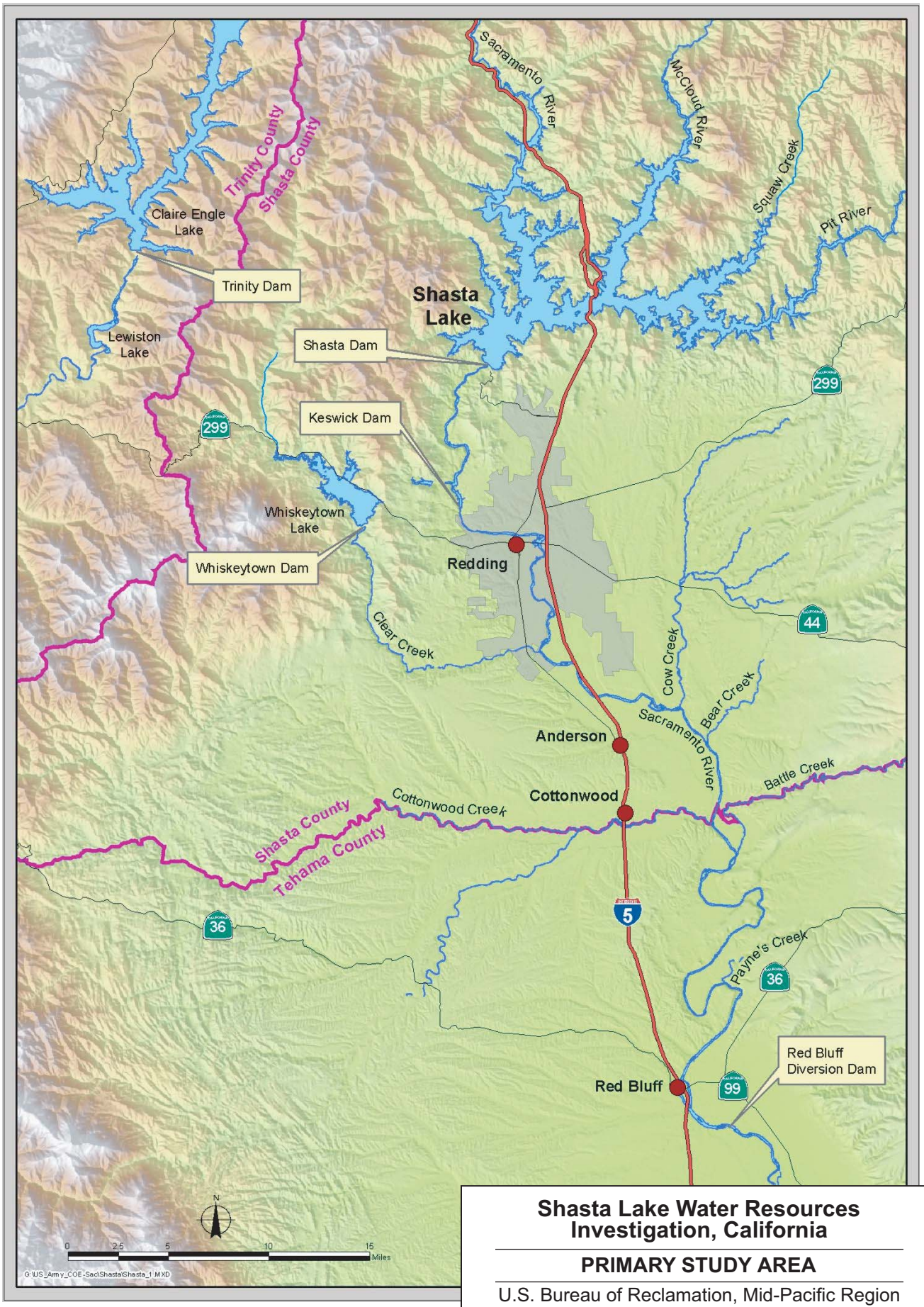
Plates

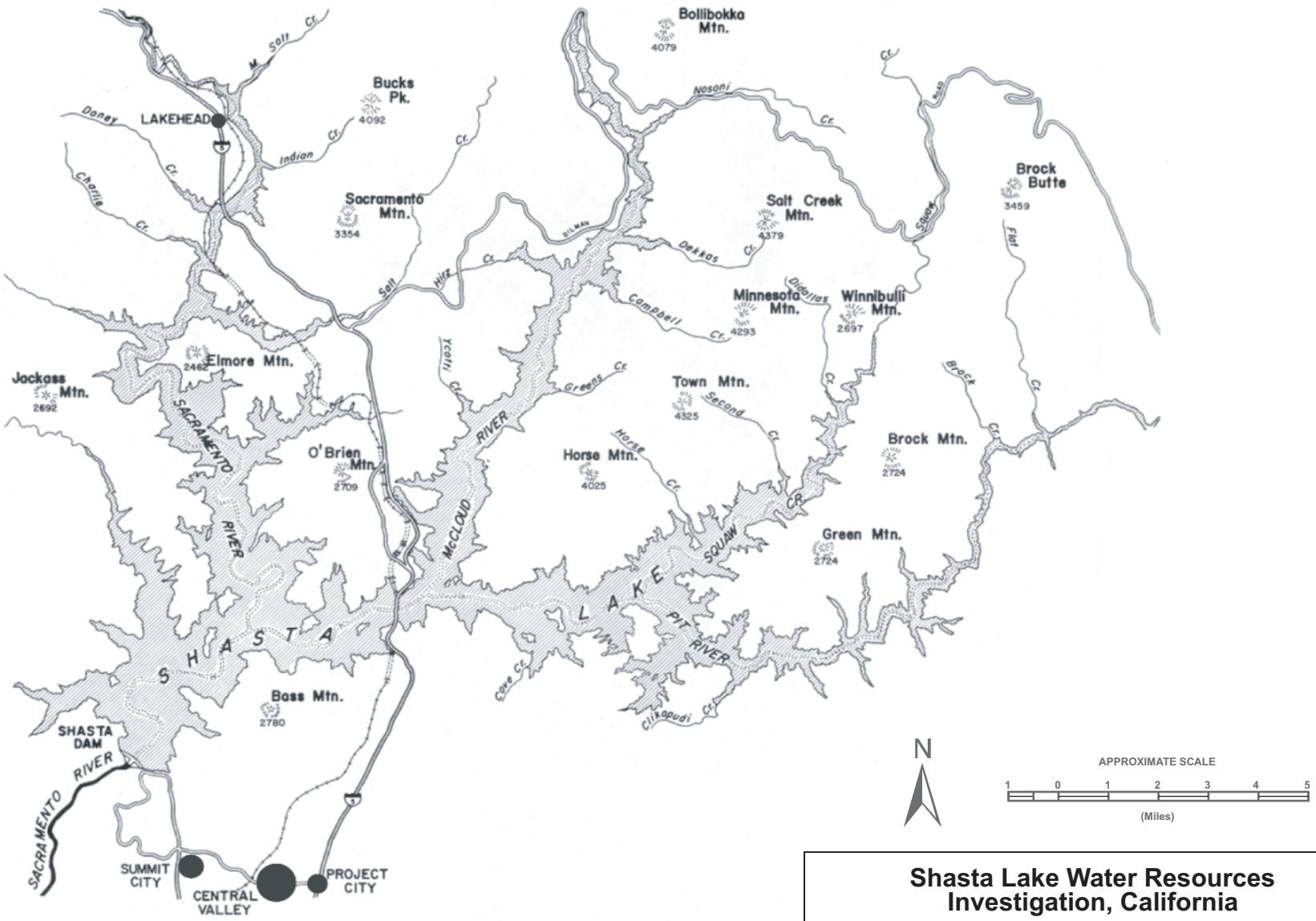


Shasta Lake Water Resources Investigation, California

PRIMARY STUDY AREA

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 1



Source: U.S. Army Corps of Engineers, Shasta Dam and Lake, Sacramento River, California, Report on Reservoir Regulation for Flood Control, Rev. January 1977

Shasta Lake Water Resources Investigation, California

SHASTA RESERVOIR AREA

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

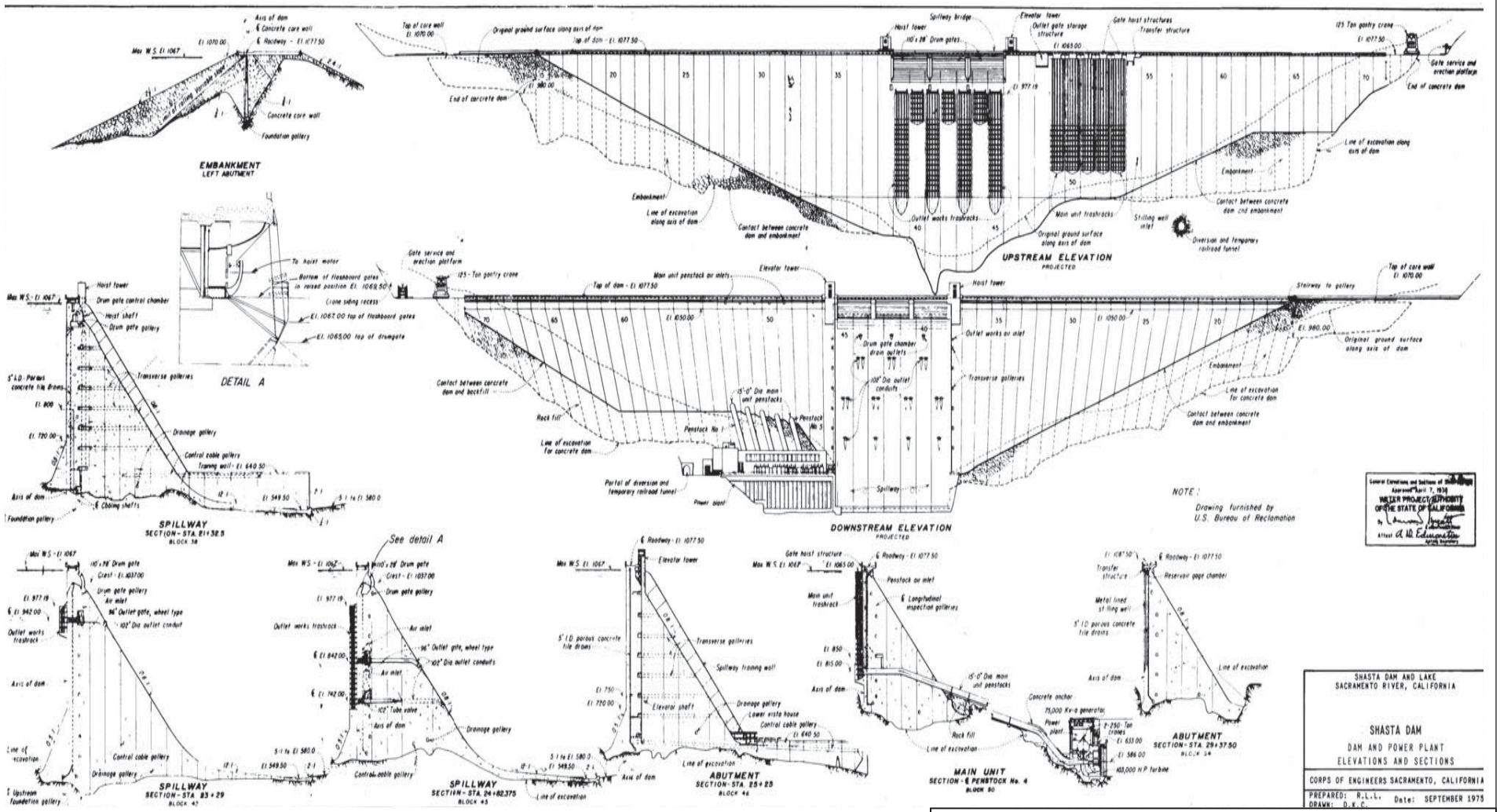
PLATE 2

Shasta Lake Water Resources Investigation, California

MAJOR CVP AND SWP FACILITIES

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 3



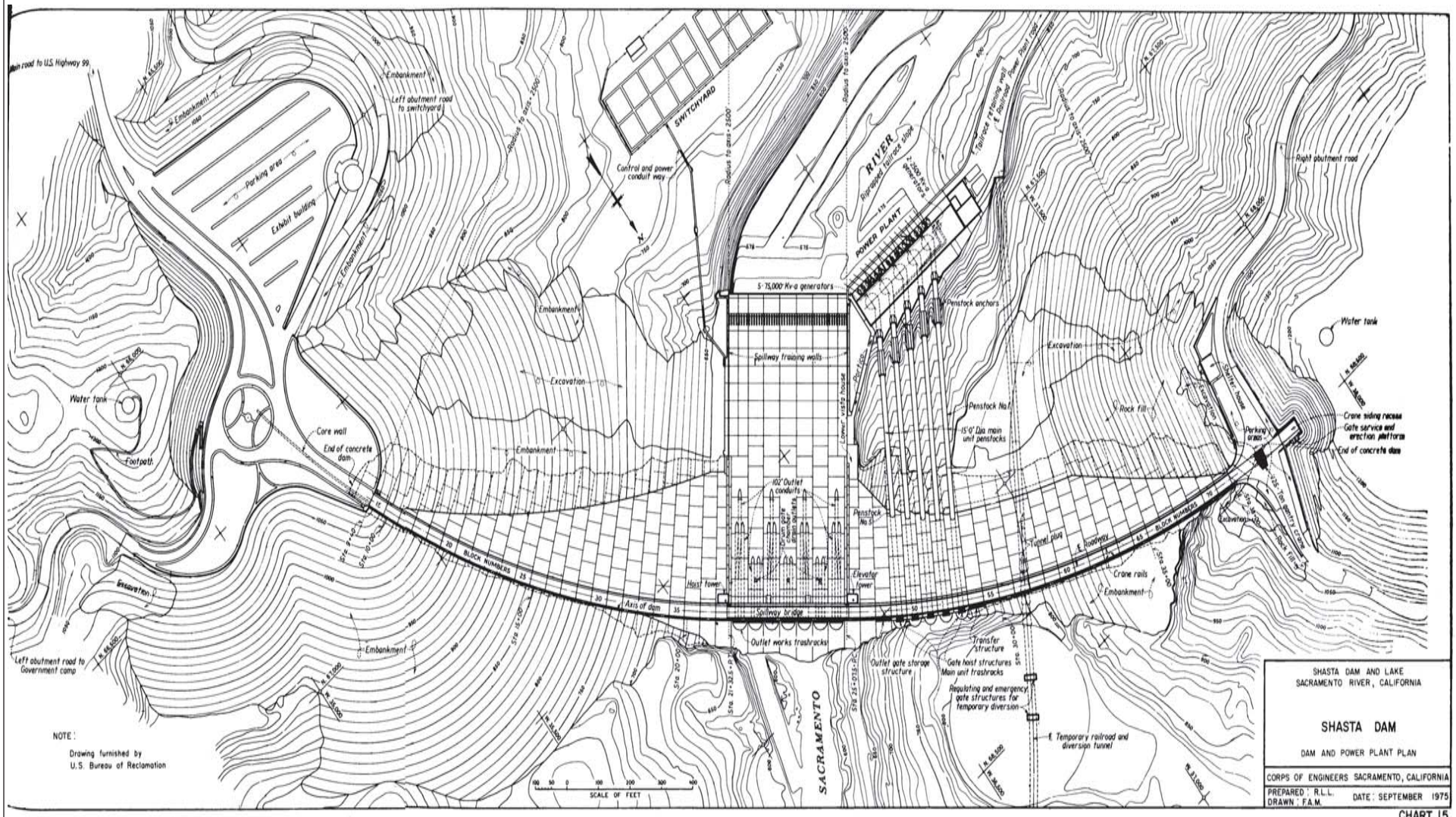
Source: U.S. Army Corps of Engineers, Shasta Dam and Lake, Sacramento River, California, Report on Reservoir Regulation for Flood Control, Rev. January 1977

Shasta Lake Water Resources Investigation, California

SHASTA DAM AND POWERPLANT ELEVATIONS AND SECTIONS

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 4



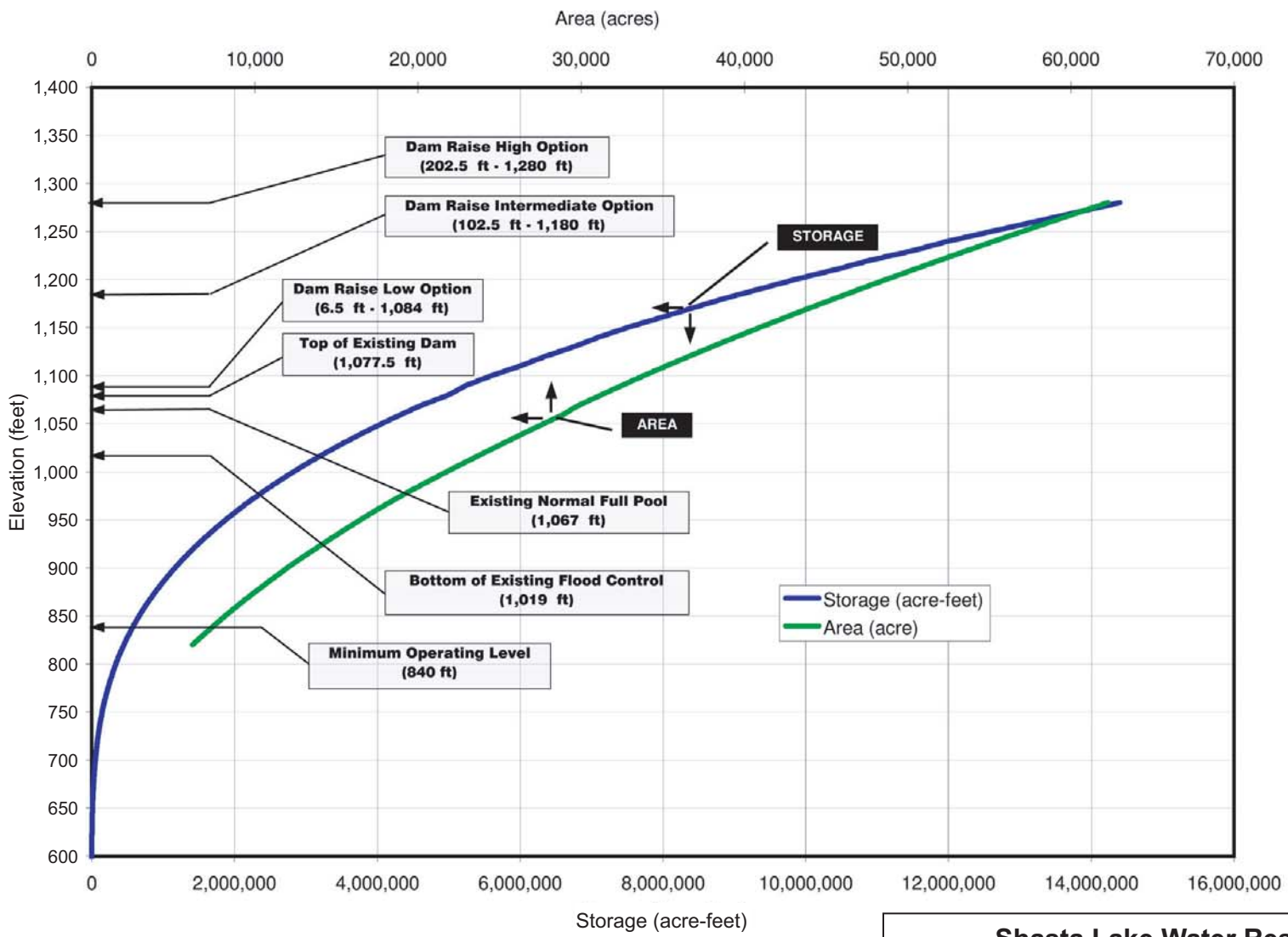
Source: U.S. Army Corps of Engineers, Shasta Dam and Lake, Sacramento River, California, Report on Reservoir Regulation for Flood Control, Rev. January 1977

Shasta Lake Water Resources Investigation, California

SHASTA DAM AND POWERPLANT PLAN

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 5

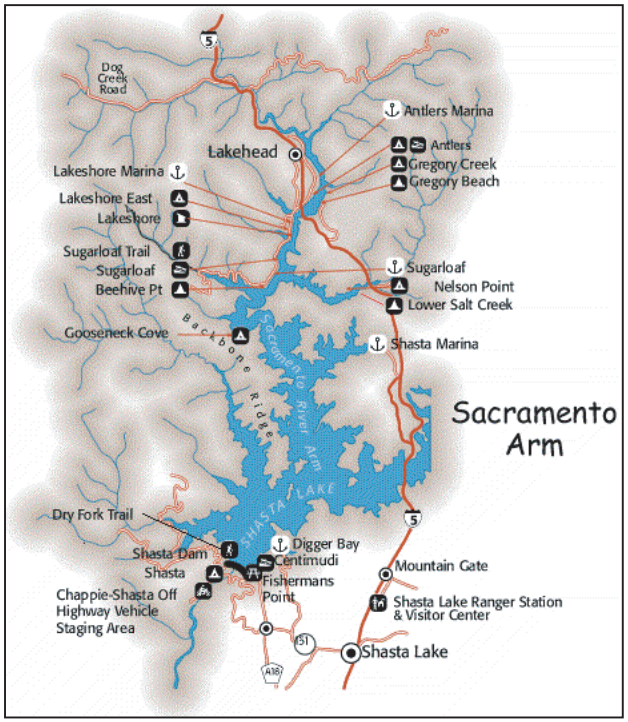


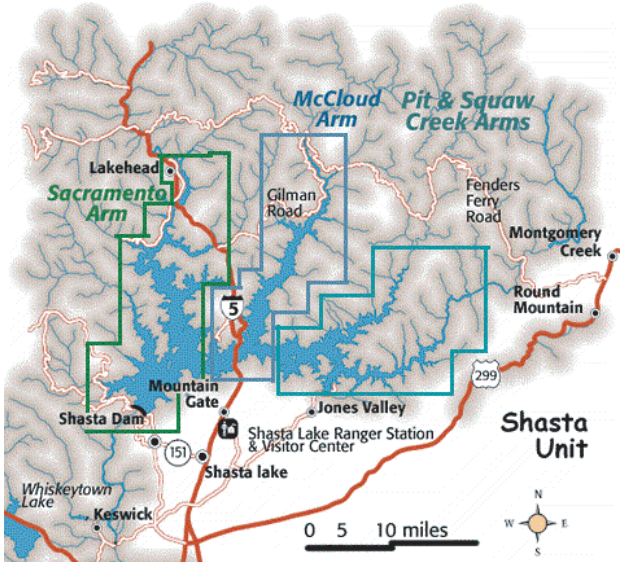
Shasta Lake Water Resources Investigation, California

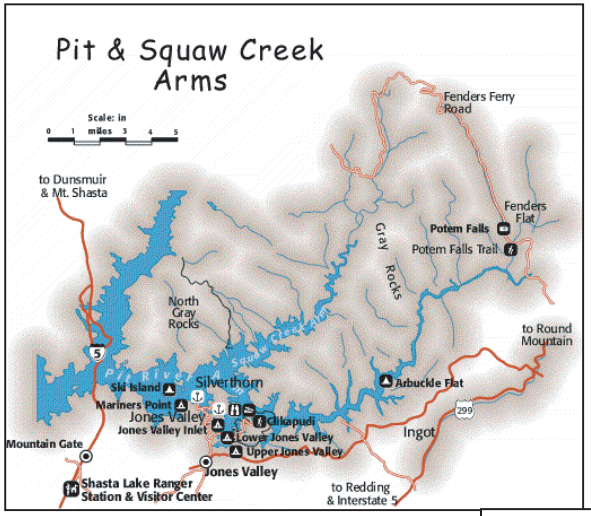
ENLARGED SHASTA RESERVOIR AREA - CAPACITY RELATIONSHIPS

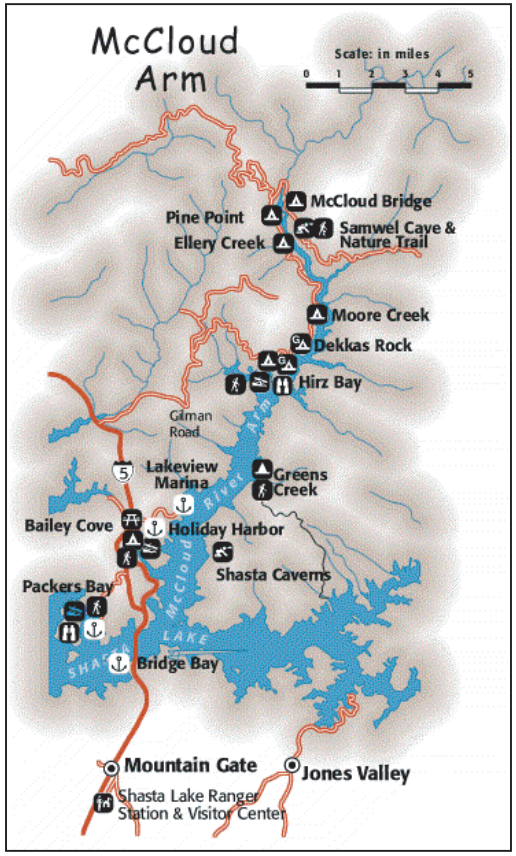
U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 6







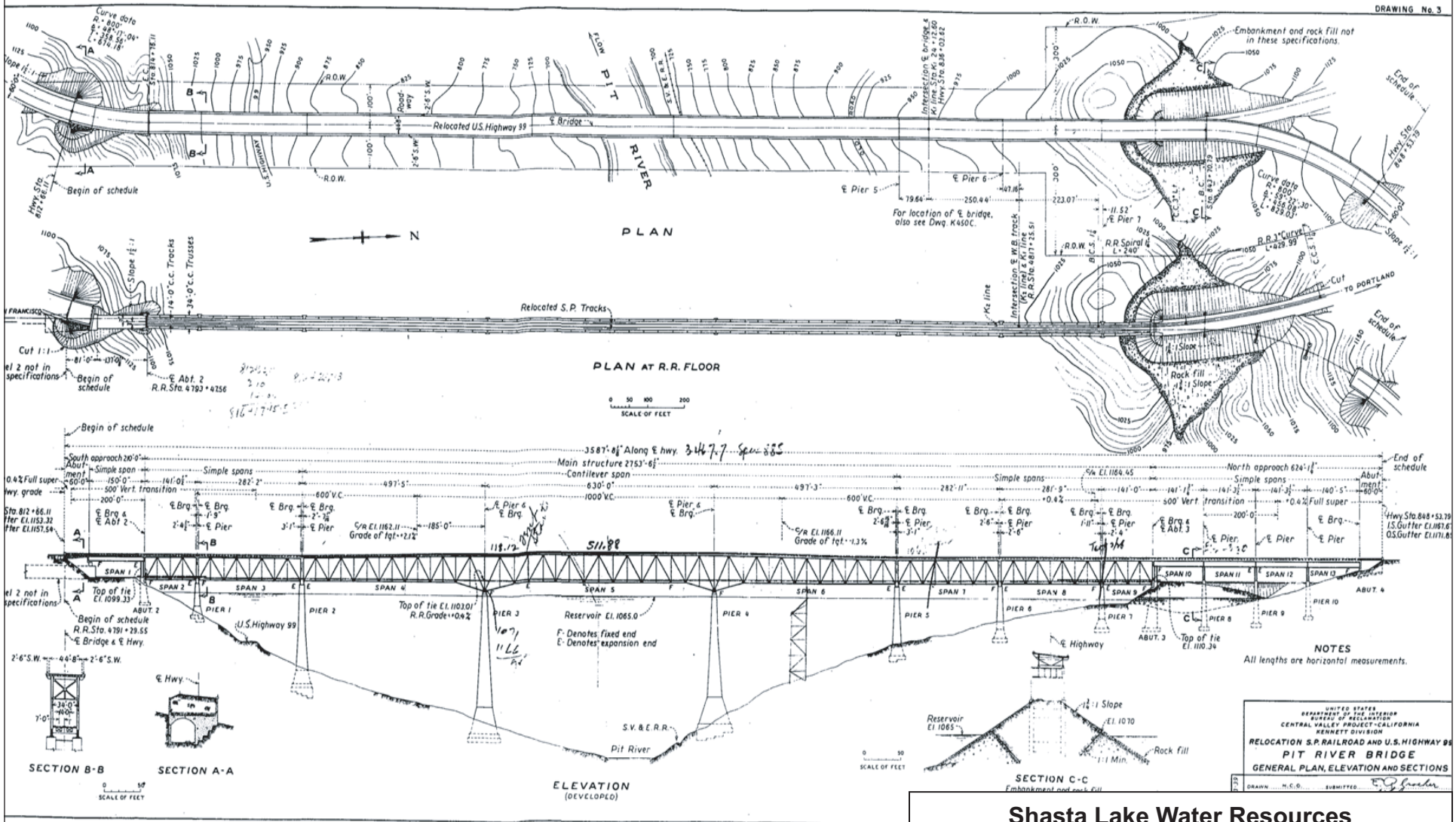


Shasta Lake Water Resources Investigation, California

SHASTA RECREATION FACILITIES

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 7



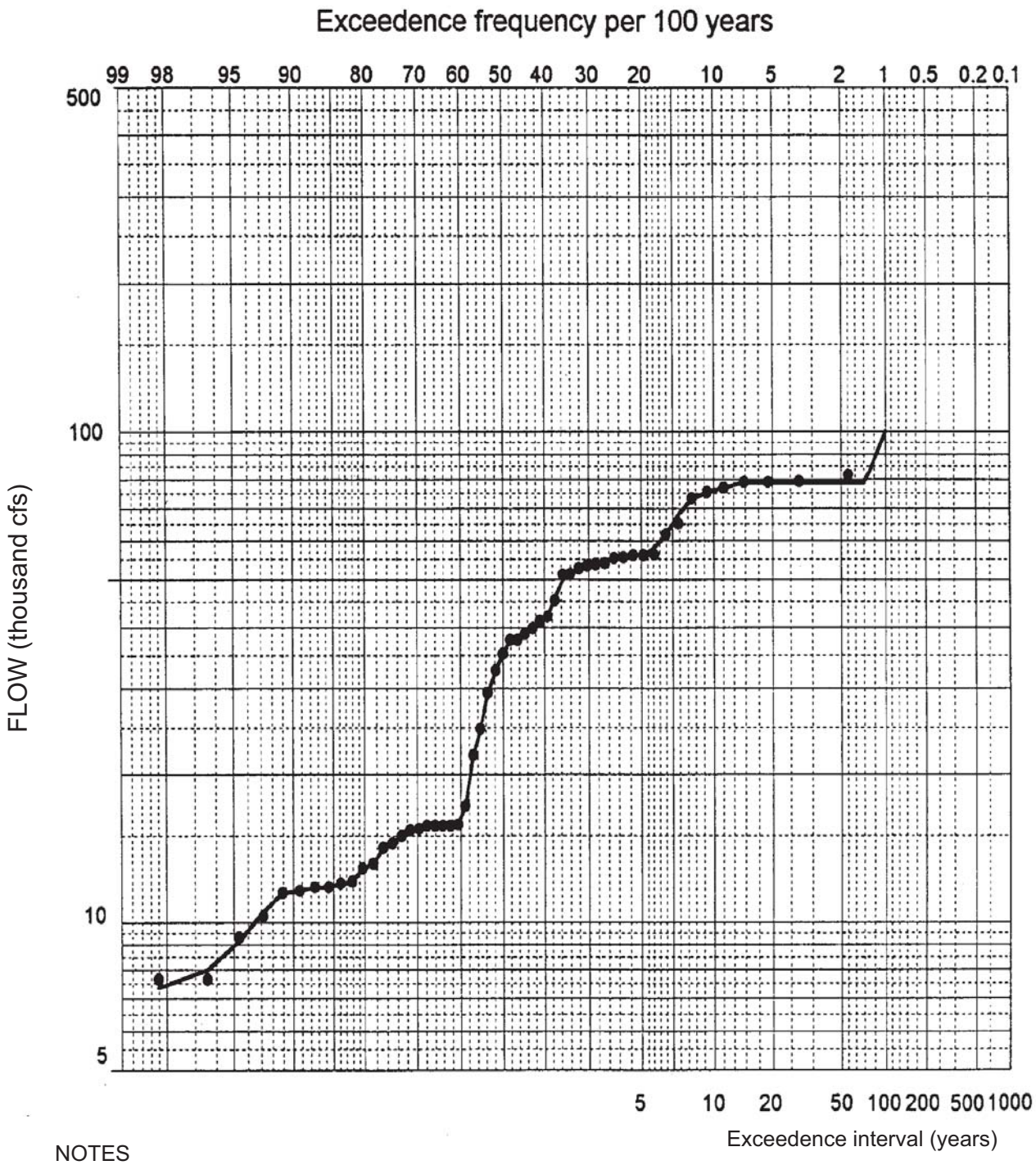
Shasta Lake Water Resources Investigation, California

PIT RIVER BRIDGE

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

Source: U.S. Bureau of Reclamation, Abutments and Piers, Pit River Bridge, Relocation of Southern Pacific Railroad and U.S. HIghway 99, 1939

PLATE 8



NOTES
1. Drainage area 6,468 sq. mi.
2. Median plotting positions
3. Period of record: 1944-1998

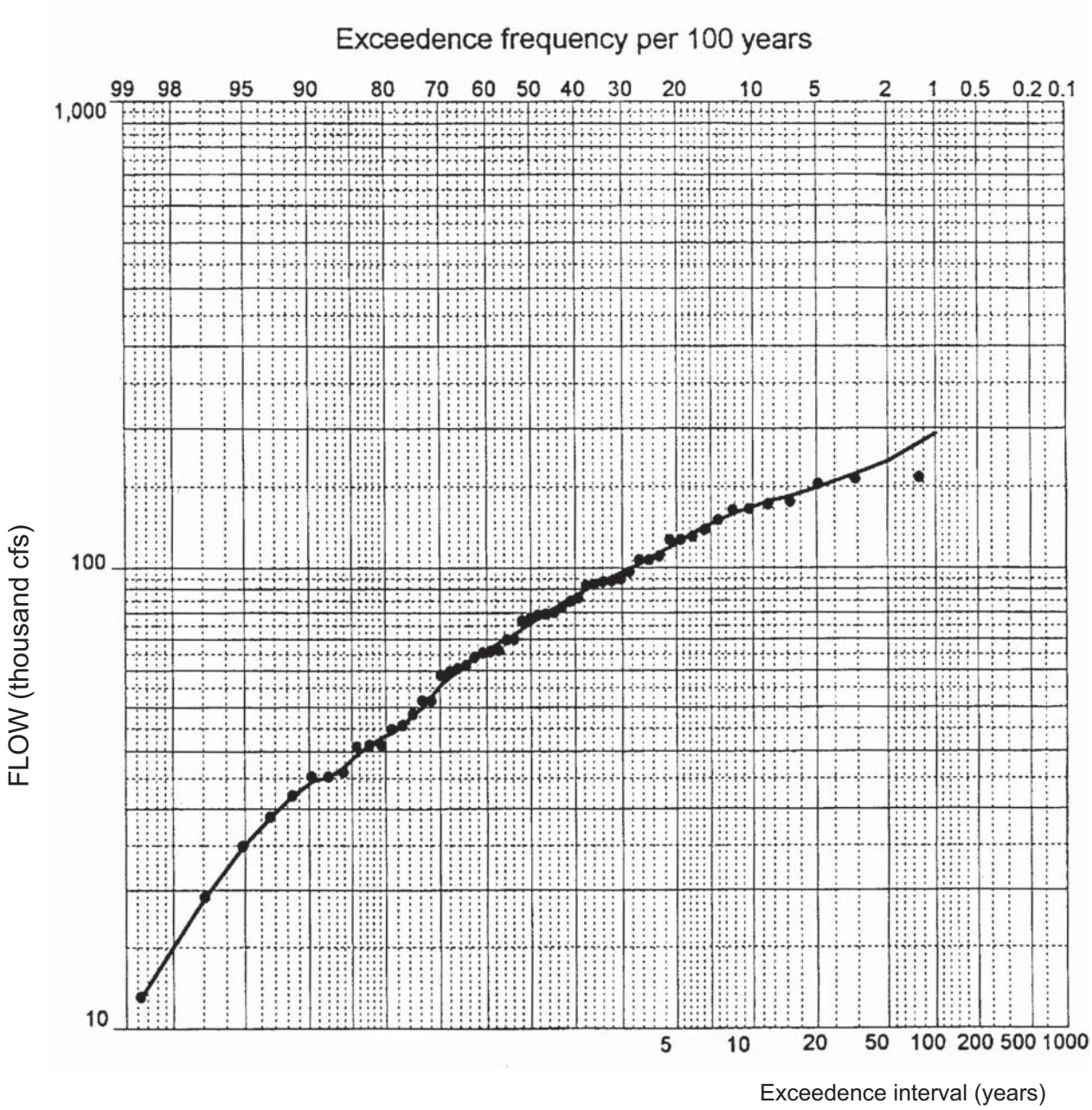
Source: U.S. Army Corps of Engineers,Sacramento and San Joaquin River Basins, California. Post-Flood Assessment, 1999.

Shasta Lake Water Resources Investigation, California

PEAK RAIN FLOOD FREQUENCY SACRAMENTO RIVER AT KESWICK REGULATED CONDITION

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 9



NOTES
1. Drainage Area 6,468 sq. mi.
2. Median plotting positions
3. Period of Record: 1944-1998

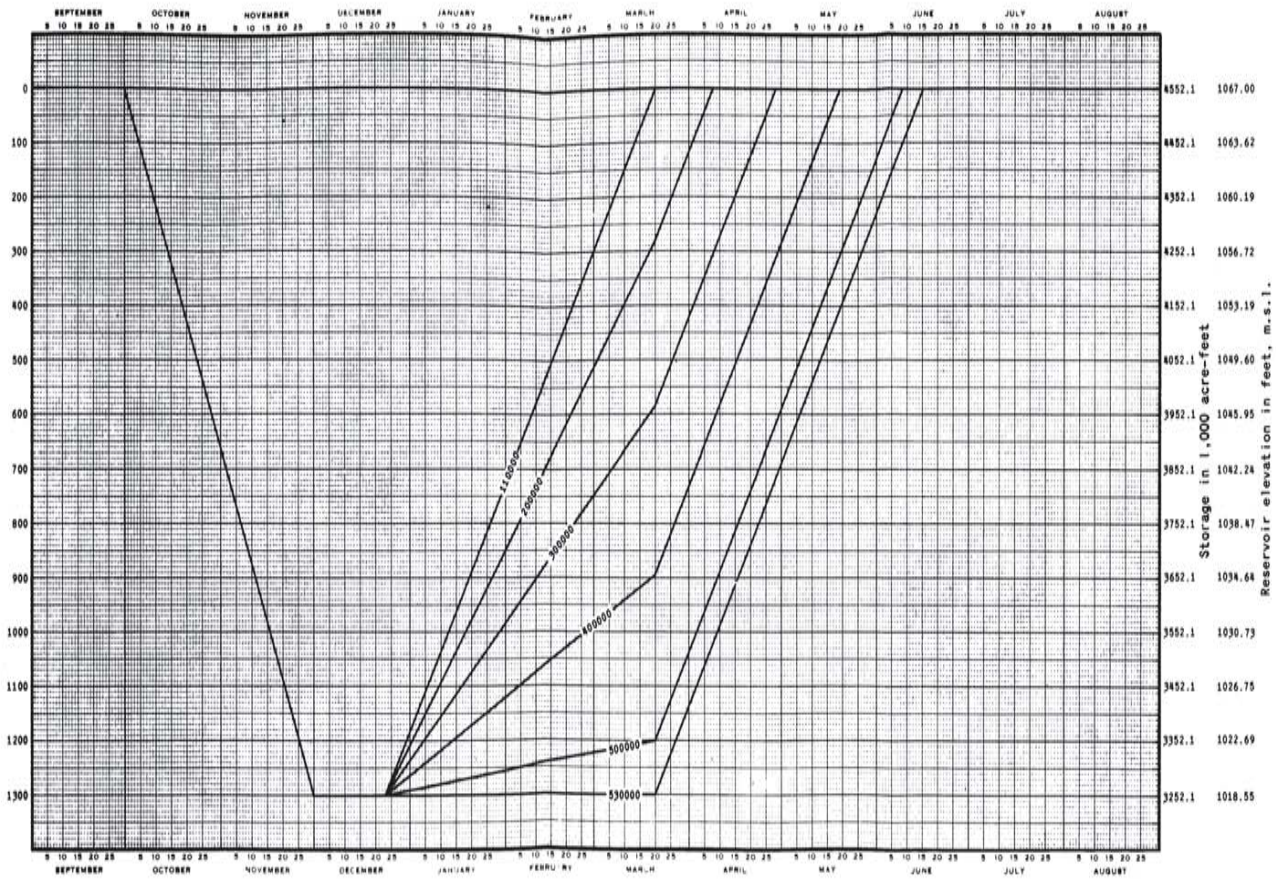
Source: U.S. Army Corps of Engineers,Sacramento and San Joaquin River Basins, California. Post-Flood Assessment, 1999.

Shasta Lake Water Resources Investigation, California

PEAK RAIN FLOOD FREQUENCY SACRAMENTO RIVER ABOVE BEND BRIDGE REGULATED CONDITION

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 10



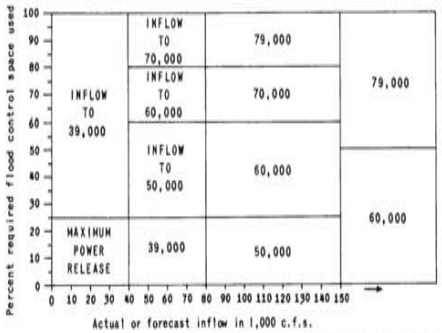
USE OF DIAGRAM

1. Rainflood parameters relate the accumulation of seasonal inflow to the required flood control space reservation on any given day. Parameter values are computed daily, from the accumulation of seasonal inflow by adding the current day's inflow in cubic feet per second (cfs) to 95% of the parameter value computed through the preceding day.*

2. Except when releases are governed by the emergency spillway release diagram currently in force (File No. SA-26-92), water stored in the flood control reservation, defined hereon, shall be released as rapidly as possible, subject to the following conditions:
   a. That releases are made according to the Release Schedule hereon.
   b. That flows in Sacramento River below Keswick Dam do not exceed 79,000 cfs.
   c. That flows in Sacramento River at Bend Bridge gage do not exceed 100,000 cfs.
   d. That releases are not increased more than 15,000 cfs or decreased more than 4,000 cfs in any 2-hour period.

*Flood Control Diagram is initialized each flood season by assuming a parameter value of 100,000 c.f.s. day on 1 October.

RELEASE SCHEDULE



SHASTA DAM AND LAKE
SACRAMENTO RIVER, CALIFORNIA

FLOOD CONTROL DIAGRAM

Prepared Pursuant to Flood Control Regulations for Shasta Dam and Lake

APPROVED: Richard M. Connell
Brigadier General, USA, Division Engineer
South Pacific Division

APPROVED: B. E. Martin
Regional Director Mid Pacific Region
U.S.B.R.

Effective Date: 8 JUL 1977 File No. SA-17-26-13

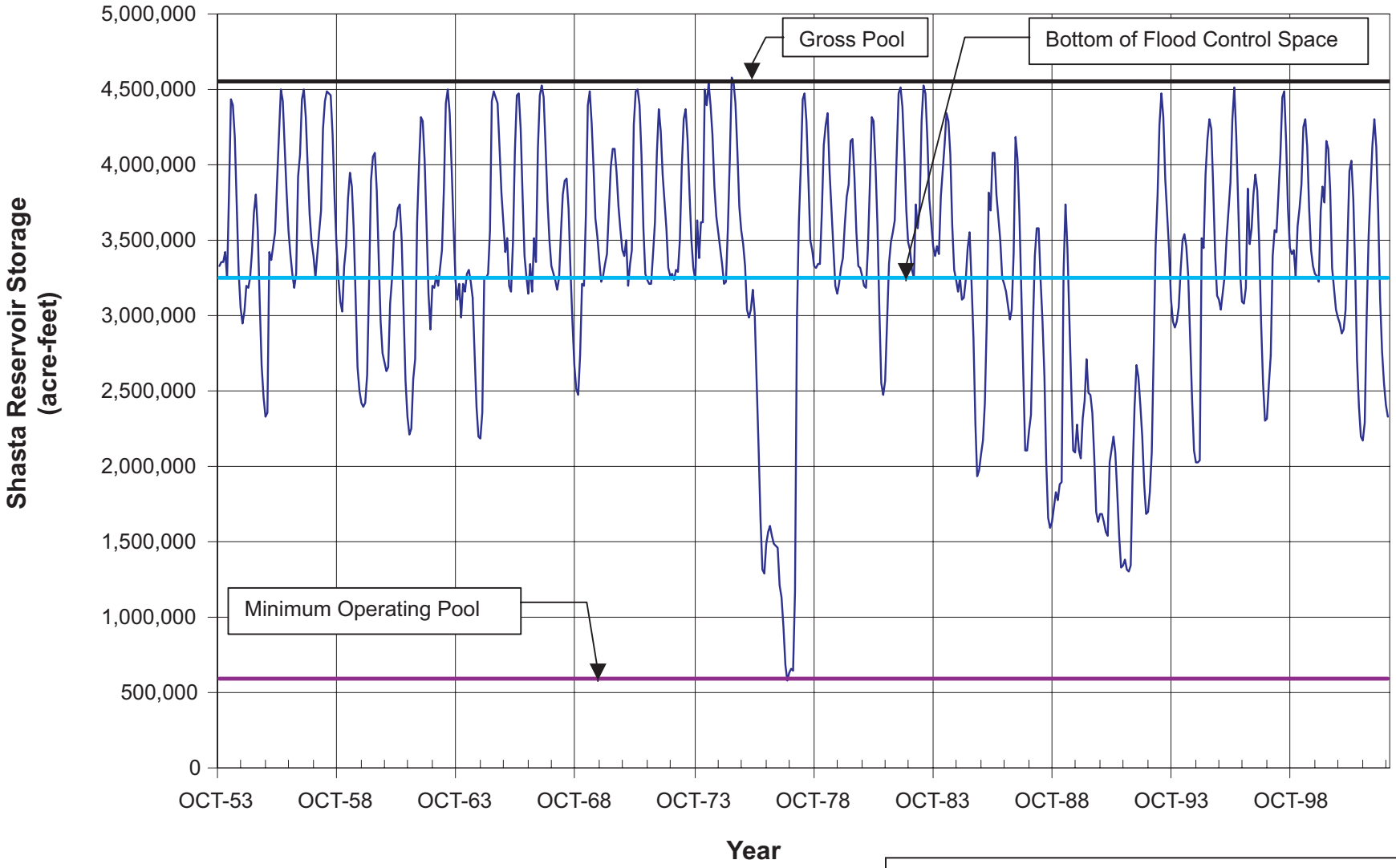
Source: U.S. Army Corps of Engineers, Shasta Dam and Lake, Sacramento River, California, Report on Reservoir Regulation for Flood Control, Rev. January 1977

Shasta Lake Water Resources Investigation, California

SHASTA DAM FLOOD CONTROL DIAGRAM

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 11



Shasta Lake Water Resources Investigation, California

SHASTA RESERVOIR STORAGE MONTHLY AVERAGE

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 12

Existing Gross Pool

Approximate Gross Pool with 6.5-Foot Dam Raise

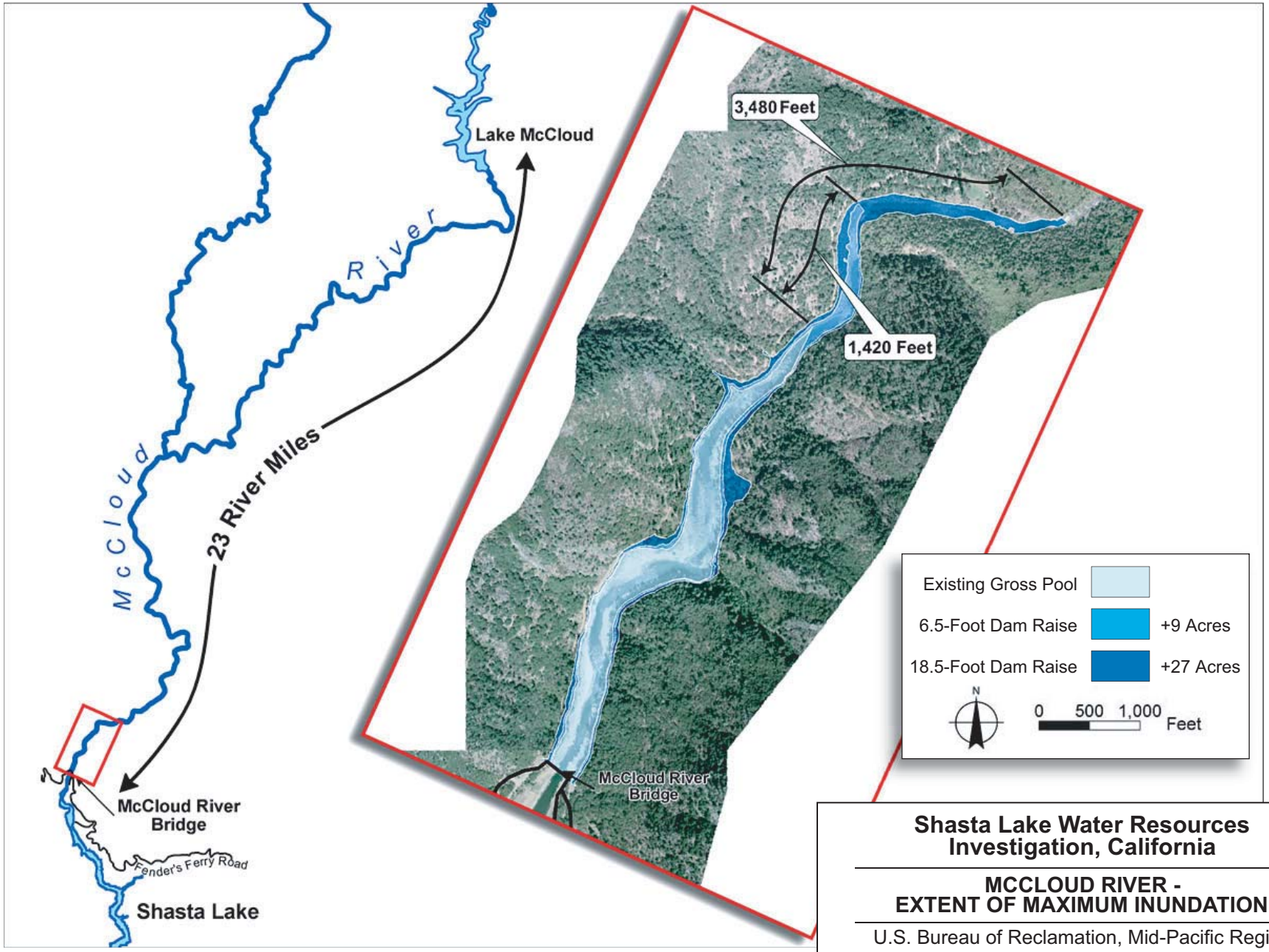
Approximate Gross Pool with 18.5-Foot Dam Raise

Shasta Lake Water Resources Investigation, California

MAXIMUM INUNDATION LIMITS LAKESHORE AREA WITHOUT INFRASTRUCTURE PROTECTION

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 13

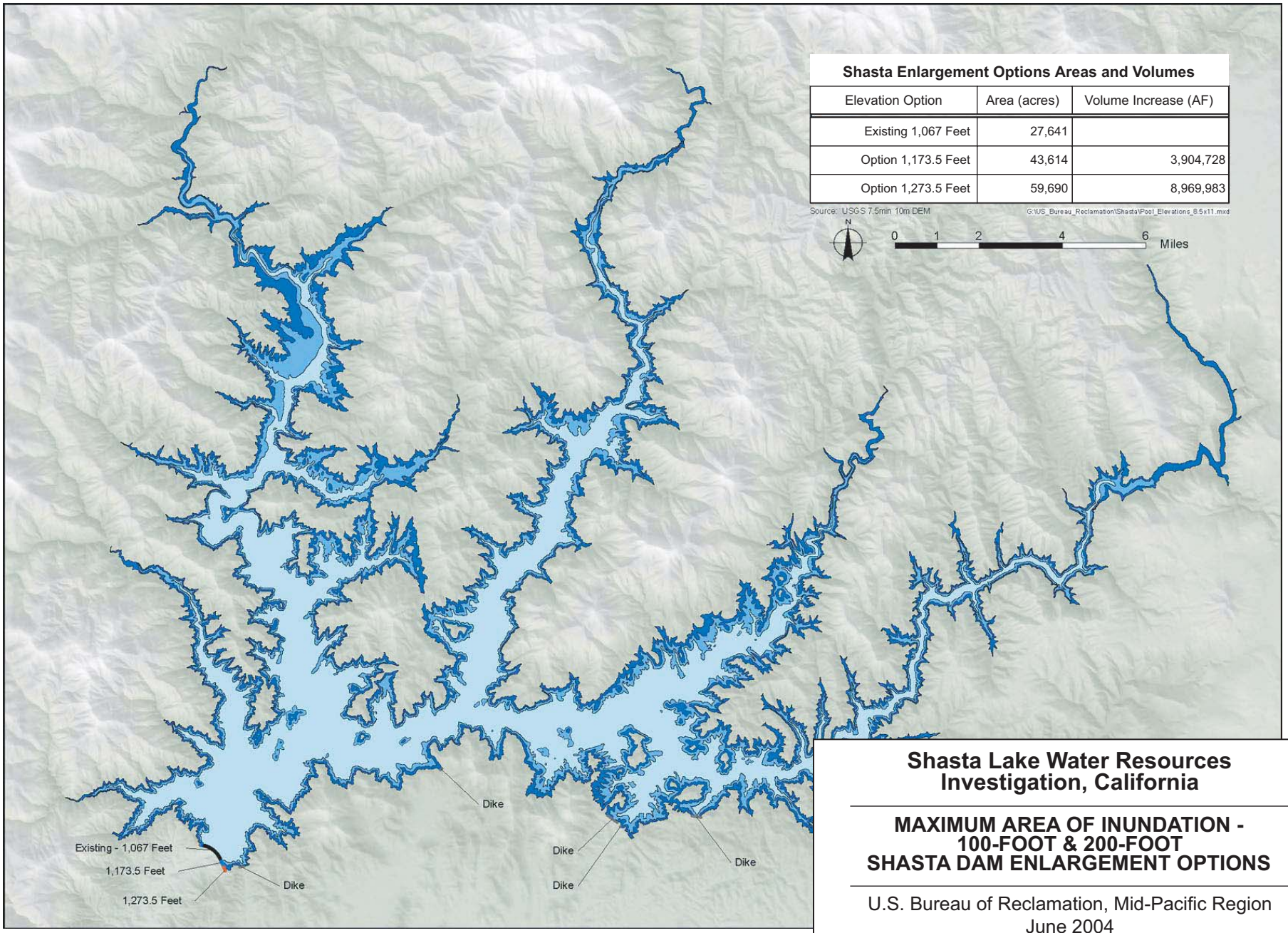


Shasta Lake Water Resources Investigation, California

MCCLOUD RIVER - EXTENT OF MAXIMUM INUNDATION

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 14



Shasta Enlargement Options Areas and Volumes

Elevation Option	Area (acres)	Volume Increase (AF)
Existing 1,067 Feet	27,641	
Option 1,173.5 Feet	43,614	3,904,728
Option 1,273.5 Feet	59,690	8,969,983

Shasta Lake Water Resources Investigation, California

MAXIMUM AREA OF INUNDATION - 100-FOOT & 200-FOOT SHASTA DAM ENLARGEMENT OPTIONS

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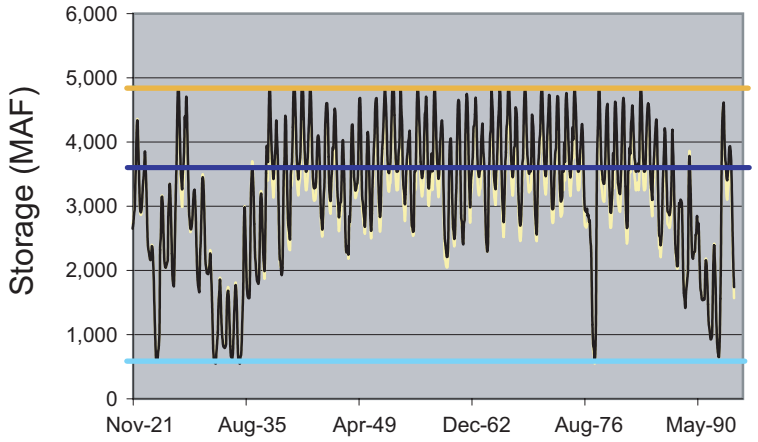
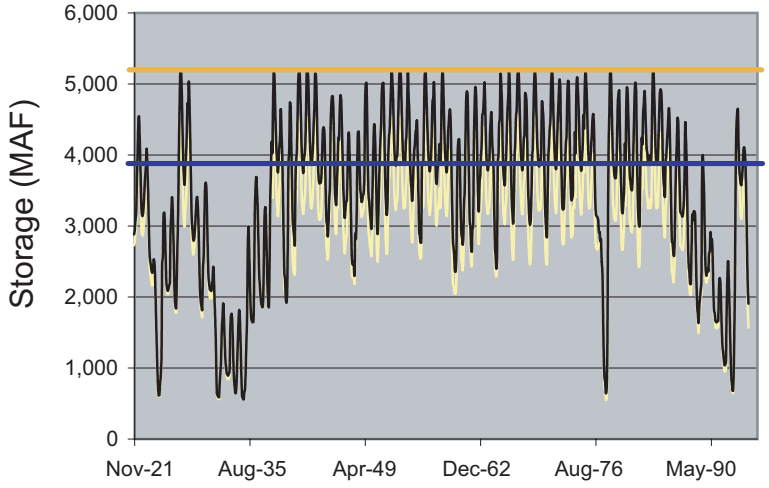
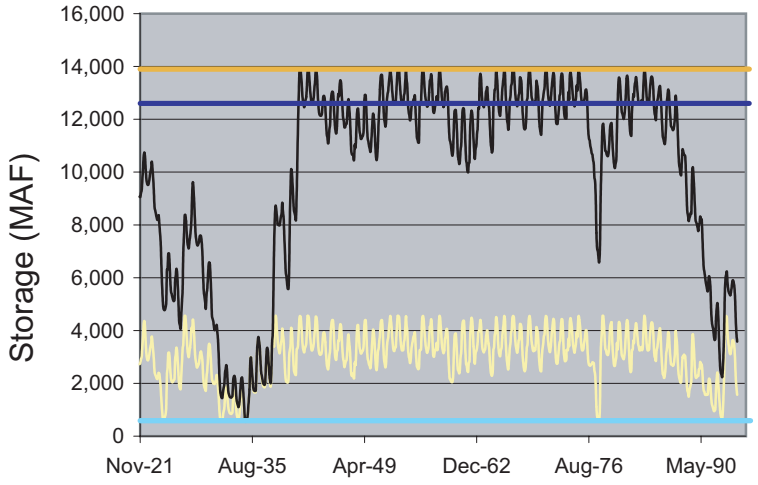
PLATE 15



6.5-Foot Dam Raise



18.5-Foot Dam Raise



200-Foot Dam Raise

Baseline

With Dam Raise Scenario

Top of Flood Control

Bottom of Flood Control

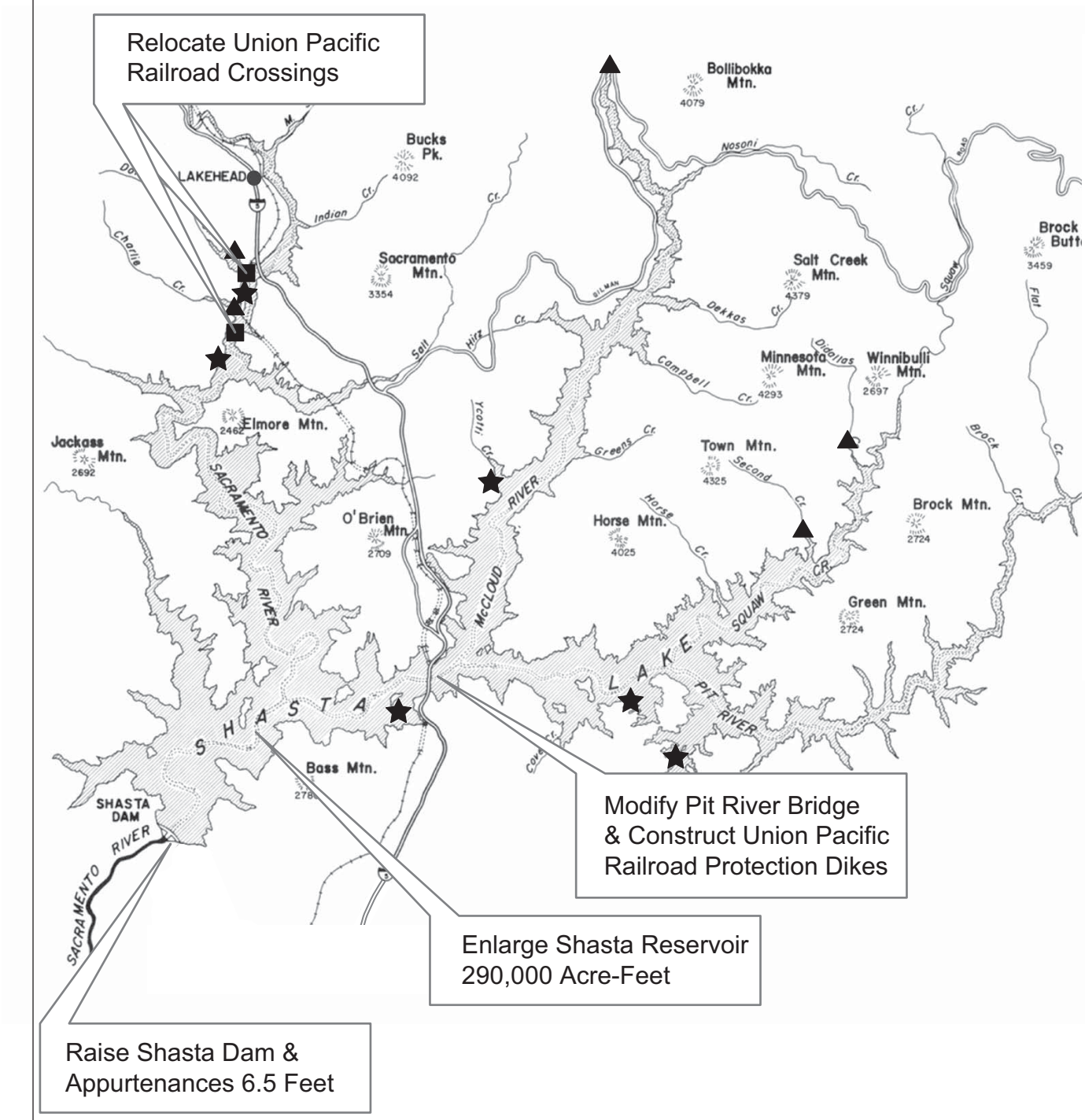
Dead Pool

Note: CALSIM II Simulation Period 1921 to 1994

Shasta Lake Water Resources Investigation, California

SIMULATED SHASTA RESERVOIR STORAGE FLUCTUATIONS - BASELINE & DAM RAISE SCENARIOS

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004



■ Union Pacific Railroad Bridge Modification

▲ Vehicle Bridge Relocation

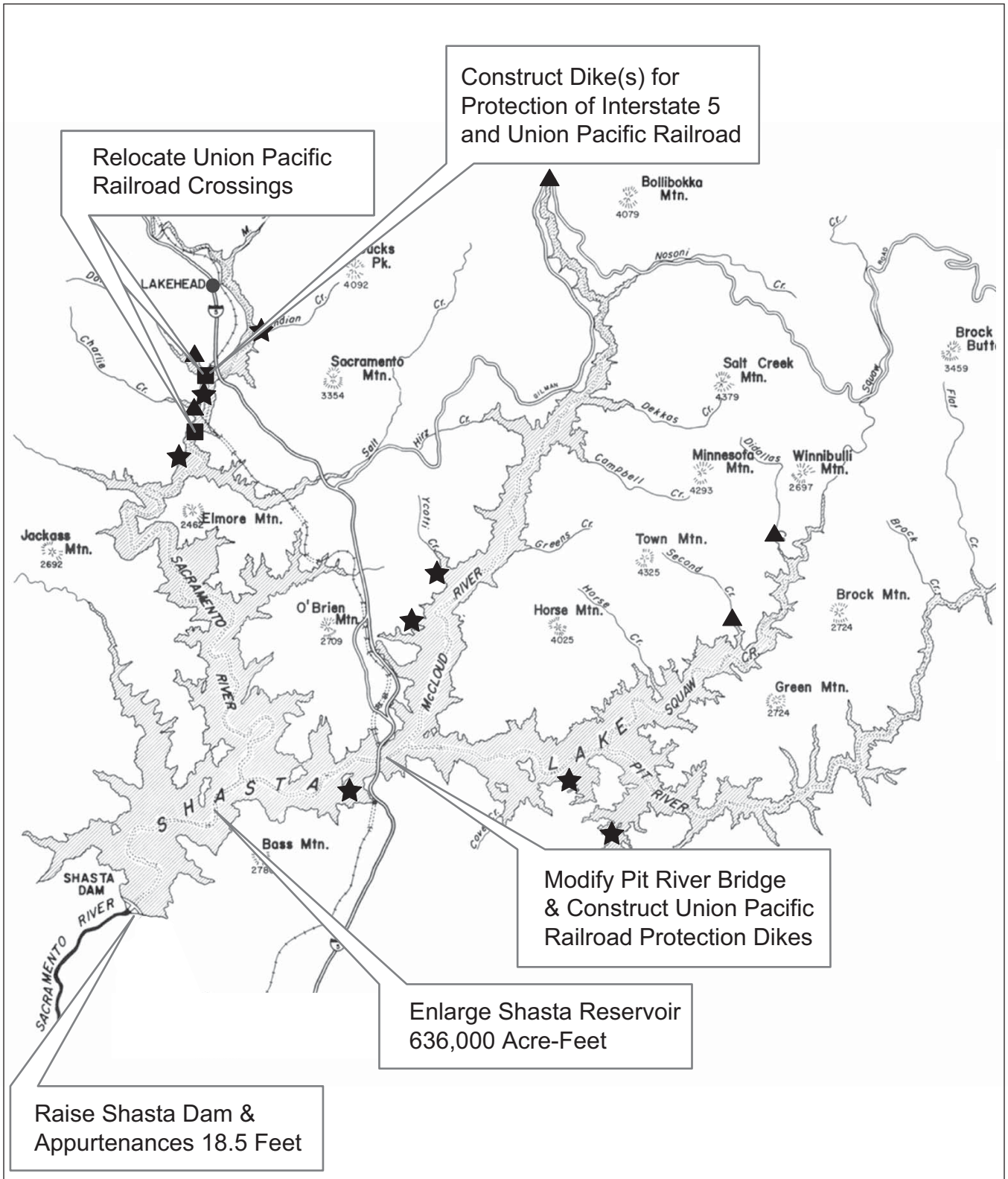
★ Major Recreation, Marina, & Related Modification

Shasta Lake Water Resources Investigation, California

INCREASE WATER SUPPLY RELIABILITY WITH 6.5-FOOT SHASTA ENLARGEMENT PLAN (WSR-1)

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 17



Union Pacific Railroad Bridge Modification

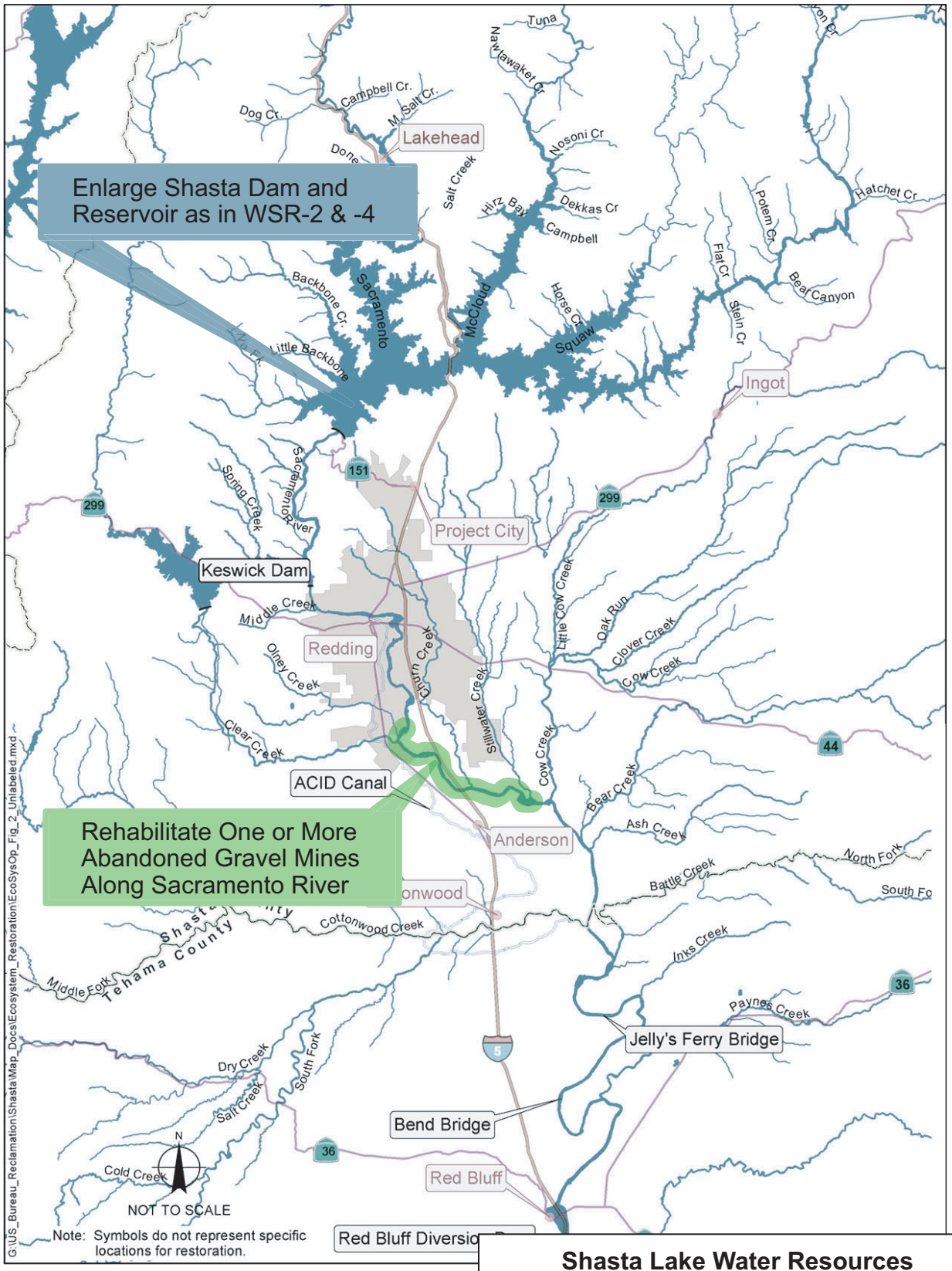
Vehicle Bridge Relocation

Major Recreation, Marina, & Related Modification

Shasta Lake Water Resources Investigation, California

INCREASE/ENHANCE WATER SUPPLY RELIABILITY WITH 18.5-FOOT SHASTA ENLARGEMENT PLANS (WSR-2 & -4)

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

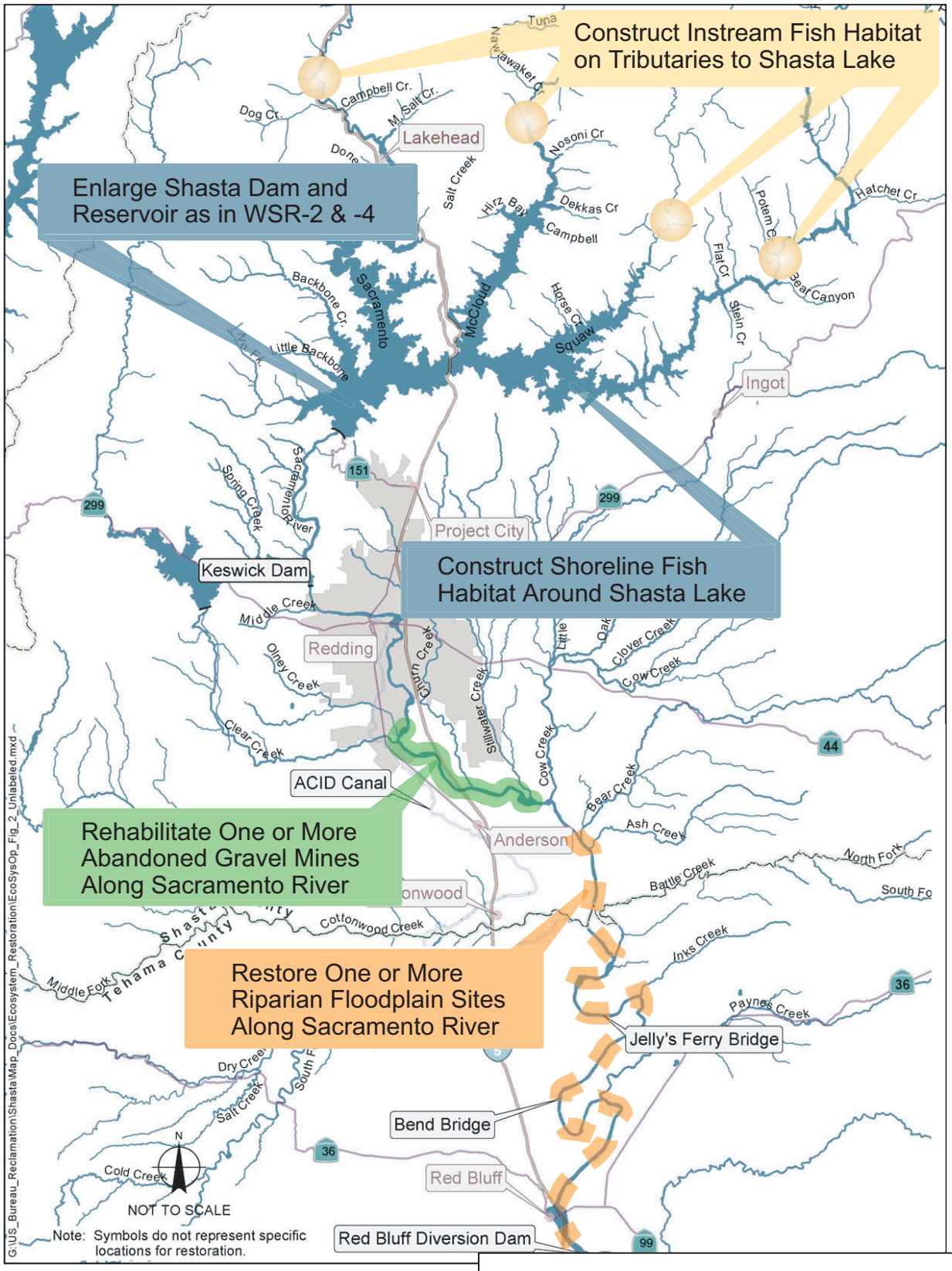


Shasta Lake Water Resources Investigation, California

INCREASE ANADROMOUS FISH HABITAT AND WATER SUPPLY RELIABILITY WITH 18.5-FOOT SHASTA ENLARGEMENT (CO-2)

U.S. Bureau of Reclamation, Mid-Pacific Region
June 2004

PLATE 19



Shasta Lake Water Resources Investigation, California

MULTIPURPOSE WITH 18.5-FOOT SHASTA ENLARGEMENT PLAN (CO-5)

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June 2004

PLATE 20