DRAFT ENVIRONMENTAL IMPACT REPORT

COUNTY OF SAN DIEGO
COMMUNITY SERVICES AGENCY

Lindo Lake Park Project

PARK MAINTENANCE OPERATIONS DIVISION
ROUTE SLIP

FROM: CJV DATE 3-31-76

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COUNTY OF SAN DIEGO

PARKS & RECREATION DEPARTMENT-PARK DEVELOPMENT DIVISION
5555 OVERLAND AVE., SAN DIEGO, CA 92123 - PHONE: 565-5567

DATE 4-2-76

TO: G. CULLISON

FROM: D. AYERS

SUBJECT: LIND LAKE MANAGEMENT PLAN

Attached is two Copies of a Report for your information. This report is being sent to the E.R.B. for approval as part of the E.I.R. If you have any questions please call.

DPR 1/27/76

LINDO LAKE MANAGEMENT PLAN

Objective

The objective of this lake management plan is to develop a feasible plan for enhancing and managing the existing and proposed modification of Lindo Lake. It is oriented towards providing a multipurpose recreational lake while supporting a viable wildlife habitat.

Existing Lake Management Program

The San Diego County Department of Parks and Recreation has guidelines for management of all lakes under county jurisdiction. A formalized management plan for each lake has not been written. The guidelines include information on lake construction, aquatic weed and vector control, and fish and wildlife habitats.

Maintenance procedures for the existing Lindo Lake are directed primarily towards maintaining water depth at three to four feet. The lake is underlain by clayey material more than nine feet deep which is of low permeability. Water from the lake comes from a well in the San Diego River bed and is piped to the lake.

From 1970 to 1974 (the latest available figures), the amount of water necessary to maintain the existing lake level decreased from 5.5 million gallons (16.9 acre-feet) to a minimum of two million gallons (6.1 acre-feet) per year. This reduction in water demand is the result of increased siltation of the lake bottom, which reduces percolation rates. The water level of the lake is monitored by the resident park ranger and losses due to evaporation and percolation are replaced as needed.

The existing lake has no aquatic weed or mosquito problems. The lake is occasionally stocked with mosquito fish. Also small warm water game fish such as catfish, bass, and bluegill, are periodically added to the lake.

Proposed Lake Management Plan

The recommended lake management plan described below has addressed the specific considerations of modifying existing Lindo Lake. Proposals are based on recommendations from the San Diego County Health Department and California Department of Fish and Game.

1. Modification of the Lake

The project will include deepening the southwestern and western basins from an average depth of six feet to an average depth of ten to twelve feet. This will require movement of approximately 94,000 cubic yards of material. This material will be used as fill for reshaping the shoreline and five scattered parking lots. Once the proper depth has been reached, 29,000 cubic yards of low-permeable soil will be spread over the bottom to seal the lakebed. This clayey material will be obtained from an on-site source. The final layer of earth will be smoothed and leveled to meet Health Department recommendations for vector control. The sealing procedure is necessary to reduce the high percolation rate that now exists in several places within the lake basin. Reshaping and sloping of the earthen shoreline at a four to one slope will be necessary to obtain maximum usage from the new lake. It will also aid in control of vectors and the growth of lake grass and tules. Initially, the lake will require approximately 155 acre-feet of water to fill it. This water

will come from a combination of the three on-site wells and water purchased from the Lakeside Irrigation District. Once filled, the southwestern and western basins will become one lake, with no dike between them. The earthen slopes will be landscaped immediately to prevent abnormal erosion.

2. Water Quality

To assist in lake management, a monitoring program will be developed, consisting of periodic sampling for dissolved oxygen, temperature, ph, total dissolved solids (TDS), nitrogen and phosphorus. This data will be useful in maintaining concentrations of oxygen and salts which are conducive to the health and welfare of aquatic communities. Should the dissolved oxygen level drop below acceptable levels, an aerator can be placed in the lake. Should the salt level rise, either more water will have to be pumped into the lake, or the proposed outlet to the San Diego River will have to be constructed. A closed lake system, with evaporation as the only outlet is a cause of salt problems.

Once the lake is properly sealed, the water level will be maintained by three existing on-site wells. It will be supplemented, when necessary, by water purchased from the Lakeside Irrigation District. Evaporation and seepage water have been computed by the San Diego County Department of Sanitation and Flood Control to be a maximum of 120 acre-feet of water per year. The Lakeside Irrigation District has been informed of the pending removal of water from the

water table. They indicated this would have no noticeable effect on the ground water supply.

Sediment deposition will occur naturally on the bottom of the lake. The majority of the sediment will come from storm run-off and the remaining from the earthen banks. This sediment will have two primary effects on the lake. One effect of increased sedimentation will be to lower the water percolation rate because silt would tend to further seal the lake bottom. Another effect would be to decrease light penetration and photosynthetic activity of aquatic plants. This would directly affect small animals dependent on algae and phytoplankton, as well as the rest of the food web. Suspended particles can be settled out by the use of gypsum which will effectively clear the water. Increased sedimentation would also contribute to the filling-in and eutrophication of the lake over time.

The filling in of the lake will be controlled on a periodic schedule. This procedure will be to drain the lake, allow sufficient drying time, remove enough material to bring the lake bottom back to design specifications, and then refill it with water.

3. Flood Control

Lindo Lake is an important part of the present and planned Quail Creek flood control project. The planned deepening of the western and southwestern basins will provide a normal water depth of ten to twelve feet at a surface elevation of 393 feet. This depth will be maintained during

the spring and summer months. In anticipation of the rainy season each year the lake level will be lowered to approximately 389 feet which will re-establish the existing water retention capability of 204 acre-feet of water. Since there is no water outlet, the lake level will be lowered by stopping the well pumps. Evaporation and percolation will then drop the lake level to the predetermined 389 foot level. The pumps would then be reactivated to maintain this depth. Six or seven feet of water is sufficient to support the game fish population for short periods of time, and it will provide the Lakeside area with the same amount of flood protection that now exists.

A drain pipe on the northern shore of the western basin will be fitted with a control gate to prevent water from backing up and flooding the parking lot of the shopping center across Lakeshore Drive.

An outlet channel for Lindo Lake has been planned by the San Diego County Department of Sanitation and Flood Control. This outlet would drain excess water from the western basin and empty it in the San Diego River. Lack of funding is currently delaying this project.

A pump will be placed at the western edge of the eastern basin to move accumulated rain water to the western basin. This will help maintain the eastern basin in a dry state.

4. Wildlife Habitat and Vector Control

Most recommendations from the San Diego County Health Department for vector control will be followed. These include

maintaining a constant water level, limiting cattail growth by chemicals, and providing access ways for mosquito control vehicles.

The aquatic weed control program is in effect now at Lindo Lake and will continue after project completion. The program is threefold: (1) The use of copper sulfate pentahydrate (Bluestone) eliminates filamentous and planktonic algae but is safe for fish when used correctly; (2) chemical controls (various direct contact sprays) are used on tules; and (3) the lake may be drained and scraped if the weed problem is extremely serious and has not responded to either (1) or (2). The third solution is rare. Occasionally biological control will be used. However, the problem and its origins must be well understood or undesirable species might be introduced which would then have to be eliminated.

Maintaining a viable wildlife habitat while providing for recreational facilities will be an important part of the developement of Lindo Lake. Phytoplankton and algae populations will begin to colonize the lake as soon as the expanded lake receives water. This will help to sustain a population of warm-water gamefish such as bluegill and bass which will be stocked in the lake. Mosquito fish, Gambusia affinis, will also be stocked on a regular basis.

Floating rooted aquatic plants will probably become established by natural processes in shallow water. They will provide habitat for small and juvenile fish as well as

aquatic insects. The growth of these plants will be controlled in an appropriate manner.

The lake will also provide refuge for migratory waterfowl and additional resident bird species. An increase in local mammal, amphibian, and reptile populations is also expected.

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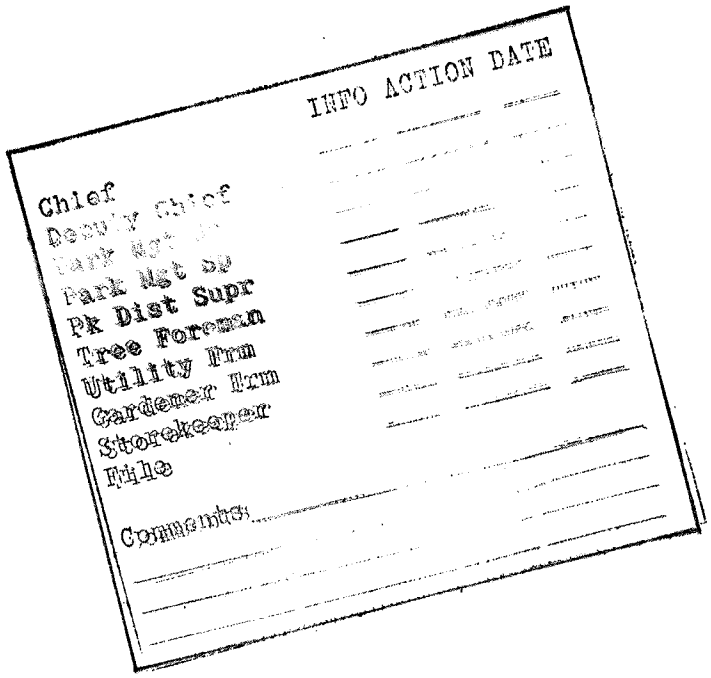
COMMUNITY SERVICES AGENCY

DEPARTMENT OF TRANSPORTATION

LINDO LAKE PARK PROJECT



CONTENTS