# II - DESCRIPTION OF PROJECT

## 2-01 LOCATION

Hansen Dam is located near the northern edge of the San Fernando Valley on Tujunga Wash, about one mile below the confluence of the Big Tujunga and Little Tujunga Washes, and about four miles southeast of the town of San Fernando. The boundary of the drainage area is formed by the San Gabriel Mountains on the north and west, and by the Verdugo Mountains and a secondary range of the San Gabriel Mountains on the south and east. The location of the project is shown on plate 2-1A. The drainage area is shown on plate 2-1B.

## 2-02 PURPOSE

Hansen Dam is an essential element for flood control in the Los Angeles River drainage basin. In conjunction with Sepulveda and Lopez Dams, Hansen Dam is vital for the flood protection of lower portions of the San Fernando Valley and the City of Los Angeles. Storage regulation given by the flood control basins permits efficient use of the Los Angeles River Channel. The storage allocation for Hansen Dam is shown on plate 2-2.

Currently, no facilities for the generation of hydroelectric power at Hansen Dam exist, nor are any contemplated. Furthermore, no navigation of any sort is possible or allowed in Hansen Reservoir or in Tujunga Wash, either upstream or downstream of Hansen Dam.

## 2-03 PHYSICAL COMPONENTS

a. Embankment. The dam is a compacted impervious earth-fill structure. It is 10,475 ft. long at the crest (elev. 1,087.0 ft. NGVD, i.e., National Geodetic Vertical Datum of 1929). The maximum height above streambed is 97 ft. It extends in a general east and west direction at right angles to Tujunga Wash. The axis of the dam follows a gentle curve in order to connect the abutments of the dam with a prominent rock outcrop located near the center of the dam. At the east end, the dam abuts against a range of small hills and on the west end, the dam terminates on a gentle sloping hill. Rock is exposed on the hillside at the east abutment and is found at shallow depths on the west abutment. Between the ends of the dam and the central rock outcrop, the axis of the dam crosses the lower end of a typical debris cone. The upstream face of the dam has a slope of 1V on 3H and is covered with a 2-ft. 6-inch layer of riprap over a 6-inch spall blanket. The downstream face has a slope of 1V on 6H from the rock toe to elevation 1,020, a slope of 1V on 5H from elevation 1,020 to 1,050, and a slope of 1V on 3H to the dam crest. Three berms, each 20 ft. wide, run parallel to thc axis of the dam, one on the upstream face at elevation 1,040 and two on the downstream face at elevations 1,020 and 1,050 ft.

The general plan, typical sections, and real estate limits are shown on plates 2-3, 2-4, and 2-5, respectively. Photographs of the embankment are shown in figure 2-1A and B.

b. Spillway. The spillway structure, with a crest elevation of 1,060 ft., is located near the center of the dam on a prominent rock outcrop just west of the Tujunga Wash channel. The approach channel, leading to the crest, is a 302-foot wide rectangular section with invert sloping from the earth berm at elevation 1,040 ft. to the point of intersection with the concrete crest section at elevation 1,060 ft. The crest is a Creager and Justin ogee section with an overall length of 302 ft. and six 3-foot wide crest piers, making a net length of 284 ft. A concrete lined rectangular spillway channel, which includes the outlet channel at its center, is designed to carry the spillway discharge beyond the earth embankment. The spillway channel consists of a 302-foot constant width section to the toe of the ogee section, and an 897-foot transition to a width of 180 ft. at the end of the channel. The spillway channel invert extends 233 ft. from the toe of the ogee section on a slope of 0.08584 and then 664 ft. on a slope of 0.02681, being parallel to the outlet channel invert, and terminating at elevation 964.0 and connects with the improved channel.

Details, dimensions, and other information related to the spillway are shown on plates 2-6, 2-7, and 2-8. Figures 2-2 and 2-3 show photographs of the spillway.

c. Outlet Works. The outlet structures and spillway are located west of the Tujunga Wash Channel in Hansen Knob, which is on the axis of the dam and approximately bisects it. The outlet structures include an approach channel, an intake structure with operating house and vent house, eight gated and two ungated outlet conduits, and an outlet channel. The outlet conduits are installed through the overflow spillway section (see fig. 2-3), located symmetrically with respect to the spillway center line and aligned to discharge into Tujunga Wash. The gated conduits are located in the center of the outlet section in two groups of four. All conduit entrances are elliptical in shape and have been provided with a semicircular trash rack structure. The throat entrances to the ungated conduits are 8 ft. by 8 ft. in order to allow larger discharges through these conduits. A 60-foot long section, dropping to the approximate elevation of the gated conduits, is used as the transition from the 8 ft. by 8 ft. entrance throat to the 8 ft. wide by 6 ft. high outlet section. The combined maximum capacity of the outlets is 22,000 $ft^3/s$ at a reservoir water surface elevation of 1,060 ft. (i.e., at the spillway crest), of which 4,900 $ft^3/s$ passes through the ungated openings and 17,100 $ft^3/s$ passes through the gated openings. Plates 2-9, 2-10, and 2-11 show pertinent information pertaining to the reservoir outlet works. Figure 2-3 is a photograph of the Hansen Dam outlet works.

d. Water Supply Facilities. Hansen Dam's regulation objectives are to maximize flood protection and enhance recreational usage. These objectives are to be accomplished by operating Hansen Dam to release all flood waters as rapidly and safely possible. In the past, Hansen Dam has also been operated in the interest of water conservation by utilizing the storage allocated for sediment. Runoff would be temporarily stored for groundwater recharge downstream. However, due to the large accumulation of sediment in Hansen Dam, it is no longer possible to impound water for conservation without infringing on flood control capability and recreation facilities. The large sediment accumulation has created a situation in which even relatively small

impoundments for conservation adversely impact on usage and maintenance of recreation facilities located within the basin. Operation for water conservation also tends to increase the rate of sediment deposition, thereby shortening the usable life of the project. Maintenance costs, including reservoir cleanout, are being borne by the agencies responsible for flood control and recreation, without participation from the beneficiaries of water conservation operation. The Corps has a strong interest in water conservation, but until a solution is found to the sedimentation problems, LAD will not be able to operate for water conservation.

## 2-04 RELATED CONTROL FACILITIES

There are three related control facilities: (a) Big Tujunga Dam, which is upstream from Hansen Dam, is operated by LACDPW as a flood control reservoir, in addition to its water conservation purpose; (b) the Hansen Spreading Grounds, which are owned and operated by the LACDPW; and (c) Lopez Canyon Diversion Channel which diverts runoff from a 2.4 square mile areas into Hansen flood control basin.

## 2-05 REAL ESTATE ACQUISITION

Hansen Dam and Reservoir project lands comprise 1468 acres as shown on plate 2-5.

## 2-06 PUBLIC FACILITIES

The recreation conditions at Hansen Dam have changed considerably during the past 48 years. The once expansive (Holiday) lake has all but disappeared, equestrian trails have expanded, and new facilities have been constructed within the basin.

Adjacent to the downstream face of the dam embankment is an 18-hole golf course with clubhouse, parking area, and driving range. An overlook area is located just north of the intersection of Osborne Street with Glenoaks Boulevard. The overlook has a paved parking area and provides nonvehicular, public access to the crest service road. Within the basin, the existing facilities include: six ballfields, an outdoor theatre, restrooms, two parking areas, an equestrian center, and several picnic areas. Prior to 1983 there was a lake used for swimming and boating, but due to sedimentation, the lake no longer exists. There were two large parking lots near the lake, one for the swimming area, and the other for the boat launching area. The boat trailer lot has been virtually eradicated by the deposition of large amounts of sediment in the area and a large portion of the swimming area lot has also been impacted by sediment inundation. See plates 2-12A, B, and plate 2-13 for current and proposed facilities in the reservoir with their respective elevations.

Figure 2-1a. Upstream View of Hansen Dam Embankment, Looking Northeast

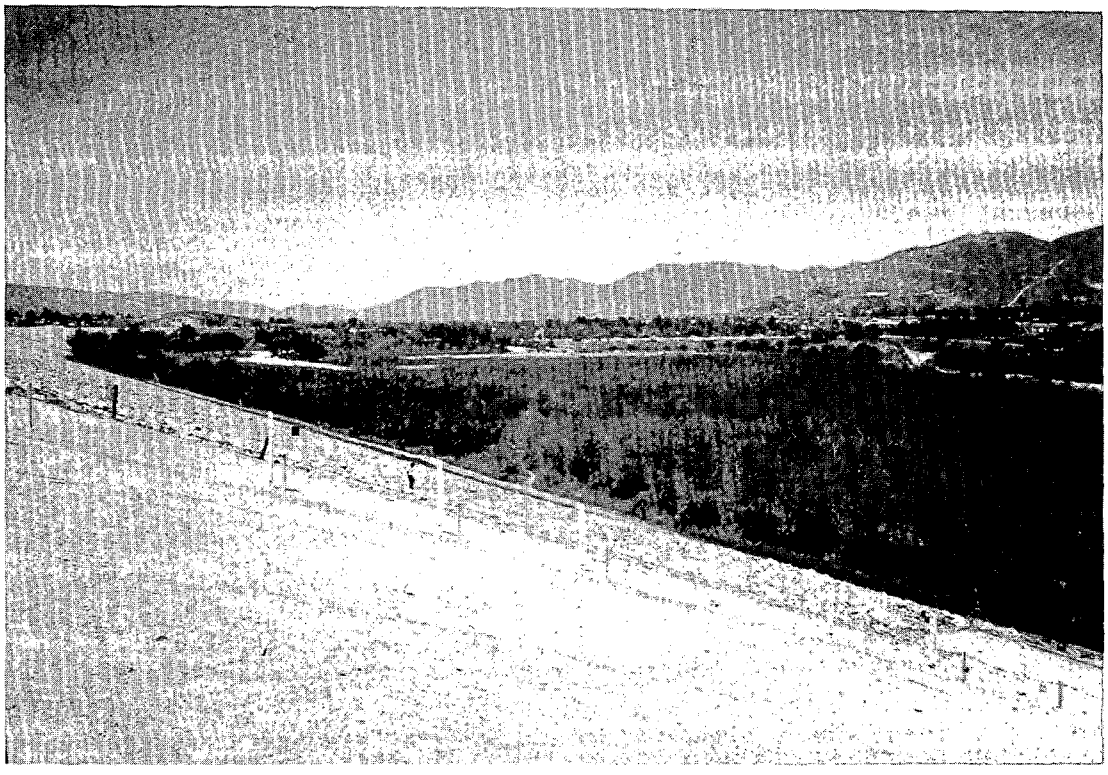

Figure 2-1b. Upstream View of Hansen Dam Embankment, Looking Northwest

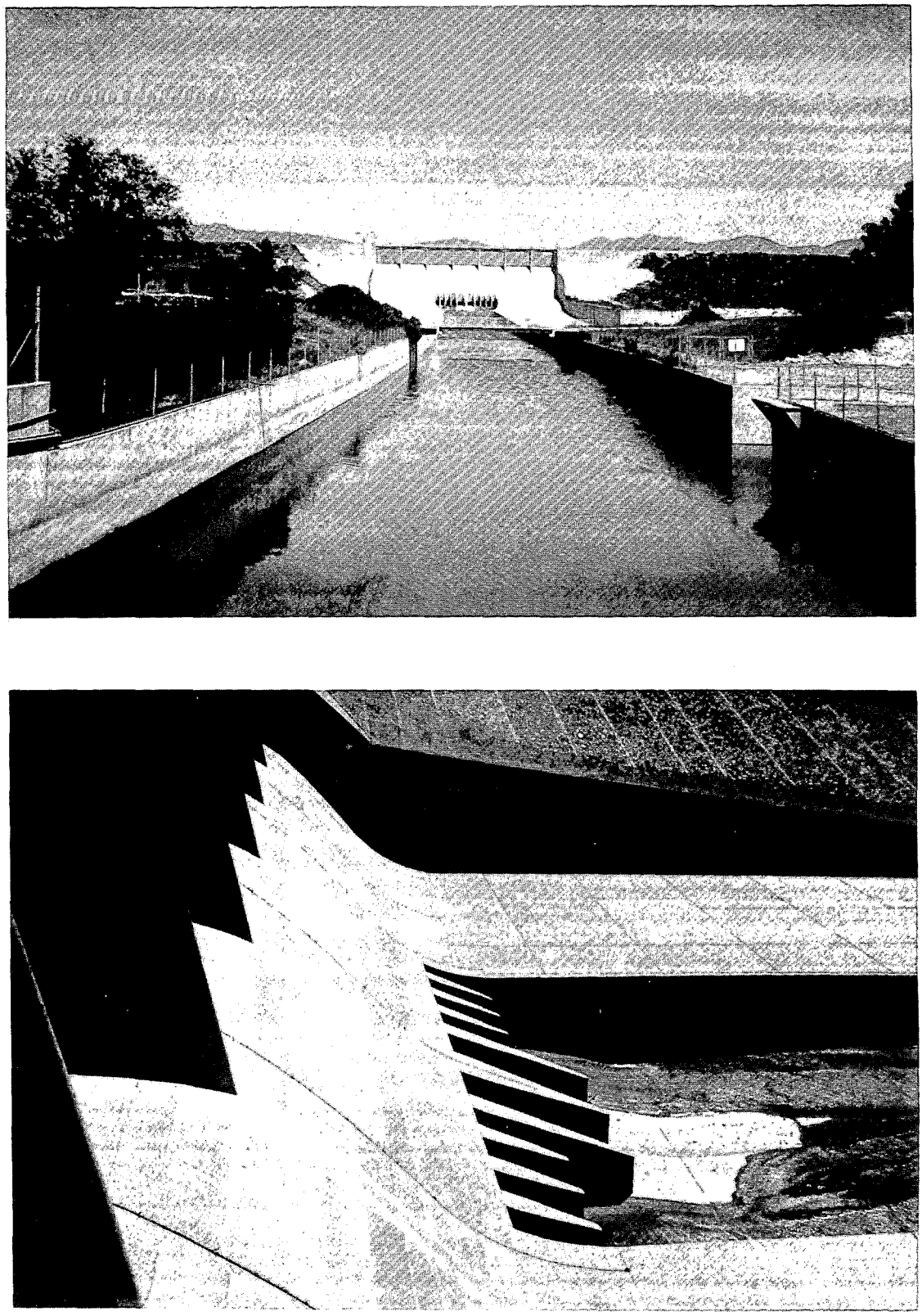

Figure 2-3. Hansen Dam Spillway and Outlet Channel.