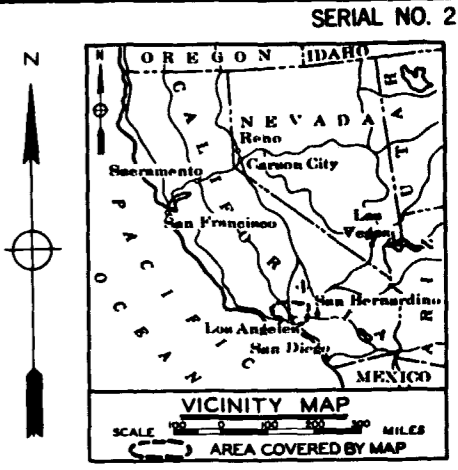
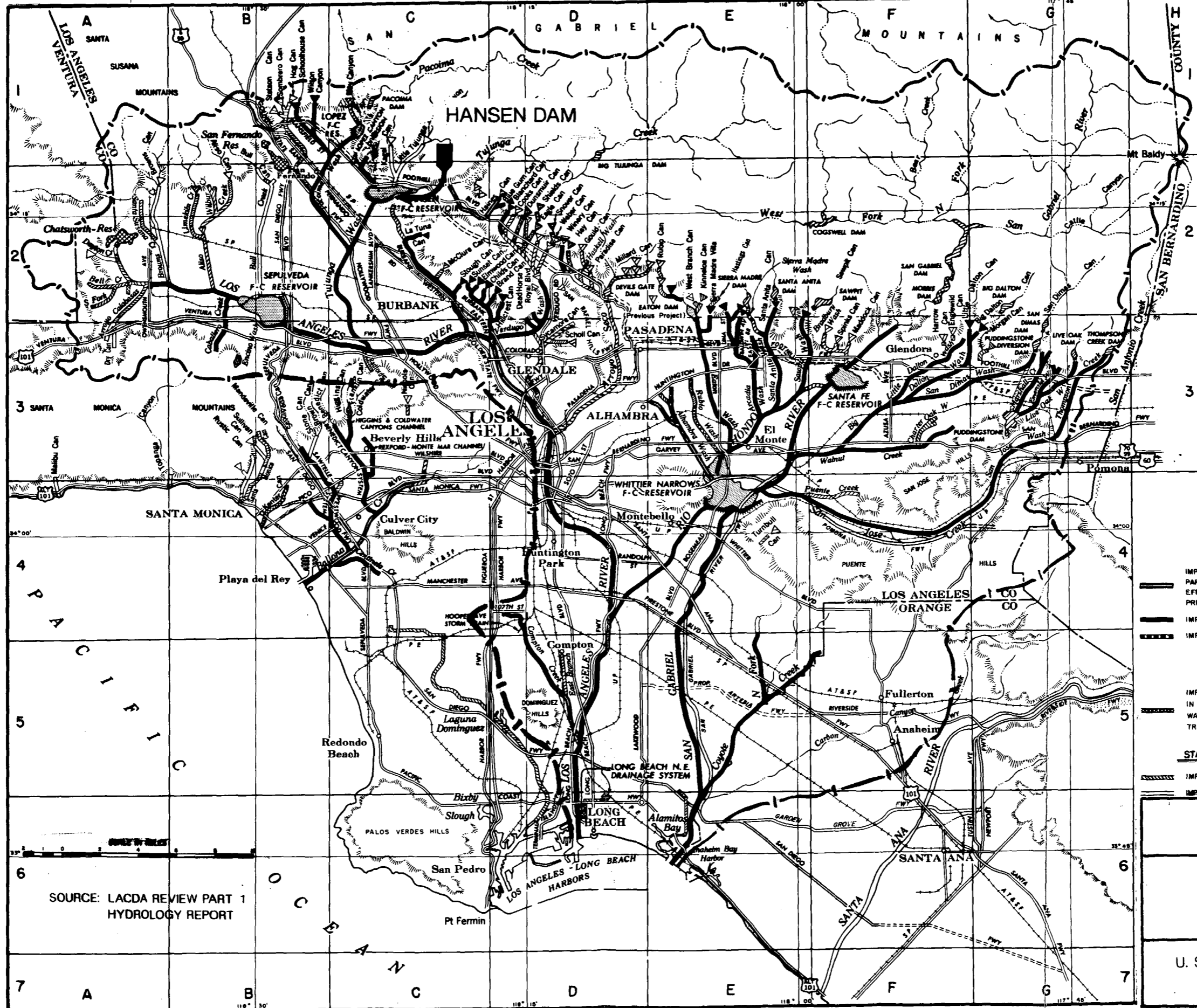


Related Manuals and Reports.

1. U.S. Army Corps of Engineers, Los Angeles District, "Analysis of Design of Tujunga Wash Improvement - Hansen Dam " - Volumes I and II, 2 May 1938.
2. U.S. Army Corps of Engineers, Los Angeles District, "Analysis of Design of 5 feet by 8 feet Service Gates for Hansen Dam," January 1939.
3. U.S. Army Corps of Engineers, Los Angeles District, "Hydrology in the Los Angeles County Drainage Area," March 1939.
4. U.S. Army Corps of Engineers, Los Angeles District, "LACDA, Tujunga Wash Improvement; Specifications to Accompany Change Order No. 7 (Revised 10-23-39), Hansen Dam Contract No. W-509-Eng-689," October 1939.
5. U.S. Army Corps of Engineers, Los Angeles District, "Analysis of Hydraulic Design for Hansen Flood Control Basin," 18 March 1940.
6. U.S. Army Corps of Engineers, Los Angeles District, "Tujunga Wash Improvement, Hansen Dam, Analysis of Design," June 1940.
7. U.S. Army Corps of Engineers, Los Angeles District, "Hydrology, Upper Los Angeles River and Tributaries, Burbank-Western Channel to Sepulveda Dam," December 1946.
8. U.S. Army Corps of Engineers, Los Angeles District, "Specifications for Tujunga Wash Improvement, Los Angeles River to Hansen Dam; Gates, Footbridge, and Appurtenances at Hansen Spreading Ground Headworks," February 1952.
9. U.S. Army Corps of Engineers, Los Angeles District, "Los Angeles County Drainage Area, California, Flood Control, Design Memorandum No. 1, Hydrology for Lopez Canyon Diversion Channel," March 1959.
10. U.S. Army Corps of Engineers, Los Angeles District, "Operation and Maintenance Manual for Hansen Dam Flood Control Basin, Tujunga Wash Improvement," April 1963.
11. U.S. Army Corps of Engineers, Los Angeles District, "LACDA, CA, Hansen Dam Master Plan," February 1975.
12. U.S. Army Corps of Engineers, Los Angeles District, "Interim Report on Hydrology and Hydraulic Review of Design Features of Existing Dams for LACDA Dams," June 1978.
13. U.S. Army Corps of Engineers, Los Angeles District, "Los Angeles River Improvement, Los Angeles County, CA, Hansen Dam, Seismic Evaluation, Phase I Report," January 1982.
14. U.S. Army Corps of Engineers, Los Angeles District, "Hansen Dam Modeling Study; Impact of Water Supply vs Flood Control Operational Modes on Sediment Deposition in the Reservoir Area," June 1983.
15. U.S. Army Corps of Engineers, Los Angeles District, "LACDA, CA, Hansen Dam, Preliminary Formulation Report," September 1984.
16. U.S. Army Corps of Engineers, Los Angeles District, "Hansen Dam, LACDA, CA, Dam, Outlet, and Spillway, Periodic Inspection Report No. 4," May 1985.
17. U.S. Army Corps of Engineers, "Los Angeles County Drainage Area, California, Review - Part 1 Hydrology Report," February, 1988.

HANSEN DAM TUJUNGA WASH, CALIFORNIA	RELATED MANUALS AND REPORTS	U. S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT
--	-----------------------------	---



NOTE: FOR DESIGN AND CONSTRUCTION INFORMATION ON UNITS IN THE EXISTING PROJECT, SEE MAPS, SERIAL NOS. 2-1 TO 2-63 INCLUSIVE.

- LEGEND**
- BOUNDARY OF DRAINAGE AREA.
 - FLOOD-CONTROL CHANNEL.
 - FLOOD-CONTROL DAM AND RESERVOIR.
 - DEBRIS BASIN.
 - WATER SUPPLY RESERVOIR.

- STATUS OF EXISTING PROJECT**
- IMPROVEMENT COMPLETED BY C.O.F.E. PARTLY WITH E.R.A. FUNDS AND PARTLY WITH REGULAR FUNDS. PART OF THE IMPROVEMENT WAS EFFECTED UNDER THE PREVIOUS PROJECT. (SEE UNDER "STATUS OF PREVIOUS PROJECT")
 - IMPROVEMENT COMPLETED BY C.O.F.E. - WITH REGULAR FUNDS.
 - IMPROVEMENT TO BE CONSTRUCTED BY C.O.F.E. - WITH REGULAR FUNDS.

- STATUS OF PREVIOUS PROJECT**
- IMPROVEMENT COMPLETED BY C.O.F.E. - WITH E.R.A. FUNDS. IN ADDITION, ALL EXISTING-PROJECT IMPROVEMENT MARKED WITH THIS SYMBOL WAS STARTED UNDER THE PREVIOUS PROJECT AND THEN WAS TRANSFERRED TO THE EXISTING PROJECT FOR COMPLETION.

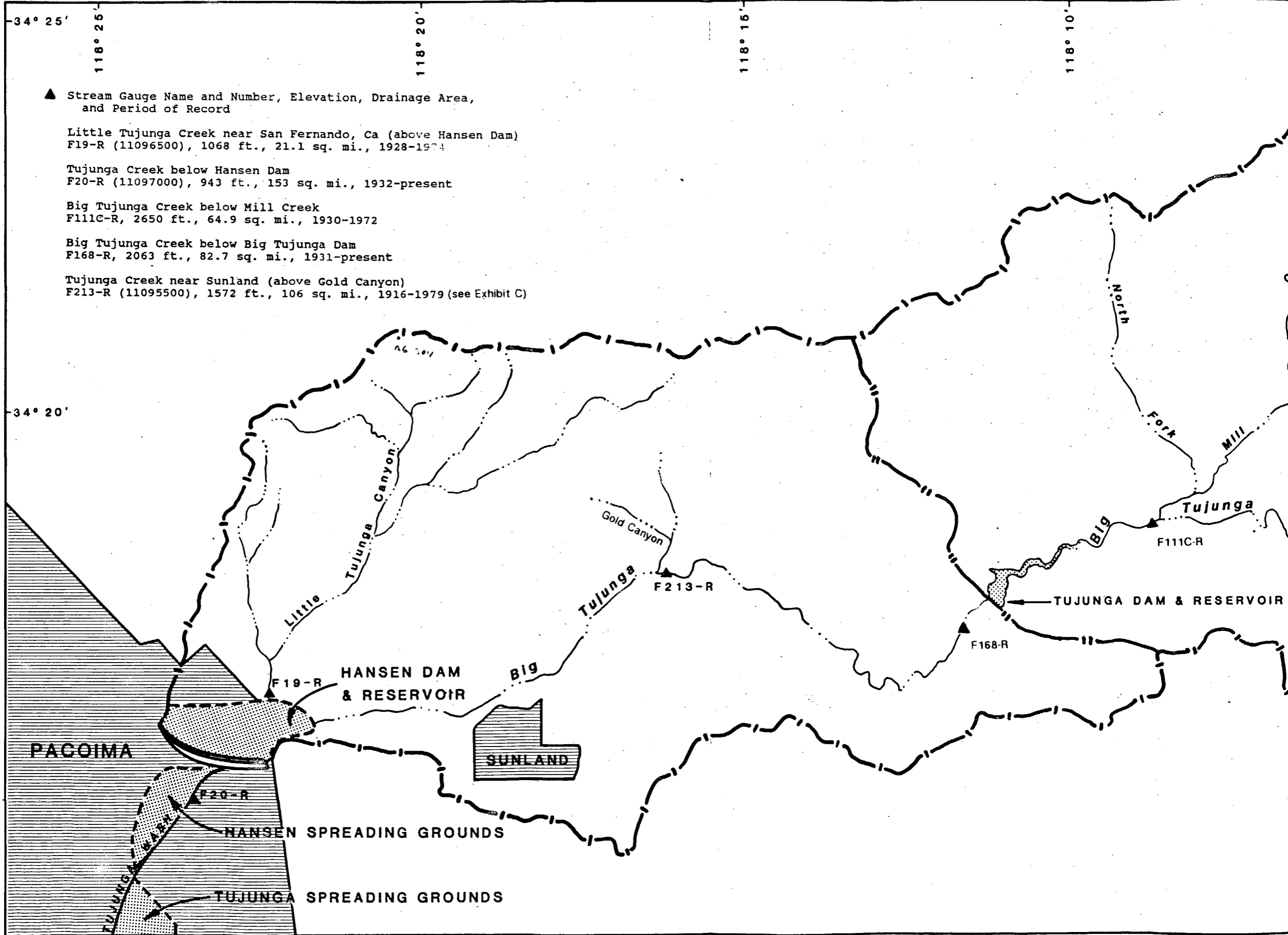
- STATUS OF NON-FEDERAL CONSTRUCTION**
- IMPROVEMENT COMPLETED BY LOCAL INTERESTS.
 - IMPROVEMENT TO BE CONSTRUCTED BY LOCAL INTERESTS.

SOURCE: LACDA REVIEW PART 1 HYDROLOGY REPORT

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

LOCATION MAP
(LOS ANGELES COUNTY DRAINAGE AREA)

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



- ▲ Stream Gauge Name and Number, Elevation, Drainage Area, and Period of Record
- Little Tujunga Creek near San Fernando, Ca (above Hansen Dam)
F19-R (11096500), 1068 ft., 21.1 sq. mi., 1928-1974
 - Tujunga Creek below Hansen Dam
F20-R (11097000), 943 ft., 153 sq. mi., 1932-present
 - Big Tujunga Creek below Mill Creek
F111C-R, 2650 ft., 64.9 sq. mi., 1930-1972
 - Big Tujunga Creek below Big Tujunga Dam
F168-R, 2063 ft., 82.7 sq. mi., 1931-present
 - Tujunga Creek near Sunland (above Gold Canyon)
F213-R (11095500), 1572 ft., 106 sq. mi., 1916-1979 (see Exhibit C)

34° 25'

118° 25'

118° 20'

118° 16'

118° 10'

34° 20'

PICOIMA

HANSEN SPREADING GROUNDS

TUJUNGA SPREADING GROUNDS

HANSEN DAM & RESERVOIR

SUNLAND

TUJUNGA DAM & RESERVOIR

F19-R

F20-R

F213-R

F168-R

F111C-R

Little Tujunga Canyon

Gold Canyon

Big Tujunga

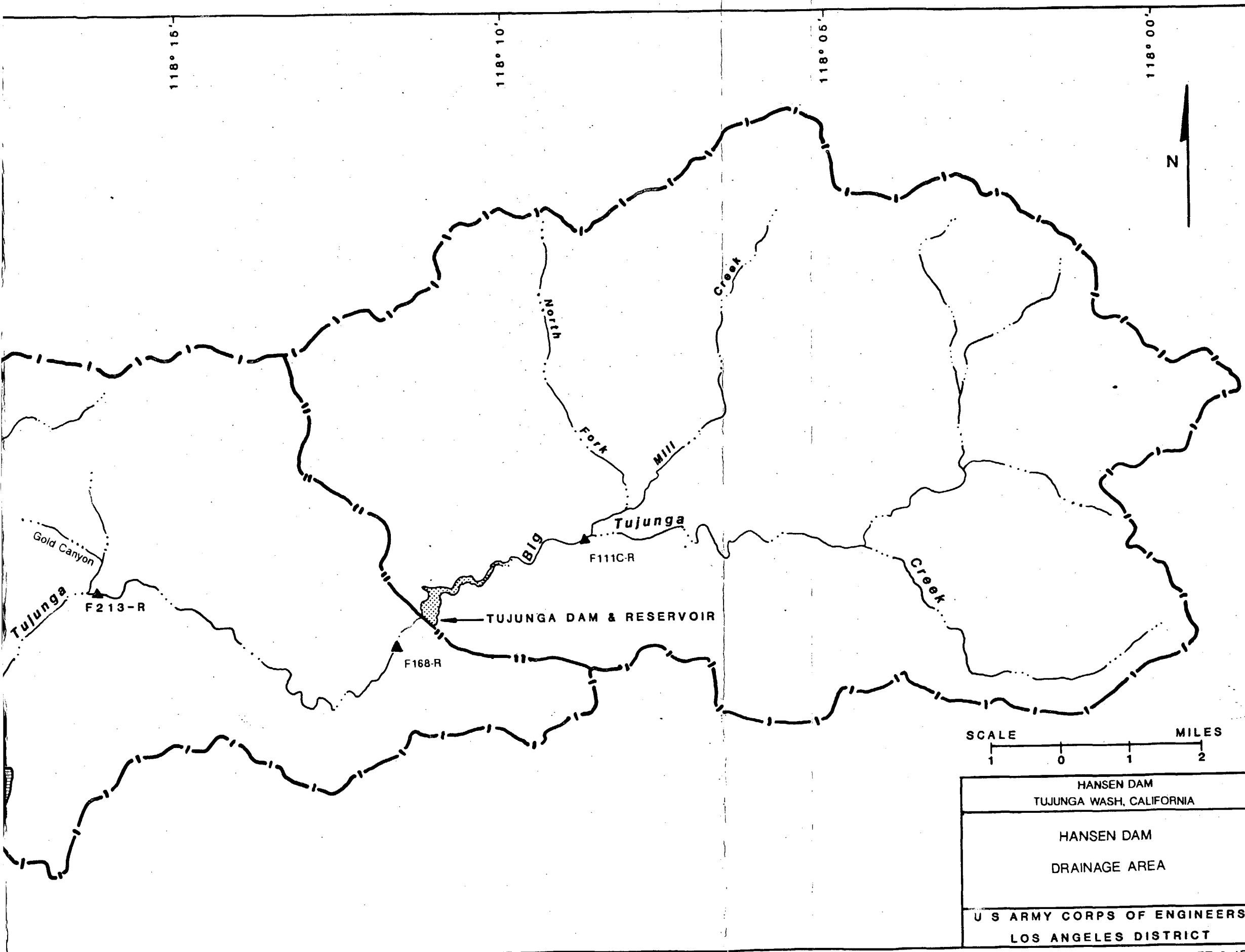
North Fork

Fork

Mill

Tujunga

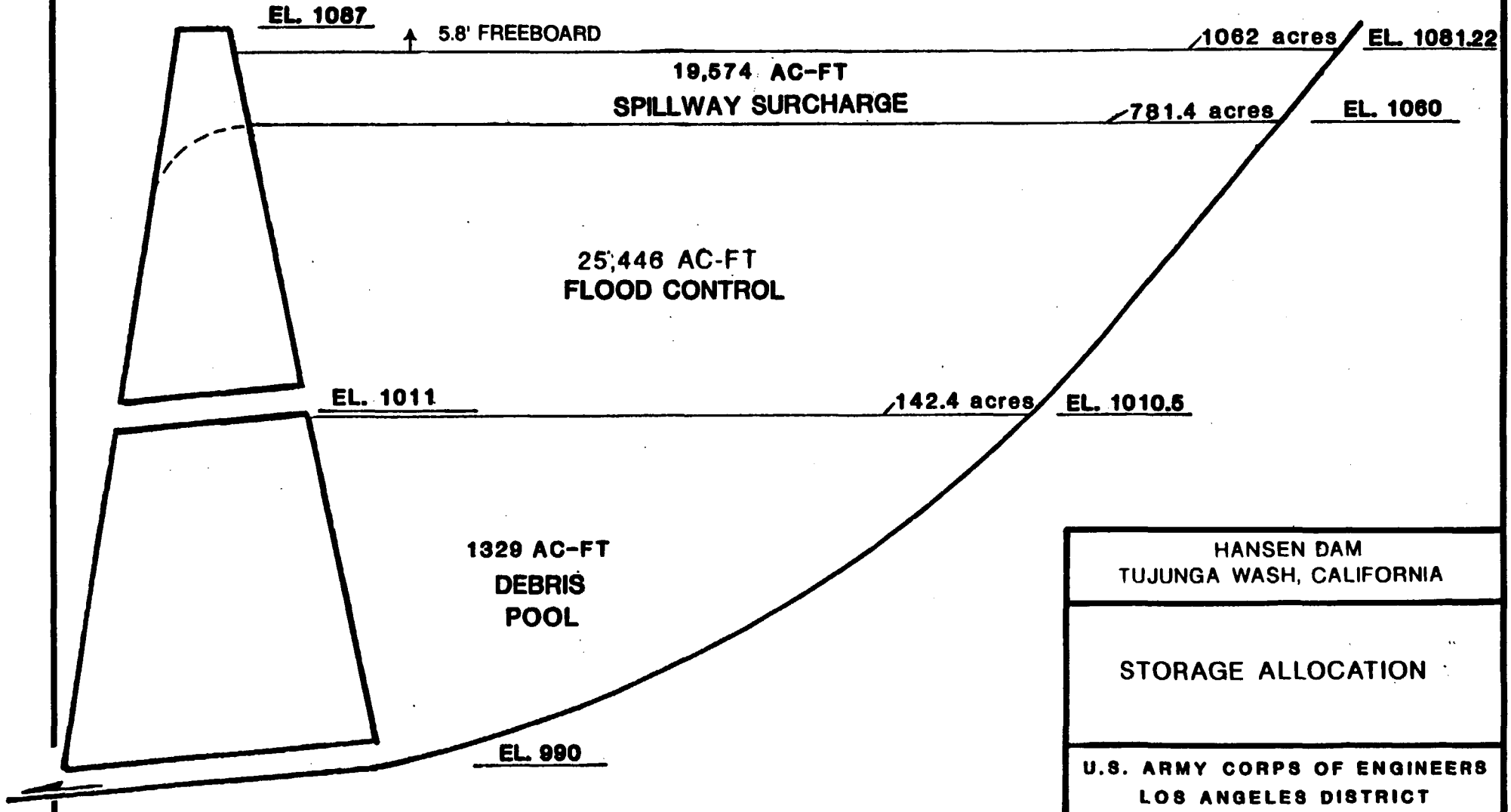
Big Tujunga



SCALE 0 1 2 MILES

HANSEN DAM TUJUNGA WASH, CALIFORNIA
HANSEN DAM DRAINAGE AREA
U S ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT

HANSEN RESERVOIR, CALIFORNIA



HANSEN DAM
TUJUNGA WASH, CALIFORNIA

STORAGE ALLOCATION

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

OUTGRANT

PROJECT MAP

DIPT. OF THE _____
 USING SERVICE _____

LOCATION OF PROJECT

STATE CALIFORNIA
 COUNTY LOS ANGELES
 DIVISION SOUTH PACIFIC
 DISTRICT LOS ANGELES
 ARMY AREA 6th
 7 MILES NW OF BURBANK
 16 MILES NW OF LOS ANGELES

TRANSPORTATION FACILITIES

RAILROADS S.P.
 STATE ROADS 7 B 118
 FEDERAL ROADS 6 B 99
 AIR LINES _____

ACQUISITION

TOTAL ACRES ACQUIRED

FEE _____
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL _____
 USE PERMIT _____
 TRANSFER _____
 LEASE _____
 LESSER INTERESTS _____

DISPOSAL

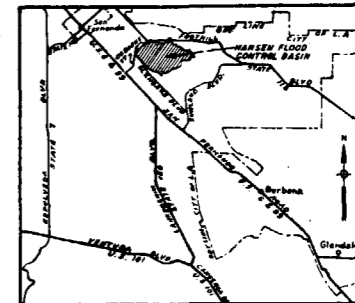
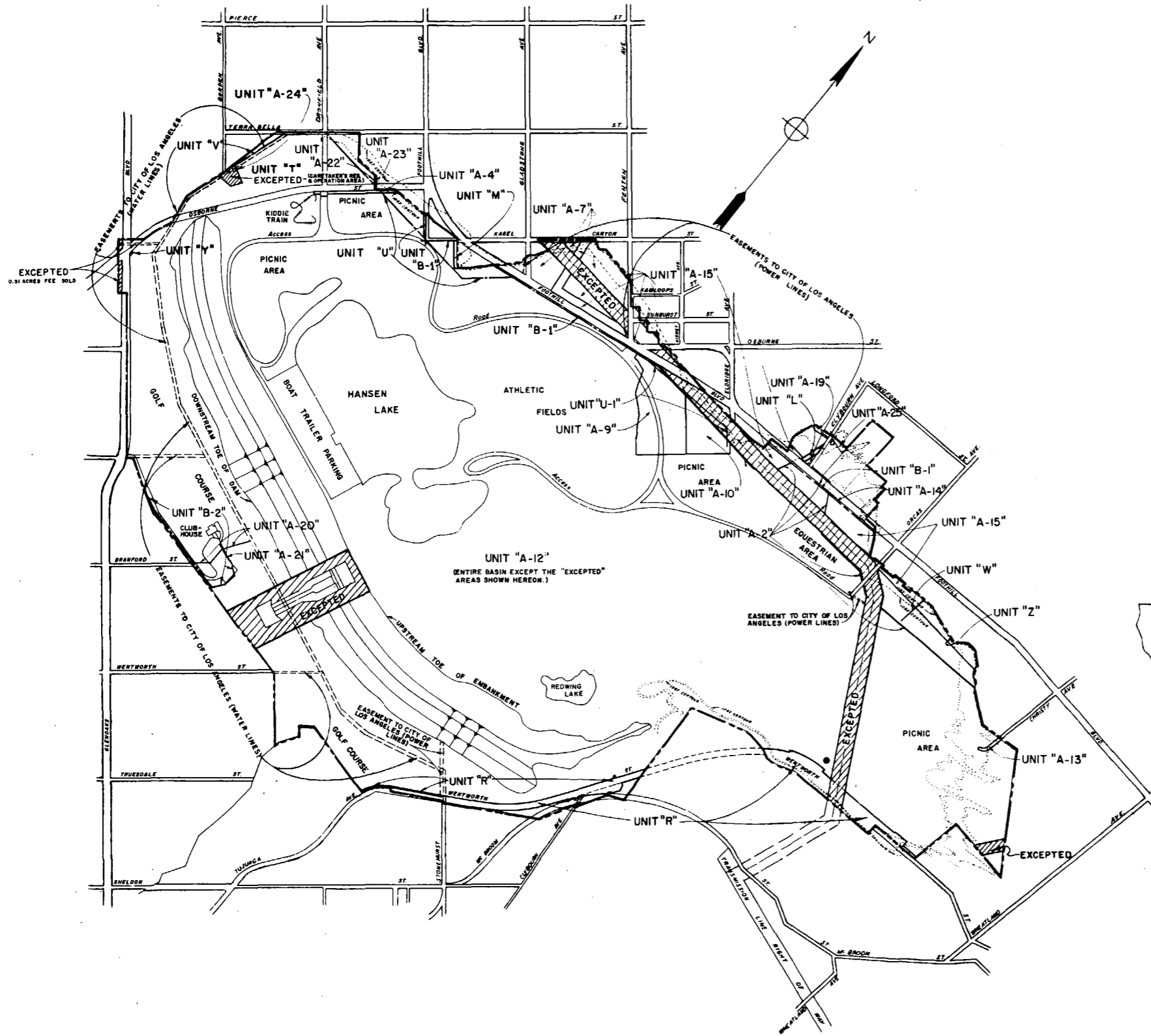
TOTAL ACRES DISPOSED OF

SALE _____
 PUBLIC DOMAIN PERM. WITHDRAWAL
 TEMP. WITHDRAWAL _____
 USE PERMIT _____
 TRANSFERRED _____
 LEASES TERMINATED _____
 LESSER INTERESTS TERM. _____
 REASSIGNED _____
 OTHER _____

LEGEND

EXCEPT FOR THE SPECIAL SYMBOLS SHOWN BELOW MAP
 SYMBOLS ARE STANDARD IN ARMY MAP SERVICE
 TECHNICAL MANUAL NO. 33.

- RESERVATION LINE _____
- RESERVATION LINE (Actual Survey) _____
- TRACT BOUNDARY LINE _____
- TRACT NUMBER _____
- CONTOUR LINE _____
- DISPOSAL _____



VICINITY MAP
 SCALE: 1 IN. APPROX. 3 MI.

STATE INDEX
 NOT TO SCALE

SOURCE: REAL ESTATE SECTION - INDEX TO OUT GRANTS (1977)
 "EASEMENTS, PERMITS, AND LICENSES" INDEX LIST UPDATED IN 1989 (see PLATE 2-5B)

DATE	REVISIONS	E. J. B.M.H.
2 MAY 1984	UPDATED	
7 MAR 1977	UPDATED ALL UNITS	

**HANSEN DAM
 TUJUNGA WASH, CALIFORNIA**

REAL ESTATE LIMITS

**U.S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT**

EASEMENTS, PERMITS & LICENSES					
UNIT	GRANTEE	GRANT	TERM	ACRES	MAP REF.
B-1	SOUTHERN CALIFORNIA EDISON CO.	EASEMENT FOR TELEPHONE LINES UNNUMBERED	6/11/46 - 06-10-96	1.01	UNK
B-2	CITY OF LOS ANGELES DEPT. OF WATER & POWER	LETTER PERMIT FOR POWER LINE FOR GOLF COURSE FACILITIES DA-04-353-CIVENG-64-109	2/26/64 - Indefinite	Undetermined	UNK
L	CITY OF LOS ANGELES	EASEMENT-PUBLIC ROAD OR STREET UNNUMBERED	7/15/48 - Indefinite	0.27	219-K-13
M	WALTER E. LINN, ALMA L.	EASEMENT FOR ACCESS ROAD & WATER PIPELINE UNNUMBERED	12/7/48 - 12-06-98	0.34	219-K-14
R	CITY OF LOS ANGELES	EASEMENT FOR EXTENSION OF WENTWORTH ST. DA-04-353-CIVENG-60-56	09-08-58 - Indefinite	14.84	219-K-20
T	CITY OF LOS ANGELES	EASEMENT FOR STORM DRAIN OUTLET STRUCTURE DA-04-353-CIVENG-62-56	7/6/61 - Permanent	0.01	219-K-22
U	CITY OF LOS ANGELES	EASEMENT FOR 24" SANITARY SEWER LINE DA-04-353-CIVENG-62-131	7/8/60 - Permanent	0.73	219-K-23
V	SOUTHERN CALIFORNIA GAS CO.	EASEMENT FOR 4" GAS PIPELINE DA-04-353-CIVENG-61-184	3/28/61 - 03-27-01	0.35	219-K-24
	CITY OF LOS ANGELES	EASEMENT FOR STORM DRAIN DA-04-353-CIVENG-65-128	2/5/65 - Permanent	0.08	219-K-25
	CITY OF LOS ANGELES	EASEMENT FOR PUBLIC STREET DA-04-353-CIVENG-62-141	8/28/62 - Permanent	0.01	219-K-27
Z	CITY OF LOS ANGELES	EASEMENT FOR STORM DRAIN DA-04-353-CIVENG-65-129	2/10/65 - Permanent	0.01	219-K-28
A-1	CITY OF LOS ANGELES	EASEMENT FOR SEWER LINE /SANITARY INTERCEPTOR DA-04-353-CIVENG-65-110	12/21/64 - Permanent	1.30	219-K-29
A-4	CITY OF LOS ANGELES	EASEMENT FOR STREET PURPOSES DA-04-353-CIVENG-66-95	12/1/65 - Permanent	0.27	219-K-31
A-7	VALLEY CREST TREE CO.	LEASE FOR AGRICULTURE /HORTICULTURE DACW09-1-86-19	12-01-86/10-31-90	9.59	219-K-34.4
A-9	HOMER ENDO	LEASE FOR AGRICULTURE HORTICULTURE DACW09-1-85-28	05-01-85/04-30-90	13.93	219-K-36.4
A-10	VALLEY CREST TREE CO.	LEASE FOR AGRICULTURE /NURSERY DACW09-1-88-16	11-20-87/11-19-92	6.51	219-K-37.3
A-12	CITY OF LOS ANGELES DEPT OF PARKS & RECREATION	LEASE FOR RECREATIONAL FACILITIES DACW09-1-69-45	01-05-67/01-04-17	1355.43	219-K-40.1
A-13	LOS ANGELES COUNTY FLOOD CONTROL DISTRICT	EASEMENT FOR STORM DRAIN DACW09-2-70-40	2/24/70 - Indefinite	0.57	219-K-41
A-14	GENERAL TELEPHONE COMPANY	EASEMENT FOR COMMUNICATION FACILITIES DACW09-1-89-12	10-08-88/10-07-93	0.26	219-K-42
A-15	STATE OF CALIFORNIA DEPT. OF TRANSPORTATION	EASEMENT FOR CONTROLLED ACCESS HIGHWAY (ST. RTE. 210) DACW09-2-75-8	9/10/74 - Indefinite	22.11	219-K-43.1
P	CITY OF LOS ANGELES DEPT. OF WATER AND POWER	EASEMENT FOR WATER PUMPING STATION UNNUMBERED	07-09-51/07-08-01	0.09	UNK
A-19	CITY OF LOS ANGELES	EASEMENT FOR STORM DRAIN DACW09-2-72-51	4/13/72 - Permanent	0.164	219-K-47
A-20	CITY OF LOS ANGELES DEPARTMENT OF WATER & POWER	EASEMENT FOR WATER MAIN DACW09-2-76-64	7/27/76 - 1/07-26-26	0.301	219-K-48
A-21	CITY OF LOS ANGELES DEPARTMENT OF WATER & POWER	EASEMENT FOR POWER LINE DACW09-3-82-31	11-01-86/10-31-91	0.076	219-K-49
A-22	CITY OF LOS ANGELES	EASEMENT FOR SUBSURFACE SEWER STRUCTURE DACW09-2-84-7	10-12-83/10-11-2033	0.024	219-K-52
A-23	JH DEVELOPMENT INC. & ORANGE GROVE ENTERPRISES INC. HECTOR J. AQUILINO	DACW092-84-45 EASEMENT FOR DRAINAGE STRUCTURE	4-6-84/ 4-5-2034	0.024	219-K-53
A-24	GEORGE R. BROWN	DACW09-1-88-26 EASEMENT FOR TRAILER SPACE DAM TENDER	02-05-89/02-06-90	UNK	NO DRWG.
A-25	SHEILA U. MEARS	UNK	UNK	0.42	219-K-55
U-1	CITY OF LOS ANGELES	POWERLINE DACW09-2-88-33	11-03-88/11-02-13	UNK	219-K-56

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

EASEMENTS, PERMITS,
AND LICENSES (1989)
(for PLATE 2-5A)

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.
















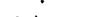




The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

The Plate you are attempting to access is not currently available.

For additional information, please contact the Los Angeles District Public Affairs Office at (213) 452-3908.

INVENTORY MAP KEY

	Notes concerning trail systems in basins
	Notes concerning right of way
	Notes concerning adjacent use
	Notes concerning proposed right-of-way use
	Notes concerning proposed adjacent use
	Existing Bike Path
	Proposed Bike Path
	Existing Equestrian Trail
	Proposed Equestrian Trail
	Existing Foot Trail
	Beginning of Reach
	Access into Right-of-way
	Undercrossing
	Direction of Undercrossing (inside/outside levee)
	Tunnel
	Bridge
	Park or Golf Course
	Equestrian Facility
	Boundary of Recreation Area
	Boundary of Study Area within Flood Control Basin
NP	Neighborhood Park
CP	Community Park
RP	Regional Park
GC	Golf Course
BF	Ballfield (Baseball, football, etc.)
HC	Hardcourt (Handball, basketball, etc.)
TC	Tennis Court
CS	Comfort Station
PL	Parking Lot
PA	Picnic Area
CA	Camping Area
OM	Operations and Maintenance (within recreation area)
AR	Archery Range
MF	Model Field
HS	High School
COL	College

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

RECREATIONAL MAP SYMBOLS

**U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT**

SOURCE: LACDA RECREATION REVIEW 1988

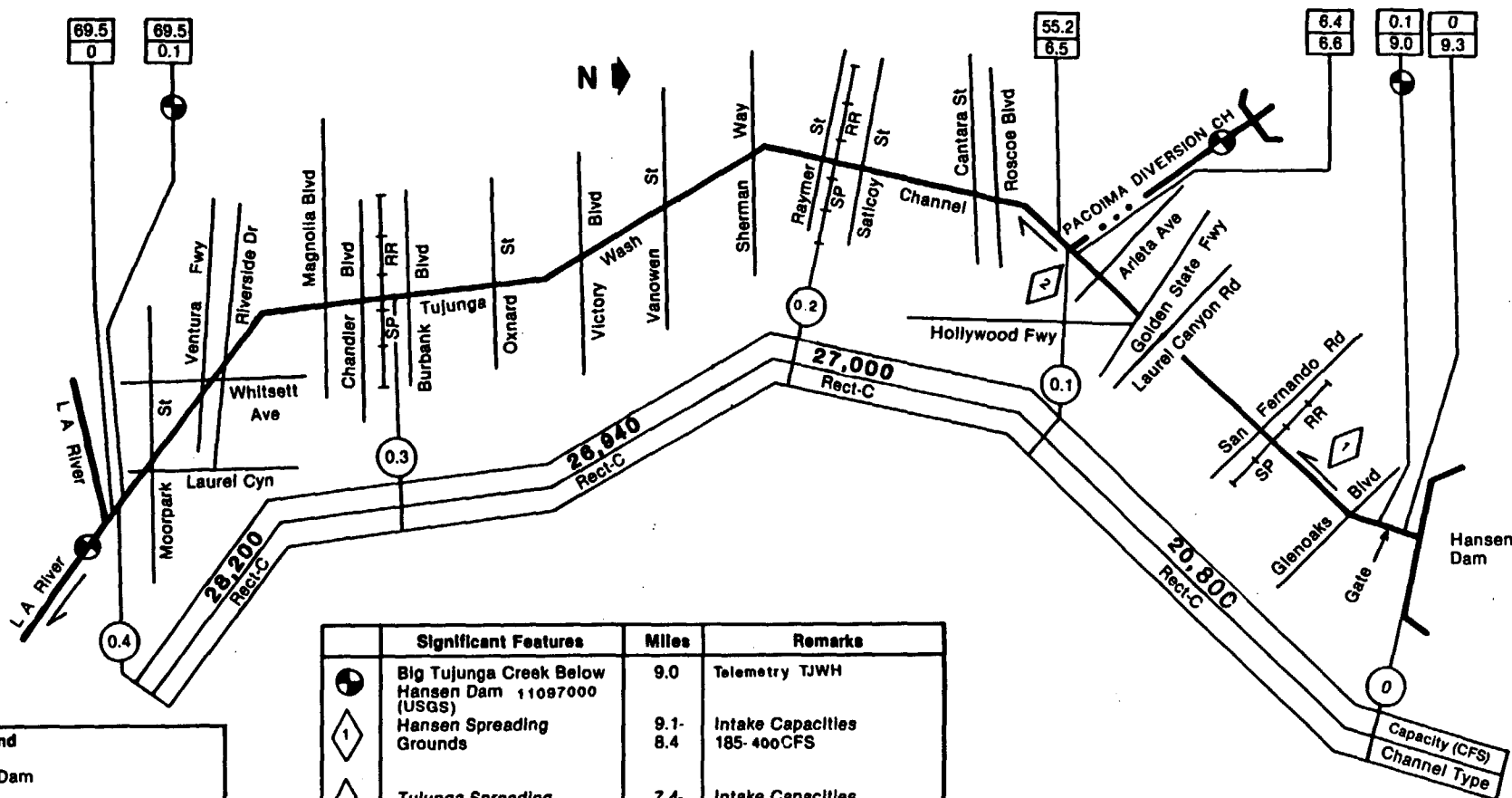
**Elevations Of Recreational And Other Facilities
In Hansen Reservoir**

Elev. (Ft. M.S.L.)	Structure In Basin
990.0	Invert Outlet Works
997-1030	Trails Within Lake Area
1000	Beach From Former Lake
1011	Ungated Outlets
1012-1017	Trails East Of Spillway
1012-1072	Hiking & Equestrian Access To Basin
1040-1080	Natural Area Orcas Ave. Park
1044-1088	Picnic & Day Camp Area
1055-1070	Paved Parking - Day Use Only
1060	Spillway Crest
1060-1070	Hansen Dam Sports Center Outdoor Theater Athletic Field Football Field
1061-1108	Equestrian Area
1062-1067	West Lake Development Maintenance Yard - Admin. Bldg.
1065-1070	Picnic Areas
1075-1080	2 Little League Fields
1087	Top Of Dam

**HANSEN DAM
TUJUNGA WASH, CALIFORNIA**

**ELEVATIONS OF FACILITIES
IN HANSEN RESERVOIR**

**U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT**



Legend	
	Dam
	Recharge Basin
	RD Rubber Dam
	Drop Structure
	Stream Gage
	Drainage Area
	Miles From Stream Mouth
	Travel Time (Hours)
	Foot Bridge
	Channel Unlined
	Rip Rap Side Slopes
	Soft Bottom
	Concrete
	Grouted Stone
	Side Slope
	Bottom
	Levee

Significant Features	Miles	Remarks
Big Tujuanga Creek Below Hansen Dam 11097000 (USGS)	9.0	Telemetry TJWH
Hansen Spreading Grounds	9.1-8.4	Intake Capacities 185-400 CFS
Tujuanga Spreading Grounds	7.4-6.5	Intake Capacities 390-400 CFS
Upstream Dams on Pacoima Wash 1. Lopez 2. Pacoima		Flows on Pacoima Wash Regulated by These Dams
Pacoima Diversion at Branford St. F305-R (LACDPW)		
Los Angeles River at Tujuanga Ave. F300-R (LACDPW)	0	Telemetry LART
Tujuanga Wash below Moorpark St. F105B-R (LACDPW)	0.1	

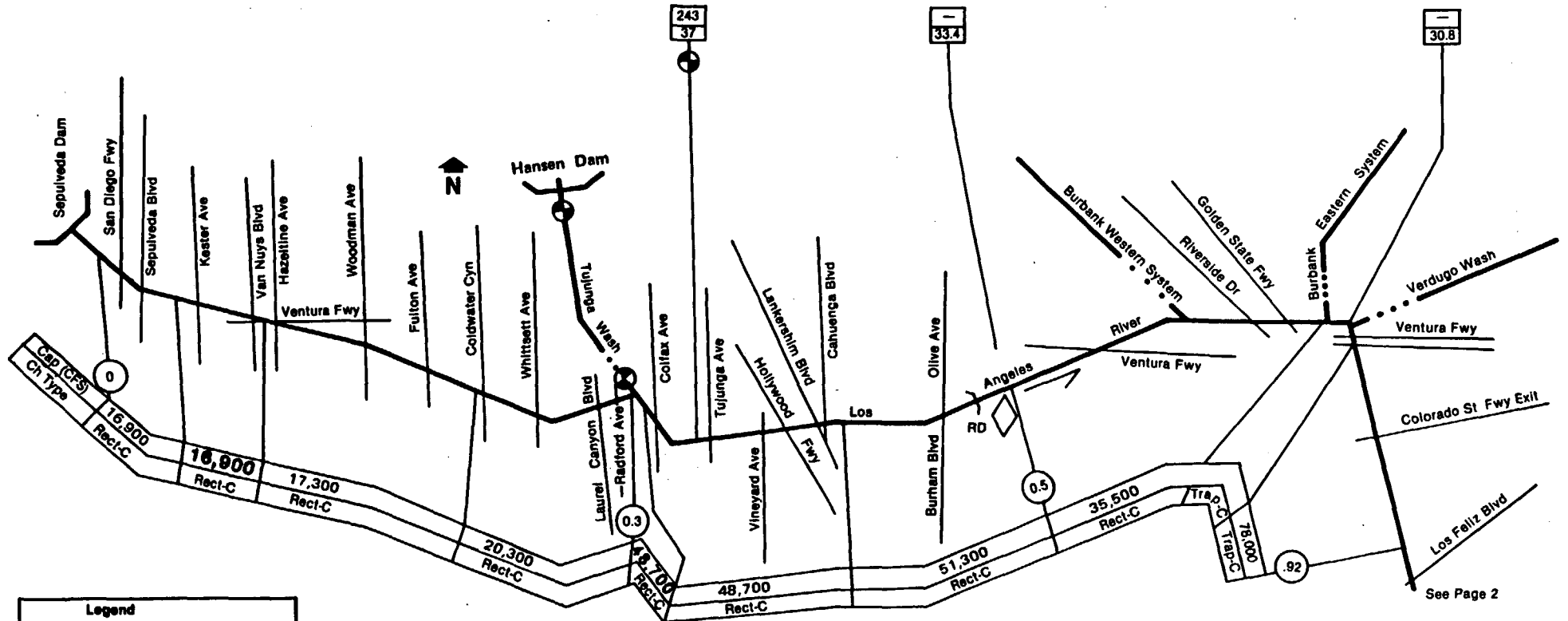
HANSEN DAM
TUJUNGA WASH, CALIFORNIA

CHANNEL CAPACITIES & CONFIGURATION
TUJUNGA WASH

HANSEN DAM
TO
LOS ANGELES RIVER

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

SOURCE: LACDA REVIEW PART 1 HYDROLOGY REPORT



See Page 2

Legend	
	Dam
	Recharge Basin
	RD Rubber Dam
	Drop Structure
	Stream Gage
	Drainage Area
	Miles From Stream Mouth
	Travel Time (Hours)
	Foot Bridge
	Channel Unlined
	Rip Rap Side Slopes
	Soft Bottom
	Concrete
	Grouted Stone
	Side Slope
	Bottom
	Levee

	Significant Features	Miles	Remarks
	Headworks Spreading Grounds	33.4	Intake Capacity 40 CFS at Rubber Dam
	Los Angeles River at Tujunga AVE F 300-R (LACDPW)	37	Telemetry LART
	Tujunga Wash below Moorpark St F 105B-R (LACDPW)	37.8	Flows Regulated by Hansen, Big Tujunga, Pacoima and Lopez Dams
	Big Tujunga Creek below Hansen Dam 11097000 (USGS)		

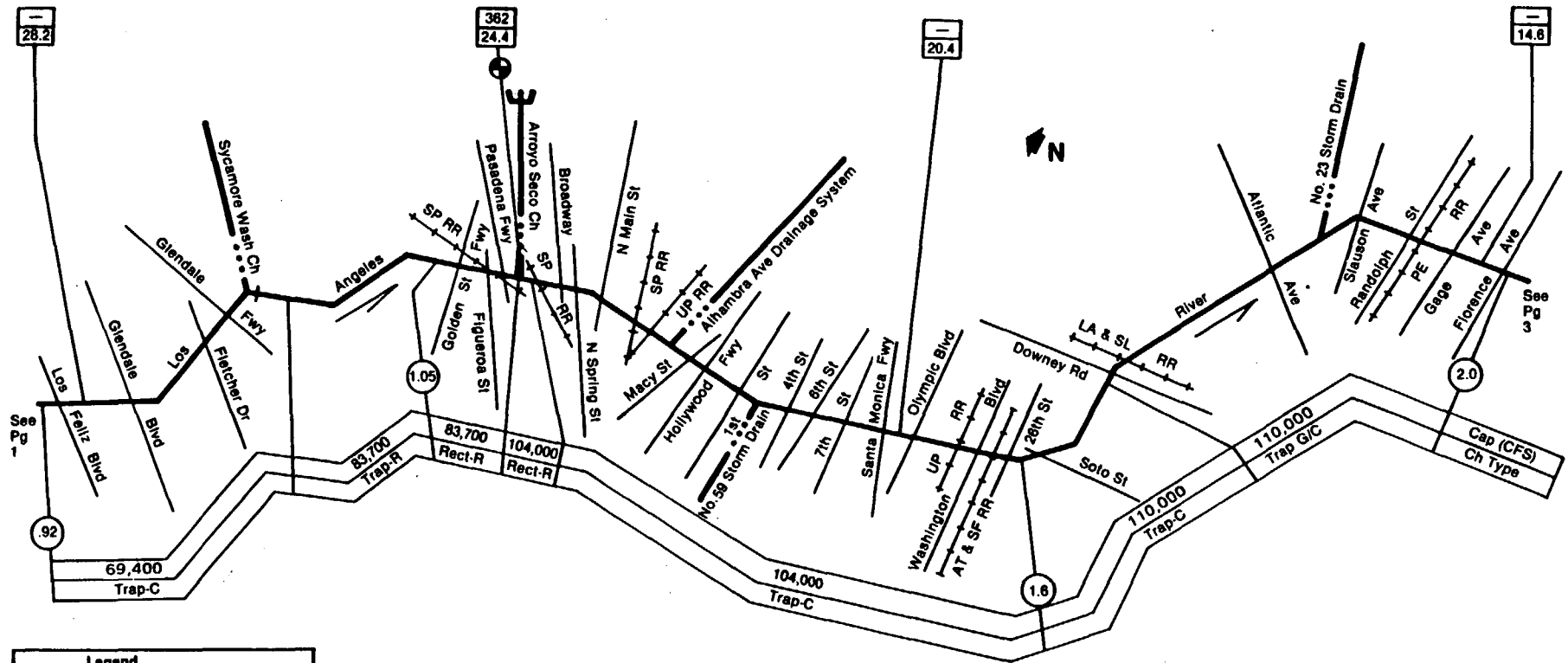
SOURCE: LACDA REVIEW PART 1 HYDROLOGY REPORT

**HANSEN DAM
TUJUNGA WASH, CALIFORNIA**

**CHANNEL CAPACITIES & CONFIGURATION
LOS ANGELES RIVER**

**SEPULVEDA DAM
TO
LOS FELIZ BLVD**

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



Legend

- Dam
- Recharge Basin
- RD Rubber Dam
- Drop Structure
- Stream Gage
- Drainage Area
- Miles From Stream Mouth
- Travel Time (Hours)
- Foot Bridge
- Channel Unlined
- Rip Rap Side Slopes
- Soft Bottom
- Concrete
- Grouted Stone
- Side Slope
- Bottom
- Levee

	Significant Features	Miles	Remarks
●	Los Angeles River Above Arroyo Seco Fwy (LACOPW)	24.4	Telemetry LARA
●	Arroyo Seco Channel	24.3	Flow Regulated by Devils Gate Dam (Max Q= 43,000 CFS)

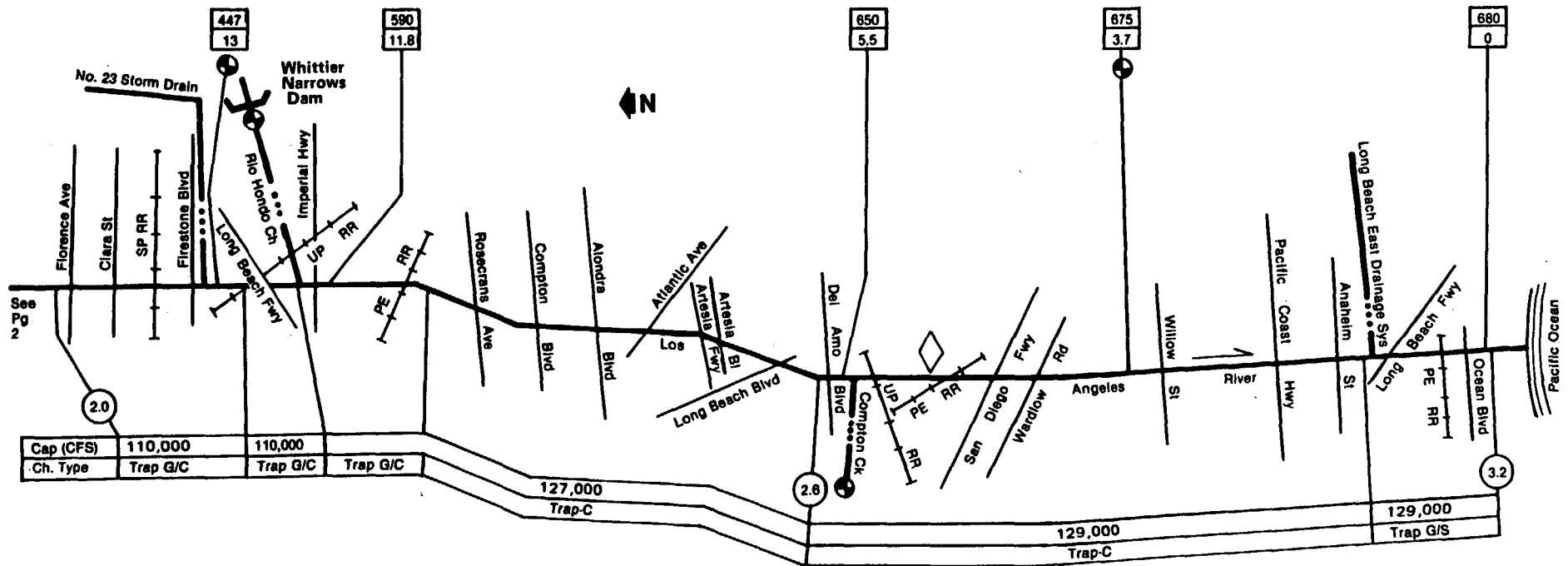
HANSEN DAM
TUJUNGA WASH, CALIFORNIA

CHANNEL CAPACITIES & CONFIGURATION
LOS ANGELES RIVER

LOS FELIZ BLVD
TO
FLORENCE AVE

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

SOURCE: LACDA REVIEW PART 1 HYDROLOGY REPORT



Cap (CFS)	110,000	110,000	
Ch. Type	Trap G/C	Trap G/C	Trap G/C
	127,000		
	Trap-C		
		129,000	
		Trap-C	
			129,000
			Trap G/S

Legend

- Dam
- Recharge Basin
- RD Rubber Dam
- Drop Structure
- Stream Gage
- Drainage Area Miles From Stream Mouth
- Travel Time (Hours)
- Foot Bridge
- Channel Unlined
- Rip Rap Side Slopes
- Soft Bottom
- Concrete
- Grouted Stone
- Side Slope
- Bottom
- Levee

Significant Features	Miles	Remarks
Los Angeles River below Firestone F340-R (LACDPW)	13	Telemetry LARF
Rio Hondo below Whittier Narrows Dam 11102300 (USGS)	12.1	Flows Regulated by Whittier Narrows Flood Control Reservoir
Dominguez Gap	4.7	Intake Capacities
Spreading Grounds	5.1	3-20 CFS
Los Angeles River below Wardlow F318-R (LACDPW)	3.7	Telemetry LARW
Compton Creek Near Greenleaf F378-R (LACDPW)		Telemetry CCKG

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

CHANNEL CAPACITIES & CONFIGURATION
LOS ANGELES RIVER

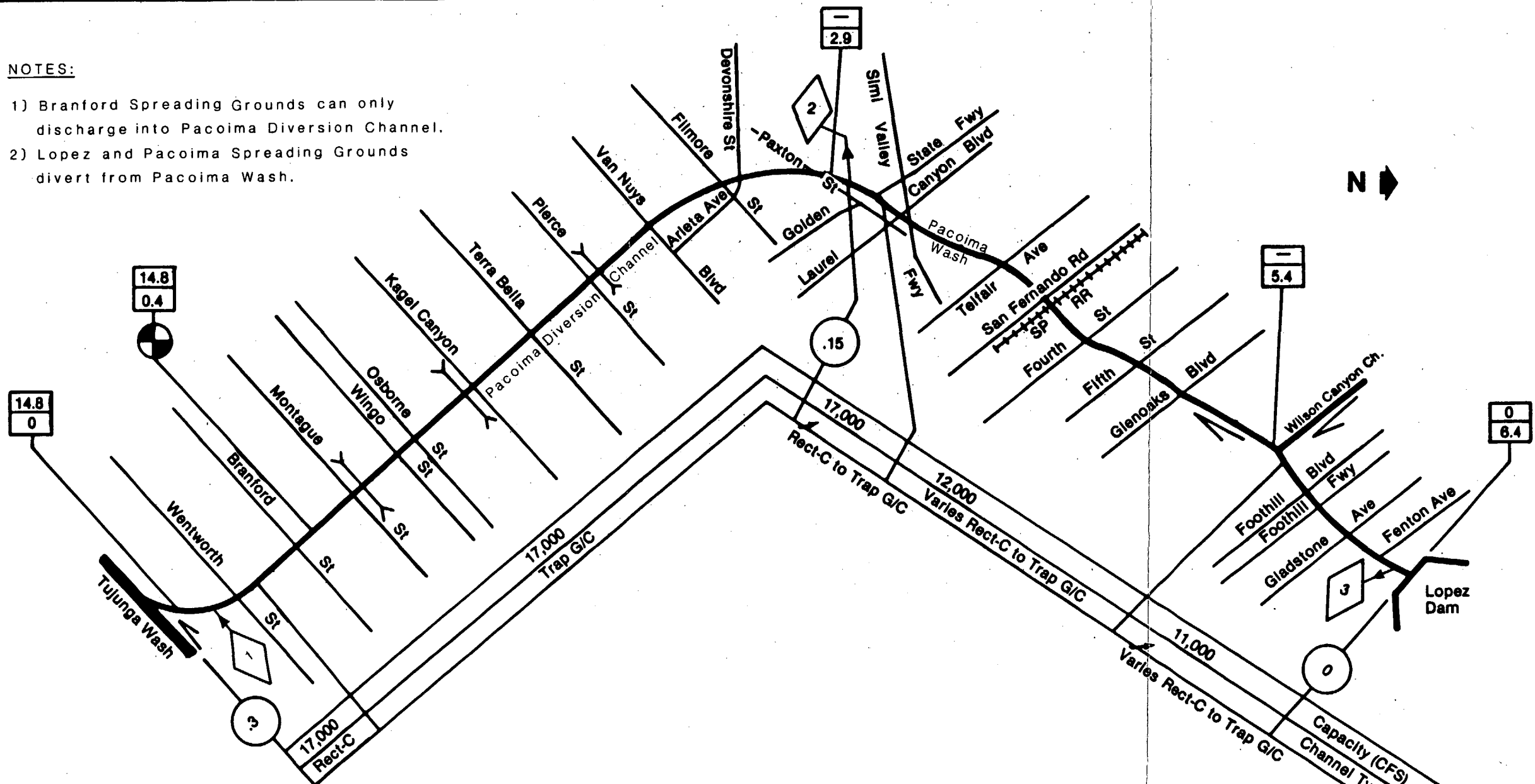
FLORENCE AVE
TO
PACIFIC OCEAN

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

SOURCE: LACDA REVIEW PART 1 HYDROLOGY REPORT

NOTES:

- 1) Branford Spreading Grounds can only discharge into Pacoima Diversion Channel.
- 2) Lopez and Pacoima Spreading Grounds divert from Pacoima Wash.



Legend	
⌒	Dam
◇	Recharge Basin
⊕	Stream Gage
⊞	Drainage Area Miles From Stream Mouth
○	Travel Time (Hours)
⌒	Foot Bridge
C	Concrete
G	Grouted Stone
G/C	Side Slope
L	Bottom Levee

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

CHANNEL CAPACITIES & CONFIGURATION
PACOIMA WASH

LOPEZ DAM
TO
TUJUNGA WASH

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

Hansen Dam Reservoir Regulation Schedule
(For rising and falling stages)

Step No.	When reservoir water surface is between elevation	Gate setting for gates as indicated								Total Computed discharges	Downstream gauge height**
	Feet - NGVD	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	ft ³ /s	Feet
		Feet of opening	Feet of opening	Feet of opening	Feet of opening	Feet of opening	Feet of opening	Feet of opening	Feet of opening		
<u>Follow Step 1 during rising stages</u>											
1..	990.0 - 1,010.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0 to 1,260	0.97 - 2.52
<u>Follow Steps 2 to 9 during rising or falling stages</u>											
2..	1,010.5 - 1,053.0*	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7,920 to 20,730	5.61 - 9.30
3..	1,053.0 - 1,060.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0	8.0	19,370 to 20,520	8.88 - 9.22
4..	1,060.0 - 1,061.0	8.0	6.0	6.0	8.0	8.0	6.0	6.0	8.0	19,400 to 20,430	8.89 - 9.20
5..	1,061.0 - 1,062.0	7.0	6.0	6.0	7.0	7.0	6.0	6.0	7.0	18,960 to 20,740	8.78 - 9.29
6..	1,062.0 - 1,063.0	5.0	6.0	6.0	4.0	4.0	6.0	6.0	5.0	18,160 to 20,430	8.56 - 9.20
7..	1,063.0 - 1,064.0	5.0	3.0	3.0	4.0	4.0	3.0	3.0	5.0	17,580 to 20,280	8.41 - 9.15
8..	1,064.0 - 1,065.0	5.0	0	3.0	4.0	0	3	0	5.0	17,590 to 20,680	8.42 - 9.26
9..	1,065.0 - 1,066.0	0	0	3.0	1.0	0	3	0	0	17,300 to 20,660	8.35 - 9.26
<u>Spillway and ungated flow</u>											
10..	1,066.0 - 1,067.0	0	0	0	0	0	0	0	0	18,690 to 22,420	8.70 - 9.71
	Above 1,067.0	0	0	0	0	0	0	0	0	22,420+	9.71+

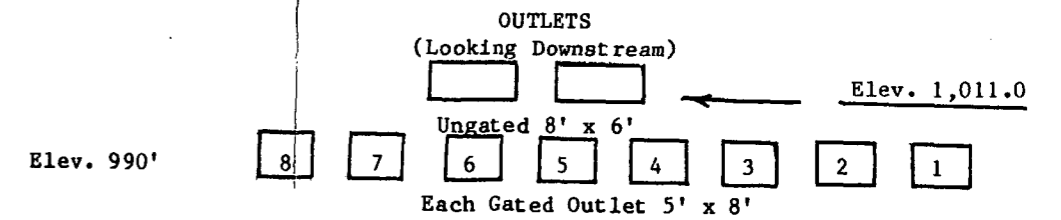
*During falling stages the gates shall be left fully open to drain the reservoir completely. Then the gates shall be set at 1.0 feet.
 **Source for elevations up to 8.30 feet from USGS Rating Table No. 5; for elevations greater than 8.30 feet values were extrapolated from USGS data.
 *** It may be necessary to regulate discharge according to downstream emergency conditions as authorized by the District Office.

DAM OPERATOR INSTRUCTIONS

1. Communication with the District Office is available. ***
 - a. Notify the Reservoir Operations Center when a gate change will be required according to the schedule.
 - b. Notify the Reservoir Operations Center if unable to set the gates as instructed.
2. Communication with the District Office is not available.
 - a. Try to reestablish communications through the Los Angeles County Flood Control DPW (WUK470).
 - b. (i) Rising stages. Allow a period of one hour to pass to reestablish communications with the District Office. If, after one hour, communication is not reestablished, follow the gate operation schedule.
 (ii) Falling stages. Maintain current downstream gauge height until communication is reestablished.
 - c. If one or more of the gates cannot be operated, adjust the remaining gates gradually and uniformly until the downstream gauge height agrees with scheduled values. Keep a close check on gauge height and change the gate opening as often as required. If the downstream gauge height is unobtainable, adjust the gates that are functioning so that the sum of the gate openings will equal the sum of the openings shown in the schedule.
3. Trash Blockage.

If outlets become blocked with trash, increase gate openings to maintain scheduled downstream gauge height.
4. Notification to Los Angeles County DPW and to Los Angeles City DWP.

Notify personnel at Los Angeles County DPW and Los Angeles City DWP of the impending flood releases so that these agencies can take whatever action is necessary to mitigate damage to their spreading grounds downstream.



Estimated and Projected Annual Sediment Removal
from Hansen Dam (1981 - 1990)

Year	Sediment Removed	
	3 Yd	Ac-Ft
1981	131,600	82
1982	197,000	122
1983	208,400	129
1984	337,267	209
1985	406,933	253
1986	1,382,071	857
1987	1,792,504	1111
1988	2,381,695	1477
* 1989	2,838,202	1760
* 1990	2,128,652	1320

* Projected, based on Operations Branch records

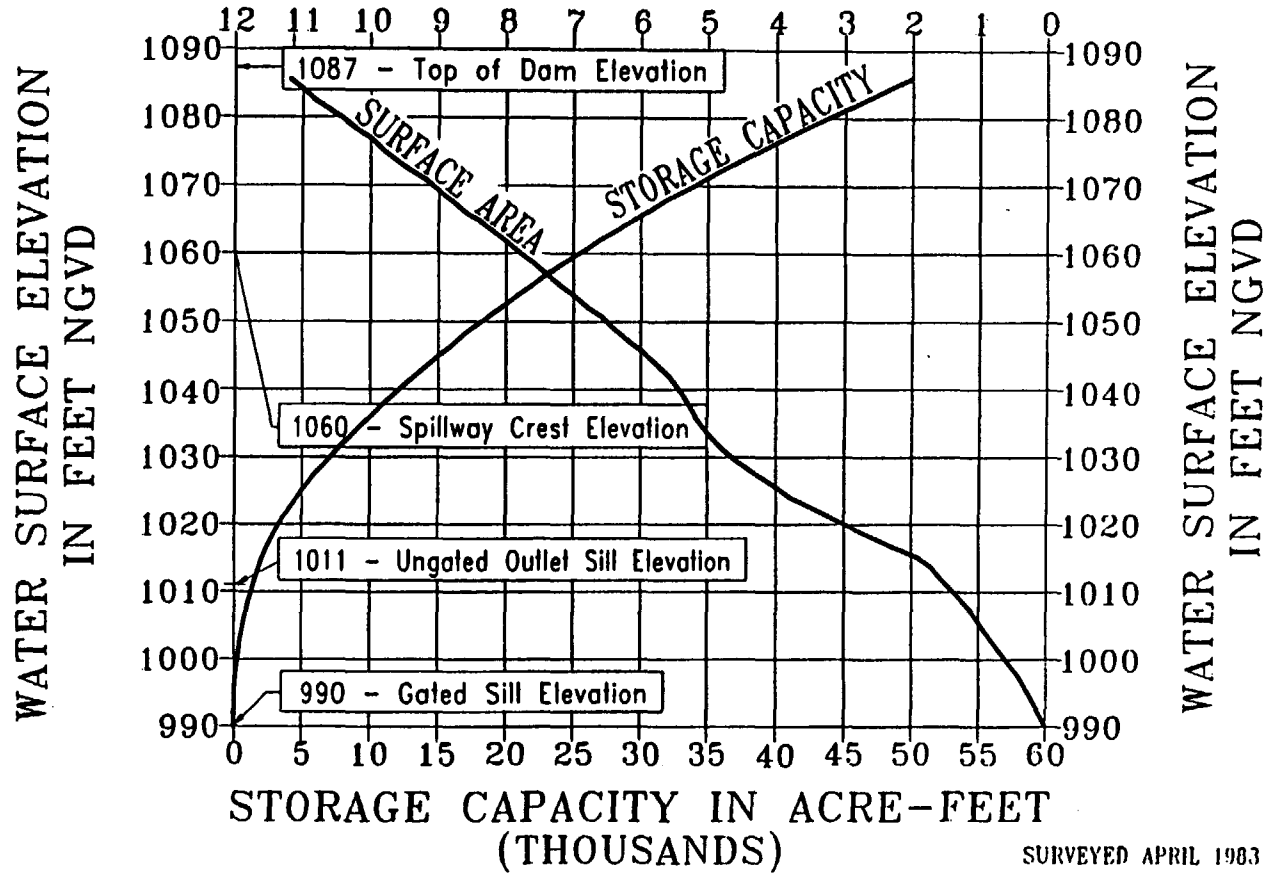
HANSEN DAM
TUJUNGA WASH, CALIFORNIA

ANNUAL SEDIMENT REMOVAL
FROM HANSEN DAM (1981-1990)

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

HANSEN DAM

SURFACE AREA IN ACRES
(HUNDREDS)



SOURCE: 1983 RESERVOIR SEDIMENT SURVEY

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

AREA-CAPACITY CURVE

U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS

RESERVOIR SEDIMENT
DATA SUMMARY

(Continued)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

NAME OF RESERVOIR

DATA SHEET NO.

DAM	1. OWNER		2. STREAM		3. STATE			
	4. SEC.	TWP.	RANGE		5. NEAREST P.O.			
	7. LAT.		" LONG.		8. TOP OF DAM ELEVATION			
RESERVOIR	10. STORAGE ALLOCATION		11. ELEVATION TOP OF POOL		12. ORIGINAL SURFACE AREA, ACRES			
	a. FLOOD CONTROL				13. ORIGINAL CAPACITY, ACRE-FEET			
	b. MULTIPLE USE				14. GROSS STORAGE, ACRE-FEET			
	c. POWER				15. DATE STORAGE BEGAN			
	d. WATER SUPPLY				16. DATE NORMAL OPER. BEGAN			
	e. IRRIGATION							
	f. CONSERVATION							
	g. INACTIVE							
WATERSHED	17. LENGTH OF RESERVOIR		MILES		AV. WIDTH OF RESERVOIR			
	18. TOTAL DRAINAGE AREA		SQ. MI.		22. MEAN ANNUAL PRECIPITATION			
	19. NET SEDIMENT CONTRIBUTING AREA		SQ. MI.		23. MEAN ANNUAL RUNOFF			
	20. LENGTH		MILES		AV. WIDTH			
	21. MAX. ELEV.		MIN. ELEV.		25. ANNUAL TEMP. MEAN			
SURVEY DATA	26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I. RATIO, AC.-FT. PER AC.-FT.
	Jul 82	3.75	41.83	Contour	2'	776	26,695	
	Apr 83	0.75	42.58				25,446	
	26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.		
	Aug 69	27.58	a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE	
	Oct 78	28.47	41,997	180,372	318,336	23,666	834,197	
	Jul 82	30.51	25,978	163,185	238,217	24,223	922,414	
			58,396	115,809	218,985	27,287	1,141,399	
	26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET			
	Oct 78	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	
Jul 82	3,613	394.00	2.70	9,713	255.07	1.75		
Apr 83	-608	Excavation increased storage capacity.						
	1,249							
26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW, PPM		
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE	

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION													
	-70	70-50	50-30	30-Crest										
Oct 78 Jul 82	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
	12	34	45	9	Excavation increased storage capacity.									
26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR													
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION													
45. RANGE IN RESERVOIR OPERATION														
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.							
1969-70	1007.32	993.97	16,886	1981-82	1010.60	996.86	39,755							
1970-71	1009.36	995.23	14,996											
1971-72	1004.62	993.50	2,273											
1972-73	1015.34	992.91	15,626											
1973-74	1010.48	996.35	7,829											
1974-75	1007.06	994.77	6,565											
1975-76	1006.72	994.57	5,222											
1976-77	1007.20	996.45	5,635											
1977-78	1023.90	994.92	163,185											
1978-79	1016.72	991.10	55,429											
1979-80	1025.30	996.31	115,809											
1980-81	999.05	997.00	10,054											
46. ELEVATION-AREA-CAPACITY DATA														
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY						

47. REMARKS AND REFERENCES

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

RESERVOIR SEDIMENT DATA SURVEY

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

48. AGENCY MAKING SURVEY

49. AGENCY SUPPLYING DATA

Summary of Climatological Data at Burbank, California,
Hansen Flood Control Basin, Los Angeles County Drainage
Area, California.*

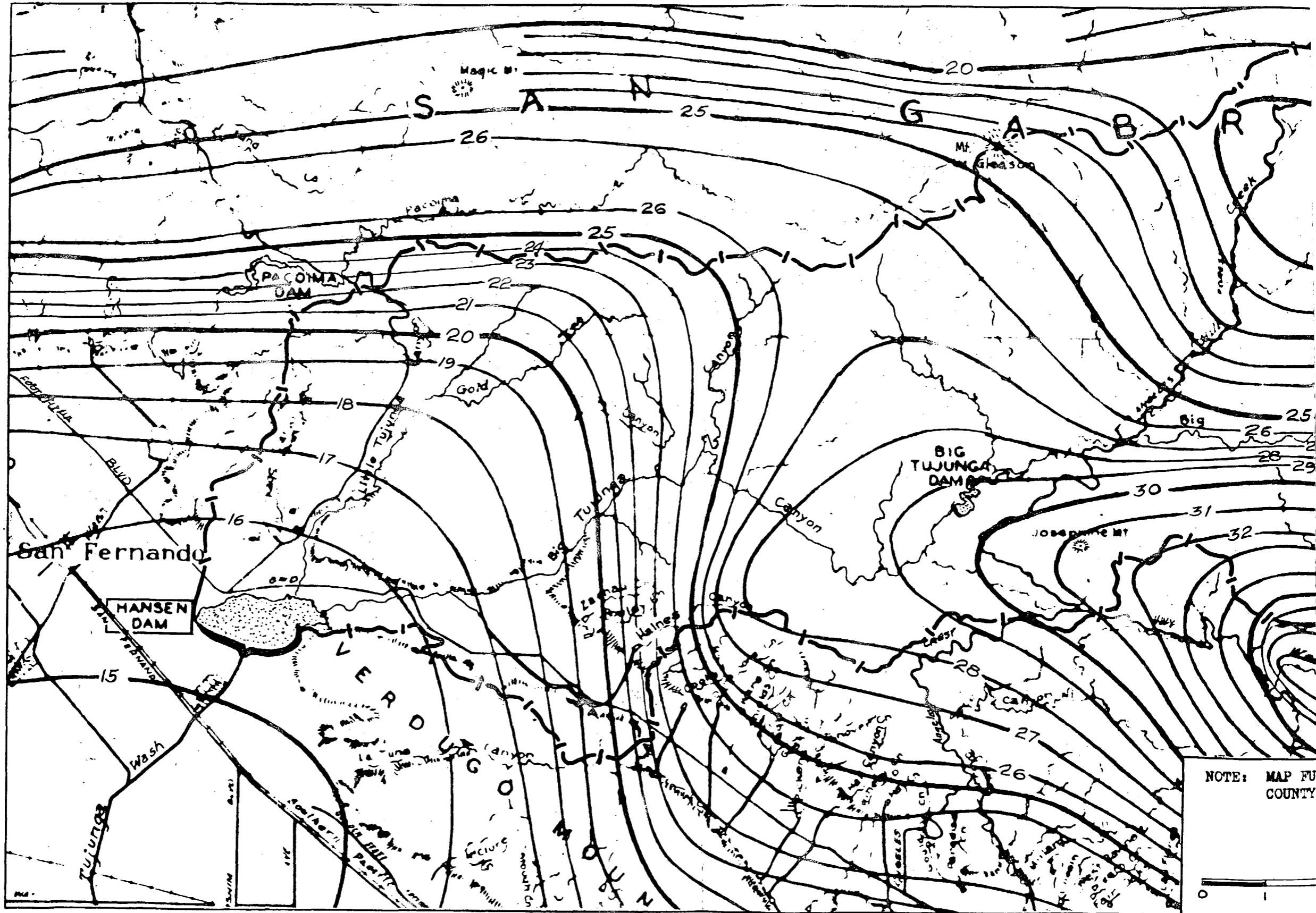
Month	Temperature			Precipitation	
	Mean Monthly Degrees Fahren- heit	Record Highest Degrees Fahren- heit	Record Lowest Degrees Fahren- heit	Mean Monthly Inches	Maximum Monthly Inches
Jan.....	53.8	92	22	3.77	14.16
Feb.....	56.3	92	27	3.33	15.19
Mar.....	57.5	96	22	2.52	12.87
Apr.....	60.6	100	32	1.24	5.66
May.....	64.5	106	39	0.28	3.79
Jun.....	69.3	111	43	0.04	0.31
Jul.....	75.1	108	45	0.01	0.05
Aug.....	75.2	110	46	0.14	2.97
Sep.....	73.1	113	45	0.24	3.89
Oct.....	67.1	108	33	0.31	2.42
Nov.....	59.6	98	29	1.94	10.63
Dec.....	54.7	92	22	1.96	6.84

*34°12'N latitude 118°22'W longitude; elevation 699 feet above mean sea level.
NOTE: Period of record is 30 years (1951-1980)

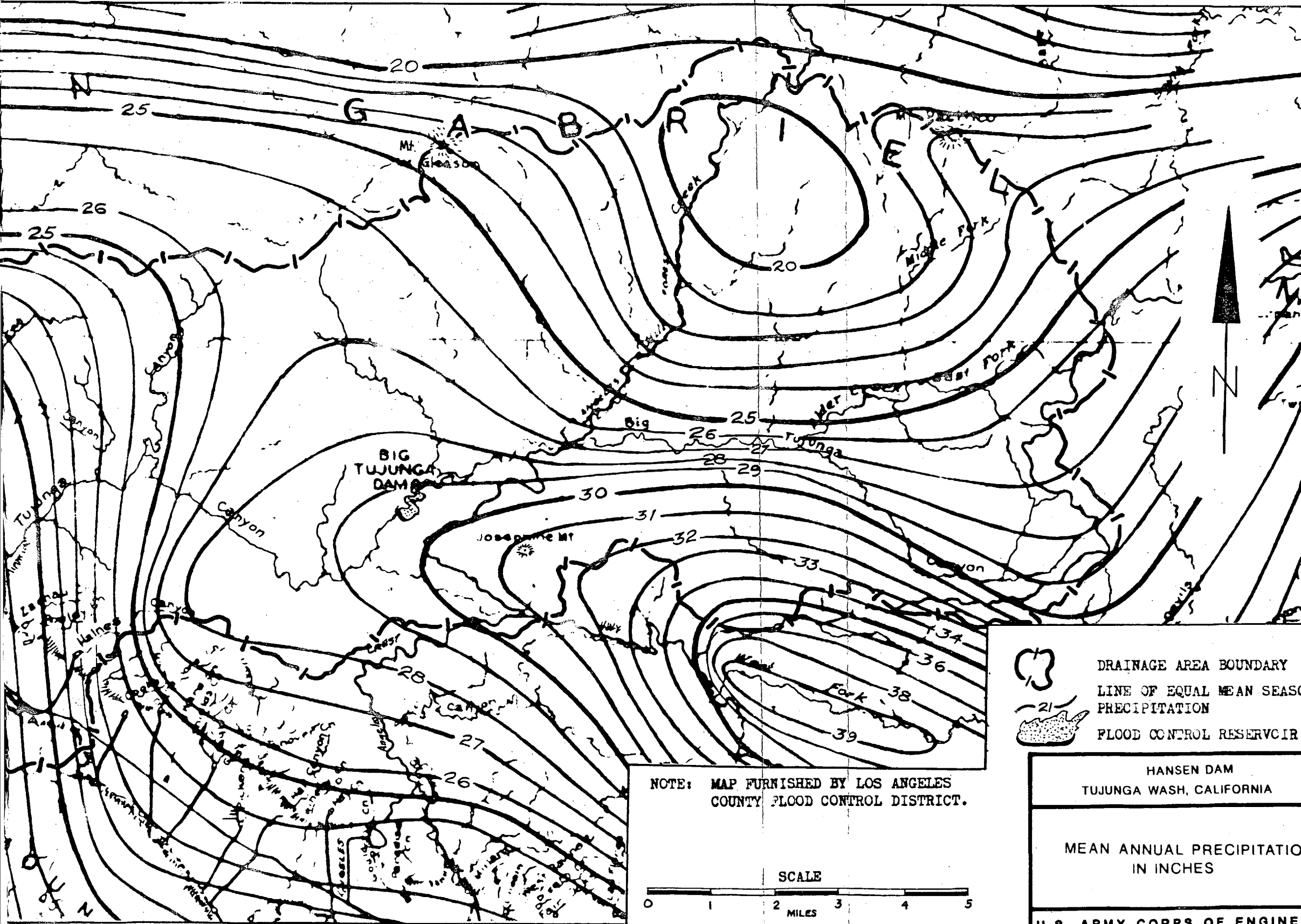
HANSEN DAM
TUJUNGA WASH, CALIFORNIA




SUMMARY OF CLIMATOLOGICAL DATA
AT BURBANK, CA

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

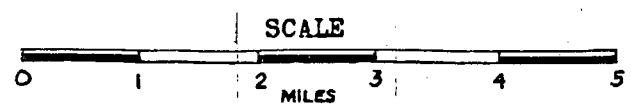


SOURCE: LACDPW



-  DRAINAGE AREA BOUNDARY
-  LINE OF EQUAL MEAN SEASONAL PRECIPITATION
-  FLOOD CONTROL RESERVOIR

NOTE: MAP FURNISHED BY LOS ANGELES COUNTY FLOOD CONTROL DISTRICT.



HANSEN DAM
TUJUNGA WASH, CALIFORNIA

MEAN ANNUAL PRECIPITATION
IN INCHES

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

**Summary of Precipitation Data at Hansen Dam and
Three Stations in Watershed above Dam.**

<u>LACDPW Number</u>	<u>Station Name</u>	<u>Lat (N)</u>	<u>Long (W)</u>	<u>Elev (feet)</u>	<u>Period of Record</u>
46D-E	Big Tujunga Dam	34-17-40	118-11-14	2315	1924 - 1988
436C	Hansen Dam	34-16-08	118-23-59	1110	1938 - 1988
488B	Kagel Canyon Ptl Stn	34-17-45	118-22-30	1450	1943 - 1987
54C	Lomis Ranch Alder Cr	34-20-55	118-02-54	4325	1916 - 1987

**MEAN AND MAXIMUM OBSERVED MONTHLY AND ANNUAL PRECIPITATION VALUES (INCHES)
PLUS MAXIMUM OBSERVED DAILY VALUES (INCHES), BY MONTH:**

<u>LACDPW NO:</u>	<u>46D-E</u>			<u>436C</u>		
	MEAN	MAXIMUM		MEAN	MAXIMUM	
		Monthly	Daily		Monthly	Daily
JAN	5.58	33.39	14.39	2.81	14.39	3.84
FEB	5.86	21.12	11.24	2.96	13.16	4.83
MAR	4.60	20.38	10.83	2.33	11.92	5.61
APR	2.31	9.86	3.60	1.17	6.25	2.30
MAY	0.66	6.59	4.38	0.33	2.88	1.84
JUN	0.14	1.80	1.08	0.07	0.55	0.25
JUL	0.06	0.15	0.15	0.03	0.24	0.24
AUG	0.14	1.60	1.28	0.07	2.90	2.77
SEP	0.43	5.61	3.19	0.22	3.44	3.03
OCT	0.97	6.07	5.28	0.49	2.29	1.39
NOV	2.83	24.86	5.59	1.43	12.63	4.91
DEC	<u>5.01</u>	15.58	8.19	<u>2.53</u>	7.94	3.45
ANNUAL	28.59	60.68		14.44	46.45	

<u>LACDPW NO:</u>	<u>488B</u>			<u>54C</u>		
	MEAN	MAXIMUM		MEAN	MAXIMUM	
		Monthly	Daily		Monthly	Daily
JAN	3.24	12.50	4.22	3.63	17.87	9.69
FEB	3.40	13.81	4.02	3.82	14.82	8.13
MAR	2.68	12.03	4.83	3.00	15.50	5.90
APR	1.35	6.54	2.75	1.51	13.04	5.48
MAY	0.38	4.38	2.15	0.43	4.80	2.60
JUN	0.08	0.62	0.45	0.09	0.68	0.45
JUL	0.03	0.19	0.17	0.04	2.15	2.15
AUG	0.08	3.15	2.64	0.09	2.00	1.60
SEP	0.25	3.30	1.97	0.28	6.38	5.25
OCT	0.57	2.18	1.18	0.63	4.50	2.25
NOV	1.64	10.75	2.05	1.84	13.66	6.93
DEC	<u>2.91</u>	7.54	3.86	<u>3.26</u>	17.30	7.43
ANNUAL	16.61	42.47		18.62	40.56	

- NOTES: 1. Minimum observed monthly values are approximately zero at each stn.
2. Data were obtained from Los Angeles County Dept. of Public Works (LACDPW).

HANSEN DAM TUJUNGA WASH, CALIFORNIA
SUMMARY OF PRECIPITATION DATA HANSEN WATERSHED
U.S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT

Precipitation Frequency Values (Inches) for Hansen Watershed.

DURATION	RETURN PERIOD					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
5-MIN	0.19	0.29	0.36	0.45	0.51	0.58
10-MIN	0.30	0.46	0.46	0.70	0.80	0.90
15-MIN	0.37	0.58	0.71	0.88	1.01	1.14
30-MIN	0.52	0.80	0.98	1.23	1.40	1.58
1-HR	0.66	1.02	1.25	1.55	1.77	1.99
2-HR	0.99	1.53	1.88	2.34	2.67	3.00
3-HR	1.30	2.01	2.47	3.08	3.53	3.96
6-HR	2.03	3.15	3.89	4.82	5.52	6.20
12-HR	3.04	5.01	6.28	7.96	9.19	10.40
24-HR	4.04	6.87	8.74	11.10	12.86	14.60

- NOTES: 1. Values from NOAA Atlas 2 data, are for a site at the centroid of the watershed above Hansen Dam at latitude 34°19'N, longitude 118°11'W, elevation 3900 feet.
 2. All values are for annual series.

HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

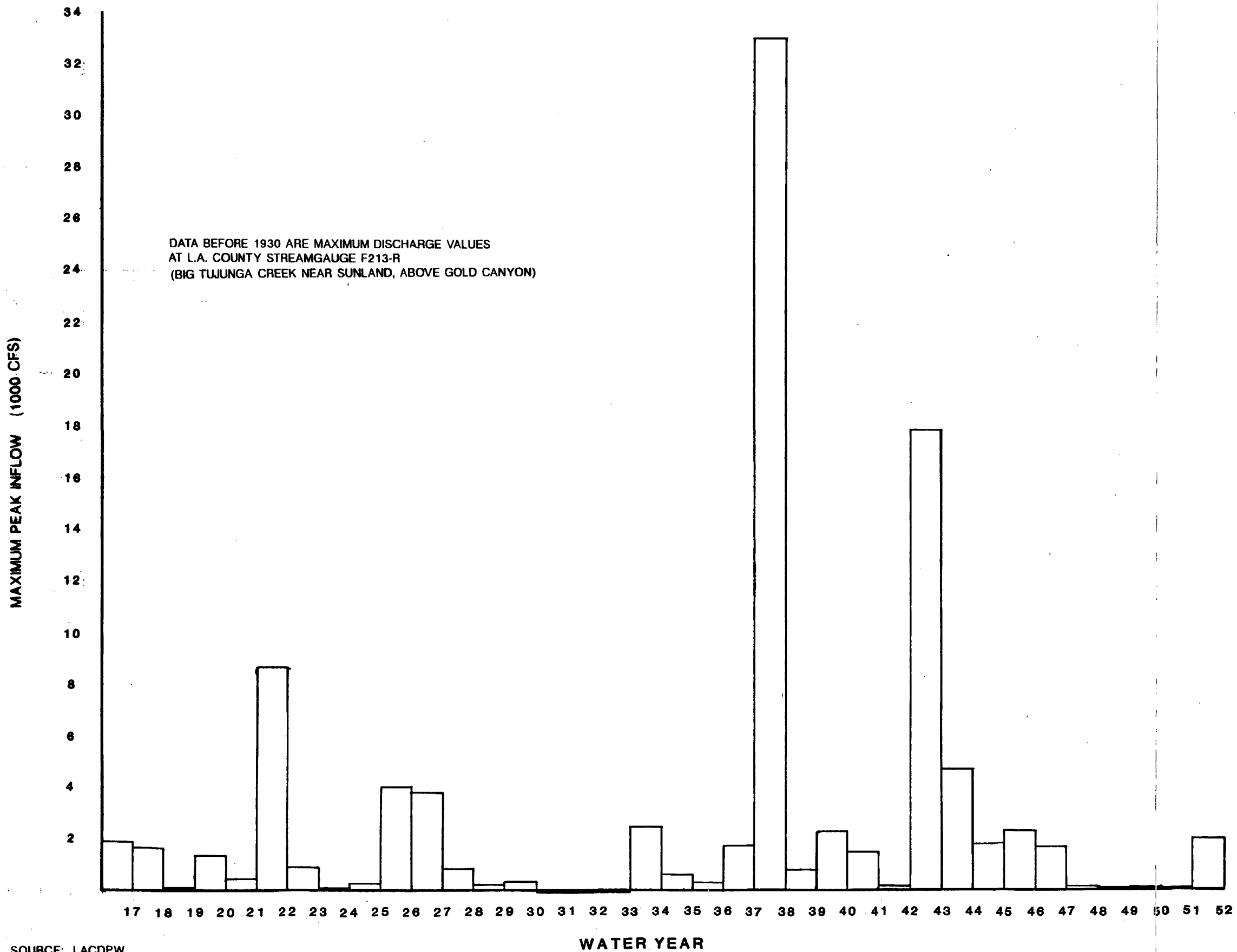
PRECIPITATION FREQUENCY VALUES
 FOR HANSEN WATERSHED

U.S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT

ANNUAL MAXIMUM INFLOW, OUTFLOW, AND STORAGE OF WATER AT HANSEN DAM

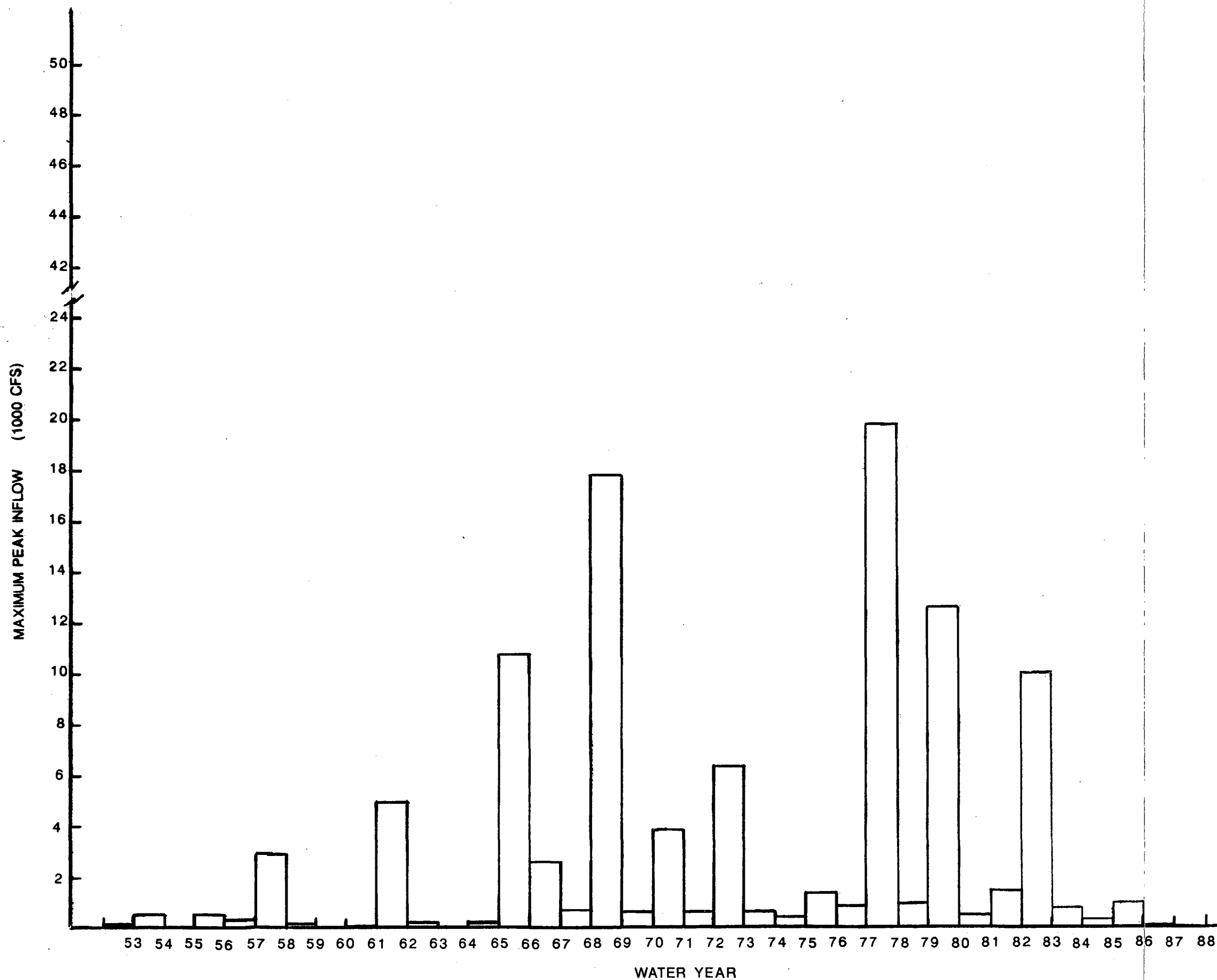
Water Year	Peak Inflow (cfs)	Date	Peak Outflow (cfs)	Date	Maximum	Max.	Date	Annual Inflow (ac-ft)
					Water Surface Elevation (ft., NGVD)	Storage (ac-ft)		
1941-42	678	28 Dec	58	31 Dec	992.40	2126	30 Dec	9870
1942-43	18860	23 Jan	1640	25 Jan	1036.47	18743	24 Jan	75930
1943-44	6600	22 Feb	1020	24 Feb	1022.32	11622	23 Feb	59720
1944-45	1320	2 Feb	707	5 Feb	1004.02	4807	1 Oct	14310
1945-46	1200	30 Mar	610	23 Dec	1010.62	6876	7 Apr	12206
1946-47	608	27 Dec	455	28 Dec	996.67	2934	27 Dec	17160
1947-48	33	5 Feb	2	5 Feb	990.40	1812	6 Jun	1722
1948-49	4	26 Feb	0		986.72	1275	1 Oct	93
1949-50	18	6 Feb	0		977.86	415	4 Mar	250
1950-51	4	29 Jan	0		973.24	132	1 Oct	34
1951-52	2835	18 Jan	2550	25 Jan	1023.90	12354	22 Jan	32175
1952-53	110	15 Nov	3	27 Apr	999.27	3541	9 Jan	1430
1953-54	286	4 Mar	471	3 Mar	995.82	2751	10 Mar	5090
1954-55	960	18 Jan	2	3 days	985.79	1139	23 Jan	712
1955-56	411	26 Jan	4	2 days	993.83	2364	1 Feb	2100
1956-57	32	1 Mar	2	12 Jan	981.80	557	18 Mar	495
1957-58	1327	4 Apr	1450	4 Apr	1012.54	7556	16 Apr	34113
1958-59	339	16 Feb	333	25 Feb	997.51	3123	25 Feb	2165
1959-60	13	11 Jan	0		983.52	808	28 Aug	330
1960-61	39	5 Nov	0		985.98	1167	27 Nov	486
1961-62	4603	10 Feb	3159	12 Feb	1011.19	6275	12 Feb	25153
1962-63	173	9 Feb	0		988.69	1219	14 Feb	765
1963-64	64	20 Jan	0		985.35	862	3 Apr	645
1964-65	146	9 Apr	0		992.83	1755	13 Apr	1484
1965-66	5200	22 Nov	3147	24 Nov	1017.54	8705	30 Dec	57363
1966-67	3133	6 Dec	405	22 Dec	1013.58	7140	9 Dec	41175
1967-68	1050	21 Nov	305	22 Apr	1007.33	5014	23 Nov	16581
1968-69	26012	25 Feb	15993	25 Feb	1030.78	14872	25 Feb	180372
1969-70	1640	6 Nov	144	3 Mar	1007.32	2761	5 Mar	16886
1970-71	2771	29 Nov	212	1 Mar	1009.36	3209	1 Dec	14996
1971-72	482	27 Dec	275	29 Dec	1004.62	2239	29 Dec	2273
1972-73	3205	11 Feb	269	21 Feb	1015.34	4882	12 Feb	15626
1973-74	1220	7 Jan	404	1 Apr	1010.48	3480	8 Jan	7829
1974-75	863	6 Mar	205	17 Mar	1007.06	2707	16 Mar	6565
1975-76	1549	1 Mar	213	19 Feb	1006.72	2638	19 Feb	5222
1976-77	607	3 Jan	205	20 Sep	1008.35	2980	11 May	5635
1977-78	35048	10 Feb	13541	10 Feb	1023.90	8211	10 Feb	163185
1978-79	1784	27 Mar	1481	21 Feb	1016.64	2931	29 Mar	55429
1979-80	11346	16 Feb	5025	17 Feb	1025.30	5950	17 Feb	115809
1980-81	378	29 Jan	372	29 Jan	998.99	390	4 Mar	10054
1981-82	5026	17 Mar	3981	17 Mar	1010.60	1724	18 Mar	39755
1982-83	27901	1 Mar	18104	2 Mar	1039.70	13261	2 Mar	182946
1983-84	1187	28 Dec	397	5 Oct	1012.80	1680	27 Dec	21923
1984-85	1882	19 Dec	1084	20 Dec	1006.20	802	20 Dec	22583
1985-86	1473	30 Jan	1212	25 Feb	1008.40	1050	17 Feb	22432

HANSEN DAM
 TUJUNGA WASH, CALIFORNIA
 ANNUAL MAXIMUM INFLOW,
 OUTFLOW, AND STORAGE OF
 WATER AT HANSEN DAM
 U. S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT



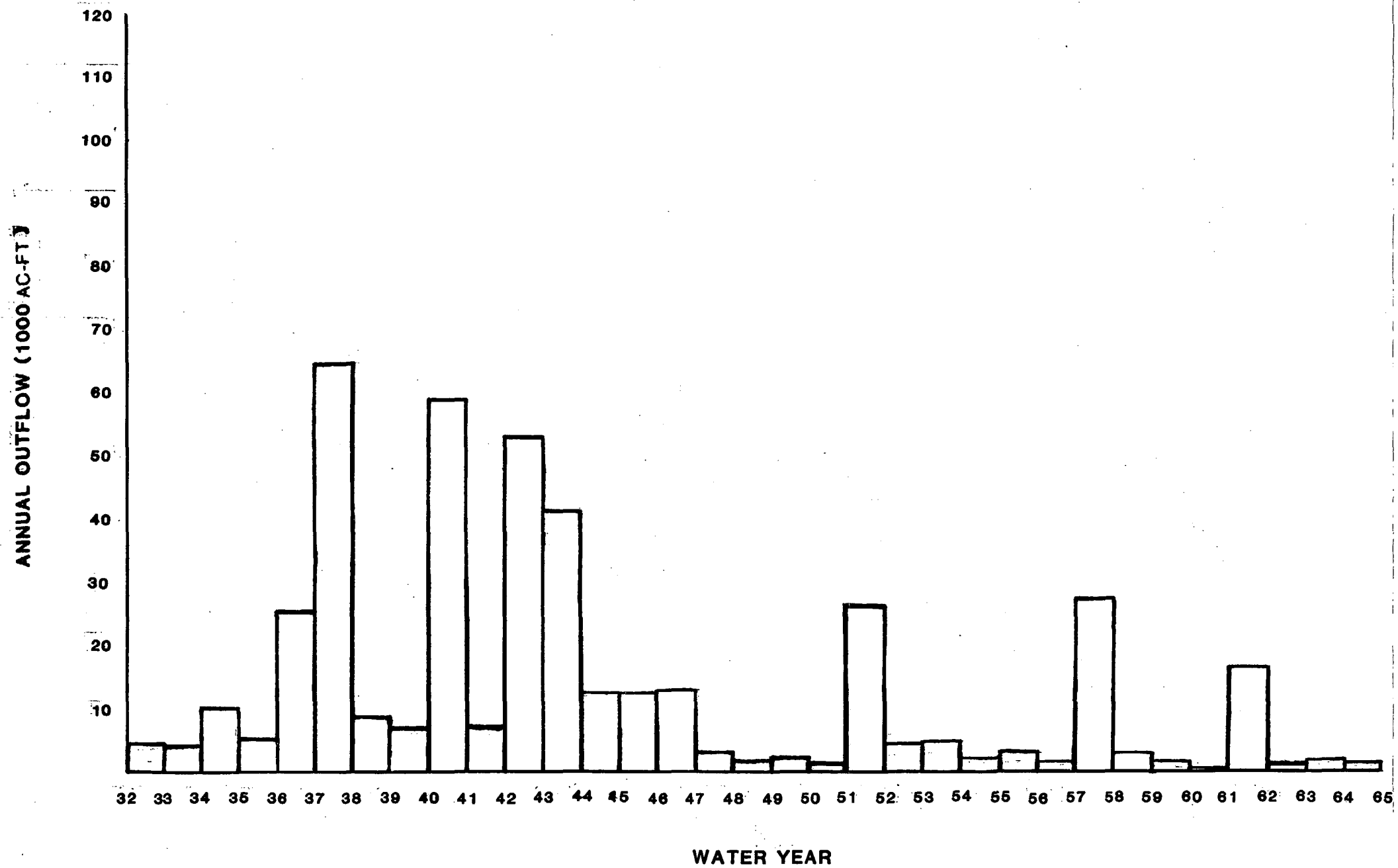
SOURCE: LACDPW

HANSEN DAM TUJUNGA WASH, CALIFORNIA
MAXIMUM PEAK INFLOW BIG TUJUNGA DAM (1917-1952)
US ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT



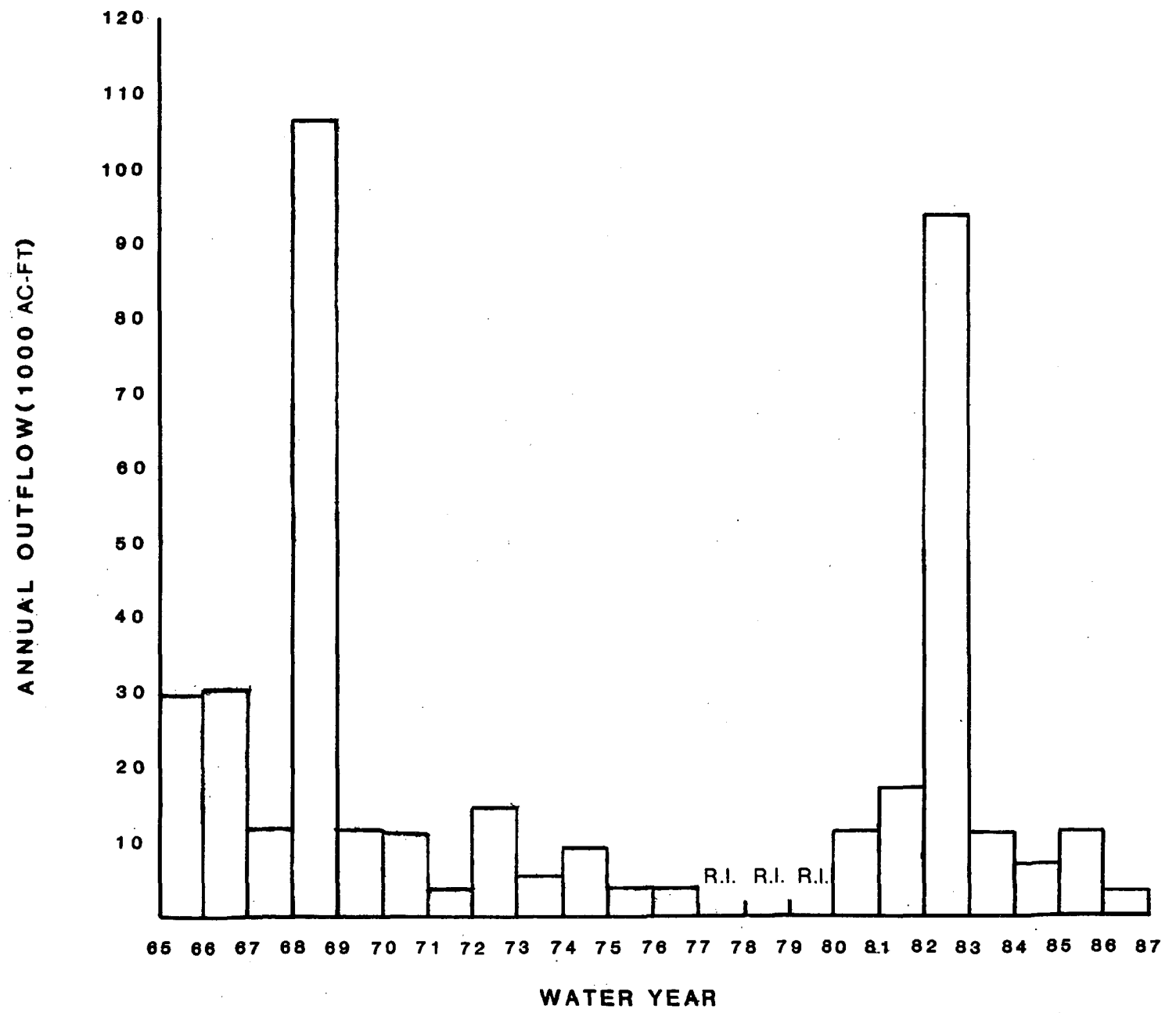
SOURCE: LACDPW

HANSEN DAM TUJUNGA WASH, CALIFORNIA
MAXIMUM PEAK INFLOW BIG TUJUNGA DAM (1953-1987)
US ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT



SOURCE: LACDPW

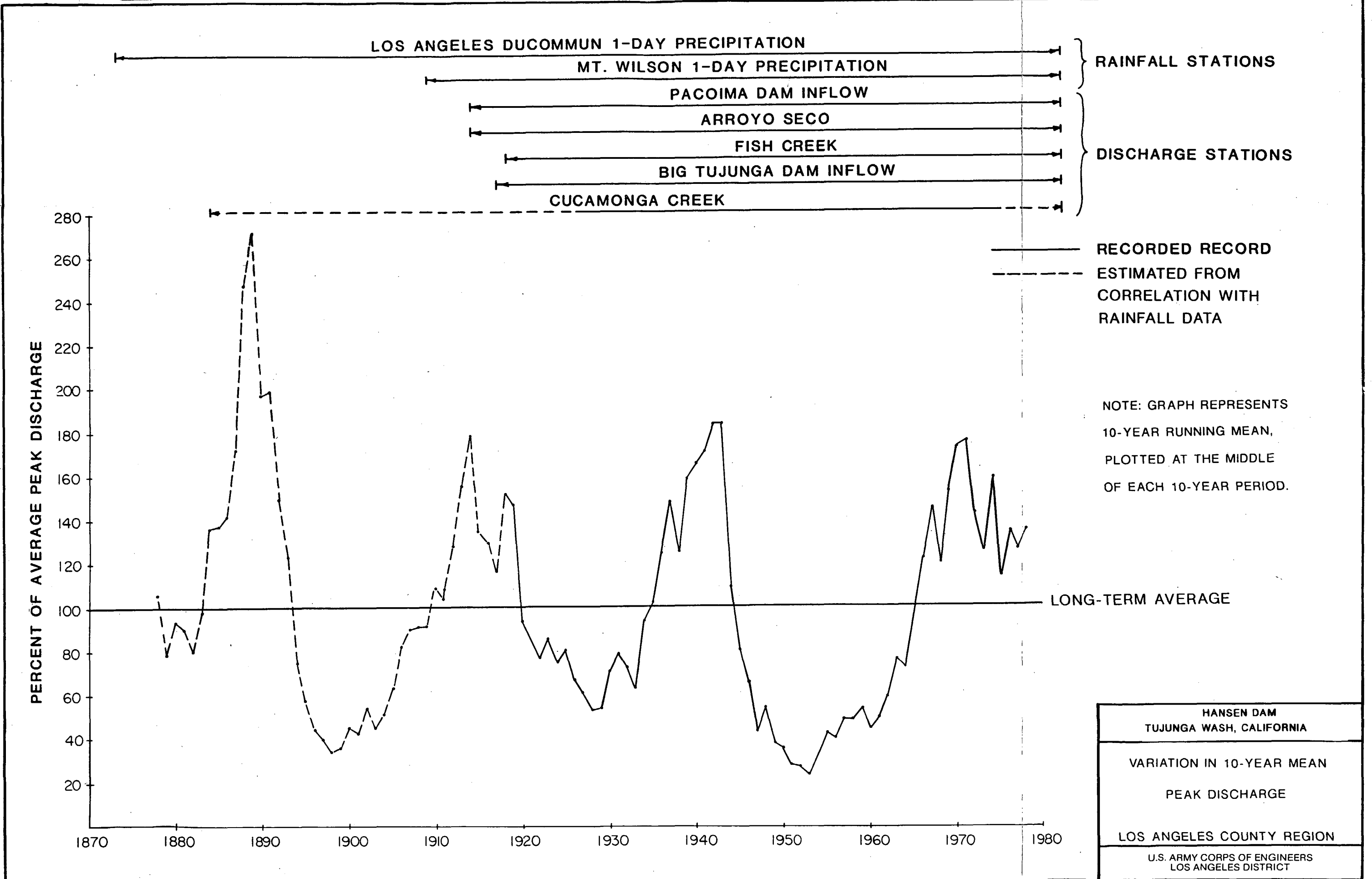
<p>HANSEN DAM TUJUNGA WASH, CALIFORNIA</p>
<p>BIG TUJUNGA DAM ANNUAL OUTFLOW (1932-1965)</p>
<p>US ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT</p>



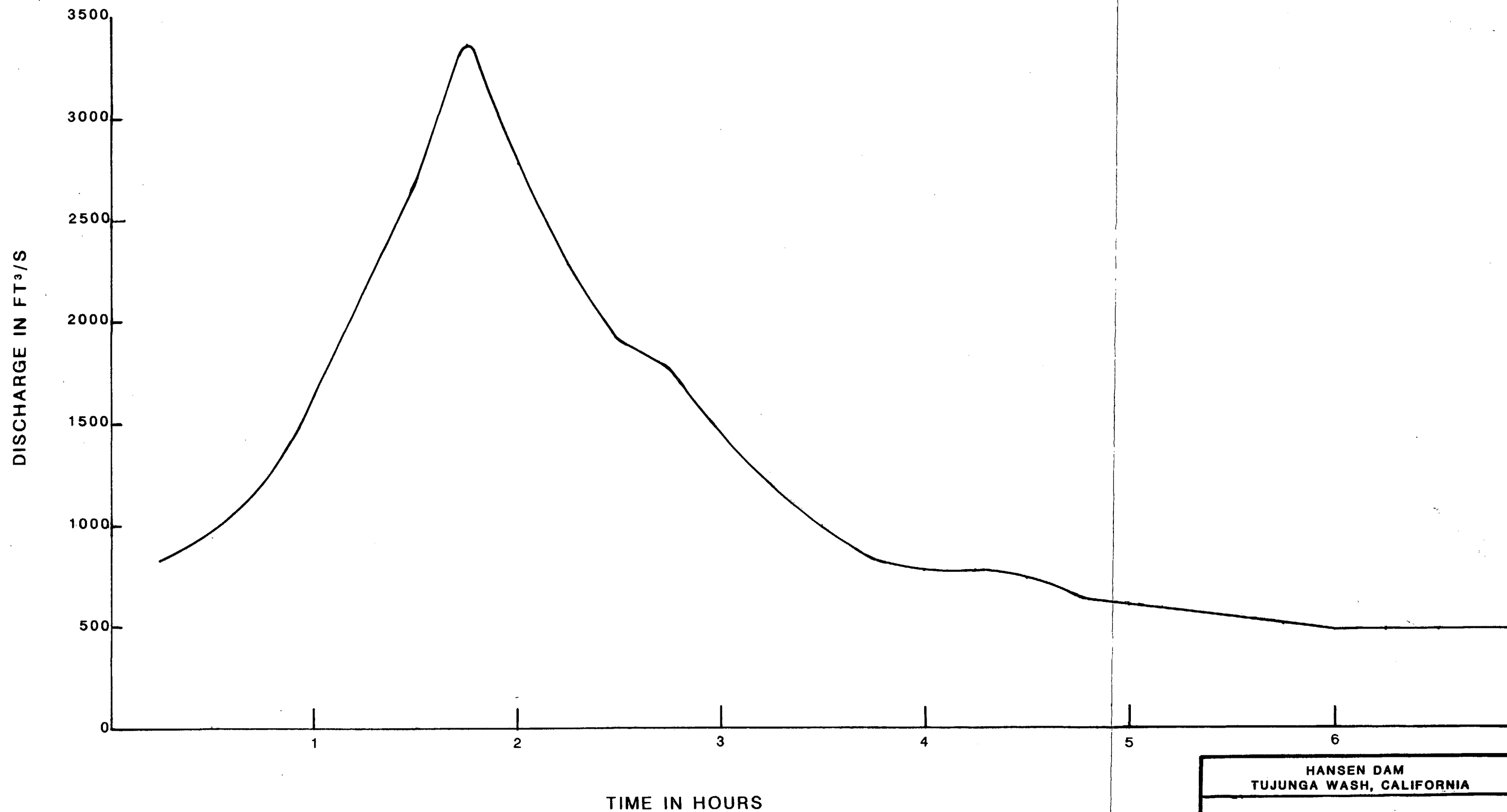
SOURCE: LACDPW

NOTE: 77-80 RECORD INCOMPLETE

HANSEN DAM TUJUNGA WASH, CALIFORNIA
BIG TUJUNGA DAM ANNUAL OUTFLOW (1965-1987)
US ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT



HANSEN DAM - UNIT HYDROGRAPH



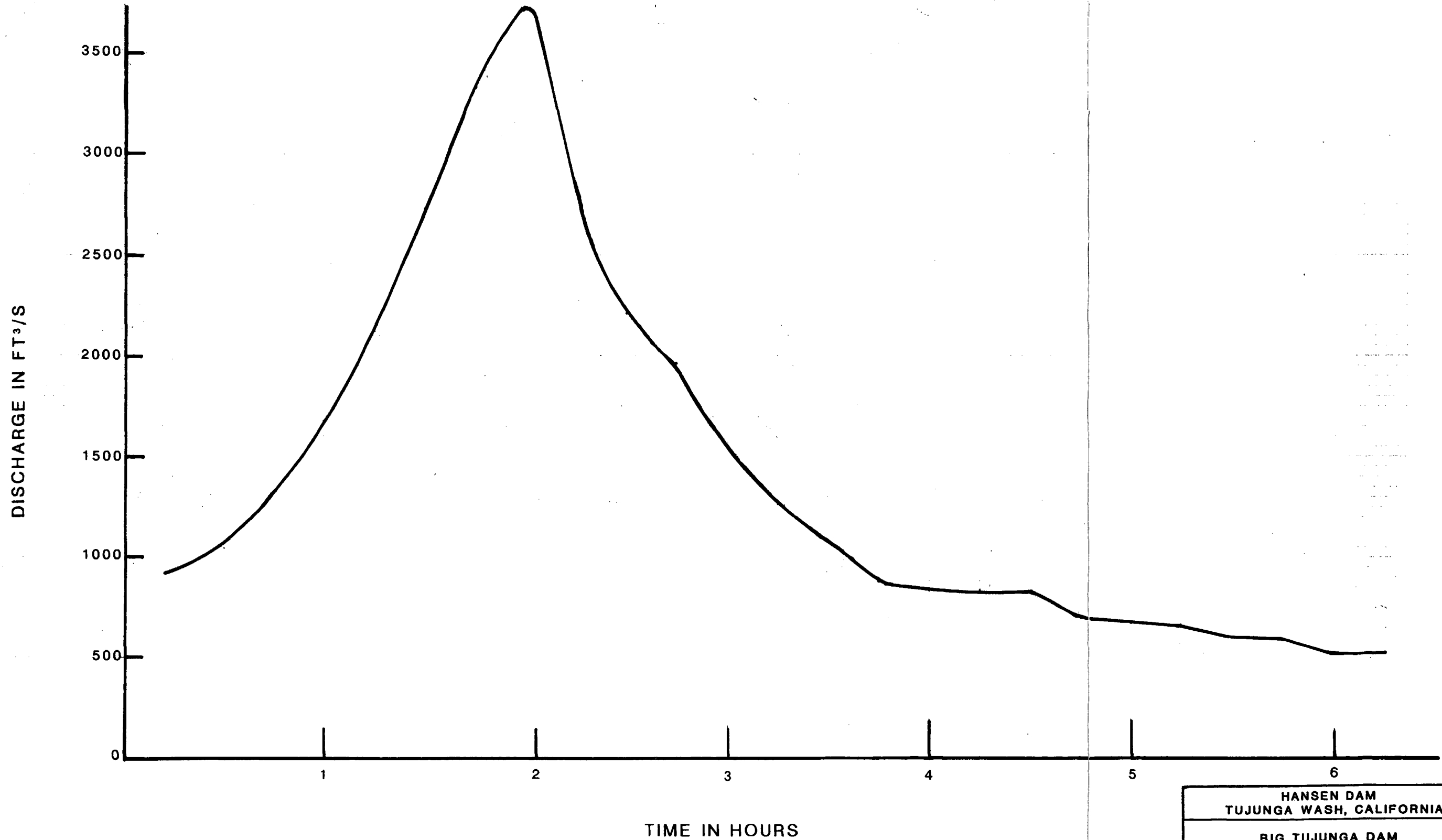
SOURCE: LACDA REVIEW PART 1 HYDROLOGY

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

BASIN UNIT HYDROGRAPH
DRAINAGE AREA BETWEEN
HANSEN DAM AND BIG TUJUNGA DAM

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

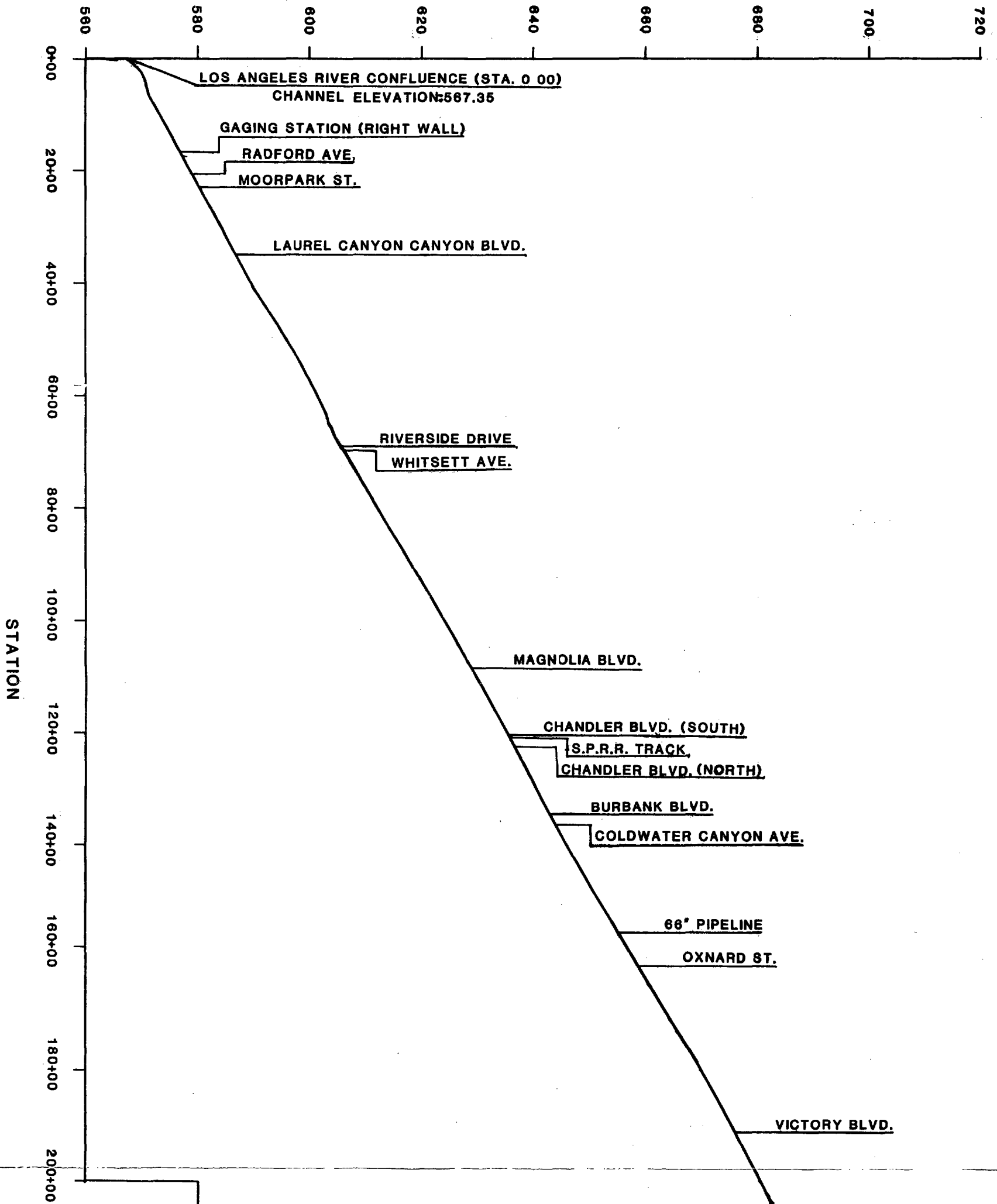
BIG TUJUNGA DAM - UNIT HYDROGRAPH



SOURCE: LACDA REVIEW PART 1 HYDROLOGY

HANSEN DAM TUJUNGA WASH, CALIFORNIA
BIG TUJUNGA DAM BASIN UNIT HYDROGRAGH DRAINAGE AREA ABOVE BIG TUJUNGA DAM
U.S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT

ELEVATION (FT. NGVD)



CONTINUED ON PLATE 4-11

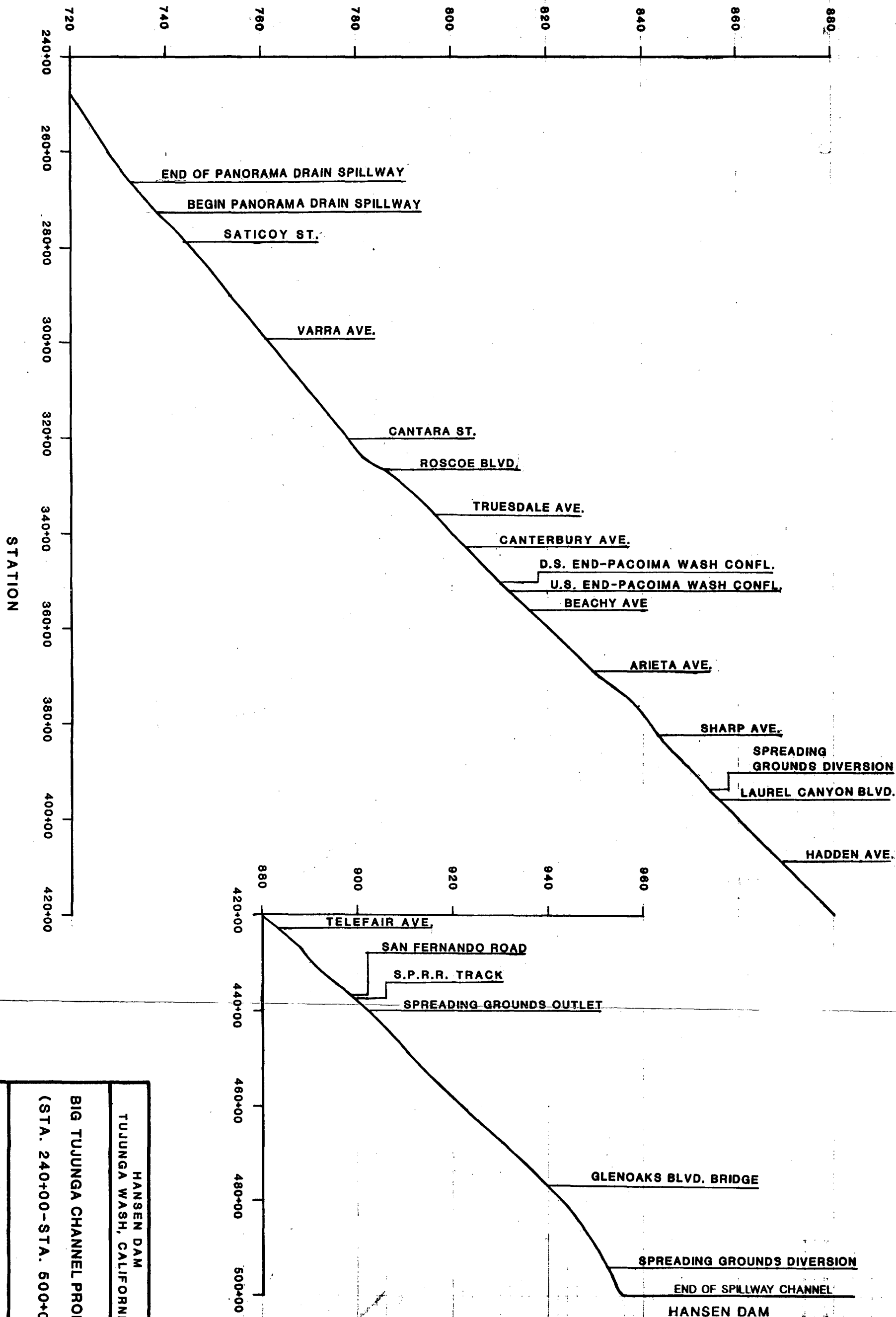
HANSEN DAM
TUJUNGA WASH, CALIFORNIA

BIG TUJUNGA CHANNEL PROFILE

STA. 0+00 - STA. 260+00

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

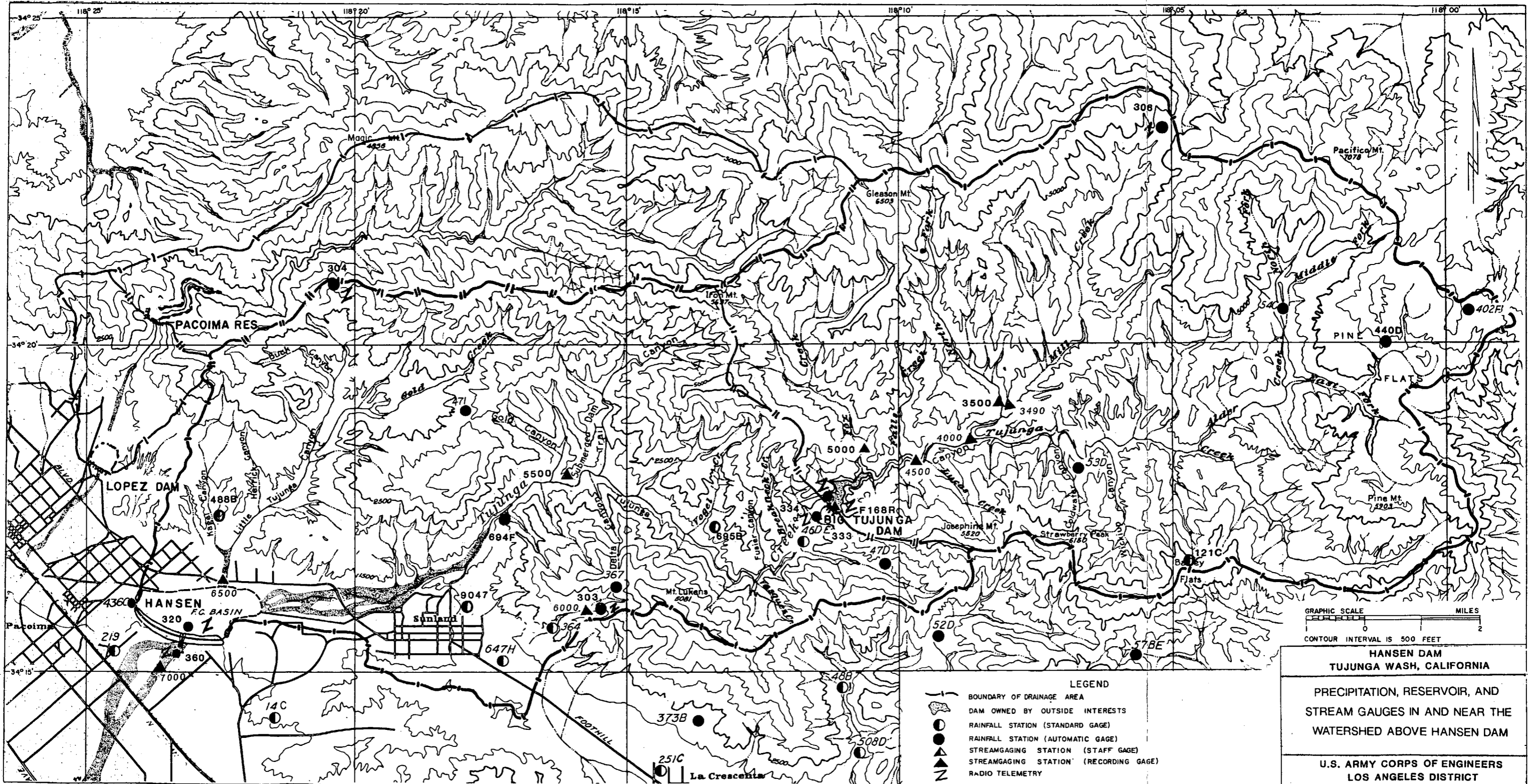
ELEVATION FT (FT. NGVD)



SOURCE: LACDA REVIEW PART 1 HYDROLOGY REPORT

STATION

HANSEN DAM TUJUNGA WASH, CALIFORNIA.
BIG TUJUNGA CHANNEL PROFILE (STA. 240+00 - STA. 500+00)
US ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT



SOURCE: TABLE 5-1

PLATE 5-1A

Precipitation, Reservoir, and Stream Gauges In and Near
the Watershed Above Hansen Dam.

Designation	Name	Latitude	Longitude	Elevation	Description	Designation	Name	Latitude	Longitude	Elevation	Description
# 1 (303)*	Haines Canyon	34-16-03	118-15-20	3480	Precip.	#19 (47D)**	Clear Creek City School	34-16-38	118-10-12	3150	Precip. Stream
# 2 (304)*	Mendenhall Ridge	34-20-57	118-18-23	4320	Precip.	#20 (54C)**	Loomis Ranch Alder Creek	34-20-55	118-11-16	4325	Precip. Stream
# 3 (306)*	Mill Creek Summit	34-23-19	118-05-12	5400	Precip.	#21 (219)**	Pacomia Wash	34-15-21	118-24-24	955	Stream
# 4 (319)*	Hansen Dam Out	34-15-23	118-23-13	960	Stage	#22 (365C)**	Mt. Lukens	34-16-05	118-14-06	5040	Stream
# 5 (320)*	Hansen Dam	34-15-37	118-23-06	960	Precip.	#23 (367)**	Upper Haines Cyn	34-16-18	118-15-07	3440	Precip. Stream
# 6 (332)*	Big Tujunga Dam Lvl	34-17-40	118-11-14	2315	Level	#24 (402F)**	Ceder Springs	34-21-21	117-52-34	6780	Precip.
# 7 (333)*	Big Tujunga Dam Out	34-17-19	118-11-38	2315	Stage	#25 (436C)**	Hansen Dam	34-16-08	118-23-59	1110	Precip.
# 8 (334)*	Big Tujunga Dam	34-17-40	118-11-14	2315	Precip.	#26 (440D)**	Chilao-USFS Camp	34-20-00	118-01-23	5220	Stream
# 9 (357)*	Hansen Yard	34-15-22	118-23-13	950	Wind	#27 (471)**	Little Tujunga Goln Creek	34-18-57	118-18-02	2750	Precip.
#10 (360)*	Hansen Yard	34-15-22	118-23-13	950	Precip.	#28 (488B)**	Kagel Canyon Patrol Stn.	34-17-45	118-22-30	1450	Stream
#11 (361)*	Hansen Yard	34-15-22	118-23-13	950	Rhum	#29 (647J)**	Tujunga	34-15-45	118-17-34	1685	Stream
#12 (362)*	Hansen Yard	34-15-22	118-23-13	950	Temp.	#30 (694F)**	Big Tujunga Cyn	34-17-22	118-17-17	1525	Precip.
#13 (363)*	Hansen Yard	34-15-22	118-23-13	950	Solar	#31 (695B)**	Tujunga Cyn Vogel Flat	34-17-12	118-13-22	1850	Stream
#14 (364)*	Hansen Yard	34-15-22	118-23-13	950	Pressure	#32 (1121C)**	Barley Flat	34-16-40	118-04-40	5525	Stream
#15 (F168R)	Tujunga Cr. below Big Tujunga				Punch Tape	#33 (W9047)**	Tujunga	34-16-99	118-17-99	1820	Stream
#16 (34)**	Hansen Dam COE	34-15-22	118-23-04	1090	Wind, Gauge Height Precip.	#34 (7000)***	Big TJC Bl. Hansen Dam	34-15-13	118-23-17	943	Stream
#17 (72)**	Tujunga Wash D/S Hansen Dam (COE)	X	X	X	Gauge Height						
#18 (46DE)**	Big Tujunga Dam	34-17-40	118-11-16	2315	Precip. Stream						

NOTE: *LACFCD ALERT Station and Designation.
**LAD, COE Gauge and Designation.
***USGS Gauge and Designation.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

PRECIPITATION, RESERVOIR,
AND STREAM GAUGES IN
AND NEAR THE HANSEN WATERSHED

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

Hydrologic Instrumentation of Hansen Dam

<u>Parameter</u>	<u>Gauge Type</u>	<u>Report Mode</u>	<u>Stored Record (period available)</u>	<u>Comments</u>
Water Surface Elevation	Staff Boards	Visual	Flood Control Basin Operation Report SPL 19 (1941-present)	
	Stevens A-71 recorder	Visual	Reservoir Operation Report SPL 424 (1941-present) paper strip chart (1941-present) punch tape (1974-present)	
	D.R.*	Telemetry	telemetry data file	
Downstream gauge height	Digital Recorder*	Visual	Flood Control Basin Operators Report SPL 19 (1941-pres.) punch tape (1974-present)	USGS operates the gauge, publishes the daily record and stores the paper punch tape for USGS station 11097000
		Telemetry	telemetry data file	
Outlet Gate opening	Gate Opening Indicator	Visual	Flood Control Basin Operators Report SPL 19 (1941-present)	
	Leitz Recorders			Leitz are operational but will eventually be replaced with Leopold & Stevens Type F recorders (chart drum recorders)
Precipitation	tipping bucket gauge connected by magnetic sensor to D.R.*	Telemetry	Reservoir Operation Report SPL 424 (1941-present) punch tape (1974-present) telemetry data file	Tipping bucket type installed in 1985, float type gauge used previously
	Belfort recording	None	paper chart (1941-present)	Data on paper charts evaluated for daily rainfall amounts and charts are then sent to NWS in Asheville, N.C. for publication
	glass raintube	Visual	Rainfall Record SPL 31 (1941-present)	

*Digital Recorder - A device that converts gauge motion into coded digital information and records this periodically as a pattern of punched holes in paper tape.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

HYDROLOGIC INSTRUMENTATION

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

Methods of Reporting Hydrologic Data

	Precipitation	Reservoir Water Surface Elevation	Streamflow Water Surface Elevation	Gate Heights
Manual	Glass Tube Pre- cipitation Gauge	Staff Gauge	Staff Gauge	Gate Height Indicators
Recording	Precipitation Digital Recorder	Water Surface Recorder	Gauge Height Digital Recorder	Gate Height Recorder
	Universal Recording Precipitation Gauge			
Telemetry	Precipitation Telemetry HNSN	Water Surface HNSN	Stream Gauge Telemetry TJWH	
Interrogated	Precipitation Digital Recorder	Water Surface Digital Recorder	Water Surface Gauge Height Recorders	
Fixed-Time Self-Reporting	Telemetry At Dam	Self-Timed Interrogated	Telemetry Down Stream Gauge	
Event-Reporting	Alert System	Alert System		

**HANSEN DAM
TUJUNGA WASH, CALIFORNIA**

**METHODS OF REPORTING
HYDROLOGIC DATA**

**U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT**

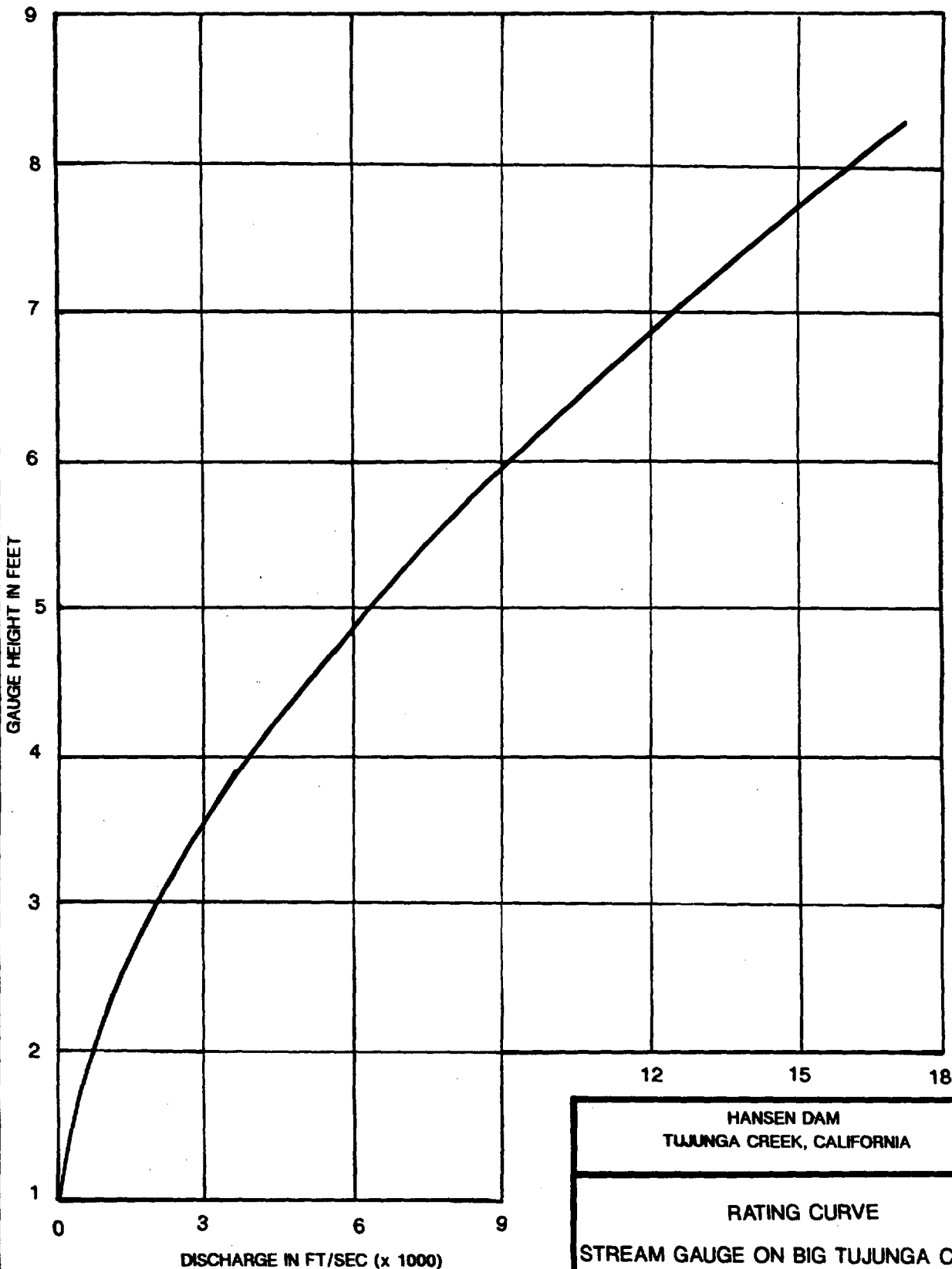
Rating Table for Big Tujunga Creek below Hansen Dam

Gauge Height (ft)	Channel Flow (cfs)	Gauge Height (ft)	Channel Flow (cfs)
1.00	0.0	4.70	5477.0
1.10	19.0	4.80	5728.0
1.20	47.0	4.90	5983.0
1.30	86.0	5.00	6243.0
1.40	138.0	5.10	6507.0
1.50	200.0	5.20	6776.0
1.60	273.2	5.30	7050.0
1.70	358.0	5.40	7328.0
1.80	446.9	5.50	7610.0
1.90	545.0	5.60	7897.0
2.00	646.4	5.70	8189.0
2.10	753.2	5.80	8484.0
2.20	864.5	5.90	8785.0
2.30	982.1	6.00	9089.0
2.40	1106.0	6.10	9398.0
2.50	1236.0	6.20	9711.0
2.60	1372.0	6.30	10030.0
2.70	1514.0	6.40	10350.0
2.80	1661.0	6.50	10680.0
2.90	1815.0	6.60	11010.0
3.00	1974.0	6.70	11340.0
3.10	2138.0	6.80	11680.0
3.20	2308.0	6.90	12020.0
3.30	2483.0	7.00	12370.0
3.40	2664.0	7.10	12720.0
3.50	2850.0	7.20	13080.0
3.60	3042.0	7.30	13440.0
3.70	3238.0	7.40	13800.0
3.80	3440.0	7.50	14170.0
3.90	3646.0	7.60	14540.0
4.00	3858.0	7.70	14910.0
4.10	4075.0	7.80	15290.0
4.20	4297.0	7.90	15680.0
4.30	4523.0	8.00	16060.0
4.40	4754.0	8.10	16460.0
4.50	4991.0	8.20	16850.0
4.60	5232.0	8.30	17250.0

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

RATING TABLE FOR BIG TUJUNGA CREEK
BELOW HANSEN DAM

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



HANSEN DAM
 TUJUNGA CREEK, CALIFORNIA

RATING CURVE
 STREAM GAUGE ON BIG TUJUNGA CREEK
 BELOW HANSEN DAM

U.S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT

Notification List for Hansen Dam
(see Orange Book for home phone numbers)

a. At start of releases notify:

Department of Water and Power (N. Hlywd)	818-503-1824
(24 Hour)	213-481-4900
L.A. County Department of Public Works	818-458-6177
Emergency Operations Center	818-458-5503
L.A. County Emergency Operation Bureau	213-946-7935
L.A. County Sheriff	213-974-4211
L.A. Police Department (Foothill)	818-989-8861
Sewer Maintenance Robert Parrish	213-485-5881
or Robert Watts	213-485-5892
or Ray Jellison	213-485-5888

b. At water surface elevation 1005 feet notify:

California Department of Fish and Game	213-590-5151
Department of Parks and Recreation (L.A.)	213-665-5188
Department of P&R (Van Nuys) Tom Craig	818-989-8189
or Martin Castille	818-989-8190

c. If water will reach elevation 1010 feet notify:

Sediment Removal Contractor, Bill Blomgren	818-353-1921
A.E. Schmidt	818-983-0297
U.S. Army Corps of Engineers	
CON-OPS Division Lowell Flannery	213-894-4926

d. If water will reach elevation 1039 feet notify:

L.A. District Special Dam Inspection Team	
Team Leader Vance Carson	213-894-5533
Jim Berkland	213-894-4068
Algis Bliudzuis	213-894-6979

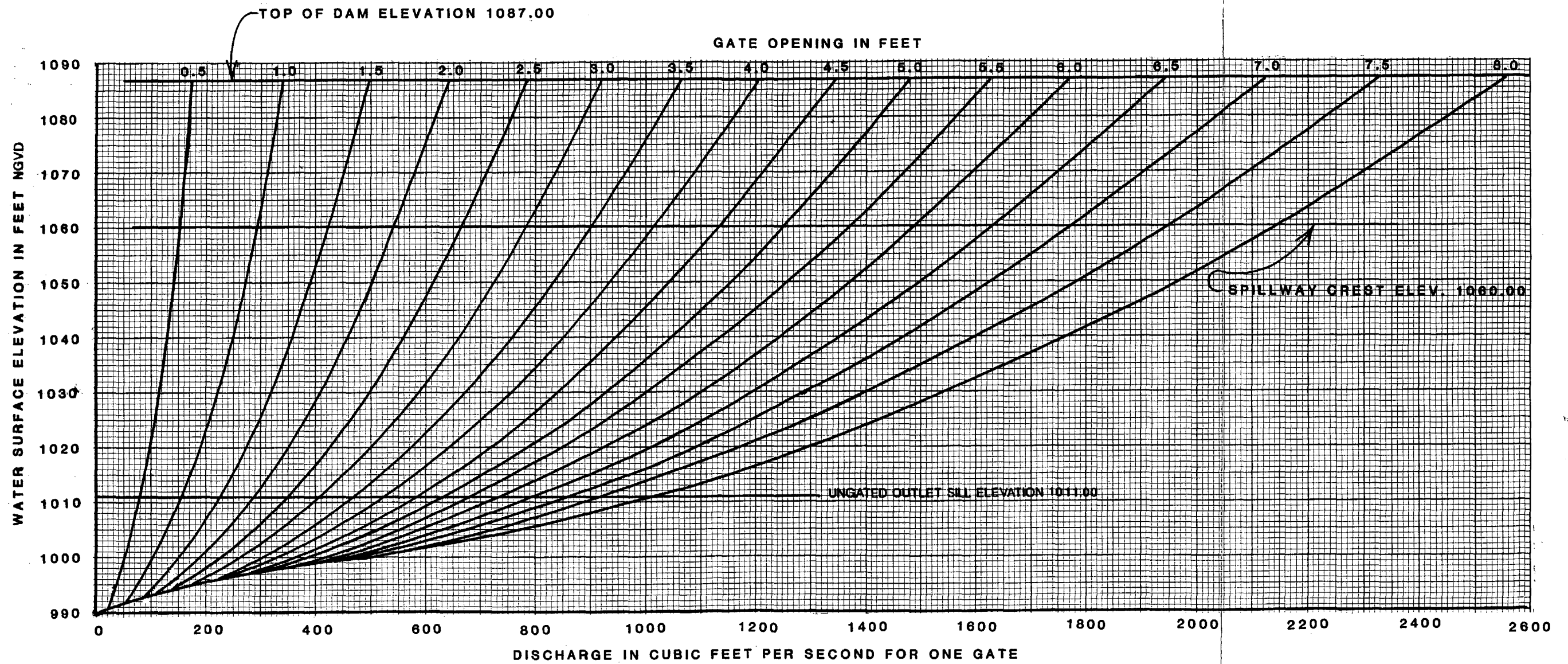
e. If spillway flow (elev. 1067) or dam break is imminent notify:

L.A. Police Dept. (Ask for Foothill Div.)	818-989-8861
U.S. Army Corps of Engineers, Chief Emergency	
Management Branch Warren Hagstrom	213-894-3440

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

NOTIFICATION LIST

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



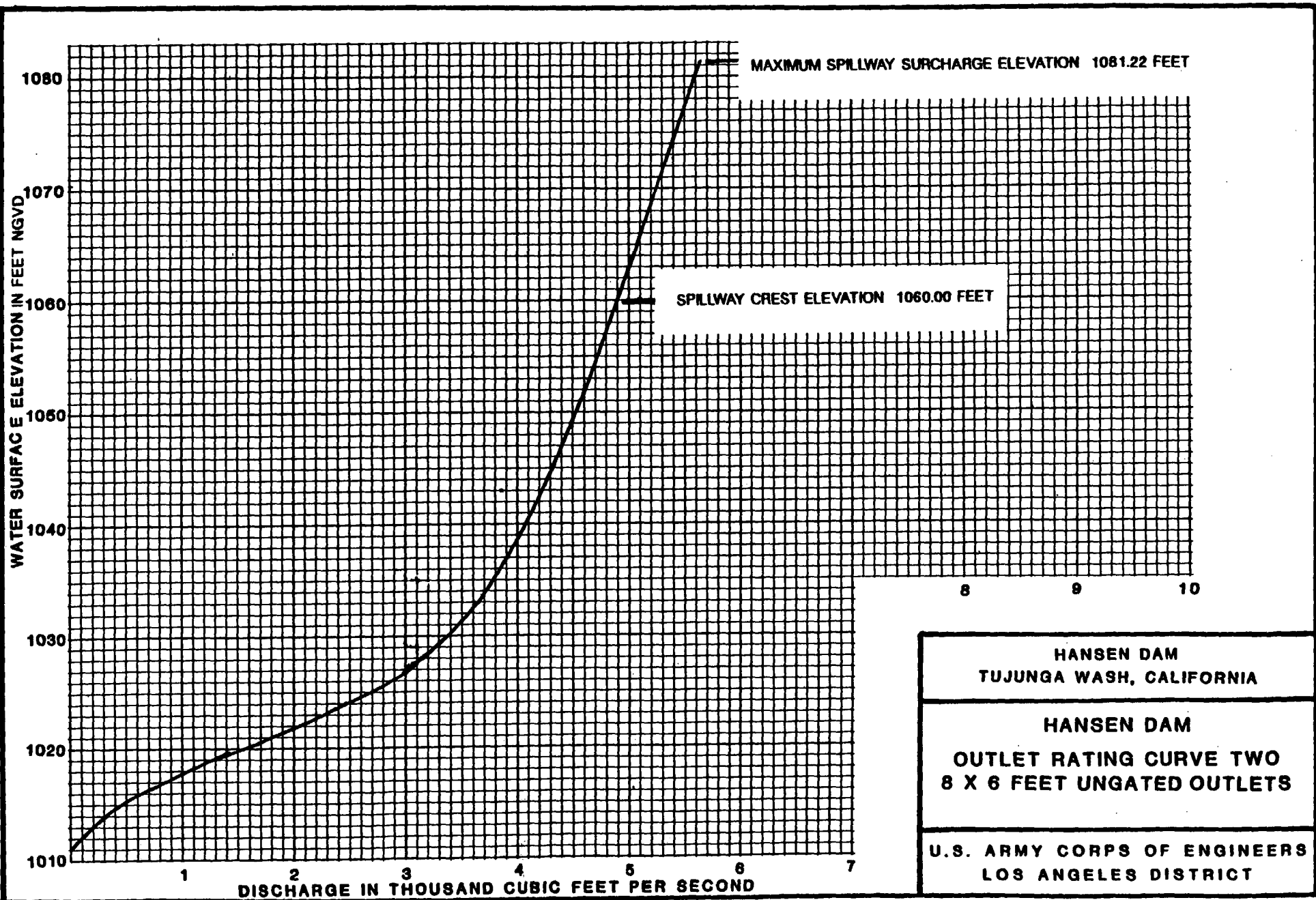
NOTE: TOTAL OUTFLOW IS THE SUM OF DISCHARGES FOR THE EIGHT GATED CONDUITS PLUS THE TWO UNGATED CONDUITS AND SPILLWAY FLOW

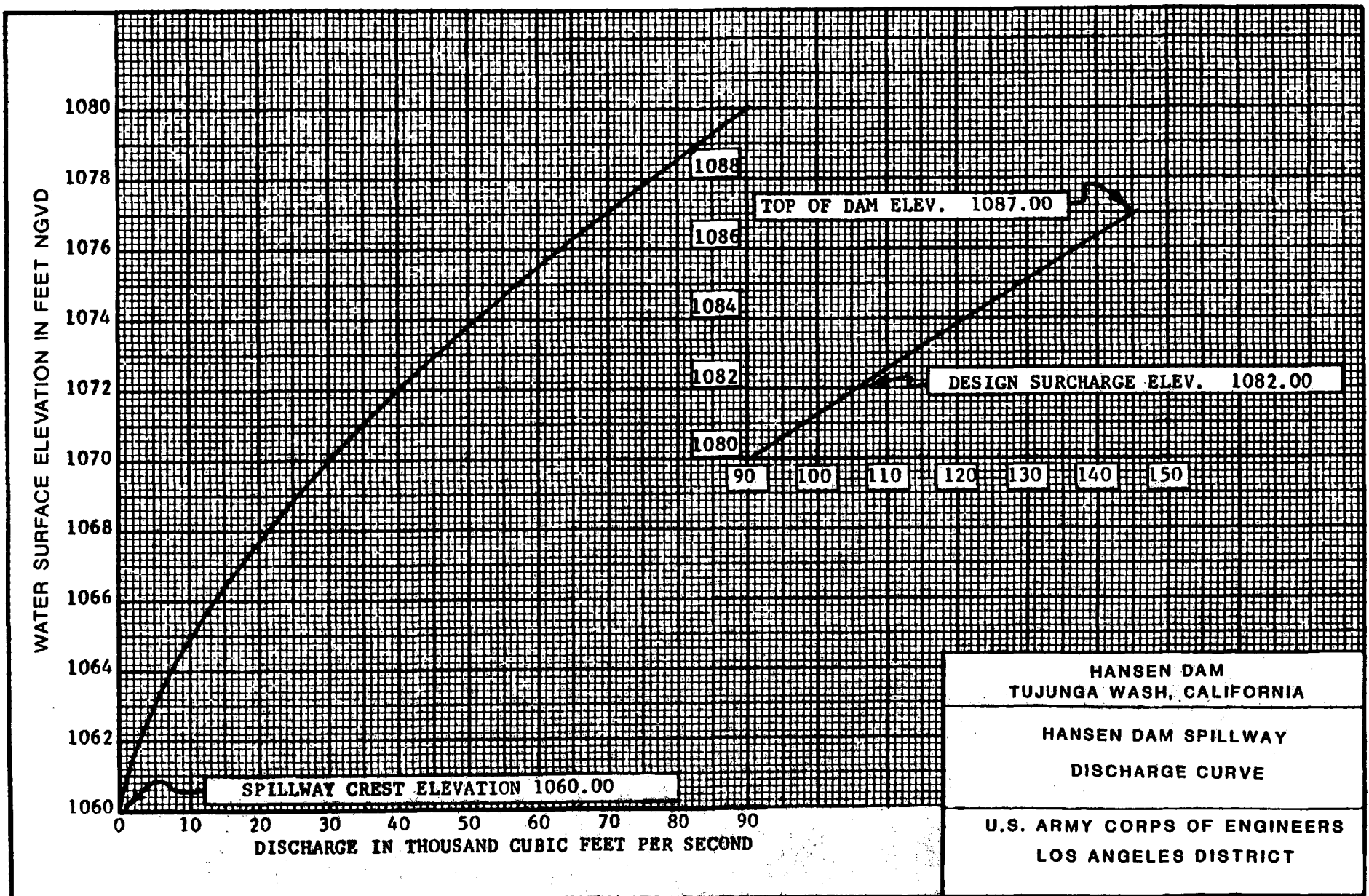
HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

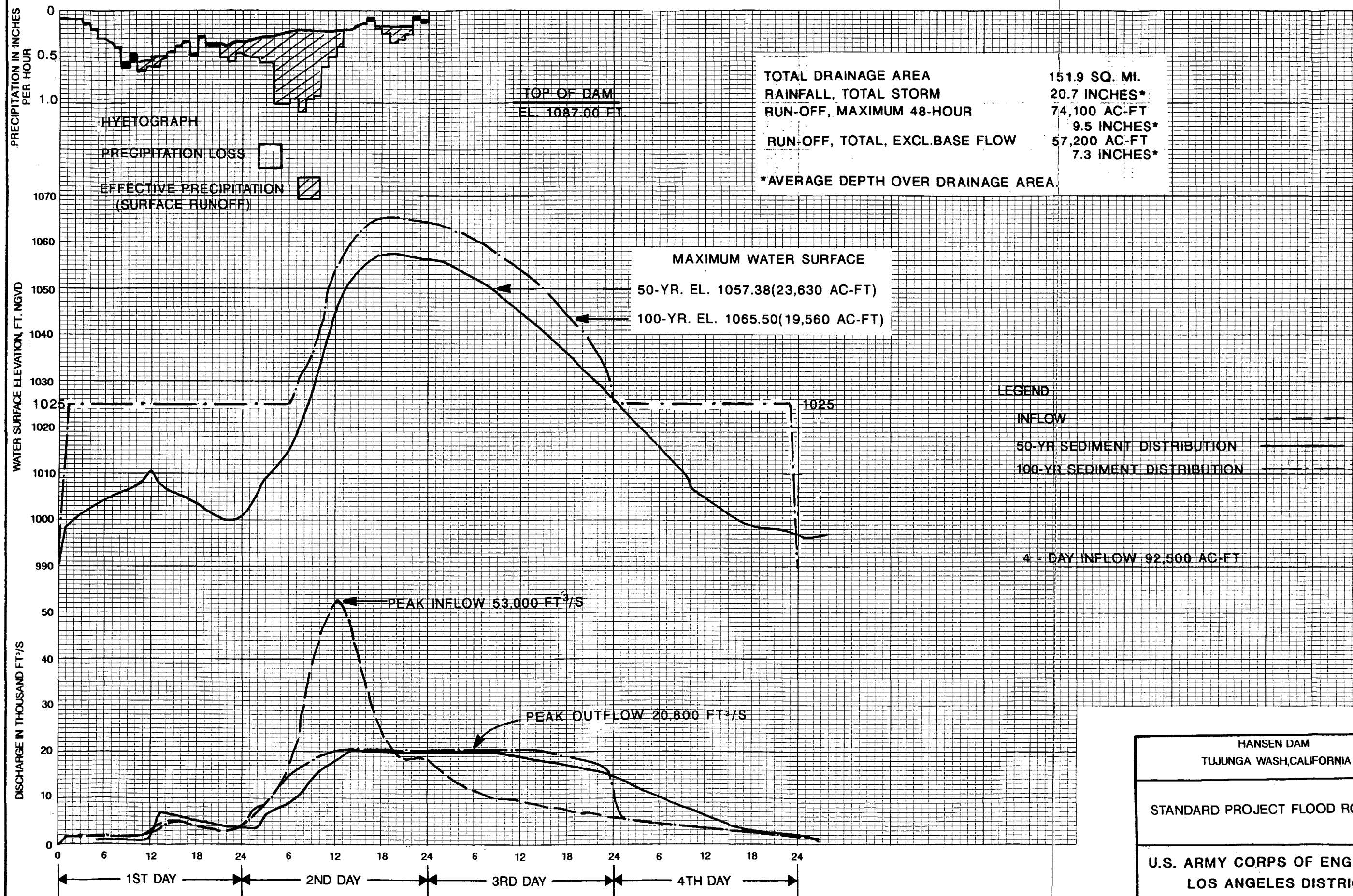
HANSEN DAM OUTLET
 RATING CURVE

1-5X8 FEET GATED OUTLET

US ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT



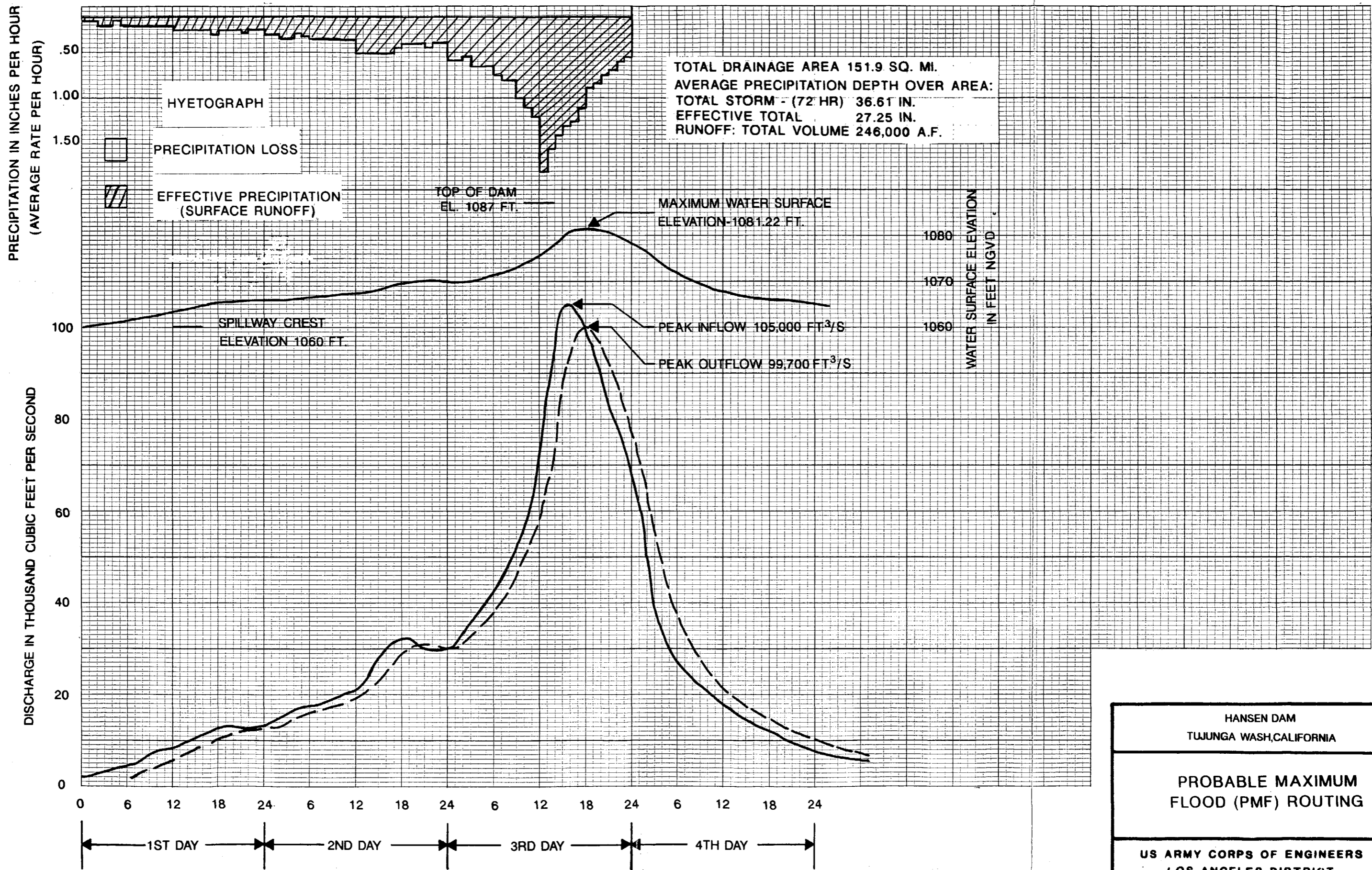




HANSEN DAM
TUJUNGA WASH, CALIFORNIA

STANDARD PROJECT FLOOD ROUTING

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

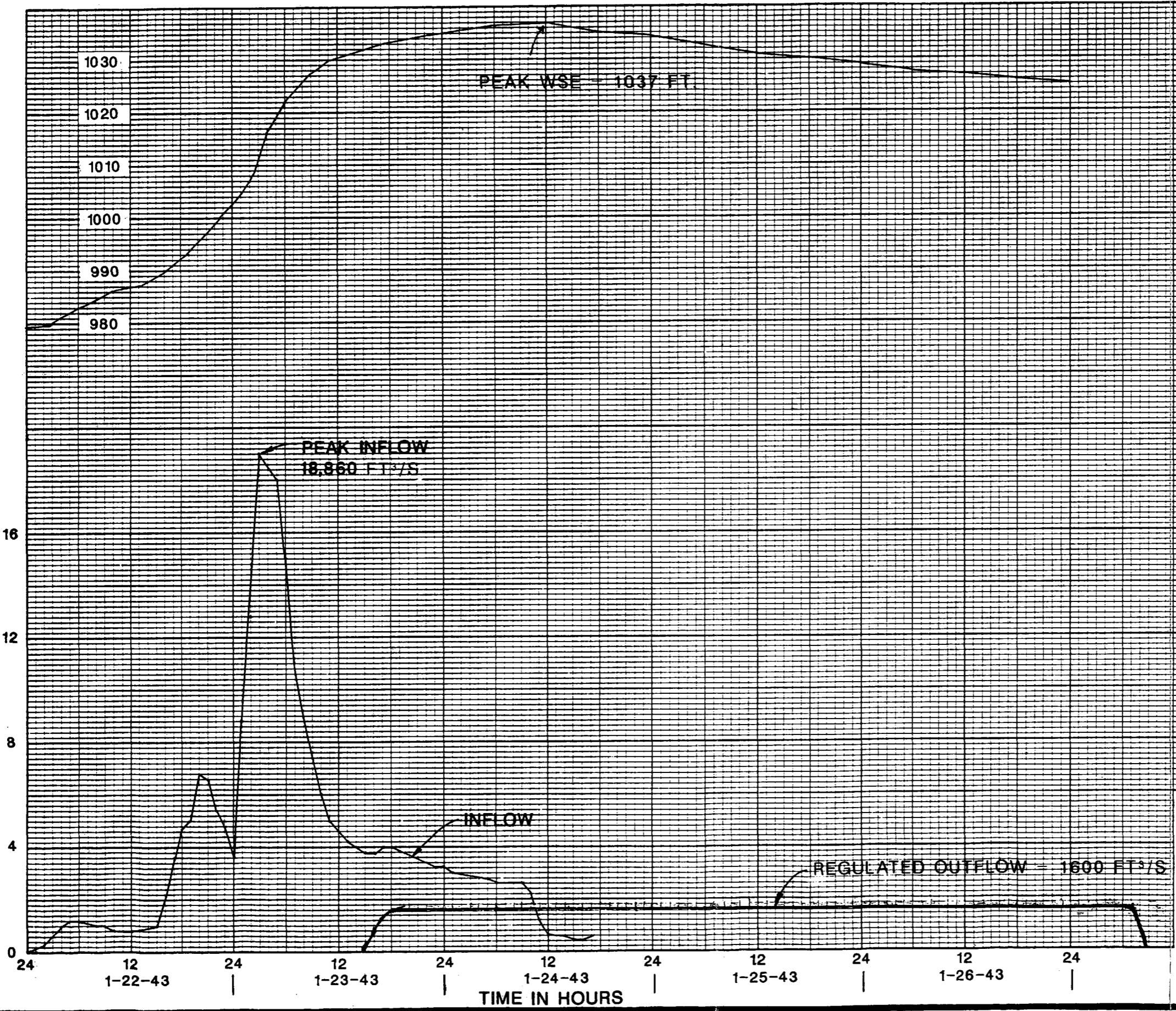
PROBABLE MAXIMUM
 FLOOD (PMF) ROUTING

US ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT

SOURCE: INTERIM REPORT OF H & H REVIEW OF DESIGN
 FEATURES OF EXISTING LACDA DAMS JUNE 1978

WATER SURFACE ELEVATION, IN FT NGVD

DISCHARGE IN THOUSAND FT³/S



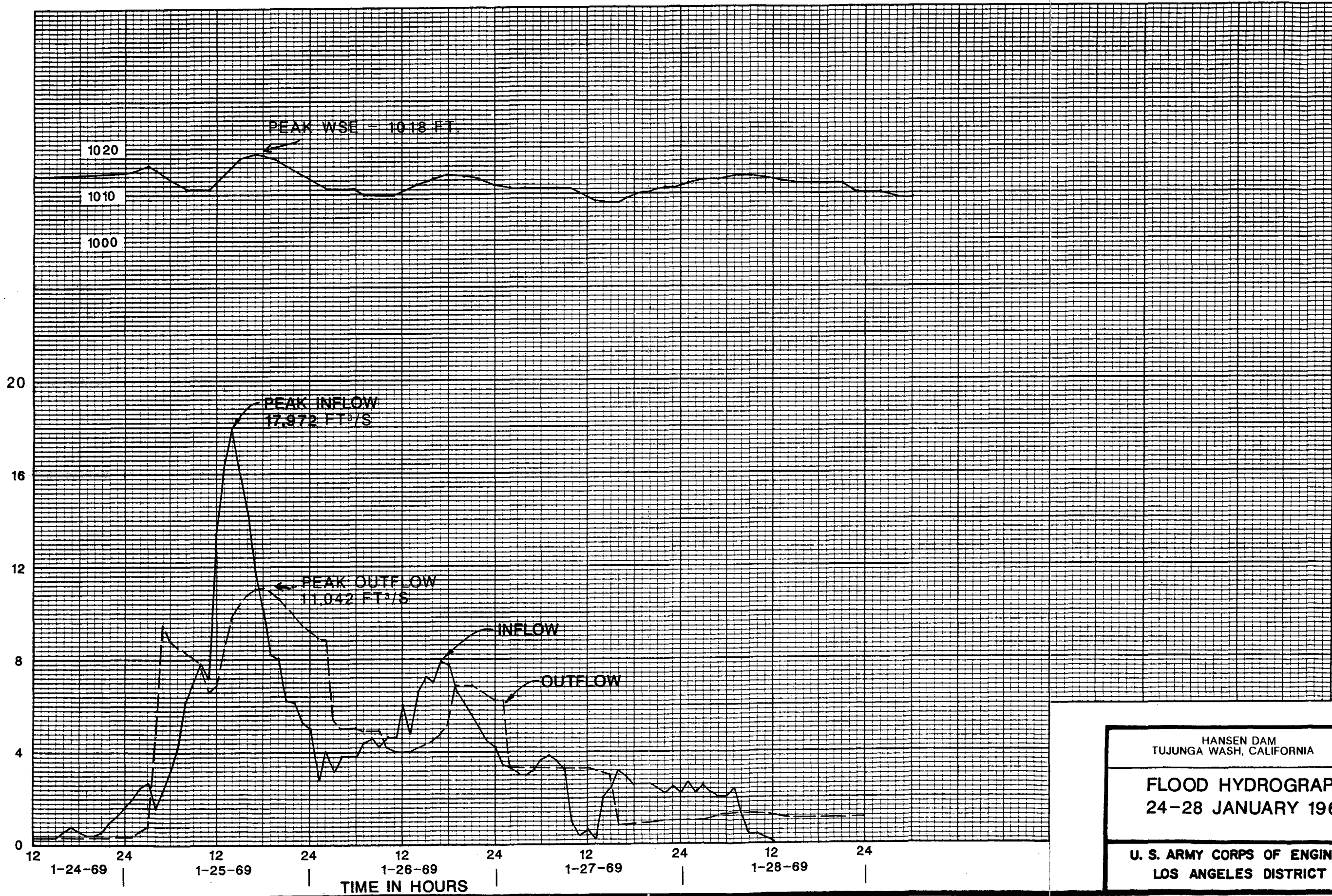
HANSEN DAM
TUJUNGA WASH, CALIFORNIA

FLOOD HYDROGRAPH
22-26 JANUARY 1943

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

WATER SURFACE ELEVATION, IN FT NGVD

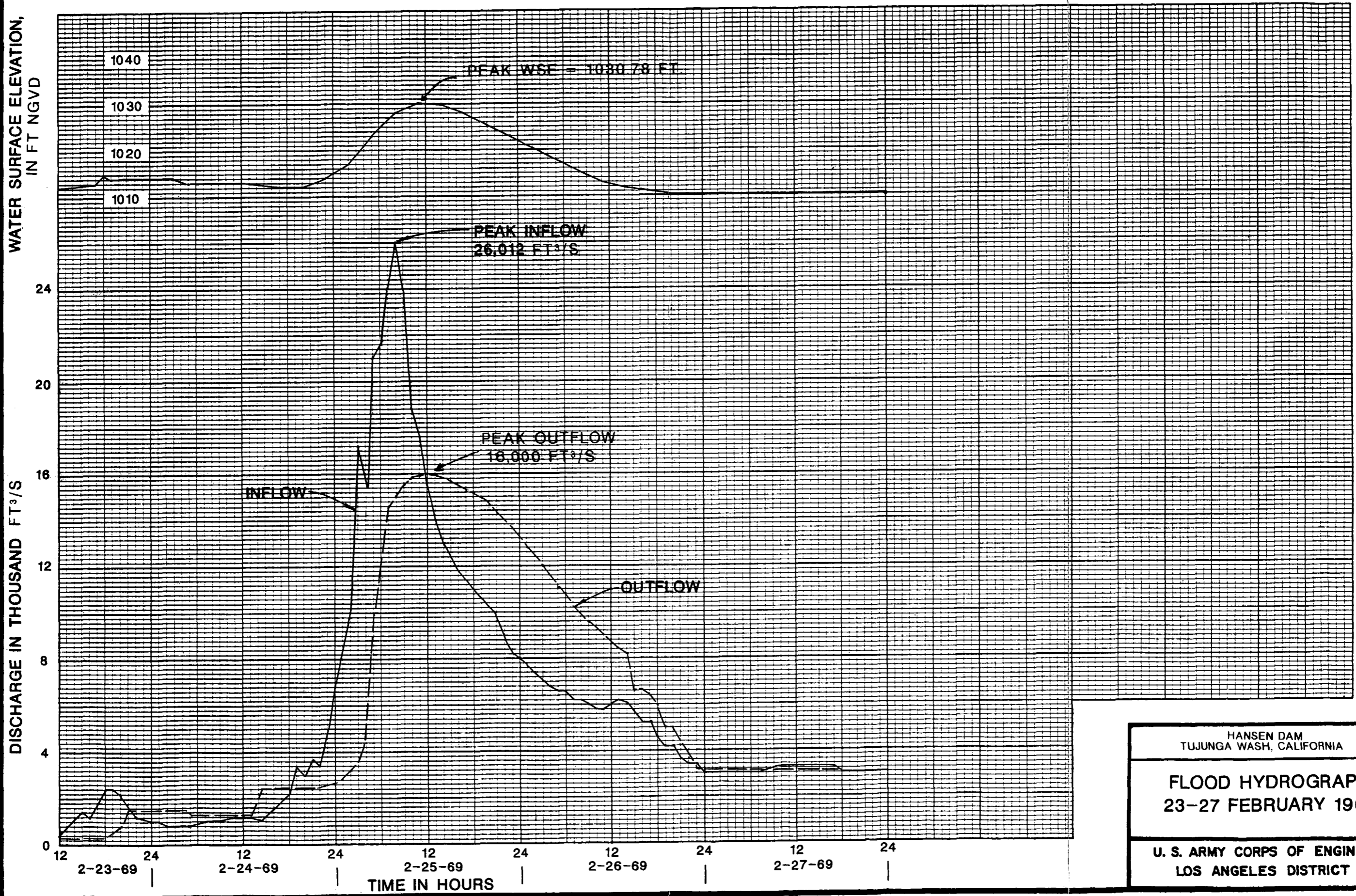
DISCHARGE IN THOUSAND FT³/S



HANSEN DAM
TUJUNGA WASH, CALIFORNIA

FLOOD HYDROGRAPH
24-28 JANUARY 1969

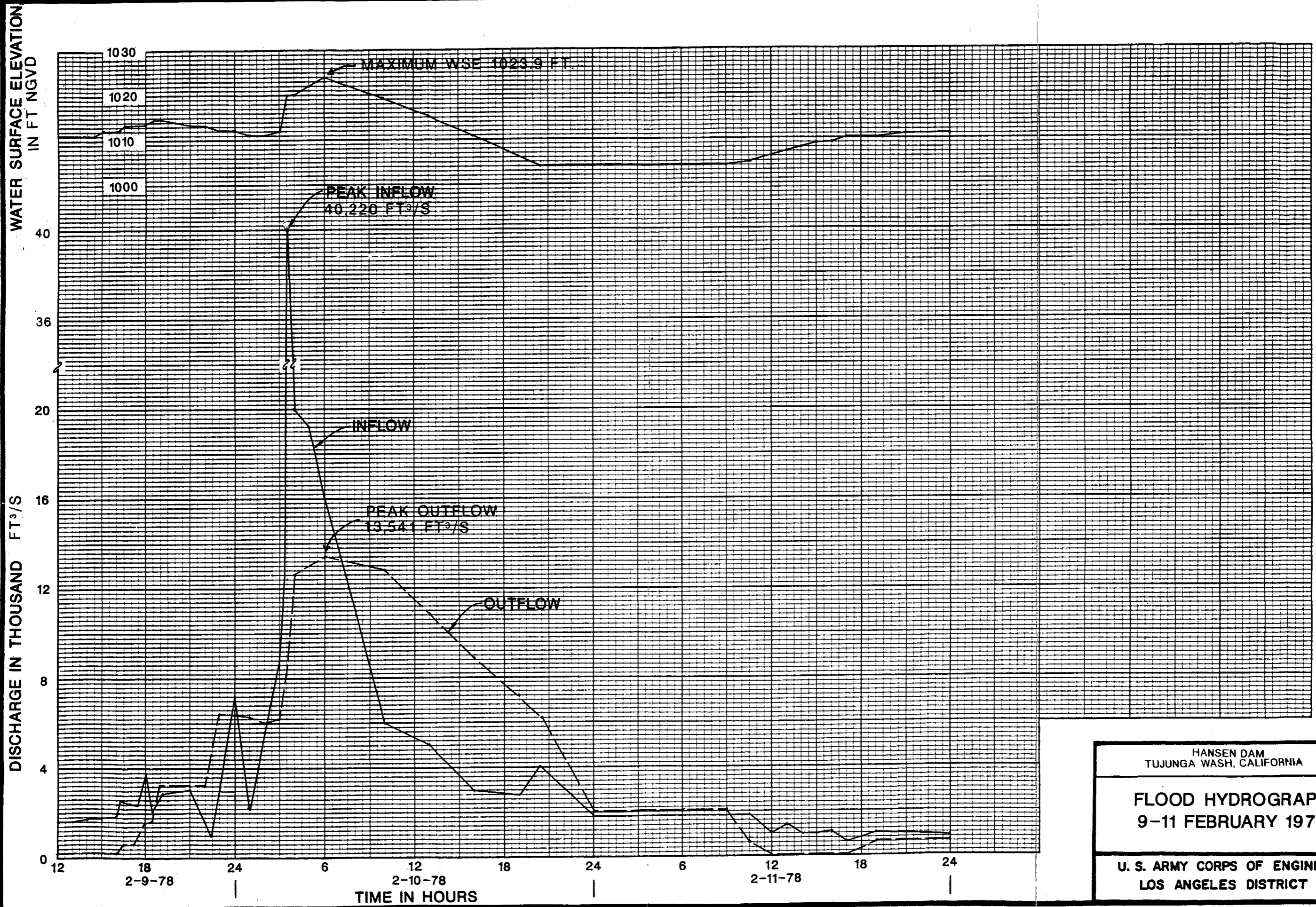
U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

FLOOD HYDROGRAPH
23-27 FEBRUARY 1969

U. S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT



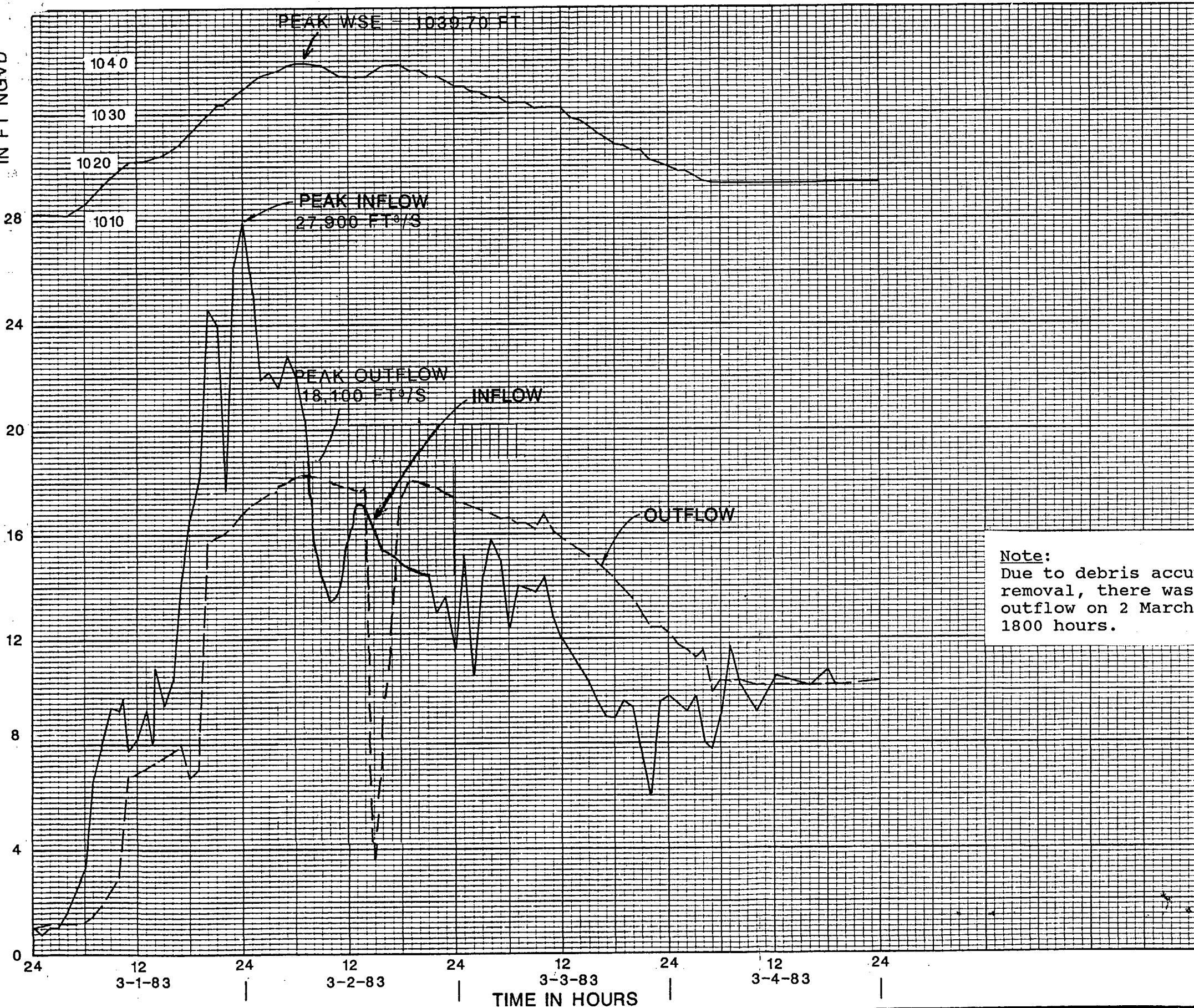
HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

FLOOD HYDROGRAPH
 9-11 FEBRUARY 1978

U. S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT

WATER SURFACE ELEVATION,
IN FT NGVD

DISCHARGE IN THOUSAND FT³/S

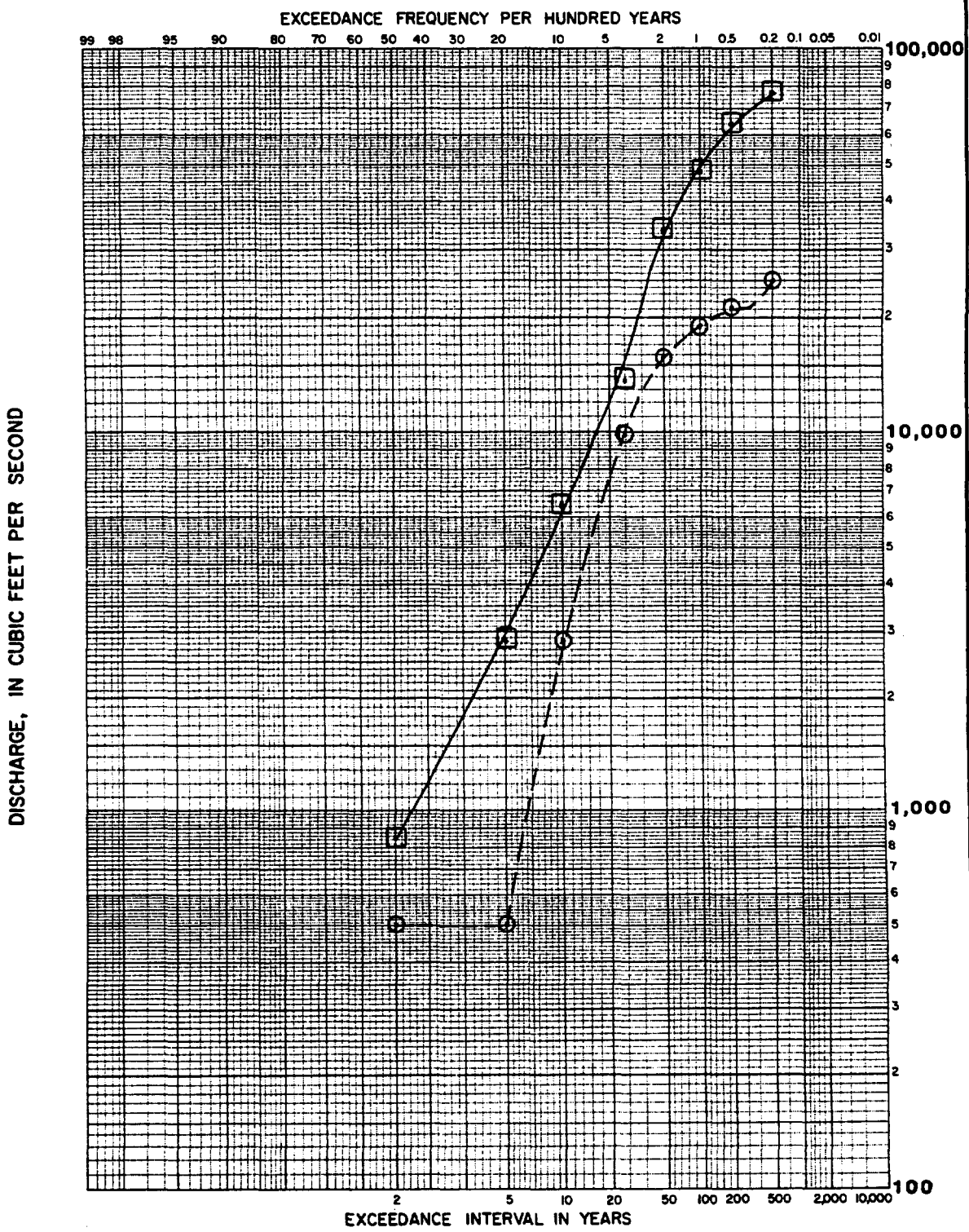




Note:
Due to debris accumulation and subsequent removal, there was a wide fluctuation in outflow on 2 March 1983 between 1400 and 1800 hours.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

FLOOD HYDROGRAPH
1-4 MARCH 1983

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



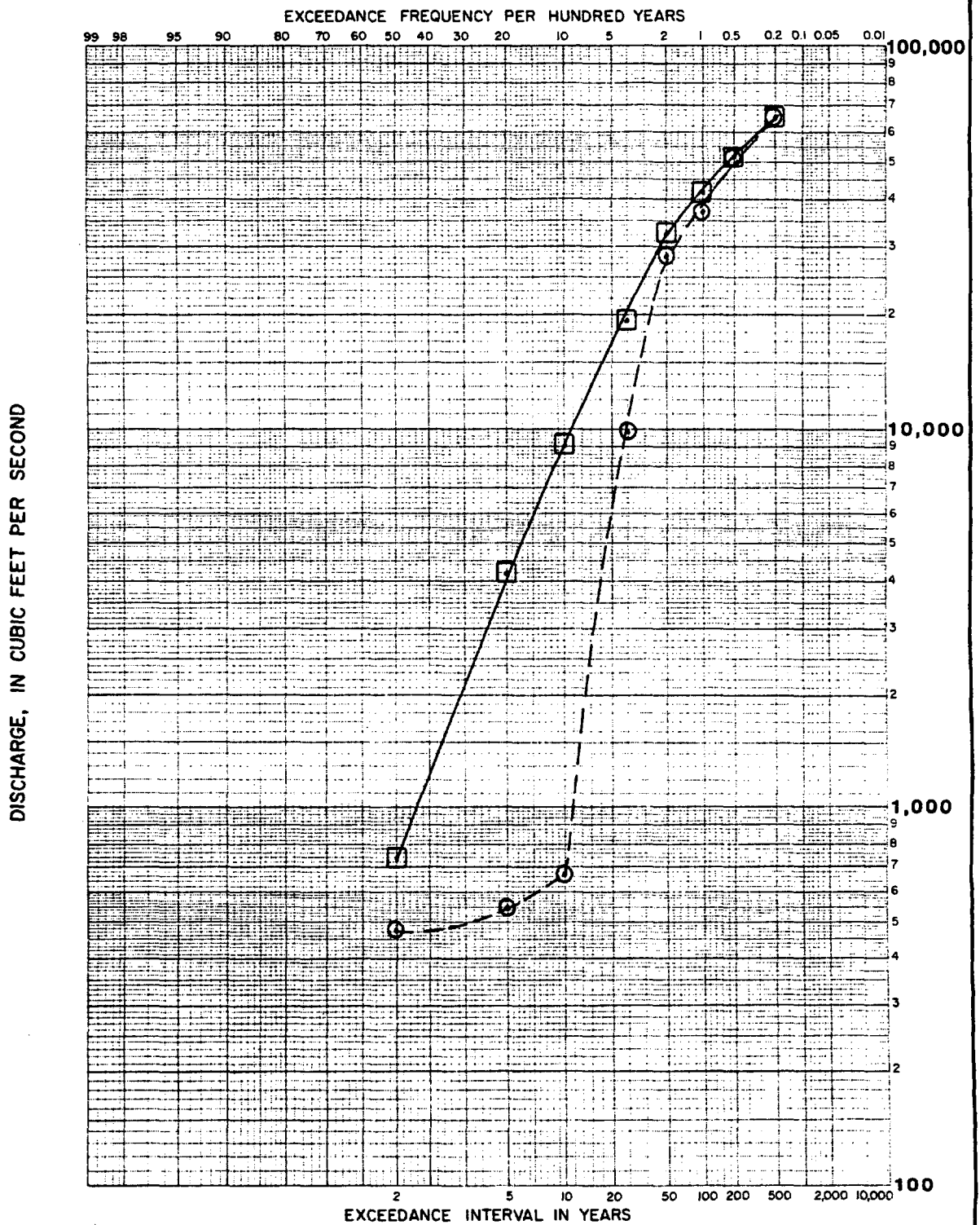
 OUTFLOW
 INFLOW

Data points derived from a rainfall runoff analysis as part of a 1989 Corps of Engineers review study. Frequency values of the data points are listed in Plate 8-10.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

DISCHARGE FREQUENCY
CURVES FOR HANSEN DAM

U S ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



--- OUTFLOW
 --- INFLOW

Data points derived from a rainfall runoff analysis as part of a 1989 Corps of Engineers review study. Frequency values of the data points are listed in Plate 8-11.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

DICHARGE FREQUENCY CURVES
FOR BIG TUJUNGA DAM

U S ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT

Inflow, Outflow, and Filling Frequency Values
for Hansen Reservoir

Return Period (Years)	2	5	10	20	50	100	200	500
Peak Inflow (ft ³ /s)	865	2,840	6,350	13,800	33,500	47,900	64,000	76,500
Peak Outflow (ft ³ /s)	500	500	2,860	9,840	15,800	18,900	21,100	25,000
Peak Eleva- tion (feet, NGVD)	999.4	1009.7	1010.5	1015.6	1030.3	1043.7	1054.2	1066.0

Note: These values, representing 1980 watershed conditions, were obtained from the peak inflow and outflow analysis of Plate 8-8 and from the frequency filling curve of Plate 8-12. The curves were drawn as best-fit lines through data points derived from a rainfall-runoff analysis as part of a 1989 Corps of Engineers LACDA review study.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

HANSEN RESERVOIR
INFLOW, OUTFLOW, AND
FILLING FREQUENCY VALUES

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

Inflow, Outflow, and Filling Frequency Values
for Big Tujunga Reservoir

Return Period (Years)	2	5	10	20	50	100	200	500
Peak Inflow (ft ³ /s)	730	4,160	9,050	19,300	32,200	41,400	51,700	65,200
Peak Outflow (ft ³ /s)	470	540	665	9,820	28,400	36,300	51,700	65,200
Peak Eleva- tion (feet, NGVD)	2219.7	2242.3	2281.9	2297.7	2305.5	2308.1	2308.5	2309.8

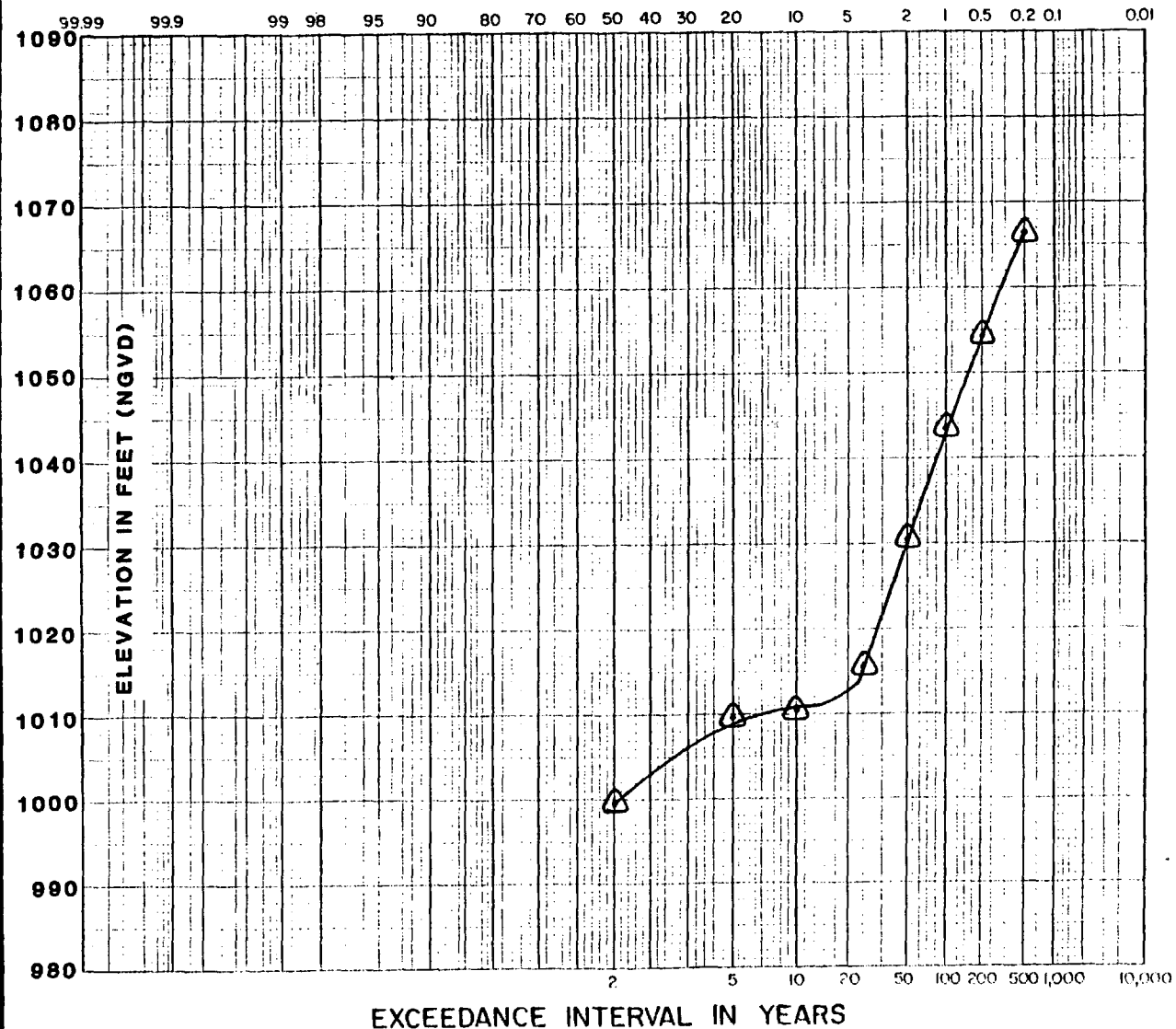
Note: These values, representing 1980 watershed conditions, were obtained from the peak inflow and outflow analysis of Plate 8-9 and from the frequency filling curve of Plate 8-13. The curves were drawn as best-fit lines through data points derived from a rainfall-runoff analysis as part of a 1989 Corps of Engineers LACDA review study.

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

BIG TUJUNGA RESERVOIR
INFLOW, OUTFLOW, AND FILLING
FREQUENCY VALUES

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

EXCEEDANCE FREQUENCY PER HUNDRED YEARS

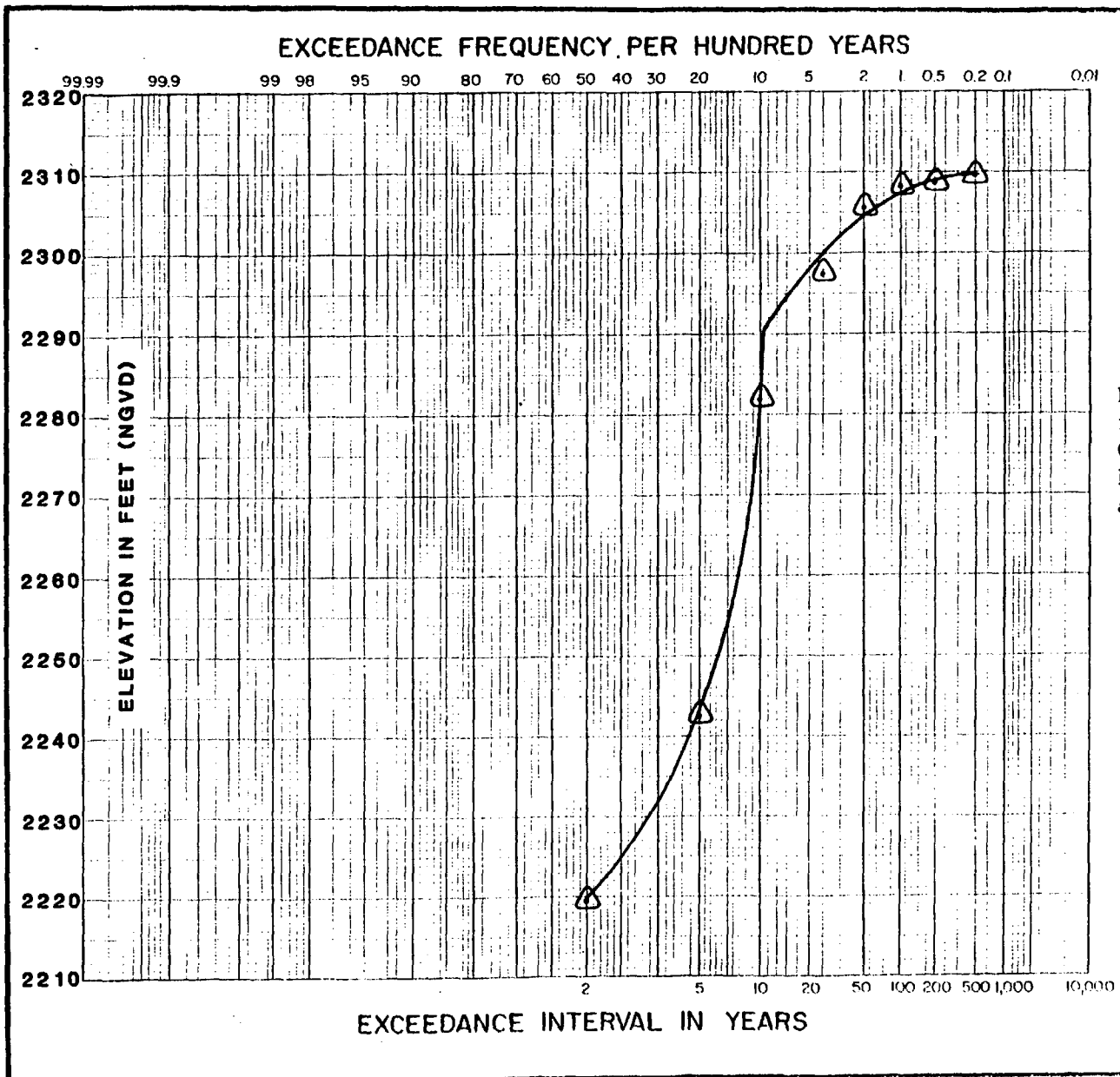


Data points derived from a rainfall runoff analysis as part of a 1989 Corps of Engineers review study. Frequency values of the data points are listed in Plate 8-10.

HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

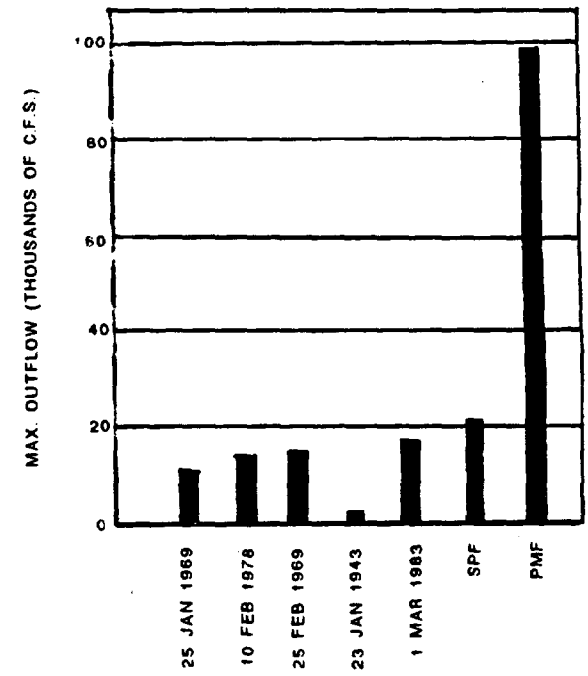
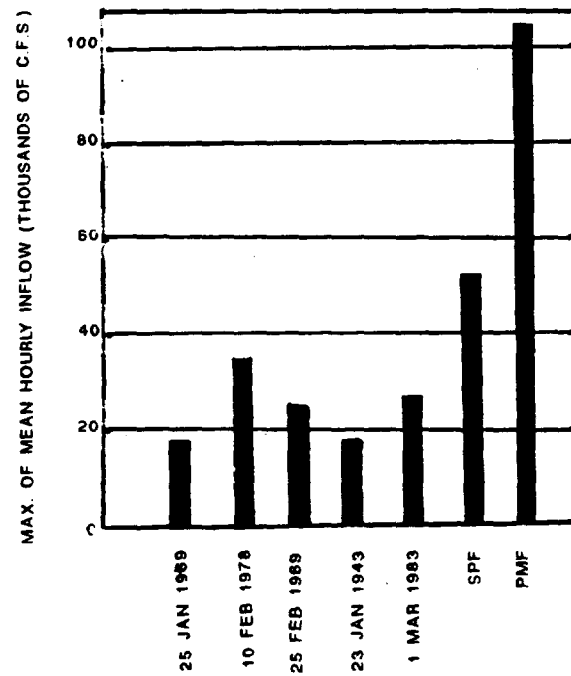
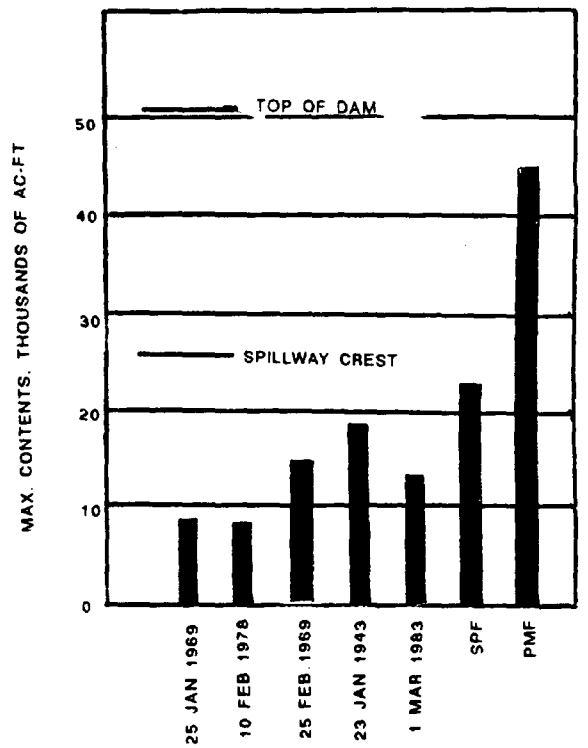
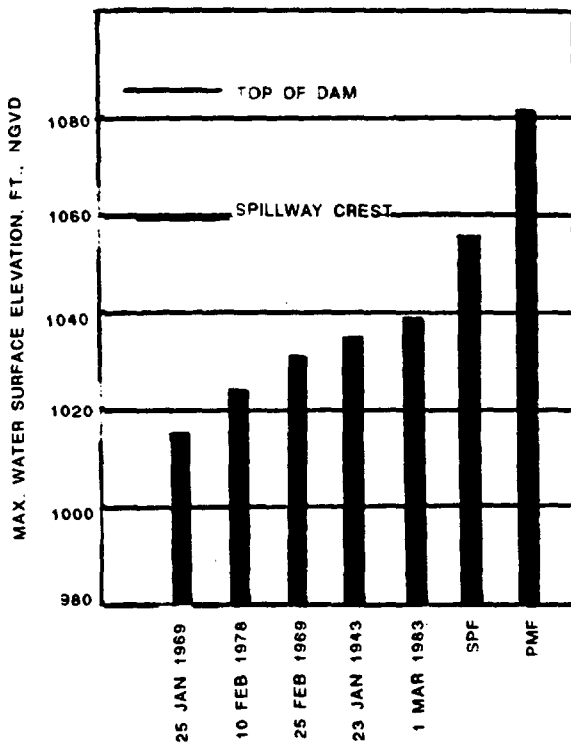
ELEVATION FREQUENCY
 HANSEN DAM

U. S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT
 TO ACCOMPANY REPORT DATED:



Data points derived from a rainfall runoff analysis as part of a 1989 Corps of Engineers review study. Frequency values of the data points are listed in Plate 8-11.

HANSEN DAM TUJUNGA WASH, CALIFORNIA
ELEVATION FREQUENCY BIG TUJUNGA DAM
U.S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT TO ACCOMPANY REPORT DATED:



PMF--PROBABLE MAXIMUM FLOOD
 SPF--STANDARD PROJECT FLOOD

HANSEN DAM
 TUJUNGA WASH, CALIFORNIA

COMPARISON OF HISTORICAL
 FLOODS AND DESIGN FLOODS

U.S. ARMY CORPS OF ENGINEERS
 LOS ANGELES DISTRICT

Comparison of Historical Floods and Design Floods
Hansen Reservoir

	Plate No.	Water Surface Elevation (feet)	Contents (acre- feet)	Inflow* (cfs)	Outflow (cfs)
Probable Maximum Flood	8-02	1081.22	44,990	105,000	99,700
Standard Project Flood	8-01	1057.25	23,350	53,000	20,640
23 January 1943	8-03	1036.47	18,743	18,860	1,640
25 January 1969	8-04	1018.28	9,015	17,972	11,042
25 February 1969	8-05	1030.78	14,872	26,012	15,993
10 February 1978	8-06	1023.90	8,211	35,050**	13,541
1 March 1983	8-07	1039.70	13,261	27,900	18,104

* Maximum of mean hourly values

** Maximum inflow for 40 minutes: 40,220 cfs

HANSEN DAM
TUJUNGA WASH, CALIFORNIA

COMPARISON OF
HISTORICAL AND DESIGN FLOODS
AT HANSEN RESERVOIR

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

Chain of Command for Reservoir Operations Decisions

Corps of Engineers
Los Angeles District

<u>Title</u>	<u>Office Phone Number:</u>
District Engineer	(213) 894-5300
<u>Water Control Decisions</u>	<u>Gate Operations</u>

<u>Title</u>	<u>Phone</u>	<u>Title</u>	<u>Phone</u>
Chief, Engineering Division	(213) 894-5470	Chief, Construction-Operations Division	(213) 894-5600
Chief, Hydrology and Hydraulic Branch	(213) 894-5520	Chief, Operations Branch	(213) 894-5620
Chief, Reservoir Regulation Section	(213) 894-6915	Chief, Operations & Maintenance Section	(818) 401-4008
Chief, Reservoir Regulation Unit	(213) 894-6916	Dam Tender Foreman	(818) 401-4006
		Hansen Dam Tender	(818) 767-3810

HANSEN DAM TUJUNGA WASH, CALIFORNIA
CHAIN OF COMMAND FOR RESERVOIR OPERATIONS DECISIONS
U.S. ARMY CORPS OF ENGINEERS LOS ANGELES DISTRICT