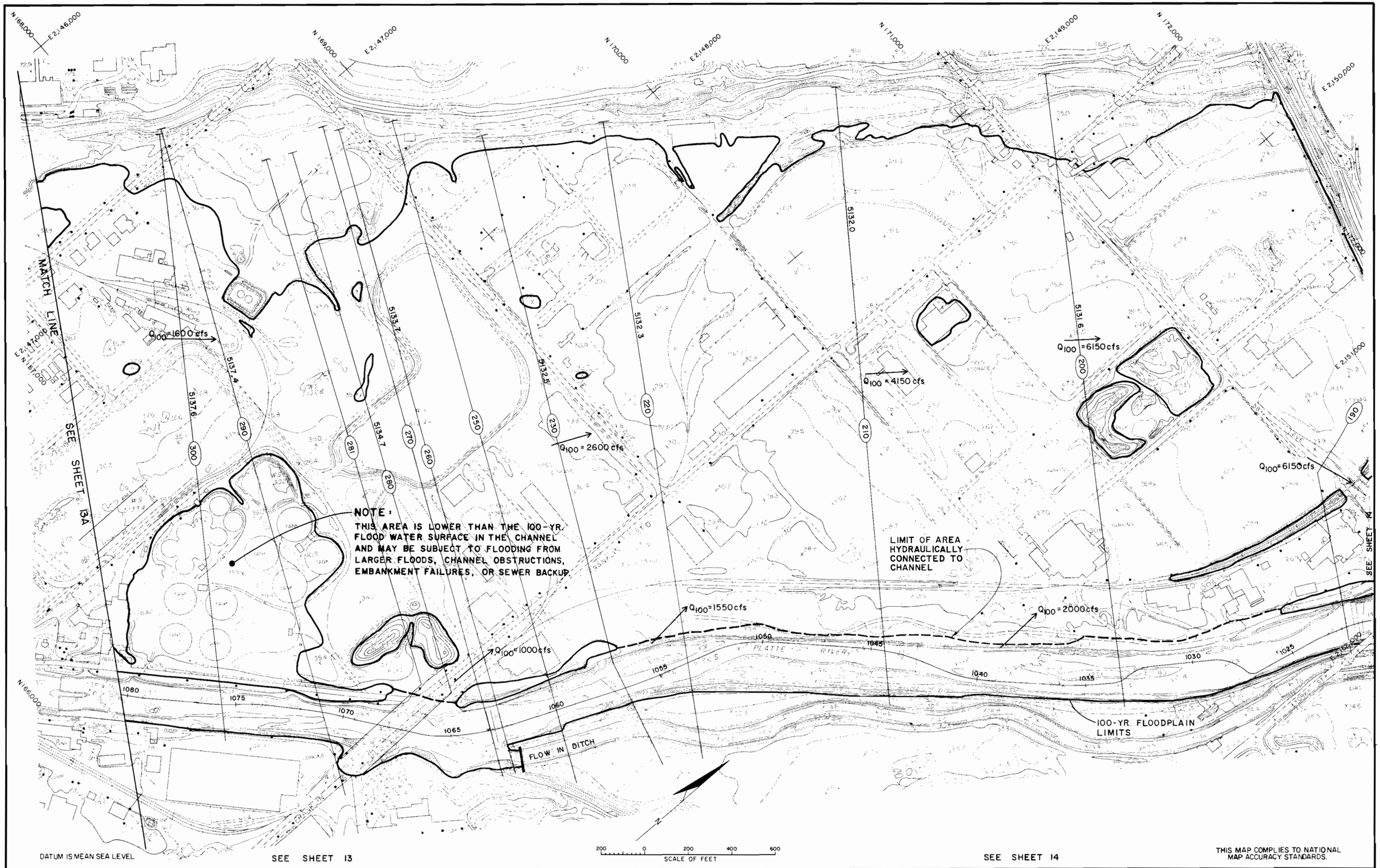
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 1006+00 TO STA. 1066+00

SHEET 14 OF 25



DATUM IS MEAN SEA LEVEL

SEE SHEET 13

SEE SHEET 14

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.

GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16,1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL= 2 FEET

Delta Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCC DATE 11/84
DRAWN GTM DATE 1/86
CHECKED [illegible] DATE 3/87
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

PLAN
FOR PROFILE SEE SHEETS 13 & 14

SHEET 14A OF 25

NOTE:
THIS AREA IS LOWER THAN THE 100-YR. FLOOD WATER SURFACE IN THE CHANNEL AND MAY BE SUBJECT TO FLOODING FROM LARGER FLOODS, CHANNEL OBSTRUCTIONS, EMBANKMENT FAILURES, OR SEWER BACKUP.

100-YR FLOODPLAIN LIMITS

AREA OF SHALLOW FLOODING APPROX. DEPTH 0.5 FT.

SHALLOW FLOODING
100 YR W.S.

V_{100}=8.3 ft/sec

SECTION NO. 70
STA. 981+89

MATCH LINE SEE SHEET 14 STA. 1006+00

DOWNSTREAM LIMIT OF STUDY STA. 956+00

PLATTE RIVER

SAND CREEK

DATUM IS MEAN SEA LEVEL

SCALE OF FEET

THIS MAP COMPLIES TO NATIONAL MAP ACCURACY STANDARDS.

LT. BANK

RT. BANK

100-YR. WATER SURFACE PROFILE

10-YR. WATER SURFACE PROFILE

WATER SURFACE ELEV. ON 4/15/83 STA. 981+00 TO 995+00

ESTIMATED THALWEG STA. 995+00 TO 1006+00

ESTIMATED THALWEG STA. 950+00 TO 981+00

Q_{100} = 21600 cfs STA. 1006+00

Q_{100} = 21800 cfs STA. 961+60

Q_{100} = 38000 cfs STA. 957+00

WASTEWATER PLANT BRIDGE

CONFLUENCE WITH SAND CREEK

STA. 956+00 DOWNSTREAM LIMIT OF STUDY

I-270 EAST

I-270 WEST

1006+00 1000+00 990+00 980+00 970+00 960+00 950+00

GROUND CONTROL SURVEY,
AERIAL PHOTOGRAPHY APRIL 16, 1983
TOPOGRAPHIC MAPPING BY
CONTOUR INTERVAL = 2 FEET

Data Aerial Surveys, Inc.
2345 SO FEDERAL BLVD SUITE 195
DENVER, COLORADO 80219
(303) 934-5500

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED WCL DATE 11/84
DRAWN RBM DATE 11/84
CHECKED ____ DATE ____
REVISED ____ DATE ____

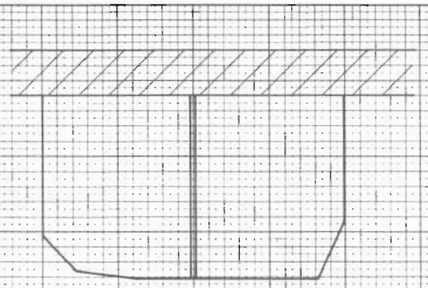
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

FLOOD HAZARD AREA DELINEATION

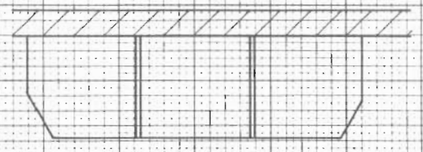
SOUTH PLATTE RIVER

PLAN AND PROFILE
STA. 950+00 TO STA. 1006+00

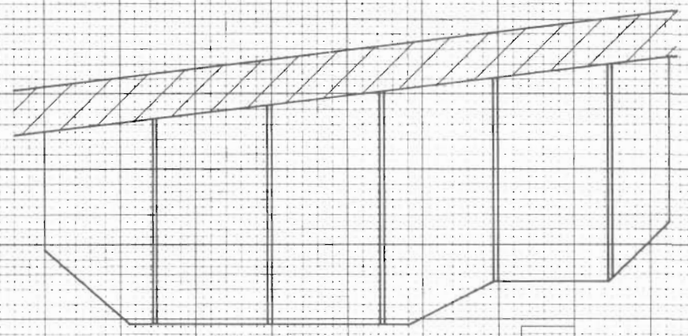
SHEET 15 OF 25



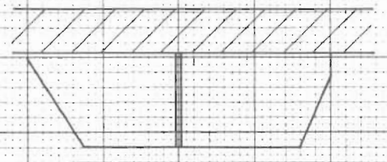
OXFORD ST.



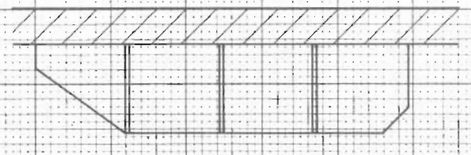
GOLF COURSE BRIDGE



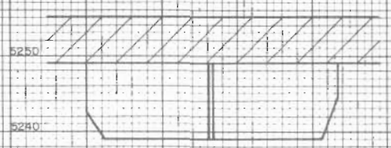
HAMPDEN / 285



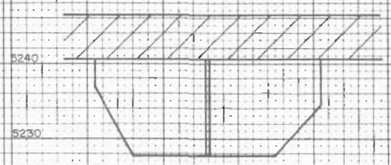
HAMILTON PLACE



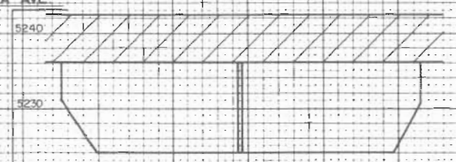
E. DARTMOUTH



EVANS AVE.

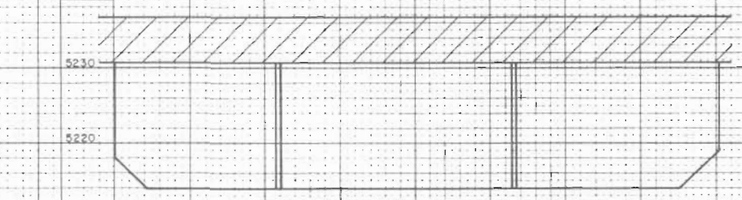


FLORIDA AVE.

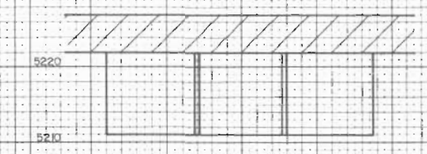


SANTA FE DR.
(SOUTH OF MISSISSIPPI)

MISSISSIPPI AVE.

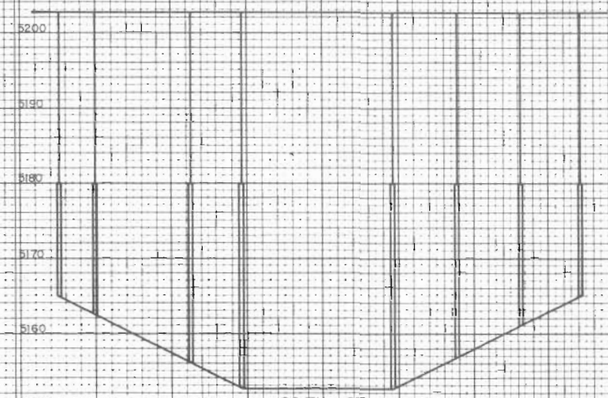


SANTA FE DR.

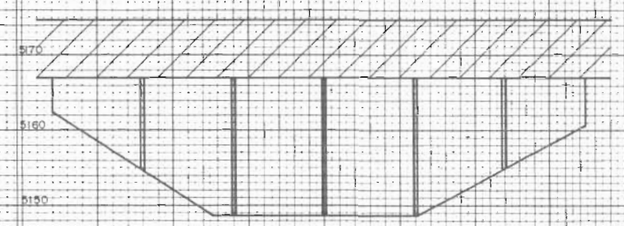


ALAMEDA AVE.

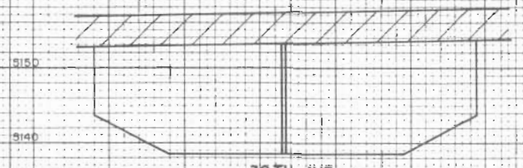
3RD AVE.



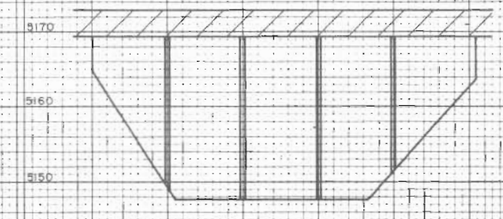
20TH ST.



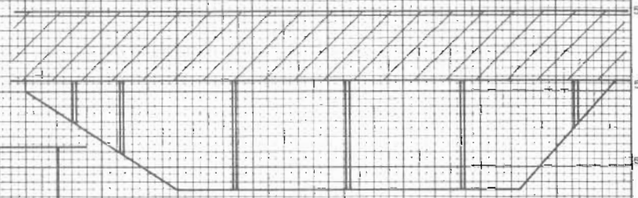
1ST R.R. BRIDGE NORTH OF 20TH ST.



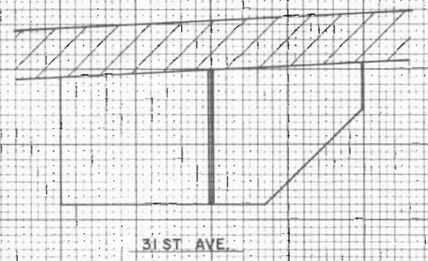
38TH AVE



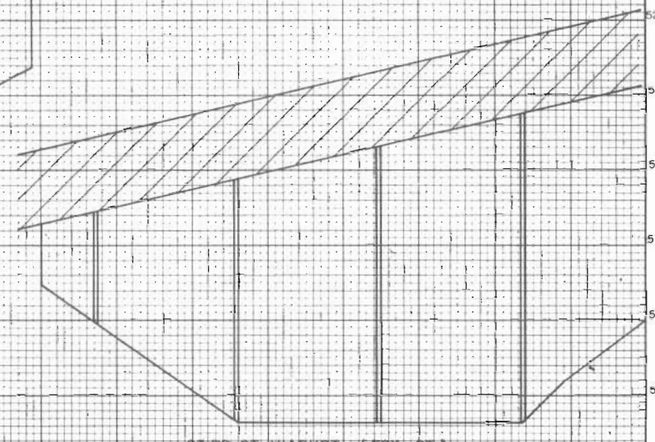
2ND R.R. BRIDGE NORTH OF 20TH ST.



R.R. BRIDGE BETWEEN 38TH AND I-70



31ST AVE.



23RD ST. VIADUCT (FOX ST.)

HORIZONTAL SCALE: 50 0 50 100 Scale in Feet

VERTICAL SCALE: 10 0 10 20 Scale in Feet

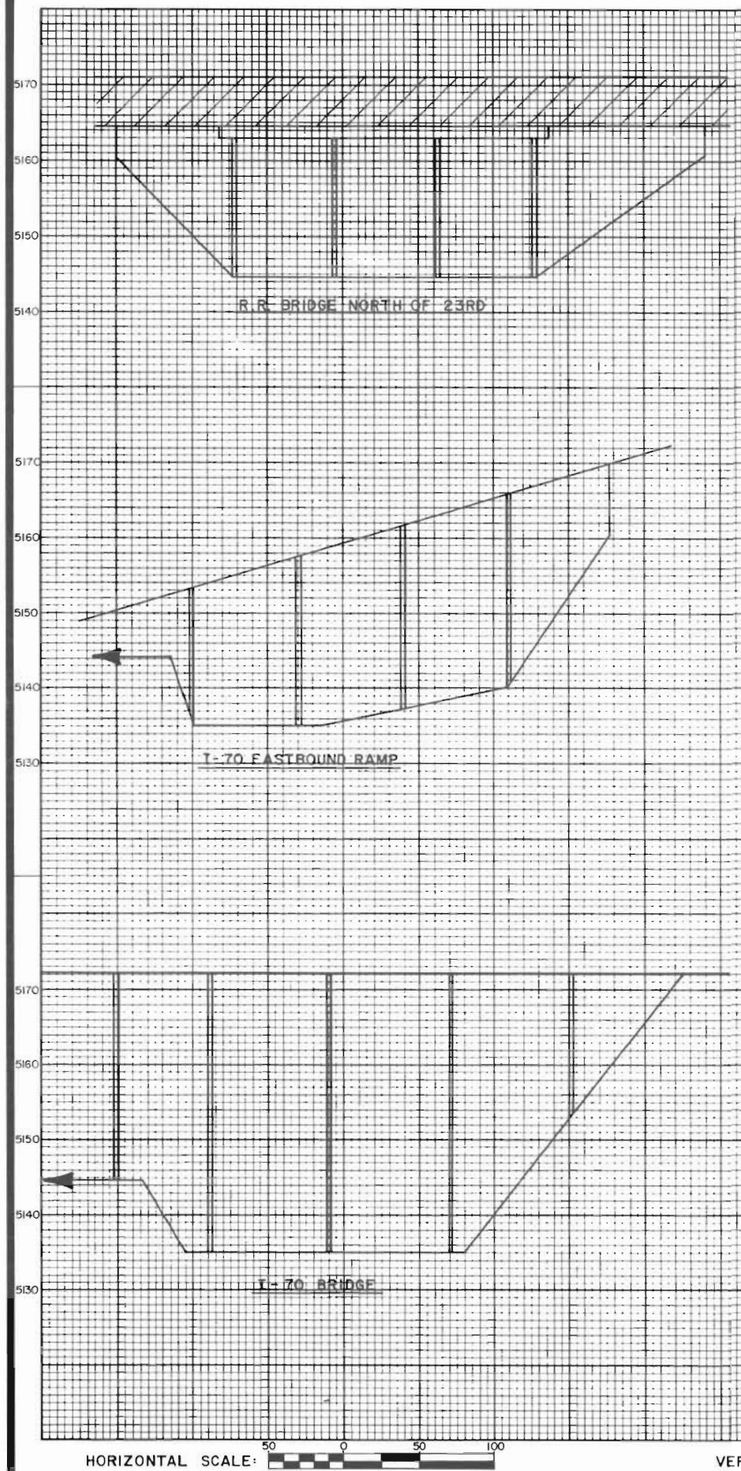
WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55A
(303) 480-1700 Denver, Colorado 80211

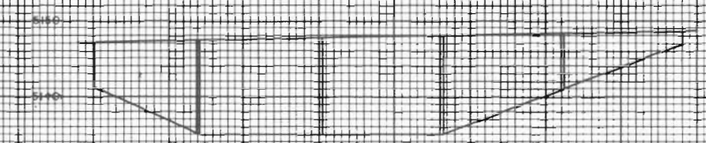
DESIGNED WCC DATE 4/81
DRAWN KJH DATE 4/81
CHECKED WWW DATE 4/81
REVISED DATE

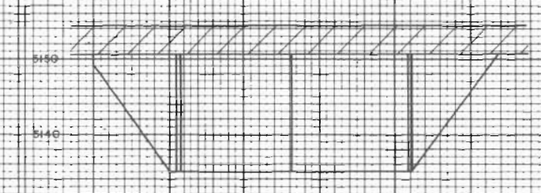
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
FLOOD HAZARD AREA DELINEATION

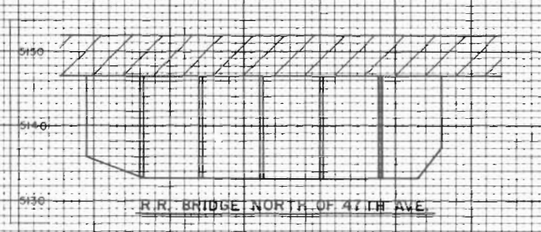
SOUTH PLATTE RIVER

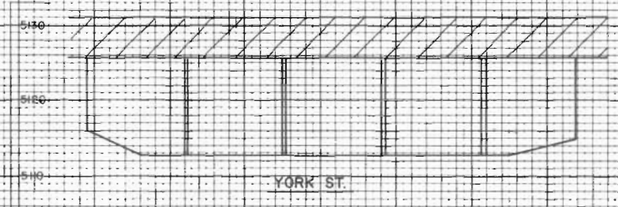
CROSSING STRUCTURES

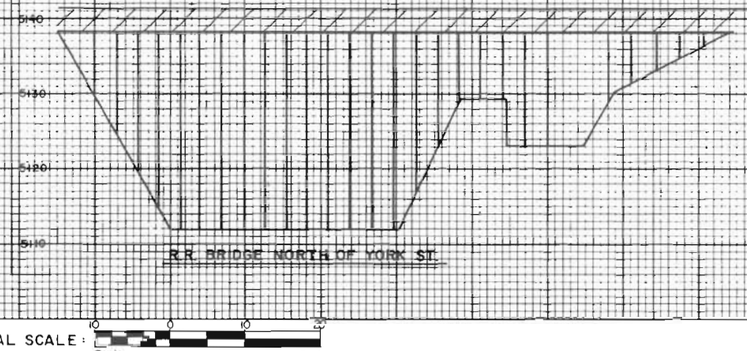


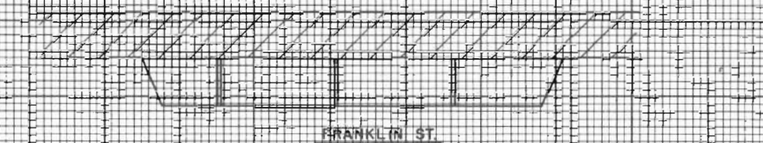


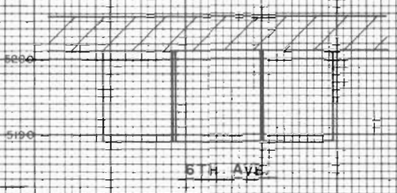


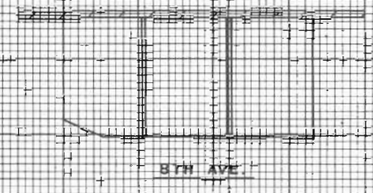


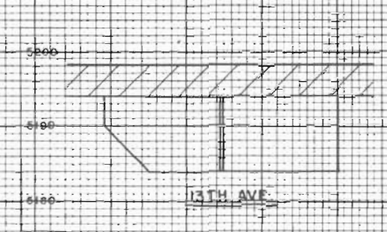


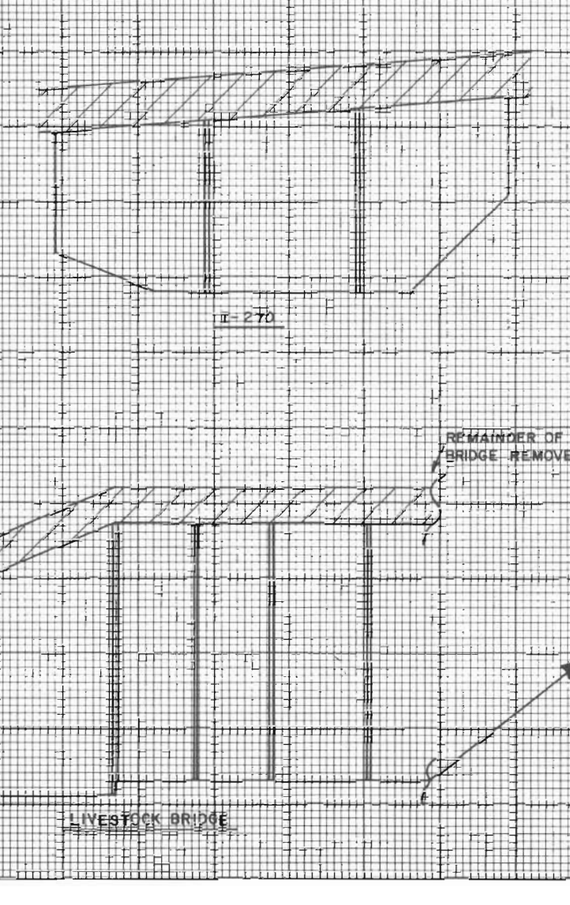












HORIZONTAL SCALE: 50 0 50 100 Scale in Feet

VERTICAL SCALE: 10 0 10 20 Scale in Feet

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave., Suite 554
(303)480-1700 Denver, Colorado 80211

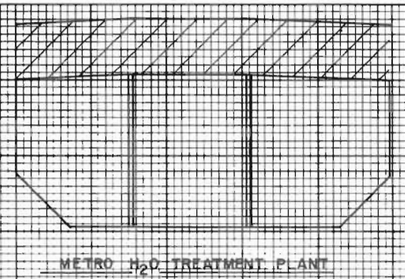
DESIGNED BSC DATE 4/85
DRAWN CAS DATE 4/85
CHECKED [illegible] DATE 4/85
REVISED DATE

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
FLOOD HAZARD AREA DELINEATION

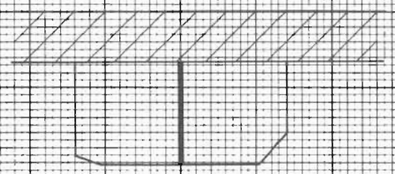
SOUTH PLATTE RIVER

CROSSING STRUCTURES

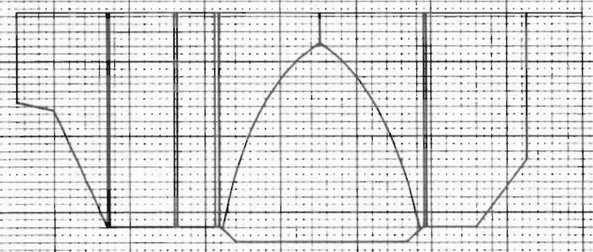
SHEET 17 OF 25



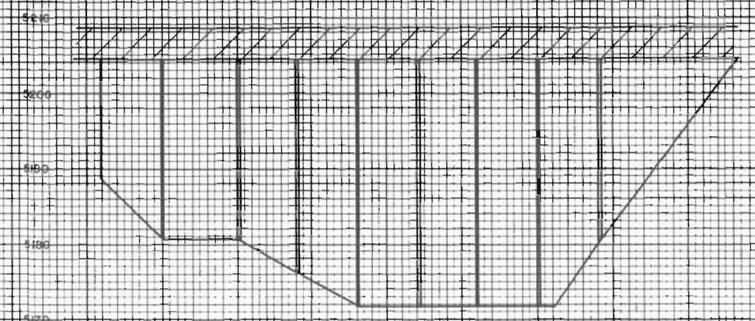
METRO H_2O TREATMENT PLANT



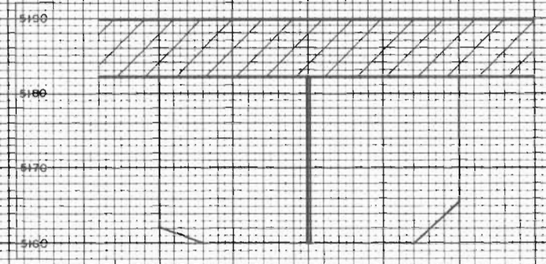
OLD GOLFAX



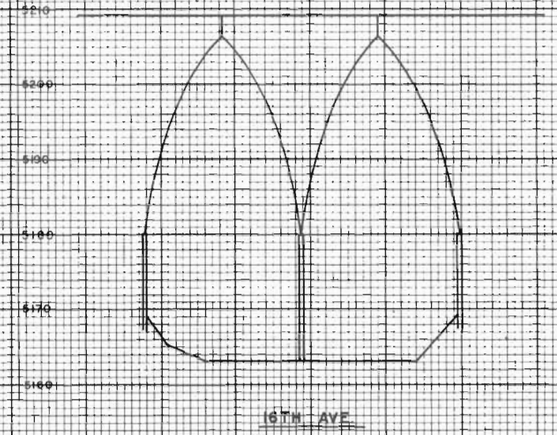
I-25



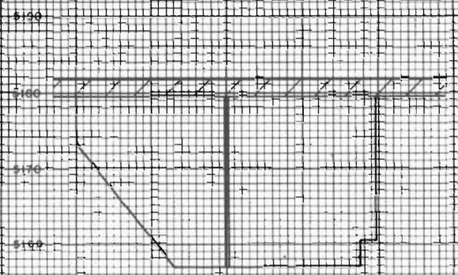
SPEER BLVD.



15TH ST.



16TH AVE.



19TH ST.

HORIZONTAL SCALE: 50 0 50 100 — Scale in Feet

VERTICAL SCALE: 10 0 10 20 — Scale in Feet

WRIGHT WATER ENGINEERS, INC.
CONSULTING ENGINEERS
2490 W. 26th Ave, Suite 55A
Denver, Colorado 80211
(303) 480-1700

DESIGNED JCC DATE 4/85
DRAWN JCC DATE 4/85
CHECKED JCC DATE 4/85
REVISED ____ DATE ____

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
FLOOD HAZARD AREA DELINEATION

SOUTH PLATTE RIVER

CROSSING STRUCTURES

SHEET 18 OF 25