LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS

HYDROLOGIC REPORT

1990 - 91

PREPARED BY THE
HYDRAULIC/WATER CONSERVATION DIVISION
JULY 1992

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RESERVOIR

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WATER CONSERVATION

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INTRODUCTION

This report contains hydrologic data relative to Los Angeles County for the period beginning October 1, 1990 and ending September 30, 1991. The data are presented in seven sections.

Precipitation - lists 294 active rainfall stations and presents corresponding seasonal rainfall amounts.

Evaporation - lists all locations for which evaporation data is on file and provides monthly evaporation amounts at 14 locations.

Runoff - presents the maximum, minimum, and mean of the daily flow rates for each month and the monthly volumes for 48 streamflow stations.

Dam Operation - presents the maximum and minimum of the daily inflow and outflow rates for each month, the instantaneous peak inflow and outflow rates and storage volumes for 14 dams and reservoirs.

Erosion Control - lists debris basins and debris production amounts.

Water Quality Monitoring - presents maps of surface and groundwater sampling locations, and data at selected locations.

Conservation and Groundwater - presents records of water conserved at various facilities, water injected at seawater barrier projects, well hydrographs, and static groundwater contour maps.

Where practical, data which would satisfy immediate needs and serve as useful reference are published in these reports. Several tables appear listing locations for which unpublished data are available. Additional information may be obtained by writing to:

Los Angeles County Department of Public Works
Hydraulic/Water Conservation Division
P.O. Box 1460
Alhambra, CA 91802-1460

or telephone: **(818) 458-6112**

LOS ANGELES COUNTY

TOPOGRAPHY

The County of Los Angeles covers an area of 4,083 square miles and measures approximately 66 miles in the east - west and 73 miles in the north - south directions.

The terrain within the County can be classified in broad terms as being 25 percent mountainous; 10 percent coastal plain; and 65 percent hills, valleys, or deserts. Relief of the terrain ranges from sea level to a maximum elevation of 10,000 feet. The coastal plain is generally of mild slope and contains relatively few depressions or natural ponding areas. The slopes of main river systems crossing the coastal plain, such as the San Gabriel River, Los Angeles River, and Ballona Creek, range from 4 to 14 feet per mile.

Topography in the mountainous area is generally rugged with deep, V-shaped canyons separated by sharp dividing ridges. Steepwalled canyons with side slopes of 70 percent or more are common. The gradient of principal canyons in the San Gabriel Mountains ranges from 150 to 850 feet per mile. Mountain ranges are aligned in a general east-west direction with the major range being the San Gabriel Mountains. The majority of mountain ridges lie below Elevation 5,000 feet. The total area above this level is approximately 210 square miles.

GEOLOGY - SOILS

Igneous, sedimentary, and metamorphic rock groups are all represented within the County. The San Gabriel Mountains and Verdugo Hills are composed primarily of highly fractured igneous rock, with large areas of granitic rock formation being exposed above soils that are coarse and porous. Faulting and deep weathering have produced porous zones in the rock formation; however, rock masses have produced a comparatively shallow soil mantle due to the steepness of slopes which accelerates erosion of the fine material.

LAND USE

The principal vegetative cover of upper mountain areas consists of various species of brush and shrubs known as chaparral. Most trees found on mountain slopes are oak, with alder, willow, and sycamore found along streambeds at lower elevations. Pine, cedar, and juniper are found in ravines at higher elevations and along high mountain summits.

The chaparral is extremely flammable, and extensive burns of the mountain vegetation frequently occur during dry, low-humidity weather accompanied by high winds. Chaparral has the ability to sprout following fire and grows rapidly to re-establish the watershed cover within a period of 5 to 10 years.

Grasses are the principal natural vegetation on the hills. Much of the hill land and nearly all of the valley land in the densely populated portion of the County south of the San Gabriel Mountains has been converted to urban and suburban use. Development of the

Santa Clarita Valley and desert areas to the north of the San Gabriel Mountains is sparse at present but is proceeding rapidly.

Other mountains and hilly reaches are composed primarily of folded and faulted sedimentary rock, including shale, sandstone, and conglomerate. Residual soils in these areas are shallow and are generally less pervious than those of the San Gabriel Mountain range.

Valley and desert soils are alluvial and vary from coarse sand and gravel near canyon mouths to silty clay and gravel or clay in lower valleys and the coastal plain. The alluvial fill has been built up by repeated deposition of debris to depths as great as 2,000 feet in places. This fill is quite porous in areas of relatively low clay content. Impervious layers and irregularities in the underlying bedrock divide the alluvium into several County groundwater basins. Valley soils are generally well drained but there are a few areas having perched water.

CLIMATE

The climate within the County varies between subtropical on the Pacific Ocean side of the San Gabriel Mountain range to arid in the Mojave Desert. Nearly all precipitation occurs during the months of December through March. Precipitation during summer months is infrequent, and rainless periods of several months are common. Snowfall at elevations above 5,000 feet is frequently experienced during the winter storms, but the snow melts rapidly except on higher peaks and the northern slopes. Snow is rarely experienced on the coastal plain.

January and July are the coldest and warmest months of the year, respectively. At Los Angeles, the 30-year average daily minimum temperature for January is 48 degrees above zero. The average daily maximum temperature for July is 84 degrees. At Mount Wilson (Elevation 5,850 feet), the 30-year average daily minimum temperature for January is 35 degrees above zero and the average daily maximum temperature for July is 80 degrees.

HYDROMETEOROLOGIC CHARACTERISTICS

Coastal and Mountain Areas

Precipitation in the Los Angeles area occurs primarily in the form of winter orographic rainfall associated with extratropical cyclones of North Pacific origin. Major storms consist of one or more frontal systems and occasionally last four days or longer. Air masses and frontal systems associated with major storms commonly extend for 500 to 1,000 miles in length and produce rainfall simultaneously throughout the County. Major storms approach Southern California from the west or southwest with southerly winds which continue until frontal passage. The mountain ranges lie directly across the path of the inflow of warm, moist air, and orographic effects greatly intensify precipitation.

The effects of snowmelt upon flood runoff is of significance in the few cases when warm

spring rains from southerly storms fall on a snowpack. During major storms, temperatures throughout the County may remain above freezing. Average individual storm rainfall amounts and intensities conform to a fairly definite aerial pattern which reflects general effects of topographic differences.

Desert Areas

Summer convective rainfall is principally experienced in the upper San Gabriel Mountains and the Mojave Desert regions. In many desert areas, the most serious flooding occurs as a result of summer convective storms.

RUNOFF CHARACTERISTICS

Mountain Areas

In mountain areas, the steep canyon slopes and channel gradients promote a rapid concentration of storm runoff quantities. Depression storage and detention storage effects are minor in the rugged terrain. Soil moisture during a storm has a pronounced effect on runoff from the porous soils supporting a good growth of deeprooted vegetation such as chaparral. Soil moisture deficiency is greatest at the beginning of a rainy season, having been depleted by the evapotranspiration process during the dry summer months. Precipitation during periods of soil moisture deficiency is nearly entirely absorbed by soils, and except for periods of extremely intense rainfall, significant runoff does not occur until soils are wetted to field moisture capacity. Due to high infiltration rates and porosity of mountain soils, runoff occurs primarily as subsurface flow or interflow rather than as direct runoff. Spring or base flow is essentially limited to portions of the San Gabriel Mountain range. Consequently, most streams in the County are intermittent.

Runoff from a mountain watershed recently denuded by fire exceeds that for the unburned state due to greatly increased quantities of inorganic debris present in the flow and increased direct runoff resulting from lowered infiltration rates. Debris production from a major storm has amounted to as much as 223,000 cubic yards per square mile of watershed. Boulders up to eight feet in diameter have been deposited in valley areas a considerable distance from their source.

Debris quantities equal in volume to storm runoff, or in other words 100 percent bulking of runoff from a major storm, have been recorded. Where debris-laden flow traverses an alluvial fill unconfined by flood control works, flood discharges follow an unpredictable path across the debris cone formed at the canyon mouth.

Hill and Valley Areas

In hill areas, runoff concentrates rapidly from the generally steep slopes; however, runoff rates from undeveloped hill areas are normally smaller than those from mountain areas of the same size. In those hill areas which have been developed for residential use, concentration times become considerably decreased due to drainage improvement, and

runoff volumes and rates become increased due to increased imperviousness. On the other hand, erosion is controlled and debris is practically eliminated from storm flows. Debris production rates from undeveloped hill areas are normally smaller than those from mountain areas of the same size.

In highly developed valley areas, local runoff volumes have increased as the soil surface has become covered by impervious materials. Peak runoff rates for valley areas have also increased due to elimination of natural ponding areas and improved hydraulic efficiency of water carriers such as streets and storm drain systems.

FLOOD CONTROL AND WATER CONSERVATION

FLOODS. . .AN OLD STORY

Floods in Los Angeles County have been recorded as far back as the days of the Mission Padres. For centuries waters have swept out of the San Gabriel Mountains causing extensive property damage and taking a great toll of lives.

Such a flood occurred in 1914 causing over $10 million in property damage and taking many lives. As a result, the State legislature enacted the statute creating the Los Angeles County Flood Control District. The responsibilities and authority vested in the Flood Control District are now part of the Los Angeles County Department of Public Works.

The Department has two tasks. . .control the floods and conserve the water.

CONTROLLING THE WATERS

Successful early bond issues financed construction of the 14 dams which the Department built in the San Gabriel Mountains and foothills to impound storm waters until they could be safely released. Debris basins were constructed to trap eroded materials which had caused terrible damage in the past. Flood channel improvements were undertaken to confine the waters.

Department engineers prepared a Comprehensive Plan in the early 1930's which would control flooding and save as much of the water as practicable when fully implemented.

Federal legislation in 1936 brought the United States Army Corps of Engineers into the local flood control picture. Since that time, the two agencies have been jointly pursuing implementation of the Comprehensive Plan. The Department also cooperates with the United States Soil Conservation Service and Forestry Service in erosion control.

CONSERVING THE WATERS

In addition to its flood control program, the Department has the equally important task of conserving as much of the storm and other waste waters as practicable. The use of water conservation facilities in or adjacent to river channels and their tributaries permits water to be percolated into underground reservoirs for later pumping and supply to consumers. These water conservation facilities are located in areas where the underlying soils are composed of porous sands and gravel formations. Some resemble rice paddies, while others are deep basins which were once gravel pits.

The importance of this activity is apparent when it is realized that about 35 to 40 percent of the water used in the County is pumped from ground supplies. The growth of the County, combined with periodic droughts, seriously depleted these supplies on numerous occasions throughout the history of the County.

Other major conservation efforts by the Department include combatting the serious salt water intrusion into underground fresh water supplies inland from the Pacific Ocean and utilizing imported water and reclaimed sewage waters in spreading operations.

ORGANIZED TO DO THE JOB

Day-to-day administration of Department affairs is vested in the Director of Public Works who is appointed by and responsible to the Los Angeles County Board of Supervisors. A part of the Department's activities involve the planning, design and construction of flood control and water conservation facilities, and the operation and maintenance of dams, debris basins, spreading grounds, channels, and storm drains.

PRECIPITATION

PRECIPITATION

This section contains annual precipitation data collected by the Department for the period beginning October 1, 1990 and ending September 30, 1991. Although the Department operates and maintains 294 rainfall stations, including standard and automatic gages which record amounts for durations ranging from 5 minutes to 24 hours, only annual amounts for the report period are listed herein. Additional data can be obtained by contacting the custodian of hydrologic records at the location shown in the front of the report.

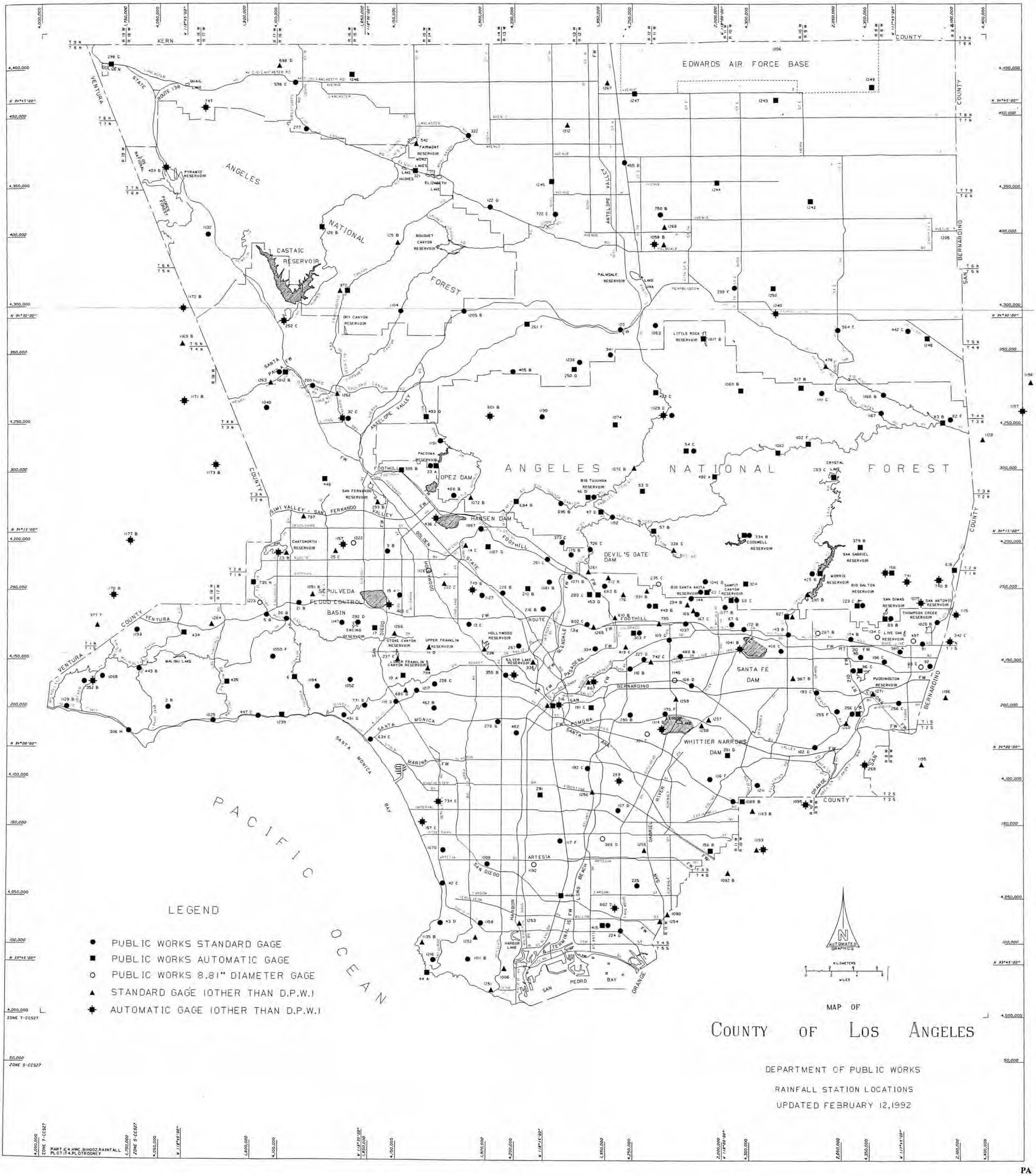
ALERT SYSTEM (AUTOMATIC LOCAL EVALUATION IN REAL TIME)

The Department of Public Works has installed a state-of-the-art ALERT computer system to monitor meteorological conditions in the County and Southern California in real time, i.e., as they occur. The system includes a network of field sensors that monitor precipitation amounts, river stages, and reservoir levels.

During the report period, the Department has continued to install and expand its ALERT System. The Department's ALERT system is also now automatically receiving rainfall data from the Corps of Engineers' Los Angeles Telemetry System.

COOPERATION

The cooperation of observers in furnishing rainfall data to the Department as a public service is appreciated. The effort of the many agencies and individuals who have so freely cooperated with us in the collection of this data have resulted in the large number of complete records for the period covered by this report.


LEGEND
PUBLIC WORKS STANDARD GAGE
PUBLIC WORKS AUTOMATIC GAGE
PUBLIC WORKS 8.81" DIAMETER GAGE
STANDARD GAGE (OTHER THAN D.P.W.)
AUTOMATIC GAGE (OTHER THAN D.P.W.)
MAP OF
COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
RAINFALL STATION LOCATIONS
UPDATED FEBRUARY 12,1992
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ANGELES NATIONAL FOREST
PACIFIC OCEAN
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ANTELOPE VALLEY
SANTA MONICA BAY
PYRAMID RESERVOIR
CASTAIC RESERVOIR
PALMDALE RESERVOIR
LAKE LINA
LITTLE ROCK RESERVOIR
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QUAIL LAKE
PACOIMA RESERVOIR
LOPEZ DAM
SAN FERNANDO RESERVOIR
HANSEN DAM
CHATSWORTH RESERVOIR
SEPULVEDA FLOOD CONTROL BASIN
ENCINO RESERVOIR
STONE CANYON RESERVOIR
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LOWER FRANKLIN CANYON RESERVOIR
HOLLYWOOD RESERVOIR
SILVER LAKE RESERVOIR
MALIBU LAKE
DEVIL'S GATE DAM
BIG TUJUNGA RESERVOIR
CODDWELL RESERVOIR
BIG SANTA ANITA RESERVOIR
SAWPIT CANYON RESERVOIR
SANTA FE DAM
PUDDINGSTON RESERVOIR
WHITTIER NARROWS DAM
LEGG LAKE
HARBOR LAKE
CRYSTAL LAKE
SAN GABRIEL RESERVOIR
MORRIS RESERVOIR
BIG DALTON RESERVOIR
SAN DIMAS RESERVOIR
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SIMI VALLEY - SAN FERNANDO VALLEY FWY
AUTOMATED GRAPHICS
KILOMETERS
MILES
PART:C4.HWC.SIH002.RAINFALL
PLOT:T4.PLOTRODNEY

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ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
2B	ESCONDIDO CANYON	S	112 E3	34-02-55	118-46-25	1050	13.2*
5B	CALABASAS	S	100 F3	34-09-24	118-38-14	924	14.2
6	TOPANGA PATROL STATION	A	109 C5	34-05-03	118-35-57	745	17.2
9B	SEPULVEDA AND RAYEN	S	8 C6	34-13-52	118-28-04	828	12.3
10A	BEL AIR HOTEL	A	32 E5	34-05-11	118-26-45	540	10.6
11D	UPPER FRANKLIN CYN RES.	SP	33 B1	34-07-10	118-24-35	867	12.4
13C	NORTH HOLLYWOOD-LAKESIDE	S	23 F4	34-08-46	118-21-13	550	16.2
14C	ROSCOE-MERRILL	S	9 F5	34-14-19	118-21-32	1050	10.4
15A	VAN NUYS	S	15 D6	34-10-48	118-27-03	695	12.2
17	SEPULVEDA CYN AT MULHOLLAND	A	22 A5	34-07-51	118-29-26	1425	19.1
20B	GIRARD RESERVOIR	S	13 B3	34-09-07	118-36-36	986	15.8
21B	WOODLAND HILLS	S	13 C1	34-10-14	118-35-33	875	14.8
23B	CHATSWORTH RESERVOIR	SP AP	6 A6	34-13-44	118-37-18	900	11.6
25C	NORTHRIDGE-L.A.D.W.P.	SP	7 B6	34-13-52	118-32-28	810	11.9
32C	NEWHALL-SOLEDAD DIV. HDQTRS	AP S	127 C3	34-23-07	118-31-54	1243	12.8
33A	PACOIMA DAM	S A	128 F9	34-19-48	118-23-59	1500	14.2
42C	REDONDO BEACH-CITY HALL	S	67 D3	33-50-43	118-23-20	70	10.3
43D	PALOS VERDES ESTATES	S	72 C2	33-47-58	118-23-29	216	13.1
44A	POINT VICENTE LIGHTHOUSE	A	77 B3	33-44-30	118-24-38	125	9.9
46D	BIG TUJUNGA DAM	S A	M C2	34-17-40	118-11-14	2315	25.3
47D	CLEAR CREEK-CITY SCHOOL	A	M D3	34-16-38	118-10-12	3150	31.4
53D	COLBY'S	A	M F2	34-18-05	118-06-39	3620	24.0
54C	LOOMIS RANCH-ALDER CREEK	S A	(197)	34-20-55	118-02-54	4325	18.9
57B	CAMP HI HILL (OPIDS)	A	M F3	34-15-18	118-05-41	4250	29.0*
63C	SANTA ANITA DAM	S A	20A F2	34-11-03	118-01-12	1400	23.7
67G	MONROVIA-MOUNTAIN AVENUE	S	29 C4	34-08-46	117-59-05	602	18.7
68C	SAWPIT DAM	S A	20B C6	34-10-30	117-59-07	1375	22.5
82F	TABLE MOUNTAIN	S	(201)	34-22-56	117-40-39	7420	13.2
83B	BIG PINES RECREATION PARK	A	(201)	34-22-44	117-41-20	6860	20.0
89B	SAN DIMAS DAM	S A	95A C3	34-09-10	117-46-17	1350	21.6
91	CLAREMONT-INDIAN HILL	S	91 B1	34-07-22	117-43-11	1403	19.4
92	CLAREMONT-POMONA COLLEGE	S	91 C4	34-05-48	117-42-33	1185	17.5*
93C	CLAREMONT-POLICE STATION	8.81	91 B4	34-05-45	117-43-18	1170	17.4
95	SAN DIMAS-FIRE WARDEN	S	89 F3	34-06-26	117-48-19	955	17.0
96C	PUDDINGSTONE DAM	S A	89 F4	34-05-31	117-48-24	1030	18.3
102D	WALNUT-N.I. INDUSTRIES	S	97 B2	34-00-11	117-52-10	500	11.2
106F	WHITTIER CITY YARD	S	55 D4	33-58-57	118-02-50	300	12.9
107D	DOWNEY-FIRE DEPARTMENT	S	60 A5	33-55-48	118-08-47	110	12.2
108D	EL MONTE FIRE STATION	S	38 D6	34-04-30	118-02-30	275	13.6
109D	WEST ARCADIA	S	28 A6	34-07-42	118-04-22	547	18.5
110B	ALHAMBRA	S	37 B3	34-05-40	118-07-41	533	16.7
117F	COMPTON FIRE STATION	S	64 F3	33-53-42	118-13-34	78	10.8*
119G	SAWTELLE-SOLDIERS HOME	S	41 D2	34-03-21	118-27-20	345	10.2
120	VINCENT PATROL STATION	S	183 A9	34-29-17	118-08-27	3135	8.4

ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
122G	LEONA VALLEY-RACKETT RANCH	S	171 G3	34-37-52.	118-19-22	3300	16.6
125B	SAN FRANCISQUITO CYN P.H. 1	SP	(169)	34-35-25	118-27-15	2105	17.1
128B	ELIZABETH LAKE	A	(168)	34-36-28	118-33-40	2075	23.0*
134C	PUDDINGSTONE DIVERSION	8.81	95A C5	34-07-52	117-46-55	1160	19.2
143B	AZUSA-CITY PARK	S	86 D5	34-08-03	117-54-17	610	17.8
144	SIERRA MADRE DAM	S	20A D3	34-10-34	118-02-32	1100	22.6
156B	LA MIRADA-STANDARD OIL CO.	A	83 A4	33-52-59	118-01-00	75	12.4
157C	EL SEGUNDO-CHEVRON OIL CO.	AP S	56 A6	33-54-57	118-25-05	150	8.5*
158	TANBARK FLATS	AP A	P D5	34-12-20	117-45-40	2750	25.9
167C	ARCADIA PUMPING PLANT #1	S	28 E2	34-09-31	118-02-02	611	19.9
169	SIERRA MADRE PUMPING PLANT	SP	28 D2	34-09-47	118-02-21	700	20.9
170F	POTRERO HEIGHTS	S	47 A4	34-02-32	118-04-44	285	12.7
172B	DUARTE	S	29 E4	34-08-26	117-58-02	548	17.7
174B	GLENDORA	S	87 E6	34-07-43	117-49-08	930	17.1
175B	LA CANADA IRRIGATION DIS.	S	19 A1	34-13-39	118-12-40	2020	21.5
176	ALTADENA-RUBIO CANYON	SP	20 B6	34-10-55	118-08-15	1125	21.1
191C	L.A.C.D.P.W. WAREHOUSE	A	45 B1	34-03-48	118-11-58	400	14.4
192C	BELL-FIRE STATION	8.81	53 C5	33-58-45	118-11-16	145	12.2*
193C	COVINA-NIGG	S	89 A5	34-04-55	117-52-25	575	16.0
196C	LA VERNE-FIRE STATION	S	90 D3	34-06-06	117-46-20	1050	16.8
200	SAUGUS-S. C. EDISON CO.	S	123 H8	34-25-21	118-34-26	1096	12.4
201D	HACIENDA HEIGHTS	A	85 C3	33-59-40	117-59-28	875	16.4
210B	BRAND PARK	A	18 B5	34-11-18	118-16-20	1250	16.8*
216B	GLENDALE-ANDREE	S	25 D2	34-09-54	118-15-01	615	16.8
222C	NORTH HOLLYWOOD P. P.	SP	16 C4	34-11-39	118-23-17	717	12.7*
223C	BIG DALTON DAM	S A	87 F2	34-10-06	117-48-36	1587	23.4
224D	LONG BEACH-ALAMITOS LAND CO.	S	76 B3	34-47-	118-08-	45	10.3
225	MONTANA RANCH	S	71 C3	33-50-35	118-07-09	47	11.8
226B	BURBANK-FIRE STATION	S	17 E6	34-10-58	118-18-23	680	13.3
227D	SAN GABRIEL-BRUINGTON-ORTON	S	37 D2	34-06-18	118-06-32	472	16.5
228C	BEVERLY HILLS CITY HALL	AP S	33 C6	34-06-00	118-23-40	245	11.3
235C	HENNIGER FLATS	A 8.81	20 F4	34-11-38	118-05-17	2550	25.5
237C	STONE CANYON RESERVOIR	SP	32 D2	34-06-21	118-27-13	865	16.2
238	HOLLYWOOD DAM	SP	34 C1	34-07-04	118-19-55	750	10.7
250D	ACTON CAMP	A	189 E5	34-27-02	118-11-55	2625	10.5
251C	LA CRESCENTA	S	18 D1	34-13-20	118-14-40	1440	21.3
252C	CASTAIC DAM	SP AP	(178)	34-29-53	118-36-53	1150	15.1
255F	MT. SAN ANTONIO COLLEGE	S	93 D4	34-02-41	117-50-19	720	15.7
256C	POMONA-FIRE STATION	S	94 E3	34-03-16	117-45-10	844	15.7*
257	GRIFFITH PARK NURSERY	S	35 A1	34-07-18	118-17-04	850	12.6*
261F	ACTON-ESCONDIDO CANYON	A	181 H9	34-29-42	118-16-22	2960	10.4
269D	DIAMOND BAR FIRE STATION	SP AP	97 F2	33-59-50	117-48-55	870	12.2
277	SAWMILL MOUNTAIN	S	(155)	34-43-15	118-35-00	3700	21.6
278B	L.A. CLARK MEMORIAL LIBRARY	S	43 D5	34-02-00	118-18-46	203	11.4*

ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
280C	FLINTRIDGE-SACRED HEART	A	19 D6	34-10-54	118-11-08	1600	21.0
283C	CRYSTAL LAKE-EAST PINE FLAT	A	P B1	34-19-02	117-50-28	5370	29.8
287B	GLENDORA-CITY HALL	8.81	87 B5	34-08-09	117-51-52	785	20.3
289	LAGUNA-BELL-S.C.E. CO.	SP	54 A5	33-58-37	118-08-48	140	12.5
290B	MONTEREY PARK-FIRE STATION	S	46 B4	34-02-27	118-07-42	305	12.4
291	LOS ANGELES-96th AND CENTRAL	A	58 C3	33-56-56	118-15-17	121	11.7
292D	ENCINO RESERVOIR	S A	21 D3	34-08-56	118-30-57	1075	15.9
293B	LAKE LOS ANGELES	SP	2 A4	34-17-18	118-28-54	1150	14.1
294B	SIERRA MADRE-MIRA MONTE P.P.	SP	28 C1	34-10-11	118-02-51	985	22.9
298C	GORMAN - SHERIFF	A	(141)	34-47-47	118-51-27	3835	11.0*
299F	LITTLE ROCK - SCHWAB	S	184 F5	34-32-12	117-58-43	2800	6.5
303F	PASADENA - CALTECH	A	27 C5	34-08-14	118-07-25	800	18.4
306H	ZUMA BEACH	S	111 F6	34-01-15	118-49-42	15	10.6
321	PINE CANYON PATROL STATION	A	157 D7	34-40-24	118-25-45	3286	21.5*
322	MUNZ VALLEY RANCH	S	158 A2	34-42-50	118-21-15	2600	11.1
334B	COGSWELL DAM	S A	N D4	34-14-37	117-57-35	2300	26.9
336	SILVER LAKE RESERVOIR	SP	35 B3	34-06-08	118-15-54	445	12.4
338C	MT. WILSON-OBSERVATORY	SP	20A C1	34-14-07	118-04-28	5709	35.8
341	ALISO CANYON-BLUM RANCH	S	189 J4	34-27-33	118-09-20	2900	10.5*
342C	UPLAND-EUCLID PUMP PLANT	AP	96 E6	34-07-33	117-40-52	1610	17.7
352B	LECHUZA PATROL STATION	AP S	105 B6	34-04-38	118-52-47	1620	15.4
355B	LOS ANGELES CITY COLLEGE	AP S	34 F4	34-05-14	118-17-28	310	13.0
356C	SPADRA-LANTERMAN HOSPITAL	S A	93 F4	34-02-31	117-48-35	690	14.0
372	SAN FRANCISQUITO P. H. NO.2	SP A	(179)	34-32-02	118-31-27	1580	20.1
373C	BRIGGS TERRACE	S A	11 F5	34-14-17	118-13-27	2200	23.2
377F	LAKE SHERWOOD ESTATES	SP AP	102A C4	34-08-26	118-52-31	960	16.8
379B	SAN GABRIEL-EAST FORK	A	P C4	34-14-09	117-48-18	1600	24.0*
387B	COVINA CITY YARD	SP	88 E5	34-05-02	117-53-57	508	14.8
388D	PARAMOUNT-COUNTY FIRE DEPT.	8.81	65 E3	33-53-50	118-10-02	80	11.3*
390B	MORRIS DAM	SP	P A6	34-10-53	117-52-43	1210	20.3
391C	MONTEBELLO-FIRE DEPARTMENT	8.81	54 E1	34-01-08	118-06-15	250	10.1
394	HIGHLAND PARK	S	36 D1	34-07-06	118-10-39	620	17.0
395B	OLIVE VIEW SANITARIUM	A	2 D1	34-19-29	118-26-55	1425	15.1
402F	CEDAR SPRINGS	A	(199)	34-21-21	117-52-34	6780	26.9*
405B	SOLEDAD CANYON	S	188 F6	34-26-23	118-17-33	2150	14.8
406C	WEST AZUSA	S	88 C2	34-06-53	117-54-56	505	17.2
409B	PYRAMID RESERVOIR	SP AP	(154)	34-40-34	118-46-47	2505	14.8
415	SIGNAL HILL-CITY HALL	S A	75 E2	33-47-49	118-10-03	140	10.6
423C	ANGELES FOREST-ALISO CYN	A	(190A)	34-24-57	118-05-26	3920	19.6*
425B	SAN GABRIEL DAM	S A	P A5	34-12-19	117-51-38	1481	22.0
434	AGOURA	A	100A A5	34-08-08	118-45-08	800	17.0*
435	MONTE NIDO	A	108 A6	34-04-41	118-41-35	600	17.2*
436C	HANSEN DAM	AP	9 C2	34-16-08	118-23-59	1110	13.4
442C	MESCAL CREEK	S	(194)	34-29-05	117-44-10	3570	6.6

ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
443B	LATIGO CANYON-BEACH RANCH	S	106 B4	34-05-35	118-48-52	1700	19.2
446	ALISO CANYON-OAT MOUNTAIN	A	1 A2	34-18-53	118-33-25	2367	14.2*
447C	CARBON CANYON	S	114 E4	34-02-18	118-38-56	50	11.0
449B	EATON WASH DAM	S A	27 E1	34-10-06	118-05-33	880	18.4
453D	DEVILS GATE DAM	A	19 D6	34-10-53	118-10-27	980	14.2
455B	LANCASTER-HWY MAINTENANCE	S	160 B6	34-40-57	118-08-02	2395	8.7
462B	HILLCREST COUNTRY CLUB	S	42 B3	34-02-54	118-24-06	185	10.9
465C	SEPULVEDA DAM	AP	22 B1	34-10-06	118-28-11	683	13.3
478	VALYERMO-U.S.F.S.	SP	192 H5	34-26-44	117-51-10	3710	9.5
480B	TEMPLE CITY FIRE STATION	S	38 C2	34-06-31	118-03-25	404	12.4
482	LOS ANGELES-U.S.C.	S	43 F6	34-01-14	118-17-15	208	11.5
488B	KAGEL CANYON PATROL STATION	S	3 E4	34-17-45	118-22-30	1450	14.6
491D	PACIFIC PALISADES	S	40 C4	34-02-22	118-31-43	293	10.1
492A	CHILAO-HWY MAINTENANCE STA.	A	N C1	34-19-05	118-00-30	5275	18.5*
493D	SAND CANYON-MACMILLAN RANCH	A	128 D3	34-23-17	118-24-50	1805	17.2*
497	CLAREMONT-SLAUGHTER	8.81	91 A1	34-07-35	117-43-55	1350	18.5
517B	LEWIS RANCH	A	(192A)	34-25-12	117-53-11	4615	13.0*
542	FAIRMONT	SP	(145)	34-42-15	118-25-40	3050	14.4
560A	LA VERNE HEIGHTS	S	90 E2	34-06-48	117-45-02	1210	18.1
564C	LLANO	S	185 J9	34-29-13	117-50-02	3390	6.6
591B	SANTA ANITA RESERVOIR	SP	20 E5	34-11-08	118-06-16	1205	17.6
598C	NEENACH-ERSTAD	S	(143)	34-46-28	118-35-55	3062	9.5
598D	NEENACH-CHECK 43-D.W.R.	SP	(143)	34-47-40	118-37-15	2965	10.6
610B	PASADENA-CITY HALL	SP	27 A4	34-08-54	118-08-36	864	18.7
612B	PASADENA-CHLORINE PLANT	SP	19 E3	34-12-04	118-09-49	1160	20.9
613C	PASADENA FIRE STATION	SP	27 B5	34-07-15	118-08-05	779	17.6
619	SAN ANTONIO CYN-SIERRA P. H.	A	P F5	34-12-29	117-40-26	3110	30.0
627	SAN GABRIEL CANYON-P. H.	SP A	86 D3	34-09-20	117-54-28	744	21.1
634C	SANTA MONICA	S	49 A1	34-00-43	118-29-27	94	9.0
662D	LONG BEACH AIRPORT	SP	71 A6	33-49-	118-09-	34	10.1
680B	WESTWOOD (U.C.L.A.)	SP	41 E1	34-04-10	118-26-30	430	12.3
683B	SUNSET RIDGE	S A	19 E4	34-12-53	118-08-47	2110	21.5
694G	BIG TUJUNGA CANYON-CAMP 15	A	M D6	34-17-22	118-17-17	1525	17.6
695B	TUJUNGA CANYON-VOGEL FLAT	S	M B2	34-17-12	118-13-32	1850	25.8
716	LOS ANGELES-DUCOMMUN ST.	SP A AP	44 E3	34-03-09	118-14-13	306	12.6
722C	BELLEVIEW	S	171 B3	34-37-23	118-13-55	2880	13.0*
726C	ANGELES CREST GUARD STATION	S	M D4	34-14-01	118-11-04	2300	26.6
734C	L. A. INTERNATIONAL AIRPORT	SP AP	56 C3	33-56-25	118-23-44	105	8.3
735H	BELL CANYON	A	5 D4	34-11-40	118-39-23	895	13.9
740B	SAN DIMAS CANYON-FERN NO.2	AP	P F6	34-11-48	117-41-45	5200	28.8
741	SAN DIMAS CYN	AP	P E6	34-11-41	117-44-26	2675	24.6
742C	SAN GABRIEL FIRE DEPARTMENT	SP	37 E3	34-06-11	118-05-56	445	15.3
747	SANDBERG-AIRWAYS STATION	SP AP	(142)	34-44-47	118-43-29	4517	14.4
749B	BURBANK VALLEY PUMP PLANT	SP AP	17 A5	34-11-11	118-20-54	655	12.5

ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
750B	PALMDALE REGIONAL AIRPORT	S	172 F6	34-37-20	118-05-00	2528	7.1
771B	PACIFIC PALISADES-RIVIERA	S	40 F3	34-03-03	118-29-58	315	11.2
794	LOWER FRANKLIN RESERVOIR	SP	33 B4	34-05-43	118-24-40	585	11.2
795	PASADENA	SP	27 F4	34-08-52	118-05-14	***	17.1
797	DE SOTO RESERVOIR	SP	6 D1	34-16-17	118-35-12	1127	12.9
801B	MAGIC MOUNTAIN	AP	(195)	34-23-18	118-19-27	4720	20.0
802C	EAGLE ROCK RESERVOIR	SP	26 C4	34-08-47	118-11-20	970	16.4
807	ASCOT RESERVOIR	SP AP	36 C5	34-04-46	118-11-14	620	14.2
1005B	MINT CANYON FIRE STATION	S	(180)	34-30-35	118-21-40	2300	12.8
1006	SAN PEDRO-CITY RESERVOIR	SP A	78 F2	33-44-37	118-17-47	150	9.5
1008	LA FRESA-S.C.E.CO.	S	63 C6	33-52-07	118-19-55	65	11.0
1011B	PALOS VERDES FIRE STATION	S	78 A1	33-45-25	118-21-11	1275	9.7
1012B	CASTAIC JUNCTION	S A	123 E6	34-26-18	118-36-43	1005	12.9
1017B	LITTLE ROCK CREEK ABOVE DAM	A	(191)	34-28-41	118-01-24	3280	9.5
1020B	PADUA HILLS PATROL STATION	S	96 D4	34-08-52	117-41-55	1800	22.7
1025	MALIBU BEACH-DUNNE	S	113 E5	34-02-00	118-42-42	160	10.0
1029C	TUJUNGA-MILL CREEK SUMMIT	AP S	(197)	34-23-22	118-04-49	4990	17.4
1037	ARCADIA-ARBORETUM	S	28 C4	34-08-48	118-02-59	565	18.1
1040	POTRERO CYN-SUNRAY OIL CO.	S	126 C2	34-23-50	118-38-18	1150	12.2
1041B	SANTA FE DAM	AP	39 D1	34-07-04	117-58-24	427	16.9
1046B	SANTA ANITA CYN-CHANTRY FLAT	S	20A F1	34-11-46	118-01-20	2175	26.7
1050F	OLD TOPANGA CANYON	S	108 F3	34-06-24	118-37-43	1000	21.2
1051B	CANOGA PARK-PIERCE COLLEGE	SP	12 E5	34-10-51	118-34-23	800	13.9
1052	CAMP JOSEPHO	S	30 D5	34-04-51	118-31-10	660	15.2
1058B	PALMDALE	SP AP	172 E7	34-35-17	118-05-31	2595	7.0
1060B	LITTLE ROCK-SYCAMORE CAMP	A	(191)	34-25-02	117-58-13	4000	12.6*
1062	BUCKHORN FLAT	A	(199)	34-20-44	117-55-08	6760	27.0*
1063	SOLEDAD PASS	S	183 E9	34-29-35	118-05-28	3520	10.3
1068	RATTLESNAKE CANYON	S	105 C5	34-05-00	118-51-55	1290	16.5
1070	MANHATTAN BEACH	S	62 D4	33-53-00	118-23-19	182	8.6
1071B	DESCANSO GARDENS	S	19 B2	34-12-07	118-12-46	1325	16.8
1072B	LITTLE TUJUNGA RANGER STA.	SP A	3 F5	34-17-37	118-21-38	1275	15.6
1074	LITTLE GLEASON	A	(197)	34-22-43	118-08-57	5600	20.0*
1075	UPPER WOLFSKILL	AP	96 B2	34-10-13	117-43-16	3625	24.4
1076B	MONTE CRISTO RANGER STATION	SP	M E1	34-19-42	118-07-20	3360	20.0
1077B	MONROVIA-FIVE POINTS	S	29 B1	34-09-58	117-59-37	962	22.1
1081B	GLENDALE-GREGG	SP	18 D4	34-11-45	118-14-30	1350	19.1
1087	GREEN-VERDUGO PUMPING PLANT	S	10 B3	34-15-25	118-20-11	1340	13.9
1088B	LA HABRA HEIGHTS	S A	84 E2	33-56-55	117-57-51	445	14.6
1090	LOS ALAMITOS	SP	81 B6	33-48-35	118-04-35	25	8.3
1092B	BUENA PARK	3"P	OC10 C1	33-51-28	117-59-29	80	11.6*
1093	FULLERTON AIRPORT	SP,AP	83 D5	33-52-23	117-58-24	100	10.8*
1095	ORANGE COUNTY RESERVOIR	SP AP	OC 2 F4	33-56-07	117-52-58	660	12.9
1104	BOUQUET CANYON AT TEXAS CYN	S	(180)	34-30-35	118-27-00	1760	13.9*

ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
1107D	LA TUNA DEBRIS BASIN	A	10 C5	34-14-13	118-19-37	1160	13.6
1111C	DEVILS PUNCHBOWL	S	(192A)	34-24-48	117-51-25	4760	14.9
1113	DOMINGUEZ WATER CO.	A	69 F4	33-49-54	118-13-30	30	10.5
1114B	WHITTIER NARROWS DAM	AP	47 A6	34-01-29	118-05-02	239	13.1
1115	SAN ANTONIO DAM	AP SP	96 F3	34-09-24	117-40-20	2120	24.5
1126A	LOS ANGELES-EAST VALLEY	8.81	16 B3	34-12-30	118-24-35	780	12.0
1127	WEST BURBANK	S	17 B6	34-10-47	118-20-07	615	13.0*
1128	WRIGHTWOOD FIRE DEPARTMENT	SP	S.B.CO.	34-21-34	117-37-57	5960	16.1
1129B	NICHOLAS CANYON	S	110 D3	34-02-52	118-54-57	340	11.9
1132	OAK FLAT GUARD STATION	S	(166)	34-35-56	118-43-15	2800	21.7
1135B	LUNADA BAY	SP	72 A4	33-46-37	118-25-01	250	10.0*
1140	ROSEMEAD	8.81	38 B5	34-04-53	118-03-55	305	12.8
1147	EL CABALLERO COUNTRY CLUB	S	21 C4	34-08-52	118-31-53	1000	14.7
1152	CLEAR CREEK RANGER STATION	S	M D3	34-16-15	118-09-11	3625	27.4
1157	CAL STATE UNIV. NORTHRIDGE	SP AP	7 C5	34-14-17	118-31-48	890	12.0*
1158	TORRANCE MUNICIPAL AIRPORT	S	73 B2	33-47-59	118-20-08	102	11.6
1166B	MILE HIGH RANCH	S	(193)	34-24-40	117-46-15	5280	12.1
1167	FENNER CANYON	S	(200)	34-23-25	117-46-27	5380	21.0*
1169B	PIRU-TEMESCAL GUARD STATION	SP	V.CO.	34-28-22	118-45-21	1150	18.2*
1170B	THOUSAND OAKS WEATHER STA.	AP	V.CO.	34-10-44	118-51-01	805	14.4
1171B	CAMULOS RANCH	SP AP	V.CO.	34-24-22	118-45-21	725	17.6
1172B	PIRU CANYON ABOVE PIRU LAKE	AP	(177)	34-30-48	118-45-24	1120	18.3
1173B	TAPO CANYON	AP	V.CO.	34-19-54	118-42-39	1525	13.7
1177B	BARD RESERVOIR	AP	V.CO.	34-14-32	118-49-41	1010	13.8
1183B	LA HABRA FIRE STATION	3"P	84 F4	33-55-53	117-57-17	315	12.9*
1190	PACOIMA CYN-NORTH FORK	S	(195)	34-23-17	118-15-06	4180	20.2
1191	BEAR DIVIDE	S	128 F6	34-21-35	118-23-37	2700	18.4
1192	CARSON FIRE STATION	8.81	64 C6	33-52-04	118-15-45	92	9.2
1193	WESTLAKE VILLAGE	S	102 A5	34-08-19	118-49-05	885	15.7
1194	SANTA YNEZ RESERVOIR	S	109 F6	34-04-23	118-33-59	735	15.0*
1195	CHINO FIRE STATION NO. 2	SP	S.B.CO.	33-59-00	117-43-20	655	13.4
1196	MONTCLAIR FIRE DEPARTMENT	SP	95 E2	34-03-41	117-41-16	965	8.2
1197	CAJON WEST SUMMIT	SP	S.B.CO.	34-23-30	117-34-35	4838	9.8
1198	PHELAN FIRE CONTROL	SP	S.B.CO.	34-25-30	117-34-00	4160	9.0*
1211	HACIENDA GOLF CLUB	S	98A A1	33-57-40	117-56-57	750	15.0*
1212	LANCASTER FSS/FAA	SP	147 C9	34-44-00	118-13-00	2340	6.9
1216	RANCHO PALOS VERDES	S	77 C1	33-45-10	118-23-32	780	8.8
1217	LOS ANGELES COUNTRY CLUB	S	42 A1	34-04-10	118-25-17	380	11.7
1222	NORTHRIDGE-GARLAND	8.81	7 E3	34-14-17	118-30-59	911	12.9
1223	WOODLAND HILLS-SHERMAN	8.81	100 E1	34-10-06	118-38-57	1035	12.8
1238	ACTON-MEARNS	S	189 G2	34-27-05	118-12-50	2775	10.5*
1239	MALIBU-BIG ROCK MESA	A	115 A4	34-02-34	118-37-16	725	10.5
1240	PEARBLOSSOM-CALIF.D.W.R.	SP AP	185 B7	34-30-32	117-55-15	3050	6.2
1242	ROCKY BUTTES	A	(162)	34-39-00	117-51-48	2540	5.6*

ACTIVE RAINFALL STATIONS 1990-1991

STATION NO.	STATION NAME	TYPE OF GAGE	THOMAS GUIDE PAGE	NORTH LATITUDE	WEST LONGITUDE	GAGE ELEV. (feet)	SEASONAL TOTAL (inches)
1243	REDMAN	A	(150)	34-45-52	117-55-30	2360	5.5*
1244	LANCASTER-ROPER	A	161 C6	34-40-27	118-00-37	2450	5.7*
1245	QUARTZ HILL-HALL	A	159 B7	34-40-28	118-14-40	2395	11.0*
1246	SCOTT RANCH	A	(145)	34-46-59	118-28-10	2710	11.5*
1247	NORTH LANCASTER	A	148 D6	34-45-41	118-07-30	2310	6.5*
1248	MESCAL-SMITH	A	(194)	34-28-03	117-42-40	3810	7.0*
1249	RELAY	A	(150)	34-45-43	117-47-55	3140	5.1*
1250	AVEK	A	185 B5	34-32-21	117-55-23	2825	6.3*
1251	PALOS VERDES-WHITES POINT	SP	78 D6	33-42-50	118-19-02	100	7.0
1252	PALOS VERDES LANDFILL	SP	73 A4	33-45-40	118-20-03	400	10.8
1253	CARSON-COUNTY SANITATION	SP	74 A2	33-48-07	118-16-58	40	10.7
1254	LONG BEACH RECLAMATION PLANT	SP	76 F1	33-48-11	118-05-20	20	10.4
1255	LOS COYOTES RECLAMATION	SP	66 E4	33-53-05	118-06-24	70	10.7
1256	SOUTH GATE TRANSFER STATION	SP	59 E3	33-56-40	118-09-56	100	9.2
1257	SAN JOSE CREEK RECLAMATION	SP	47 F4	34-01-55	118-01-16	275	14.0
1258	PUENTE HILLS LANDFILL	SP	47 E5	34-01-35	118-01-49	300	14.6
1259	WHITTIER NARROWS RECLAMATION	SP	47 B1	34-03-59	118-03-54	225	12.9
1260	SPADRA LANDFILL	SP	93 E4	34-02-36	117-49-50	700	15.9
1261	LA CANADA RECLAMATION PLANT	SP	19 D2	34-13-00	118-11-14	1800	20.9
1262	SAUGUS RECLAMATION PLANT	SP	124 B9	34-24-48	118-32-23	1150	14.8
1263	VALENCIA RECLAMATION PLANT	SP	123 D7	34-25-55	118-37-13	1000	12.9
1264	CALABASAS LANDFILL	SP	100A E3	34-08-25	118-42-35	800	14.1
1265	SCHOLL CANYON LANDFILL	SP	26 C4	34-08-38	118-11-07	1000	17.2
1266	MISSION CANYON LANDFILL	SP	22 B6	34-08-40	118-28-45	1150	12.8
1267	LANCASTER RECLAMATION PLANT	SP	147 H4	34-46-38	118-09-11	2302	6.1
1268	PALMDALE RECLAMATION PLANT	SP	172 G6	34-35-30	118-05-10	2565	5.6
1271	POMONA WASTE RECLAMATION	SP	94 B3	34-03-18	117-47-34	786	15.4

LEGEND:

S	Standard 8 inch diameter non-recording gage owned by the Department of Public Works
8.81	8.81 inch diameter non-recording gage owned by the Department of Public Works
A	Automatic recording gage owned by the Department of Public Works
ST	Storage type gage owned by the Department of Public Works
SP	Standard 8 inch diameter non-recording gage owned by outside interest
AP	Automatic recording gage owned by outside interest
( )	Thomas Guide future page
O.CO.	Orange County Thomas Guide page
V.CO.	Ventura County Thomas Guide page
S.B.CO.	San Bernardeno County Thomas Guide page
DSC.	Discontinued
INC.	Incomplete records
*	Estimated Seasonal Total
N.R	No Record(Data Not Available)

NOTE

(CONTOUR LEVELS ARE IN INCHES)

MAP OF

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

1990-91

ISOHYETAL MAP

AUTOMATED GRAPHICS

KILOMETERS 0 1 2 3 4 5

MILES 0 1 2 3 4 5 6

PART: C4.HWC:ISOBASE
PLOT: C4.HWC:ISOBASE_PLOT150

EVAPORATION

EVAPORATION

Data for 14 active evaporation stations were reported to the Department during the 1990-91 water year. Daily records of active and inactive Department stations, as well as some stations of other agencies, are available in the Department's files. Monthly and seasonal evaporation has been published in the Department's Annual or Biennial Reports on Hydrologic Data since the 1931-32 season.

COOPERATION

The Department receives evaporation data from The Metropolitan Water District, Palmdale Water District, California Department of Water Resources, and Descanso Gardens.

LENGTH OF RECORD

The first land pan installed by this Department was at Santa Anita Dam in March 1929. There are 30 evaporation stations which have records of 15 seasons or more in the Department's files.

EVAPORATION STATION LIST 1990 - 91

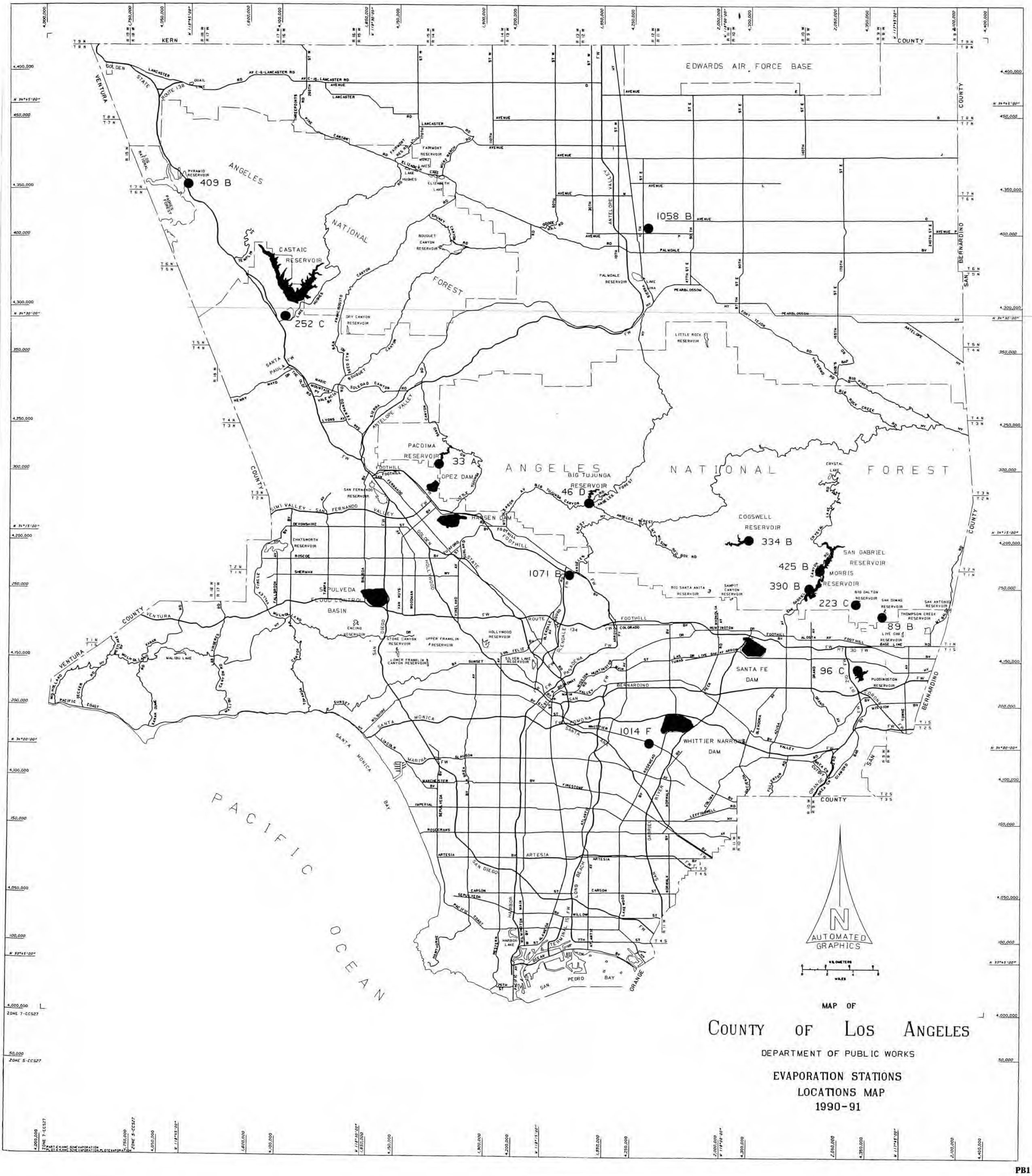
STA. NO.	STATION NAME	EQUIPMENT	ELEVATION OF PAN	THOMAS GUIDE	NORTH LATITUDE	WEST LONGITUDE
33 A	Pacoima Dam	24X36 S	1500 ft.	145 F9	34-19-48	118-23-59
46 D	Big Tujunga Dam	24X36 S	2315 ft.	F C2	34-17-40	118-11-14
63 C3	Santa Anita Dam	24X36 S	1400 ft.	99 F2	34-11-03	118-01-12
89 B	San Dimas Dam	24X36 S	1350 ft.	95A C3	34-09-10	117-46-17
96 C	Puddingstone Dam	24X36 S	1030 ft.	89 F4	34-05-31	117-48-24
223 B	Big Dalton Dam	24X36 S	1587 ft.	87 F1	34-10-06	117-48-36
252 C	Castaic Reservoir	48X10 S	1150 ft.	(178)	34-29-53	118-36-53
334 B	Cogswell Dam	24X36 S	2300 ft.	G D4	34-14-37	117-57-35
390 B	Morris Dam	72X36 US	1210 ft.	86 F1	34-10-53	117-52-43
409 B	Pyramid Reservoir	48X10 S	2505 ft.	(154)	34-40-34	118-46-47
425 B	San Gabriel Dam	24X36 S	1481 ft.	H A5	34-12-19	117-51-38
1014 F	Rio Hondo S. G.	24X36 S	170 ft.	54 D3	33-59-57	118-06-04
1058 B	Palmdale	24X36 S	2595 ft.	172 F7	34-35-17	118-05-31
1071 B	Descanso Gardens	24X36 S	1325 ft.	19 B3	34-12-07	118-12-46

LEGEND

24X36 S = Screened land pan, 24 inches in diameter by 36 inches deep.
48X10 S = Screened land pan, 48 inches in diameter by 10 inches deep.
72X36 US = Unscreened land pan, 72 inches in diameter by 36 inches deep.
( ) = Thomas Guide future page assignment.

MONTHLY EVAPORATION SUMMARY FOR WATER YEAR 1990-91 (inches)

STA. NO		STATION NAME	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	TOTAL
33	A	Pacoima Dam	10.21	8.84	7.10	5.56	6.84	4.50	7.13	6.67	5.49	6.83	7.96	8.16	85.29
46	D	Big Tujunga Dam	9.65	7.34	4.58	4.11	5.70	4.25	6.59	8.64	9.83	10.79	9.69	9.33	90.50
63	D	Santa Anita Dam	6.01	5.42	4.49	2.93	3.59	2.42	3.90	4.58	4.21	5.45	5.85	6.03	54.88
89	B	San Dimas Dam	4.41	3.25	2.08	1.95	2.38	3.00	4.20	5.45	5.39	6.59	6.54	5.33	50.57
96	C	Puddingstone Dam	6.44	4.82	3.75	2.54	3.53	3.24	5.89	7.30	7.41	8.91	9.00	7.51	70.34
223	B	Big Dalton Dam	5.32	3.23	2.06	1.58	2.48	2.34	4.37	5.45	5.04	6.58	7.01	5.84	51.30
252	C	Castaic Reservoir	7.14	5.70	3.42	3.00	4.50	8.92	4.12	5.65	6.41	7.28	8.00	7.94	72.08
334	B	Cogswell Dam	4.73	3.18	1.76	1.53	2.18	2.16	4.10	5.88	6.77	8.15	7.75	6.28	54.47
390	B	Morris Dam	8.22	7.45	4.42	5.32	5.21	3.43	7.08	7.82	7.80	9.58	9.67	8.40	84.40
409	B	Pyramid Reservoir	7.92	4.69	3.58	2.35	1.93	6.68	4.36	6.45	8.22	9.24	10.13	7.28	72.83
425	B	San Gabriel Dam	7.92	5.88	4.31	3.72	4.79	3.59	6.44	7.22	6.86	8.08	9.05	8.16	76.02
1014	F	Rio Hondo S.G.	4.84	3.63	3.24	2.06	3.08	3.46	5.01	6.04	7.27	6.28	6.21	5.30	56.42
1058	B	Palmdale	4.38	3.19	1.11	1.52	3.81	3.25	5.95	7.70	10.18	10.46	8.24	6.51	66.30
1071	B	Descanso Gardens	4.37	3.30	1.77	2.10	2.29	2.38	4.03	5.26	5.00	5.81	5.50	4.67	46.48



MAP OF

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

EVAPORATION STATIONS LOCATIONS MAP 1990-91

PB1

RUNOFF

RUNOFF

The Department operated or received data from 81 water-stage recording stations during the 1990-91 water year. Data from 48 of those stations are summarized and published in this volume.

RECORDS OF STREAMFLOW

Records published give the following information:

1. Station description which presents location, drainage area, type of channel, control, regulations, diversions, and available records.

2. Discharge tabulation which summarizes the maximum, minimum, and mean of the daily flow rates in second-feet for each month and the total monthly volumes in acre-feet.

ALERT SYSTEM (AUTOMATIC LOCAL EVALUATION IN REAL TIME)

The Department of Public Works has installed a state-of-the-art ALERT computer system to monitor meteorological conditions at 27 locations in the County. The system includes a network of field sensors that monitor precipitation amounts, river stages, and reservoir levels.

During the report period, the Department has continued to install and expand its ALERT System. The Department's ALERT system is also now automatically receiving rainfall data from the Corps of Engineers' Los Angeles Telemetry System.

COOPERATION

The Department receives streamflow data from other agencies, or has access to the records for local stations. Data from 7 of the Department's stations are published in the United States Geological Survey's annual water supply papers.

Agencies with which the Department exchanges data are:

United States Geological Survey, Water Resource Division
United States Corps of Engineers
State Department of Water Resources
The Metropolitan Water District
San Gabriel River Water Committee

LEGEND

Stations are designated by letters and numbers which indicate ownership, operation agency, and type of station. The letters used have the following connotations:

Prefix F - Indicates a station owned and operated by the Los Angeles County Department of Public Works.

Prefix E - Indicates a station owned by the Corps of Engineers, Department of the Army, but operated and maintained by the United States Geological Survey.

Prefix U - Indicates a station originally constructed and operated by the United States Geological Survey, Water Resources Division, now operated by the Department.

Prefix P - Indicates a station owned and operated by the Department, formerly operated by the Pasadena Water Department.

Prefix L - Indicates a station owned and operated by the Department, formerly owned by Little Rock Water District.

Suffix R - Indicates a recorder station.

Suffix B - Indicates that the station has been moved. B represents second location, C a third location, etc.

LEGEND

■ ACTIVE STREAMFLOW GAGES

MAP OF

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

STREAMFLOW GAGING STATION LOCATIONS

UPDATED MARCH 18,1992

PC1

INDEX OF STREAM GAGING STATIONS

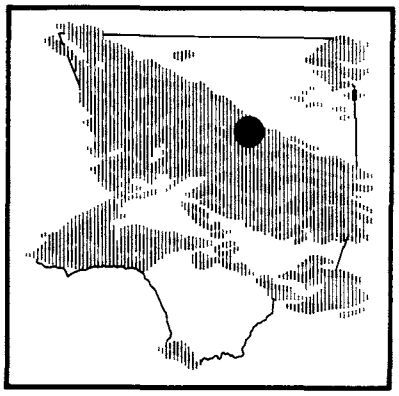
STATION	NAME	THOMAS GUIDE PG.	ALERT NO.	REGU-LATED	DRAINAGE AREA *
L1-R	LITTLE ROCK CREEK ABOVE LITILE ROCK DAM	J		NO	49.20
F2B-R	BROWNS CREEK AT VARIEL AVENUE	6 / D - 2		NO	13.50
P3-R	SAN GABRIEL RIVER - WEST FORKS ABOVE FORKS	P / A - 4		YES	102.00
P4B-R	SAN GABRIEL - EAST FORK	P / D - 4		NO	88.20
U5-R	SAWPIT CREEK BELOW MONROVIA CREEK	29 / C - 1		YES	5.30
U7-R	FISH CREEK ABOVE MOUTH OF CANYON	86 / B - 2		NO	6.36
U8-R	SAN GABRIEL RIVER BELOW MORRIS DAM	86 / F - 1	415	YES	212.40
U14-R	BIG ROCK CREEK ABOVE MOUTH OF CANYON	J		NO	23.00
AAS(015)	VALYERMO S. G., BIG ROCK CK. D/S VALYERMO RD.	192 / H - 5			
F32B-R	THOMPSON CREEK BELOW THOMPSON CREEK DAM	96 / C - 5	433	YES	3.70
F34D-R	LOS ANGELES RIVER BELOW FIRESTONE BLVD.	59 / E - 3	315	YES	596.00
F37B-R	COMPTON CREEK NEAR GREENLEAF DRIVE	64 / F - 4		NO	22.60
F38C-R	BALLONA CREEK ABOVE SAWTELLE BLVD.	50 / B - 3	369	YES	88.60
F40-R	PUDDINGSTONE CREEK BELOW PUDDINGSTONE DAM	89 / F - 4	427	YES	33.20
F42B-R	SAN GABRIEL RIVER ABOVE SPRING STREET	76 / F - 1	435	YES	231.00
F45B-R	RIO HONDO ABOVE STEWART AND GRAY ROAD	59 / E - 3	307	YES	140.00
F53-R	DUME CREEK AT PACIFIC COAST HIGHWAY	110 / B - 4		NO	8.80
F54B-R	TOPANGA CREEK ABOVE MOUTH OF CANYON	109 / C - 4		NO	18.00
F64-R	RIO HONDO ABOVE MISSION BRIDGE	47 / B - 5		YES	115.00
F81D-R	ALHAMBRA WASH NEAR KLINGERMAN STREET	46 / F - 2	347	NO	15.20
F82C-R	RUBIO WASH AT GLENDON WAY	38 / A - 6	353	YES	10.90
F92C-R	SANTA CLARA RIVER AT OLD ROAD BRIDGE	123 / G - 7		YES	410.40
F93B-R	SANTA CLARA RIVER AT LANG RAILROAD BRIDGE	125 / J - 7		NO	157.30
F118B-R	PACOIMA CREEK FLUME BELOW PACOIMA DAM	3 / C - 1	330	YES	28.20
F119C-R	SANTA ANITA CREEK BELOW SANTA ANITA DAM	20A / F - 2	345	YES	10.80
F120B-R	BIG DALTON CREEK BELOW BIG DALTON DAM	87 / F - 2	418	YES	4.80
F122-R	PALLETT CREEK AT VALYERMO HIGHWAY	199 / G - 4		NO	15.80
F125-R	SANTIAGO CREEK ABOVE LITTLE ROCK CREEK	J		NO	11.20
F130B-R	MALIBU CREEK BELOW COLD CREEK	107 / F - 6		YES	104.96
F168-R	BIG TUJUNGA CREEK BELOW BIG TUJUNGA DAM	M / C - 2	333	YES	82.30
F181-R	MONTEBELLO STORM DRAIN OUTLET TO RIO HONDO	54 / E - 3		NO	9.60
F190-R	SAN GABRIEL RIVER AT FOOTHILL BLVD.	86 / A - 5		YES	230.00
F192B-R	RIO HONDO BELOW LOWER AZUSA ROAD	38 / E - 4		YES	40.90
F193B-R	SANTA ANITA WASH AT LONGEN AVENUE	38 / F - 1		YES	18.80
F194B-R	SAWPIT WASH BELOW LIVE OAK AVENUE	39 / A - 2		YES	16.10
F202-R	BIG DALTON CREEK AT SIERRA MADRE AVENUE	87 / D - 4		YES	11.00
F209-R	SAN GABRIEL RIVER - W. FORK BELOW COGSWELL DAM	N / D - 4	410	YES	41.00
F218-R	SAN DIMAS WASH BELOW PUDD. DIVERSION DAM	95A / C - 5	424	YES	19.90
F220B-R	SAN GABRIEL - AZUSA CONDUIT 10FT WEIR BELOW DAM	P / A - 5		YES	0.00
F250-R	SAN GABRIEL - AZUSA CONDUIT 25FT WEIR BELOW DAM	P / A - 5		YES	202.70
F251-R	SAN GABRIEL W. FORK AT TOE OF COGSWELL DAM	N / D - 4		YES	39.20
F252-R	VERDUGO WASH AT ESTELLE AVENUE	25 / B - 3		YES	26.80
F260C-R	SANTA ANITA WASH BELOW FOOTHILL BLVD.	28 / E - 3		YES	17.20
F261C-R	SAN GABRIEL RIVER BELOW VALLEY BLVD.	48 / A - 2	351	YES	118.00
F262B-R	SAN GABRIEL RIVER ABOVE FLORENCE AVENUE	60 / E - 4		YES	215.80
F263C-R	SAN GABRIEL RIVER BELOW S. G. RIVER PKWY	55 / C - 1		YES	206.30
F267B-R	SIERRA MADRE WASH AT HIGHLAND OAKS AVENUE	28 / E - 3		YES	3.80
F271-R	EATON WASH BELOW EATON WASH DAM	27 / F - 1	342	YES	12.40
F274B-R	DALTON WASH AT MERCED AVENUE	48 / F - 1		YES	35.95
F276-R	THOMPSON CREEK S. G. INTAKE AT TSN CREEK	96 / C - 5		YES	3.70

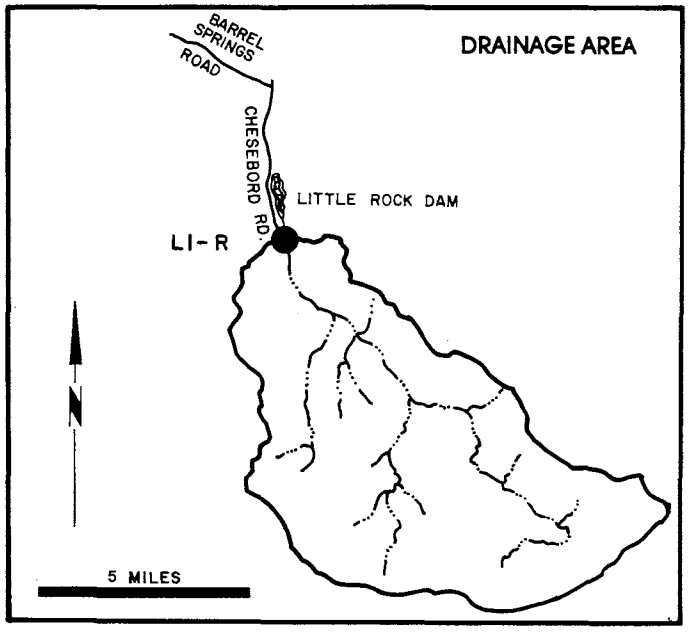
INDEX OF STREAM GAGING STATIONS

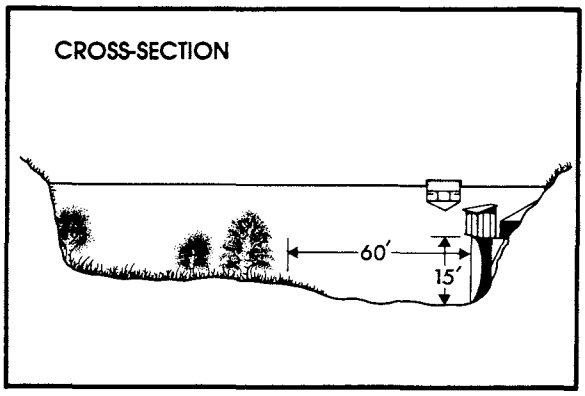
STATION	NAME	THOMAS GUIDE PG.	ALERT NO.	REGU-LATED	DRAINAGE AREA *
F277-R	ARROYO SECO BELOW DEVILS GATE DAM	19 / D - 5	336	YES	32.50
F278-R	SAWPIT CREEK BELOW SAWPIT DAM	29 / C - 1	339	YES	3.30
F279C-R	LOS CERRITOS CHANNEL AT STEARNS STREET	76 / E - 3		NO	25.60
F280-R	SANTA FE DIVERSION CHANNEL BELOW SANTA FE DAM	39 / D - 2		YES	CONTROLLED
E285-R	BURBANK WESTERN STORM DRAIN AT RIVERSIDE DR.	24 / E - 2		YES	25.00
F299-R	LOS ANGELES RIVER AT RADFORD	23 / C - 4			
F300-R	LOS ANGELES RIVER AT TUJUNGA AVE.	23 / D - 4		YES	401.00
F301-R	SAWTELLE-WESTWOOD CHANNEL ABOVE CULVER BLVD	50 / A - 3		YES	22.96
F303-R	SAN DIMAS CREEK BELOW SAN DIMAS DAM	95A / C - 3	421	YES	16.20
F304-R	WALNUT CREEK ABOVE PUENTE AVENUE	48 / D - 1		YES	57.60
F305-R	PACOIMA DIVERSION AT BRANFORD STREET	9 / A - 5		YES	48.80
F312-R	SAN JOSE CHANNEL ABOVE WORKMAN MILL ROAD	47 / F - 5	324	YES	83.40
F313B-R	RIO HONDO BYPASS CHANNEL ABOVE WHITTIER NAR.	47 / B - 5		YES	CONTROLLED
F317-R	ARCADIA WASH BELOW GRAND AVENUE	38 / E - 3	355	YES	8.50
F318-R	EATON WASH AT LOFTUS DRIVE	34 / C - 6		YES	22.80
F319-R	LOS ANGELES RIVER BELOW WARDLOW RIVER RD.	70 / B - 5	313	YES	815.00
E326-R	RIO HONDO BELOW GARVEY AVENUE	47 / B - 2		YES	91.20
F328-R	MINT CANYON CREEK AT FITCH AVENUE	125 / C - 5		NO	26.90
F329-R	BRADBURY CHANNEL BELOW CENTRAL AVENUE	29 / F - 5		YES	3.30
F338-R	RUBIO DIV. CHANNEL BEL. GOOSEBERRY CYN INLET	20 / C - 4		YES	2.10
F342-R	BRANFORD STREET CHANNEL BELOW SHARP AVE.	9 / B - 5		YES	5.01
F350-R	LIMEKILN CREEK ABOVE ALISO CREEK	7 / B - 6		YES	10.30
F354-R	COYOTE CREEK BELOW SPRING STREET	76 / F - 1	437	YES	185.00
F356-R	LIVE OAK CREEK BELOW LIVE OAK DAM	95A / F - 6	430	YES	2.28
F377-R	BOUQUET CANYON CREEK AT URBANDALE AVENUE	124 / F - 5		YES	51.90
F378D-R	DOMINGUEZ CHANNEL AT VERMONT AVENUE	63 / F - 5		NO	37.10
F393-R	LITTLE ROCK AT HIGHWAY 138	184 / D - 6		YES	70.00
F394-R	BIG ROCK CREEK UPSTREAM FROM PALLETT CREEK	192 / J - 4		NO	34.30
F395-R	MESCAL CREEK AT MOUTH	J		NO	5.71
G44B-R	SAN GABRIEL RIVER ABOVE WHITTIER NAR. DAM	47 / C - 6		NO	

* NOTE: All drainage areas in square miles.

LITTLE ROCK CREEK
above Little Rock Dam
STATION NO. L1-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from cable car.
DRAINAGE AREA- 49.2 square miles.
LOCATION- 2.0 miles above Little Rock Dam, 5.0 miles south of Little Rock.
REGULATION- none.
CHANNEL- sand, gravel, and boulders, natural in section.
CONTROL- channel forms control.
LENGTH OF RECORD- October 1, 1930 to date.

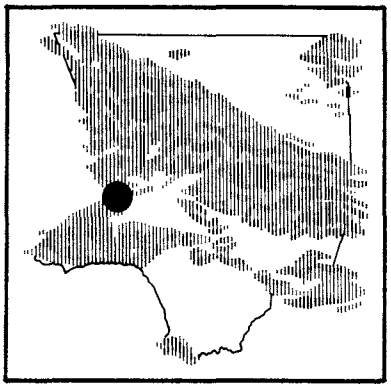
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

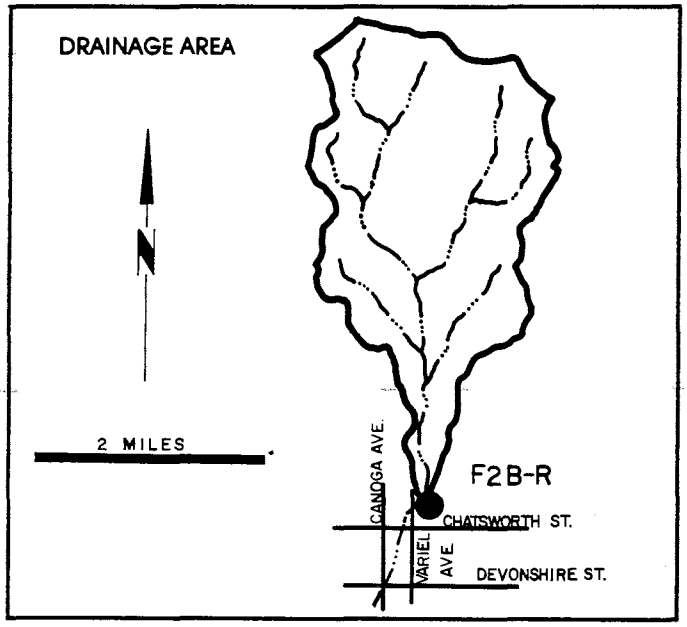
STATION NO. : L1-R

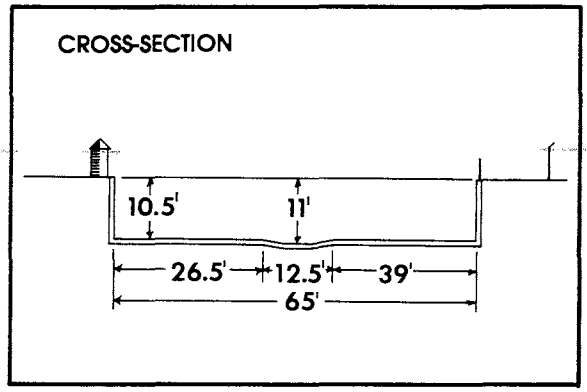
DRAINAGE AREA : 49.20 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.6	4.6	53.9	61.4	7.5	4.7	1.6	0.0	0.0
YEAR	MAX.	0.0	0.0	0.0	0.9	105.0	369.0	148.0	14.2	8.0	3.3	0.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.6	17.2	9.2	3.6	2.3	0.2	0.0	0.0
	TOTAL AF	0.0	0.0	0.0	35.7	256.7	3315.0	3651.0	462.0	277.0	96.6	0.0	0.0

BROWNS CREEK
at Variel Avenue
STATION NO. F2B-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading.

DRAINAGE AREA- 13.5 square miles.

LOCATION- 100.0 feet upstream from Variel Avenue, 1.0 mile northeast of Chatsworth.

REGULATION- none.

CHANNEL- sand and gravel with pipe and wire revetments, temporarily improved section.

CONTROL- concrete stabilizer.

LENGTH OF RECORD- at Station F2-R, December 11, 1928, to August 27, 1932 and October 2, 1935, to October 31, 1939. at Station F2B-R, October 12, 1961, to date.

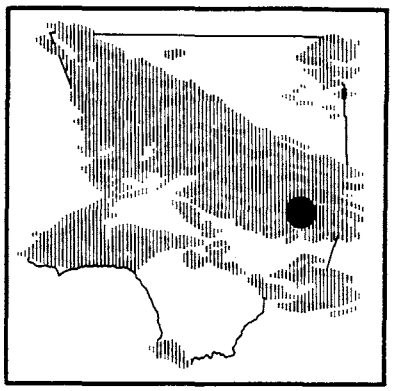
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

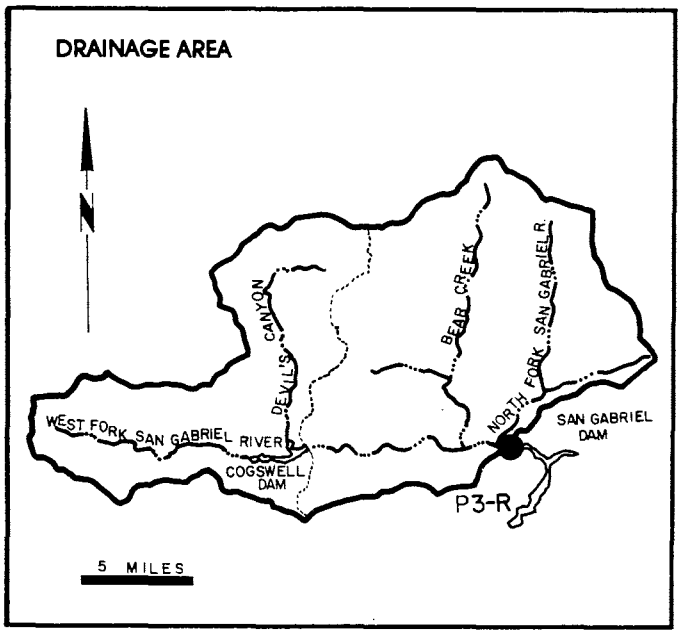
STATION NO. : F2B-R

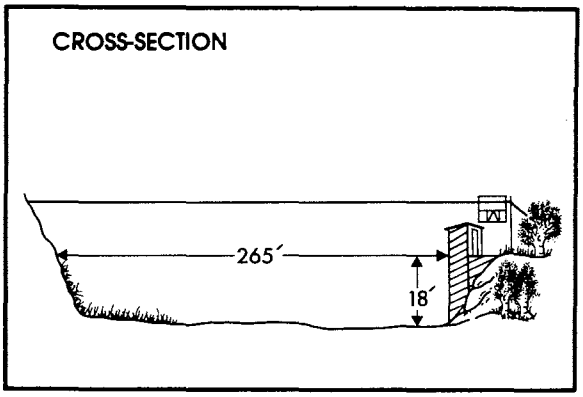
DRAINAGE AREA : 13.50 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER YEAR 90-91	MEAN	0.0	0.0	0.0	0.2			DEACTIVATED					
	MAX.	0.0	0.4	0.0	2.8								
	MIN.	0.0	0.0	0.0	0.0								
	TOTAL AF	0.0	2.6	0.0	9.7								

SAN GABRIEL RIVER
West Fork above Forks
STATION NO. P3-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 102.0 square miles.

LOCATION- 1.5 miles above confluence with East Fork.

REGULATION- partially regulated by Cogswell Dam.

CHANNEL- natural, sand, gravel, and boulders.

CONTROL- subject to shifts in natural bottom.

LENGTH OF RECORD- at Station P3-R, December 3, 1930 to July 12, 1938 and September 27, 1938 to date. at Station P3B-R, July 12, 1938, to September 27, 1938.

REMARKS- for records prior to December 3, 1930 refer to Station P1-R.

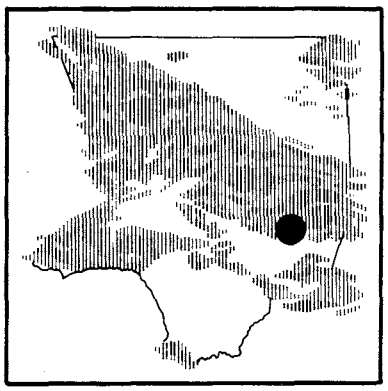
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

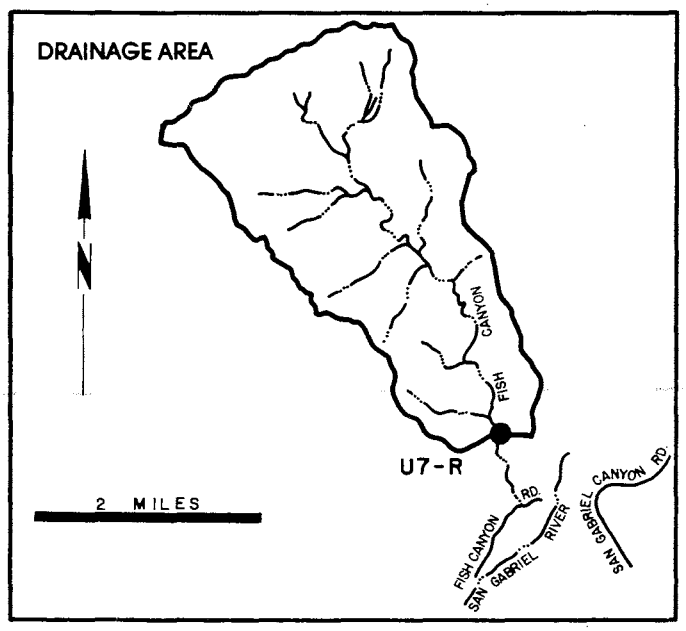
STATION NO. : P3-R

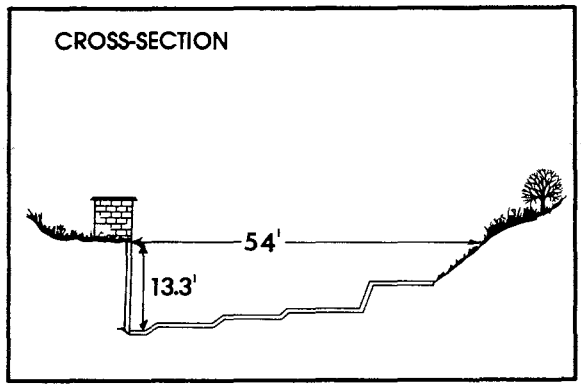
DRAINAGE AREA : 102.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	3.8	4.8	5.7									
YEAR	MAX.	4.3	7.6	8.8					DEACTIVATED				
90-91	MIN.	3.4	3.4	3.9									
	TOTAL AF	233.0	288.0	350.0									

FISH CREEK
above Mouth of Canyon
STATION NO. U7-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading.
DRAINAGE AREA- 6.36 square miles.
LOCATION - 0.8 miles upstream of mouth of canyon and 3.0 miles northeast of Duarte.
REGULATION- none.
CHANNEL- natural, rock and gravel.
CONTROL- concrete control.
LENGTH OF RECORD- July to September 1916. July 1917 to date.
REMARKS- operated and maintained by USGS until October 1, 1971.

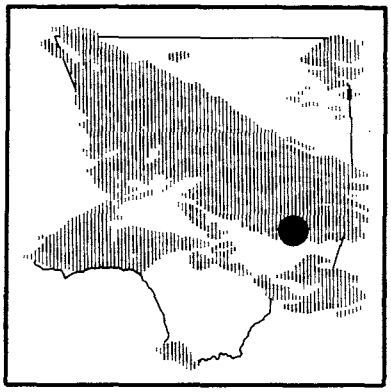
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

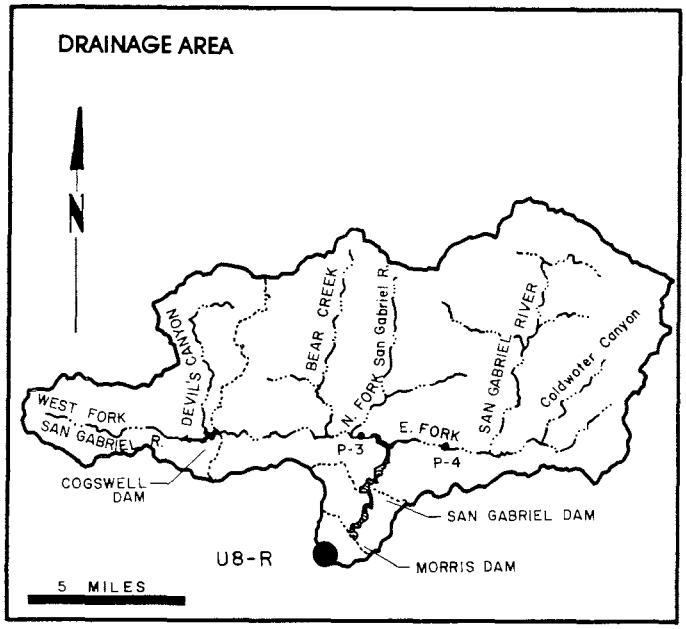
STATION NO. : U7-R

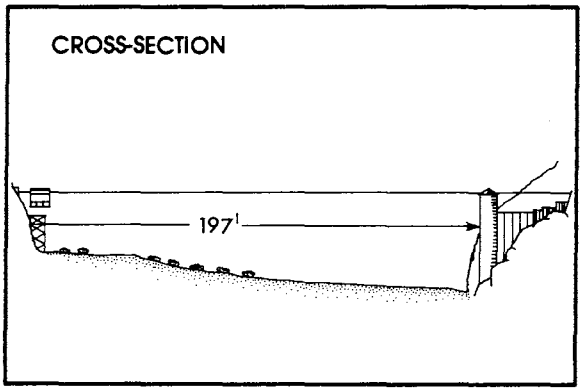
DRAINAGE AREA : 6.36 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.3	1.3	5.4	12.0	8.3	1.9	0.9	0.4	0.1	0.1
YEAR	MAX.	0.0	0.0	0.7	3.7	70.9	87.4	9.6	6.3	1.1	1.1	0.3	0.2
90-91	MIN.	0.0	0.0	0.0	0.6	1.5	1.8	6.9	0.8	0.7	0.2	0.1	0.0
	TOTAL AF	0.0	0.0	15.7	81.1	298.0	739.0	492.0	117.0	55.3	26.0	9.1	5.0

SAN GABRIEL RIVER
below Morris Dam
STATION NO.U8-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from cable car.
DRAINAGE AREA- 212.4 square miles.
LOCATION- 1.1 miles downstream of Morris Dam, 2.7 miles northeast of Azusa.
REGULATION- all flows regulated by Cogswell, San Gabriel, and Morris Dams.
CHANNEL- gravel and boulders, natural section.
CONTROL- concrete control.
LENGTH OF RECORD- May 1894 to date.
REMARKS- flows up to 90 cfs are at times diverted past the station through the Azusa Conduit; flows at station may include imported water from the MWD outlet below Morris Dam.

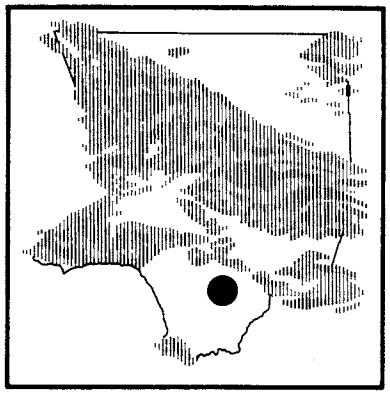
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

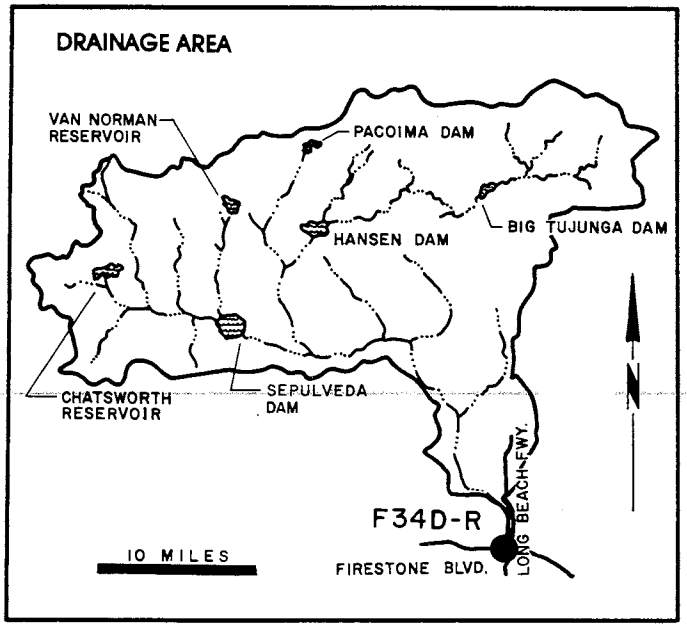
STATION NO. : U8-R

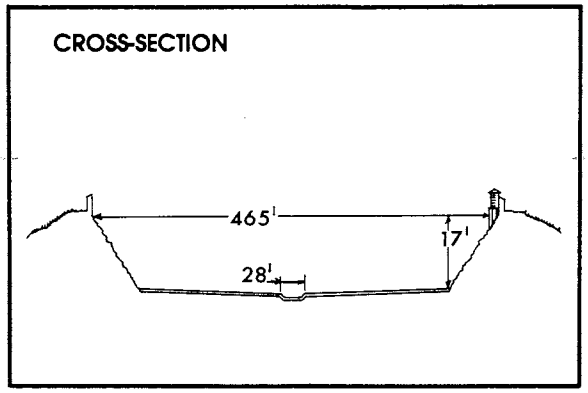
DRAINAGE AREA : 212.40 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	112.6	0.0	0.0	55.8	0.2	187.0	65.9	5.3	34.9	186.0	423.0	258.0
YEAR	MAX.	149.0	0.0	0.0	149.0	6.0	206.0	202.0	43.9	292.0	785.0	679.0	327.0
90-91	MIN.	0.1	0.0	0.0	0.0	0.0	71.2	1.6	2.1	0.6	0.1	227.0	134.0
	TOTAL AF	6926.0	0.0	0.0	3430.0	12.9	11485.0	3922.0	326.0	2079.0	11449.0	26011.0	15358.0

LOS ANGELES RIVER
below Firestone Boulevard
STATION NO. F34D-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from bridge.

DRAINAGE AREA- 596.0 square miles.

LOCATION- 472.0 feet downstream of Firestone Boulevard 3.0 miles west of Downey.

REGULATION- partially regulated by Sepulveda, Pacoima, Big Tujunga, Hansen, and Devil's Gate Dam; and by several spreading grounds, reservoirs, and debris basins.

CHANNEL- concrete, with rip-rap side slopes, trapezoidal in section, with trapezoidal low- flow channel.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F34-R. March 1, 1928 to April 11, 1938. at Station F34B-R, April 11, 1938 to November 3, 1949. at Station F34C-R November 4, 1949, to December 11, 1956. at Station F34D-R December 11, 1956 to date.

REMARKS- subject to diversions from Big Tujunga Creek, Arroyo Seco, and other domestic and irrigation diversions.

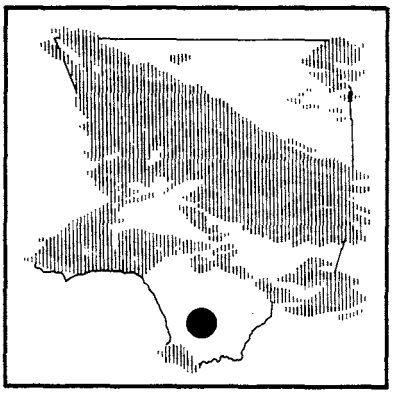
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

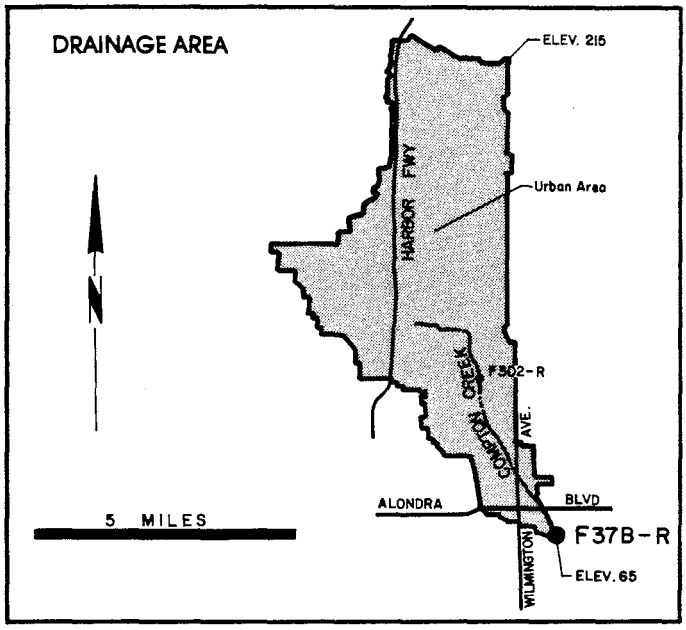
STATION NO. : F34D-R

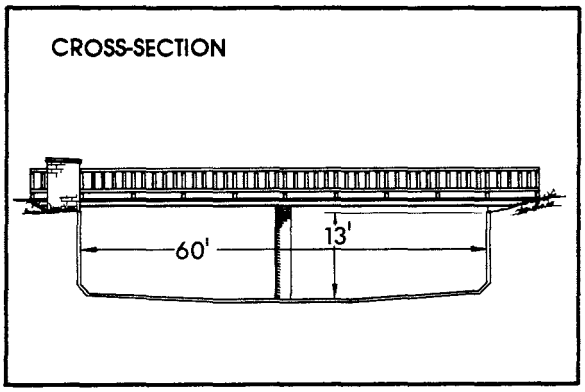
DRAINAGE AREA : 596.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	114.0	195.0	113.0	214.0	655.0	998.0	133.0	118.0	113.0	117.0	114.0	106.0
YEAR	MAX.	115.0	1700.0	114.0	1340.0	7850.0	6190.0	292.0	124.0	116.0	123.0	118.0	111.0
90-91	MIN.	114.0	112.0	112.0	113.0	103.0	129.0	119.0	113.0	108.0	108.0	111.0	99.0
	TOTAL AF	7020.0	11580.0	6920.0	13170.0	36400.0	61360.0	7900.0	7260.0	6690.0	7210.0	7030.0	6290.0

COMPTON CREEK
near Greenleaf Drive
STATION NO. F37B-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from bridge.
DRAINAGE AREA- 22.6 square miles.
LOCATION- 120.0 feet above Greenleaf Boulevard, 1.5 miles south west of Compton.
REGULATION- none.
CHANNEL- concrete, rectangular in section, 60 feet wide by 13 feet deep.
CONTROL- channel forms control.
LENGTH OF RECORD- at Station F37-R January 22, 1928 to June 9, 1938. at Station F37B-R October 3, 1938 to date

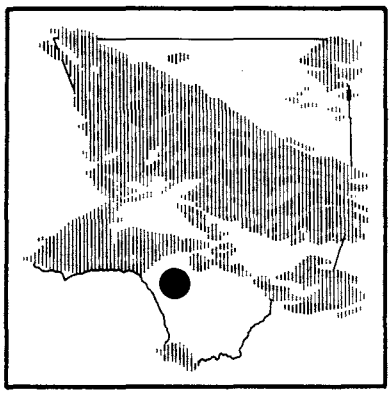
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

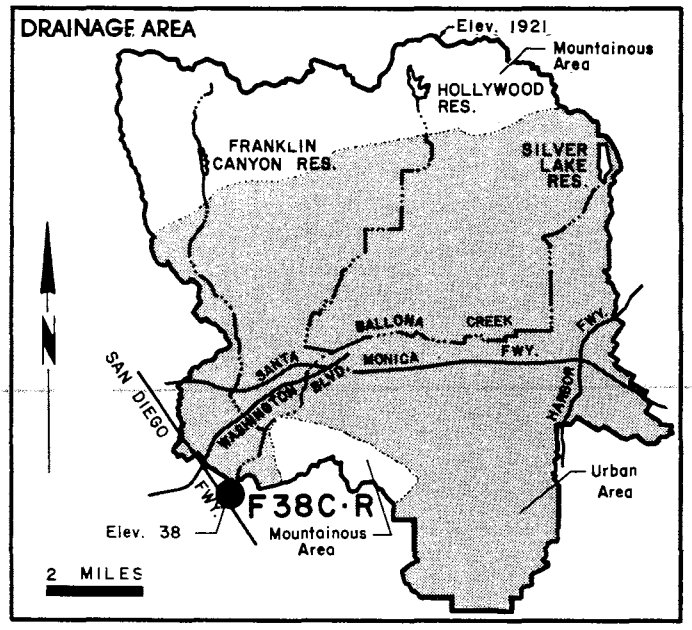
STATION NO. : F37B-R

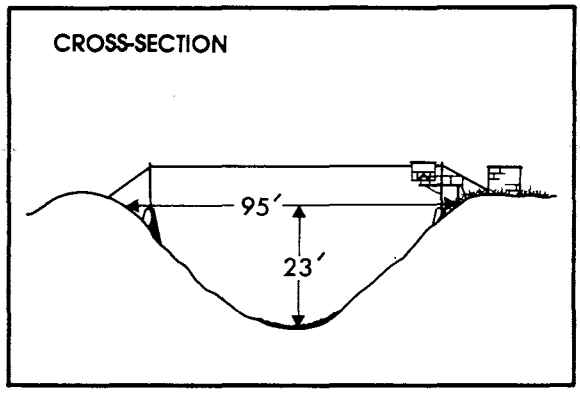
DRAINAGE AREA : 22.60 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.9	3.4	0.7	14.2	34.4	48.8	1.5	0.7	0.8	2.3	1.0	1.8
YEAR	MAX.	0.9	61.0	1.9	133.0	527.0	365.0	5.2	0.8	1.1	16.8	1.4	12.8
90-91	MIN.	0.8	0.6	0.5	0.8	0.7	3.4	0.6	0.6	0.8	0.8	0.9	0.8
	TOTAL AF	54.9	205.0	44.6	874.0	1909.0	3000.0	91.0	43.4	49.8	144.0	61.9	109.0

BALLONA CREEK
above Sawtelle Boulevard
STATION NO. F38C-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 88.6 square miles.

LOCATION- 530.0 feet above Sawtelle Boulevard, 1.5 miles southwest of Culver City.

REGULATION- Stone Canyon Reservoir prior to January, 1951. Upper and Lower Franklin Canyon Reservoir, Hollywood Reservoir, and Silverlake Reservoir.

CHANNEL- concrete rubble, trapezoidal in section.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F38-R February 27,1928 to April 27, 1936. at Station F38B-R, May 14, 1936 to August 10, 1967. at Station F38C-R August 10, 1967, to date.

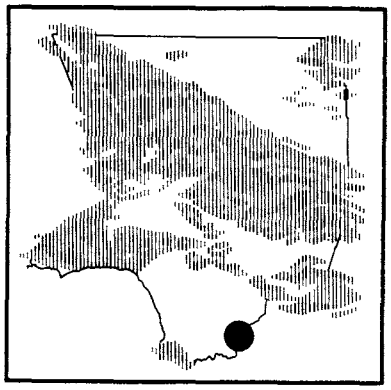
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

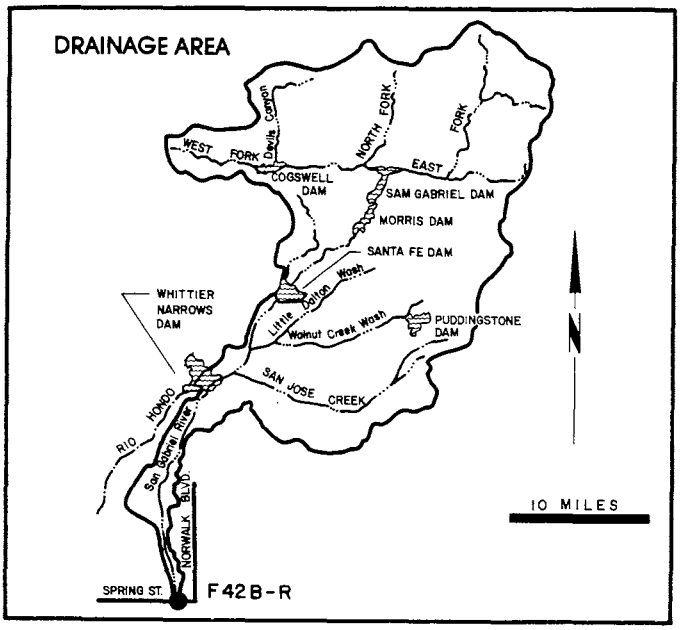
STATION NO. : F38C-R

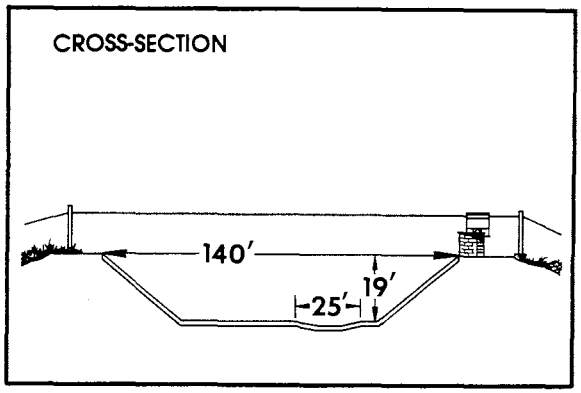
DRAINAGE AREA : 88.60 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	10.4	28.4	8.7	47.4	115.0	187.0	10.1	9.9	8.3	10.5	9.7	8.1
YEAR	MAX.	14.0	491.0	14.3	443.0	2150.0	1150.0	14.7	11.7	10.4	51.5	11.8	31.8
90-91	MIN.	8.7	7.0	6.6	9.9	7.6	8.7	8.7	8.2	8.2	7.0	8.2	3.0
	TOTAL AF	640.0	1692.0	533.0	2917.0	6407.0	11522.0	598.0	607.0	492.0	644.0	596.0	485.0

SAN GABRIEL RIVER
above Spring Street
STATION NO. F42B-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 231.0 square miles (excludes area above Santa Fe Dam).

LOCATION- 455.0 feet north of Spring Street, 4.0 miles east of Signal Hill, Long Beach.

REGULATION- partially regulated by Cogswell, San Grabriel, Morris, Santa Fe, Big Dalton, San Dimas, Puddingstone Diversion, Puddingstone, Live Oak, Thompson Creek, and Whittier Narrows Dams, several debris basins, MWD outlet, and several spreading grounds.

CHANNEL- concrete, trapizoidal section with a low-flow channel.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F42-R February 6, 1928 to May 26, 1964. at Station F42B-R, November 16, 1964 to date.

REMARKS- high flows into Whittier Narrows Reservoir are partially diverted to the Rio Hondo.

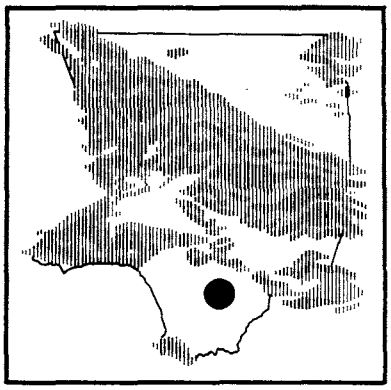
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

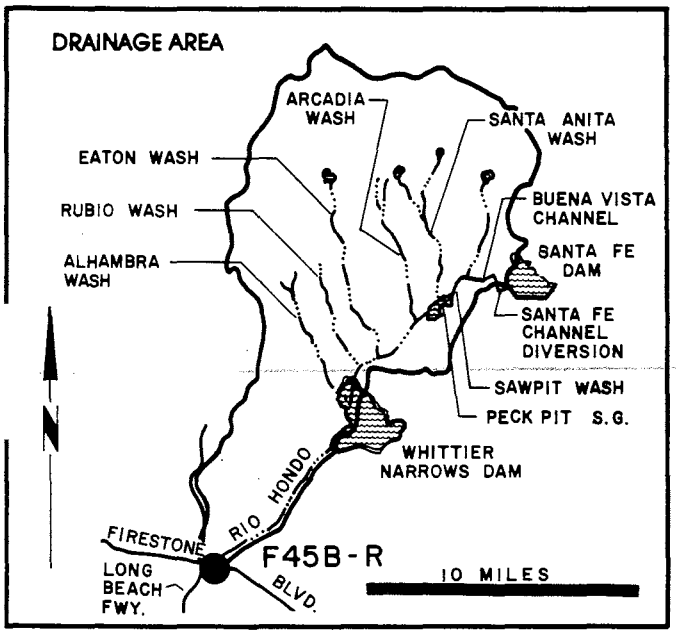
STATION NO. : F42B-R

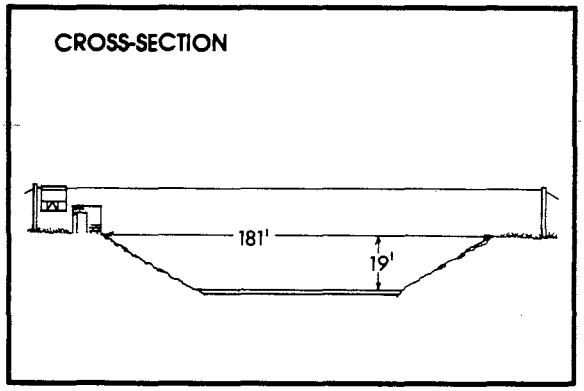
DRAINAGE AREA : 231.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	79.1	64.1	42.1	80.5	91.9	194.0	101.0	34.1	38.8	48.1	83.3	81.5
YEAR	MAX.	144.0	134.0	89.1	213.0	642.0	813.0	120.0	70.4	73.4	119.0	146.0	171.0
90-91	MIN.	35.7	35.9	32.9	34.2	33.4	66.8	31.3	25.7	31.6	37.7	33.8	44.5
	TOTAL AF	4865.0	3813.0	2589.0	4947.0	5104.0	11946.0	5988.0	2094.0	2306.0	2959.0	5124.0	4847.0

RIO HONDO
above Stewart and Gray Road
STATION NO. F45B-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 140 square miles (excludes area above Santa Fe Dam).

LOCATION- 0.6 mile upstream of the confluence of Rio Hondo and Los Angeles River, 1.5 miles west of Downey.

REGULATION- partially regulated by Sierra Madre, Santa Anita, Sawpit, Eaton, Santa Fe, and Whittier Narrows Dams, several debris basins, and spreading grounds.

CHANNEL- concrete with rip-rap side slopes. trapizodal in section.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F45-R March 1, 1928 to April 18, 1951. at Station F45B-R October 31, 1951 to date.

REMARKS- subject to diversions from Eaton Creek, Monrovia Creek, Sawpit Creek, Little Santa Anita Canyon and other locations for irrigation and spreading. High flows from San Gabriel River may flow into Rio Hondo above Whittier Narrows Dam.

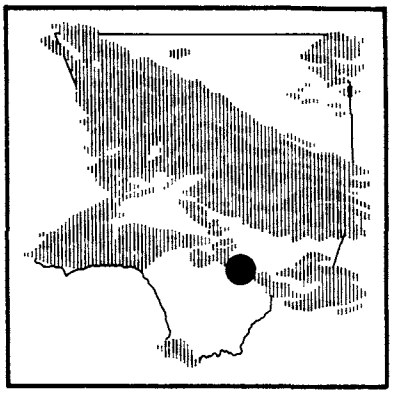
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

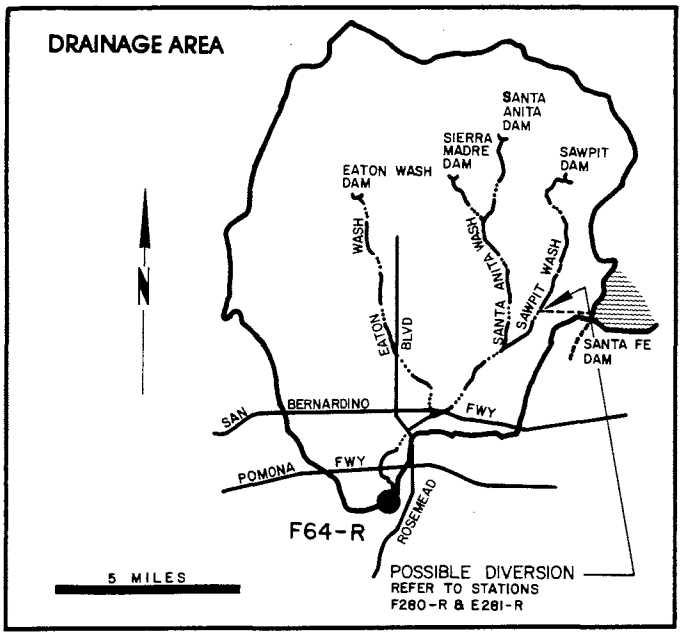
STATION NO. : F45B-R

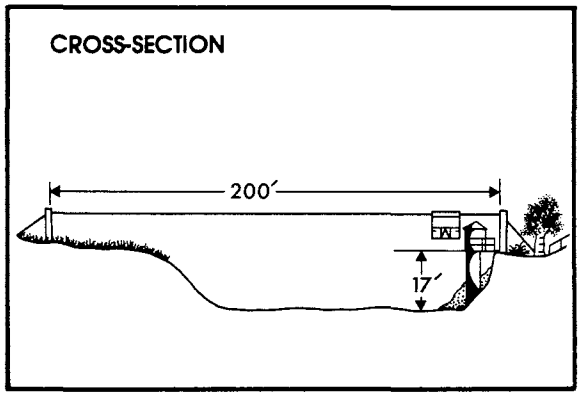
DRAINAGE AREA : 140.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.4	4.3	0.3	10.2	175.0	226.0	0.6	0.2	0.2	0.6	0.3	0.7
YEAR	MAX.	1.0	114.0	1.1	164.0	3880.0	2880.0	5.7	0.7	0.5	16.1	1.4	10.9
90-91	MIN.	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1
	TOTAL AF	25.8	257.0	15.5	626.0	9728.0	13916.0	33.5	9.9	9.3	38.7	20.4	39.7

RIO HONDO
above Mission Bridge
STATION NO. F64-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from cable car.
DRAINAGE AREA- 115 square miles (excludes area above Santa Fe Dam).
LOCATION- 1,000 feet above San Gabriel Boulevard, west of Rosemead Boulevard, 2.0 miles northeast of Montebello.
REGULATION- partially regulated by Sierra Madre, Santa Anita, Sawpit, Eaton, and Santa Fe Dams and several debris basins.
CHANNEL- sand and silt, natural in section.
CONTROL- none.
LENGTH OF RECORD- July 1, 1928 to date.
REMARKS- subject to diversions; water purchased from the MWD passes this station for spreading in the coastal basin.

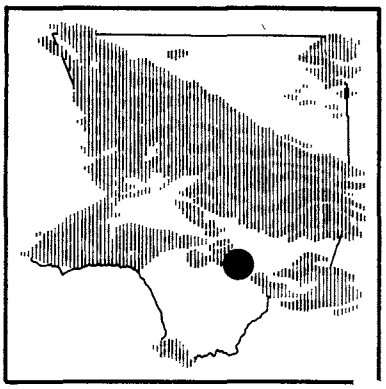
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

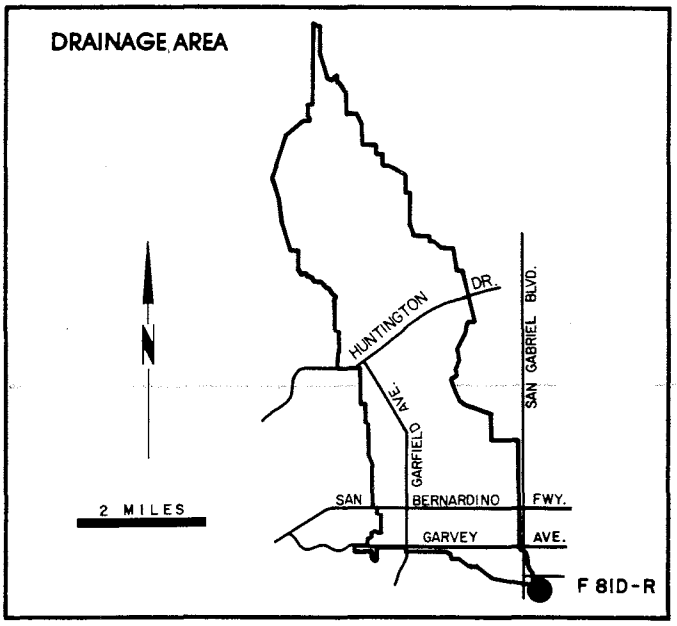
STATION NO. : F64-R

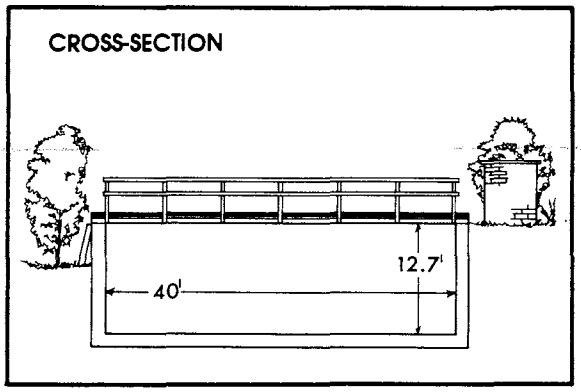
DRAINAGE AREA : 115.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	47.7	41.6	36.3	92.5	62.5	290.0	30.6	24.0	63.5	86.0	167.0	85.4
YEAR	MAX.	74.5	347.0	74.0	1180.0	500.0	600.0	34.4	33.4	153.0	505.0	423.0	132.0
90-91	MIN.	23.9	1.1	25.5	22.6	20.0	2.1	18.5	13.2	10.2	40.1	32.6	11.9
	TOTAL AF	2933.0	2476.0	2232.0	5689.0	3471.0	17848.0	1822.0	1473.0	3778.0	5290.0	10249.0	5084.0

ALHAMBRA WASH
near Klingerman Street
STATION NO. F81D-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from footbridge.

DRAINAGE AREA- 15.2 square miles.

LOCATION- 250± feet above Klingerman Street and 2,650.0 feet below Garvey Avenue, South San Gabriel.

REGULATION- none.

CHANNEL- concrete, rectangular in section, 40.0 feet wide by 12.7 feet deep.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F81- R January 14, 1930 to September 30, 1934. at Station F81B- R October 1, 1934 to February 25, 1935. at Station F81C- R February 25, 1935 to April 27, 1936. at Station F81B- R April 27, 1936 to May 22, 1936. at Station F81D- R September 2, 1936 to date.

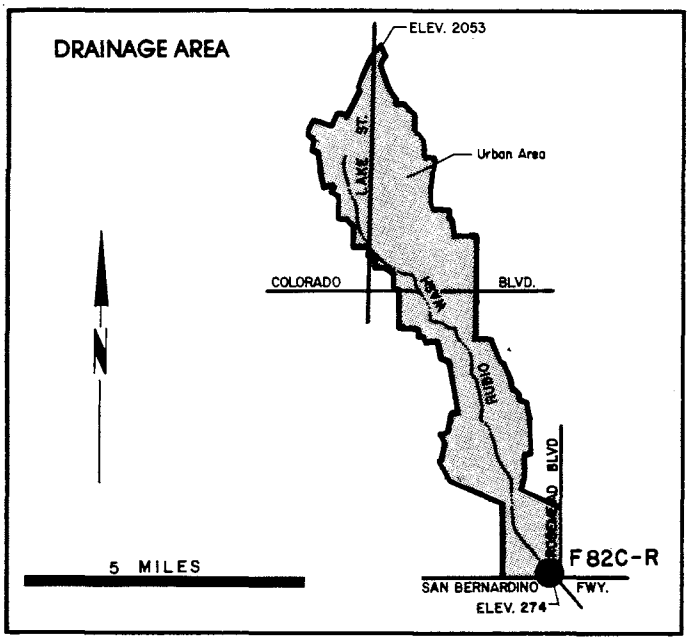
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

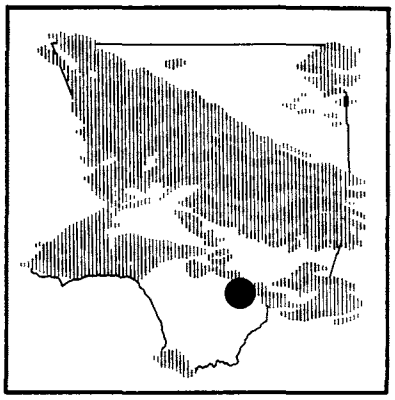
STATION NO. : F81D-R

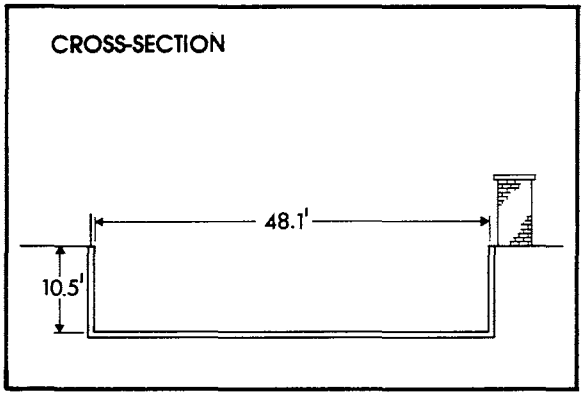
DRAINAGE AREA : 15.20 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	1.1	2.5	1.1	9.2	30.9	38.1	1.1	1.2	2.4	1.7	1.1	1.1
YEAR	MAX.	1.3	30.6	2.6	136.0	452.0	243.0	3.4	1.5	4.6	10.2	1.3	6.0
90-91	MIN.	1.0	0.9	0.9	0.9	1.1	0.6	0.8	0.9	1.1	1.0	1.0	0.6
	TOTAL AF	70.6	149.0	65.5	568.0	1714.0	2345.0	68.2	73.4	143.0	107.0	70.6	68.0

RUBIO WASH
at Glendon Wash
STATION NO. F82C-R







RECORDER- 15 minute punched tape.
METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from footbridge at station.
DRAINAGE AREA- 10.9 square miles.
LOCATION- on the east side of channel, 10 feet south of the westerly extension of Glendon Way, Rosemead.
REGULATION- flow partly regulated by Las Flores and Rubio debris basins.
CHANNEL- rectangular concrete.
CONTROL- channel forms control.
LENGTH OF RECORD- see station summary.

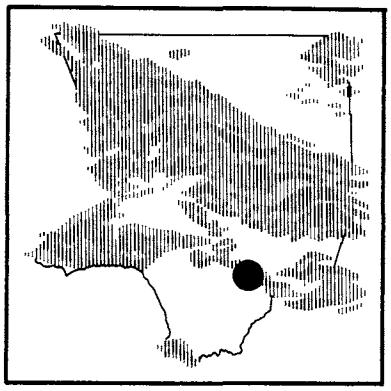
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

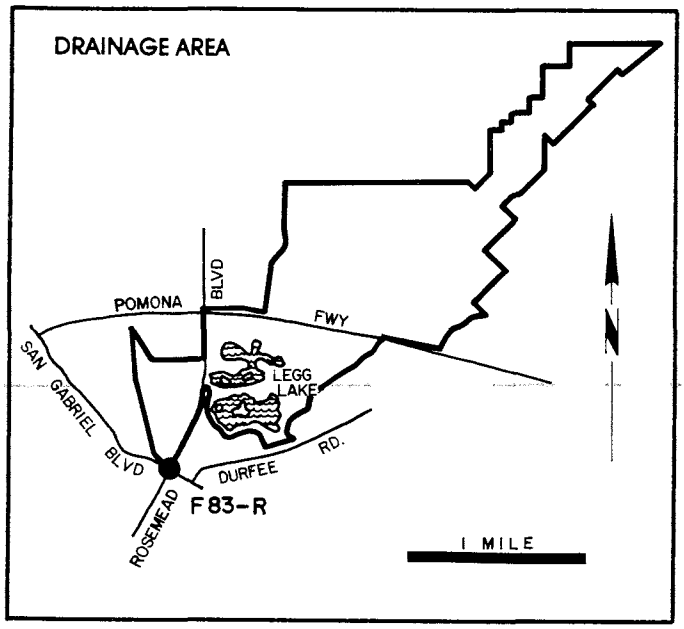
STATION NO. : F82C-R

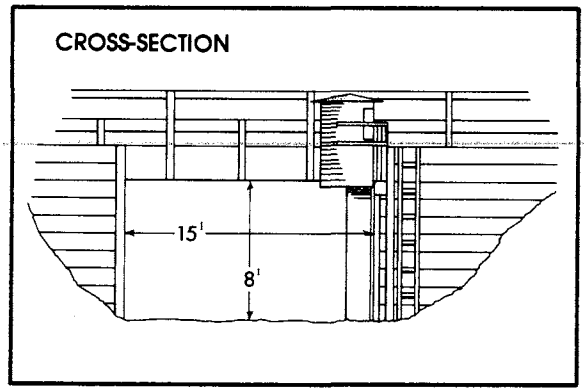
DRAINAGE AREA : 10.90 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.5	1.5	0.8	5.6	23.0	26.5	0.2	0.1	0.3	0.4	0.3	0.1
YEAR	MAX.	0.7	26.5	3.9	80.9	355.0	180.0	0.9	0.1	0.6	3.9	0.7	1.8
90-91	MIN.	0.4	0.2	0.4	0.3	0.3	0.0	0.1	0.0	0.3	0.2	0.3	0.0
	TOTAL AF	28.2	91.6	48.6	343.0	1277.0	1631.0	13.5	5.8	20.6	27.4	20.6	6.1

MISSION CREEK
at San Gabriel Boulevard
STATION NO. F83-R







RECORDER- continuous water stage.
METHOD MEASUREMENTS- wading or from bridge.
DRAINAGE AREA- 4.2 square miles.
LOCATION- upstream of San Gabriel Boulevard, 0.2 miles northeast of Montebello.
REGULATION- partially regulated by outflow from Legg Lake.
CHANNEL- sand with brush and fences, natural in section.
CONTROL- channel forms control.
LENGTH OF RECORD- June 14, 1930 to date.
REMARKS- nearly all flows originate in rising water.

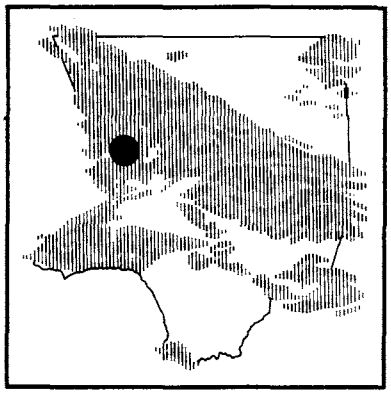
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

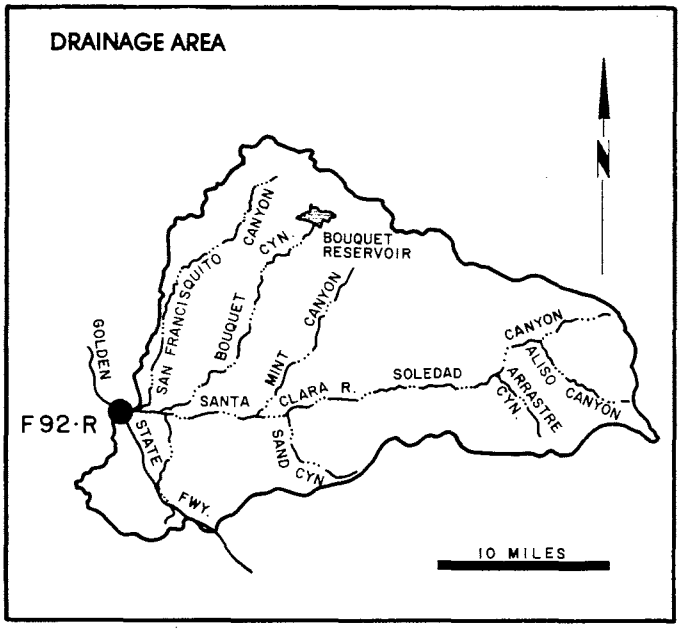
STATION NO. : F83-R

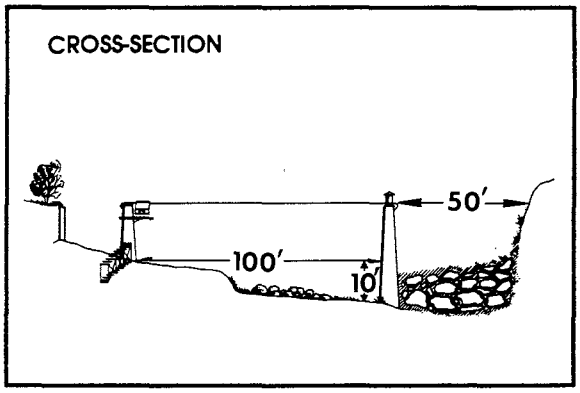
DRAINAGE AREA : 4.20 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER YEAR 90-91	MEAN	0.0	0.0	0.0	0.0								
	MAX.	0.0	0.0	0.0	0.0			DATA		NOT		AVAILABLE	
	MIN.	0.0	0.0	0.0	0.0								
	TOTAL AF	0.0	0.0	0.0	0.0								

SANTA CLARA RIVER
below Highway 5
STATION NO. F92C-R







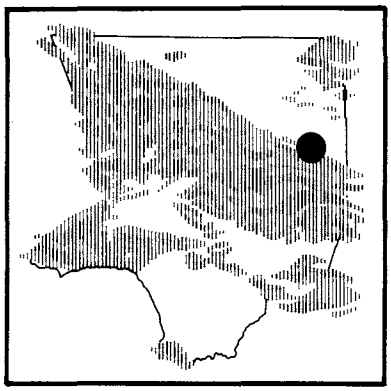
RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from cable car.
DRAINAGE AREA- 410.4 square miles.
LOCATION- downstream side of Old Highway bridge, 3.0 miles west of Saugus.
REGULATION- partially regulated by Bouquet Canyon and Dry Canyon Reservoirs.
CHANNEL- sand and gravel with brush, natural section.
CONTROL- none.
LENGTH OF RECORD- at Station F92-R January 18, 1930 to March 28, 1938, and September 24, 1956 to date. at Station F92B-R, October 1, 1938 to September 24, 1956.
REMARKS- subject to diversions for irrigation.

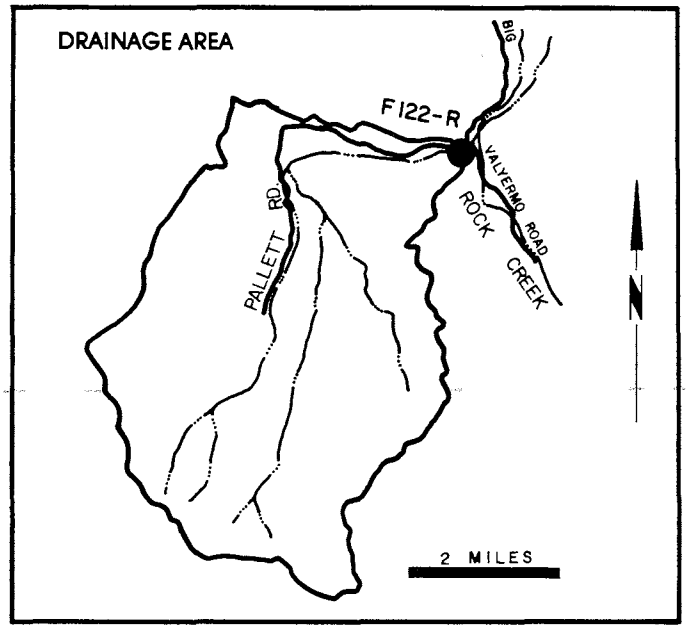
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

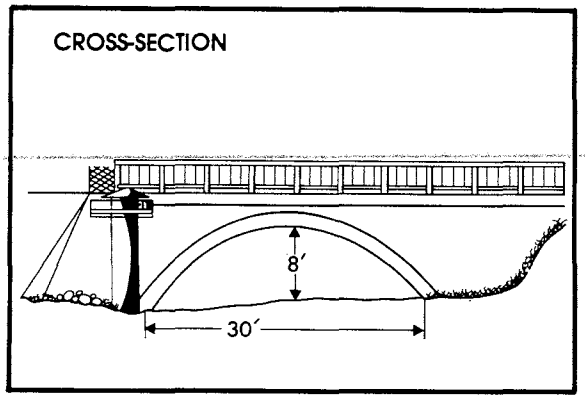
STATION NO. : F92C-R DRAINAGE AREA : 410.40 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	16.1	14.4	8.0	7.9	21.4	59.7	7.6	9.1	8.4	6.1	5.0	3.0
YEAR	MAX.	16.9	17.5	9.6	9.2	241.0	604.0	8.3	10.6	9.8	6.7	5.9	3.9
90-91	MIN.	13.1	10.1	7.9	6.7	6.1	7.5	7.4	7.5	6.7	5.7	3.9	2.4
	TOTAL AF	992.0	858.0	494.0	483.0	1187.0	3670.0	454.0	562.0	497.0	377.0	305.0	179.0

PALLETT CREEK
at Valyermo Highway
STATION NO. F122-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from bridge.
DRAINAGE AREA- 15.8 square miles.
LOCATION- upstream side of Valyermo Highway bridge, 5.0 miles southeast of Pearblossom.
REGULATION- none.
CHANNEL- sand and gravel, natural section.
CONTROL- channel forms control for low flows; bridge culvert forms control for high flows.
LENGTH OF RECORD- at Station F122-S December 29, 1930 to October 31, 1961. at Station F122-R, October 31, 1961 to date.

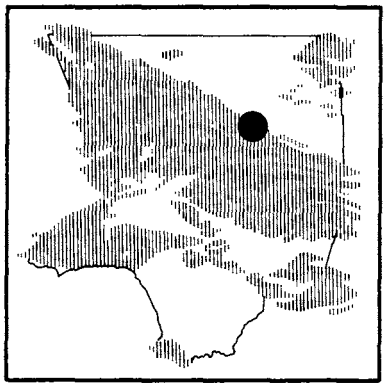
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

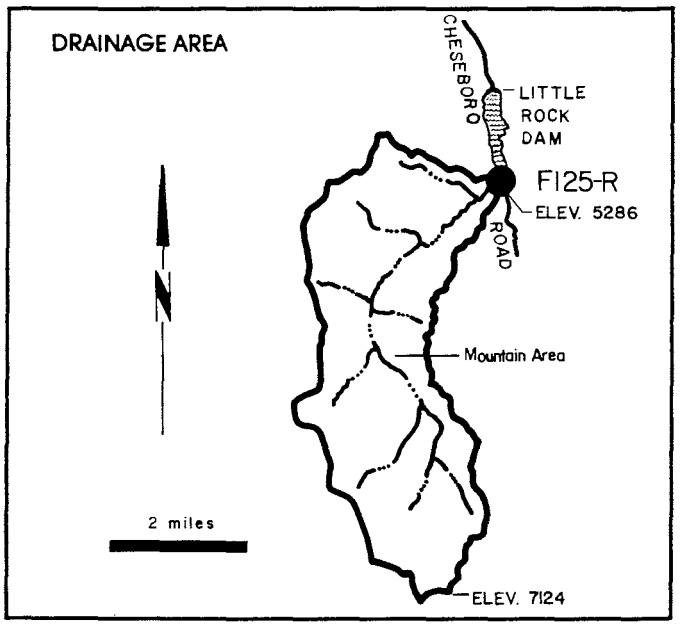
STATION NO. : F122-R

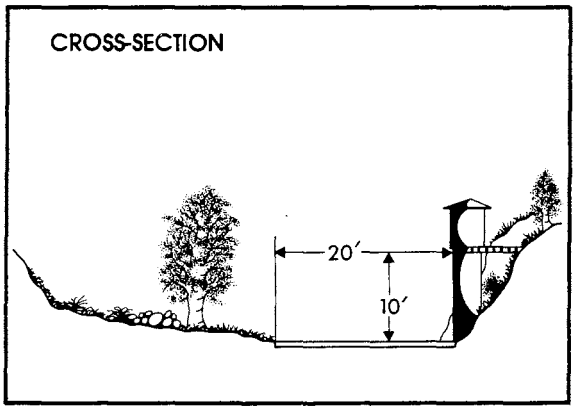
DRAINAGE AREA : 15.80 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
YEAR	MAX.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SANTIAGO CREEK
above Little Rock Creek
STATION NO. F125-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading.
DRAINAGE AREA- 11.2 square miles.
LOCATION- 1,000 feet above Little Creek and 4.5 miles south of Little Rock.
REGULATION- none.
CHANNEL- sand, gravel and boulders.
CONTROL- concrete and rubble wall.
LENGTH OF RECORD- September 29, 1953 to date.
REMARKS- no high flow measurements.

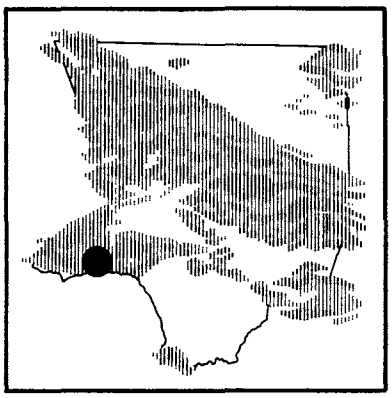
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

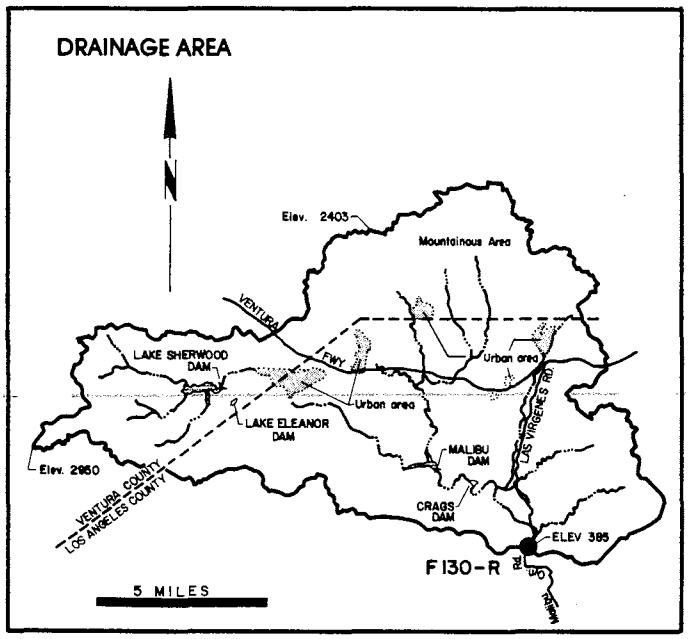
STATION NO. : F125-R

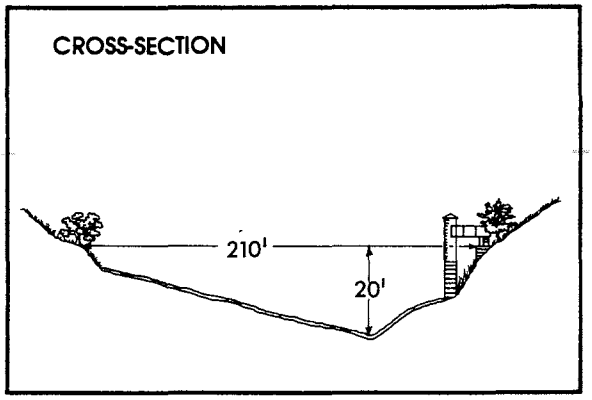
DRAINAGE AREA : 11.20 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.0	0.0	0.0	0.0	0.0
YEAR	MAX.	0.0	0.0	0.0	0.0	0.0	19.7	1.2	0.0	0.0	0.0	0.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.0	0.0	0.0	0.0	0.0	48.8	60.1	0.0	0.0	0.0	0.0	0.0

MALIBU CREEK
below Cold Creek
STATION NO. F130-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 104.96 square miles

LOCATION- 0.2± mile downstream of Cold Creek, 6.0 miles southwest of Calabasas.

REGULATION- Lake Sherwood Dam, Lake Eleanor Dam, Malibu Lake Dam, and Crag's Dam. Other small recreational dams affect low summer flows.

CHANNEL- coarse sand and gravel, lined with trees and brush, natural in section.

CONTROL- concrete stabilizer.

LENGTH OF RECORD- January 17, 1931 to date.

REMARKS- cableway washed out on January 25, 1969; no high flow measurements since that date.

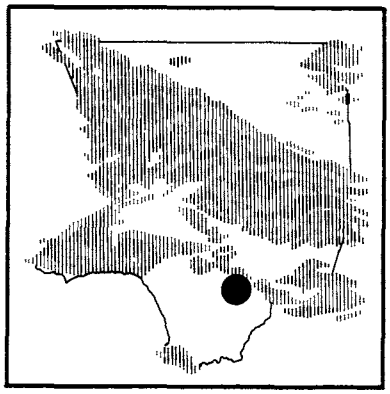
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

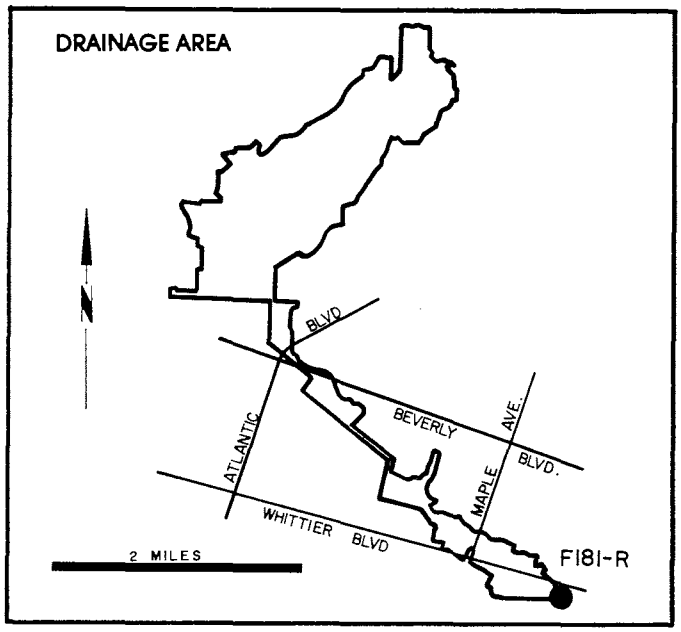
STATION NO. : F130-R

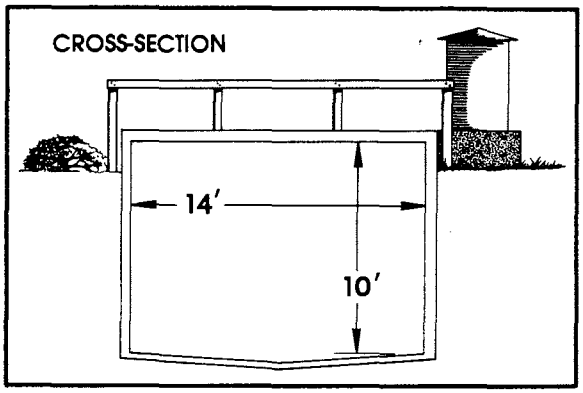
DRAINAGE AREA : 104.96 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	1.4	3.6	6.2	11.6	30.1	153.0	19.4	9.0	4.1	2.8	2.2	1.9
YEAR	MAX.	2.1	11.8	8.4	30.8	526.0	982.0	58.4	13.3	4.4	3.8	2.5	2.1
90-91	MIN.	0.8	1.2	4.1	3.9	3.2	11.7	9.9	4.4	3.8	2.5	1.9	1.7
	TOTAL AF	86.5	212.0	384.0	713.0	1674.0	9424.0	1152.0	554.0	246.0	175.0	137.0	114.0

MONTEBELLO STORM DRAIN
above Rio Hondo
STATION NO. F181-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from footbridge.
DRAINAGE AREA- 9.6 square miles.
LOCATION- 150.0 feet east of Mines Avenue and 500.0 feet west of Rio Hondo.
REGULATION- none.
CHANNEL- 14.0-foot by 10.0-foot concrete, box section.
CONTROL- channel forms control.
LENGTH OF RECORD- January 12, 1932 to date.
REMARKS- may be affected by backwater during flood flows.

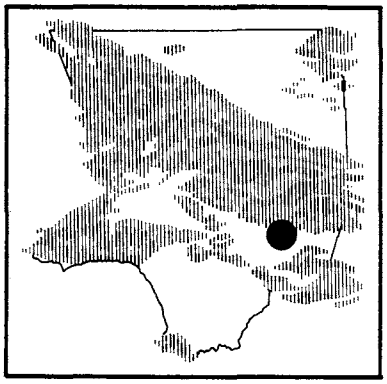
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

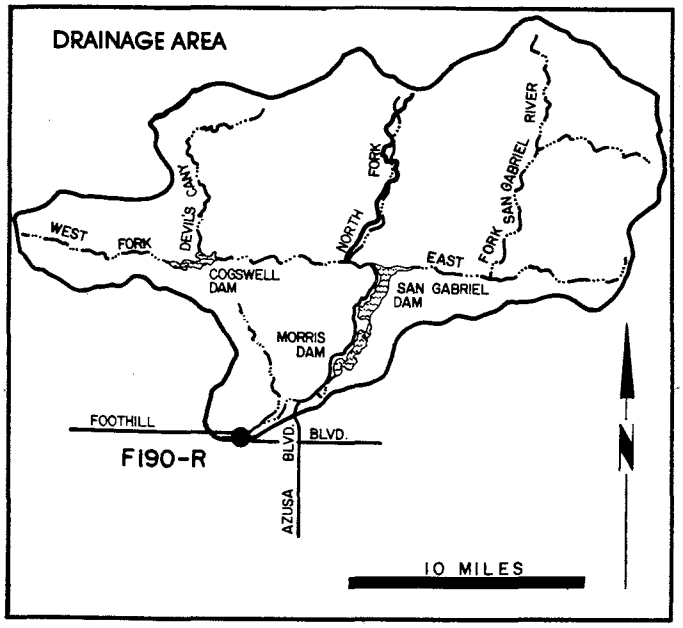
STATION NO. : F181-R

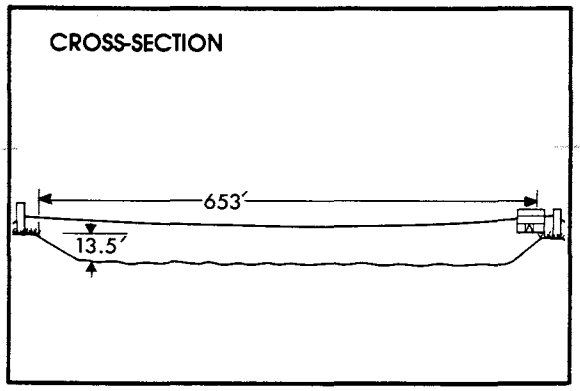
DRAINAGE AREA : 9.60 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.2	0.2	0.2	2.0	4.9	6.6	0.2	0.1	0.1	0.2	0.1	0.3
YEAR	MAX.	0.3	2.2	0.3	32.2	74.8	56.5	0.9	0.4	0.2	3.3	0.3	4.6
90-91	MIN.	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
	TOTAL AF	9.3	14.5	9.5	123.0	273.0	406.0	11.1	8.3	7.9	15.1	7.9	20.2

SAN GABRIEL RIVER
at Foothill Boulevard
STATION NO. F190-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from cable car.
DRAINAGE AREA- 230.0 square miles.
LOCATION- downstream side of Foothill Boulevard bridge, 2.0 miles west of Azusa.
REGULATION- partially regulated by Cogswell, San Gabriel, and Morris Dams.
CHANNEL- sand, gravel and rock,trapezoidal section with soft bottom.
CONTROL- gunited rock stabilizers.
LENGTH OF RECORD- February 22, 1932 to date.
REMARKS- flows may include imported water originating at the Metropolitan Water District outlet below Morris Dam.

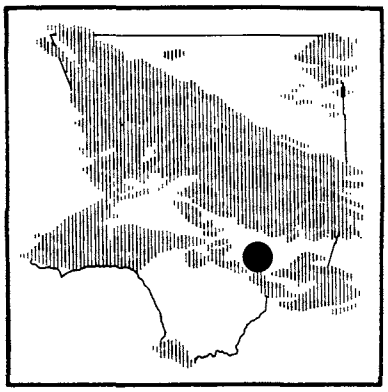
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

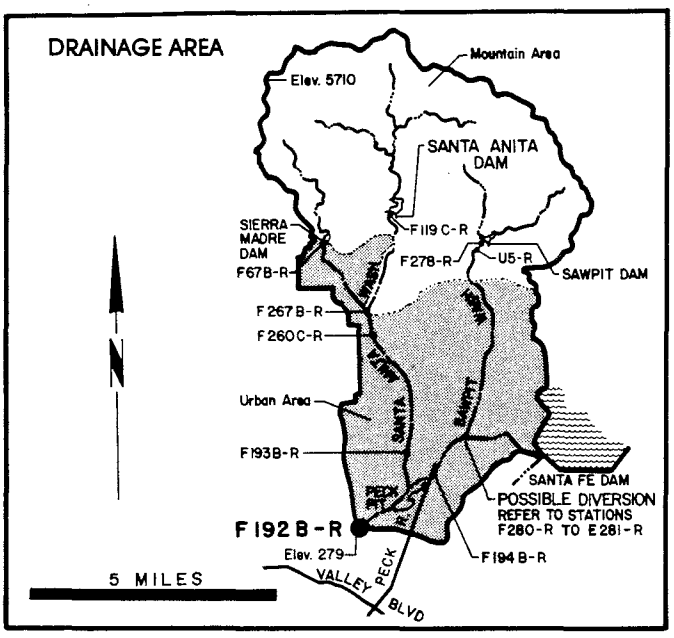
STATION NO. : F190-R

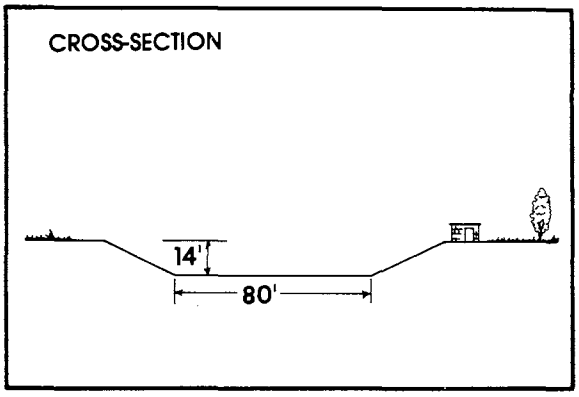
DRAINAGE AREA : 230.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	44.1	0.0	0.0	3.3	1.1	133.0	56.1	0.0	17.3	129.0	296.0	190.0
YEAR	MAX.	65.8	0.0	0.0	30.2	28.8	459.0	184.0	0.0	185.0	567.0	520.0	291.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	77.4	0.0	0.0	0.0	0.0	46.6	18.6
	TOTAL AF	2709.0	0.0	0.0	204.0	60.9	8184.0	3341.0	0.0	1032.0	7928.0	18173.0	11276.0

RIO HONDO
below Lower Azusa Road
STATION NO. F192B-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading.

DRAINAGE AREA- 40.9 square miles (excludes area above Santa Fe Dam).

LOCATION- 300.0 feet downstream from Lower Azusa Road, 1.5 miles north of El Monte.

REGULATION- partially regulated by Sierra Madre Dam, Santa Anita Dam, Sawpit Dam, Santa Fe Dam, Peck Pit, Buena Vista Pit, and several debris basins.

CHANNEL- concrete, trapizoidal in section.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F192-R February 22, 1932 to May 7, 1958. at Station F192B-R May 7, 1958 to date.

REMARKS- subject to diversions from Monrovia, Sawpit, and Little Santa Anita Creeks. Also from the San Gabriel River below Santa Fe Dam; and for irrigation and spreading.

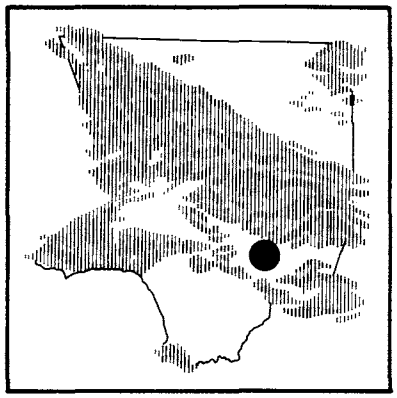
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

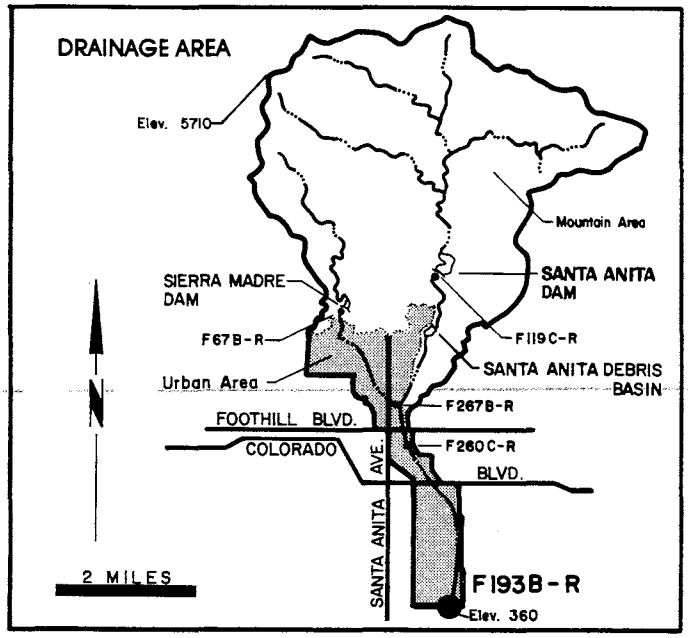
STATION NO. : F192B-R

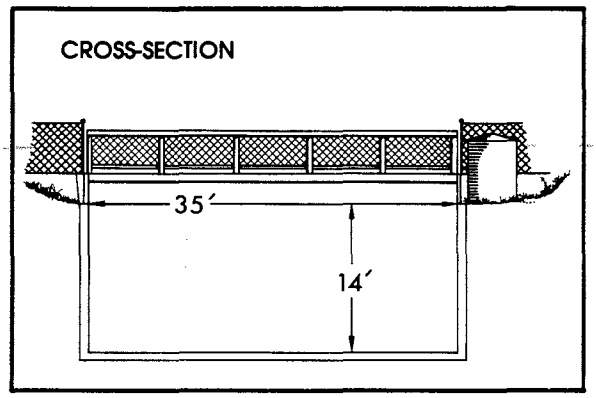
DRAINAGE AREA : 40.90 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.1	0.1	1.0	2.2	3.2	0.0	0.4	0.0	20.6	100.0	0.0
YEAR	MAX.	0.8	1.7	0.9	13.7	37.6	23.7	0.2	12.1	0.2	388.0	352.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	3.0	7.9	6.3	59.5	121.0	194.0	0.6	24.2	1.0	1267.0	6160.0	0.0

SANTA ANITA WASH
at Longden Avenue
STATION NO. F193B-R







RECORDER - continuous water stage.
METHOD OF MEASUREMENTS- wading or from bridge.
DRAINAGE AREA- 18.8 square miles.
LOCATION - 30.0 feet above Longden Avenue, 1.5 miles south of Arcadia.
REGULATION - regulated by Santa Anita and Sierra Madre Dams, and Santa Anita Debris Basin.
CHANNEL - concrete rectangular section.
CONTROL- channel forms control.
LENGTH OF RECORD- at Station F193-R, April 25, 1932 to March 1, 1938. at Station F193B-R, January 5, 1960 to date.

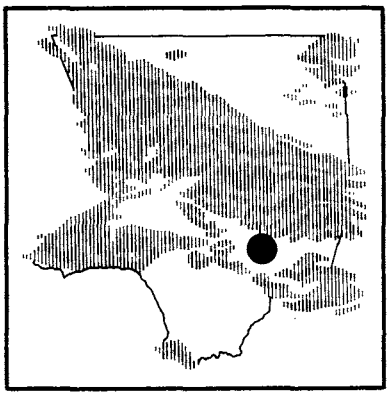
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

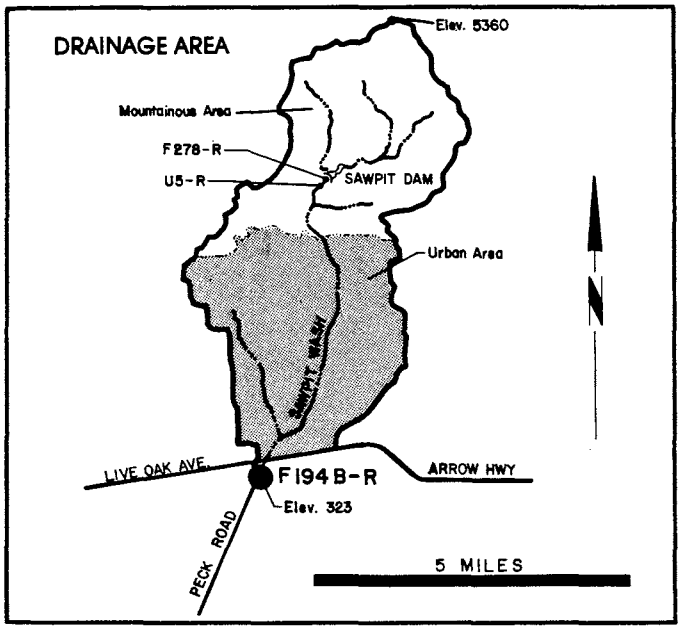
STATION NO. : F193B-R

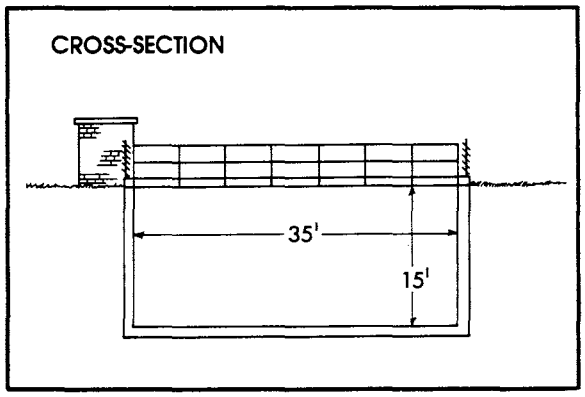
DRAINAGE AREA : 18.80 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.4	0.1	2.0	4.9	17.0	1.9	0.1	0.0	0.1	0.0	0.2
YEAR	MAX.	0.4	4.4	1.2	32.2	76.1	104.0	10.3	0.7	0.5	0.5	0.0	1.5
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.8	24.0	3.4	122.0	272.0	1047.0	113.0	4.0	1.4	3.8	0.0	10.3

SAWPIT WASH
below Live Oak Avenue
STATION NO. F194B-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from footbridge.
DRAINAGE AREA- 16.1 square miles.
LOCATION- 1,500 feet below Arrow Highway, 3.0 miles south of Monrovia.
REGULATION- partially regulated by Sawpit and Santa Fe Dams, and by several debris basins.
CHANNEL- concrete, rectangular section.
CONTROL- channel forms control.
LENGTH OF RECORD- at Station F194-R February 22, 1932 to September 1, 1935. at Station F194B-R December 5, 1960 to date.

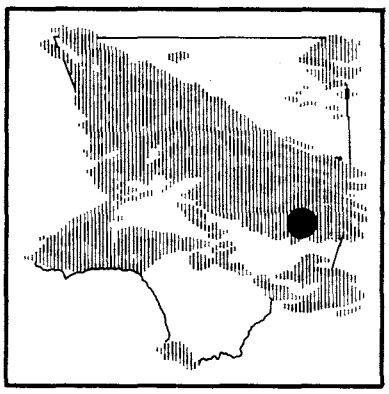
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

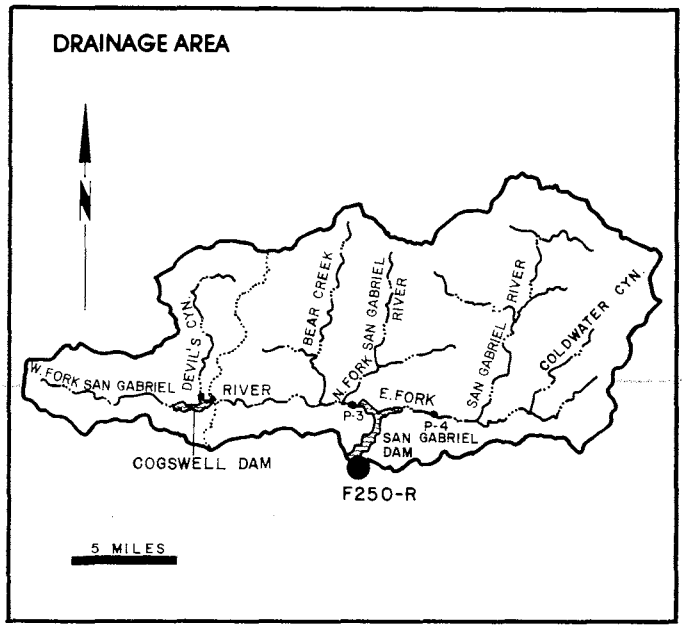
STATION NO. : F194B-R

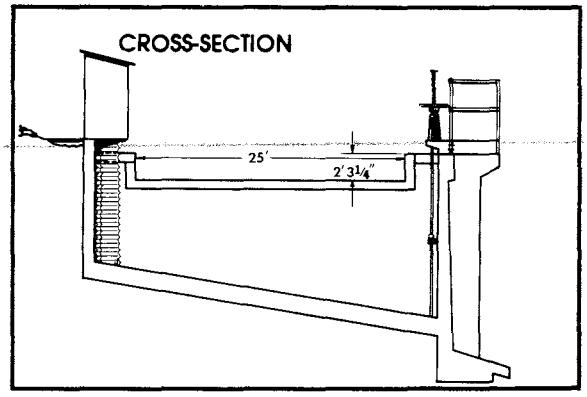
DRAINAGE AREA : 16.10 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.1	0.4	0.0	1.3	10.3	16.1	0.5	0.7	0.7	55.8	87.1	35.2
YEAR	MAX.	0.2	7.0	0.5	27.4	147.0	150.0	2.0	1.5	1.3	331.0	306.0	58.9
90-91	MIN.	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.3	0.1	0.1
	TOTAL AF	6.3	20.8	1.2	79.7	572.0	990.0	29.4	41.5	40.9	3432.0	5358.0	2095.0

SAN GABRIEL-AZUSA CONDUIT
at 25 ft. Weir below San Gabriel Dam
STATION NO. F250-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- weir formula with gage height observation.
DRAINAGE AREA- none.
LOCATION- on the concrete conduit which diverts from San Gabriel Dam, 160 feet below the Dam.
REGULATION- regulated in section.
CONTROL- 25-foot concrete weir.
LENGTH OF RECORD- February 26, 1933, to date.
REMARKS- approximate capacity 95 second-feet.

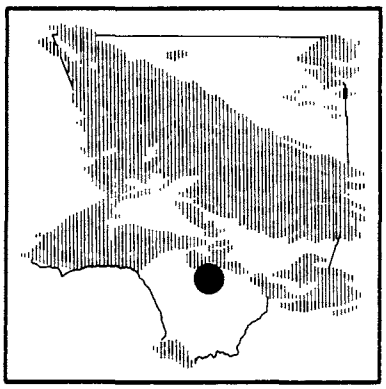
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

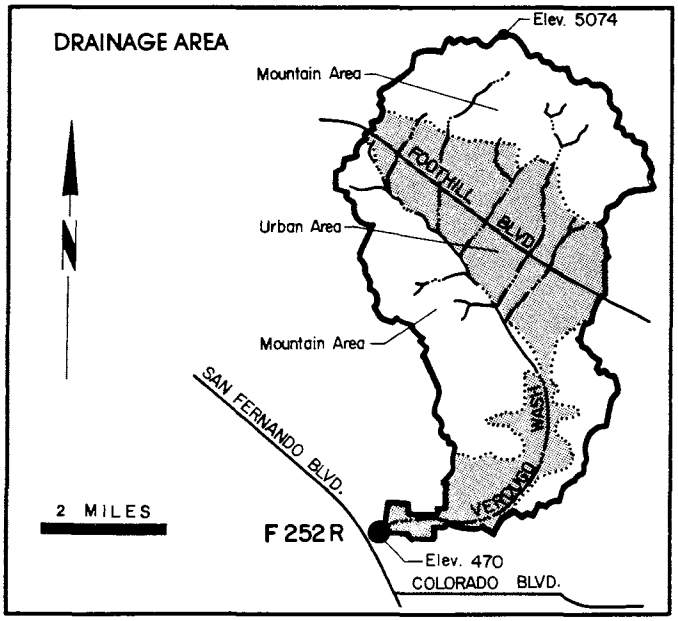
STATION NO. : F250-R

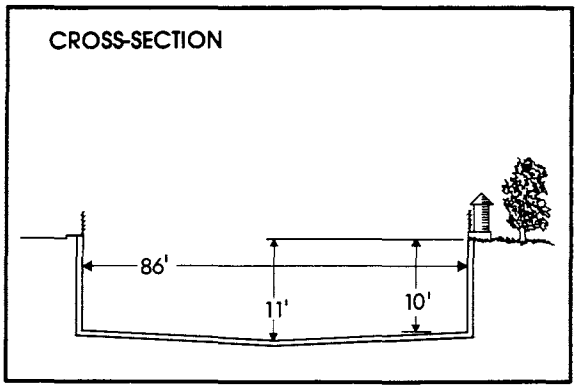
DRAINAGE AREA NONE

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	14.7	4.9	7.1	9.3	7.3	13.4	28.9	42.7	41.6	44.9	49.2	71.2
YEAR	MAX.	17.4	10.1	7.9	10.8	7.3	73.2	42.2	44.9	44.9	46.7	70.8	79.4
90-91	MIN.	7.9	3.7	3.7	6.9	7.3	3.0	9.6	39.9	29.3	42.6	44.9	66.5
	TOTAL AF	903.0	289.0	439.0	574.0	405.0	824.0	1721.0	2627.0	2477.0	2759.0	3027.0	4235.0

VERDUGO WASH
at Estelle Avenue
STATION NO. F252-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from Concord Street Bridge.
DRAINAGE AREA- 26.8 square miles.
LOCATION- 800.0 feet east of San Fernando Road, 2.0 miles northwest of Glendale.
REGULATION- partially regulated by several debris basins.
CHANNEL- concrete, rectangular in section.
CONTROL- channel forms control.
LENGTH OF RECORD- December 2, 1935 to date.

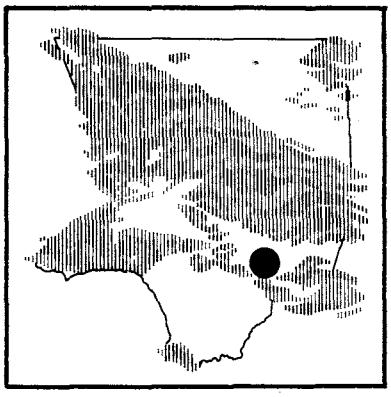
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

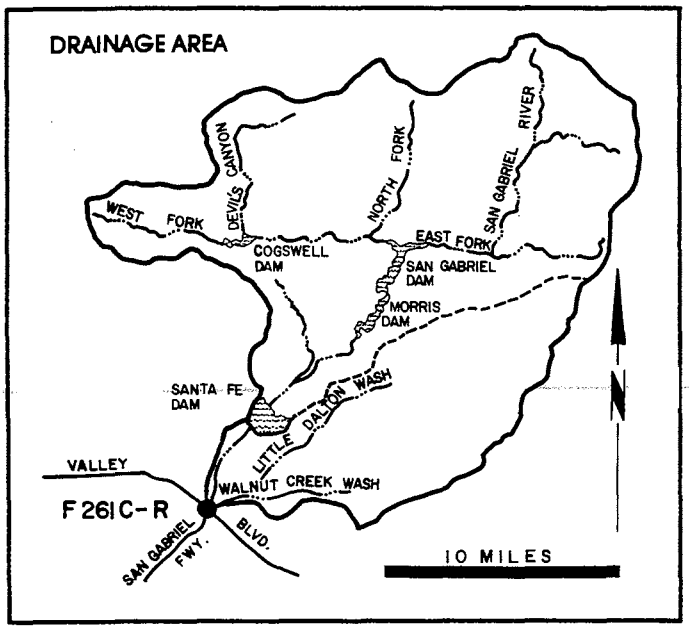
STATION NO. : F252-R

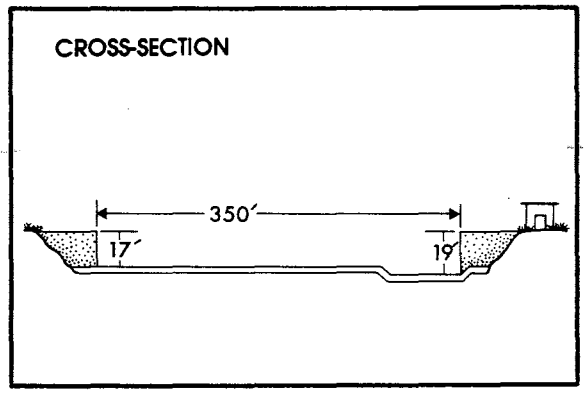
DRAINAGE AREA : 26.80 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	1.3	8.5	1.5	8.1	38.0	70.1	2.3	1.4	1.1	1.0	0.6	1.2
YEAR	MAX.	2.0	140.0	2.5	114.0	511.0	544.0	6.8	2.0	1.5	2.8	1.0	2.3
90-91	MIN.	0.7	1.1	0.8	1.2	1.4	2.3	1.0	0.7	0.8	0.5	0.2	0.2
	TOTAL AF	81.5	503.0	89.7	497.0	2109.0	4311.0	136.0	87.1	64.7	64.1	38.7	69.2

SAN GABRIEL RIVER
below Valley Boulevard
STATION NO. F261C-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading.

DRAINAGE AREA- 118.0 square miles (excludes area above Santa Fe Dam).

LOCATION- 1,150.0 feet below Valley Boulevard, 2.5 miles east of El Monte.

REGULATION- partly regulated by Santa Fe, Big Dalton, Puddingstone Diversion, and Puddingstone Dams.

CHANNEL- sand and gravel bottom with rip-rap side slopes; trapezoidal section.

CONTROL- concrete stabilizer with low-flow notch.

LENGTH OF RECORD- at Station F261-R March 11, 1937 to September 30, 1941. at Station F261B-R October 1, 1941 to April 23, 1946. at Station F261C-R November 29, 1960 to date.

REMARKS- flows may include imported water originating at Metropolitan Water District outlets at San Dimas Canyon and below San Bernardino Road.

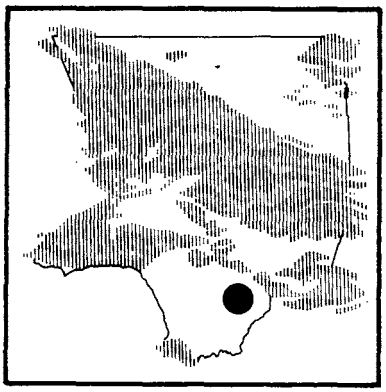
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

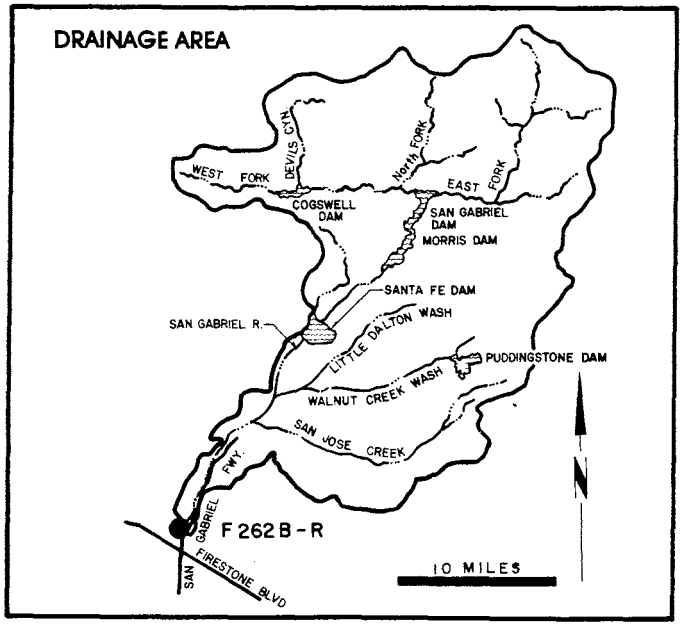
STATION NO. : F261C-R

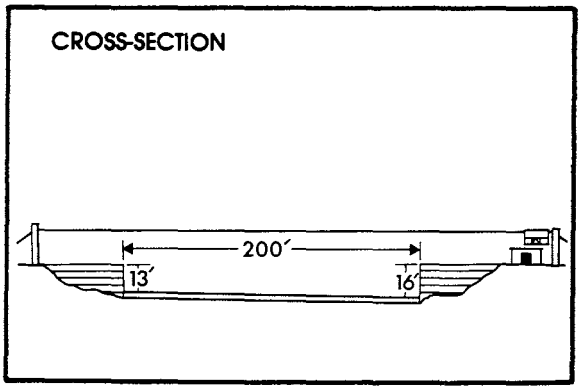
DRAINAGE AREA : 118.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	6.3	8.1	0.1	83.1	79.9	143.0	30.6	0.0	0.0	0.2	0.0	0.0
YEAR	MAX.	7.8	49.7	3.7	568.0	1470.0	1280.0	140.0	0.2	0.0	0.7	0.0	0.0
90-91	MIN.	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	387.0	482.0	7.3	5109.0	4437.0	8770.0	1820.0	0.6	0.0	10.1	0.0	0.0

SAN GABRIEL RIVER
above Florence Avenue
STATION NO. F262B-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 215.8 square miles (excludes area above Santa Fe Dam).

LOCATION- 1,400 feet above Florence Avenue, 2.0 miles east of Downey.

REGULATION- partially regulated by Cogswell, San Gabriel, Morris, Santa Fe, Big Dalton, San Dimas, Puddingstone Diversion, Puddingstone, Live Oak, Thompson Creek and Whittier Narrows Dams, several debris basins, MWD outlets, and several spreading grounds.

CHANNEL- sand bottom with rip-rap slopes, trapezoidal section.

CONTROL- concrete stabilizer.

LENGTH OF RECORD- at Station F267-R February 27, 1937 to September 30, 1967. at Station F262B-R August 6, 1968 to date.

REMARKS- no record during 1967-1968 season due to channel construction.

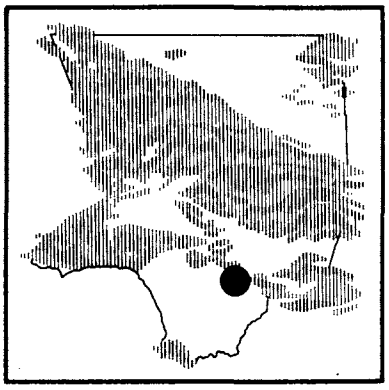
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

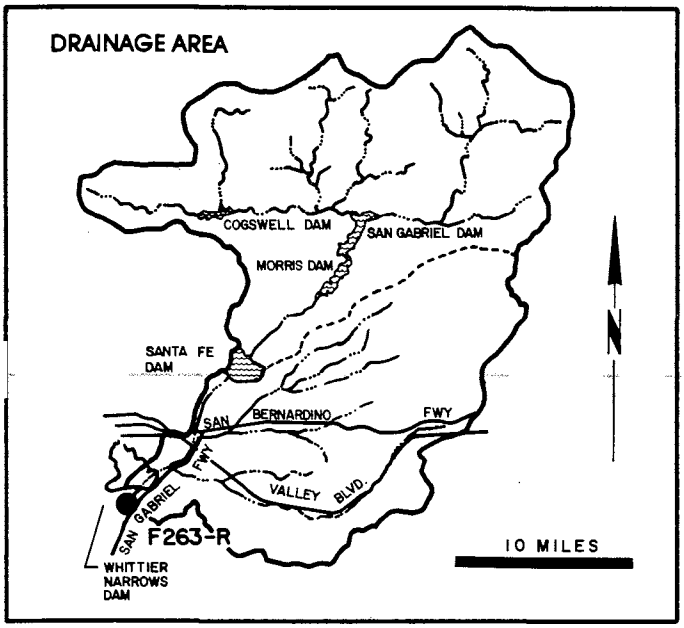
STATION NO. : F262B-R

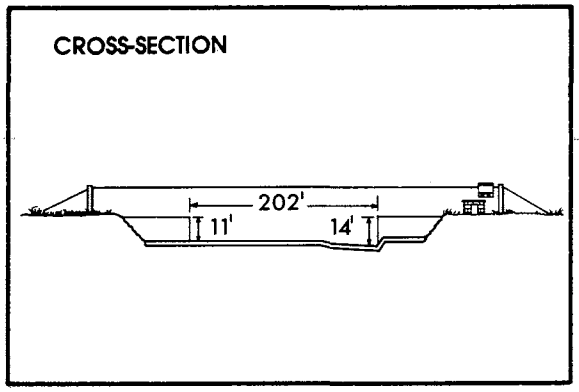
DRAINAGE AREA : 215.80 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.0	1.4	10.0	0.0	0.0	0.0	0.0	0.0	0.0
YEAR	MAX.	0.0	0.0	0.0	0.0	39.0	169.0	0.3	0.0	0.0	0.0	0.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.0	0.0	0.0	0.0	77.0	616.0	0.9	0.0	0.0	0.0	0.0	0.0

SAN GABRIEL RIVER
below San Gabriel River Parkway
STATION NO. F263C-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 206.3 square miles (excludes area above Santa Fe Dam).

LOCATION- 462.0 feet below San Gabriel River Parkway, 1.4 miles northeast of Pico Rivera.

REGULATION- partly regulated by Santa Fe, Big Dalton, Puddingstone Diversion, Puddingstone, and Thompson Creek Dams. Flows may include imported water from several Metropolitan Water District outlets. Water is at times diverted to the Zone I ditch upstream of Whittier Narrows Dam.

CHANNEL- rip-rap slopes with sand bottom trapezoidal section.

CONTROL- concrete stabilizer.

LENGTH OF RECORD - at Station F263-R February 4, 1937 to March 6, 1952. at Station F263B-R March 6, 1952 to August 9, 1968. at Station F263C-R August 9, 1968 to date.

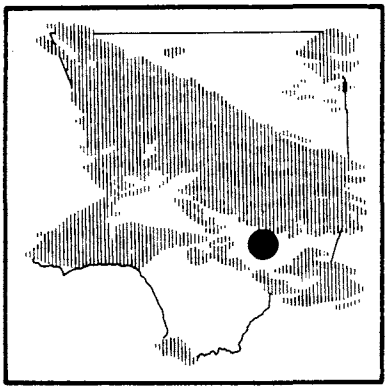
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

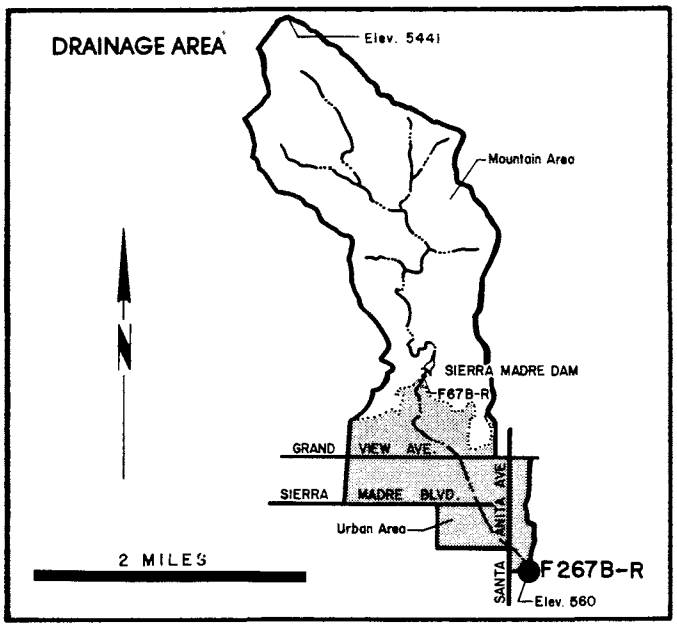
STATION NO. : F263C-R

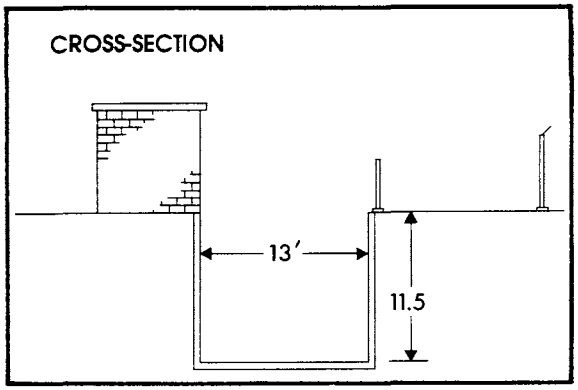
DRAINAGE AREA : 206.30 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	57.6	45.8	33.8	39.2	71.8	126.0	25.1	8.2	2.6	0.8	4.8	0.0
YEAR	MAX.	148.0	113.0	78.5	450.0	787.0	607.0	134.0	46.3	14.1	11.9	12.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	3540.0	2727.0	2014.0	2407.0	3990.0	7728.0	1493.0	502.0	156.0	51.6	295.0	0.0

SIERRA MADRE WASH
at Highland Oaks Avenue
STATION NO. F267B-R







RECORDER- 15 minute punched tape.

METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from upstream end of conduit 50 feet below station.

DRAINAGE AREA- 3.8 square miles.

LOCATION- on the south bank of the channel 50 feet above Highland Oaks Avenue, one and one-half miles southeast of Sierra Madre.

REGULATION- partially regulated by Sierra Madre Dam. Usual regulation affects high flows only.

DIVERSIONS- underground and surface flows developed and diverted by Sierra Madre Water Department. Flow also diverted about one mile above station for spreading in Sierra Madre Spreading Grounds.

CHANNEL-rectangular concrete 13 feet wide and 11.5 feet deep.

LENGTH OF RECORD- see station summary.

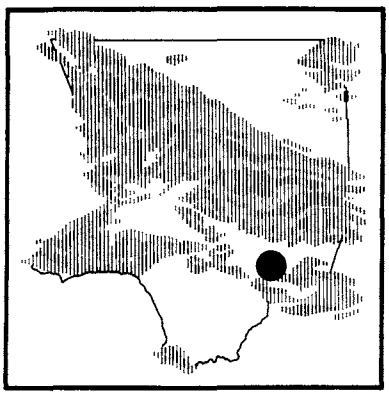
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

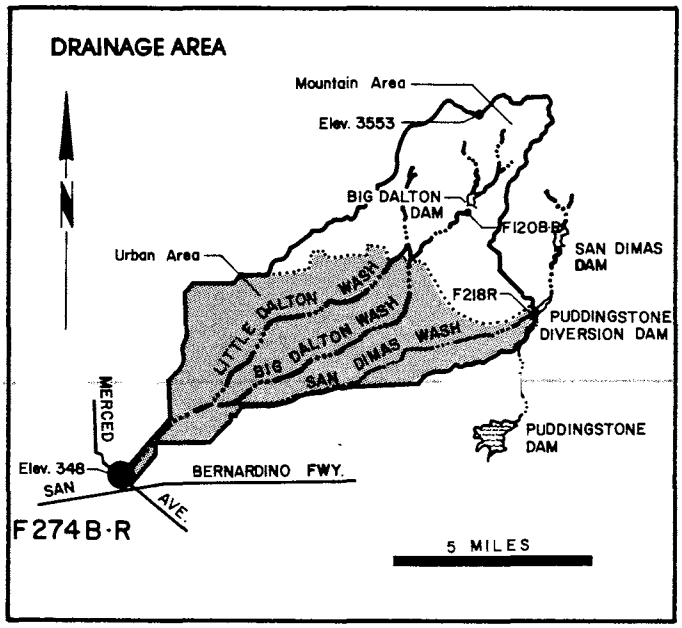
STATION NO. : F267B-R

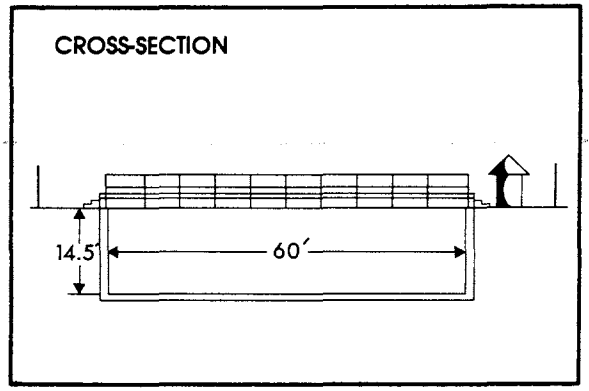
DRAINAGE AREA : 3.80 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.2	1.2							
YEAR	MAX.	0.0	0.4	0.1	2.9	17.9				DEACTIVATED			
90-91	MIN.	0.0	0.0	0.0	0.0	0.0							
	TOTAL AF	0.0	1.8	0.2	13.3	65.1							

DALTON WASH
at Merced Avenue
STATION NO. F274B-R







RECORDER- 15 minute punched tape.

METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from footbridge 100 feet upstream from station.

DRAINAGE AREA- 36.0 square miles, not including the area above Puddingstone Diversion Dam.

LOCATION- on the west bank and upstream of Merced Avenue about 150 feet, about one-half mile above the junction with Walnut Wash and about one mile south of Baldwin Park.

REGULATION- partly regulated by Big Dalton Dam, San Dimas Dam, Puddingstone Diversion Dam, Big Dalton Spreading Grounds, Little Dalton Spreading Grounds, Big Dalton Debris Basin, Little Dalton Debris Basin, and Irwindale Spreading Grounds.

REMARKS- flow may include imported water originating at San Dimas.

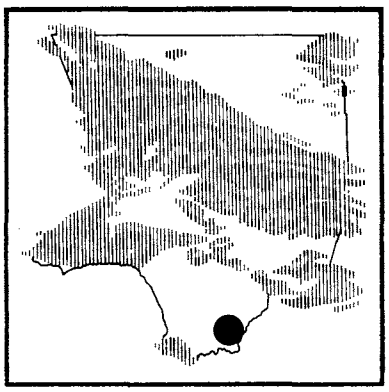
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

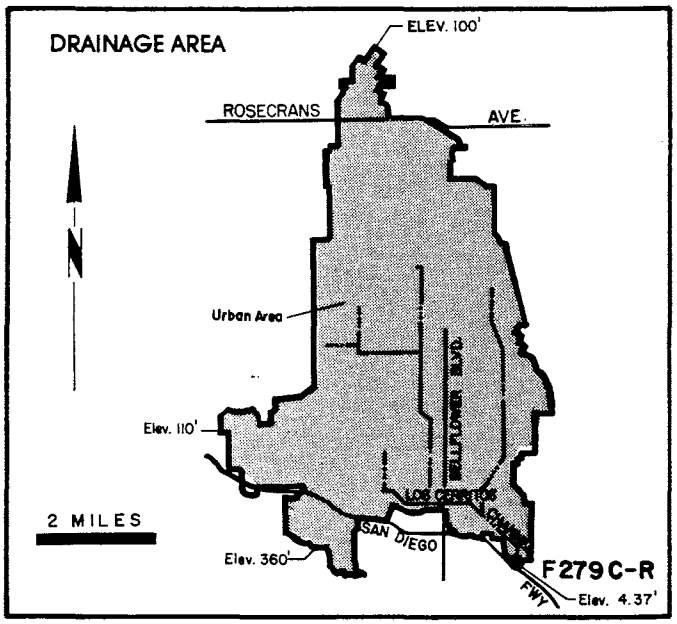
STATION NO. : F274B-R

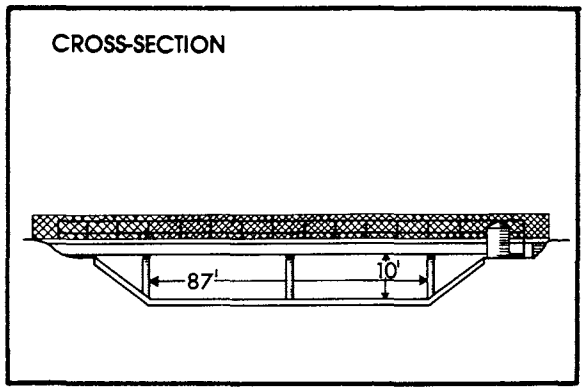
DRAINAGE AREA : 36.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	33.8	30.5	0.4	56.5	37.2	58.5	8.5	0.8	0.2	0.2	0.5	0.6
YEAR	MAX.	39.0	46.6	4.3	311.0	593.0	468.0	42.6	3.0	0.8	0.8	1.1	2.5
90-91	MIN.	29.9	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.1
	TOTAL AF	2078.0	1812.0	21.8	3475.0	2066.0	3599.0	507.0	49.8	11.5	10.1	33.3	36.3

LOS CERRITOS CHANNEL
at Stearns Street
STATION NO. F279C-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from bridge.

DRAINAGE AREA- 25.6 square miles.

LOCATION- upstream of Stearns Street, Long Beach.

REGULATION- none.

CHANNEL- concrete, trapezoidal in section.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F279-R November 23, 1942 to January 1, 1949. at Station F279B-R January 1, 1949 to May 26, 1955. at Station F279C-R October 26, 1955 to date.

REMARKS- station not in service May 26, 1955 to October 26, 1955 due to channel construction.

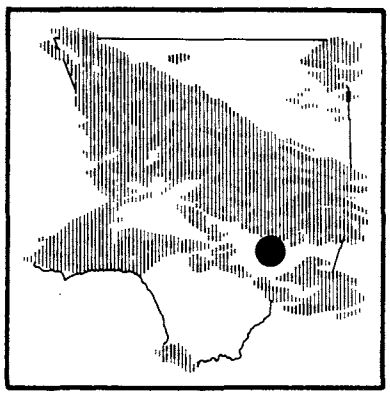
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

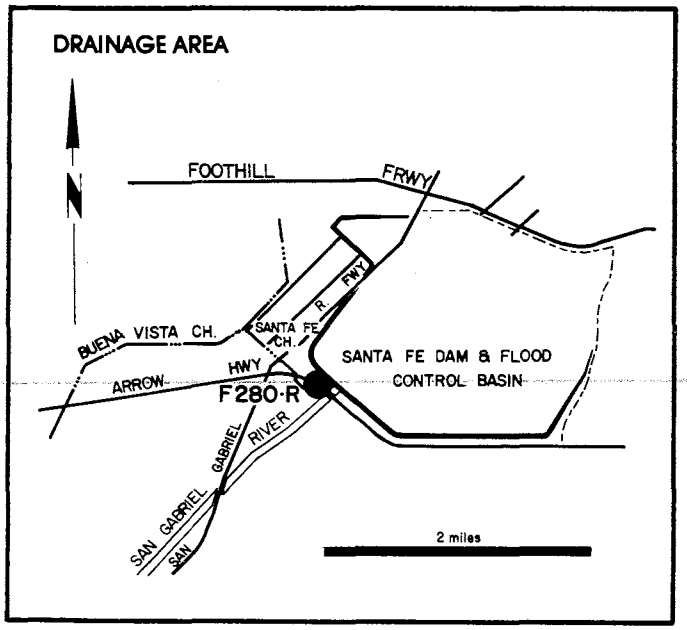
STATION NO. : F279C-R

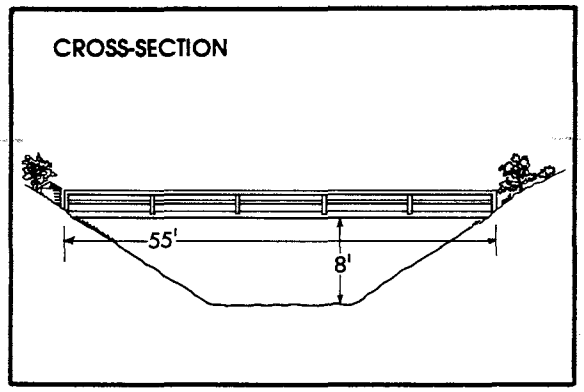
DRAINAGE AREA : 25.60 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.9	1.3	1.7	16.4	30.2	45.0	0.5					
YEAR	MAX.	1.5	20.2	4.5	160.0	489.0	262.0	1.4			DEACTIVATED		
90-91	MIN.	0.3	0.2	0.1	0.2	0.1	0.2	0.2					
	TOTAL AF	58.3	78.5	103.0	1008.0	1679.0	2766.0	31.1					

SANTA FE CHANNEL
below Santa Fe Dam
STATION NO. F280-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from footbridge.
DRAINAGE AREA- controlled.
LOCATION- 400.0 feet downstream of Santa Fe Dam outlet and 1.5 miles north of Baldwin Park.
REGULATION- flow regulated by five gates of stilling basin outlet of Santa Fe Dam.
CHANNEL- sand and gravel, natural section.
CONTROL- concrete stabilizer.
LENGTH OF RECORD- at Station F280-S October 1, 1942 to May 12, 1944. at Station F280-R May 12, 1944 to date.

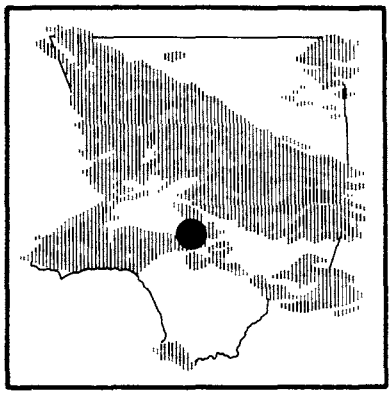
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

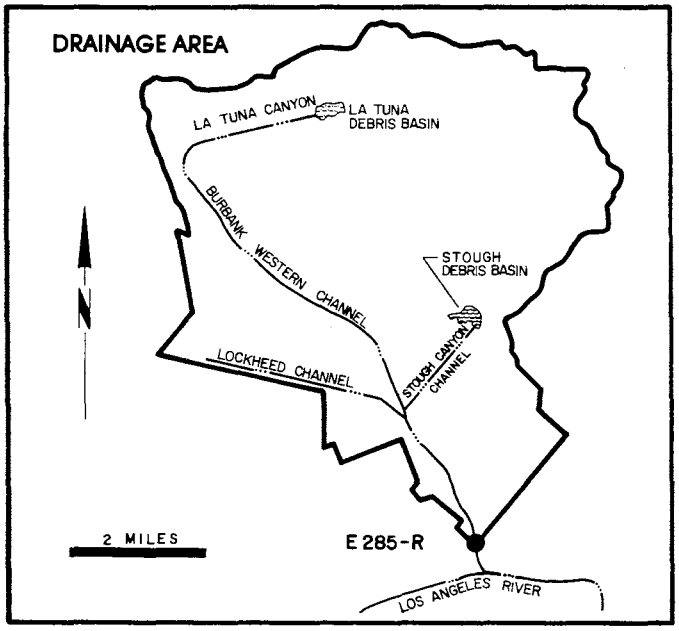
STATION NO. : F280-R

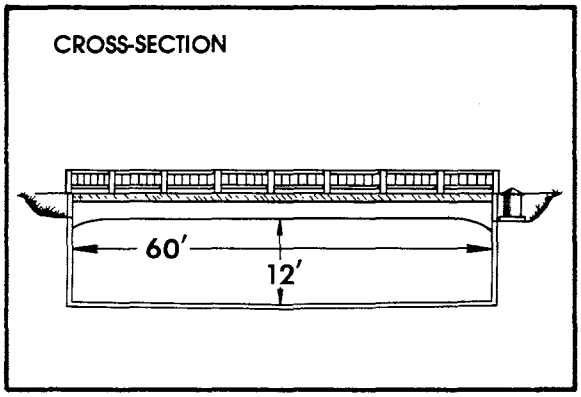
DRAINAGE AREA : CONTROLLED

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	93.5	152.0	28.1
YEAR	MAX.	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	547.0	531.0	53.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0
	TOTAL AF	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	5746.0	9366.0	1669.0

BURBANK-WESTERN ST. DR.
at Riverside Drive
STATION NO. E 285-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading and from bridge.
DRAINAGE AREA- 25.0 square miles.
LOCATION- 20.0 feet upstream from Riverside Drive bridge, Glendale.
REGULATION- Several debris basins on tributaries.
CHANNEL- concrete, rectangular section.
CONTROL- channel forms control.
LENGTH OF RECORD- October 1, 1949 to date.
REMARKS- operated in cooperation with the USCE.

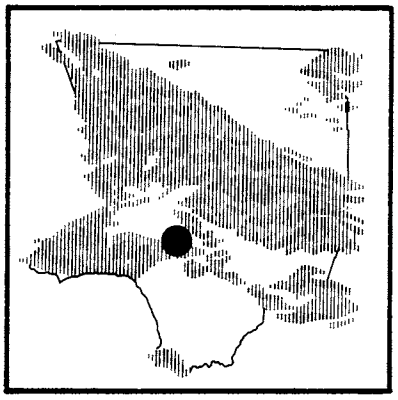
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

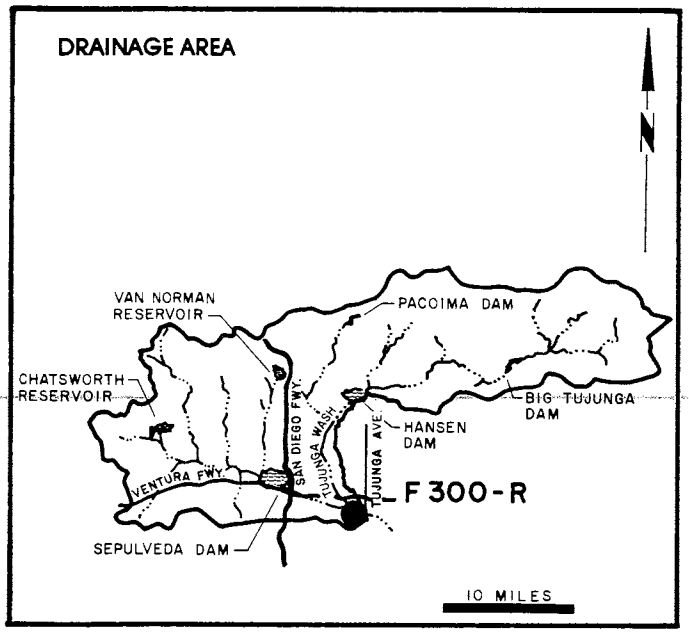
STATION NO. : E285-R

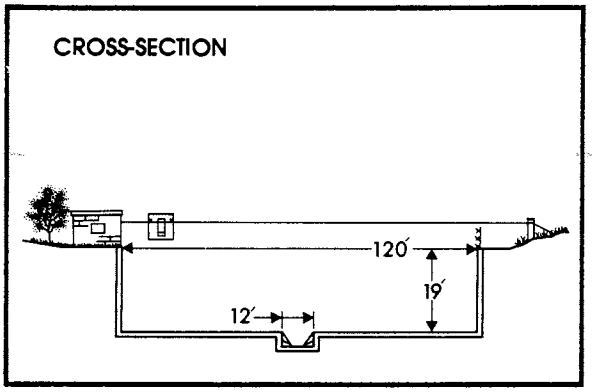
DRAINAGE AREA : 25.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	6.6	19.5	7.4	18.5	27.3	11.4	2.2	2.3	7.0	6.9	7.9	10.4
YEAR	MAX.	7.9	147.0	10.2	60.1	376.0	113.0	2.2	2.8	15.9	7.9	7.9	22.9
90-91	MIN.	5.0	6.2	3.4	2.2	4.6	2.0	1.7	1.2	4.6	1.5	7.9	9.0
	TOTAL AF	405.0	1158.0	456.0	1136.0	1515.0	699.0	129.0	139.0	418.0	423.0	486.0	617.0

LOS ANGELES RIVER
at Tujunga Avenue
STATION NO. F300-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 401.0 square miles.

LOCATION- 200.0 feet above Tujunga Avenue bridge, Studio City.

REGULATION- flow regulated by Sepulveda, Big Tujunga, Hansen, and Pacoima Dams, Lopez Debris Dam, and Project No. 85 Diversion.

CHANNEL- concrete, rectangular section, 120 feet wide by 19 feet deep.

CONTROL- channel forms control.

LENGTH OF RECORD- May 8, 1950, to date.

REMARKS- subject to diversions at mouth of Big Tujunga and Pacoima Canyons for irrigation, at Big Tujunga, Branford, Hansen, and Pacoima Spreading Grounds.

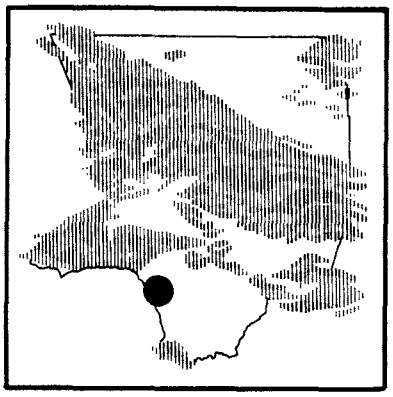
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

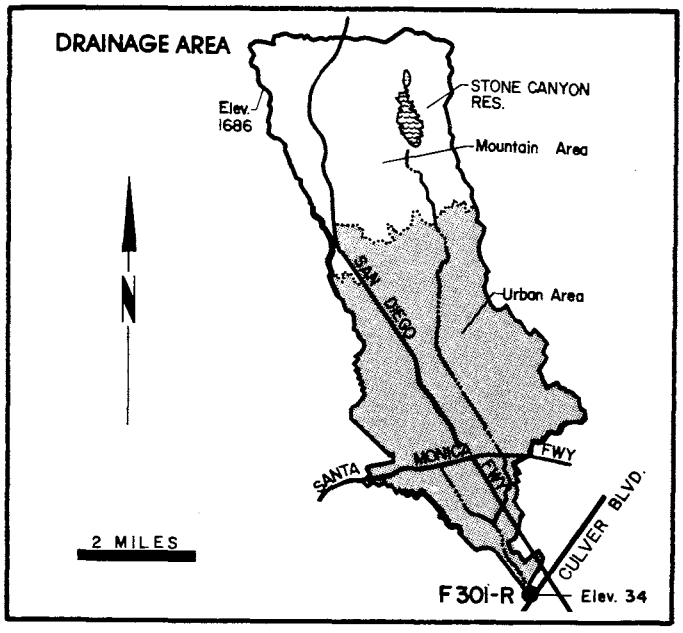
STATION NO. : F300-R

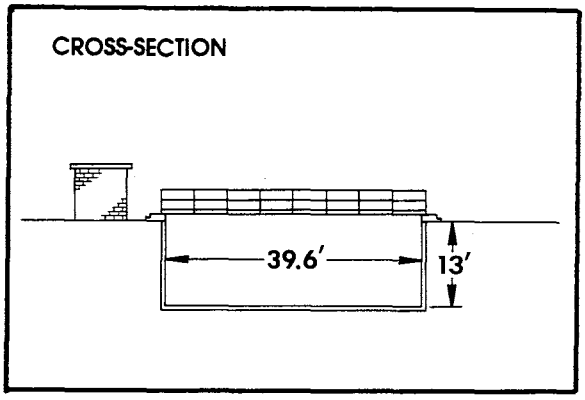
DRAINAGE AREA : 401.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	62.3	75.2	60.8	119.0	255.0	481.0	69.0	66.8	64.5	51.7	27.1	40.4
YEAR	MAX.	67.2	385.0	68.3	950.0	3130.0	2540.0	80.2	72.2	70.0	79.7	44.8	66.0
90-91	MIN.	50.1	48.4	43.5	47.4	45.5	61.7	53.9	58.1	43.5	36.8	14.4	23.4
	TOTAL AF	3829.0	4473.0	3736.0	7306.0	14170.0	29549.0	4103.0	4105.0	3837.0	3182.0	1667.0	2404.0

SAWTELLE-WESTWOOD CHANNEL
above Culver Boulevard
STATION NO. F301-R







RECORDER- 15 minute punched tape.

METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from footbridge at station.

DRAINAGE AREA- 22.96 square miles.

LOCATION- on the south channel wall, 141 feet above Culver Boulevard bridge about one and one half miles southwest of Culver City.

REGULATION- Stone Canyon Reservoir, Southern California Water Company spills flow up to 5.0 second-feet into Sawtelle-Westwood Channel above Chamock Road for short periods nearly every day.

CHANNEL- rectangular concrete channel 40 feet wide and 13 feet deep.

CONTROL- channel forms control.

LENGTH OF RECORD- see station summary.

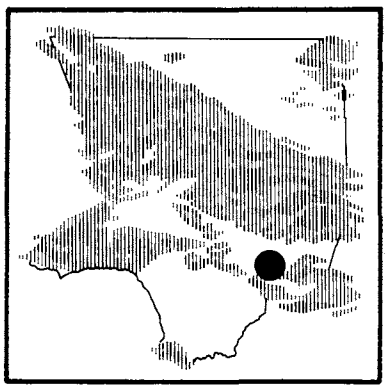
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

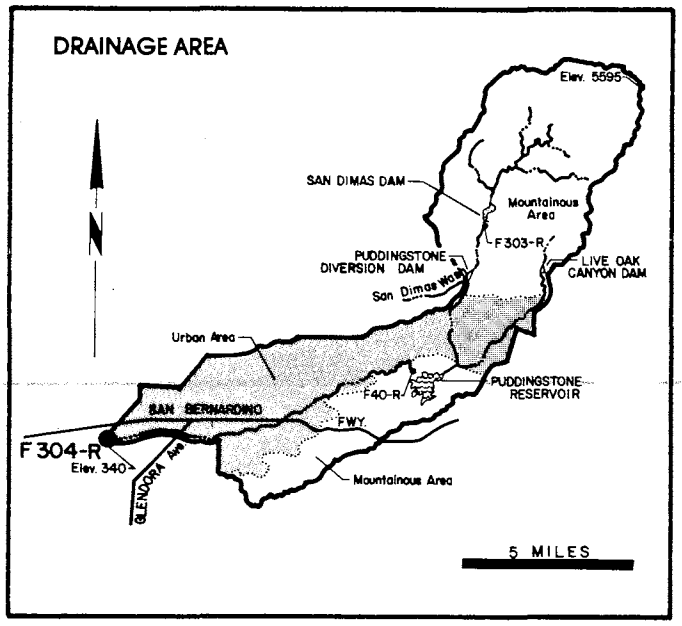
STATION NO. : F301-R

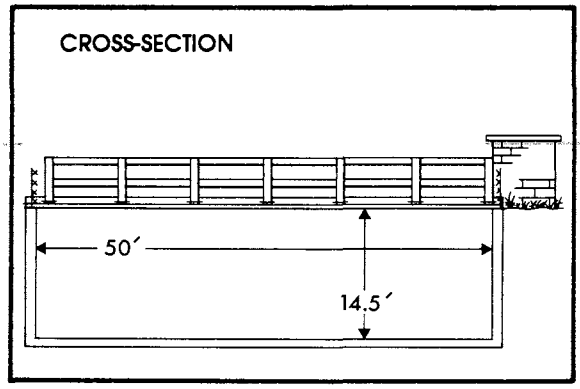
DRAINAGE AREA : 22.96 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	4.5	8.6	3.1	9.6	30.1	36.6						
YEAR	MAX.	5.0	78.0	9.0	102.0	599.0	302.0			DEACTIVATED			
90-91	MIN.	4.2	4.0	1.6	2.1	2.6	3.8						
	TOTAL AF	275.0	512.0	188.0	593.0	1673.0	2253.0						

WALNUT CREEK
above Puente Avenue
STATION NO. F304-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from footbridge.
DRAINAGE AREA- 57.6 square miles.
LOCATION- 845.0 feet upstream of Puente Avenue bridge, Baldwin Park.
REGULATION- partially regulated by San Dimas, Puddingstone Diversion, Puddingstone, and Live Oak Dams.
CHANNEL- concrete, rectangular in section.
CONTROL- channel forms control.
LENGTH OF RECORD- October 14, 1952 to April 11, 1961, January 3, 1962 to date.
REMARKS- no record during April 11, 1961 to January 3, 1962 due to channel construction.

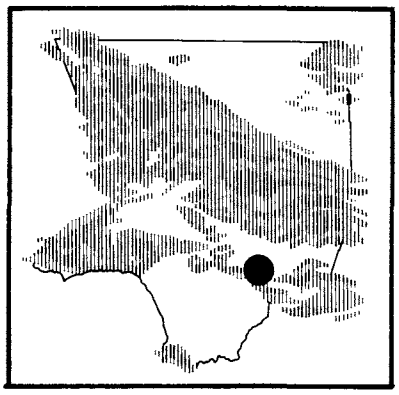
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

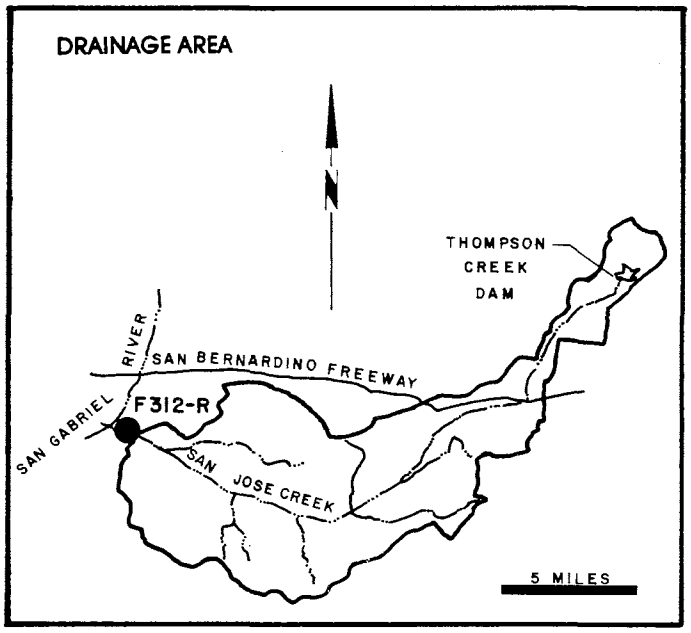
STATION NO. : F304-R

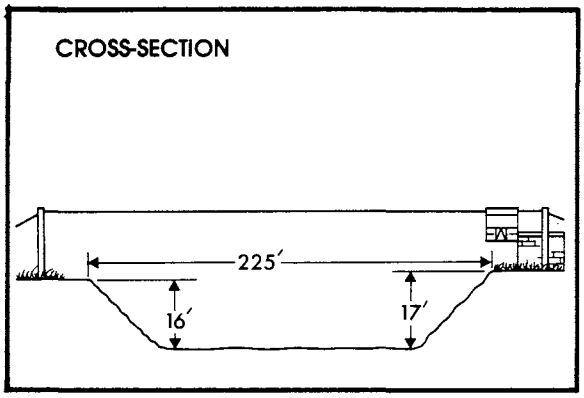
DRAINAGE AREA : 57.60 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	1.5	0.2	10.9	40.2	77.7	2.2	0.0	0.0	0.0	0.1	0.0
YEAR	MAX.	0.1	17.6	2.6	203.0	724.0	721.0	23.6	0.4	0.0	0.2	0.6	0.9
90-91	MIN.	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.2	89.7	14.5	671.0	2232.0	4780.0	130.0	1.0	0.0	0.4	3.4	2.2

SAN JOSE CHANNEL
above Workman Mill Road
STATION NO. F312-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from cable car.
DRAINAGE AREA- 83.4 square miles.
LOCATION- 1,650 feet above Workman Mill Road, 3.0 miles southeast of El Monte.
REGULATION- partially regulated by Thompson Creek Dam and Pomona Sewage Treatment Plant.
CHANNEL- grouted rip-rap side slopes with natural bottom, trapezoidal section.
CONTROL- rock stabilizer.
LENGTH OF RECORD- September 13, 1955 to date.

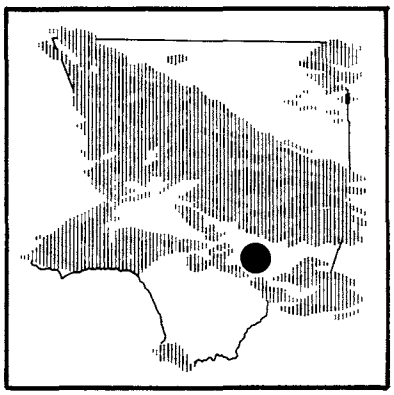
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

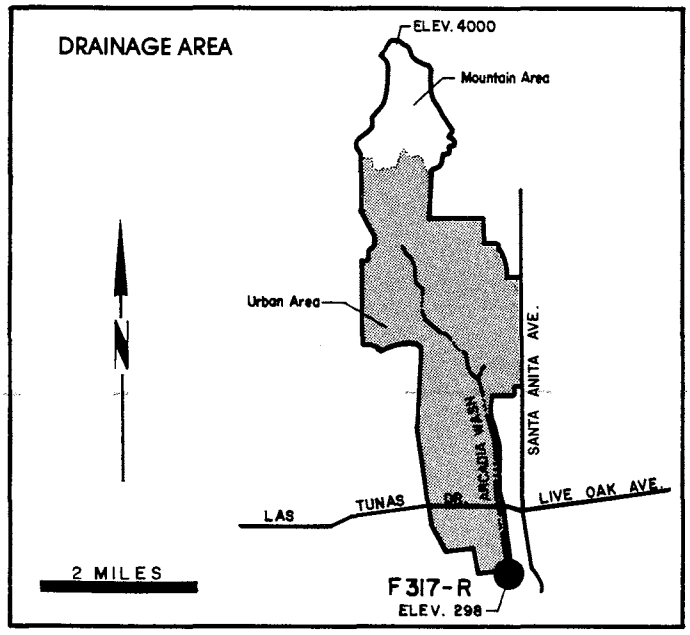
STATION NO. : F312-R

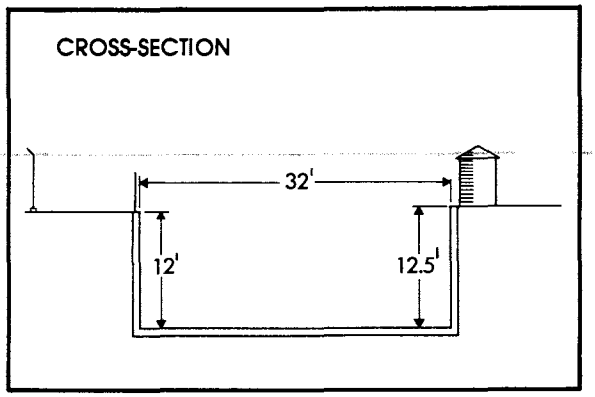
DRAINAGE AREA : 83.40 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	112.0	41.3	11.8	69.5	141.0	221.0	16.8	12.2	10.0	10.5	23.8	146.0
YEAR	MAX.	141.0	135.0	29.1	863.0	1960.0	1960.0	25.7	25.7	14.1	15.5	137.0	154.0
90-91	MIN.	13.2	7.5	7.8	10.8	9.6	12.0	13.7	9.1	7.1	8.6	9.5	136.0
	TOTAL AF	6916.0	2457.0	724.0	4271.0	7804.0	13613.0	1002.0	750.0	595.0	645.0	1465.0	8713.0

ARCADIA WASH
below Grand Avenue
STATION NO. F317-R







RECORDER- 15 minute punched tape.
METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from upstream side of Grand Avenue bridge.
DRAINAGE AREA- 8.5 square miles.
LOCATION- on the west wall of Arcadia Wash about 75 feet downstream from centerline of Grand Avenue.
REGULATION- several debris basins located upstream.
CHANNEL- rectangular concrete.
LENGTH OF RECORD- December 12, 1955 to date.

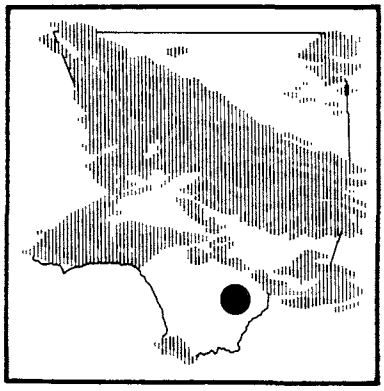
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

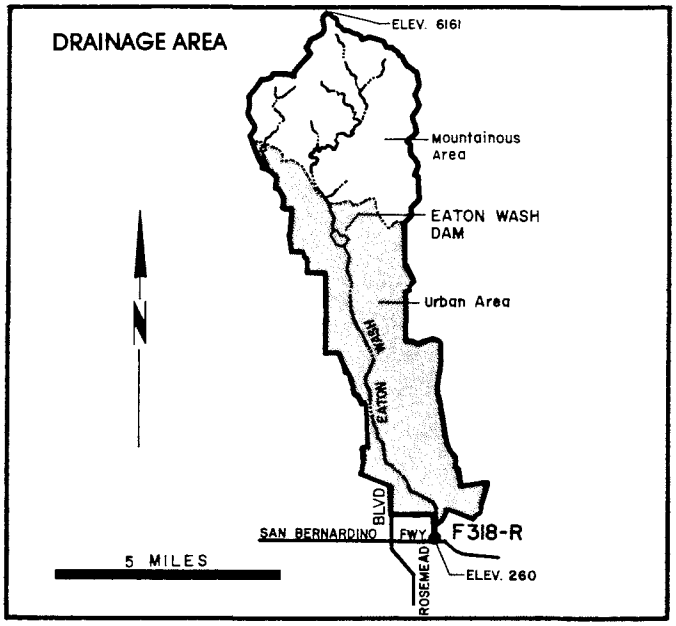
STATION NO. : F317-R

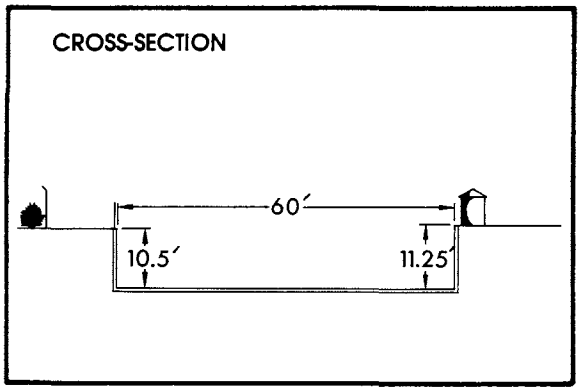
DRAINAGE AREA : 8.50 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.6	2.1	0.5	8.7	16.5	27.2	0.3	0.7	0.7	0.4	0.8	1.9
YEAR	MAX.	3.1	25.6	4.7	125.0	228.0	173.0	0.9	12.4	3.4	1.3	1.3	20.2
90-91	MIN.	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.7
	TOTAL AF	33.9	124.0	30.1	535.0	918.0	1671.0	15.7	40.5	43.6	23.8	50.2	113.0

EATON WASH
at Loftus Drive
STATION NO. F318-R







RECORDER- 15 minute punched tape.

METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from upstream side of East Loftus Drive bridge.

DRAINAGE- 22.8 square miles.

LOCATION- on the west wall of the channel 52 feet above the centerline of East Loftus Drive bridge, 1.3 miles west of El Monte.

REGULATION- partly regulated by Eaton Dam.

DIVERSIONS- the Pasadena Water Department diverts some water just above the mouth of Eaton Canyon. The Flood Control District diverts water to spreading grounds below Eaton Dam and below Huntington Drive.

CHANNEL- rectangular concrete, 60 feet wide, 11.3 feet.

CONTROL- channel forms control.

LENGTH OF RECORD- 1956 to date.

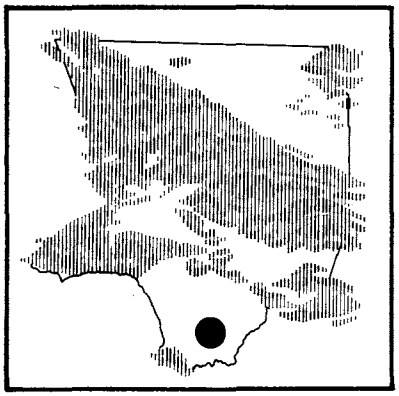
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

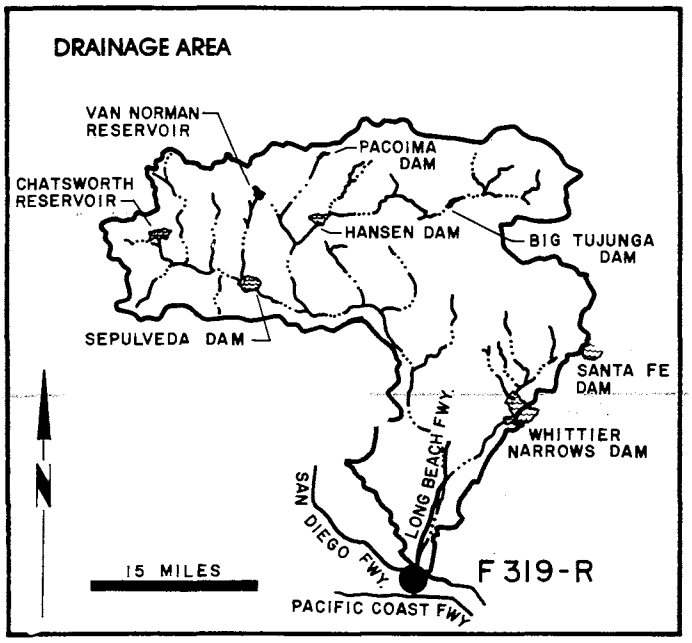
STATION NO. : F318-R

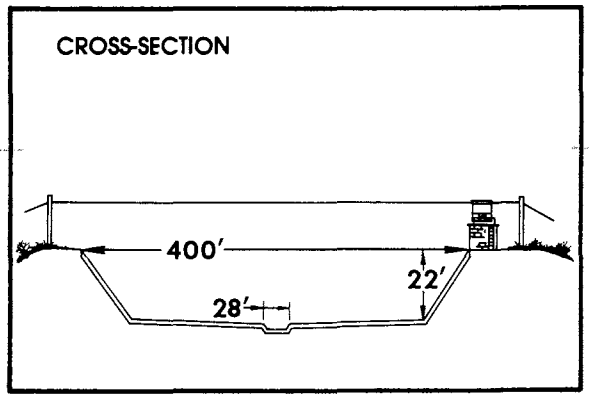
DRAINAGE AREA : 22.80 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.1	1.8	0.2	6.5	20.6	36.3	0.1	0.0	0.1	0.2	0.1	0.2
YEAR	MAX.	0.2	31.4	4.0	110.0	331.0	278.0	3.0	0.3	0.2	1.6	0.5	2.3
90-91	MIN.	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0
	TOTAL AF	7.5	110.0	15.1	399.0	1143.0	2230.0	7.3	2.2	6.9	12.7	8.9	10.7

LOS ANGELES RIVER
below Wardlow Road
STATION NO. F319-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 815.0 square miles (excludes area above Santa Fe Dam).

LOCATION- 900.0 feet below Wardlow Road, Long Beach.

REGULATION- flow is subject to the same regulation as Stations F34D-R and P45B-R.

DIVERSIONS- flows diverted to Dominguez Gap Spreading Grounds.

CHANNEL- trapezoidal, concrete, 302.0 feet wide at bottom with 2.25:1 side slopes. Low flow channel 28.0 feet wide by 1.0 foot deep in center of channel.

CONTROL- channel forms control.

LENGTH OF RECORD- at Station F180-R October 31, 1931 to January 13, 1956. at Station F319-R January 13, 1956 to date.

REMARKS- prior to 1931, see Station F36-R.

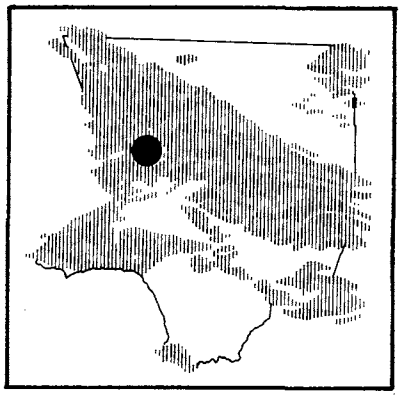
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

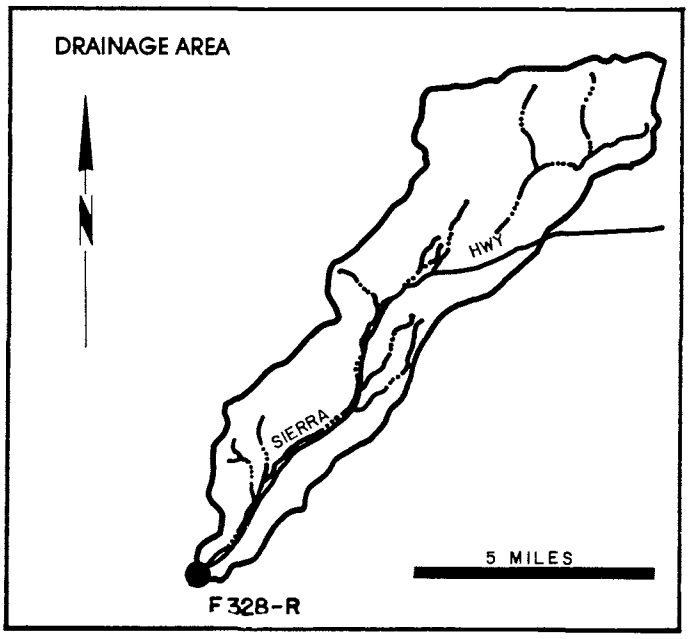
STATION NO. : F319-R

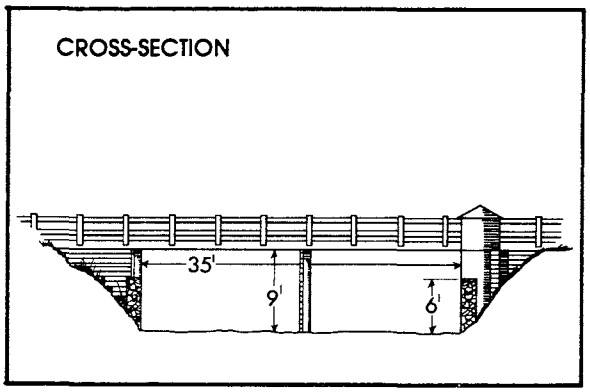
DRAINAGE AREA : 815.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	125.0	271.0	129.0	344.0	732.0	1340.0	148.0	128.0	127.0	138.0	125.0	133.0
YEAR	MAX.	129.0	2790.0	173.0	2220.0	10700.0	8290.0	187.0	142.0	156.0	257.0	149.0	250.0
90-91	MIN.	120.0	120.0	120.0	128.0	130.0	287.0	136.0	120.0	116.0	116.0	114.0	108.0
	TOTAL AF	7694.0	16122.0	7914.0	21138.0	40647.0	82556.0	8785.0	7896.0	7557.0	8489.0	7670.0	7942.0

MINT CANYON CREEK
at Finch Avenue
STATION NO. F328-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from bridge.
DRAINAGE AREA- 26.9 square miles.
LOCATION- 8.5 miles northeast of Saugus on west end of Fitch Avenue bridge.
REGULATION- none.
CHANNEL- natural, sand and gravel.
CONTROL- concrete control at downstream end of bridge.
LENGTH OF RECORD- October 26, 1956 to date.

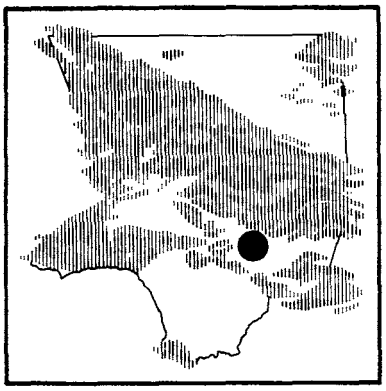
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

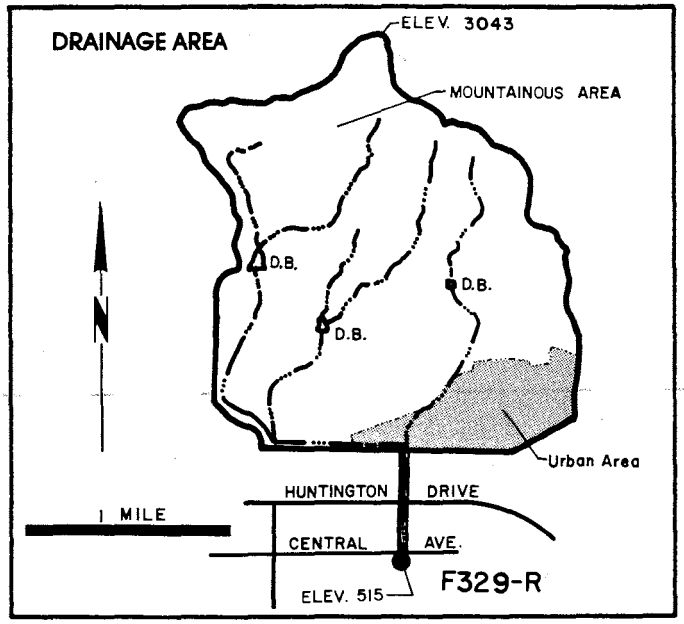
STATION NO. : F328-R

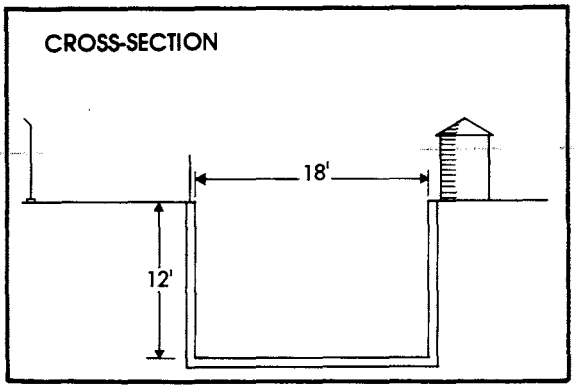
DRAINAGE AREA : 26.90 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER YEAR 90-91	MEAN	RECORDER INOPERATIVE							0.0	0.0	0.0	0.0	0.0
	MAX.								0.0	0.0	0.0	0.0	0.0
	MIN.								0.0	0.0	0.0	0.0	0.0
	TOTAL AF								0.0	0.0	0.0	0.0	0.0

BRADBURY CHANNEL
below Central Avenue
STATION NO. F329-R







RECORDER- 15 minute punched tape.
METHOD OF MEASUREMENT- low flows measured by wading. High flows measured from footbridge four feet downstream from recorder.
DRAINAGE AREA- 3.3 square miles.
LOCATION- on the east wall of Bradbury Channel, 200 feet downstream from the centerline of Central Avenue, one mile east of Duarte.
REGULATION- two debris basins located upstream.
CHANNEL- rectangular concrete, 18 feet wide, 12 feet deep.
CONTROL- channel forms control.
LENGTH OF RECORD- June 14, 1957 to present.

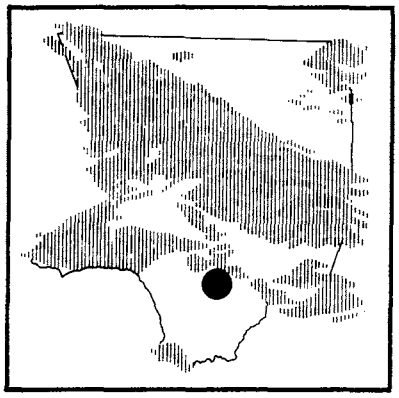
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

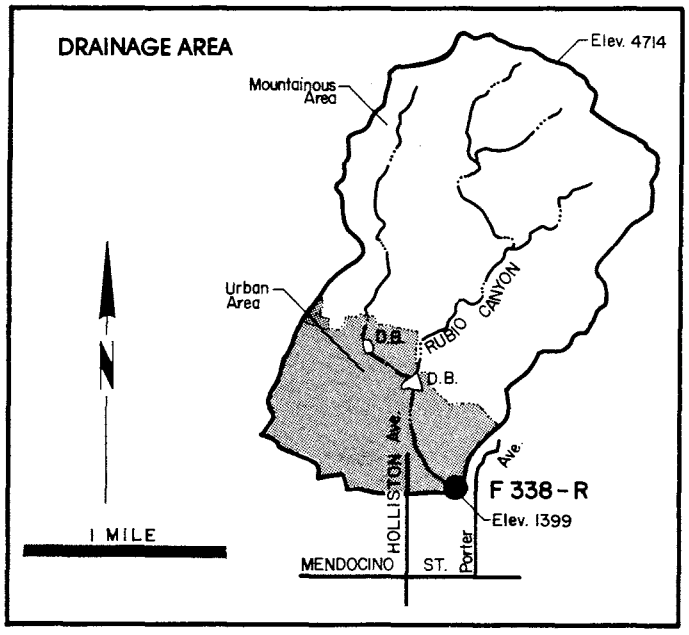
STATION NO. : F329-R

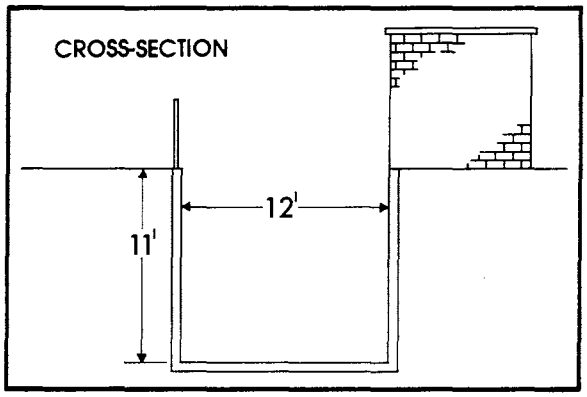
DRAINAGE AREA : 3.30 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.7	0.1	0.2	2.1	4.4	5.7	1.1	1.2	1.0	1.9	1.7	1.2
YEAR	MAX.	1.5	0.6	0.6	23.5	44.6	44.6	1.7	2.8	3.1	2.4	3.0	3.2
90-91	MIN.	0.3	0.0	0.1	0.1	0.6	0.3	0.8	0.6	0.3	1.1	0.6	0.1
	TOTAL AF	43.6	6.1	9.7	131.0	244.0	351.0	62.7	73.8	58.3	115.0	105.0	66.4

RUBIO DIVERSION CHANNEL
below Goosebury Inlet
STATION NO. F338-R







RECORDER- 15 minute punched tape.
METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from steel footbridge 27 feet above station.
DRAINAGE AREA- 2.1 square miles.
LOCATION- on the north bank, 375 feet upstream of Crest Drive, three and one-half miles northeast of Pasadena.
REGULATION- flow partially regulated by Rubio and Gooseberry Debris Basins.
DIVERSIONS- Rubio Canyon Land and Water Association diverts low flows in Rubio Canyon.
CHANNEL- rectangular concrete, 12 feet wide and 11 feet deep.
CONTROL- channel forms control.
LENGTH OF RECORD- December 16, 1959 to date.

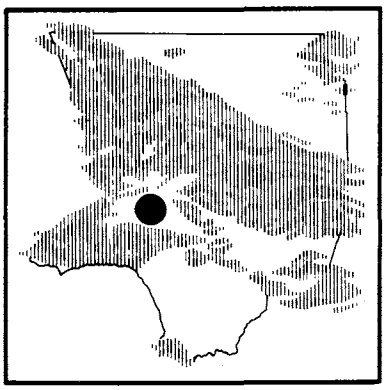
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

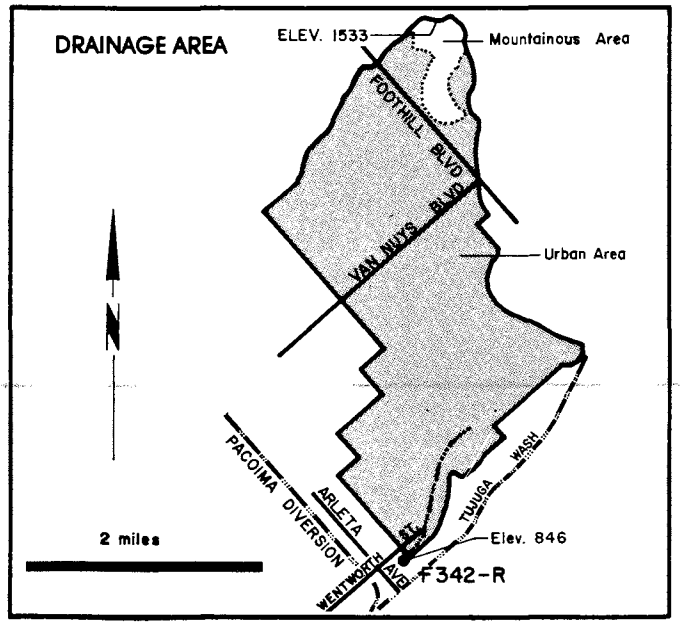
STATION NO. : F338-R

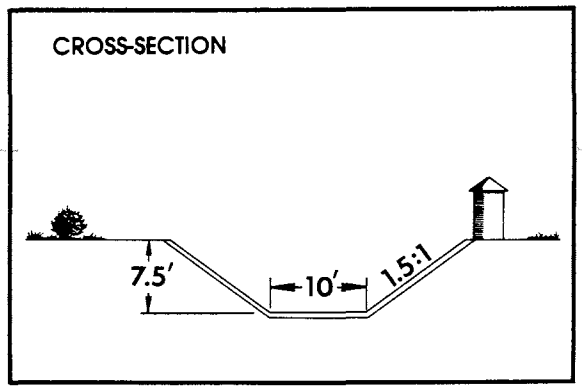
DRAINAGE AREA : 2.10 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.1	0.0	0.3	0.7	2.4	0.3	0.0	0.1	0.1	0.0	0.1
YEAR	MAX.	0.1	0.8	0.2	4.0	11.8	16.3	1.7	0.0	0.4	1.0	0.2	0.3
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.2	5.0	2.0	19.0	40.9	149.0	16.1	0.0	6.5	3.8	2.0	4.0

BRANFORD STREET CHANNEL
below Sharp Avenue
STATION NO. F342-R







RECORDER- 15 minute punched tape.
METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured by floats.
DRAINAGE AREA- 5.01 square miles.
LOCATION- on the south bank of channel, 125 feet downstream from Sharp Avenue, about 3.6 miles south of San Fernando.
REGULATION- flow from Lopez Creek is diverted to Hansen Dam at the mouth of Lopez Canyon.
CHANNEL- trapezoidal, 10 feet wide at bottom and 7.5 feet deep with 1. 5 to 1 side slopes.
CONTROL- channel forms control.
LENGTH OF RECORD- January 12, 1962 to date.

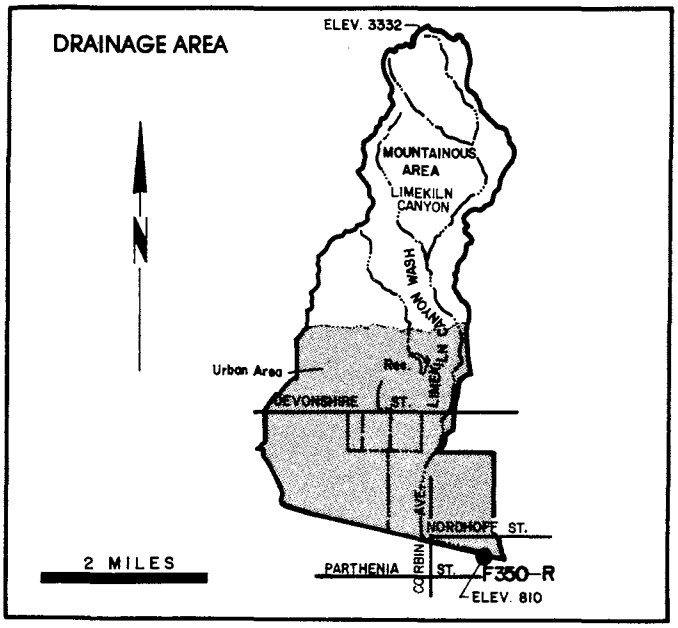
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

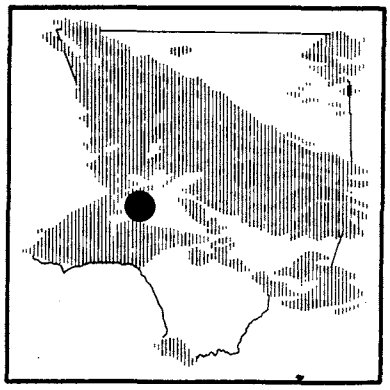
STATION NO. : F342-R

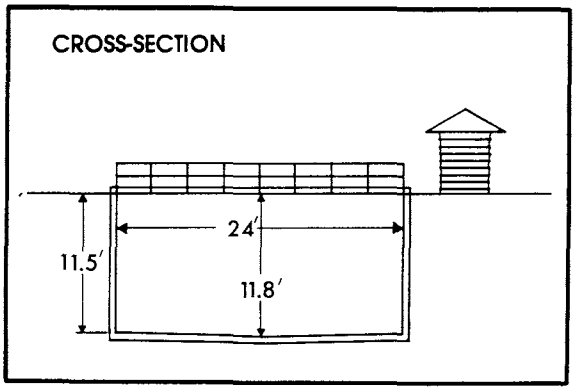
DRAINAGE AREA : 5.01 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.5	0.0	1.4	3.4	6.7	0.0	0.0	0.0	0.0	0.0	0.0
YEAR	MAX.	0.2	7.1	0.6	24.0	64.6	49.6	0.2	0.2	0.0	0.8	0.3	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.4	26.8	2.2	88.1	190.0	415.0	1.0	0.4	0.0	1.6	0.8	0.0

LIMEKILN CREEK
above Aliso Creek
STATION NO. F350-R







RECORDER- 15 minute punched tape.
METHOD OF MEASUREMENTS- low flows measured by wading. High flows measured from a steel footbridge 10 feet above the gage.
DRAINAGE AREA- 10.3 square miles.
LOCATION- on the south bonk, 1,600 feet above Aliso Creek and one mile west of Northridge.
REGULATION- flow partly regulated by Limekiln Debris Basin.
CHANNEL- rectangular concrete.
LENGTH OF RECORD- see station summary.

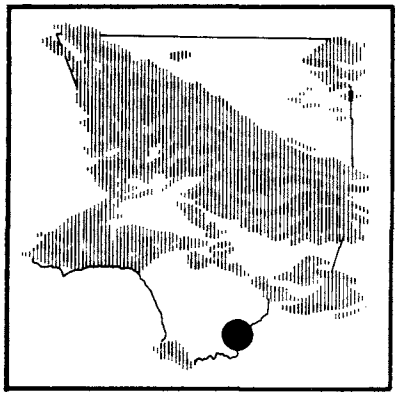
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

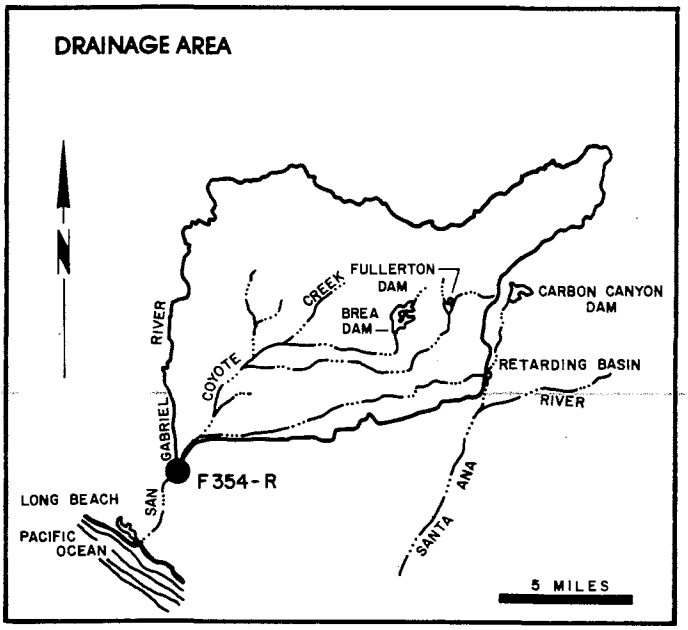
STATION NO. : F350-R

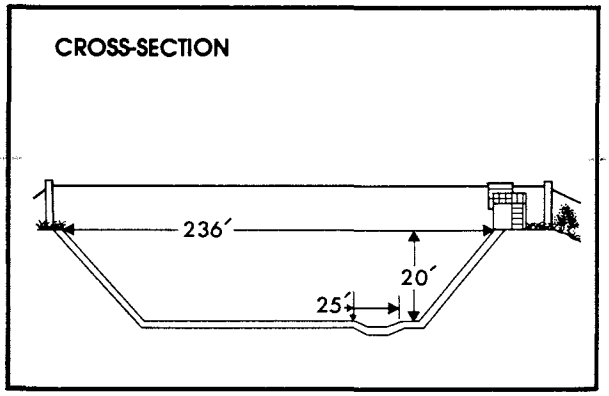
DRAINAGE AREA : 10.30 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER YEAR 90-91	MEAN	0.9	1.6	0.5	0.6	12.2	16.0	0.3	0.4				
	MAX.	4.1	10.4	1.0	10.4	201.0	100.0	1.0	0.7		DEACTIVATED		
	MIN.	0.4	0.1	0.1	0.0	0.4	0.2	0.2	0.2				
	TOTAL AF	56.3	92.2	30.3	36.3	678.0	984.0	19.6	22.0				

COYOTE CREEK
below Spring Street
STATION NO. F354-R







RECORDER- continuous water stage.

METHOD OF MEASUREMENTS- wading or from cable car.

DRAINAGE AREA- 185.0 square miles.

LOCATION- 241.0 feet below Spring Street, 7.5 miles northeast of Long Beach.

REGULATION- partially regulated by Fullerton Dam, Brea Dam, and Carbon Canyon Dam.

CHANNEL- concrete, trapezoidal in section.

CONTROL- channel forms control.

LENGTH OF RECORD - December 17, 1963 to date.

REMARKS - previous gaging stations for record corelation: Station F41 - S December 1, 1928 to January 14, 1930. Station F41 - R January 14, 1930 to October 30, 1936. Station F41B - R October 30, 1936 to February 17, 1937. Station F41C - R February 18, 1937 to February 8, 1956. Station F320 - R February 9, 1956 to July 2, 1965.

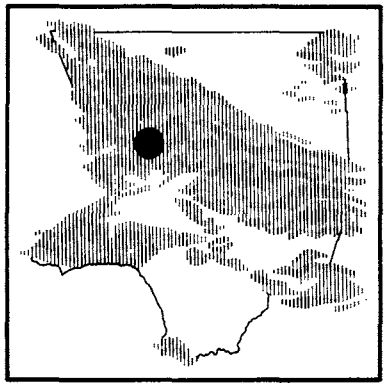
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

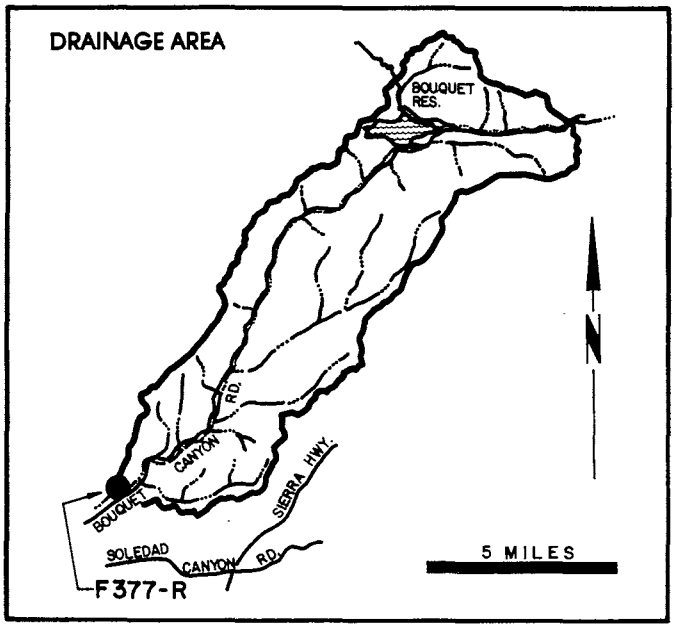
STATION NO. : F354-R

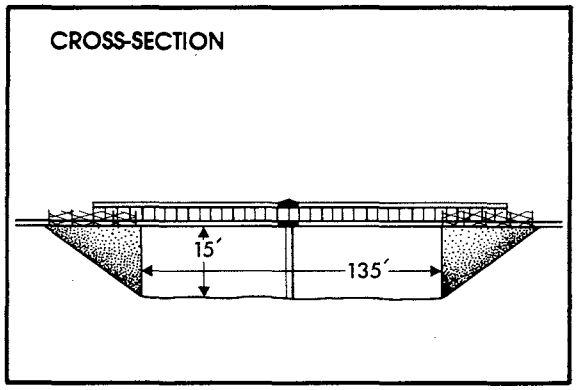
DRAINAGE AREA : 185.00 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	5.5	18.3	7.3	61.8	160.0	294.0	16.2	6.5	8.5	7.0	5.8	5.5
YEAR	MAX.	6.8	286.0	33.9	613.0	2250.0	1840.0	39.4	9.0	31.3	23.1	17.1	11.8
90-91	MIN.	3.9	3.7	4.8	3.5	3.7	4.1	9.0	4.5	5.5	5.5	4.5	3.4
	TOTAL AF	337.0	1088.0	450.0	3798.0	8876.0	18097.0	964.0	398.0	506.0	430.0	358.0	329.0

BOUQUET CANYON CREEK
at Urbandale Avenue
STATION NO. F377-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS- wading or from bridge.
DRAINAGE AREA- 51.9 square miles.
LOCATION- Bouquet Canyon Creek at Urbandale Avenue, 3.5 miles northeast of Saugus.
REGULATION- Bouquet Reservoir.
CHANNEL- concrete sides with natural bottom, trapezoidal in section.
CONTROL- concrete stabilizer.
LENGTH OF RECORD- October 11, 1967 to date.

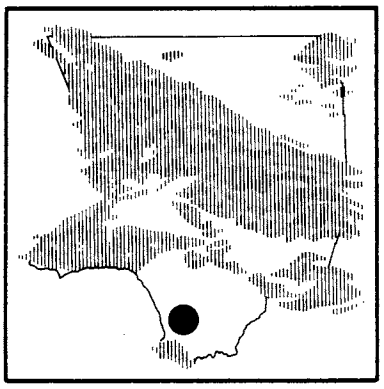
WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

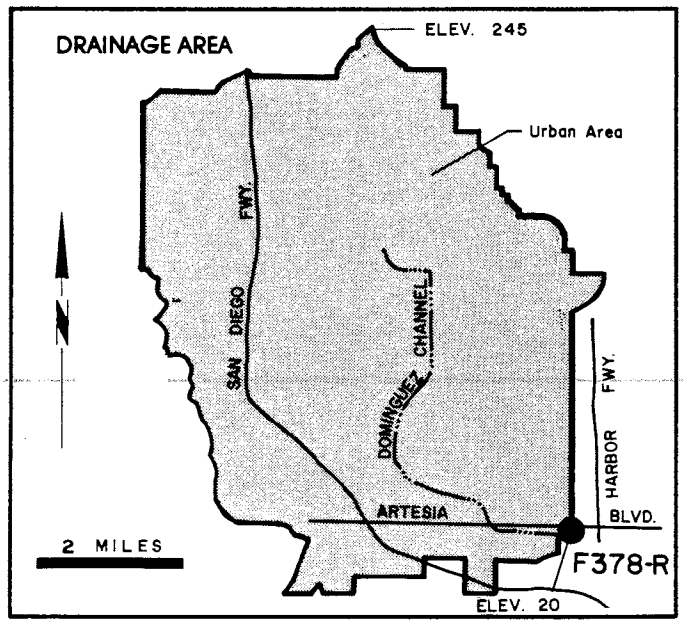
STATION NO. : F377-R

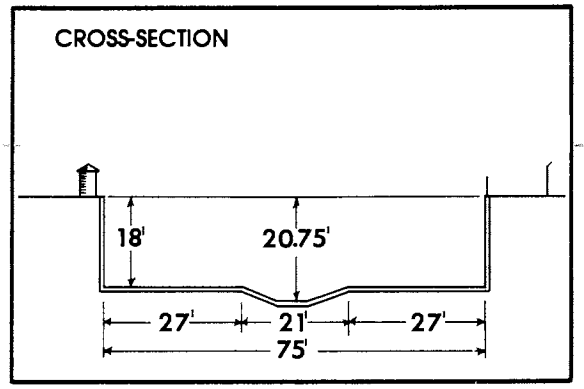
DRAINAGE AREA : 51.90 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
YEAR	MAX.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
90-91	MIN.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL AF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0	0.0

DOMINGUEZ CHANNEL
at Vermont Avenue
STATION NO. F378-R







RECORDER- continuous water stage.
METHOD OF MEASUREMENTS-low flows measured by wading. High flows measured from Vermont Avenue bridge.
DRAINAGE AREA- 37.1 square miles.
LOCATION- on the south bank, 93 feet above Vermont Avenue, about one mile south of Gardena.
REGULATION- none
CHANNEL- rectangular concrete with trapezoidal low flow channel at center.
LENGTH OF RECORD- November 23, 1966 to date .
REMARKS- gage is affected by tides greater than 4.0 feet above mean lower low water.

WATER YEAR 1990 - 91
(DISCHARGE IN SEC-FT.)

STATION NO. : F378-R

DRAINAGE AREA : 37.10 SQ. MI.

		OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
WATER	MEAN	1.7	2.5	2.1	7.3	7.8	15.1	1.9	1.3	1.3	2.4	1.0	1.8
YEAR	MAX.	2.7	15.0	3.8	76.2	102.0	111.0	3.1	1.8	1.9	20.2	2.4	10.4
90-91	MIN.	1.2	1.0	1.4	1.1	1.1	1.7	1.3	0.8	0.8	1.0	0.3	0.9
	TOTAL AF	105.0	146.0	127.0	449.0	432.0	928.0	115.0	81.9	74.2	146.0	59.9	106.0

RESERVOIRS

RESERVOIRS

Following the damaging flood of 1914 and creation of the Los Angeles County Flood Control District in 1915, a program of flood control and water conservation was initiated. Part of this program included the construction of 14 dams. These dams were operated by the Department during the period covered by this report. In addition, two Corps of Engineers' dams, Santa Fe Dam and Whittier Narrows Dam, and Morris Dam owned by The Metropolitan Water District were operated in conjunction with the Department dams to achieve flood control and/or water conservation.

OPERATION

The reservoirs are operated to control flood waters during storm periods. Post storm releases are made, when feasible, in amounts which can be conserved in downstream spreading grounds and by channel percolation. Cleanouts are done to regain storage capacity in reservoirs (see Erosion Control for cleanout data). Cogswell Reservoir had valve cylinders replaced this water year during a dry cleanout.

RECORDS

The storage and flow records at the 14 Department reservoirs are summarized on the Dam Operation Record Sheets. The sheets show:

1. Reservoir water surface elevations. Elevations are obtained from water stage recorder graphs or interpolation from staff gage readings and recorded as of midnight of each day. Only maximum and minimum water surface elevations for each year are shown.

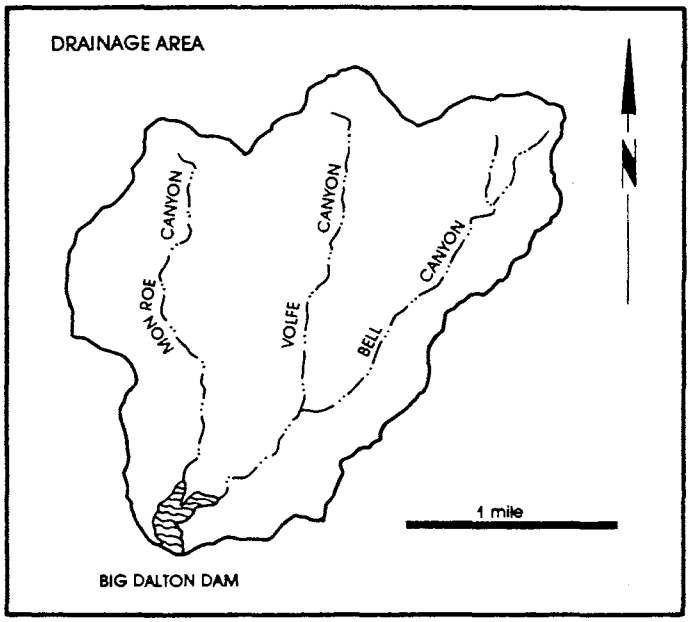
2. Storage in acre-feet based on the most recent topographic surveys. Annual storage volumes are shown.

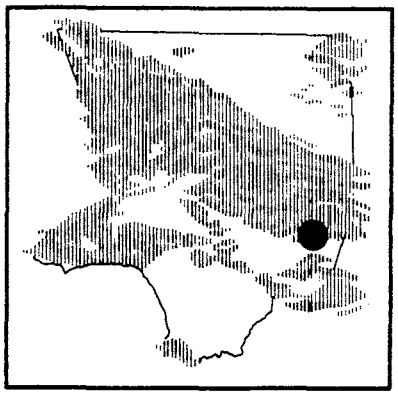
3. Inflow in cubic feet per second. This is usually calculated from storage change and known outflow. Only the maximum and minimum of the daily flow rates for the year and the instantaneous peak flow rate are shown.

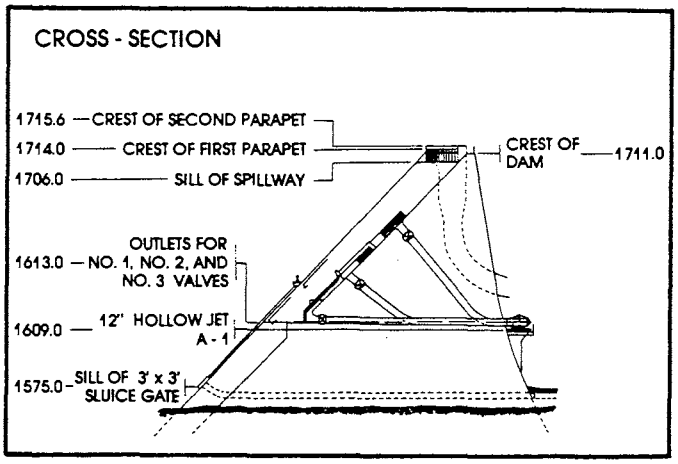
4. Outflow in cubic feet per second. These values are determined from gaging station records, or when these are not available, from valve and spillway rating curves. Only the maximum and minimum of the daily outflow rates for the year and the instantaneous peak outflow rate are shown.

5. Discrepancies between outflow and storage losses at certain dams are attributable to evaporation and/or percolation losses. Total monthly evaporation losses are determined from the measurements made on land evaporation pans. In those cases where no allowances were made for evaporation, the amounts are necessarily included in the flow values. Accuracy of flow records computed from storage records is dependent on the frequency with which storage data are revised to keep in step with the physical change in reservoirs.

BIG DALTON DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started December 1927. Completed August 1929.
LOCATION - Big Dalton Canyon, 4.0 miles northeast of Glendora.
DRAINAGE AREA - 4.5 square miles.
CAPACITY - 963 acre - feet.
SPILLWAY ELEVATION - 1,706.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	62.01	CFS	from	0000	on	03-27-91	to	0100	on	03-27-91
MAX. PEAK OUTFLOW	10.90	CFS	from	0930	on	03-27-91	to	2330	on	03-28-91
MAX. W.S. ELEVATION	1648.60	feet	on	03-29-91	STORAGE	125.60	ACRE-FEET			
MIN. W.S. ELEVATION	1632.00	feet	on	04-11-91	STORAGE	58.20	ACRE-FEET			

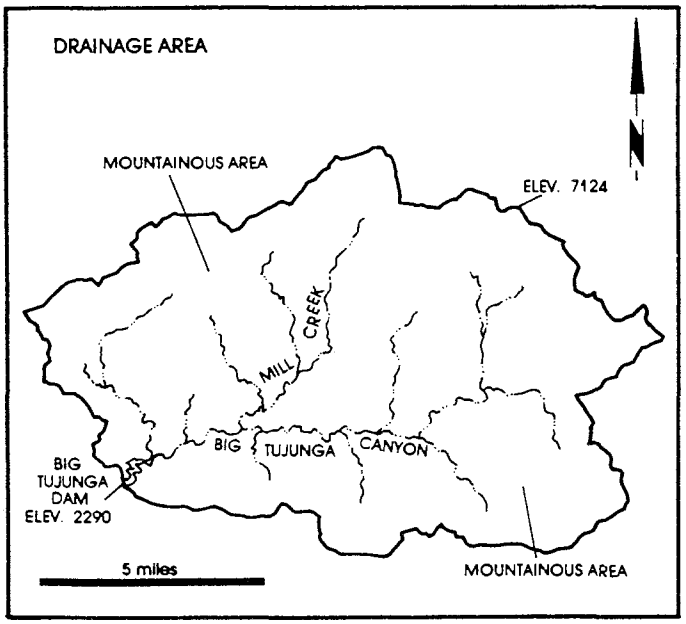
BIG DALTON DAM OPERATION RECORD SUMMARY

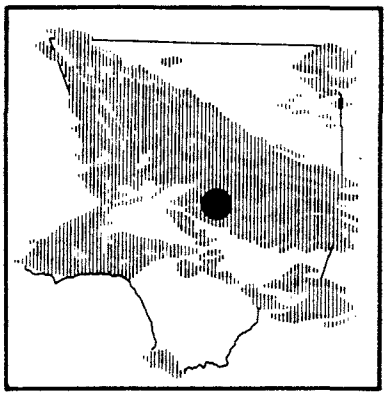
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	1.60	2.70	1.30	3.60
TOTAL MONTHLY OUTFLOW (AF)	0.00	13.70	0.00	1.20
MAX. MEAN DAILY INFLOW (CFS)	0.10	0.20	0.10	0.70
TOTAL MONTHLY LOSSES (AF)	1.70	1.00	0.60	0.40
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	-11.90	0.70	2.00

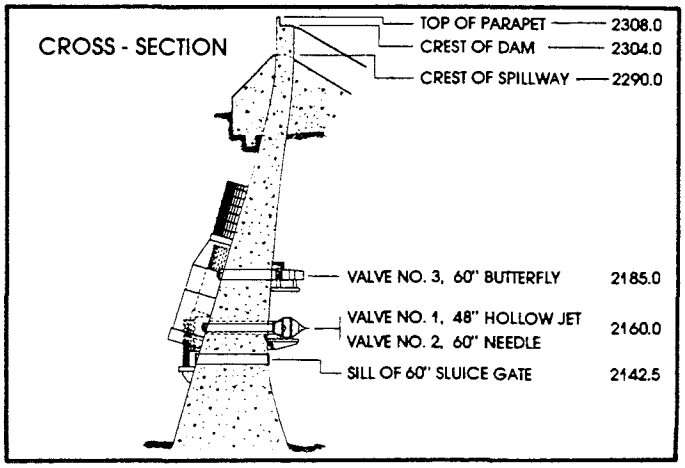
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	14.60	290.50	96.40	24.90
TOTAL MONTHLY OUTFLOW (AF)	0.00	262.20	124.80	0.00
MAX. MEAN DAILY INFLOW (CFS)	6.30	25.90	5.00	0.70
TOTAL MONTHLY LOSSES (AF)	0.70	0.70	1.30	1.90
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.50	0.50	0.10
MONTHLY STORAGE CHANGE (AF)	13.90	27.70	-29.60	22.90

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	14.20	10.20	6.40	4.00
TOTAL MONTHLY OUTFLOW (AF)	50.80	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.40	0.30	0.10	0.10
TOTAL MONTHLY LOSSES (AF)	1.40	1.90	2.10	1.80
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.10	0.00
MONTHLY STORAGE CHANGE (AF)	-38.00	8.30	4.30	2.30

BIG TUJUNGA DAM
AND RESERVOIR







PURPOSE - Flood Control Conservation.
DATE CONSTRUCTED - Started January 1930. Completed July 1931.
LOCATION - Big Tujunga Canyon, 10.0 miles northeast of Sunland.
DRAINAGE AREA - 82.3 square miles.
CAPACITY - 6,027 acre - feet.
SPILLWAY ELEVATION - 2,290.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	1871.16	CFS	from	0700	on	03-01-91	to	0800	on	03-01-91
MAX. PEAK OUTFLOW	470.00	CFS	from	1000	on	03-01-91	to	1015	on	03-01-91
MAX. W.S. ELEVATION	2229.70	feet	on	03-01-91	STORAGE	1871.30	ACRE-FEET			
MIN. W.S. ELEVATION	2204.35	feet	on	varies	STORAGE	1036.10	ACRE-FEET			

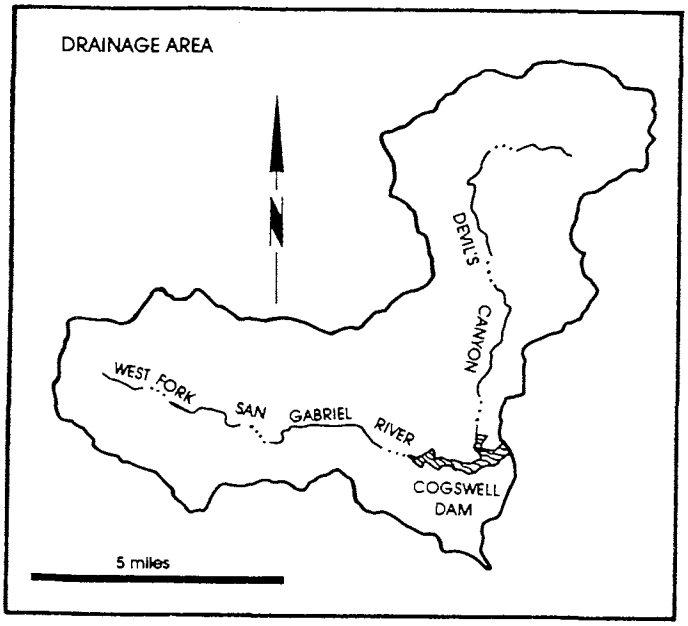
BIG TUJUNGA DAM OPERATION RECORD SUMMARY

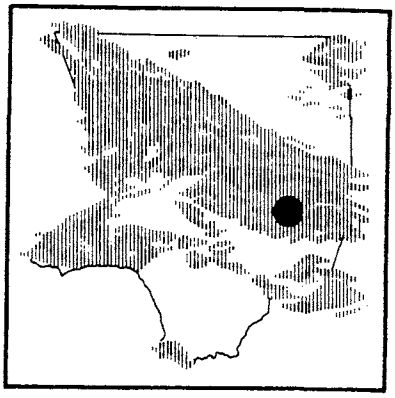
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	9.80	69.50	66.80	137.20
TOTAL MONTHLY OUTFLOW (AF)	0.00	193.30	0.00	100.80
MAX. MEAN DAILY INFLOW (CFS)	0.40	5.00	2.60	5.90
TOTAL MONTHLY LOSSES (AF)	21.00	16.90	9.70	8.40
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.10	0.00
MONTHLY STORAGE CHANGE (AF)	-11.20	-140.70	57.10	28.10

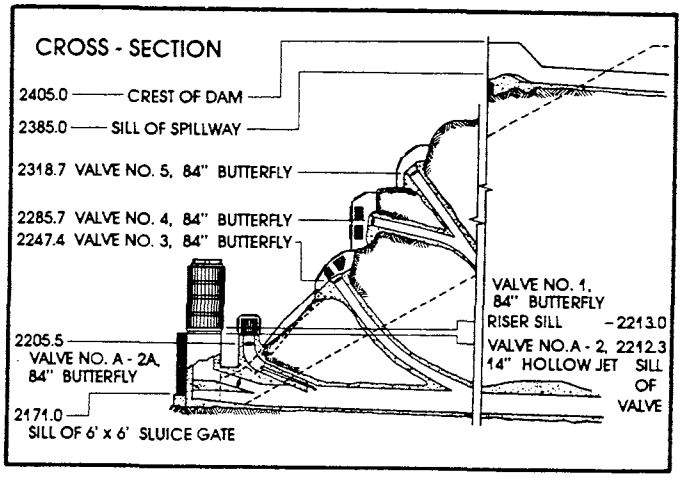
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	541.40	4123.80	1895.10	588.00
TOTAL MONTHLY OUTFLOW (AF)	305.50	3894.00	2319.60	553.70
MAX. MEAN DAILY INFLOW (CFS)	196.40	529.50	85.60	13.00
TOTAL MONTHLY LOSSES (AF)	12.60	9.00	15.20	18.30
MIN. MEAN DAILY INFLOW (CFS)	0.50	6.10	13.10	6.30
MONTHLY STORAGE CHANGE (AF)	223.30	130.90	-439.60	16.00

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	301.60	249.00	52.30	39.70
TOTAL MONTHLY OUTFLOW (AF)	288.40	242.80	3.40	0.00
MAX. MEAN DAILY INFLOW (CFS)	8.30	5.60	2.30	1.00
TOTAL MONTHLY LOSSES (AF)	21.60	23.60	17.00	20.60
MIN. MEAN DAILY INFLOW (CFS)	3.70	2.80	0.00	0.30
MONTHLY STORAGE CHANGE (AF)	-8.40	-17.40	31.90	19.10

COGSWELL DAM
AND RESERVOIR







PURPOSE - Flood Control, Conservation, and Recreation.
DATE CONSTRUCTED - Started March 1932. Completed April 1934.
LOCATION - 22.0 miles north of Azusa.
DRAINAGE AREA - 39.2 square miles.
CAPACITY - 9,339 acre - feet.
SPILLWAY ELEVATION - 2,385.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	1063.09	CFS	from	0500	on	03-01-91	to	0600	on	03-01-91
MAX. PEAK OUTFLOW	417.00	CFS	from	1530	on	04-03-91	to	1700	on	04-03-91
MAX. W.S. ELEVATION	2325.60	feet	on	03-05-91	STORAGE	2752.00	ACRE-FEET			
MIN. W.S. ELEVATION	2190.12	feet	on	varies	STORAGE	2.80	ACRE-FEET			

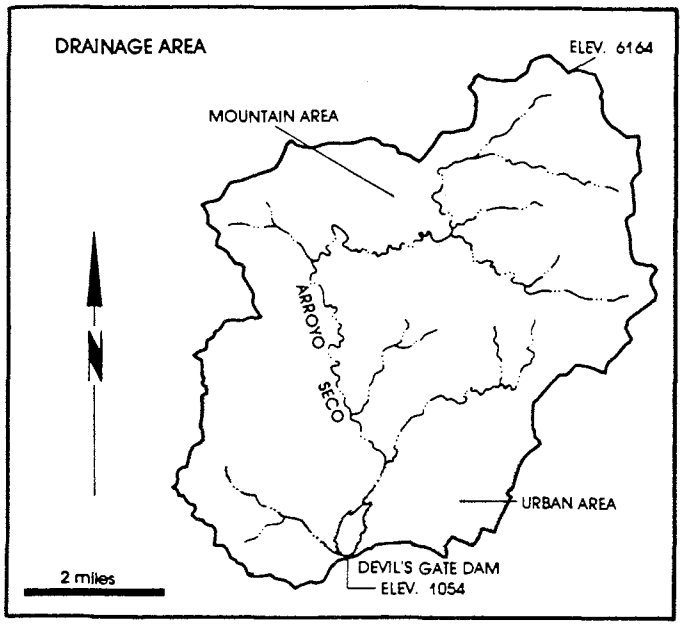
COGSWELL DAM OPERATION RECORD SUMMARY

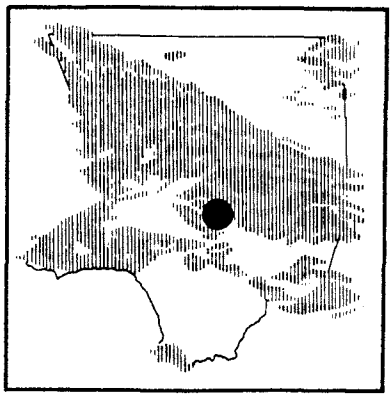
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	10.00	17.10	25.50	42.30
TOTAL MONTHLY OUTFLOW (AF)	118.00	122.80	102.30	90.20
MAX. MEAN DAILY INFLOW (CFS)	0.70	3.20	0.70	1.60
TOTAL MONTHLY LOSSES (AF)	8.20	5.10	2.60	2.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.10	0.10	0.40
MONTHLY STORAGE CHANGE (AF)	-116.20	-110.80	-79.50	-50.00

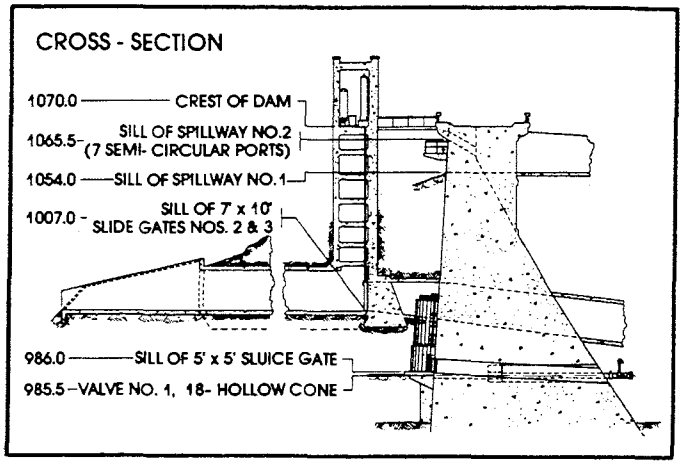
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	868.70	5402.40	2618.00	640.50
TOTAL MONTHLY OUTFLOW (AF)	98.60	3967.30	5120.70	633.90
MAX. MEAN DAILY INFLOW (CFS)	357.00	605.00	113.60	18.00
TOTAL MONTHLY LOSSES (AF)	2.70	8.20	4.20	2.20
MIN. MEAN DAILY INFLOW (CFS)	0.60	8.20	16.80	6.60
MONTHLY STORAGE CHANGE (AF)	767.40	1426.80	-2507.00	4.40

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	257.70	160.30	107.80	78.80
TOTAL MONTHLY OUTFLOW (AF)	285.80	179.30	110.50	91.80
MAX. MEAN DAILY INFLOW (CFS)	6.70	4.20	2.60	3.10
TOTAL MONTHLY LOSSES (AF)	1.70	1.40	0.90	0.50
MIN. MEAN DAILY INFLOW (CFS)	0.10	0.70	1.00	0.10
MONTHLY STORAGE CHANGE (AF)	-29.90	-20.40	-3.50	-13.50

DEVIL'S GATE DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started May 1919. Completed June 1920.
LOCATION - On Arroyo Seco, northwest of Pasadena.
DRAINAGE AREA - 31.9 square miles.
CAPACITY - 1,928 acre - feet.
SPILLWAY ELEVATION - 1,054.0 feet.

DAM OPERATION RECORD SUMMARY *

MAX. PEAK INFLOW	923.97	CFS	from	0200	on	03-01-91	to	0300	on	03-01-91
MAX. PEAK OUTFLOW	800.00	CFS	from	1300	on	03-01-91	to	1600	on	03-01-91
MAX. W.S. ELEVATION	1032.63	feet	on	03-01-91	STORAGE	701.38	ACRE-FEET			
MIN. W.S. ELEVATION	993.00	feet	on	varies	STORAGE	0.00	ACRE-FEET			

DEVIL'S GATE DAM OPERATION RECORD SUMMARY *

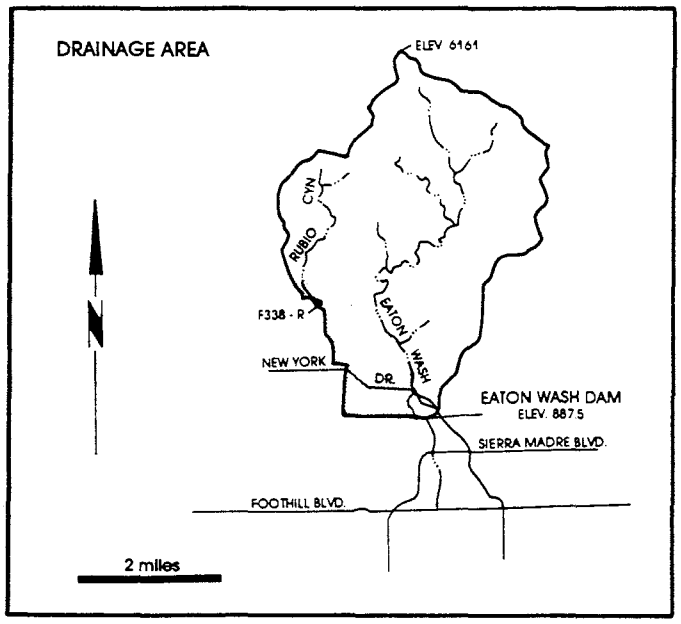
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	0.00	4.20	0.00	20.20
TOTAL MONTHLY OUTFLOW (AF)	0.00	4.20	0.00	20.20
MAX. MEAN DAILY INFLOW (CFS)	0.00	1.60	0.00	8.60
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

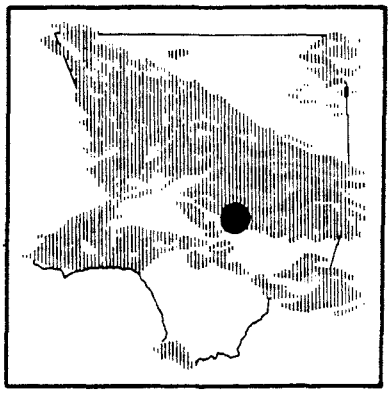
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	681.10	3976.70	218.20	28.80
TOTAL MONTHLY OUTFLOW (AF)	533.40	4124.20	218.40	28.80
MAX. MEAN DAILY INFLOW (CFS)	238.30	522.80	22.10	0.80
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	1.00	0.00	0.30
MONTHLY STORAGE CHANGE (AF)	147.70	-147.50	-0.20	0.00

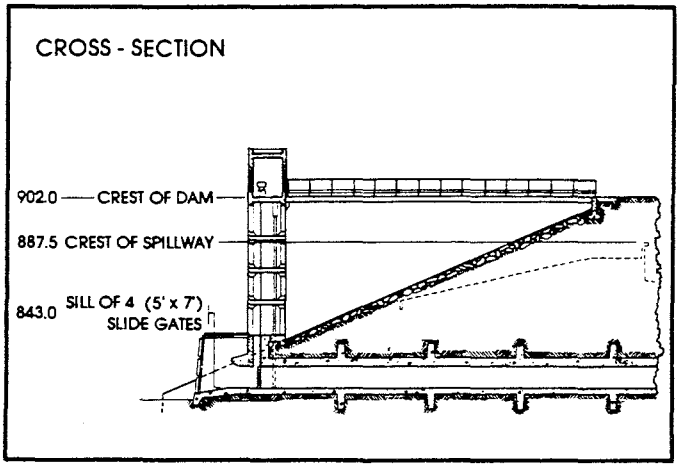
WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	22.60	45.40	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	22.60	45.40	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.80	3.40	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.20	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

* = VALUES ESTIMATED DUE TO INCOMPLETE RECORDS

EATON WASH DAM
AND RESERVOIR







PURPOSE - Debris Storage and Conservation.
DATE CONSTRUCTED - Started January 1936 . Completed February 1937.
LOCATION - Eaton Wash, northeast of Pasadena.
DRAINAGE AREA - 12.4 square miles.
CAPACITY - 879 acre - feet.
SPILLWAY ELEVATION - 887.5 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	239.10	CFS	from	0300	on	03-01-91	to	0400	on	03-01-91
MAX. PEAK OUTFLOW	150.00	CFS	from	1600	on	03-01-91	to	1800	on	03-01-91
MAX. W.S. ELEVATION	880.77	feet	on	03-01-91	STORAGE	478.82	ACRE-FEET			
MIN. W.S. ELEVATION	846.00	feet	on	varies	STORAGE	0.00	ACRE-FEET			

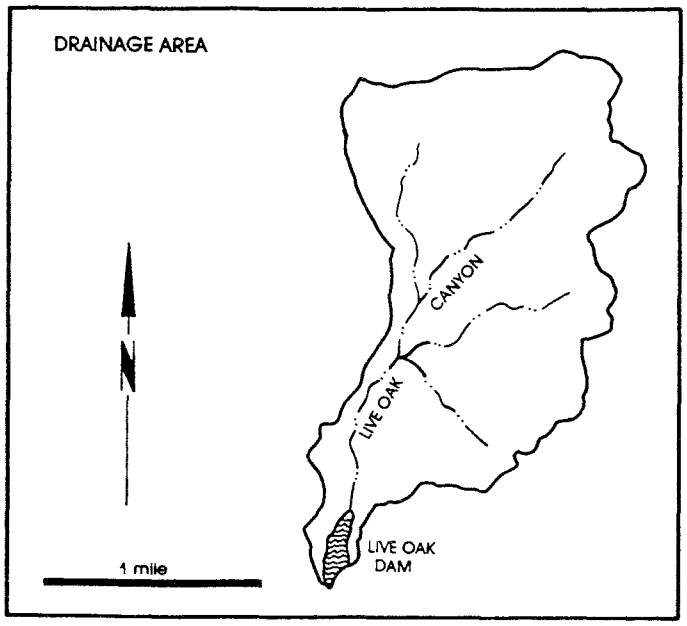
EATON WASH DAM OPERATION RECORD SUMMARY

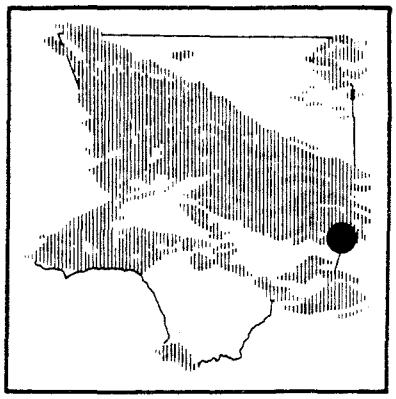
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	0.00	0.00	0.00	9.90
TOTAL MONTHLY OUTFLOW (AF)	0.00	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	2.10
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	9.90
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

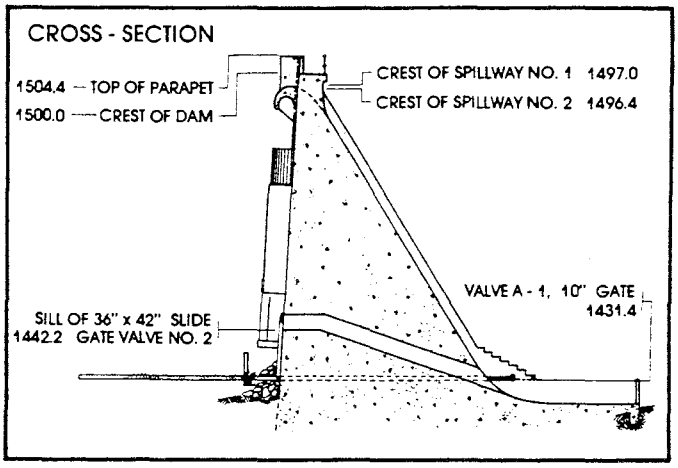
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	264.90	1152.30	172.90	0.00
TOTAL MONTHLY OUTFLOW (AF)	0.00	1168.50	400.30	0.00
MAX. MEAN DAILY INFLOW (CFS)	95.40	126.70	14.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	12.50	0.00	6.50
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	264.90	-28.60	-227.40	-7.60

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	2.10	0.00	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	20.20	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.10	0.00	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	4.60	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	-22.70	0.00	0.00	0.00

LIVE OAK DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started August 1921. Completed November 1922.
LOCATION - 2.5 miles northeast of La Verne.
DRAINAGE AREA - 2.3 square miles.
CAPACITY - 240 acre-feet.
SPILLWAY ELEVATION - 1,496.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	44.45	CFS	from	0900	on	03-01-91	to	1000	on	03-01-91
MAX. PEAK OUTFLOW	4.80	CFS	from	20.15	on	03-04-91	to	2030	on	03-04-91
MAX. W.S. ELEVATION	1473.00	feet	on	03-02-91	STORAGE	62.60	ACRE-FEET			
MIN. W.S. ELEVATION	1440.00	feet	on	varies	STORAGE	0.00	ACRE-FEET			

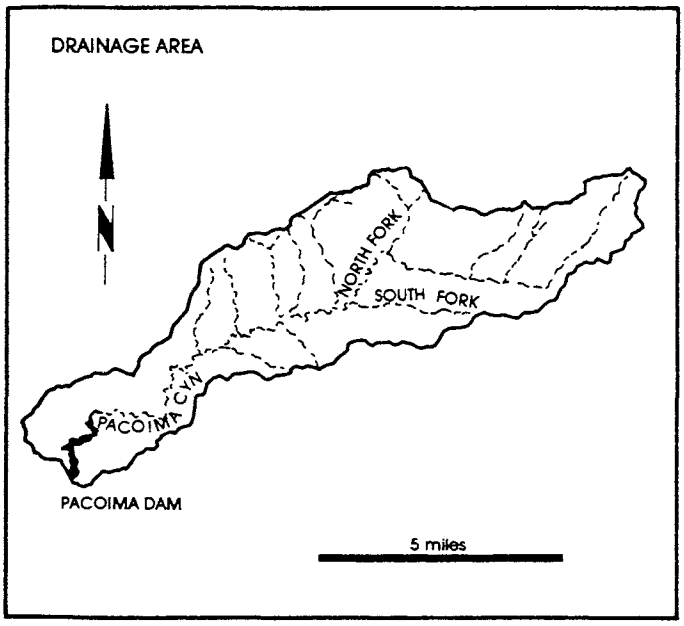
LIVE OAK DAM OPERATION RECORD SUMMARY

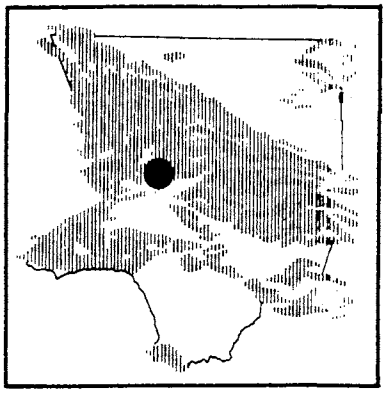
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	0.00	0.00	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	0.00	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

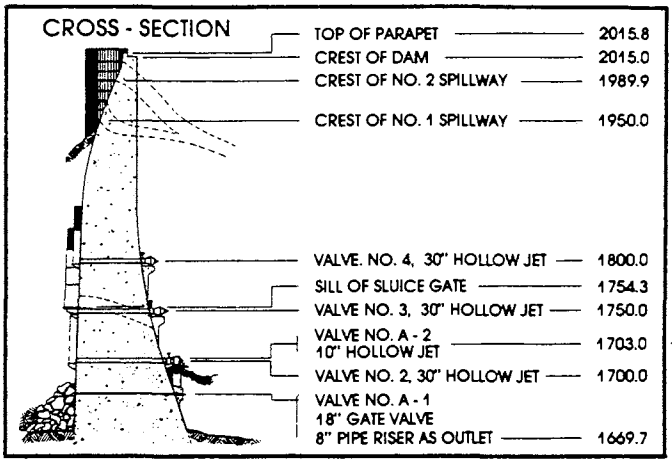
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	27.90	154.30	10.40	7.70
TOTAL MONTHLY OUTFLOW (AF)	5.40	148.20	37.50	7.70
MAX. MEAN DAILY INFLOW (CFS)	13.00	21.60	1.70	0.30
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	1.60	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	22.60	6.10	-28.70	0.00

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	5.00	0.00	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	5.00	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.30	0.00	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

PACOIMA DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started March 1925. Completed February 1929.
LOCATION - Pacoima Canyon, 4.0 miles northeast of San Fernando.
DRAINAGE AREA - 28.2 square miles.
CAPACITY - 3,929 acre - feet.
SPILLWAY ELEVATION - 1,950.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	139.36	CFS	from	0600	on	03-27-91	to	0700	on	03-27-91
MAX. PEAK OUTFLOW	100.00	CFS	from	1500	on	04-03-91	to	0800	on	04-04-91
MAX. W.S. ELEVATION	1941.60	feet	on	04-03-91	STORAGE	3270.60	ACRE-FEET			
MIN. W.S. ELEVATION	1882.35	feet	on	05-16-91	STORAGE	1102.30	ACRE-FEET			

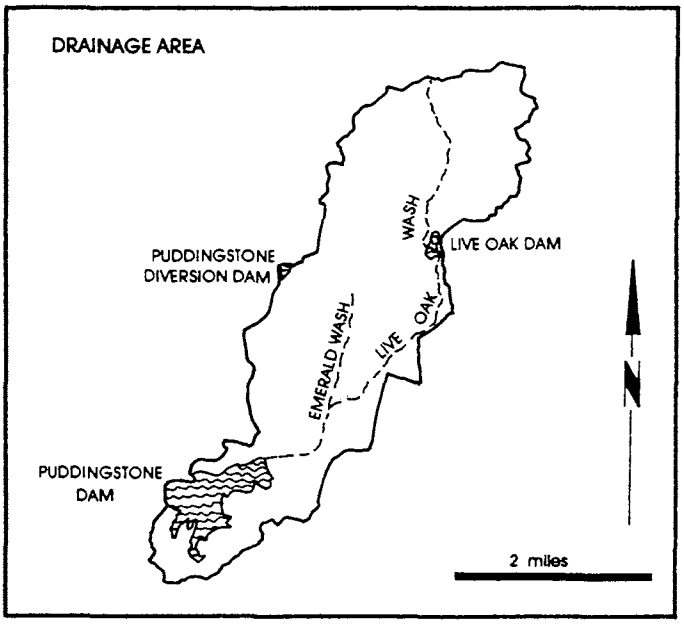
PACOIMA DAM OPERATION RECORD SUMMARY

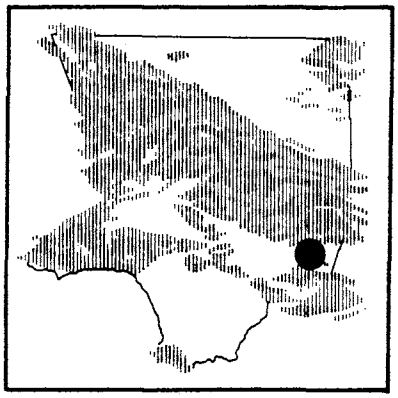
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	19.40	18.40	15.20	21.50
TOTAL MONTHLY OUTFLOW (AF)	2.40	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.70	0.70	0.40	1.70
TOTAL MONTHLY LOSSES (AF)	19.70	17.10	13.70	10.60
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.10	0.10	0.10
MONTHLY STORAGE CHANGE (AF)	-2.70	1.30	1.40	11.00

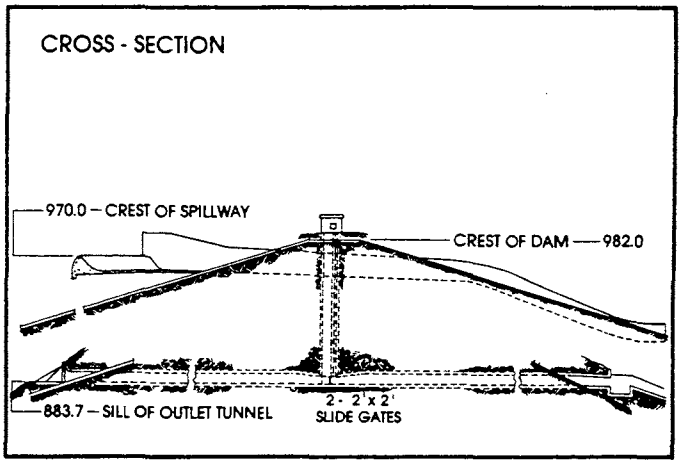
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	63.70	1852.00	1287.90	78.40
TOTAL MONTHLY OUTFLOW (AF)	0.00	0.00	2272.50	942.10
MAX. MEAN DAILY INFLOW (CFS)	19.00	126.90	51.30	3.50
TOTAL MONTHLY LOSSES (AF)	13.30	11.90	26.20	15.00
MIN. MEAN DAILY INFLOW (CFS)	0.10	1.70	0.20	0.00
MONTHLY STORAGE CHANGE (AF)	50.40	1840.10	-1010.80	-878.80

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	60.10	43.90	33.10	26.20
TOTAL MONTHLY OUTFLOW (AF)	0.00	4.40	0.20	0.00
MAX. MEAN DAILY INFLOW (CFS)	1.90	0.90	1.10	0.70
TOTAL MONTHLY LOSSES (AF)	10.80	13.70	16.10	16.30
MIN. MEAN DAILY INFLOW (CFS)	0.70	0.50	0.30	0.10
MONTHLY STORAGE CHANGE (AF)	49.20	25.80	16.80	9.80

PUDDINGSTONE DAM
AND RESERVOIR







PURPOSE - Flood Control and Recreation.
DATE CONSTRUCTED - Started February 1925. Completed January 1928.
LOCATION - 1.0 mile south of San Dimas.
DRAINAGE AREA - 11.0 square miles (uncontrolled)
22.1 square miles (controlled)
Total 33.1 square miles
CAPACITY - 16,856 acre - feet.
SPILLWAY ELEVATION - 970.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	1269.53	CFS	from	0400	on	03-01-91	to	0500	on	03-01-91
MAX. PEAK OUTFLOW	697.00	CFS	from	0215	on	03-27-91	to	0245	on	03-27-91
MAX. W.S. ELEVATION	946.01	feet	on	03-01-91	STORAGE	7611.72	ACRE-FEET			
MIN. W.S. ELEVATION	939.82	feet	on	varies	STORAGE	6024.80	ACRE-FEET			

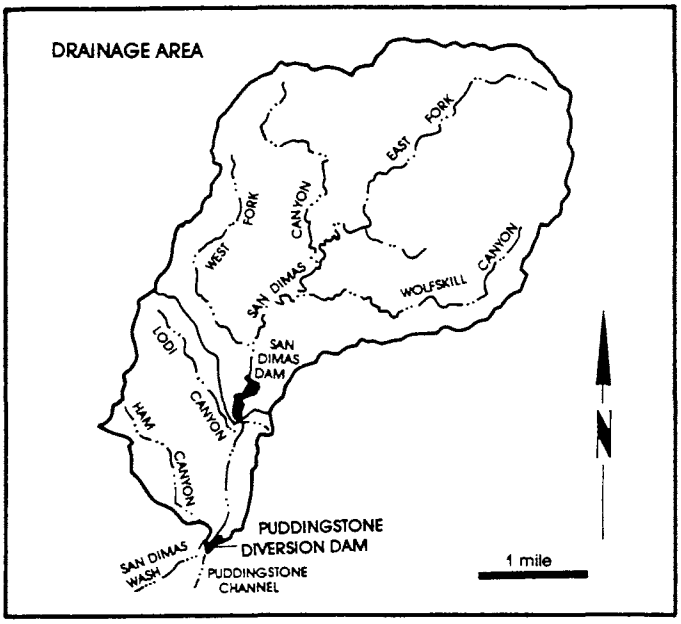
PUDDINGSTONE DAM OPERATION RECORD SUMMARY

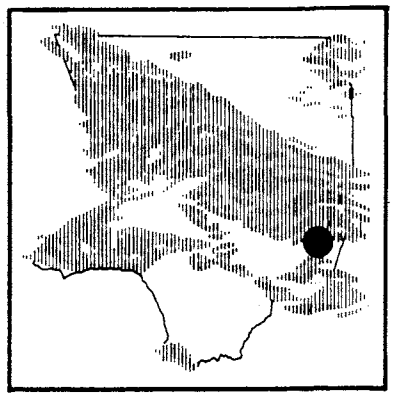
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	76.70	99.20	38.90	460.40
TOTAL MONTHLY OUTFLOW (AF)	13.70	11.50	6.10	12.30
MAX. MEAN DAILY INFLOW (CFS)	3.00	5.80	1.90	101.80
TOTAL MONTHLY LOSSES (AF)	135.00	102.60	91.70	52.80
MIN. MEAN DAILY INFLOW (CFS)	0.30	0.10	0.10	0.30
MONTHLY STORAGE CHANGE (AF)	-72.00	-14.80	-59.00	395.30

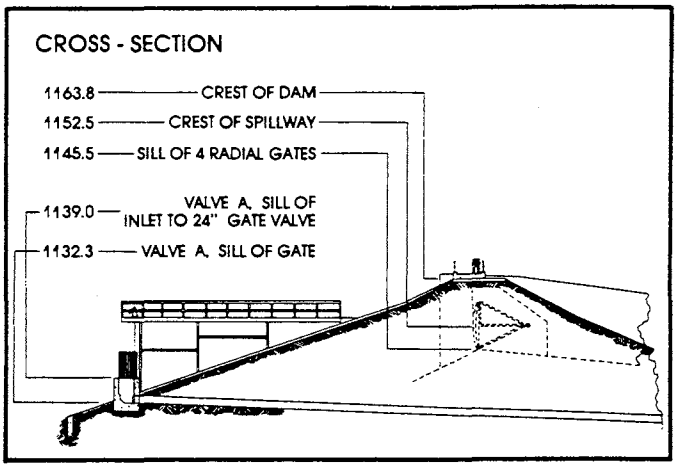
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	1252.20	1968.50	252.50	61.30
TOTAL MONTHLY OUTFLOW (AF)	201.70	2237.20	275.90	89.50
MAX. MEAN DAILY INFLOW (CFS)	371.20	278.60	14.80	3.30
TOTAL MONTHLY LOSSES (AF)	77.50	70.00	126.30	156.00
MIN. MEAN DAILY INFLOW (CFS)	0.30	0.20	0.30	0.10
MONTHLY STORAGE CHANGE (AF)	973.00	-338.60	-149.70	-184.20

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	65.10	67.10	68.60	50.10
TOTAL MONTHLY OUTFLOW (AF)	45.40	13.50	15.70	9.50
MAX. MEAN DAILY INFLOW (CFS)	3.50	2.70	3.30	1.80
TOTAL MONTHLY LOSSES (AF)	156.80	186.40	188.40	154.70
MIN. MEAN DAILY INFLOW (CFS)	0.20	0.00	0.20	0.10
MONTHLY STORAGE CHANGE (AF)	-137.10	-132.80	-135.50	-114.10

PUDDINGSTONE DIVERSION DAM
AND RESERVOIR







PURPOSE - Flood Control and Diversion of flow and Conservation.
DATE CONSTRUCTED - Started September 1927. Completed July 1928.
LOCATION - 2.0 miles northeast of San Dimas.
DRAINAGE AREA - 3.7 square miles (uncontrolled)
16.2 square miles (controlled)
Total 19.9 square miles
CAPACITY - 148 acre feet.
SPILLWAY ELEVATION - 1,152.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	195.43	CFS	from	1100	on	02-28-91	to	1200	on	02-28-91
MAX. PEAK OUTFLOW	20.50	CFS	from	1600	on	03-06-91	to	1615	on	03-06-91
MAX. W.S. ELEVATION	1148.70	feet	on	03-01-91	STORAGE	136.80	ACRE-FEET			
MIN. W.S. ELEVATION	1133.00	feet	on	varies	STORAGE	0.00	ACRE-FEET			

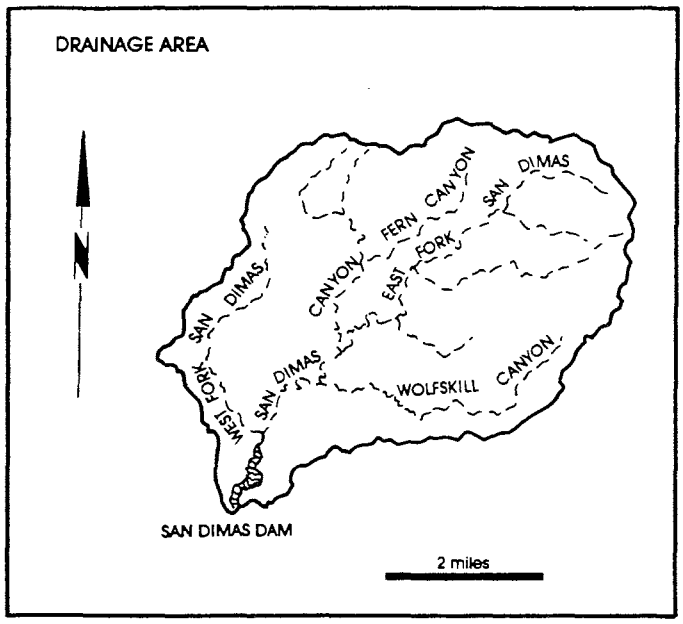
PUDDINGSTONE DIVERSION DAM OPERATION RECORD SUMMARY

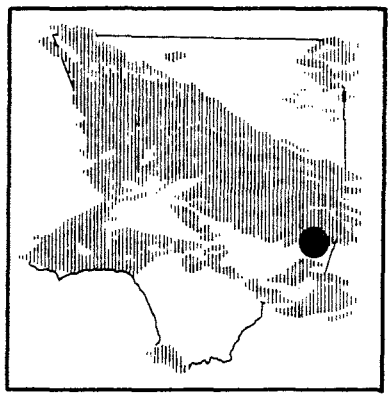
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	0.00	0.00	0.00	6.40
TOTAL MONTHLY OUTFLOW (AF)	0.00	0.00	0.00	0.20
MAX. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	2.90
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	6.30
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

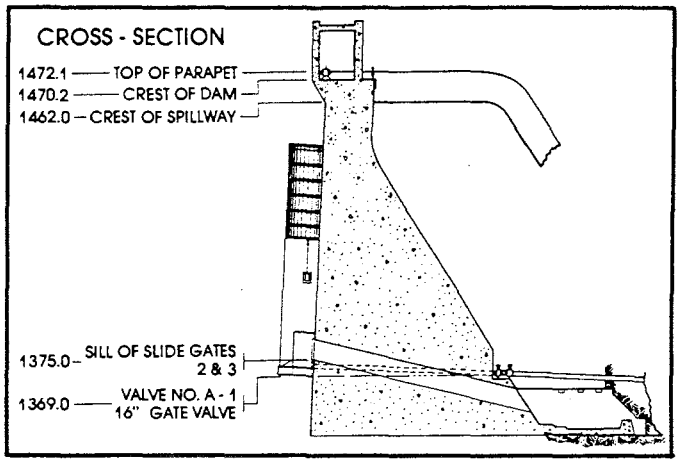
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	113.40	645.30	594.90	336.30
TOTAL MONTHLY OUTFLOW (AF)	13.30	660.50	587.30	375.90
MAX. MEAN DAILY INFLOW (CFS)	53.90	33.70	12.10	7.80
TOTAL MONTHLY LOSSES (AF)	0.10	0.00	4.90	10.10
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	6.30	0.00
MONTHLY STORAGE CHANGE (AF)	100.00	-15.20	2.70	-49.70

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	355.90	27.10	0.10	0.00
TOTAL MONTHLY OUTFLOW (AF)	361.00	16.10	9.30	0.00
MAX. MEAN DAILY INFLOW (CFS)	12.60	2.90	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	11.90	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.10	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	-5.10	-0.80	-9.20	0.00

SAN DIMAS DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started November 1920. Completed September 1922.
LOCATION - 3.0 miles northeast of San Dimas.
DRAINAGE AREA - 16.2 square miles.
CAPACITY - 1,515 acre - feet.
SPILLWAY ELEVATION - 1,462.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	236.29	CFS	from	0000	on	03-27-91	to	0100	on	03-27-91
MAX. PEAK OUTFLOW	229.40	CFS	from	0815	on	10-23-90	to	0830	on	10-23-90
MAX. W.S. ELEVATION	1451.90	feet	on	03-31-91	STORAGE	1209.40	ACRE-FEET			
MIN. W.S. ELEVATION	1374.00	feet	on	varies	STORAGE	0.00	ACRE-FEET			

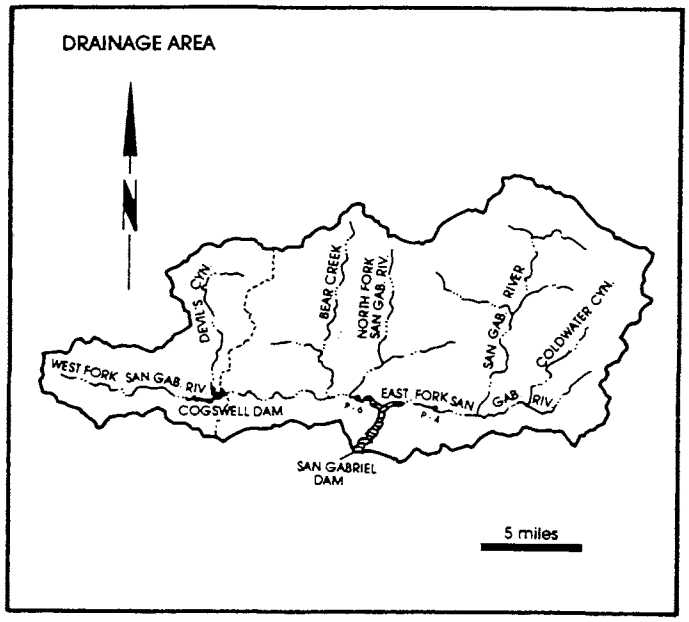
SAN DIMAS DAM OPERATION RECORD SUMMARY

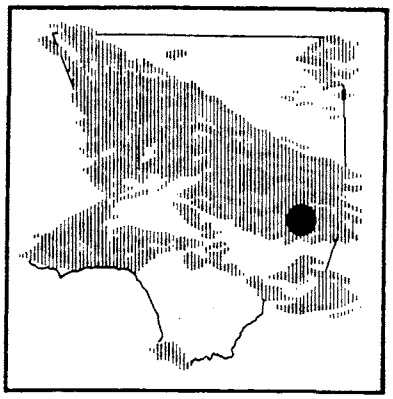
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	6.00	13.10	36.10	88.40
TOTAL MONTHLY OUTFLOW (AF)	18.40	11.50	10.30	14.90
MAX. MEAN DAILY INFLOW (CFS)	1.10	1.20	0.90	7.30
TOTAL MONTHLY LOSSES (AF)	8.40	6.10	3.80	3.90
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.20	0.30
MONTHLY STORAGE CHANGE (AF)	-20.90	-4.60	22.00	69.70

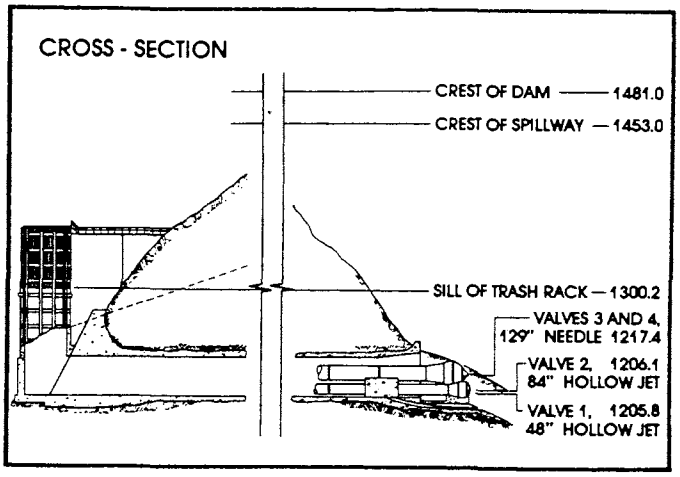
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	265.60	1034.10	268.60	131.60
TOTAL MONTHLY OUTFLOW (AF)	12.30	591.50	653.40	475.30
MAX. MEAN DAILY INFLOW (CFS)	107.90	111.90	11.70	3.10
TOTAL MONTHLY LOSSES (AF)	4.70	7.00	10.40	11.50
MIN. MEAN DAILY INFLOW (CFS)	0.20	2.50	2.00	1.40
MONTHLY STORAGE CHANGE (AF)	248.60	435.60	-395.10	-355.10

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	52.50	37.70	20.00	13.30
TOTAL MONTHLY OUTFLOW (AF)	400.10	139.50	20.00	13.30
MAX. MEAN DAILY INFLOW (CFS)	2.60	1.50	0.40	0.30
TOTAL MONTHLY LOSSES (AF)	7.30	2.50	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.10	0.10	0.20	0.20
MONTHLY STORAGE CHANGE (AF)	-354.90	-104.30	0.00	0.00

SAN GABRIEL DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started December 1932. Completed July 1939.
LOCATION - San Gabriel Canyon, 7.5 miles north of Azusa.
DRAINAGE AREA - 163.5 square miles (uncontrolled)
39.2 square miles (controlled)
Total 202.7 square miles
(Includes Cogswell drainage)
CAPACITY - 41,549 acre - feet.
SPILLWAY ELEVATION - 1,453 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	4294.32	CFS	from	0700	on	03-01-91	to	0800	on	03-01-91
MAX. PEAK OUTFLOW	2702.10	CFS	from	1100	on	04-23-91	to	1115	on	04-23-91
MAX. W.S. ELEVATION	1438.49	feet	on	06-26-91	STORAGE	36892.46	ACRE-FEET			
MIN. W.S. ELEVATION	1324.80	feet	on	11-08-90	STORAGE	2350.00	ACRE-FEET			

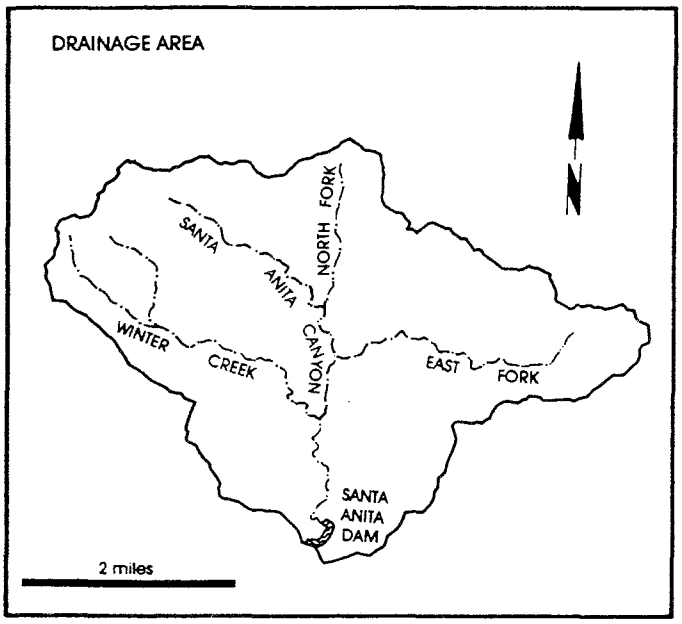
SAN GABRIEL DAM OPERATION RECORD SUMMARY

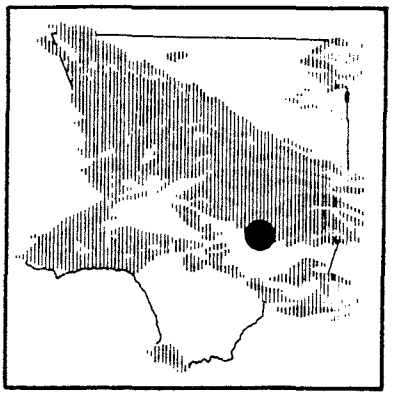
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	401.50	545.40	744.90	1183.20
TOTAL MONTHLY OUTFLOW (AF)	1186.70	392.90	570.00	721.60
MAX. MEAN DAILY INFLOW (CFS)	10.30	13.10	15.20	40.60
TOTAL MONTHLY LOSSES (AF)	83.80	55.70	43.40	40.00
MIN. MEAN DAILY INFLOW (CFS)	3.30	6.50	10.10	13.20
MONTHLY STORAGE CHANGE (AF)	-869.10	96.80	131.50	421.70

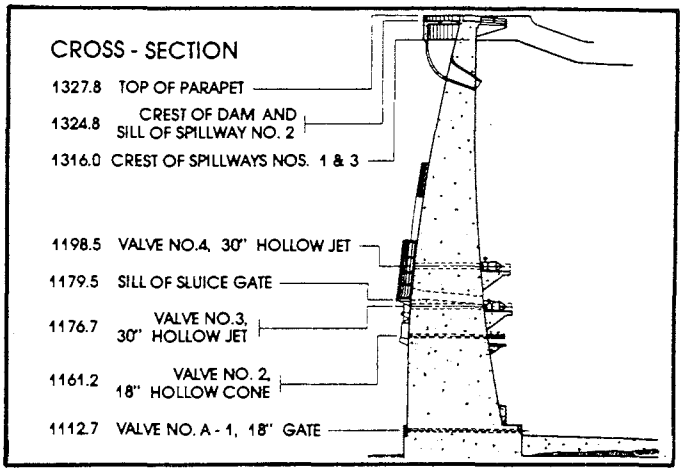
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	2537.00	20489.50	19410.80	7515.50
TOTAL MONTHLY OUTFLOW (AF)	509.80	542.30	12109.30	2917.30
MAX. MEAN DAILY INFLOW (CFS)	777.60	1574.90	707.90	161.50
TOTAL MONTHLY LOSSES (AF)	55.80	90.90	223.50	274.30
MIN. MEAN DAILY INFLOW (CFS)	12.70	71.60	156.00	81.00
MONTHLY STORAGE CHANGE (AF)	1971.40	19856.40	7078.10	4323.90

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	3617.00	2288.10	1510.20	1235.90
TOTAL MONTHLY OUTFLOW (AF)	2987.30	7404.70	4136.50	5975.50
MAX. MEAN DAILY INFLOW (CFS)	85.80	57.80	39.50	35.80
TOTAL MONTHLY LOSSES (AF)	259.20	287.60	297.70	255.00
MIN. MEAN DAILY INFLOW (CFS)	35.20	16.10	15.10	12.60
MONTHLY STORAGE CHANGE (AF)	370.50	-5404.20	-2924.00	-4994.60

SANTA ANITA DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started October 1924. Completed March 1927.
LOCATION - 2.5 miles north of Arcadia
DRAINAGE AREA - 10.8 square miles.
CAPACITY - 836 acre - feet.
SPILLWAY ELEVATION - 1,316.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	416.70	CFS	from	0500	on	03-01-91	to	0600	on	03-01-91
MAX. PEAK OUTFLOW	163.00	CFS	from	0125	on	03-01-91	to	0225	on	03-01-91
MAX. W.S. ELEVATION	1282.01	feet	on	03-01-91	STORAGE	444.80	ACRE-FEET			
MIN. W.S. ELEVATION	1240.23	feet	on	01-16-91	STORAGE	151.84	ACRE-FEET			

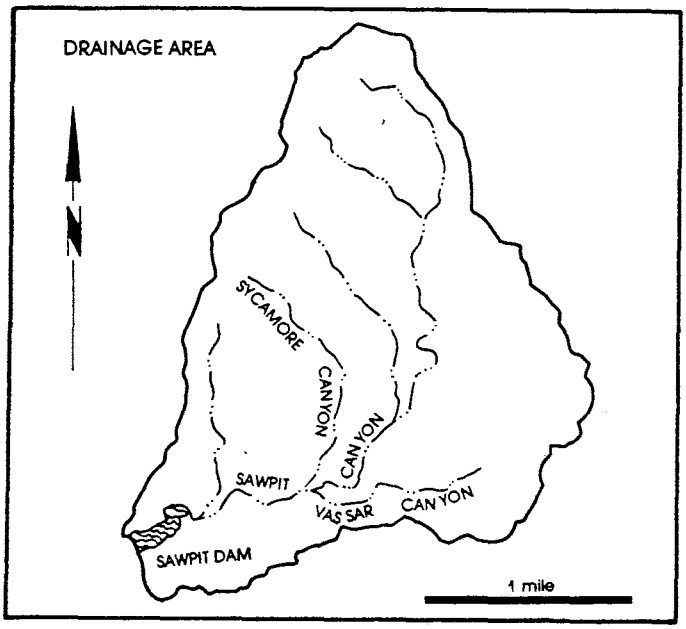
SANTA ANITA DAM OPERATION RECORD SUMMARY

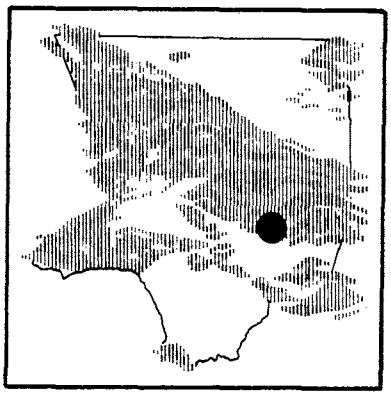
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	5.40	7.00	17.30	62.00
TOTAL MONTHLY OUTFLOW (AF)	2.00	0.00	0.00	87.90
MAX. MEAN DAILY INFLOW (CFS)	0.10	0.20	0.50	3.80
TOTAL MONTHLY LOSSES (AF)	2.60	2.50	2.10	1.20
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.10	0.10	0.40
MONTHLY STORAGE CHANGE (AF)	0.80	4.60	15.30	-27.10

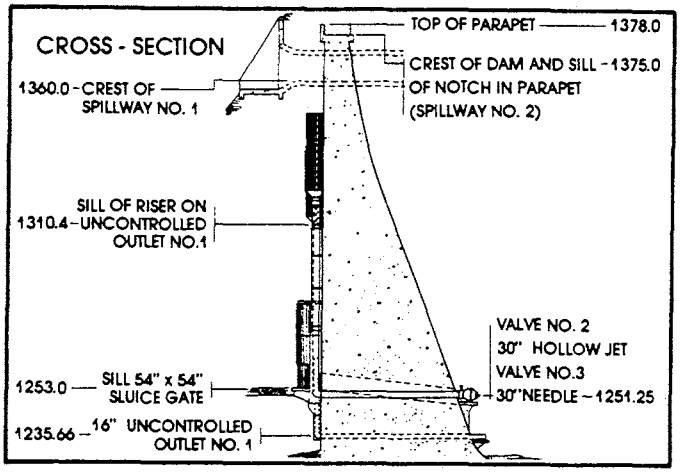
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	188.40	1148.50	537.10	155.20
TOTAL MONTHLY OUTFLOW (AF)	29.40	1145.90	661.50	134.10
MAX. MEAN DAILY INFLOW (CFS)	64.30	92.20	19.20	7.50
TOTAL MONTHLY LOSSES (AF)	1.70	1.50	2.10	2.20
MIN. MEAN DAILY INFLOW (CFS)	0.40	2.40	3.30	0.90
MONTHLY STORAGE CHANGE (AF)	157.40	1.20	-126.40	18.90

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	105.10	76.30	61.00	29.80
TOTAL MONTHLY OUTFLOW (AF)	132.10	0.00	130.50	0.00
MAX. MEAN DAILY INFLOW (CFS)	5.70	1.60	2.80	0.60
TOTAL MONTHLY LOSSES (AF)	2.30	2.90	3.00	2.70
MIN. MEAN DAILY INFLOW (CFS)	0.10	0.70	0.60	0.30
MONTHLY STORAGE CHANGE (AF)	-29.30	73.40	-72.40	27.00

SAWPIT DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started March 1926. Completed June 1927.
LOCATION - 2.0 miles north of Monrovia.
DRAINAGE AREA - 3.2 square miles.
CAPACITY - 391 acre - feet.
SPILLWAY ELEVATION - 1,360.0 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	77.49	CFS	from	0500	on	03-01-91	to	0600	on	03-01-91
MAX. PEAK OUTFLOW	57.50	CFS	from	0900	on	03-01-91	to	0915	on	03-01-91
MAX. W.S. ELEVATION	1312.20	feet	on	03-01-91	STORAGE	102.80	ACRE-FEET			
MIN. W.S. ELEVATION	1309.80	feet	on	09-17-91	STORAGE	94.20	ACRE-FEET			

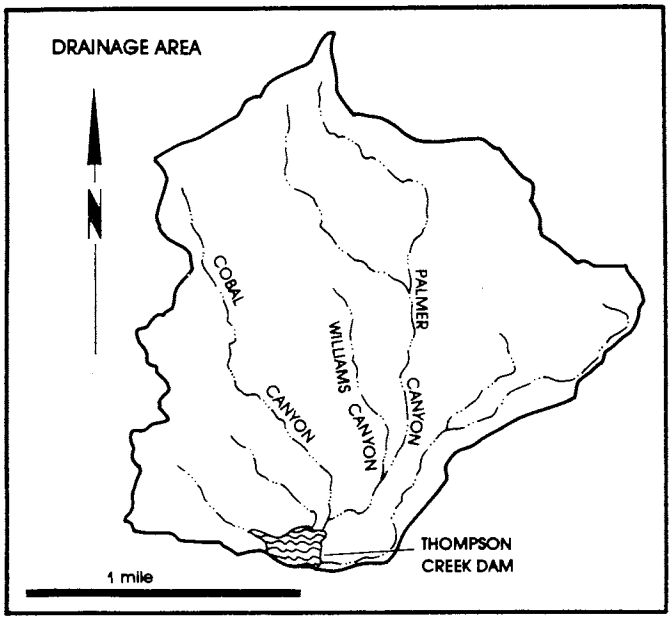
SAWPIT DAM OPERATION RECORD SUMMARY

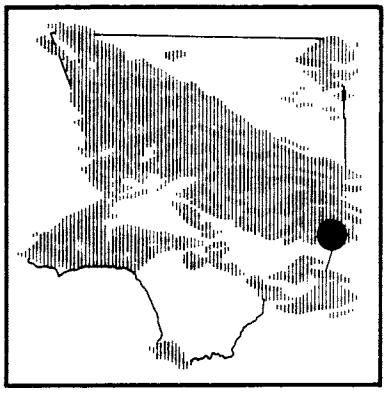
WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	13.00	23.80	37.40	64.50
TOTAL MONTHLY OUTFLOW (AF)	13.10	23.80	37.30	64.50
MAX. MEAN DAILY INFLOW (CFS)	0.30	0.70	0.80	1.80
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.20	0.60	0.60
MONTHLY STORAGE CHANGE (AF)	-0.10	0.00	0.10	0.00

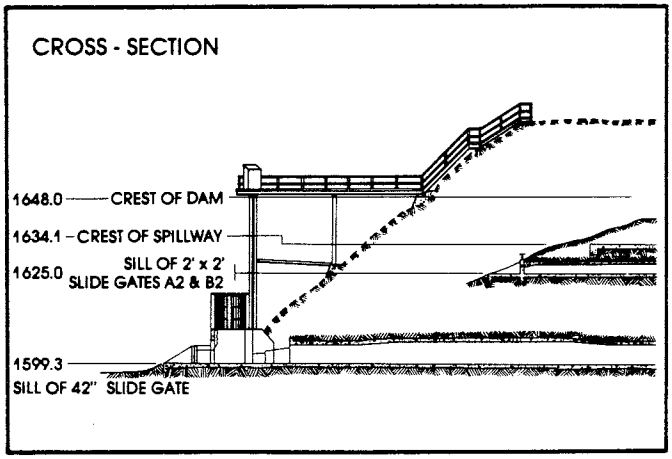
WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	90.40	334.50	128.80	102.70
TOTAL MONTHLY OUTFLOW (AF)	88.50	336.00	129.30	102.70
MAX. MEAN DAILY INFLOW (CFS)	17.70	33.90	3.50	1.90
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.90	1.30	1.40	1.50
MONTHLY STORAGE CHANGE (AF)	2.00	-1.50	-0.50	0.00

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	96.20	111.30	63.00	47.60
TOTAL MONTHLY OUTFLOW (AF)	96.20	111.30	63.10	47.60
MAX. MEAN DAILY INFLOW (CFS)	2.20	2.20	1.20	1.10
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	1.40	1.00	0.50	0.40
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	-0.10	0.00

THOMPSON CREEK DAM
AND RESERVOIR







PURPOSE - Flood Control and Conservation.
DATE CONSTRUCTED - Started September 1925. Completed March 1928.
LOCATION - 3.0 miles north of Claremont.
DRAINAGE AREA - 3.5 square miles.
CAPACITY - 447.5 acre - feet.
SPILLWAY ELEVATION - 1,634 feet.

DAM OPERATION RECORD SUMMARY

MAX. PEAK INFLOW	19.78	CFS	from	0600	on	03-27-91	to	0700	on	03-27-91
MAX. PEAK OUTFLOW	2.73	CFS	from	0915	on	03-02-91	to	1100	on	03-02-91
MAX. W.S. ELEVATION	1605.90	feet	on	03-27-91	STORAGE	33.30	ACRE-FEET			
MIN. W.S. ELEVATION	1600.00	feet	on	varies	STORAGE	0.00	ACRE-FEET			

THOMPSON CREEK DAM OPERATION RECORD SUMMARY

WATER YEAR 1990-91	OCTOBER	NOVEMBER	DECEMBER	JANUARY
TOTAL MONTHLY INFLOW (AF)	0.00	0.00	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	0.00	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

WATER YEAR 1990-91	FEBRUARY	MARCH	APRIL	MAY
TOTAL MONTHLY INFLOW (AF)	0.00	76.30	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	0.00	33.70	0.60	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.00	17.20	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	21.20	20.60	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	21.30	-21.30	0.00

WATER YEAR 1990-91	JUNE	JULY	AUGUST	SEPTEMBER
TOTAL MONTHLY INFLOW (AF)	0.00	0.00	0.00	0.00
TOTAL MONTHLY OUTFLOW (AF)	0.00	0.00	0.00	0.00
MAX. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
TOTAL MONTHLY LOSSES (AF)	0.00	0.00	0.00	0.00
MIN. MEAN DAILY INFLOW (CFS)	0.00	0.00	0.00	0.00
MONTHLY STORAGE CHANGE (AF)	0.00	0.00	0.00	0.00

EROSION CONTROL

EROSION CONTROL

Each year eroded material in various forms (trees, rock, sand, etc.) flows out of the mountain watersheds of Los Angeles County. In an effort to control this potentially disruptive force, the Department maintains a series of debris basins in canyon mouths and upstream stabilization structures in selected watersheds.

DEBRIS BASINS

The purpose of a debris basin is to entrap the debris flows emanating from the canyon and let the relatively desilted water pass into flood control channels.

From 1990 to 1991, the number of debris basins was changed from 115 to 114 by declassifying an existing debris basin to a drain inlet. This gives a total capacity of approximately 7,603,725 cubic yards.

Records of sediment inflow at individual debris basins and amounts excavated and removed are available in the Hydraulic/Water Conservation Division.

STABILIZATION STRUCTURES

Stabilization structures are constructed to control erosion in natural canyons. They serve to prevent downcutting by stabilizing alluvial deposits. In addition, they store debris generated by the watershed and serve to stabilize side banks, reducing side slope sloughing and bank erosion.

The Department maintains 225 stabilization structures in 47 major watersheds. No structures have been constructed since the 1973-74 water year.

EMERGENCY STRUCTURES

Emergency structures (rail and timber) have been constructed to entrap the debris inflow from burned watersheds. They serve to protect improvements (road, channel, residence, etc.) located immediately downstream of the watersheds. Currently 36 emergency structures exist with a total maximum capacity of 272,215 cubic yards. No major fires (those over 500 acres) occurred in this water year.

SEDIMENT REMOVAL FROM RESERVOIRS

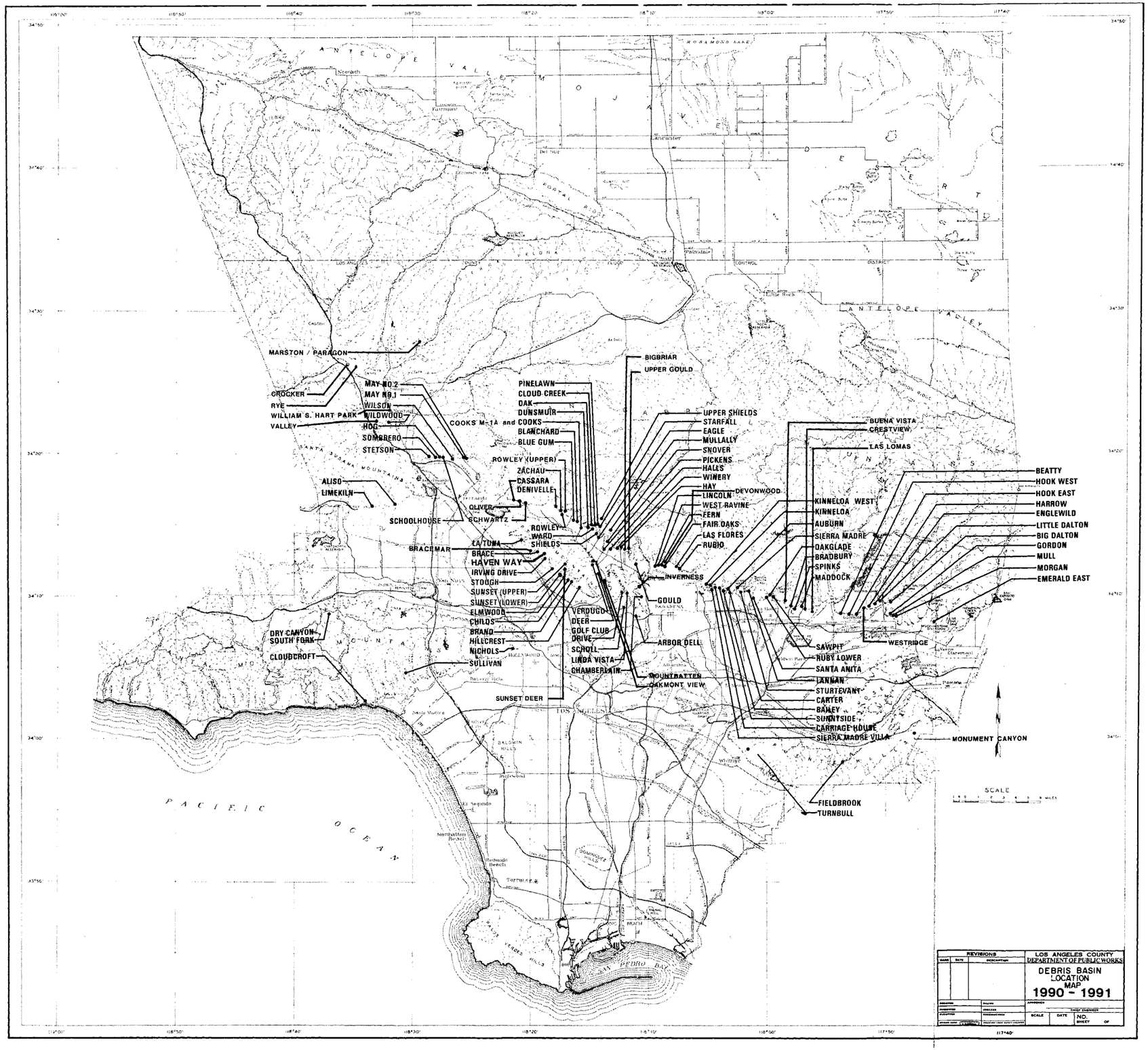
Sediment deposition in reservoirs reduces the storage capacities and adversely affects flood control and water conservation efforts. Sediment removal is periodically necessary and is generally an expensive effort due to large quantities, the need to deal with water inflows, and in several cases, remote locations and limited accessibility for equipment.

Where practical, the Department encourages sediment removal by permittees at no cost to the Department such as at Eaton Wash and Devil's Gate Dams.

During the 1990-91 water year the Department initiated cleanouts in Cogswell Reservoir and Morris Reservoir. These are two of three reservoirs in San Gabriel Canyon which collectively contain 36 million cubic yards (cy), about three-quarters of the cumulative volume of sediment currently behind all dams under the Department's control.

Cogswell Reservoir was cleaned out mechanically and the removed material was placed in a canyon sediment placement site (SPS) upstream of the dam. (The location of the SPS was mandated by the US Forest Service because of accessibility, aesthetics and safety reasons.) About 450,000 cy of material was removed with this year's cleanout.

Morris reservoir's cleanout consisted of a Pilot Sluicing Project. This is the first debris removed from Morris Reservoir in its 57 year history. About 435,000 cy of material was removed with this year's cleanout.



REVISIONS			LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
MARK	DATE	DESCRIPTION	DEBRIS BASIN LOCATION MAP 1990 - 1991
			SCALE / DATE / NO. SHEET OF

PE1

1991

D E B R I S B A S I N - D E S I G N D A T A

Including 1990-1991 Season

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

DATA SHEET A

Date: October 1, 1991

FILE: AADP91.WK1

DEBRIS BASIN	FIRST DEBRIS SEASON	UNCONTROLLED DRAINAGE AREA ABOVE BASIN SQ. MI.	BOTTOM ELEV. AT MAX CAP. FT.	ELEV PORT INVERT FT. (1)	ELEV. SPILLWAY CREST	WIDTH SPILLWAY FT.	ELEV. CREST. OF DAM FT.	MAX. DEB. CAP. CU. YDS.
Aliso	1970 - 71	2.77	1108.0	1108.4	1120.0	70.0	1134.0	41,700 (8)
Arbor Dell	1971 - 72	0.11	899.3	898.4	913.0	22.9	919.6	12,400
Auburn	1954 - 55	0.19	1263.9	1263.0	1275.0	30.0	1283.0	31,100 (15,18)
Bailey	1945 - 46	0.60	1122.5	1123.1	1155.0	30.0	1166.0	128,800 (15)
Beatty	1970 - 71	0.27	800.0	800.0	807.0	32.0	815.5	43,000
Bigbriar	1971 - 72	0.02	1898.3	1896.0	1910.0	14.0	1910.8	2,600 (15,18)
Big Dalton	1959 - 60	2.94	1102.0	1101.9 (3)	1131.5	116.0	1148.7	517,800 (15)
Blanchard	1968 - 69	0.47	2026.0	2026.0	2053.5	40.0	2065.0	74,500 (15)
Blue Gum	1968 - 69	0.19	2020.0	2020.0	2042.0	25.0	2053.0	39,600
Brace	1971 - 72	0.29	1189.7	1189.7	1194.5	20.0	1203.3	27,500
Bracemar	1971 - 72	0.01	1140.0	1140.0	1145.5	8.0	1148.0	700 (11)
Bradbury	1954 - 55	0.68	912.5	913.1	920.0	58.0	928.0	89,800
Brand	1935 - 36	1.04	859.0	860.0	890.0	60.0	903.0	166,000 (15)
Buena Vista	1985 - 86	0.10	978.7	978.7	992.2	39.0	997.7	21,400 (15,18)
Carriage House	1970 - 71	0.03	1350.3	1350.0	1362.9	15.0	1366.8	6,100 (15,18)
Carter	1954 - 55	0.12	1222.0	1223.2	1238.2	30.0	1245.0	14,600 (15,18)
Cassara	1976 - 77	0.21	1271.5	1271.5	1291.7	66.0	1295.4	36,700 (15)
Chamberlain	1974 - 75	0.04	1084.6	1084.0	1097.5	20.0	1101.3	4,700 (15)
Childs	1963 - 64	0.30	1022.0	1022.0	1058.8	23.0	1071.0	50,400 (15)
Cloud Creek	1972 - 73	0.01	2347.2	2350.5	2360.0	(5)	2362.0	6,200 (15,19)
Cloudcroft	1973 - 74	0.21	313.9	315.0	329.5	36.0	329.5	34,700 (15)
Cooks	1951 - 52	0.58	2058.0	2058.0	2082.9	48.0	2092.0	85,600 (15)
Cooks M-1A (14)	1975 - 76	(14)	(14)	(14)	(14)	(14)	(14)	0 (14)
Crestview	1983 - 84	0.03	864.4	864.0	886.2	20.0	891.7	5,900
Crocker	1983 - 84	0.67	1064.8	1064.2	1069.8	36.0	1077.0	19,300 (15)
Deer	1954 - 55	0.59	1185.4	1185.0	1201.0	56.0	1209.6	56,600
Denivelle	1976 - 77	0.18	1471.0	1471.0	1479.3	46.0	1483.3	8,200
Devonwood	1981 - 82	0.03	1899.0	1899.0	1915.8	22.0	1921.5	5,700 (15,18,19
Dry Canyon-South Fork	1978 - 79	0.49	1062.8	1062.5	1074.8	32.0	1079.3	7,900 (19)
Dunsmuir	1935 - 36	0.84	2228.0	2227.7	2257.2	60.0	2272.2	101,900 (15,18)
Eagle	1936 - 37	0.48	1848.3	1844.3	1880.2	60.0	1895.2	62,400 (15)
Elmwood	1964 - 65	0.31	912.0	911.5	938.0	22.0	952.0	66,400 (15)
Emerald-East	1964 - 65	0.32	1185.1	1181.1	1192.0	30.0	1204.0	13,200
Englewild	1961 - 62	0.44	1274.9	1275.0	1297.0	50.0	1300.0	40,600 (15,18,19
Fair Oaks	1935 - 36	0.21	1544.0	1544.0	1561.9	(6)	1566.5	23,800 (15)
Fern	1935 - 36	0.31	1438.7	1462.4	1470.2	25.0	1480.5	30,600
Fieldbrook	1974 - 75	0.35	712.7	713.0	718.0	28.0	722.3	2,800
Golf Club Drive	1970 - 71	0.97	880.7	880.7	902.0	36.7	915.0	14,700 (19)
Gordon	1973 - 74	0.18	1075.7	1075.0	1088.0	22.0	1096.0	16,800
Gould	1947 - 48	0.36	1529.5	1528.2	1548.0	55.0	1548.0	49,600 (19)

1991

D E B R I S B A S I N - D E S I G N D A T A

Including 1990-1991 Season

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

DATA SHEET A

Date: October 1, 1991

FILE: AADP91.WK1

DEBRIS BASIN	FIRST DEBRIS SEASON	UNCONTROLLED DRAINAGE AREA ABOVE BASIN SQ. MI.	BOTTOM ELEV. AT MAX CAP. FT.	ELEV PORT INVERT FT. (1)	ELEV. SPILLWAY CREST	WIDTH SPILLWAY FT.	ELEV. CREST. OF DAM FT.	MAX. DEB. CAP. CU. YDS.
Gould (Upper)	1976 - 77	0.18	1863.9	1863.9	1897.7	32.0 (16)	1901.0	52,300
Halls	1935 - 36	0.86	1641.6	1641.8	1661.3	131.0	1664.0	89,400
Harrow	1958 - 59	0.43	1254.8	1255.0	1269.0	40.0	1277.8	68,000
Hay	1936 - 37	0.20	1875.4	1901.0	1905.0	36.0	1915.0	36,000
Hillcrest	1962 - 63	0.35	863.5	863.5	885.0	18.0	901.0	57,800 (15)
Hog	1969 - 70	0.33	1520.3	1520.0	1535.0	32.0	1547.0	39,600 (19)
Hook East	1968 - 69	0.18	1197.5	1198.0	1210.9	37.0	1215.0	22,300 (15,18)
Hook West	1970 - 71	0.17	1144.8	1145.0	1158.9	40.0	1167.0	21,600 (15,18)
Inverness	1982 - 83	0.03	1253.0	1252.9	1256.7	20.0	1261.0	3,200 (15,18)
Irving Drive	1974 - 75	0.03	905.8	905.0	915.3	12.0	920.0	1,200 (15,18)
Kinneloa	1964 - 65	0.20	1370.0	1370.0	1388.0	40.0	1395.0	14,100 (15,18)
Kinneloa West Branch	1966 - 67	0.19	1384.9	1385.0	1400.0	22.0	1408.5	23,600 (15,18)
Lannan	1954 - 55	0.25	1016.0	1015.0	1035.8	14.0	1043.0	36,700 (15)
La Tuna	1955 - 56	5.34	1109.0	1110.0	1140.0	75.0	1157.0	495,300 (15)
Las Flores	1935 - 36	0.45	1685.1	(9)	1715.6	50.0	1726.4	57,600 (15,18)
Las Lomas	1983 - 84	0.07	895.4	896.0	906.6	24.0	911.0	9,300 (15,18)
Limekiln	1963 - 64	3.72	990.0	992.0	1003.0	77.0	1019.0	171,600 (15)
Lincoln	1935 - 36	0.50	1275.8	1276.0	1304.0	56.0	1322.5	38,400
Linda Vista	1970 - 71	0.37	979.5	979.5	989.8	40.0	995.7	3,200
Little Dalton	1959 - 60	3.31	1140.0	1139.5	1186.0	84.0	1200.2	660,500 (15)
Maddock	1954 - 55	0.25	888.6	891.8	901.0	36.0	904.0	45,000 (15)
Marston/Paragon	1988 - 89	0.20	1455.5	1455.5	1468.0	(10)	1466.0	13,000
May No. 1	1953 - 54	0.70	1665.9	1666.0	1684.0	60.0	1692.5	64,000
May No. 2	1953 - 54	0.09	1663.4	1663.5 (2)	1669.5	20.0	1674.0	10,000
Monument	1981 - 82	0.11	943.8	942.3	950.0	12.0	954.0	6,800 (15)
Morgan	1964 - 65	0.60	1135.0	1135.0	1158.0	45.0	1167.0	47,700 (15,18)
Mountbatten	1983 - 84	0.01	1136.2	1135.5	1140.9	20.0	1141.0	1,400
Mull	1973 - 74	0.15	1146.9	1147.0	1154.0	20.0	1165.0	12,500 (15,18)
Mullally (12)	1974 - 75	0.34	2420.0	2420.0	2435.4	42.0	2439.6	9,400 (15,18)
Nichols	1937 - 38	0.94	481.0	481.0	485.1	50.0	495.0	13,100 (19)
Oak	1975 - 76	0.05	2145.7	2145.7	2151.8	50.0	2156.2	6,200 (18)
Oakglade	1974 - 75	0.06	1274.6	1280.0	1290.0	20.0	1296.0	7,200 (15,18)
Oakmont View Drive	1984 - 85	0.02	1315.5	1315.5	1327.5	20.0	1327.5	3,400
Oliver	1989 - 90	0.18	1253.4	1253.4	1278.0	41.0	1283.3	32,100
Pickens	1935 - 36	1.50	1564.0	1564.0	1600.0	123.0	1613.0	125,115
Pinelawn	1973 - 74	0.02	2431.0	2430.5	2443.0	(7)	2448.5	3,200 (15,18)
Rowley	1953 - 54	0.21	1701.6	1703.6	1714.0	60.0	1722.0	43,100 (19)
Rowley (Upper)	1976 - 77	0.31	1926.0	1926.0	1946.0	42.0	1951.3	28,800
Rubio	1943 - 44	1.26	1582.1	1582.1	1608.3	59.0	1625.5	127,200
Ruby (Lower)	1955 - 56	0.28	810.8	809.6	828.0	45.0	833.0	28,600

1991

D E B R I S B A S I N - D E S I G N D A T A

Including 1990-1991 Season

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

DATA SHEET A

Date: October 1, 1991

FILE: AADP91.WK1

DEBRIS BASIN	FIRST DEBRIS SEASON	UNCONTROLLED DRAINAGE AREA ABOVE BASIN SQ. MI.	BOTTOM ELEV. AT MAX CAP. FT.	ELEV PORT INVERT FT. (1)	ELEV. SPILLWAY CREST	WIDTH SPILLWAY FT.	ELEV. CREST. OF DAM FT.	MAX. DEB. CAP. CU. YDS.	
Rye	1981 - 82	1.11	1073.9	1073.8	1077.7	58.2	1081.5	19,100	
Saddleback	1988 89	0.04	1779.0	1779.3	1790.0	(10)	1796.0	27,000	
Santa Anita	1959 - 60	1.70	748.5	748.5 (3)	774.7	160.0	796.0	394,600	
Sawpit	1954 - 55	2.82	928.5	933.4	982.0	110.0	1000.0	635,700	(15,19)
Scholl	1945 - 46	0.16	950.0	950.0 (2)	956.0	76.0	966.0	9,300	(19)
Schoolhouse	1962 - 63	0.28	1459.6	1460.0	1478.5	20.0	1491.0	67,700	(15)
Schwartz	1976 - 77	0.25	1296.0	1294.7	1313.2	35.0	1319.0	45,400	
Shields	1937 - 38	0.06	2030.0	2050.0	2058.1	30.0	2070.2	34,800	(19)
Sierra Madre Dam (13)	1927 - 28	2.39	1119.5	1119.5	1172.5	62.5	1175.0	136,400	
Sierra Madre Villa	1957 - 58	1.46	1069.2	1069.2	1088.9	48.0	1102.5	402,700	
Snover	1936 - 37	0.21	1858.0	1874.4	1879.0	40.0	1893.7	23,400	(19)
Sombrero	1969 - 70	1.06	1539.6	1540.0	1564.8	45.0	1580.0	87,900	
Spinks	1958 - 59	0.42	750.0	750.0	761.5	40.0	765.9	56,000	(15)
Starfall	1973 - 74	0.13	2428.0	2428.0	2441.5	30.0	2446.5	14,900	(15,18)
Stetson	1969 - 70	0.29	1556.0	1555.0	1570.0	32.0	1570.0	41,300	(15)
Stough	1940 - 41	1.65	1006.0	1005.8	1031.5 (4)	100.0	1043.5	181,200	
Sturtevant	1967 - 68	0.03	975.0	971.0	983.6	8.0	990.0	1,400	(15,18)
Sullivan	1970 - 71	2.38	570.0	570.0	587.0	50.0	599.3	51,000	
Sunnyside	1970 - 71	0.02	1290.0	1290.0	1299.5	15.0	1303.8	3,400	(15,18)
Sunset Canyon-Deer	1982 - 83	0.21	1382.4	1380.5	1401.8	24.0	1409.1	5,000	(15,18)
Sunset (Lower)	1963 - 64	0.45	1003.8	994.5	1040.0	40.0	1056.0	160,600	(19)
Sunset (Upper)	1928 - 29	0.44	1574.2	1574.0	1603.7	75.0	1610.1	15,900	
Turnbull	1952 - 53	0.99	480.0	475.6	492.0	40.0	503.0	20,300	(8)
Upper Shields (12)	1976 - 77	0.20	2505.0	2502.0	2518.8	29.5	2524.0	5,600	
Valley	1987 - 88	0.22	1351.0	(10)	(10)	31.0	1365.0	4,000	
Verdugo	1935 - 36	3.09	1109.5	1110.0	1119.7	145.0	1131.0	131,000	
Ward	1956 - 57	0.12	2021.8	2022.0	2043.0	58.0	2035.3	26,400	
West Ravine	1935 - 36	0.25	1470.0	(9)	1501.9	20.0	1505.5	44,900	(15)
Westridge	1974 - 75	0.02	894.0	894.0	901.0	10.7	906.0	1,400	
Wildwood	1967 - 68	0.65	1342.9	1342.9	1354.0	50.0	1360.0	20,700	
William S. Hart Park	1983 - 84	0.09	1284.0	1280.0	1290.0	19.0	1293.0	2,400	
Wilson	1962 - 63	2.58	1517.3	1493.0	1526.0	60.0	1543.0	313,100	(15)
Winery	1968 - 69	0.18	1920.0	1920.0	1935.0	20.0	1945.0	29,200	
Zachau	1956 - 57	0.35	1803.4	1803.1	1820.5	44.0	1823.0	48,100	

113 DEBRIS BASINS 7,553,615

D E B R I S B A S I N - D E S I G N D A T A

Including 1990-1991 Season

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section
Date: October 1, 1991

DATA SHEET A

(1) LOWEST CLEAR WATER OUTLET, NOT SPILLWAY.
(2) ELEVATION OF SPILLWAY NOTCH.
(3) FLOW LINE OF SLUICEWAY.
(4) ELEVATION OF SPILLWAY INTO OUTLET CHANNEL. ELEVATION OF OVERFLOW SPILLWAY 1036.9 FEET.
(5) ONE 30-INCH REINFORCED CONCRETE PIPE.
(6) FOUR 36-INCH CORRUGATED METAL PIPES.
(7) ONE 36-INCH REINFORCED CONCRETE PIPE. (ELEVATED INLET)
(8) DEBRIS CAPACITY AVAILABLE WITHIN RIGHT OF WAY LIMITS.
(9) PIT-TYPE BASIN.
(10) INFORMATION UNAVAILABLE.
(11) MAXIMUM CAPACITY MAY BE LESS THAN SHOWN AND IS BEING REVIEWED. FIELD INSPECTION SUGGESTS BASIN IS NEAR ITS FULLEST POSSIBLE CAPACITY.
(12) SPECIAL CLEANOUT REQUIRED DUE TO LIMITED STORAGE.
(13) CLEANOUT WHEN DEBRIS REACHES OR EXCEEDS ELEV. 1128.9 AGAINST FACE OF DAM.
(14) VALUES ARE COMBINED WITH COOKS DEBRIS BASIN
(15) VALUES ARE BASED ON RECENTLY APPROVED CUTPLANS
(16) SPILLWAY IS STREET
(17) CLEANED FALL OF 1991
(18) CAPACITY REDUCED FOR 5% MAX CONE SLOPE
(19) DRAINAGE AREA CORRECTED JUNE 1991

AFTON REMOVED FROM D/B LIST JULY 1991
CEDARWOOD REMOVED FROM D.B LIST AUGUST 1991

D E B R I S B A S I N - D E B R I S P R O D U C T I O N H I S T O R Y

Including 1990 - 1991

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

Date: October 1, 1991

DATA SHEET B

FILE: AADP91.WK1

DEBRIS BASIN	NUMBER OF SEASONS	TOTAL DEBRIS DEPOSITED CU. YDS. (1)	MAXIMUM SEASONAL DEBRIS PRODUCTION CU. YDS.	SEASON	ESTIMATED CONDITIONS DEBRIS STORED CU. YD.	CAPACITY AVAILABLE CU. YD.	CAPACITY AVAILABLE PER CENT
Aliso (11)	21	134,730	30,700	1982-83	2400	39,300	94 (5)
Arbor Dell (11)	20	1,397	800	1979-80	390	12,010	97
Auburn	37	87,386	20,100	1961-62	350	30,750	99
Bailey	46	238,794	91,000	1979-80	1700	127,100	99
Beatty	21	13,297	7,600	1979-80	3250	39,750	92
Bigbriar	20	2,004	623	1987-88	50	2,550	98
Big Dalton	32	833,003	296,700	1968-69	5200	512,600	99
Blanchard	23	68,196	36,600	1977-78	200	74,300	100
Blue Gum	23	37,572	19,100	1977-78	1500	38,100	96
Brace	20	35,621	12,000	1977-78	25	27,475	100
Bracemar	20	664 (7)	283	1980-81	-200	900	129 (9)
Bradbury	37	267,430	70,200	1968-69	2500	87,300	97
Brand	56	248,895	53,100	1977-78	22000	144,000	87
Buena Vista	6	38	38	1987-88	40	21,360	100
Carriage House	21	4,742	3,400	1979-80	60	6,040	99
Carter	37	36,890	12,600	1979-80	550	14,050	96
Cassara	15	25,583	16,800	1977-78	3800	32,900	90
Chamberlain	17	556	300	1974-75	-100	4,800	102
Childs	28	45,220	10,700	1980-81	4250	46,150	92
Cloud Creek	19	3,262	1,800	1977-78	650	5,550	90
Cloudcroft	18	12,290	6,100	1973-74	600	34,100	98
Cooks	40	166,864 (3)	61,200	1977-78	7014	78,586	92
Cooks M-1A	16	(13)	(13)	(13)	(13)	(13)	0 (13)
Crestview	8	(6)	(6)	(6)	5	5,895	100
Crocker	8	(6)	(6)	(6)	1500	17,800	92
Deer	37	156,948	44,200	1968-69	6900	49,700	88
Denivelle	15	8,660	5,500	1977-78	575	7,625	93
Devonwood	10	132	100	1982-83	30	5,670	99
Dry Canyon-South Fork	13	6,003	5,300	1979-80	2075	(8)	0 (14)
Dunsmuir	56	349,183	86,200	1977-78	2900	99,000	97
Eagle	55	200,286	41,700	1937-38	7200	55,200	88
Elmwood	27	52,781	16,100	1980-81	670	65,730	99
Emerald-East	27	8,959	1,800	1985-86	39	13,161	100
Englewild	30	85,119 (2)	60,200 (2)	1968-69	570	40,030	99
Fair Oaks	56	109,020	15,700	1935-36	200	23,600	99
Fern	56	159,554	23,900	1968-69	2000	28,600	93
Fieldbrook	17	1,354	500	1977-78	520	2,280	81
Golf Club Drive	21	30,157	11,600	1979-80	555	14,145	96
Gordon	18	4,485	3,800	1977-78	0	16,800	100
Gould	44	115,091	18,000	1965-66	4400	45,200	91
Gould (Upper)	15	25,444	10,100	1977-78	1750	50,550	97

D E B R I S B A S I N - D E B R I S P R O D U C T I O N H I S T O R Y

Including 1990 - 1991

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

Date: October 1, 1991

DATA SHEET B

FILE: AADP91.WK1

DEBRIS BASIN	NUMBER OF SEASONS	TOTAL DEBRIS DEPOSITED CU. YDS. (1)	MAXIMUM SEASONAL DEBRIS PRODUCTION CU. YDS.	SEASON	ESTIMATED CONDITIONS DEBRIS STORED CU. YD.	CAPACITY AVAILABLE CU. YD.	CAPACITY AVAILABLE PER CENT
Halls	56	569,156	102,100	1937-38	6500	82,900	93
Harrow	33	78,297 (2)	63,400 (2)	1968-69	-470	68,470	101
Hay	55	67,952	18,200	1937-38	0	36,000	100
Hillcrest	29	48,589	11,700	1964-65	6060	51,740	90
Hog	22	6,500	3,900	1977-78	65	39,535	100
Hook East	23	45,709 (2)	40,200 (2)	1968-69	-20	22,320	100
Hook West	21	6,537	3,600	1979-80	5675	(8)	0 (14)
Inverness	9	265	300	1982-83	370	2,830	88
Irving Drive	17	1,244	600	1980-81	100	1,100	92
Kinneloa	27	48,929 (2)	17,600 (2)	1968-69	500	13,600	96
Kinneloa West Branch	25	59,055 (2)	22,200 (2)	1968-69	3400	20,200	86
Lannan	37	84,067	18,200	1969-70	600	36,100	98
La Tuna	36	595,914	172,100	1977-78	3000	492,300	99
Las Flores	56	214,754	36,000	1937-38	2000	55,600	97
Las Lomas	8	(6)	(6)	(6)	35	9,265	100
Limekiln	28	270,549	42,300	1965-66	12000	159,600	93
Lincoln	56	126,104	28,400	1968-69	2000	36,400	95
Linda Vista	21	11,407	3,400	1977-78	-173	3,373	105 (14)
Little Dalton	32	905,170	337,800	1968-69	12100	648,400	98
Maddock	37	56,454	16,200	1980-81	3320	42,580	95
Marston/Paragon	3	(6)	(6)	(8)	200	12,800	98
May No. 1	38	203,322	45,800	1968-69	1300	62,700	98
May No. 2	38	27,314	6,200	1966-67	10	9,990	100
Monument	10	2,855	2,600	1981-82	140	6,660	98
Morgan	27	30,292	12,900	1968-69	1080	46,620	98
Mountbatten	8	55	(6)	(6)	80	1,320	94
Mull	18	1,970	1,100	1979-80	62	12,438	100
Mullally (10)	17	51,849 (4)	24,400 (4)	1977-78	259	9,141	97 (14)
Nichols	54	126,652	21,800	1951-52	2050	11,050	84
Oak	16	13,258	6,900	1977-78	785	5,415	87
Oakglade	17	1,455	1,200	1977-78	550	6,650	92
Oakmont View Drive	7	(6)	(6)	(6)	30	3,370	99
Oliver	2	30380 (15)	16255	1977-78	50	32,050	100
Pickens	56	716,116	140,600	1977-78	250	124,865	100
Pinelawn	18	5,113	1,200	1976-77	425	2,775	87
Rowley	38	76,207 (4)	16,700 (4)	1977-78	500	42,600	99
Rowley (Upper)	15	49,019 (4)	31,900 (4)	1977-78	400	28,400	99
Rubio	48	271,322	133,000	1979-80	7000	120,200	94
Ruby (Lower)	36	20,448	8,300	1968-69	1016	27,584	96
Rye	10	10,419	10,000	1981-82	25	19,075	100
Saddleback	3	(6)	(6)	(8)	500	26,500	98

D E B R I S B A S I N - D E B R I S P R O D U C T I O N H I S T O R Y

Including 1990 - 1991

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

Date: October 1, 1991

DATA SHEET B

FILE: AADP91.WK1

DEBRIS BASIN	NUMBER OF SEASONS	TOTAL DEBRIS DEPOSITED CU. YDS. (1)	MAXIMUM SEASONAL DEBRIS PRODUCTION CU. YDS.	SEASON	ESTIMATED CONDITIONS DEBRIS STORED CU. YD.	CAPACITY AVAILABLE CU. YD.	CAPACITY AVAILABLE PER CENT
Santa Anita	32	689,384 (2,3)	132,000 (2,3)	1961-62	6000	388,600	98
Sawpit	37	680,058 (2,3)	233,800 (2,3)	1968-69	500	635,200	100
Scholl	46	16,794	3,500	1968-69	670	8,630	93
Schoolhouse	29	33,550	21,600	1962-63	4500	63,200	93
Schwartz	15	45,183	23,400	1977-78	7410	37,990	84
Shields	54	173,202 (3)	35,100	1937-38	1800	33,000	95
Sierra Madre Dam (12)	64	363,695 (2)	95,200 (2)	1968-69	1052	135,385	99
Sierra Madre Villa	34	508,701	118,600	1961-62	1300	401,400	100
Snover	55	104,397	21,100	1938-39	0	0	0 (16)
Sombrero	22	6,030	3,300	1977-78	175	87,725	100
Spinks	33	67,086	16,400	1968-69	700	55,300	99
Starfall	18	27,128	14,200	1977-78	-600	15,500	104
Stetson	22	5,035	1,500	1977-78	2300	39,000	94
Stough	51	161,148	44,100	1964-65	9700	171,500	95
Sturtevant	24	1,321	500	1977-78	120	1,280	91
Sullivan	21	89,957	35,300	1979-80	1200	49,800	98
Sunnyside	21	1,749	800	1978-79	35	3,365	99
Sunset Canyon-Deer	9	3,678	3,200	1982-83	50	4,550	91
Sunset (Lower)	28	142,169	29,200	1980-81	16550	144,050	90
Sunset (Upper)	63	142,392	27,000	1964-65	550	15,350	97
Turnbull	39	50,514 (2)	15,900 (2)	1968-69	0	20,200	100 (5)
Upper Shields (10)	15	39,692 (4)	16,900	1977-78	335	5,265	94
Valley	4	200	(6)	(6)	125	3,875	97
Verdugo	56	807,740	105,400	1937-38	9000	122,000	93
Ward	35	51,668	17,800	1977-78	230	26,170	99
West Ravine	56	148,333	29,900	1937-38	10000	34,900	78
Westridge	17	200	(6)	(6)	187	1,213	87
Wildwood	24	67,450	16,700	1977-78	1600	19,100	92
William S. Hart Park	8	1,329	1,000	1983-84	295	2,105	88
Wilson	29	217,968	55,500	1968-69	3993	309,100	99
Winery	23	23,137	9,400	1968-69	1950	27,250	93
Zachau	35	107,185 (4)	48,100 (4)	1977-78	1100	47,000	98
114 DEBRIS BASINS					244,719		

D E B R I S B A S I N - D E B R I S P R O D U C T I O N H I S T O R Y

Including 1990-1991

Compiled by: Hydraulic and Water Conservation Division - Sedimentation Section

DATA SHEET B

Date: October 1, 1991

(1) VOLUME OF DEBRIS DEPOSITED IN BASINS DOES NOT INCLUDE DEBRIS SLUICED THROUGH OPEN PORTS OR NOTCH.

(2) VOLUME OF DEBRIS DEPOSITED DOES NOT INCLUDE DEBRIS WHICH PASSED OVER SPILLWAY DURING THE STORMS IN 1968-69 SEASON.

(3) INCLUDING DEBRIS FROM UPSTREAM BASIN OR DAM.

(4) VOLUME OF DEBRIS DEPOSITED DOES NOT INCLUDE DEBRIS WHICH PASSED OVER SPILLWAY DURING THE STORMS IN 1977-78 SEASON.

(5) DEBRIS CAPACITY AVAILABLE WITHIN RIGHT OF WAY LIMITS.

(6) NO SIGNIFICANT DEBRIS INFLOWS RECORDED.

(7) NO RECORDS OF DEBRIS DEPOSITION EXIST FOR THE FIRST 9 SEASONS.

(8) INFORMATION UNAVAILABLE.

(9) MAXIMUM CAPACITY MAY BE MORE THAN SHOWN AND IS BEING REVIEWED.

(10) SPECIAL CLEANOUT REQUIRED DUE TO LIMITED STORAGE.

(11) SPECIAL CLEANOUT REQUIRED DUE TO BURNED WATERSHED

(12) CLEANOUT WHEN DEBRIS REACHES OR EXCEEDS ELEV. 1128.9 AGAINST FACE OF DAM.

(13) VALUES ARE COMBINED WITH COOKS DEBRIS BASIN.

(14) TO BE CLEANED.

(15) DATA FROM PREVIOUS BASIN.

(16) BASIN UNDER RECONSTRUCTION

WATER QUALITY

WATER QUALITY

Since its conception, the Flood Control District (now Department of Public Works) has actively engaged in operations which have proven indispensable in preserving the integrity of our water resources, both quantity and quality, and has aided in the establishment of regulations or controlling criteria by those agencies so empowered.

Prior to March 1986, monitoring activities in the field of water quality control were conducted by the Water Quality Section of Hydraulic/Water Conservation Division. In March 1986, the responsibilities of conducting such activities were transferred to Waste Management Division as a result of the consolidation. These activities include, among others, the collection of water quality samples, their analyses, and the interpretation and reporting of the resulting data.

Areas of involvement include the monitoring of all groundwater basins through the sampling of numerous wells, the monitoring of storm and low water flows at various strategic locations on the major streams or channels, and an assumed or obligated responsibility to monitor the quality effects and subsurface travel of recharge areas, specifically the Whittier Narrows Spreading Grounds area.

The Water Quality Section, together with personnel of other Departmental divisions, also conducts investigations into pollution problems relative to our facilities, particularly those from industrial discharges, vehicle accidents, ruptured pipelines, or the indiscriminate dumping of various waste products.

The principal objectives of these investigations are to determine the degree and apparent source or origin of the pollution and to take the necessary action that will immediately abate the existing problem and possibly provide a means to prevent or limit recurrence.

Since 1986, the Water Quality Section also has been conducting the screening of proposed connections to County storm drains, and developments over County right-of-ways, for the purpose of minimizing/eliminating potential of pollutants to the storm drain waters and, thereby, to the environment.

The above-mentioned activities of the Water Quality Section have recently been intensified, particularly in the areas of interfacing and coordinating with other municipalities/cities, environmental organizations, as well as Federal and State agencies, in an effort to comply with the regulations and requirements mandated under the 1987 Clean Water Act, whereby the Department's storm drain system is under the National Pollutant Discharge Elimination System (NPDES) permitting regulations of the California Regional Water Quality Control Board (CRWQCB).

The NPDES Permit (CA0061654) issued for the storm drain system in Los Angeles County requires the development of programs to improve the quality of stormwater/urban runoff discharges into the storm drain system. Los Angeles County, represented by the Department of Public Works, is the Principal Permittee and the cities within the County are

Co-Permittees. The drainage area covered by the Permit will become active in three phases, with Phase 1, the Santa Monica Bay Drainage Basin, having begun July 1, 1990.

The Permit requires the County, together with the cities in the County, to (a.) develop and implement a stormwater/urban runoff monitoring program to gather data on the type and source of pollutants within the drainage basin, and (b.) develop and implement Best Management Practices (BMPs) to reduce the amount of pollutants that find their way into the storm drain system.

SURFACE WATER QUALITY

Prior to 1984, dry weather samples were collected from 30 sampling stations on a monthly basis for analysis such as general minerals, bacteria, pesticides, and heavy metals. In addition, storm samples were also collected and analyzed at least three times annually from the same 30 stations during storms season.

From 1984 to 1987, as a result of reorganization, the number of surface water monitoring stations was reduced to 21, while the parameters analyzed were reduced to include only total dissolved solids, pH, and dissolved oxygen. Storm sampling activities were also significantly curtailed.

In 1988, recognizing the inadequacy of the then existing monitoring program to meet the Department's need in dealing with the important issues in the areas of water quality, the Department Administration approved and implemented an expanded monitoring program effective May 1, 1988.

There are 28 monitoring stations in the Department's current Surface Water Quality Monitoring Program, from which dry weather samples are collected and analyzed on a monthly basis. These sampling stations are strategically located throughout the Department's major storm drains and water conservation facilities where the flows are representative of typical land uses as well as areas of significant water quality concerns. Of the 28 monitoring stations in the program, six are located at the outlets to Santa Monica Bay, while one is located in the mountain area where flow is considered to be natural and uncontaminated with the various pollutants associated with urbanization and developed land uses.

Monthly dry weather samples, thus collected, are analyzed for general minerals (pH, specific conductance, total dissolved solids, total hardness, potassium sulfate, calcium, magnesium, chloride, fluoride, nitrate-nitrogen, nitrite-nitrogen, ammonium-nitrogen, phosphate-P, boron, iron, and manganese), bacteria, pesticides, heavy metals (silver arsenic, barium, cadmium, chromium, mercury, lead, selenium, copper, nickel, zinc, and chromium [VI]), oil and grease, total organic carbon, total petroleum hydrocarbons, PCB's, biochemical oxygen demand, and volatile organic compounds (TCE, carbon tetrachloride, vinyl chloride, 1,2 dichlorethene, benzene, 1,1 dichloroethylene, 1,1,1 trichloroethane, p-dichlorobenzene). In addition, storm samples are collected for three to four storms annually from 21 stations, including San Gabriel Coastal and Rio Hondo Spreading Grounds for extensive analysis similar to those

for dry weather samples, with additional testing of total suspended solids and volatile suspended solids to be included. For storm samples collected at San Gabriel Coastal and Rio Hondo Spreading Grounds, priority pollutant constituents are also analyzed under an agreement with the Central and West Basin Water Replenishment District.

A selective list of total dissolved solids is shown for some of the sampling locations on the streams and channels monitored under the Surface Water Quality Program. For a conception of the analysis performed on the surface flows, a yearly compilation of constituent determination is shown for one (Los Angeles River at Wardlow) of the sampling stations in the program.

GROUNDWATER QUALITY

The annual sampling of water wells, under a selected scheduling, in five major basins in Los Angeles County comprise the Groundwater Quality Program. The program, initiated in 1970, is coordinated with the State of California Department of Water Resources and the City of Los Angeles Department of Water and Power. These agencies participate in the obtainment and analysis of samples.

All the water well samples are from active production wells used either for municipal supply, irrigation, or for industrial purposes and are selected to represent a general portrayal of basin water quality conditions. The samples taken under this program are analyzed for major minerals, total dissolved solids, electrical conductivity, pH, and in specific cases, phosphate, iron, manganese, fluoride, or boron.

WATER QUALITY DATA ACCESSIBILITY

Data acquired from the various programs are on file in the Water Quality Section. In addition, all data is accessible to any user through STORET, an Environmental Protection Agency computer system that stores, retrieves, and manipulates data using agency code 21CALAFD.

Surface Water Quality Monitoring Selected Surface Station
Table 1 Total Dissolved Solids - mg/l
1990-91 Season (Dry Weather Flow)

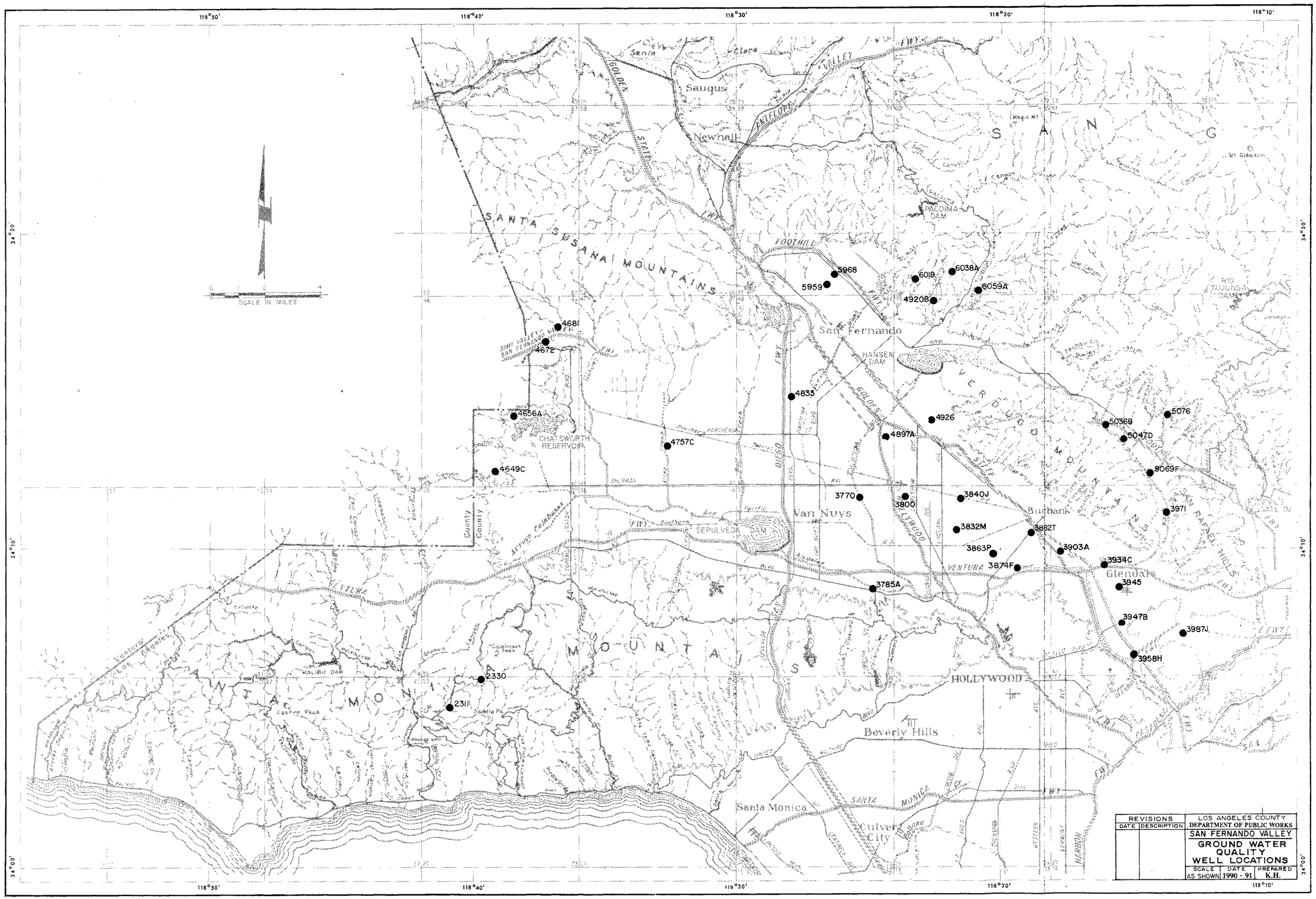
Sampling Location	Oct. 1990	Nov. 1990	Dec. 1990	Jan. 1991	Feb. 1991	Mar. 1991	Apr. 1991	May 1991	Jun. 1991	Jul. 1991	Aug. 1991	Sep. 1991	Average Value
Ballona Creek at Sawtelle Blvd.	753	845	735	848	738	1027	976	1020	**	**	**	**	868
Coyote Creek at Orangethorpe Avenue	574	974	853	1014	990	1128	1026	1043	**	**	**	**	950
Willow Street	627	888	706	734	1532	683	829	745	**	**	**	**	843
Dominguez Channel Above Vermont Avenue	599	627	597	686	622	742	668	753	**	**	**	**	662
Los Angeles River at Wardlow Road	716	694	652	705	624	582	683	763	**	**	**	**	677
Firestone Boulevard	647	646	637	588	555	598	708	685	**	**	**	**	633
Los Cerritos Channel at Stearns Street	770	719	681	684	795	589	826	597	**	**	**	**	708
Rio Hondo River at Southern Avenue	937	725	648	581	902	*	878	*	**	**	**	**	779
Spreading Grounds	530	594	613	620	563	615	568	593	**	**	**	**	587
Santa Monica Cyn. Ch. at Short Street	901	983	969	908	920	1061	1254	1059	**	**	**	**	1007
San Gabriel River at Spreading Grounds	*	*	*	*	639	647	*	567	**	**	**	**	618
Willow Street	660	860	830	764	811	628	759	840	**	**	**	**	769
San Jose Creek at Workman Mill Road	681	959	772	863	954	930	878	933	**	**	**	**	871

* No Samples collected due to dry conditions
** Contract laboratory services were not available from June to September

Surface Water Quality Analysis (Partial Data)
Monthly Monitoring 1990-91 Season (Dry Weather)
Los Angeles River at Wardlow Road

Constituent mg/l	Oct. 1990	Nov. 1990	Dec. 1990	Jan. 1991	Feb. 1991	Mar. 1991	Apr. 1991	May 1991	Jun. 1991	Jul. 1991	Aug. 1991	Sep. 1991	Average
Hardness as CaCO3	266	276	224	198	153	238	251	301	*	*	*	*	238
Calcium	58	60	54	73	42	63	69	72	*	*	*	*	61
Manesium	30	30	22	28	12	20	19	29	*	*	*	*	24
Sodium	135	105	121	121	128	118	132	124	*	*	*	*	123
Potassium	13.2	12.7	10.3	11.1	11.6	10.7	10.8	15.7	*	*	*	*	12.0
Ammonium	2.1	3.2	3.9	5.5	4.2	0.6	3.0	7.2	*	*	*	*	3.7
Alkalinity as CaCO3	185	138	104	179	92	173	149	182	*	*	*	*	150
Sulfate	145	153	159	178	150	163	217	213	*	*	*	*	172
Chloride	140	137	142	135	142	103	121	135	*	*	*	*	132
Nitrate-N	6.85	5.70	5.76	2.96	2.78	1.97	1.23	0.45	*	*	*	*	3.46
Phosphate	3.40	4.21	2.30	3.10	0.50	1.20	6.30	0.42	*	*	*	*	2.68
Total Dissolved Solids	716	694	652	705	624	582	683	763	*	*	*	*	677
BOD	3.9	6.0	7.7	3.4	9.3	2.0	2.0	20.4	*	*	*	*	6.8
Total Organic Carbon	11.1	14.9	14.3	10.8	13.4	11.8	14.7	20.0	*	*	*	*	13.9
MPN/100ml													
Fecal Coliform	5,000	8,000	1,100	7,000	<2	22	8	<2	*	*	*	*	2,600
Total Coliform	50,000	17,000	2,200	130,000	<2	90	23	6	*	*	*	*	25,000
Fecal Streptococcus	3,000	1,700	1,100	3,000	230	130	70	500	*	*	*	*	1,200
Enterococcus	1,700	1,700	1,100	3,000	230	80	70	500	*	*	*	*	1,100
pH	8.0	8.7	7.0	8.3	9.0	9.3	9.1	9.0	*	*	*	*	8.6
Temperature	70	55	60	50	64	64	68	77	*	*	*	*	64

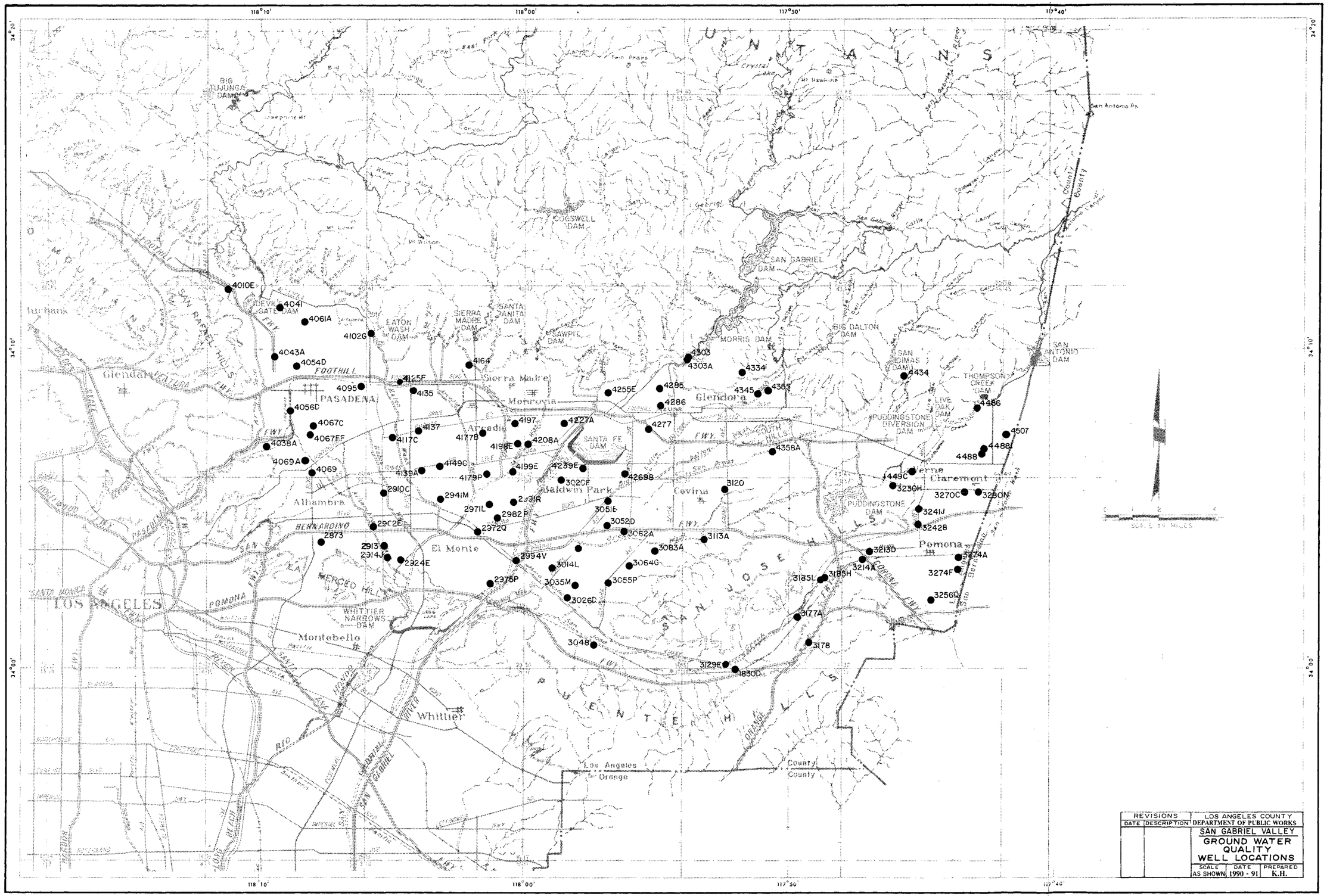
* Contract laboratory services were not available from June to September



REVISIONS		LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DATE	DESCRIPTION	SAN FERNANDO VALLEY GROUND WATER QUALITY WELL LOCATIONS
		SCALE: AS SHOWN | DATE: 1990 - 91 | PREPARED: K.H.

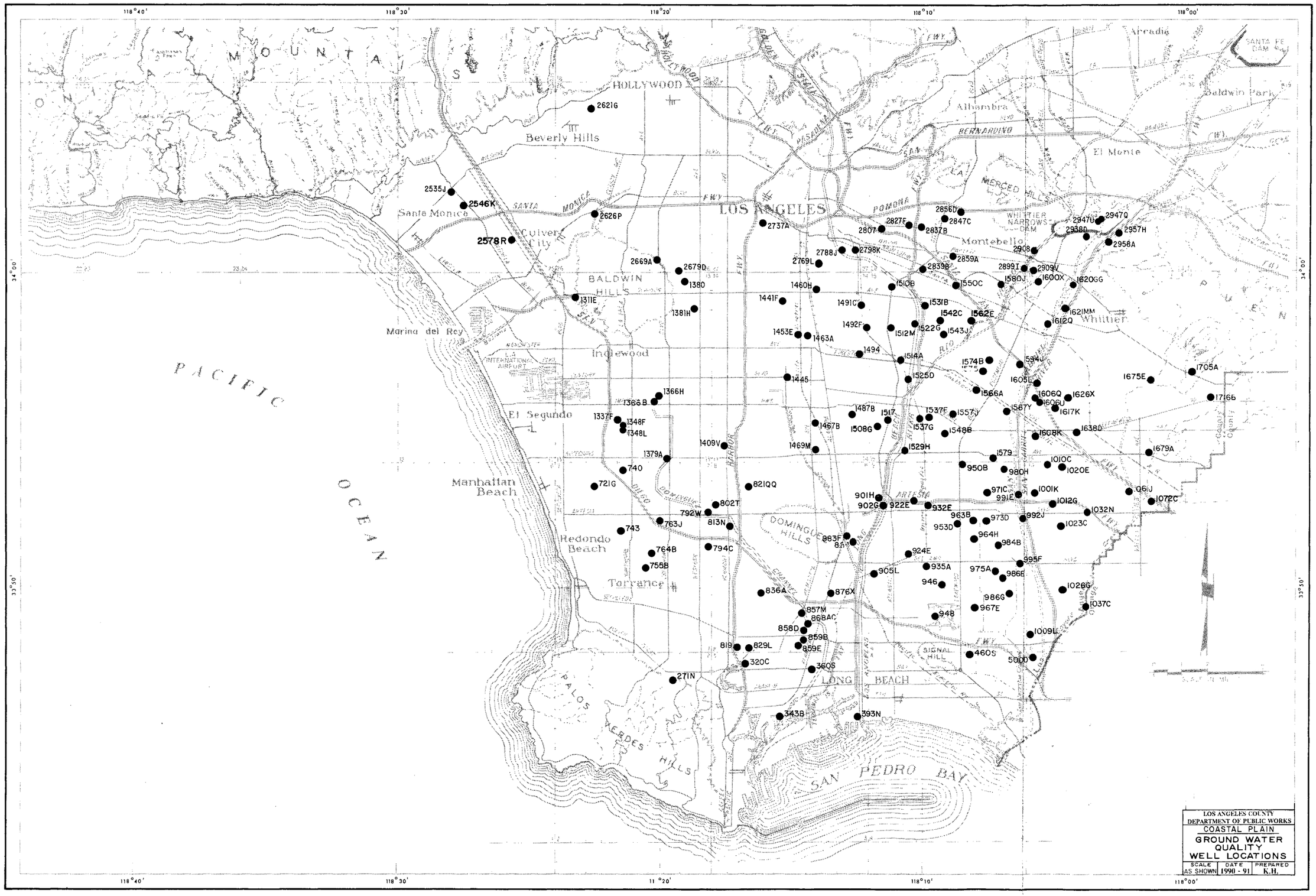
A-1 A-2

PFI

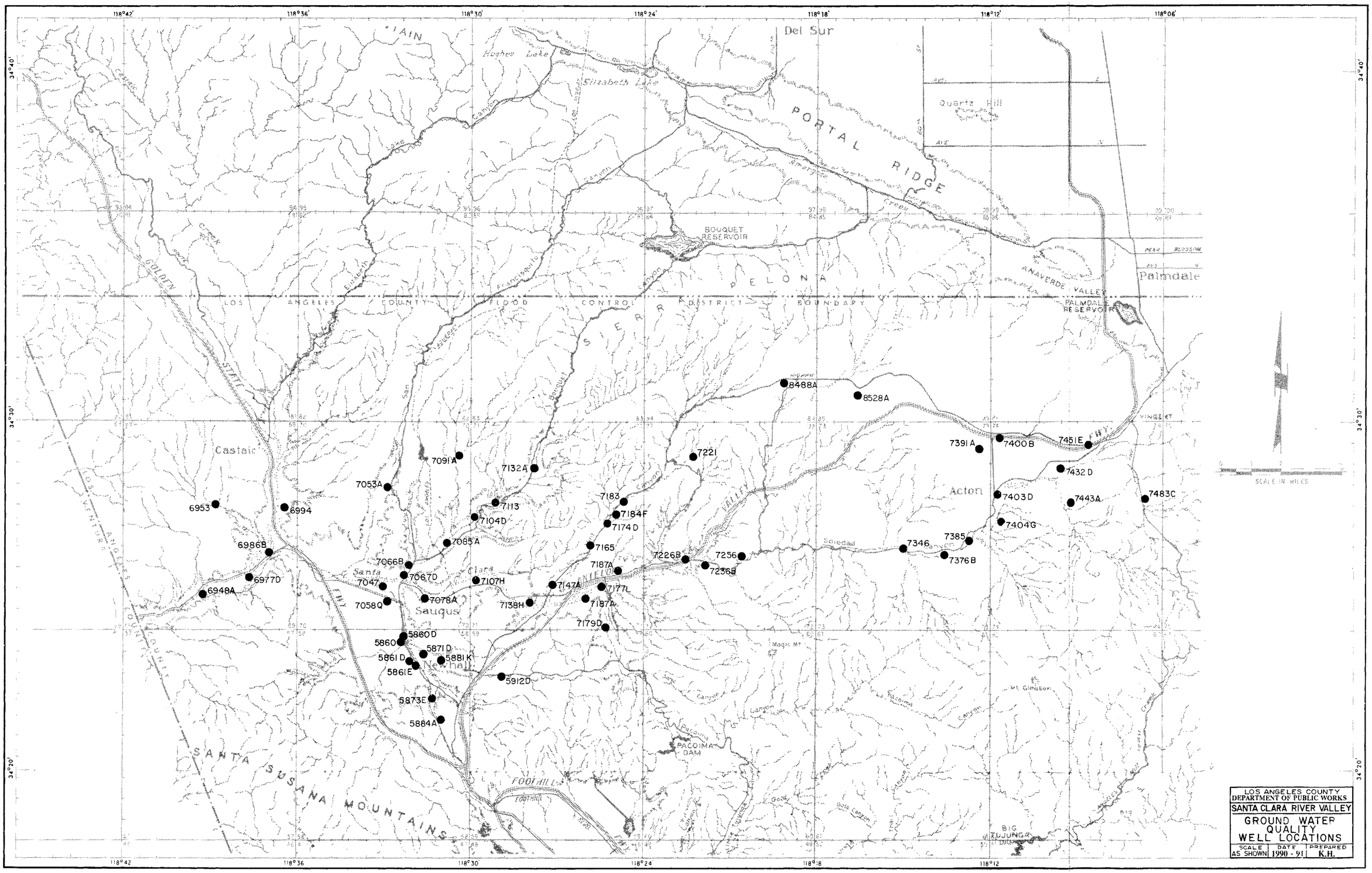


REVISIONS		LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DATE	DESCRIPTION	SAN GABRIEL VALLEY GROUND WATER QUALITY WELL LOCATIONS
		SCALE: AS SHOWN; DATE: 1990 - 91; PREPARED: K.H.

PF2


118°40'
118°30'
118°20'
118°10'
118°00'
34°00'
33°50'
SANTA MONICA MOUNTAINS
HOLLYWOOD
Beverly Hills
Santa Monica
Culver City
LOS ANGELES
Alhambra
El Monte
Montebello
Whittier
Baldwin Park
Arcadia
BALDWIN HILLS
Marina del Rey
Inglewood
El Segundo
Manhattan Beach
Redondo Beach
Torrance
PACIFIC OCEAN
PALOS VERDES HILLS
SAN PEDRO BAY
LONG BEACH
SIGNAL HILL
DOMINGUEZ HILLS
2621G
2535J
2546K
2626P
2578R
2669A
2679D
1380
1311E
1381H
2737A
2788J
2798K
2769L
2807
2827F
2837B
2856D
2847C
2947U
2947Q
2938D
2957H
2956A
2908
2859A
2839B
2899T
2909V
1600X
1620GG
1580J
1550C
1510B
1460H
1441F
1491C
1531B
1542C
1562E
1621MM
1612Q
1492F
1512M
1522G
1543J
1453E
1463A
1494
1514A
1445
1525D
1574B
1594U
1605L
1705A
1675E
1566A
1606Q
1606U
1626X
1716B
1617K
1487B
1517
1537F
1557J
1587Y
1467B
1508G
1537G
1548B
1608K
1638D
1409V
1469M
1529H
1579
1679A
1379A
740
721G
821QQ
950B
980H
1010C
1020E
971C
991E
1001K
901H
902G
922E
932E
1012G
1032N
Q61J
1072C
802T
792W
813N
763J
743
963B
973D
992J
953D
964H
1023C
883F
794C
984B
924E
995F
764B
758B
905L
935A
975A
986E
946
1026G
836A
876X
986G
1037C
857M
868AC
858D
859B
948
967E
1009L
819
829L
859E
320C
360S
460S
500D
27IN
343B
393N
LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
COASTAL PLAIN
GROUND WATER QUALITY WELL LOCATIONS
SCALE AS SHOWN
DATE 1990 - 91
PREPARED K.H.

G-4

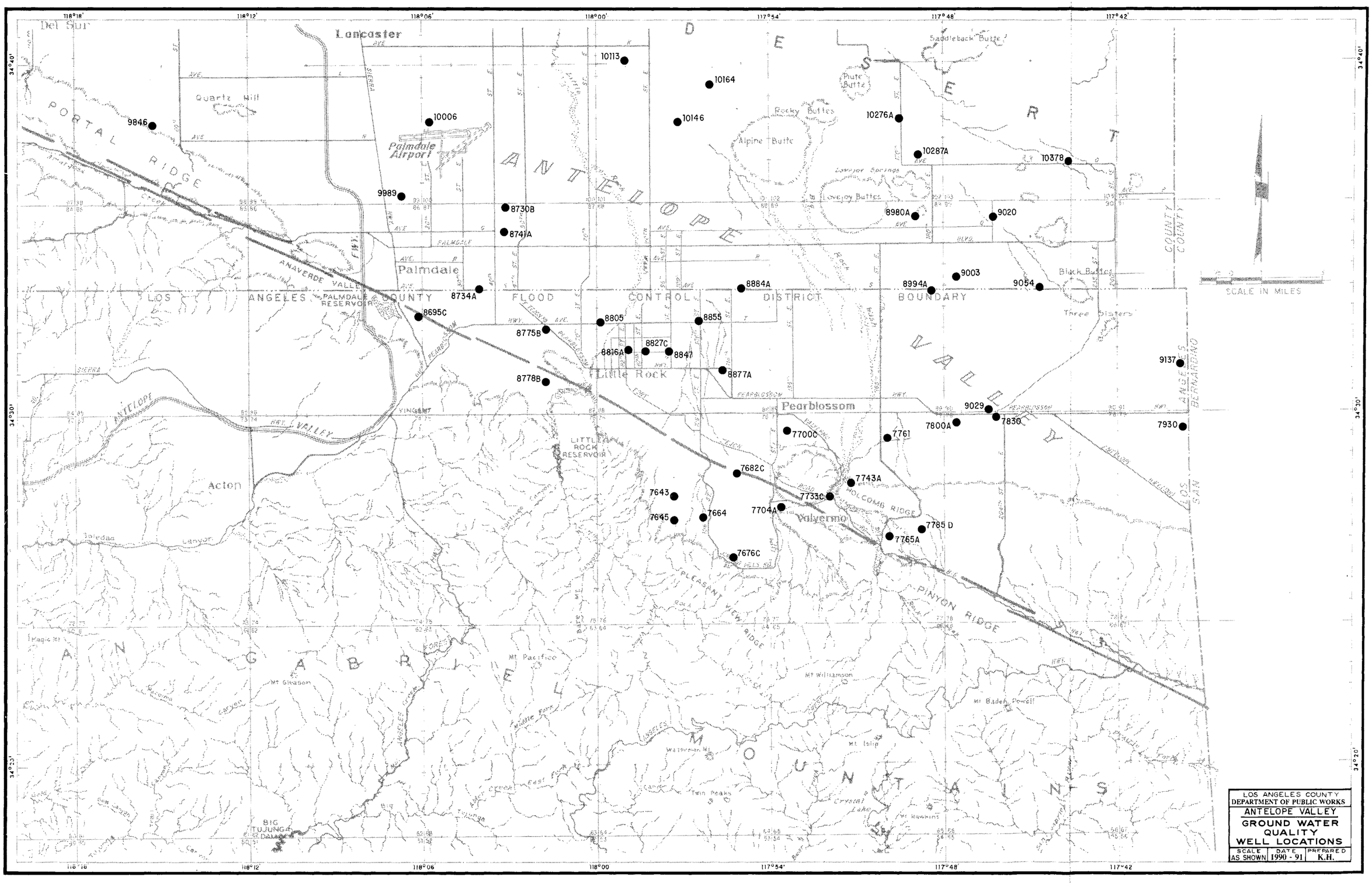


LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS

SANTA CLARA RIVER VALLEY

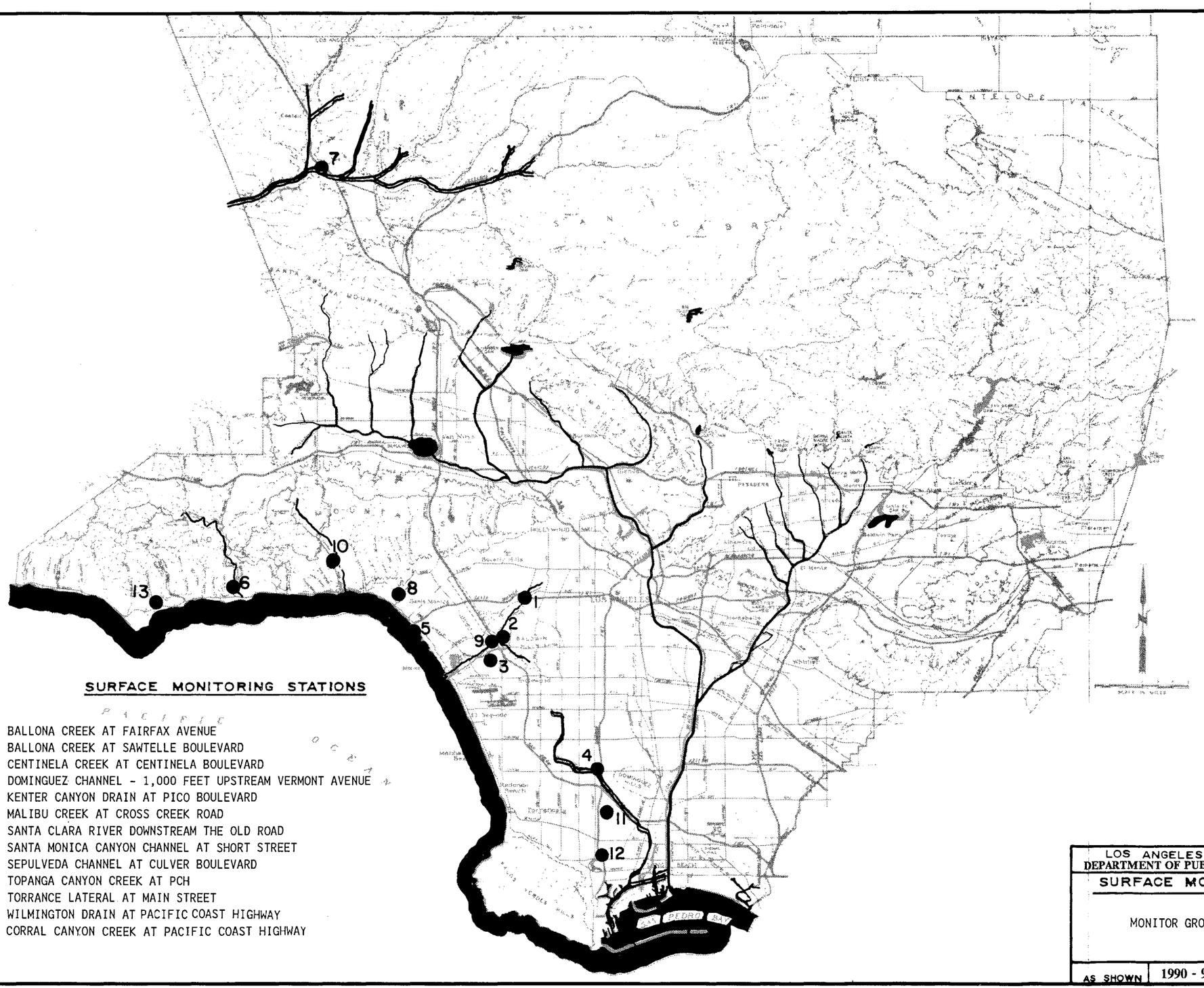
GROUND WATER QUALITY
WELL LOCATIONS

SCALE	DATE	PREPARED
AS SHOWN	1990 - 91	K.H.


Lancaster
Del Sur
Quartz Hill
Palmdale
Palmdale Airport
Saddleback Butte
Flute Butte
Rocky Buttes
Alpine Butte
Lovejoy Springs
Lovejoy Buttes
Black Butte
Three Sisters
Little Rock
Pearblossom
Acton
Valyermo
Mt Pacifico
Mt Gleason
Mt Williamson
Mt Baden Powell
Mt Islip
Waterman Mt
Twin Peaks
Crystal Lake
Mt Hawkins
PORTAL RIDGE
ANTELOPE VALLEY
ANAVERDE VALLEY
PEARBLOSSOM HWY
VINCENT
SIERRA
PALMDALE
LITTLE ROCK RESERVOIR
PALMDALE RESERVOIR
POLLOCK RIDGE
PLEASANT VIEW RIDGE
PINYON RIDGE
LOS ANGELES COUNTY FLOOD CONTROL DISTRICT BOUNDARY
LOS ANGELES COUNTY AQUEDUCT
SCALE IN MILES
9846
10006
9989
10113
10164
10146
10276A
10287A
10378
8730B
8741A
8980A
9020
8734A
8884A
8994A
9003
9054
8695C
8805
8855
8775B
8816A
8827C
8847
8877A
8778B
9137
9029
7830
7800A
7930
7700C
7761
7682C
7743A
7643
7733C
7704A
7645
7664
7785 D
7765A
7676C
LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
ANTELOPE VALLEY
GROUND WATER
QUALITY
WELL LOCATIONS
SCALE AS SHOWN
DATE 1990 - 91
PREPARED K.H.

D-1 D-2

PF5



SURFACE MONITORING STATIONS

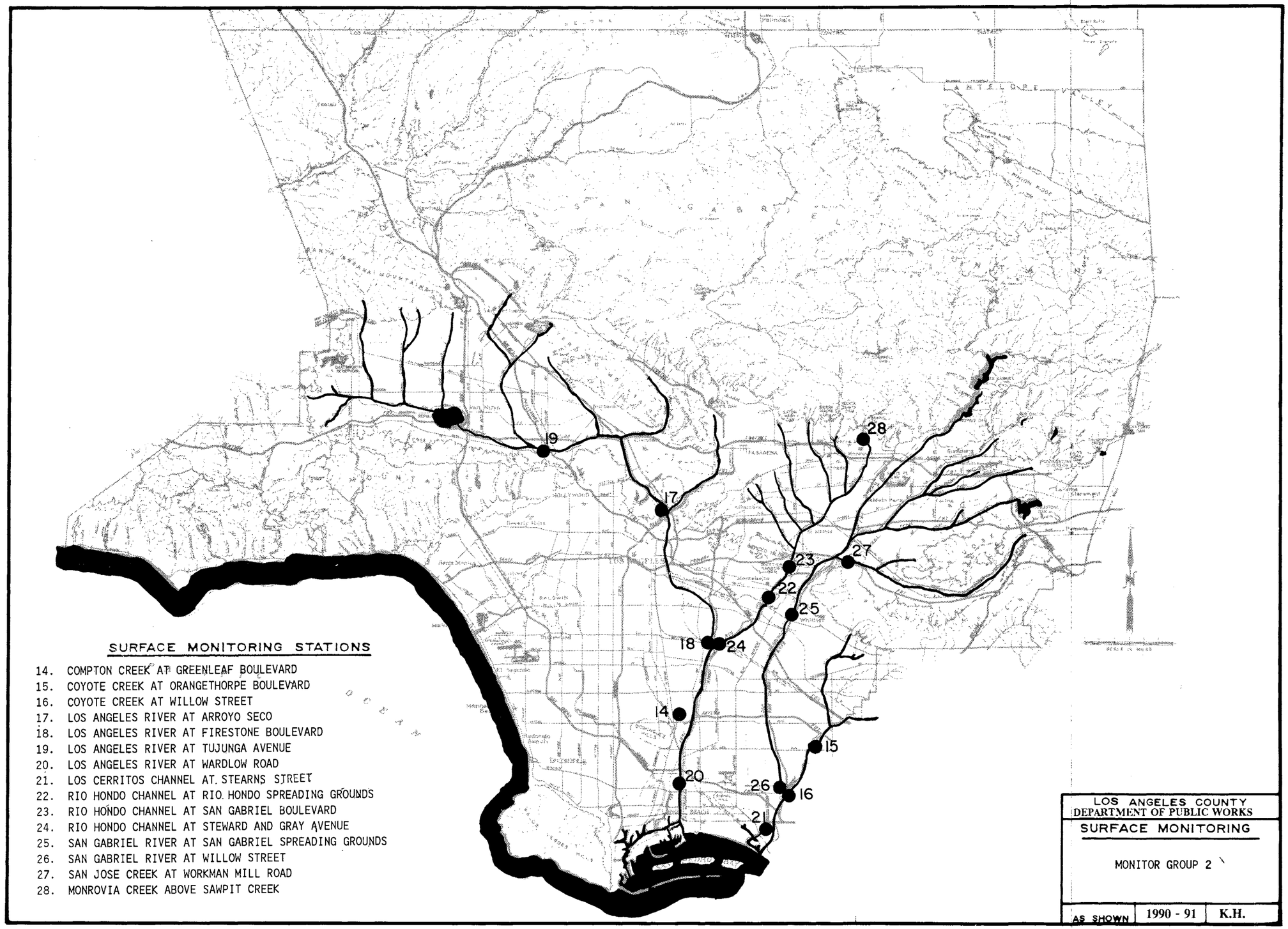
1. BALLONA CREEK AT FAIRFAX AVENUE
2. BALLONA CREEK AT SAWTELLE BOULEVARD
3. CENTINELA CREEK AT CENTINELA BOULEVARD
4. DOMINGUEZ CHANNEL - 1,000 FEET UPSTREAM VERMONT AVENUE
5. KENTER CANYON DRAIN AT PICO BOULEVARD
6. MALIBU CREEK AT CROSS CREEK ROAD
7. SANTA CLARA RIVER DOWNSTREAM THE OLD ROAD
8. SANTA MONICA CANYON CHANNEL AT SHORT STREET
9. SEPULVEDA CHANNEL AT CULVER BOULEVARD
10. TOPANGA CANYON CREEK AT PCH
11. TORRANCE LATERAL AT MAIN STREET
12. WILMINGTON DRAIN AT PACIFIC COAST HIGHWAY
13. CORRAL CANYON CREEK AT PACIFIC COAST HIGHWAY

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS

SURFACE MONITORING

MONITOR GROUP 1

AS SHOWN	1990 - 91	K.H.



SURFACE MONITORING STATIONS

14. COMPTON CREEK AT GREENLEAF BOULEVARD
15. COYOTE CREEK AT ORANGETHORPE BOULEVARD
16. COYOTE CREEK AT WILLOW STREET
17. LOS ANGELES RIVER AT ARROYO SECO
18. LOS ANGELES RIVER AT FIRESTONE BOULEVARD
19. LOS ANGELES RIVER AT TUJUNGA AVENUE
20. LOS ANGELES RIVER AT WARDLOW ROAD
21. LOS CERRITOS CHANNEL AT STEARNS STREET
22. RIO HONDO CHANNEL AT RIO HONDO SPREADING GROUNDS
23. RIO HONDO CHANNEL AT SAN GABRIEL BOULEVARD
24. RIO HONDO CHANNEL AT STEWARD AND GRAY AVENUE
25. SAN GABRIEL RIVER AT SAN GABRIEL SPREADING GROUNDS
26. SAN GABRIEL RIVER AT WILLOW STREET
27. SAN JOSE CREEK AT WORKMAN MILL ROAD
28. MONROVIA CREEK ABOVE SAWPIT CREEK

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS

SURFACE MONITORING

MONITOR GROUP 2

AS SHOWN	1990 - 91	K.H.

WATER CONSERVATION

WATER CONSERVATION

Information presented in this section includes amounts of local, imported, and reclaimed water conserved in spreading areas and information on the seawater barrier projects which prevent saltwater intrusion to groundwater zones in the coastal areas. Pertinent data is presented regarding the locations and descriptions of Department water conservation facilities, a well as facilities owned by others. Also included are groundwater maps delineating static groundwater elevations recorded during the report period and hydrographs of selected key wells.

CONSERVING THE WATERS

In addition to its flood control program, the Department has the equally important task of conserving as much of the storm and other waters as practicable. The use of water conservation facilities adjacent to river channels, and in soft-bottom channels permits water to percolate into groundwater basins for later pumping. These water spreading facilities are located in areas where the underlying soils are composed of pervious formations.

The various types of water conserved, local, imported, and reclaimed, are construed to have the following meanings in this section: Local water is primarily runoff due to rainfall on the mountain and valley watersheds, dam releases, and rising water within the County. Imported water is water originating outside the County either from Northern California or from the Colorado River. Reclaimed water is the effluent produced by the Whittier Narrows Water Reclamation Plant, the San Jose Creek Water Reclamation Plant, and the Pomona Reclamation Plant, all operated by the Los Angeles County Sanitation District.

The importance of this activity is apparent when it is realized that about 30 to 40 percent of the water used in the County is pumped from ground supplies. The growth of the County, combined with periodic droughts, has seriously depleted these supplies on numerous occasions.

The Department's policy is to conserve the maximum amount of storm water possible consistent with considering runoff quantity and quality, capacities of the spreading facilities, and groundwater conditions.

IMPORTED WATER

During this report period, imported Colorado River and State Project water for spreading was received from the Metropolitan Water District. Imported water for groundwater recharge in the Coastal Plain was spread at the Department's facilities in the Rio Hondo and San Gabriel Coastal Basin Spreading Grounds on behalf of the Central and West Basin Water Replenishment District. Imported water for groundwater recharge in the San Gabriel Valley was spread in Santa Fe Spreading Grounds, in the San Gabriel River between Morris and Santa Fe Dams, in Irwindale Spreading Basin and in Citrus and Forbes Spreading Grounds on behalf of MWD, the Main San Gabriel Basin Watermaster, Three Valleys Municipal Water District, and the San Gabriel Valley Municipal Water District.

RECLAIMED WATER

The County Sanitation District's Whittier Narrows Water Reclamation Plant effluent, purchased by the Central and West Basin Water Replenishment District, was transported to the Rio Hondo and San Gabriel Coastal Basin Spreading Grounds for groundwater replenishment.

The County Sanitation District's San Jose Creek Water Reclamation Plant, activated in May 1972, made its first delivery of effluent in November 1972. The portion of the effluent that is spread is also purchased by the Central and West Basin Water Replenishment District.

Water from the Pomona Reclamation Plant is released down the San Jose Creek - San Gabriel River System to the Department's recharge facilities in the Rio Hondo and San Gabriel Coastal Basin spreading grounds.

The maximum amount of reclaimed water allowed for spreading in the Montebello Forebay, effective July 1991, is 60,000 acre-feet per year, but not to exceed 150,000 acre-feet over a three year period.

SEAWATER BARRIER PROJECTS

The Department operates three barrier projects to protect the groundwater in the West Coast and Central Basins against seawater intrusion by creating freshwater pressure ridges along the coastline. The pressure ridges are created by injecting fresh water through a series of injection wells. During the report period, 16,037 acre-feet of water was injected at the West Coast Basin Barrier Project, 7,757 acre-feet at the Dominguez Gap Barrier Project, and 4,096 acre-feet at the Los Angeles part of the Alamitos Barrier Project. On behalf of the Orange County Water District, 1,818 acre-feet of water was injected at the Orange County portion of the Alamitos Barrier Project.

The following seawater barrier improvements were completed during the 1990-91 water year:

1. Alamitos Barrier Project:

   Four multi-zone injection wells were constructed along the southeasterly reach of the barrier. This construction project was managed by the Orange County Water District and our Department shared in the capital construction cost.

2. Dominguez Gap Barrier Project

   A geologic investigation was begun to determine the cause of surface leakage along the barrier alignment. This included the construction of 17 shallow piezometers. The data collected from this project will be used to evaluate the liquefaction potential and the integrity of the confining cap. We will also use this data to determine the maximum water surface elevations and the injection pressures for the

optimum operations of the barrier.

3. West Coast Basin Barrier Project

   Five single zone injection wells were constructed in the northerly portion of Lower San Pedro Aquifer in the barrier.

SEASONAL DATA AND MAPS

During this report period, weekly, monthly, and semi-annual measurements of groundwater levels in observations wells located throughout the groundwater basins in Los Angeles County were made and processed.

Hydrographs of selected key wells are included in this report.

GROUNDWATER BASINS AND GROUNDWATER RECHARGE

Groundwater in Los Angeles County is stored in basins underlying five major geographic areas. These groundwater basins are separated by geologic features which impede groundwater movement or sometimes by arbitrary political boundaries. The following is a background summary of the Department's groundwater recharge activities within each of these areas:

The Department operates 2,436 acres of spreading grounds and soft-bottom channel spreading areas for replenishment of local aquifers to increase water supplies. The Department also assisted in the operation and maintenance of 269 acres of spreading grounds owned by others. An additional 656 acres of spreading grounds are controlled, maintained, and operated by other agencies. The total gross acreage of spreading grounds in the county is 3,361 acres. During the report period, the Department conserved approximately 167,564 acre-feet of storm runoff.

The conservation of local runoff is supplemented by spreading imported water and reclaimed water purchased by water agencies. During the period, 113,301 acre-feet of imported water and 53,864 acre-feet of reclaimed water were spread.

The Department is continuing its efforts to improve its water spreading facilities in order to maximize the amounts of water conserved and to simplify the spreading operations.

SAN GABRIEL VALLEY

The Department operates 20 spreading grounds in the San Gabriel Valley that receive direct valley runoff and flows from the San Gabriel Mountains. Some of these spreading grounds can also receive imported water. During the report period, the Department added approximately 92,725 acre-feet of local water and 62,697 acre-feet of imported water to the groundwater stored in the basins underlying the San Gabriel Valley and diverted 4,104 acre-feet of local water to grounds owned by others.

The following projects were constructed in the San Gabriel Valley during the report period:

1. Irwindale Spreading Basin:

   Construction of the inlet structure to Manning Pit was completed.

2. Eaton Wash Spreading Grounds:

   Modification and earthwork in basins, construction of a drainage system and construction of intake weir structures with motorized gates were completed.

Main San Gabriel Basin

This is the largest basin underlying the San Gabriel Valley with an estimated storage capacity of 9.5 million acre-feet. It reacts quickly to artificial spreading in Santa Fe Reservoir Spreading Grounds and to infiltration in the San Gabriel River Downstream of Santa Fe Dam.

During the report period, the Department replenished the Main San Gabriel Basin with 72,780 acre-feet of local water and 34,597 acre-feet of imported water. Also, a new historic low for the groundwater elevation in the San Gabriel Main Basin was recorded. Well 3030F in Baldwin Park recorded a new historic low groundwater elevation of 196.7 ft on March 2, 1991.

Upper San Gabriel Canyon Basin

Approximately 13,667 acre-feet of local water and approximately 27,200 acre-feet of imported water were recharged by the Department through its San Gabriel Canyon Spreading Grounds and by percolation in the adjacent San Gabriel River. Also, 2,648 acre-feet of local water was routed to Fish Canyon Spreading Grounds which is operated by the Committee of Nine.

Lower San Gabriel Canyon Basin

The basin is located south of the Upper San Gabriel Canyon Basin and is separated from it by the underground Lohmon Dike. Groundwater cascades over the Lohmon Dike from the Upper San Gabriel Canyon Basin and recharges the Lower San Gabriel Canyon Basin. The Department spread 462 acre-feet of local water in Sawpit Spreading Grounds which is within the Lower Canyon Basin.

Wayhill Basin

The Department spread 281 acre-feet of local water and 900 acre-feet of imported water at Forbes spreading facility in the Wayhill Basin.

Foothill Basin

The Department spread 2,008 acre-feet of local water at its San Dimas Canyon Spreading Grounds facility in the Foothill Basin.

Glendora Basin

The Department spread 467 acre-feet of local water in its Dalton facilities within the Glendora Basin.

Claremont Heights Basin

Approximately 87 acre-feet of local water were diverted to the Pomona Valley Protective Association's Thompson Creek Spreading Grounds which benefits the groundwater in the Claremont Heights Basin.

Live Oak Basin

The Department has no spreading facilities in the Live Oak Basin.

Chino Basin

The basin is located in the most eastern part of the County. No Department recharge facilities are located within the Chino Basin.

San Dimas Basin

The basin is north of the San Jose Hills, east of the Main Basin, and south of the Wayhill Basin. The Department spread 186 acre-feet of local water in its Live Oak Spreading Grounds to recharge the basin.

Pomona Basin

The basin is located south of Claremont, Live Oak, and San Dimas Basins, and north of the Chino Basin and northeast of the San Jose Hills. The Department has no water spreading facilities within this basin.

Puente and Spadra Basins

No spreading occurs in this area.

Raymond Basin

The basin covering approximately 40 square miles is located in the northwest corner of the San Gabriel Valley and is separated from the Main San Gabriel Basin by the Raymond Fault. The Raymond Basin contains the Monk Hill Basin and the Pasadena and Santa

Anita Subareas. The Department recharged 2,874 acre-feet of local water by its spreading facilities in the Raymond Basin and diverted 1,369 acre-feet to the City of Sierra Madre's spreading facility during the report period.

COASTAL PLAIN

The groundwater basins underlying the Coastal Plain are divided by geological features into the Central (includes the Montebello and Los Angeles Forebays), West Coast, Santa Monica, and Hollywood Basins. During the period of October 1, 1990 to September 30, 1991, the Department recharged 41,998 acre-feet of local water, 52,937 acre-feet of imported water, and 50,100 acre-feet of reclaimed water to the groundwater basins underlying the Coastal Plain. Most of the water was spread in the Montebello Forebay.

The following projects were constructed in the Coastal Plain during the report period:

1. Rio Hondo Coastal Basin Spreading Ground West Side:

   Construction of about 5 miles of chain link fence with electric roller gates operated by loop sensors were completed along with construction of a bike trail under the AT and SF Rail Road.

2. West Coast Basin Saline Water Plume Mitigation Study:

   James M. Montgomery Consulting Engineers and Camp, Dresser and McKee, Inc., continue the development of the groundwater model for this study.

   These consultants have completed Task 4, which describes selected alternatives for plume mitigation. Also completed is Task 5 of the study, which evaluates and ranks the plume mitigation and basin management alternatives.

Central Basin

The Central Basin has the most storage capacity of the basins in the Coastal Plain. In addition to the water recharged in the Department's spreading facilities, water injected in the Alamitos Barrier Project also contributes to the replenishment of the pressure aquifers underlying the Central Basin.

West Coast Basin

The West Coast Basin is the second largest basin underlying the Coastal Plain and is separated from the Central Basin by the Newport-Inglewood Fault zone. Groundwater is primarily recharged by Central Basin subsurface flows and by water injected by the Department in the West Coast Basin and Dominguez Gap Barrier Projects. Groundwater elevations in the West Coast Basin are below sea level except in the area of the West Coast Basin Barrier injection mound.

The Department spread 96 acre-feet of water in the Dominguez Spreading Grounds.

Santa Monica and Hollywood Basins

The Department has no spreading facilities in either the Santa Monica or Hollywood groundwater basins.

SAN FERNANDO VALLEY

The San Fernando Valley is also called the Upper Los Angeles River Area (ULARA). Most of the runoff from the surrounding mountains flows to the Valley.

San Fernando Main Basin

The basin is the largest basin underlying the San Fernando Valley. During the report period, 18,162 acre-feet of local water and 504 acre-feet of imported water were spread by the Department. The County entered into an agreement with the City of Los Angeles to spread water at the newly renovated Tujunga Wash Spreading Grounds which is located approximately two miles downstream of Hansen Spreading Grounds. The City installed a rubber dam diversion and appurtenant facilities for County Spreading operations which started in March 1990.

Sylmar Basin

A much smaller basin underlying the San Fernando Valley is the Sylmar Basin; the Department has no spreading facility within this basin.

Verdugo and Eagle Rock Basins

The small Verdugo and Eagle Rock Basins comprise the remaining basins underlying the San Fernando Valley. The Department has no spreading facilities within either basin.

SANTA CLARITA VALLEY

The Department has no spreading facilities in the area. Most of the Valley is farmland, permitting substantial natural percolation.

The Upper Santa Clarita subunit comprises five basins.

ANTELOPE VALLEY

There are several groundwater basins underlying the Antelope Valley, five of them are located within Los Angeles County.

During this report period a private water company under contract with the Department recharged over 489 acre-feet of local water in its spreading facility in the Big Rock area to groundwater in the Pearland Basin.

The groundwater level in the Lancaster Basin has declined steadily since 1925 and reached a new historic low during the report period.

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
HYDRAULIC/WATER CONSERVATION DIVISION

SUMMARY OF DATA ON SPREADING FACILITIES
OWNED AND OPERATED BY THE DEPARTMENT
UPDATED THROUGH SEPTEMBER 1991

SPREADING FACILITY	TYPE	SEASON FIRST USED	AREA IN ACRES		CAPACITIES				LOCATION	SOURCE OF WATER	REMARKS
			GROSS	WETTED	CHANNEL** (CFS)	INTAKE (CFS)	STORAGE (A.F.)	PERCOLATION* (CFS)			
ARROYO SECO	SHALLOW BASINS	1948-49	24	15.1	-	75	30	18	EASTERLY SIDE OF ARROYO SECO, 0.5 MILES ABOVE DEVIL'S GATE DAM.	CONTROLLED FLOW FROM CITY OF PASADENA. UNCONTROLLED FROM ARROYO SECO AND THE ALTADENA STORM DRAIN.	SPREADING GROUNDS ARE HELD UNDER EASEMENT FROM THE CITY OF PASADENA.
BEN LOMOND	SHALLOW BASINS	1958-59	24	14.1	-	25	25	18	BOTH NORTH AND SOUTH SIDES OF SAN DIMAS WASH CHANNEL AT SOUTHWESTERLY CORNER OF INTERSECTION OF ARROW HIGHWAY AND BARRANCA AVENUE.	COVINA IRRIGATING COMPANY.	SPREADING GROUNDS UTILIZED TO CONSERVE EXCESS COVINA IRRIGATION COMPANY WATER RELEASED FROM THE COMMITTEE OF NINE.
BIG DALTON	SHALLOW BASINS	1930-31	24	7.7	-	45	12	15	WESTERLY SIDE OF BIG DALTON WASH, ONE HALF MILE ABOVE SIERRA MADRE AVENUE.	CONTROLLED FLOWS FROM BIG DALTON DAM AND BIG DALTON DEBRIS BASIN.	
BRANFORD	DEEP BASIN	1956-57	12	7	1,540	1,540	137	1	SOUTHWESTERLY OF ARLETA AVENUE ABOVE CONFLUENCE OF TUJUNGA WASH AND PACOIMA DIVERSION CHANNEL.	UNCONTROLLED FLOWS FROM BRANFORD STREET DRAIN.	INSTREAM SPREADING FACILITY. OUTLET CAPACITY 1,540 CFS TO PACOIMA DIVERSION CHANNEL.
BUENA VISTA	DEEP BASIN	1954-55	10	5	2,900	2,900	177	6	1.0 MILE EASTERLY OF SAWPIT WASH. 0.5 MILE NORTHERLY OF ARROW HIGHWAY, BETWEEN MERIDIAN STREET AND BUENA VISTA CHANNEL.	CONTROLLED FLOW FROM SANTA FE DAM AND UNCONTROLLED FLOW FROM BUENA VISTA CHANNEL.	INSTREAM SPREADING FACILITY. AN ADDITIONAL OUTLET CONSTRUCTED TO PROVIDE TOTAL OUTLET CAPACITY OF 270 CFS.
CITRUS	MEDIUM DEPTH BASINS	1960-61	19	14.6	-	200	80	28	SOUTH SIDE OF BIG DALTON WASH BETWEEN CITRUS AND CERRITOS AVENUES.	CONTROLLED FLOWS FROM BIG DALTON DAM AND BIG DALTON, LITTLE DALTON DEBRIS BASINS. UNCONTROLLED FLOWS FROM BIG DALTON WASH.	THERE ARE 2 INTAKES, ONE IS A DROP INLET, THE OTHER AN AIR INFLATED RUBBER DAM.
DOMINGUEZ GAP	DEEP BASINS	1957-58	54	23.8	-	20	234	1	SOUTH OF DEL AMO BOULEVARD AND BORDERS THE EASTERN AND WESTERN SIDES OF THE LOS ANGELES RIVER	CONTROLLED FLOW FROM LOS ANGELES RIVER LOW FLOW CHANNEL AND UNCONTROLLED FLOWS FROM STORM DRAINS.	EAST SIDE BASIN USED FOR FLOOD REGULATION WITH SOME CONSERVATION STORAGE. INTAKE CAPACITY IS 20 CFS FOR LOW FLOW DIVERSION FROM THE LOS ANGELES RIVER. THE WEST SIDE BASIN IS FED BY A 24-INCH CONCRETE PIPE FROM THE EAST SIDE BASIN.
EATON BASIN	DEEP BASIN	1956-57	16	10.5	9,600	400	284	10	EAST SIDE OF EATON WASH, NORTH OF DUARTE ROAD, 0.6 MILES SOUTH OF HUNTINGTON DRIVE.	CONTROLLED FLOW FROM EATON WASH DAM AND UNCONTROLLED FLOWS BETWEEN DAM AND SPREADING BASIN.	
EATON WASH	DEEP & SHALLOW BASINS	1947-48	28	25.4	6,600	200	525	17	EASTERLY SIDE OF EATON WASH FROM BELOW EATON DAM TO FOOTHILL BOULEVARD.	CONTROLLED FLOW FROM EATON WASH DAM.	GROUND MODIFICATIONS COMPLETED IN DECEMBER 1991.

* THE CAPACITIES LISTED ARE ESTIMATES OF INFILTRATION RATES WHICH MAY BE EXPECTED TO OCCUR DURING OPERATIONS FOR UP TO FIVE DAYS. NUMBERS DO NOT REFLECT LONG TERM SPREADING OPERATIONS.

** DESIGN CAPACITY OF MAIN CONCRETE CHANNEL

*** INCLUDES RUBBER DAMS STORAGE

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
HYDRAULIC/WATER CONSERVATION DIVISION

SUMMARY OF DATA ON SPREADING FACILITIES OWNED AND OPERATED BY THE DEPARTMENT UPDATED THROUGH SEPTEMBER 1991

SPREADING FACILITY	TYPE	SEASON FIRST USED	AREA IN ACRES		CAPACITIES				LOCATION	SOURCE OF WATER	REMARKS
			GROSS	WETTED	CHANNEL** (CFS)	INTAKE (CFS)	STORAGE (A.F.)	PERCOLATION* (CFS)			
FORBES	MEDIUM DEPTH BASINS	1964-65	21	10	-	100	87	5	SOUTH SIDE OF SAN DIMAS WASH BETWEEN LONE HILL AVENUE AND VALLEY CENTER AVENUE.	CONTROLLED RELEASES FROM PUDDINGSTONE DIVERSION DAM, AND UNCONTROLLED FLOWS FROM SAN DIMAS WASH; ALSO IMPORTED FROM SGVMWD AND CB48.	RECONSTRUCTION OF BASINS, FROM SHALLOW TO MEDIUM DEPTHS, WAS COMPLETED IN APRIL 1989.
HANSEN	SHALLOW BASINS	1944-45	156	105.3	22,000	400	320	250	NORTHWESTERLY SIDE OF TUJUNGA WASH FROM ABOVE GLENOAKS BOULEVARD SOUTHWESTERLY TO SAN FERNANDO ROAD.	CONTROLLED FLOWS FROM HANSEN DAM AND BIG TUJUNGA DAM.	
IRWINDALE/MANNING PIT	DEEP BASINS	1958-59	62	30	20,000	400	1134	70	NORTHEASTERLY OF INTERSECTION OF BIG DALTON CHANNEL AND IRWINDALE AVENUE; CONTINUES 1,300 FEET EAST OF IRWINDALE AVENUE	BIG DALTON CHANNEL CONTROLLED FLOWS FROM BIG AND LITTLE DALTON DEBRIS DAMS AND PUDDINGSTONE DIVERSION DAM; UNCONTROLLED FLOWS; ALSO IMPORTED WATER FROM CB48 AND SGVMWD.	MANNING PIT INTAKE COMPLETED MARCH 1991.
LITTLE DALTON	SHALLOW BASINS	1931-32	14	4.7	-	20	5	15	WESTERLY OF GLENDORA MT. ROAD, FROM LITTLE DALTON DEBRIS BASIN SOUTH TO EAST PALM DRIVE.	CONTROLLED FLOW FROM LITTLE DALTON DEBRIS BASIN.	
LIVE OAK	SHALLOW BASINS	1961-62	5	1.2	-	15	2	13	WESTERLY SIDE OF LIVE OAK WASH. NORTH OF BASE LINE ROAD (PROJECTED).	CONTROLLED FLOW FROM LIVE OAK DAM AND LIVE OAK DEBRIS BASIN.	
LOPEZ	SHALLOW BASINS	1956-57	18	11.9	-	25	23.6	15	SOUTHEASTERLY SIDE OF PACOIMA WASH, NORTHEASTERLY OF FOOTHILL BOULEVARD.	CONTROLLED FLOW FROM PACOIMA DAM AND LOPEZ FLOOD CONTROL BASIN.	
PACOIMA	MEDIUM DEPTH BASINS	1932-33	169	107.3	17,000	600	440	50	BOTH SIDES OF OLD PACOIMA WASH CHANNEL FROM ARLETA AVENUE SOUTHWESTERLY TO WOODMAN AVENUE.	CONTROLLED FLOW FROM PACOIMA DAM. PARTIALLY CONTROLLED FLOW FROM LOPEZ FLOOD CONTROL BASIN, UNCONTROLLED FLOW FROM EAST CANYON AND PACOIMA WASH. IMPORTED WATER FROM OWENS VALLEY DELIVERED BY CITY OF LOS ANGELES.	
PECK ROAD	DEEP BASIN	1959-60	157	105	30,100	30,100	3,347	25	CONFLUENCE OF SAWPIT AND SANTA ANITA WASHES.	CONTROLLED RELEASES FROM SANTA ANITA AND SAWPIT DEBRIS BASINS AND UNCONTROLLED FLOWS FROM LOCAL RUNOFF VIA SAWPIT AND SANTA ANITA WASHES.	INSTREAM SPREADING FACILITY.

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LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
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OWNED AND OPERATED BY THE DEPARTMENT
UPDATED THROUGH SEPTEMBER 1991

SPREADING FACILITY	TYPE	SEASON FIRST USED	AREA IN ACRES		CAPACITIES				LOCATION	SOURCE OF WATER	REMARKS
			GROSS	WETTED	CHANNEL** (CFS)	INTAKE (CFS)	STORAGE (A.F.)	PERCOLATION* (CFS)			
RIO HONDO COASTAL	MEDIUM DEPTH BASINS	1937-38	570	430.1	40,000	1,950	3,694	400	EASTERLY SIDE OF RIO HONDO SOUTHERLY FROM S.P.R.R. (SOUTH OF WHITTIER BLVD.) TO SLAUSON AVENUE; WEST SIDE OF RIO HONDO CHANNEL FROM 0.2 MILE ABOVE WHITTIER BOULEVARD SOUTH TO FOSTER BRIDGE BOULEVARD.	CONTROLLED RELEASES FORM SAN GABRIEL CANYON DAMS, SANTA FE AND WHITTIER NARROWS DAMS. UNCONTROLLED RUNOFF VIA SAN GABRIEL RIVER, RIO HONDO CHANNEL AND THEIR TRIBUTARIES; ALSO IMPORTED AND RECLAIMED WATER.	IN COOPERATION WITH THE CORPS OF ENGINEERS. THE DISTRICT OPERATES 2,500 ACRE-FOOT POOL AT WHITTIER NARROWS DAM FOR RETENTION OF STORM WATER.
SAN DIMAS CANYON	SHALLOW BASINS	1965-66	22	10.8	-	25	22	12	SOUTHEAST SIDE OF SAN DIMAS WASH BETWEEN PUDDINGSTONE DIVERSION AND SAN DIMAS CANYON ROAD.	CONTROLLED RELEASES FROM PUDDINGSTONE DIVERSION DAM; UNCONTROLLED FLOW FROM LOCAL STORM RUNOFF.	
SAN GABRIEL CANYON	DEEP BASINS	1917	165	-	-	60	-	35	EASTERLY SIDE OF SAN GABRIEL RIVER. BELOW MOUTH OF SAN GABRIEL CANYON. NORTH OF THE CITY OF AZUSA.	SAN GABRIEL RIVER CONTROLLED RELEASES FROM COGSWELL DAM, SAN GABRIEL DAM, AND MORRIS DAM. COMMITTEE OF NINE SURPLUS FLOWS.	
SAN GABRIEL COASTAL	MEDIUM DEPTH BASINS	1938-39	128	95.9	-	350	575	75	WESTERLY SIDE OF SAN GABRIEL RIVER, SOUTHERLY FROM WHITTIER BOULEVARD TO WASHINGTON BOULEVARD.	CONTROLLED RELEASES FROM SAN GABRIEL CANYON DAMS, SANTA FE AND WHITTIER NARROWS DAMS. ALSO IMPORTED AND RECLAIMED WATER.	IN COOPERATION WITH THE CORPS OF ENGINEERS. THE DISTRICT OPERATES 2,500 ACRE-FOOT POOL AT WHITTIER NARROWS DAM FOR RETENTION OF STORM WATERS.
SAN GABRIEL RIVER (MONTEBELLO FOREBAY)	MEDIUM DEPTH BASINS	1954-55	156	156	20,000	550	1,462***	75	HEADWORKS TO FIRESTONE AVE ONLY. STORAGE BEHIND THE RUBBER DAMS.	SAME AS UPPER PORTION. ALSO RECLAIMED WATER.	FIVE RUBBER DAMS INSTALLED ON DROP STRUCTURES. WHEN INFLATED, CONVERTS RIVER BED TO SPREADING AREAS.
SAN GABRIEL RIVER (SAN GABRIEL VALLEY)	TEMPORARY CHECK LEVEES	1965-66	196	196	-	-	-	180	SAN GABRIEL RIVER FROM SANTA FE DAM.	CONTROLLED FLOW FROM DAMS IN SAN GABRIEL CANYON, SANTA FE DAM AND UNCONTROLLED VALLEY RUNOFF BELOW SANTA FE DAM; ALSO IMPORTED WATER.	CHECK LEVEES DEVELOPED IN RIVER TO SPREAD WATER.
SANTA ANITA	SHALLOW BASINS	1944-45	20	8.5	-	20	25	5	WESTERLY SIDE OF SANTA ANITA WASH 1.25 MILES ABOVE FOOTHILL BOULEVARD.	CONTROLLED FLOW FROM SANTA ANITA DAM AND SANTA ANITA DEBRIS BASIN.	THE HEADWORKS LOCATED UPSTREAM OF THE DEBRIS BASIN DIVERTS WATER TO SANTA ANITA SPREADING GROUNDS AND CITY OF SIERRA MADRE SPREADING GROUNDS.

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** DESIGN CAPACITY OF MAIN CONCRETE CHANNEL

*** INCLUDES RUBBER DAMS STORAGE

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
HYDRAULIC/WATER CONSERVATION DIVISION

SUMMARY OF DATA ON SPREADING FACILITIES
OWNED AND OPERATED BY THE DEPARTMENT
UPDATED THROUGH SEPTEMBER 1991

SPREADING FACILITY	TYPE	SEASON FIRST USED	AREA IN ACRES		CAPACITIES				LOCATION	SOURCE OF WATER	REMARKS
			GROSS	WETTED	CHANNEL** (CFS)	INTAKE (CFS)	STORAGE (A.F.)	PERCOLATION* (CFS)			
SANTA FE	SHALLOW AND MEDIUM DEPTH BASINS	1953-54	338	168	-	400	540	400	WITHIN SANTA FE DAM RESERVOIR AND SPILLWAY AREAS.	CONTROLLED FLOWS FROM SAN GABRIEL CANYON RESERVOIRS. UNCONTROLLED FLOWS FROM SAN GABRIEL RIVER BELOW MORRIS RESERVOIR; ALSO IMPORTED WATER FROM SGVMWD AND USG-3.	RIGHT OF WAY, HELD UNDER LICENSE FROM THE FEDERAL GOVERNMENT INCLUDES 30 ACRES IN SAN GABRIEL RIVER BED FOR EARTH DIVERSION LEVEE.
SAWPIT	SHALLOW BASINS	1946-47	12	3.8	-	30	13	12	WESTERLY SIDE OF SAWPIT WASH BELOW MOUTH OF CANYON NEAR NORUMBEGA DRIVE, MONROVIA.	CONTROLLED FLOWS FROM SAWPIT DAM AND SAWPIT DEBRIS BASIN.	
WALNUT	DEEP BASIN	1962-63	16	8.4	8,000	150	166	5	WEST SIDE OF WALNUT WASH, NORTH OF SAN BERNARDINO FREEWAY.	CONTROLLED FLOW FROM PUDDINGSTONE DAM AND UNCONTROLLED FLOWS FROM WALNUT WASH CHANNEL.	
TOTAL:			**2,436**	**1,576**	-	-	**13,360**	**1,756**			

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** DESIGN CAPACITY OF MAIN CONCRETE CHANNEL

*** INCLUDES RUBBER DAMS STORAGE

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
HYDRAULIC/WATER CONSERVATION DIVISION

SUMMARY OF DATA ON SPREADING FACILITIES
NOT OWNED BY THE DEPARTMENT
UPDATED THROUGH SEPTEMBER 1991

GROUNDS	TYPE	SEASON FIRST USED	AREA IN ACRES GROSS	AREA IN ACRES WETTED	CAPACITIES CHANNEL** (CFS)	CAPACITIES INTAKE (CFS)	CAPACITIES STORAGE (A.F.)	CAPACITIES PERCOLATION* (CFS)	LOCATION	SOURCE OF WATER	REMARKS
SIERRA MADRE**** (CITY OF SIERRA MADRE)	SHALLOW BASINS	ABOUT 1933	22	9	-	25	47	15	CITY OF SIERRA MADRE, SOUTH SIDE OF GRANDVIEW AVENUE, ONE HALF MILE WEST OF SANTA ANITA AVENUE.	LITTLE SANTA ANITA CREEK AND STREET RUNOFF ALSO CONTROLLED FLOWS FROM SANTA ANITA DAM.	
FISH CANYON (COMMITTEE OF NINE)	SHALLOW BASINS	ABOUT 1917	6	4	-	-	-	7	WESTERLY SIDE OF SAN GABRIEL RIVER BELOW MOUTH OF FISH CANYON AND NORTH OF THE CITY OF AZUSA.	THE 'COMMITTEE OF NINE'.	OWNED AND OPERATED BY CAL-AMERICAN WATER COMPANY.
THOMPSON CREEK **** POMONA VALLEY PROTECTIVE ASSOCIATION	DITCHES CHECKS AND DEEP BASIN	ABOUT 1928	53	37	-	35	-	15	SOUTHERLY FROM, AND ADJACENT TO THOMPSON CREEK DAM, EAST SIDE OF CREEK. ELEVATION 1,625.	COBAL, WILLIAMS, PALMER, AND PADUA CREEKS, ALSO THOMPSON CREEK, WHEN RESERVOIR ABOVE	OPERATED BY POMONA VALLEY PROTECTIVE ASSOCIATION.
TUJUNGA (L.A. CITY DEPT. OF WATER AND POWER) ***	SHALLOW BASINS	1931-32	188	83.2	22,000	400	-	390	SAN FERNANDO VALLEY, EAST SIDE OF TUJUNGA WASH AT ROSCOE BOULEVARD.	LOS ANGELES CITY'S OWENS VALLEY AQUEDUCT AND CONTROLLED RELEASES FROM HANSEN DAM.	PRIOR TO 1938 FLOOD, USED 80 ACRES NET. TUJUNGA CHANNEL ON WESTERLY SIDE OF GROUNDS PAVED IN 1950.
	TOTALS:		**269**	**133**	-	-	-	**427**			

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** DESIGN CAPACITY OF MAIN CONCRETE CHANNEL.

*** THE DEPARTMENT ENTERED INTO AN AGREEMENT WITH THE CITY OF LOS ANGELES TO OPERATE THIS FACILITY.

**** THE DEPARTMENT DIVERTS WATER TO THESE FACILITIES.

WATER CONSERVED ALL FACILITIES
WATER YEAR : 1990-1991

BASINS	SPREADING FACILITIES	MONTHS: OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	ACCUMULATIVE TOTALS
SAN FERNANDO VALLEY	BRANFORD	0.4	26.8	2.2	82.3	89.0	302.0	1.4	0.8	0.2	2.2	1.6	0.0	508.9
	HANSEN	44.0	166.0	90.0	141.0	439.0	4,920.0	3,680.0	1,010.0	181.0	289.0	253.0	276.0	11,489.0
	LOPEZ	0.0	0.0	0.0	0.0	0.0	1.0	223.0	17.0	0.0	0.0	0.0	0.0	241.0
	PACOIMA	0.0	0.0	0.0	764.0	175.0	974.0	1,120.0	907.0	0.0	0.0	0.0	0.0	3,940.0
	TUJUNGA	0.0	0.0	0.0	0.0	321.1	1,390.6	0.0	0.0	760.0	15.0	0.0	0.0	2,486.7
	SUBTOTAL	44.4	192.8	92.2	987.3	1,024.1	7,587.6	5,024.4	1,934.8	941.2	306.2	254.6	276.0	18,665.6
SAN GABRIEL VALLEY	ARROYO SECO	0.0	0.0	0.0	1.2	60.0	553.0	303.0	0.0	0.0	25.0	0.3	0.0	942.5
	BEN LOMOND	12.0	44.0	11.0	5.6	24.0	136.0	180.0	169.0	124.0	131.0	129.0	170.0	1,135.6
	BIG DALTON	0.0	0.0	0.0	0.0	0.0	138.0	156.0	0.0	2.7	0.0	0.0	0.0	296.7
	BUENA VISTA	46.4	40.9	35.5	98.9	110.7	142.8	42.4	32.7	29.5	67.3	62.4	71.9	781.4
	CITRUS	6.5	4.2	6.6	26.0	17.0	140.0	46.0	25.0	0.0	1.4	4.3	0.3	277.3
	EATON BASIN	25.0	15.0	39.0	212.0	320.0	336.0	28.0	17.0	23.0	29.0	23.0	17.0	1,084.0
	EATON GROUNDS	0.0	0.0	0.0	227.0	0.0	900.0	400.0	0.0	0.0	0.0	0.0	0.0	1,527.0
	FORBES	136.0	164.0	0.0	251.0	73.0	40.0	0.0	0.0	292.0	99.0	0.0	126.0	1,181.0
	IRWINDALE	0.0	2.9	3.8	4.6	0.0	573.0	105.0	0.0	1,160.0	1,280.0	9.9	3,350.0	6,489.2
	LITTLE DALTON	0.0	0.0	0.0	0.0	0.0	130.0	40.0	0.0	0.0	0.0	0.0	0.0	170.0
	LIVE OAK	0.0	0.0	0.0	1.8	3.8	141.0	39.0	0.2	0.0	0.0	0.0	0.0	185.8
	MORRIS TO STA. F190	4,582.7	88.6	86.8	3,510.1	352.3	4,376.6	1,329.3	651.3	1,184.5	3,850.0	8,200.0	4,463.0	32,675.2
	STA. F190 TO SANTA FE DAM	69.0	0.0	0.0	80.0	37.0	907.0	362.0	0.0	92.0	286.0	1,776.0	1,345.0	4,954.0
	PECK ROAD	4.3	36.5	2.3	142.2	722.0	1,843.0	141.8	21.3	41.5	2,163.0	0.0	2,101.4	7,219.3
	SAN DIMAS CANYON	0.0	0.0	0.0	0.0	9.8	653.0	587.0	373.0	361.0	14.9	9.3	0.0	2,008.0
	SAN GABRIEL CANYON	0.0	0.0	0.0	494.0	0.0	2,480.0	936.0	634.0	577.0	708.0	1,860.0	503.0	8,192.0
	SANTA ANITA	0.0	0.0	0.0	0.0	0.5	229.0	94.0	39.0	16.0	0.5	25.0	0.0	404.0
	SANTA FE SPRD. GROUNDS	2,640.0	0.0	0.0	122.0	24.0	2,070.0	2,300.0	0.0	770.0	963.0	5,530.0	0.0	14,419.0
	SANTA FE TO STA. F261	0.0	0.0	0.0	2.1	134.0	3,840.0	294.0	0.0	0.0	120.0	1,500.0	9,600.0	15,490.1
	SANTA FE DIVERSION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,252.7	3,954.6	0.0	6,207.3
	SAWPIT	0.0	0.0	0.0	44.0	38.0	241.0	104.0	0.0	0.0	0.8	34.0	0.0	461.8
	WALNUT	113.0	4.3	1.4	192.0	110.0	128.0	95.0	176.0	124.0	125.0	71.0	83.0	1,222.7
	F261 TO WHITTIER NARROWS DAM	4,555.5	3,808.0	2,174.3	3,592.2	10,864.0	14,648.0	235.7	1,523.1	769.9	1,410.7	1,398.6	3,118.2	48,098.2
	SUBTOTAL	12,190.4	4,208.4	2,360.7	9,006.7	12,900.1	34,645.4	7,818.2	3,661.6	5,567.1	13,527.3	24,587.4	24,948.8	155,422.2
COASTAL PLAIN	RIO HONDO S.G.	6,484.0	2,664.0	4,113.2	9,248.0	3,871.0	15,651.0	2,123.0	2,248.0	2,643.0	6,429.2	8,184.0	7,888.0	71,546.4
	W.N. RESERVOIR (R.HONDO)	1,187.0	2,571.0	1,137.8	909.0	4,965.0	7,737.0	769.0	1,012.0	1,932.0	1,331.8	3,276.1	4,169.8	30,997.5
	SAN GABRIEL S.G.*	3,583.2	2,727.0	2,031.2	4,710.4	5,105.6	7,112.7	1,698.4	2,960.3	4,652.5	2,833.0	2,537.2	3,371.0	43,322.5
	DOMINGUEZ GAP	4.5	12.5	17.3	12.7	14.0	4.5	2.6	10.3	13.8	0.4	2.1	1.3	95.9
	SUBTOTAL	11,258.7	7,974.5	7,299.5	14,880.1	13,955.6	30,505.2	4,593.0	6,230.6	9,241.3	10,594.4	13,999.4	15,430.1	145,962.3
ANTELOPE VALLEY	BIG ROCK	0.0	4.6	6.1	6.1	1.0	160.7	310.9	0.0	0.0	0.0	0.0	0.0	489.4
OTHER FACILITIES	SIERRA MADRE	0.0	0.0	0.0	70.0	11.0	534.0	459.0	119.0	83.0	0.0	93.0	0.0	1,369.0
	THOMPSON CREEK	0.0	0.0	0.0	0.4	19.0	67.8	0.2	0.0	0.0	0.0	0.0	0.0	87.4
	FISH CREEK	114.6	43.6	54.3	94.2	17.4	37.9	23.6	539.7	511.5	516.6	197.3	497.2	2,647.9
	SUBTOTAL	114.6	43.6	54.3	164.6	47.4	639.7	482.8	658.7	594.5	516.6	290.3	497.2	4,104.3
GRAND TOTAL ALL WATER SPREAD & OR DIVERTED		23,608.1	12,423.9	9,812.8	25,044.8	27,928.2	73,538.6	18,229.3	12,485.7	16,344.1	24,944.5	39,131.7	41,152.1	324,643.8

TOTAL WATER DELIVERED IN ACRE-FEET
WATER YEAR : 1990-1991

MONTH	IMPORTED WATER OUTLET RELEASES									RECLAIMED WATER DELIVERED									
										WHITTIER NARROWS PLANT				SAN JOSE PLANT					
										SPREAD				SPREAD					
	SAN DIMAS CB - 48	THOMPSON CREEK CB - 28	SAN GAB. RIVER CB - 37	ALHAMBRA CB - 36	OLDEN ST. L.A. 699	USG 3 USGMWD	BEATTY CANYON SGVMWD	SAN DIMAS WH SGVMWD	MONTHLY TOTAL IMPORTED WATER SPREAD	R.HONDO	S.GABRIEL	WASTED	MONTHLY SPREAD	R.HONDO	S.GABRIEL	WASTED	MONTHLY SPREAD	POMONA PLANT	MONTHLY TOTAL RECLAIMED WATER SPREAD
OCTOBER	0.0	6,246.0	0.0	2,601.7	0.0	7,166.2	0.0	2,204.0	18,217.9	741.5	301.0	0.0	1,042.5	2,293.7	544.8	0.0	2,838.5	30.0	3,911.0
NOVEMBER	0.0	1,705.3	0.0	1,563.2	0.0	0.0	0.0	1,686.0	4,954.5	1,220.9	0.0	7.5	1,213.4	1,995.2	1,967.1	33.0	3,929.3	40.0	5,182.7
DECEMBER	0.0	0.0	0.0	2,066.3	0.0	0.0	0.0	0.0	2,066.3	992.5	279.8	0.0	1,272.3	2,063.4	3,128.8	0.0	5,192.2	80.0	6,544.5
JANUARY	3,610.8	0.0	0.0	1,637.1	503.9	3,675.0	0.0	0.0	9,426.8	881.6	250.0	0.0	1,131.6	381.1	2,841.5	0.0	3,222.6	134.0	4,488.2
FEBRUARY	0.0	0.0	0.0	1,790.1	0.0	0.0	0.0	0.0	1,790.1	513.8	538.6	38.9	1,013.5	175.2	3,410.1	0.0	3,585.3	105.0	4,703.7
MARCH	1,858.4	0.0	0.0	3,979.3	0.0	8,821.4	0.0	0.0	14,659.1	712.5	398.1	29.0	1,081.6	0.0	0.7	0.0	0.7	161.0	1,243.3
APRIL	1,999.7	0.0	0.0	1,012.4	0.0	4,391.3	0.0	0.0	7,403.4	798.0	361.7	0.0	1,159.7	0.0	206.3	0.0	206.3	175.0	1,541.0
MAY	0.0	0.0	0.0	993.1	0.0	144.4	0.0	0.0	1,137.5	1,084.8	0.0	0.0	1,084.8	917.2	3,467.2	0.0	4,384.4	143.0	5,612.2
JUNE	0.0	0.0	0.0	2,980.7	0.0	28.9	0.0	1,758.4	4,768.0	797.4	275.5	0.0	1,072.9	0.0	4,541.4	0.0	4,541.4	142.0	5,756.3
JULY	0.0	0.0	0.0	5,059.1	0.0	0.0	0.0	1,839.0	6,898.1	1,011.4	125.3	0.0	1,136.7	2,141.5	2,781.4	0.0	4,922.9	147.0	6,206.6
AUGUST	0.0	635.8	0.0	4,744.8	0.0	8,967.2	0.0	0.0	14,347.8	665.0	592.0	0.0	1,257.0	165.7	2,242.9	0.0	2,408.6	111.0	3,776.6
SEPTEMBER	3,648.2	7,023.6	0.0	4,892.5	0.0	12,067.4	0.0	0.0	27,631.7	1,374.4	0.0	0.0	1,374.4	0.0	3,371.0	0.0	3,371.0	152.0	4,897.4
TOTALS	11,117.1	15,610.7	0.0	33,320.3	503.9	45,261.8	0.0	7,487.4	113,301.2	10,793.7	3,122.0	75.4	13,840.3	10,132.9	28,503.2	33.0	38,603.1	1,420.0	53,863.4

NOTES : -THE AMOUNTS OF RECLAIMED WATER FROM POMONA PLANT ARE ESTIMATED.
-THE AMOUNT OF WATER FROM USG3 DURING MARCH 1991 INCLUDES 2793.7 A.F. OF CYCLIC STORAGE.
-THE AMOUNT OF WATER RELEASED FROM CB-48 DURING SEPTEMBER 91 WAS SPREAD IN THE MAIN S.G. BASIN.

WELL HYDROGRAPHS INCLUDED IN THIS REPORT

GROUND WATER BASIN	WELL NO.	APPROXIMATE LOCATION	PAGE NO.
WEST COAST	1346D	11305 TRURO AVE., 250 FT. N. OF IMPERIAL HWY., COMPTON	G18
	760C	99 FT. S.W. OF INTERSECTION OF COMPTON BLVD. & DOTY AVE., LAWNDALE	
CENTRAL BASIN	460K	2,600 FT. N.E. OF THE INTERSECTION OF LAKEWOOD BLVD. & PACIFIC COAST HWY., LONG BEACH	G18
	1601T	1,000 FT. S. OF THE INTERSECTION OF WASHINGTON BLVD. & ROSEMEAD BLVD., MONTEBELLO	G19
	906D	1,300 FT. N.W. OF THE INTERSECTION OF LONG BEACH & SAN ANTONIO DR., LONG BEACH	G19
MAIN SAN GABRIEL	3030F	600 FT. N.W. OF THE INTERSECTION OF LOS ANGELES ST. & MAINE AVE., BALDWIN PARK	G20
	2955X	TYLER AVE. & CENTRAL AVE., S. EL MONTE	G21
SAN GABRIEL CANYON	4284A	5,600 FT. N.W. OF THE INTERSECTION OF SIERRA MADRE AVE. & SAN GABRIEL CANYON RD., AZUSA	G21
	4285	2,700 FT. N.W. OF SAN GABRIEL CANYON RD. & SIERRA MADRE AVE.	
POMONA	3251E	2,200 FT. N. OF THE INTERSECTION OF SAN BERNADINO FWY. & TOWNE AVE., POMONA	G22
	3241J	425 FT. S.W. OF LA VERNE AVE., 400FT. S.E. OF N. GAREY AVE.	
	4469A	739 FT. W. OF MOUNTAIN AVE., 1,025 FT. N. OF HARRISON AVE.	
CLAREMONT HEIGHTS	4508B	800 FT. S.E. OF THE INTERSECTION OF BASELINE RD. & PADUA AVE., CLAREMONT	G22
	4508A	270 FT. N.W. OF WELL 4508B	
RAYMOND	4057H	LOS ROBLES & GLENARM STREETS, PASADENA	G23
SANTA CLARA	7048A	S.E. OF THE INTERSECTION OF NEWHALL AVE. & MAGIC MOUNTAIN PARKWAY, SAUGUS	G23
	7048C	544 FT. W. OF W. CURB OF VALENCIA BLVD., 56 FT. S. OF MAGIC MOUNTAIN PARKWAY, VALENCIA	
ANTELOPE VALLEY	9974	8.976 FT. S. OF AVE. K & 200 FT. W. OF SIERRA HWY., LANCASTER	G24
	8825	25 FT. N. OF AVE. T & 45 FT. E. OF 90TH ST., LITTLE ROCK	G24
MAIN SAN FERNANDO	3872H	CLARK AVE. & GRIFFITH PARK DR., BURBANK	G25
	4709	SHERMAN WAY & DEERING AVE., CANOGA PARK	G25

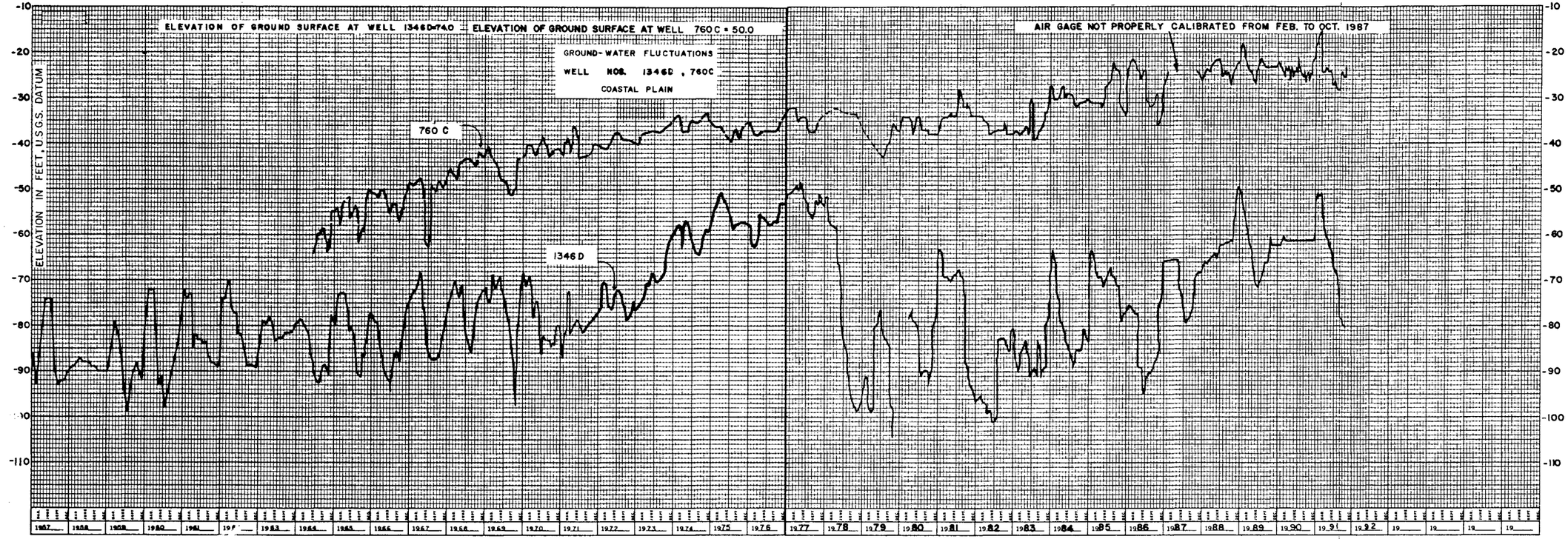
KEY WELLS APPROXIMATE LOCATION

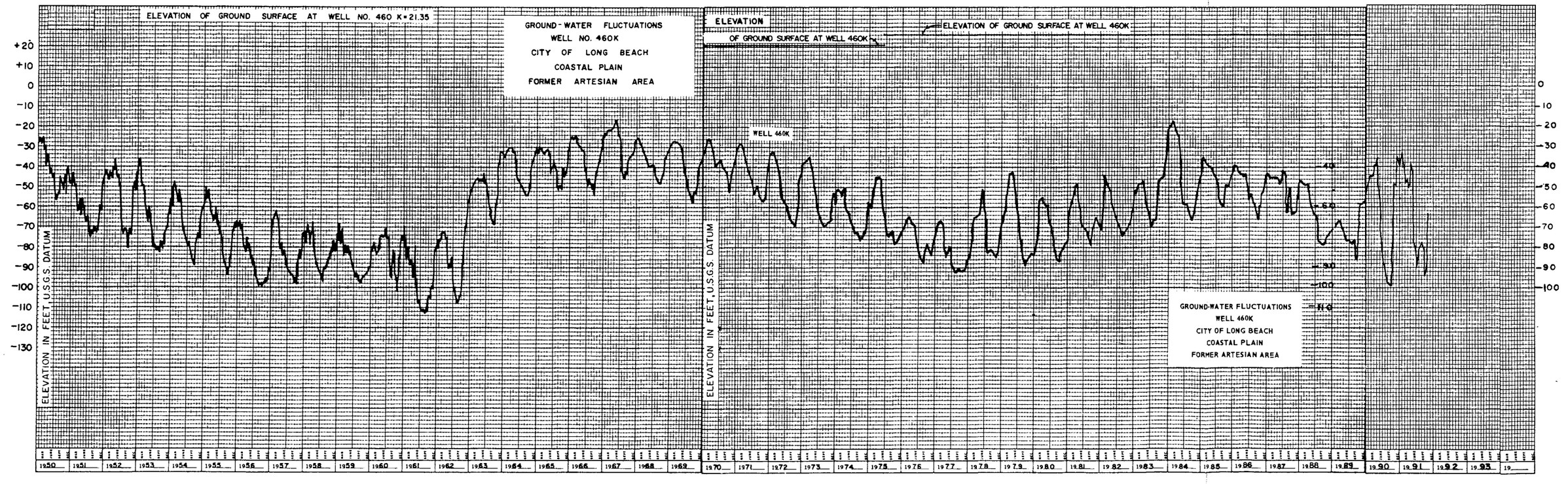
MAP OF

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

KEYWELL LOCATIONS


ELEVATION OF GROUND SURFACE AT WELL 1346D-740 = ELEVATION OF GROUND SURFACE AT WELL 760C + 50.0
GROUND-WATER FLUCTUATIONS
WELL NOS. 1346D , 760C
COASTAL PLAIN
760 C
1346 D
AIR GAGE NOT PROPERLY CALIBRATED FROM FEB. TO OCT. 1987
ELEVATION IN FEET, U.S.G.S. DATUM
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
1957 1958 1959 1960 1961 19 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 19 19 19 19

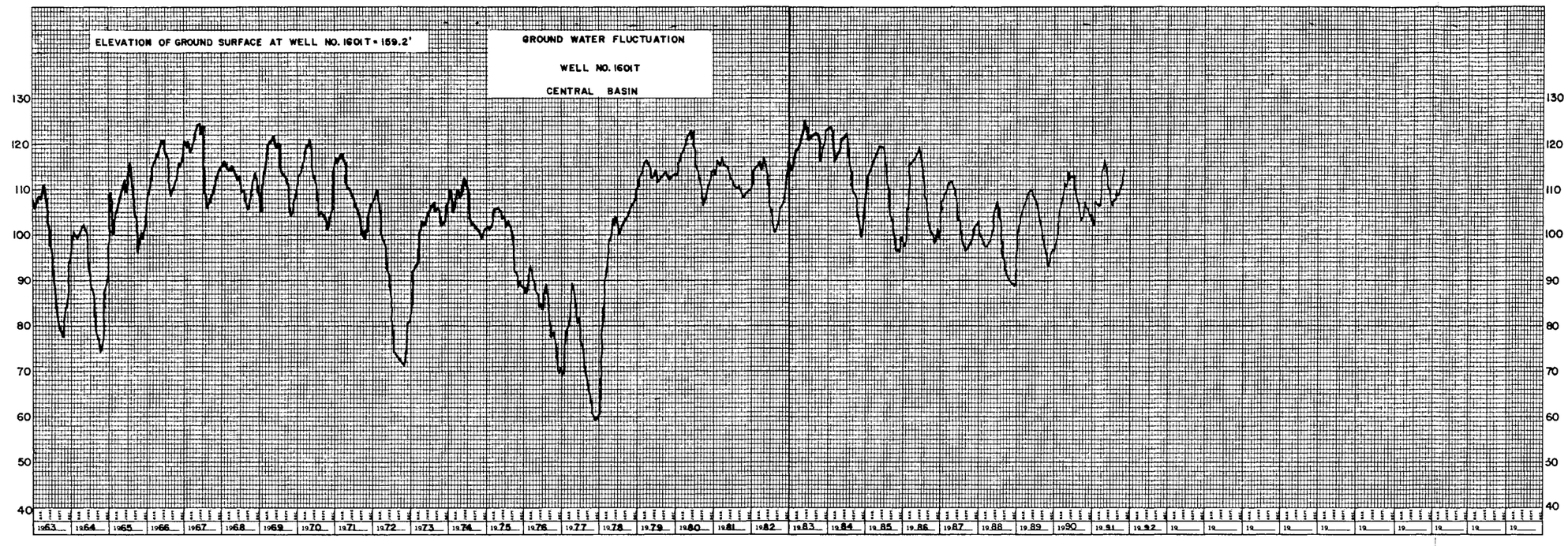

ELEVATION OF GROUND SURFACE AT WELL NO. 460 K = 21.35
GROUND-WATER FLUCTUATIONS
WELL NO. 460K
CITY OF LONG BEACH
COASTAL PLAIN
FORMER ARTESIAN AREA
ELEVATION
OF GROUND SURFACE AT WELL 460K
ELEVATION OF GROUND SURFACE AT WELL 460K
WELL 460K
GROUND-WATER FLUCTUATIONS
WELL 460K
CITY OF LONG BEACH
COASTAL PLAIN
FORMER ARTESIAN AREA
ELEVATION IN FEET, U.S.G.S. DATUM
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 19 19

ELEVATION OF GROUND SURFACE AT WELL NO. 1601T = 159.2'

GROUND WATER FLUCTUATION

WELL NO. 1601T

CENTRAL BASIN



GROUND-WATER FLUCTUATIONS

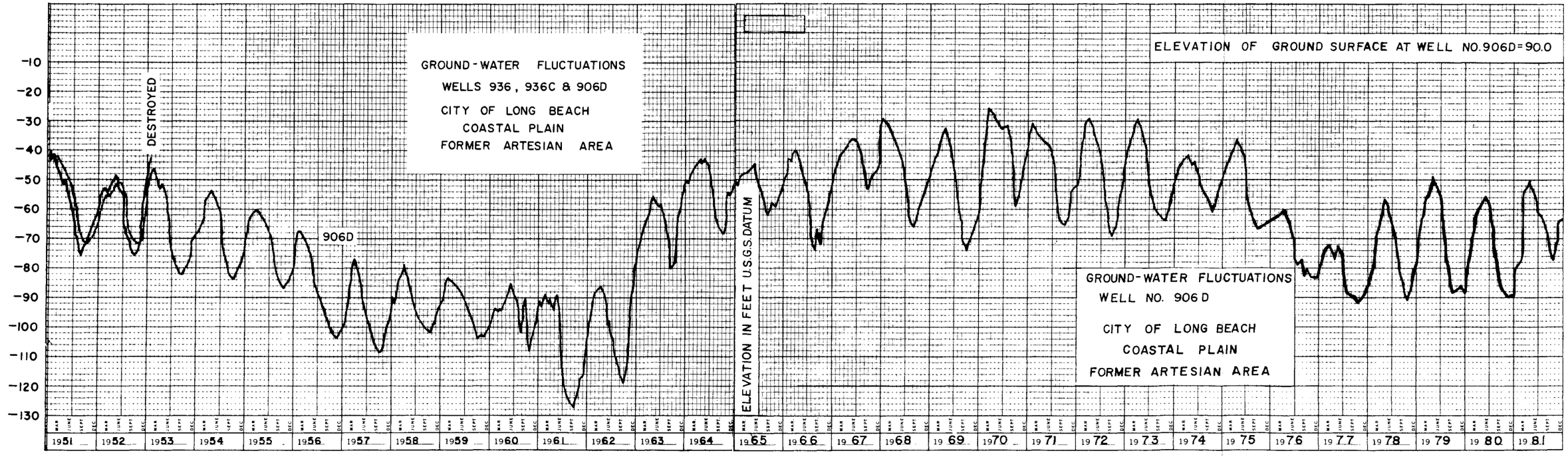
WELLS 936, 936C & 906D

CITY OF LONG BEACH

COASTAL PLAIN

FORMER ARTESIAN AREA

ELEVATION OF GROUND SURFACE AT WELL NO. 906D = 90.0



GROUND-WATER FLUCTUATIONS

WELL NO. 906D

CITY OF LONG BEACH

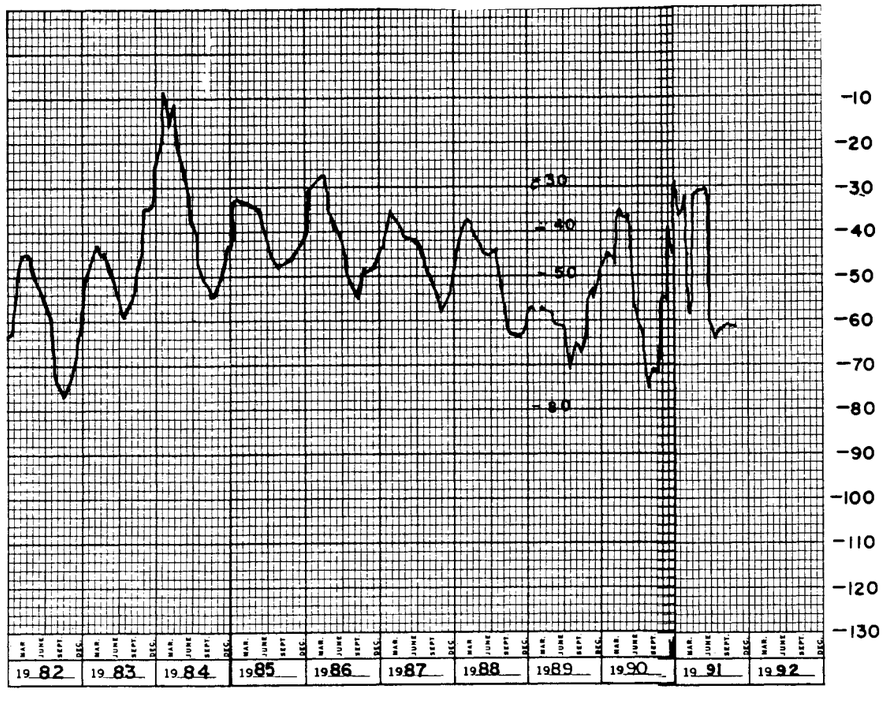
COASTAL PLAIN

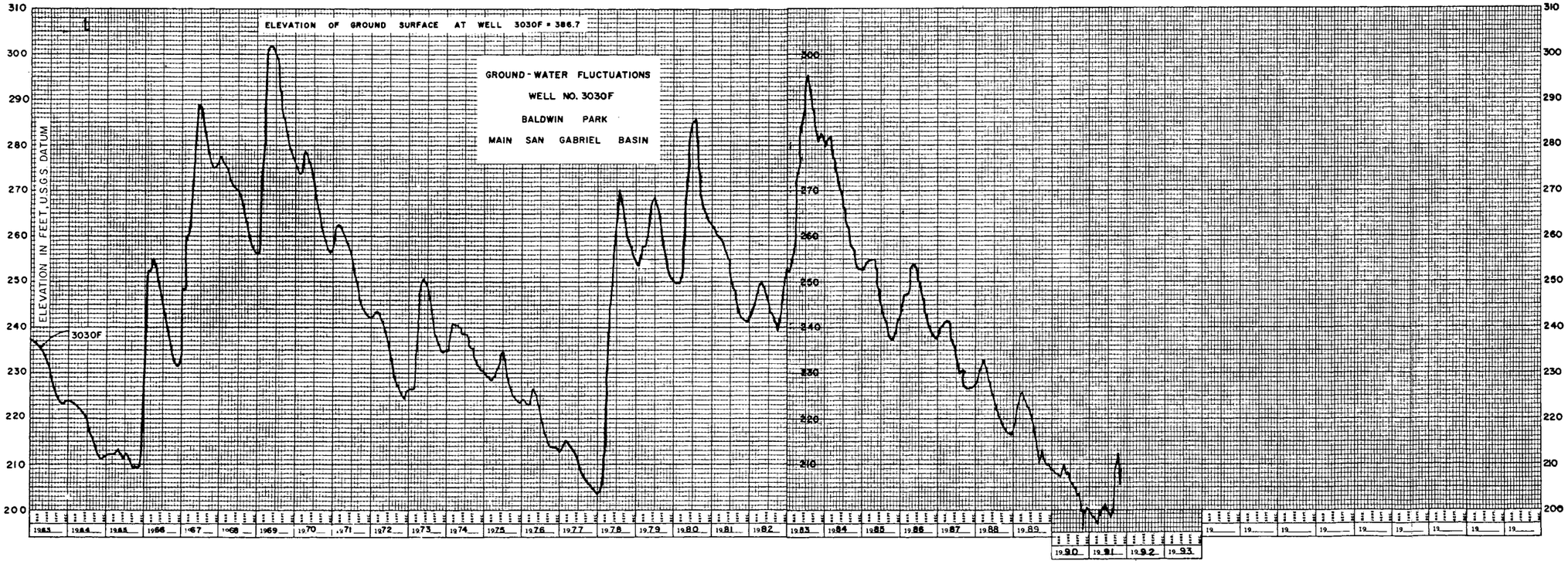
FORMER ARTESIAN AREA

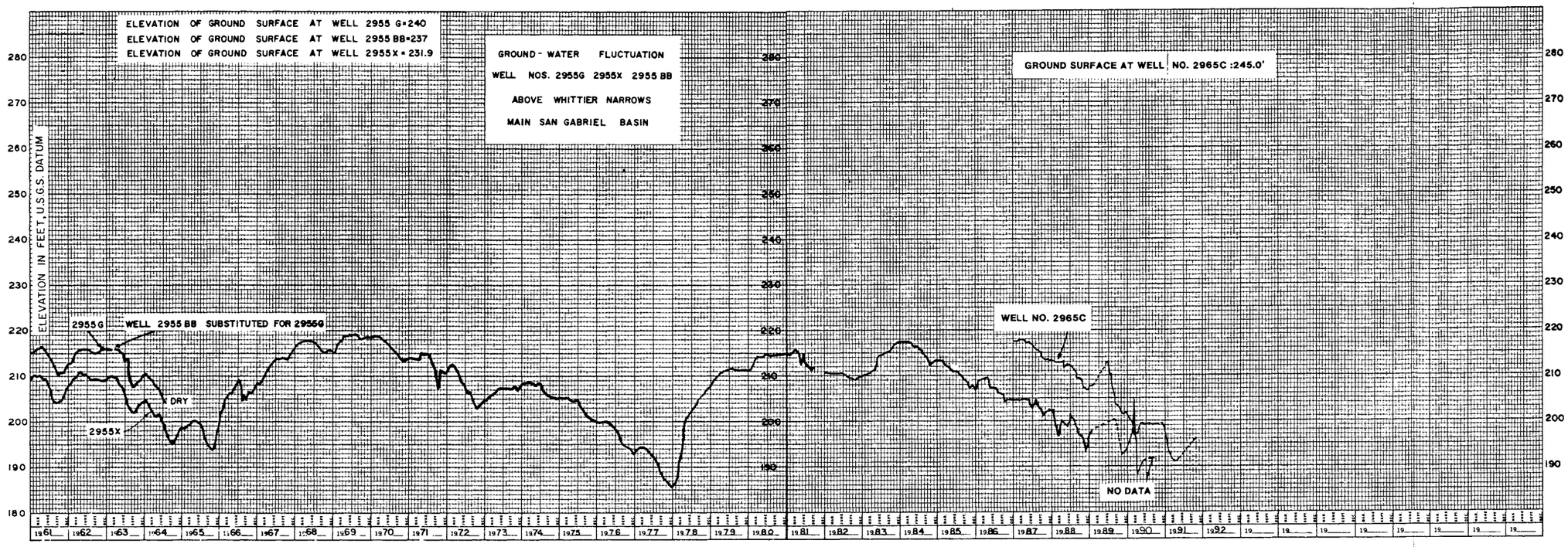
CONTINUED ON PAGE G20

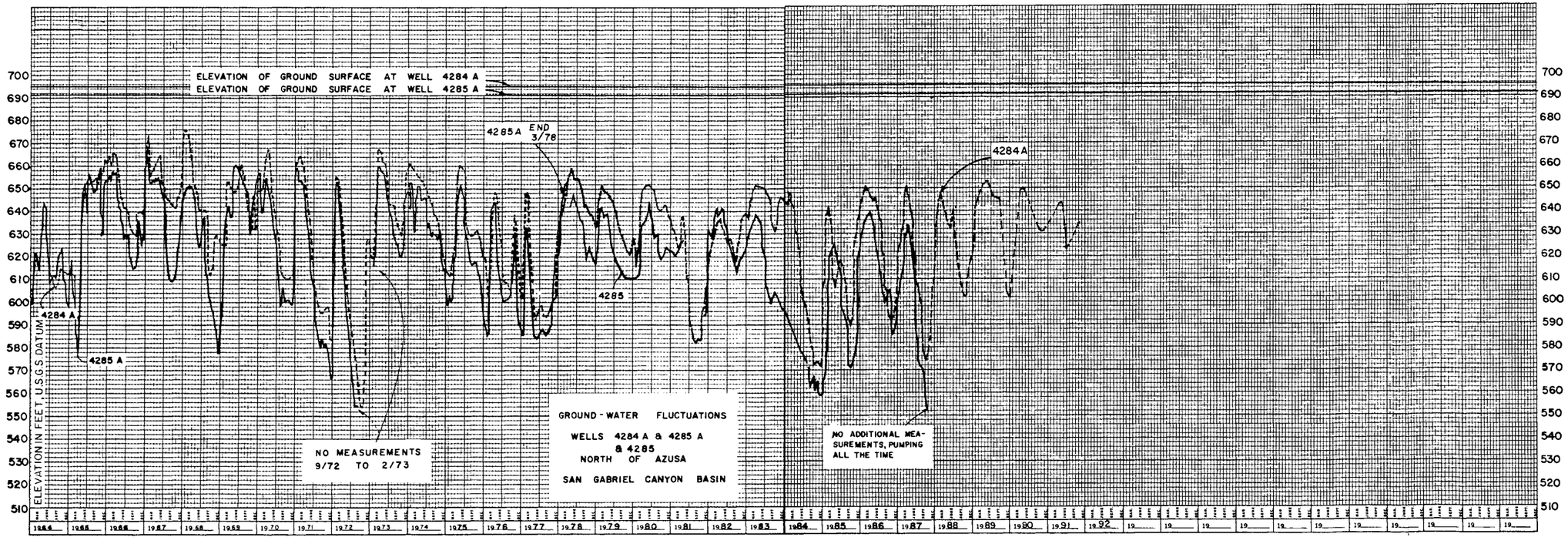
WELL NO. 906D

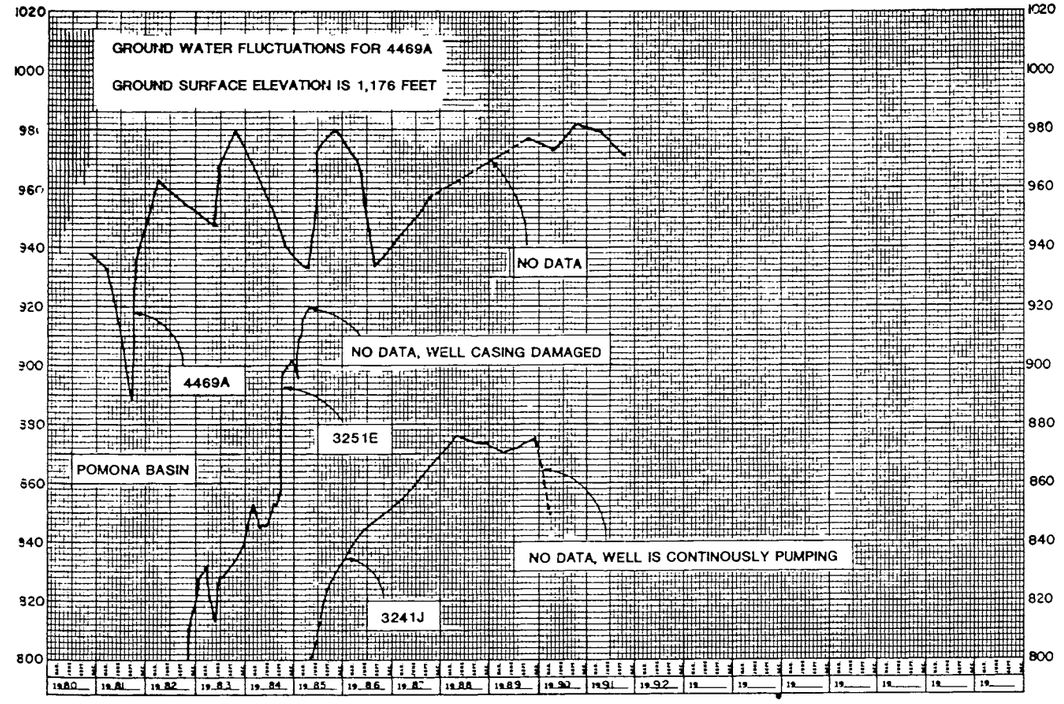
CONTINUED FROM PAGE G19

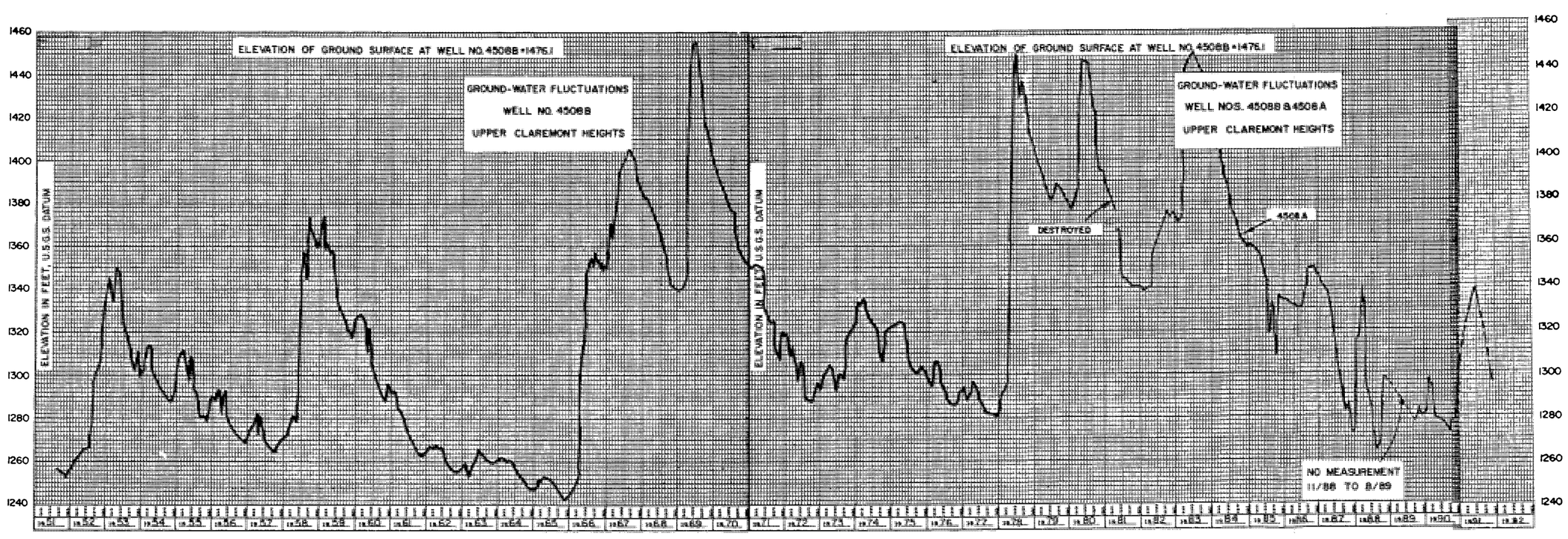





ELEVATION OF GROUND SURFACE AT WELL 2955 G=240
ELEVATION OF GROUND SURFACE AT WELL 2955 BB=237
ELEVATION OF GROUND SURFACE AT WELL 2955 X = 231.9
GROUND - WATER FLUCTUATION
WELL NOS. 2955G 2955X 2955 BB
ABOVE WHITTIER NARROWS
MAIN SAN GABRIEL BASIN
GROUND SURFACE AT WELL NO. 2965C :245.0'
ELEVATION IN FEET, U.S.G.S. DATUM
2955 G
WELL 2955 BB SUBSTITUTED FOR 2955G
DRY
2955X
WELL NO. 2965C
NO DATA


ELEVATION OF GROUND SURFACE AT WELL 4284 A
ELEVATION OF GROUND SURFACE AT WELL 4285 A
4285 A END 3/78
4284 A
4285
4284 A
4285 A
NO MEASUREMENTS 9/72 TO 2/73
GROUND - WATER FLUCTUATIONS
WELLS 4284 A & 4285 A & 4285
NORTH OF AZUSA
SAN GABRIEL CANYON BASIN
NO ADDITIONAL MEASUREMENTS, PUMPING ALL THE TIME
ELEVATION IN FEET, U.S.G.S. DATUM


GROUND WATER FLUCTUATIONS FOR 4469A
GROUND SURFACE ELEVATION IS 1,176 FEET
NO DATA
NO DATA, WELL CASING DAMAGED
4469A
3251E
POMONA BASIN
NO DATA, WELL IS CONTINOUSLY PUMPING
3241J


ELEVATION OF GROUND SURFACE AT WELL NO.4508B =1475.1
GROUND-WATER FLUCTUATIONS
WELL NO. 4508B
UPPER CLAREMONT HEIGHTS
ELEVATION IN FEET, U.S.G.S. DATUM
ELEVATION OF GROUND SURFACE AT WELL NO.4508B =1476.1
GROUND-WATER FLUCTUATIONS
WELL NOS. 4508B & 4508A
UPPER CLAREMONT HEIGHTS
DESTROYED
4508A
NO MEASUREMENT
11/88 TO 8/89

GROUND-WATER FLUCTUATIONS
WELL NO. 4057H
RAYMOND BASIN

ELEVATION OF GROUND SURFACE AT WELL 4057H = 749.9

ELEVATION IN FEET, U.S.G.S. DATUM

660 650 640 630 620 610 600 590 580

1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971

ELEVATION OF GROUND SURFACE AT WELL 4057H = 749.9

GROUND-WATER FLUCTUATIONS
WELL NO. 4057H
RAYMOND BASIN

ELEVATION IN FEET, U.S.G.S. DATUM

660 650 640 630 620 610 600 590 580

WELL 4057H

1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991

GROUND-WATER FLUCTUATIONS
WELL NO. 7048A
NEAR CASTAIC JUNCTION
SANTA CLARITA VALLEY

ELEVATION OF GROUND SURFACE AT WELL NO. 7048A = 1133'

ELEVATION OF GROUND SURFACE AT WELL NO. 7048C: 1145.2'

NO DATA

7048C

7048A

WELL WAS DESTROYED

ELEVATION IN FEET, U.S.G.S. DATUM

1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020

7048A

1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 19__ 19__ 19__ 19__ 19__ 19__ 19__ 19__ 19__ 19__ 19__

1120 1110 1100 1090 1080 1070 1060 1050 1040 1030 1020

ELEVATION OF GROUND SURFACE AT WELL NO. 9962B = 2411
ELEVATION OF GROUND SURFACE AT WELL NO. 9962C = 2407
ELEVATION OF GROUND SURFACE AT WELL NO. 9962D = 2412
9962C SUBSTITUTED FOR 9962B, WHICH WAS DIFFICULT TO MEASURE
ELEVATION OF GROUND SURFACE AT WELL NO. 9974 = 2512.0'

GROUND-WATER FLUCTUATIONS
WELL NOS. 9962B & 9962C, 9983A, 9962D & 9974
SOUTH OF LANCASTER
ANTELOPE VALLEY

ELEVATION IN FEET, U.S.G.S. DATUM

9962B
9962B
9962D
9974
9983A
NO DATA
DRY
9974

ELEVATION OF GROUND SURFACE AT WELL NO. 8825 = 2777.0'

GROUND-WATER FLUCTUATIONS
WELL NO. 8825
SOUTH OF PALMDALE
LITTLE ROCK

ELEVATION IN FEET U.S.G.S. DATUM

NO MEASUREMENTS

ELEVATION OF GROUND SURFACE AT WELL NO. 3843H = 593.0
ELEVATION OF GROUND SURFACE AT WELL NO. 3872D = 546.0
ELEVATION OF GROUND SURFACE AT WELL NO. 3872H = 546.5

GROUND WATER FLUCTUATIONS
WELL NOS. 3855, 3872B, 3872D, 3843H, & 3872H
BURBANK
SAN FERNANDO VALLEY

3843H
DRY
3872D
DRY
WELL 3872H

ELEVATION IN FEET, U.S.G.S. DATUM

500 490 480 470 460 450 440 430 420 410 400

1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 19 91 19 92 19 19 19 19 19 19 19 19

ELEVATION OF GROUND SURFACE AT WELL NO. 4709 = 792.0'

NO DATA

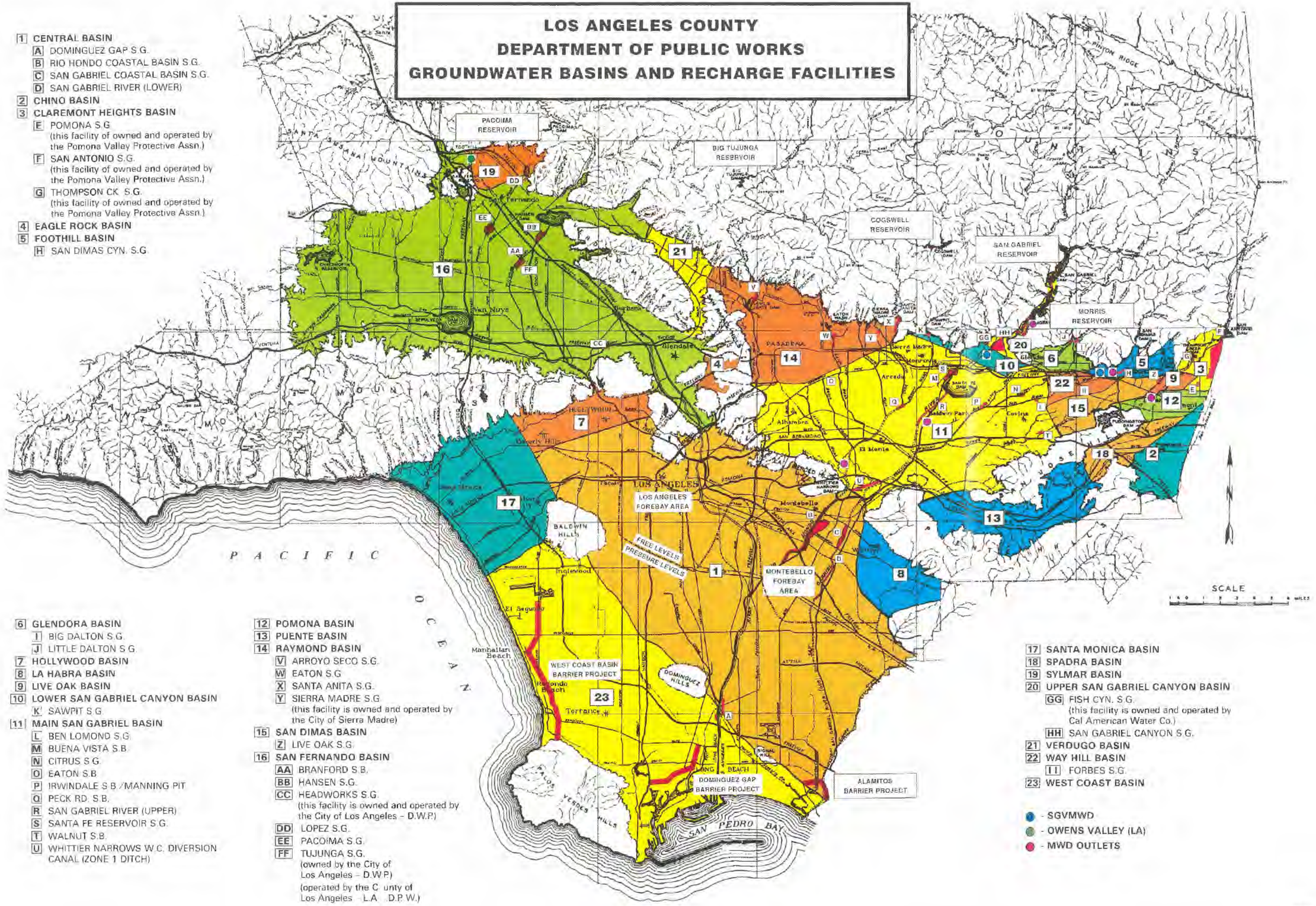
GROUND - WATER FLUCTUATIONS
WELL NO. 4709
CANOGA PARK
SAN FERNANDO VALLEY

ELEVATION IN FEET, U.S.G.S. DATUM

790 780 770 760 750

1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 19 91 19 92 19 19 19 19 19 19 19 19

LOS ANGELES COUNTY
DEPARTMENT OF PUBLIC WORKS
GROUNDWATER BASINS AND RECHARGE FACILITIES



1 CENTRAL BASIN
- A DOMINGUEZ GAP S.G.
- B RIO HONDO COASTAL BASIN S.G.
- C SAN GABRIEL COASTAL BASIN S.G.
- D SAN GABRIEL RIVER (LOWER)

2 CHINO BASIN

3 CLAREMONT HEIGHTS BASIN
- E POMONA S.G. (this facility of owned and operated by the Pomona Valley Protective Assn.)
- F SAN ANTONIO S.G. (this facility of owned and operated by the Pomona Valley Protective Assn.)
- G THOMPSON CK. S.G. (this facility of owned and operated by the Pomona Valley Protective Assn.)

4 EAGLE ROCK BASIN

5 FOOTHILL BASIN
- H SAN DIMAS CYN. S.G.

6 GLENDORA BASIN
- I BIG DALTON S.G.
- J LITTLE DALTON S.G.

7 HOLLYWOOD BASIN

8 LA HABRA BASIN

9 LIVE OAK BASIN

10 LOWER SAN GABRIEL CANYON BASIN
- K SAWPIT S.G.

11 MAIN SAN GABRIEL BASIN
- L BEN LOMOND S.G.
- M BUENA VISTA S.B.
- N CITRUS S.G.
- O EATON S.B.
- P IRWINDALE S.B./MANNING PIT
- Q PECK RD. S.B.
- R SAN GABRIEL RIVER (UPPER)
- S SANTA FE RESERVOIR S.G.
- T WALNUT S.B.
- U WHITTIER NARROWS W.C. DIVERSION CANAL (ZONE 1 DITCH)

12 POMONA BASIN

13 PUENTE BASIN

14 RAYMOND BASIN
- V ARROYO SECO S.G.
- W EATON S.G.
- X SANTA ANITA S.G.
- Y SIERRA MADRE S.G. (this facility is owned and operated by the City of Sierra Madre)

15 SAN DIMAS BASIN
- Z LIVE OAK S.G.

16 SAN FERNANDO BASIN
- AA BRANFORD S.B.
- BB HANSEN S.G.
- CC HEADWORKS S.G. (this facility is owned and operated by the City of Los Angeles - D.W.P.)
- DD LOPEZ S.G.
- EE PACOIMA S.G.
- FF TUJUNGA S.G. (owned by the City of Los Angeles - D.W.P.) (operated by the County of Los Angeles - L.A. C.D.P.W.)

17 SANTA MONICA BASIN

18 SPADRA BASIN

19 SYLMAR BASIN

20 UPPER SAN GABRIEL CANYON BASIN
- GG FISH CYN. S.G. (this facility is owned and operated by Cal American Water Co.)
- HH SAN GABRIEL CANYON S.G.

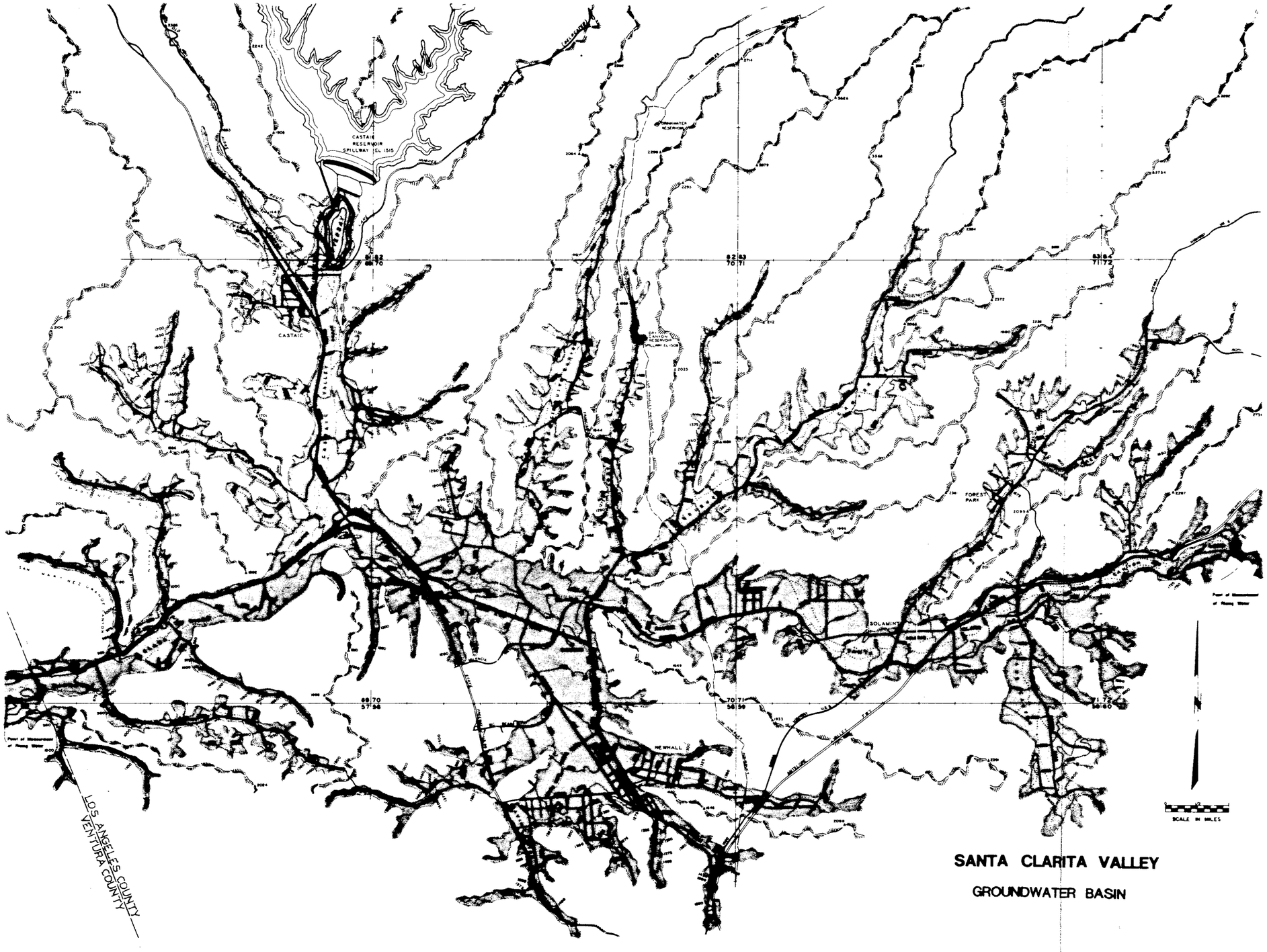
21 VERDUGO BASIN

22 WAY HILL BASIN
- II FORBES S.G.

23 WEST COAST BASIN

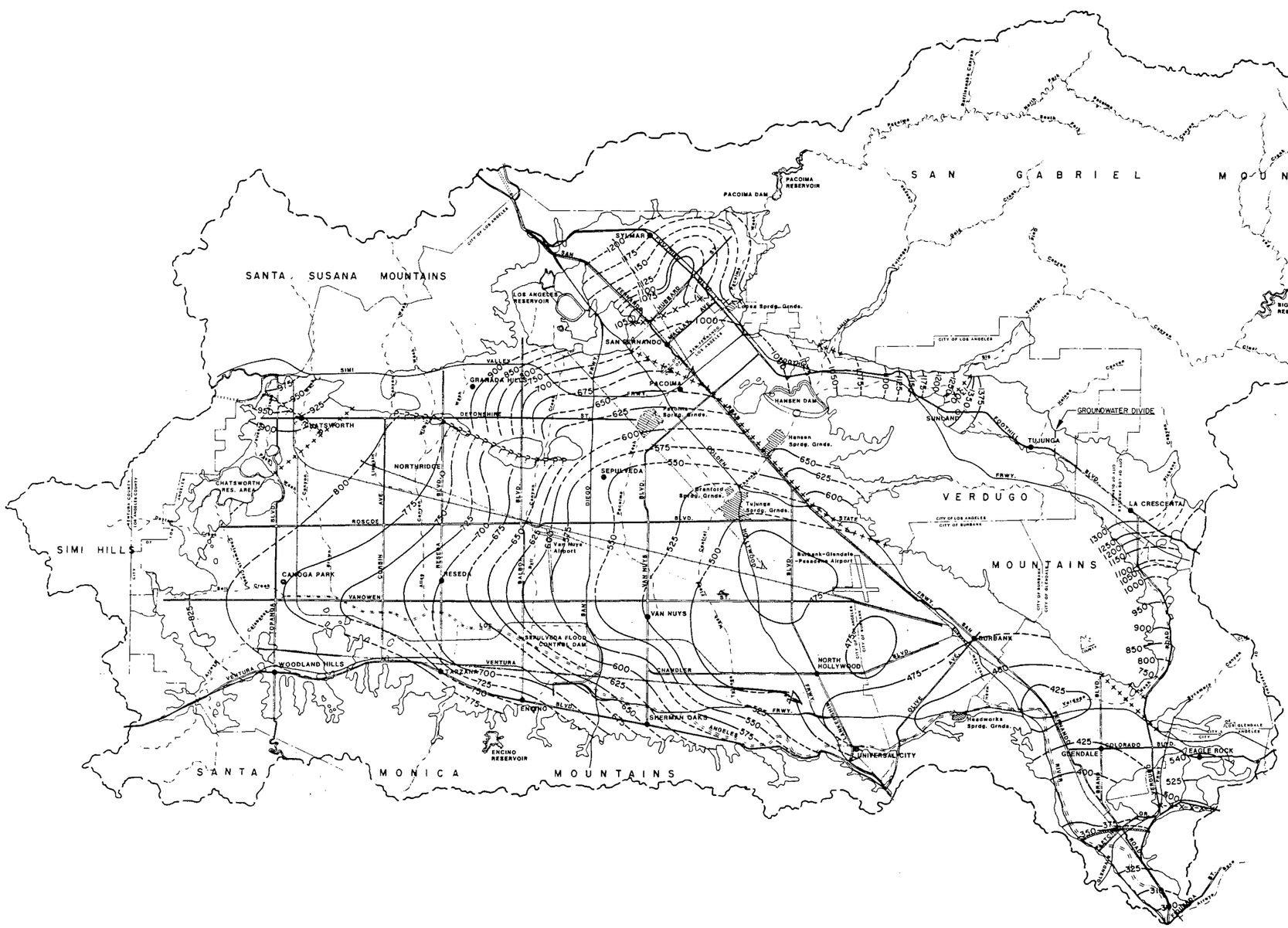
- SGVMWD
- OWENS VALLEY (LA)
- MWD OUTLETS

PG1



SANTA CLARITA VALLEY

GROUNDWATER BASIN



ULARA WATERMASTER

UPPER LOS ANGELES RIVER AREA

GROUNDWATER CONTOURS

FALL 1990

SCALE

0 4,000 8,000 12,000 16,000

FEET

LEGEND

X-X-X-X ..... IMPEDIMENTS TO GROUNDWATER FLOW

+ + + + ... GROUNDWATER CASCADES

?-?-?-? ..... QUESTIONABLE IMPEDIMENT OR GROUNDWATER CASCADE

xxxxxxxxxxxx ..... FAULT ZONE

REVISED M.R. GARCIA 1/92

SAN GABRIEL MOUNTAINS

RAFAEL HILLS

LA MERCED HILLS

SAN JOSE HILLS

PUENTE HILLS

DEVILS GATE DAM

EATON WASH DAM

SAN GABRIEL DAM

BANTA ANITA DAM

SAWPIT DAM

MORRIS DAM

BIG DALTON DAM

SAN DIMAS DAM

SAN ANTONIO DAM

THOMPSON CREEK DAM

LIVE OAK DAM

PUDDINGSTONE DIVERSION DAM

PUDDINGSTONE RESERVOIR

PUDDINGSTONE DAM

SANTA FE DAM

WHITTIER NARROWS DAM

PASADENA

Sierra Madre

Arcadia

Monrovia

Duarte

Azusa

Glendora

San Dimas

Claremont

Pomona

Alhambra

El Monte

Baldwin Park

Covina

West Covina

Puente

Montebello

Maywood

Whittier

34°12'

34°06'

34°00

SCALE IN MILES

EXPLANATION

- LINES OF EQUAL GROUNDWATER LEVELS, (INTERPOLATED BETWEEN WELLS.)
- SAME AS ABOVE, (LOCATION APPROXIMATE.)
- RESTRICTIONS AND/OR BARRIERS TO GROUNDWATER MOVEMENT, GEOLOGIC AND HYDROLOGIC.
- GROUND SURFACE CONTOURS.
- SPREADING GROUNDS.

REVISIONS		
NO.	DATE	DESCRIPTION

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

SAN GABRIEL VALLEY GROUNDWATER CONTOURS FOR FALL 1990

SUBMITTED BY	CHECKED BY	DRAWN BY	PROJECT ENGINEER

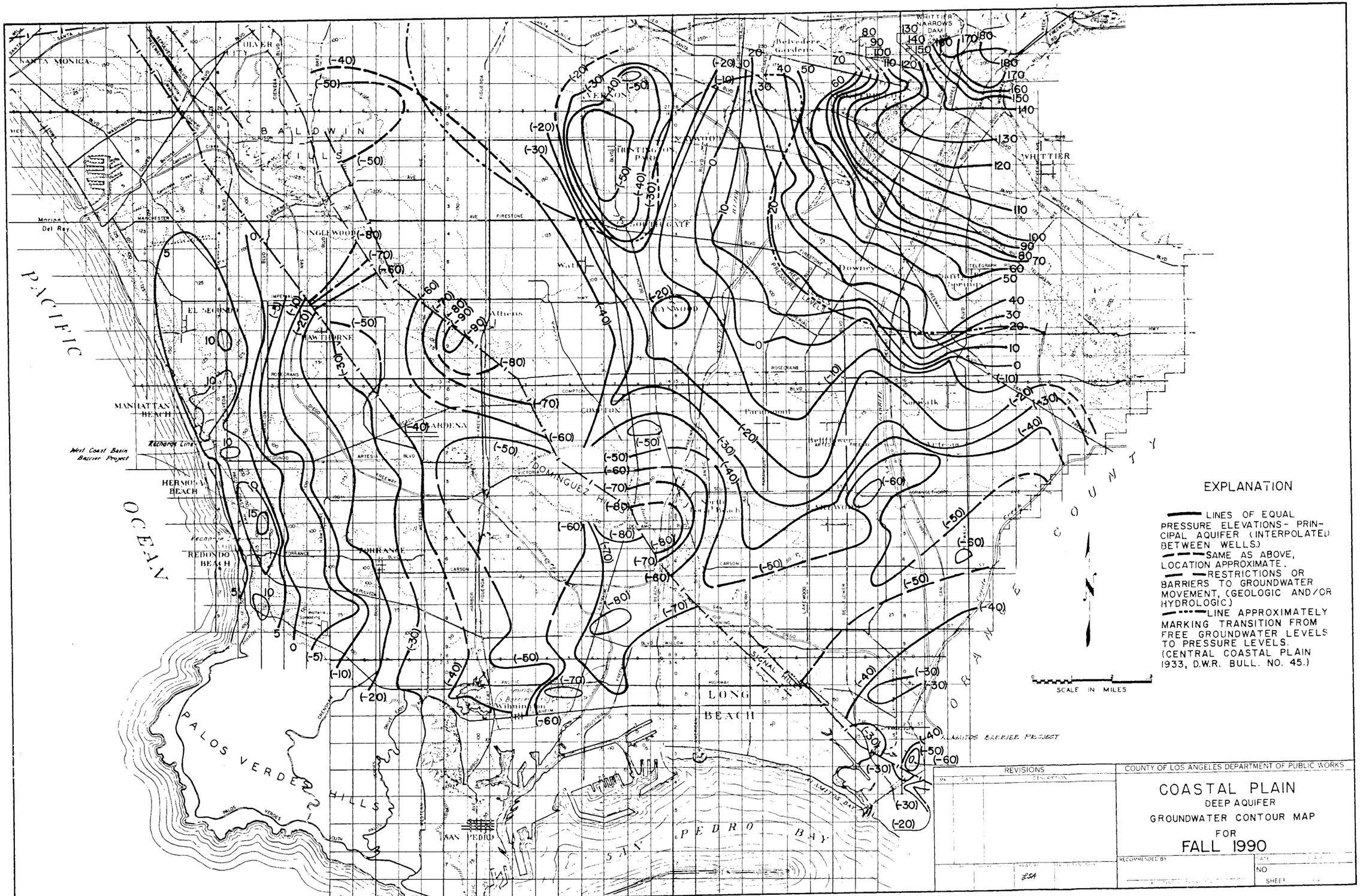
RECOMMENDED BY

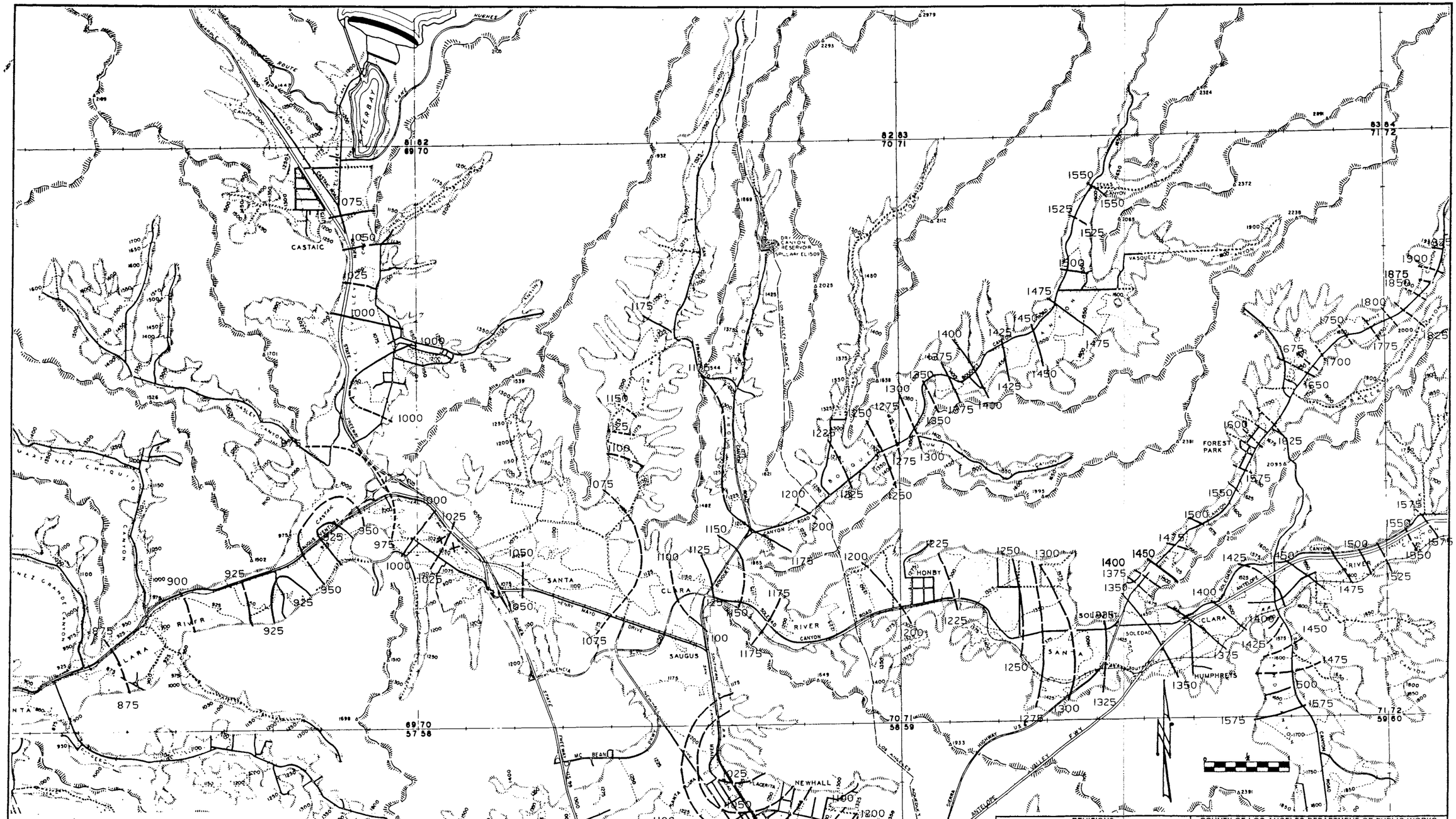
ASSISTANT DEPUTY DIRECTOR

DATE | SCALE

NO.

SHEET OF


PACIFIC OCEAN
SANTA MONICA
CULVER CITY
BALDWIN HILLS
Marina Del Rey
INGLEWOOD
EL SEGUNDO
AWTHORNE
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
Recharge Line
West Coast Basin Barrier Project
Belvedere Gardens
WHITTIER NARROWS DAM
WHITTIER
Athens
GARDENA
COMPTON
DOMINGUEZ HILLS
Downey
Paramount
Bellflower
Norwalk
LAKEWOOD
LONG BEACH
PALOS VERDES HILLS
SAN PEDRO
SAN PEDRO BAY
ALAMITOS BARRIER PROJECT
SCALE IN MILES
EXPLANATION
LINES OF EQUAL PRESSURE ELEVATIONS- PRINCIPAL AQUIFER (INTERPOLATED BETWEEN WELLS.)
SAME AS ABOVE, LOCATION APPROXIMATE.
RESTRICTIONS OR BARRIERS TO GROUNDWATER MOVEMENT, (GEOLOGIC AND/OR HYDROLOGIC)
LINE APPROXIMATELY MARKING TRANSITION FROM FREE GROUNDWATER LEVELS TO PRESSURE LEVELS. (CENTRAL COASTAL PLAIN 1933, D.W.R. BULL. NO. 45.)
REVISIONS
NO. DATE DESCRIPTION
ESA
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
COASTAL PLAIN
DEEP AQUIFER
GROUNDWATER CONTOUR MAP
FOR
FALL 1990
RECOMMENDED BY
DATE
NO
SHEET



EXPLANATION

- LINES OF EQUAL GROUNDWATER LEVEL.
- LINES OF EQUAL GROUNDWATER LEVEL, LOCATION APPROXIMATE.
- 900 GROUND SURFACE CONTOURS.
- DIVIDES.
- LOW-FLOW LINE NATURAL CHANNEL.
- x^{XX}_{X} x^{XX}_{X} REACH OF RISING WATER.

NOTE: ALL ELEVATIONS ARE IN FEET, U.S.G.S. DATUM.

REVISIONS			
MK	DATE	DESCRIPTION	

DESIGNED BY	CHECKED BY	DRAWN BY	PROJECT ENGINEER

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

SANTA CLARITA VALLEY
GROUNDWATER CONTOURS
FOR
FALL 1990

RECOMMENDED BY

ASSISTANT DEPUTY DIRECTOR

DATE | SCALE

NO.

SHEET OF