

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

NOMINATION OF

INDIAN BEND WASH GREENBELT FLOOD CONTROL PROJECT  
OF MARICOPA COUNTY, ARIZONA

FOR

OUTSTANDING ENGINEERING ACHIEVEMENT OF 1974.

5x7 PHOTO

SPONSERED BY

CENTRAL CHAPTER OF THE ARIZONA SOCIETY OF PROFESSIONAL ENGINEERS

COSPONSERED BY

PAPAGO CHAPTER OF THE ARIZONA SOCIETY OF PROFESSIONAL ENGINEERS

ENDORSED BY

ARIZONA SOCIETY OF PROFESSIONAL ENGINEERS

PHOENIX, ARIZONA

**A680.943**

## TABLE OF CONTENTS

- I. Identification of sponsoring Chapters
- II. Name and location of Project
- III. Individuals, government agencies and other immediate contributors to the creation of the Indian Bend Wash Greenbelt Flood Control Project
- IV. Project Description
  - A. Overall and Engineering Requirements of Project
  - B. Costs
- V. Paragraph of advocacy of Indian Bend Wash Greenbelt Flood Control Project.
- VI. Black/White glossy photographs
- VII. Magazine and newspaper articles as supplemental back-up material.
- VIII. Appendix I - Letters of Endorsement  
Appendix II - Extract from U.S. Army Corps of Engineers General Design Memorandum for Indian Bend Wash  
Appendix III - Individuals, government agencies and other contributors to the creation of the Indian Bend Wash Greenbelt Flood Control Project.

I. Identification of Sponsoring Chapter

Name of Chapter: Central Chapter

State Society: Arizona

Name of Chapter Representative: Frank Welsh, P.E.

Address: 1445 E. Meadowbrook  
Phoenix, Arizona 85014

Daytime Phone Number (602) 266-6168

Identification of Co-Sponsoring Chapter

Name of Chapter: Papago Chapter

State Society: Arizona

Name of Chapter Representative: Gene R. MORris

Address: 206 S. 17th Avenue

Daytime Phone Number: (602) 261-7721

Letter of Endorsement from Arizona Society of Professional Engineers included in Appendix I.

II. Name and Location of Project:

Indian Bend Wash Greenbelt Flood Control Project  
Maricopa County, Arizona

III. Individuals, government agencies, and other immediate contributors to the creation of the Indian Bend Wash Greenbelt Flood Control Project.

Many people have been involved in the creation and execution of this project including Congressmen, State, County and local government officials. The following is a list of those immediately involved. Appendix III lists others making significant contributions to the project.

City of Scottsdale, Arizona

Mr. William C. Jenkins, Mayor  
City of Scottsdale  
3939 Civic Center Plaza  
Scottsdale, Arizona 85251

Mr. Paul Messinger, Vice-Mayor

Mr. Richard Campana, Councilman

Mr. Herbert Drinkwater, Councilman

Mrs. Billie Gentry, Councilwoman

Dr. Heinz Hink, Councilman

Mr. Charles H. Smith, Councilman

Mr. Dale C. Carter, City Manager  
City of Scottsdale  
3939 Civic Center Plaza  
Scottsdale, Arizona 85251

U.S. Army Corps of Engineers

Col. John V. Foley  
District Engineer  
Los Angeles District, Corps of Engineers  
P.O. Box 2711  
Los Angeles, California 90053  
Phone: (213) 688-5300

Major H. W. Worthington  
(Former) Special Assistant to District Engineer  
U. S. Army Corps of Engineers  
2721 North Central Avenue  
Phoenix, Arizona 85014  
Phone: (602) 261-3851

Water Resources Associates, Inc.

John Erickson  
President and Consultant  
4419 N. Scottsdale Road  
Scottsdale, Arizona 85251  
Phone: (602) 947-7474

Flood Control District of Maricopa County, Arizona

Mr. Herbert P. Donald  
Chief Engineer and General Manager  
Flood Control District of Maricopa County  
3325 West Durango Street  
Phoenix, Arizona 85009  
Phone: (602) 278-7682

Arizona State University

Professor Paul Ruff  
Department of Civil Engineering  
Arizona State University  
Tempe, Arizona  
Phone: (602) 965-3361

IV. Project Description

A. The Indian Bend Wash, in the past, bisected the City and flooded homes creating a problem for the City of Scottsdale. The U. S. Army Corps of Engineers' solution to this problem, as originally designed, was a concrete lined channel costing over sixteen million dollars, not including recreation or environmental mitigation costs. The citizens of the city rejected this plan in a flood control bond vote. The greenbelt concept was developed by the citizens of the City of Scottsdale as a more acceptable environmentally compatible alternative solution, and was approved by a 7 to 1 margin on a subsequent bond issue election. The Corps has enthusiastically supported <sup>(1)</sup> the greenbelt concept saving over two million dollars in flood control costs.

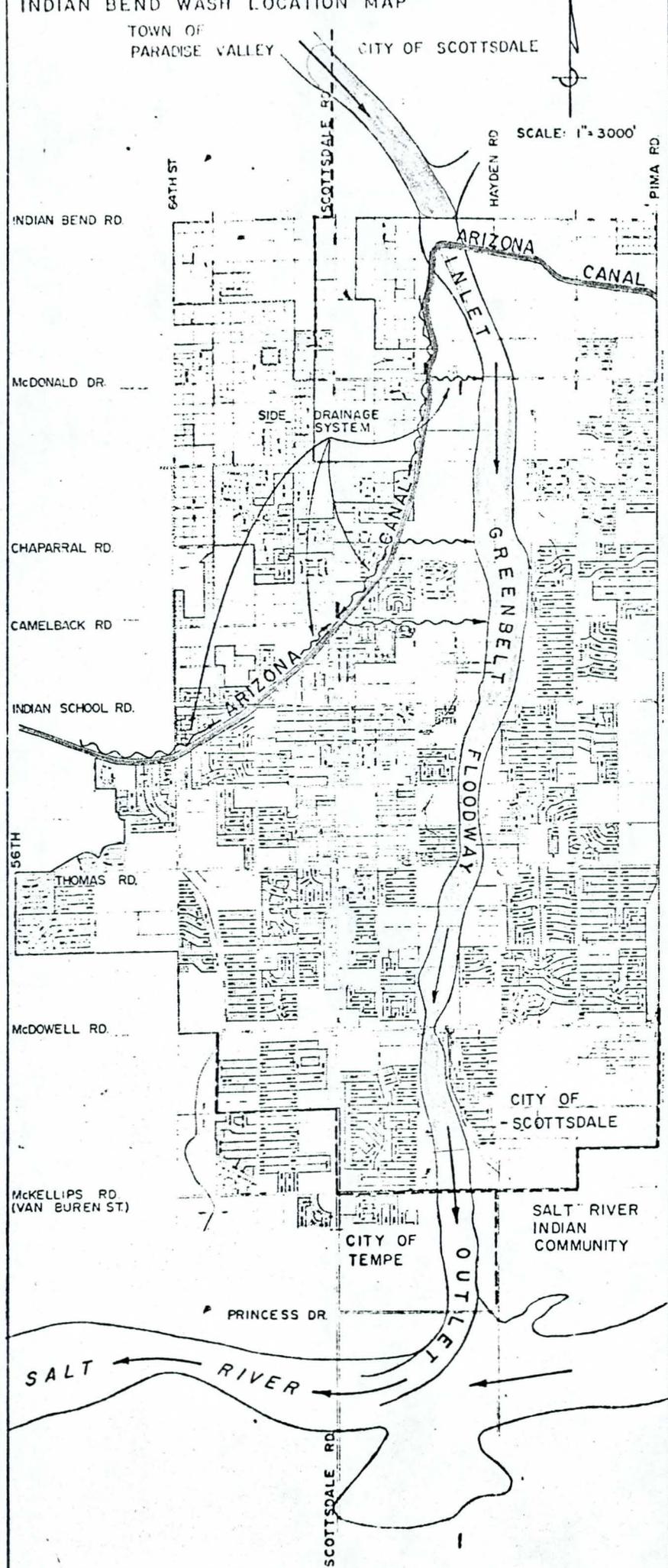
The total project runs a distance of 9 miles through Scottsdale into the City of Tempe, and is designed to carry a 100 year frequency discharge of 30,000 cfs. The project includes an inlet, outlet, side channel system, and greenbelt floodway.

(1) (See Appendix I, letter from Col. John V. Foley, L. A. District Engineer, U.S.C.E.)

INDIAN BEND WASH LOCATION MAP

TOWN OF PARADISE VALLEY CITY OF SCOTTSDALE

SCALE: 1" = 3000'



### The Greenbelt Floodway

The Greenbelt floodway is a 6 mile long portion of the channel being developed jointly by the City of Scottsdale, Maricopa County Flood Control District, and private developers. Developments encroaching into the floodplain must not, by ordinance, raise water surface elevations nor divert water. Plans and hydraulic calculations are submitted by local consultants, to the City of Scottsdale and Maricopa County Flood Control District for review. Encroachments are compensated for with channel improvements and entrenchment. The incentive provided by the greenbelt for open space and recreation facilities within the channel has resulted in a substantial portion of the right-of-way and channel work being donated by private interests at no cost to the taxpayers. This urban greenbelt floodway which to date is over 70% complete, contains recreational facilities and open space such as parks, golf courses, lakes, and a trail system, all compatible with flood control requirements.

### Inlet, Outlet, and Side Channels

Flood control work on the inlet, outlet, and side channel system is the responsibility of the U. S. Army Corps of Engineers.

The first phase of the work by the Corps is the outlet running 1.9 miles from north of McKellips Road to the Salt River. Bike paths and trails run the length of the channel, and will connect the Indian Bend Wash Greenbelt with a similar open space project in the Salt River channel at the downstream end of this project.

The inlet and side channel system is an extension of the greenbelt floodway which will collect flood waters upstream of the Arizona Canal (now forming a dam). A trail system, public golf course, wildlife and bird sanctuary will be located in the inlet area which runs from McDonald Drive 1.1 miles north.

#### Structural Aspects

The inlet area contains a drop structure, two bridges, an 8,000 cfs low flow channel, and a 2,000 cfs siphon for the Arizona Canal. The grass lined channel varies in width from 1,000 to 600 feet, and in depth from 7 to 10 feet.

The greenbelt floodway includes a drop structure to be used as an amphitheater, a 4,000 cfs low flow channel and 6 bridges. The undulating grass lined channel ranges in width from 1,200 to 600 feet, and in depth from 6 to 18 feet.

The outlet channel has numerous drop structures within its low flow channel, and in addition, includes 3 bridges. The desert landscaped channel is 700 feet in width, and varies in depth from 7 to 10 feet.

Bridges throughout the project have been designed to allow pedestrian and bicycle traffic under the major streets, unifying the open space and trail system in the Indian Bend Wash Greenbelt Flood Control Project. A more detailed description of the project is included in Appendix II.

B. Cost projections of over \$18,000,000 for the greenbelt flood control project including the inlet, outlet, side channels, and greenbelt floodway, in comparison to the concrete channel, are summarized in Table 1. The estimated first costs of the project are \$18.6 million, of which \$14.8 million is for flood control and \$3.8 million for recreation. The benefit-cost ratio for the flood control aspect of the project is 1.5 to 1 and for recreation 2.2 to 1, excluding area redevelopment benefits.

TABLE 1  
Comparison of First-Cost Estimates

Item	<u>Concrete Channel</u>	<u>Greenbelt Channel</u>
FEDERAL COST		
Mitigation	\$0	\$ 33,000
Channel	11,939,000	5,525,000
Recreation facilities	0	1,944,000
Engineering and design	731,000	996,000
Supervision and administration	<u>730,000</u>	<u>587,000</u>
Total - Federal Cost	<u>\$13,400,000</u>	<u>\$9,135,000</u>
NON-FEDERAL COSTS		
Lands and damages	\$ 1,373,000	\$5,010,000 **
Relocations	1,887,000	2,630,000
Roads and bridges	(616,000)	(750,000)
Utilities	(1,271,000)	(1,880,000)
Contributions (Rec. facilities)	<u>0</u>	<u>1,815,000</u>
Total Non-Federal Cost	\$3,260,000	\$9,455,000
Total Project Costs	\$16,660,000 *	\$18,590,000 *

\* Note: 3.8 million dollars of recreation and mitigation included in addition to Flood Control costs in the greenbelt channel.

\*\* Because of land enhancement by the greenbelt, a substantial portion of this total is borne by private developers.

For a more complete breakdown of greenbelt channel costs, see Appendix II, p.p. 37 & 38.

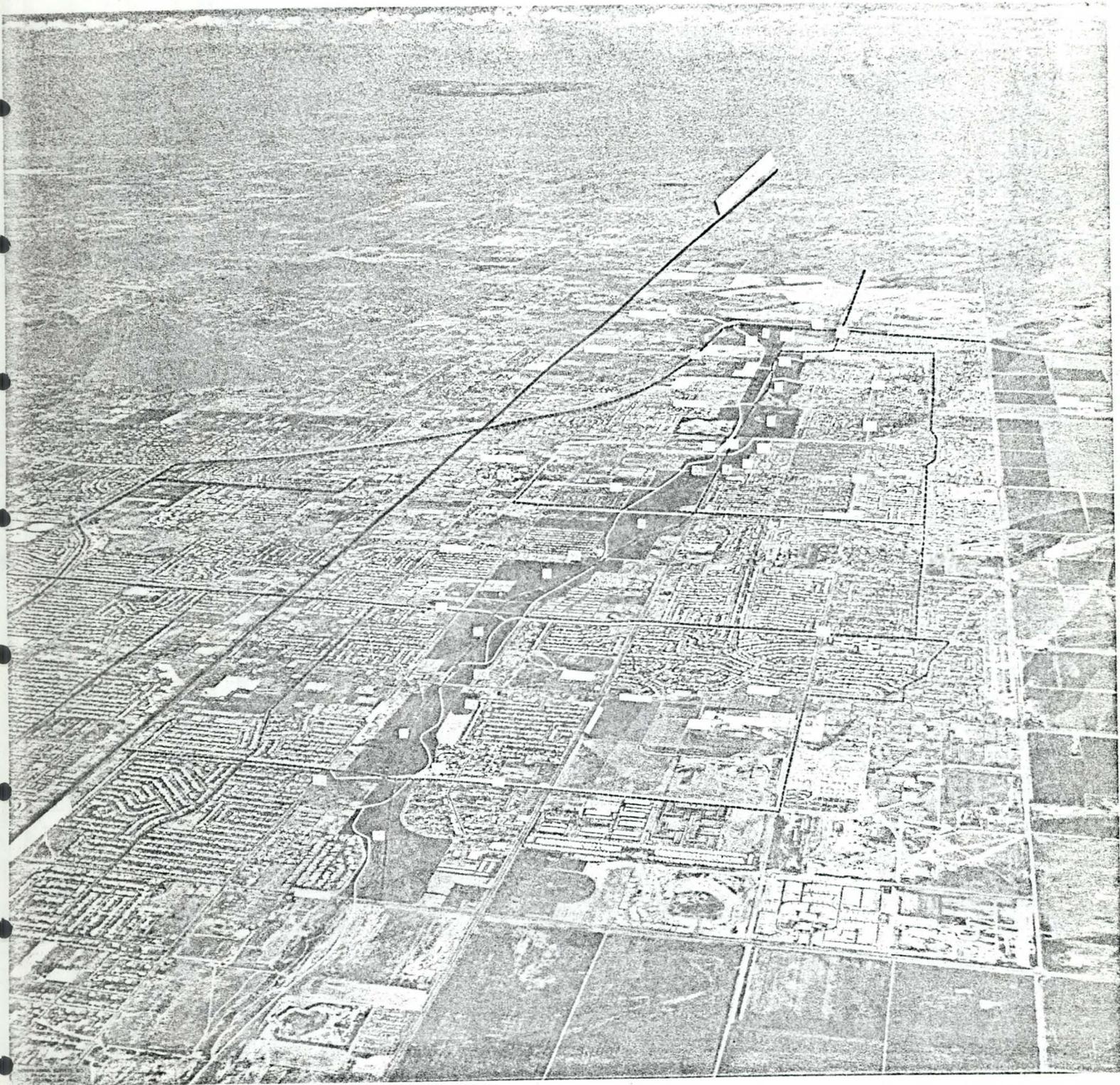
V. Paragraph of advocacy of Indian Bend Wash Greenbelt Flood Control Project as Outstanding Engineering Achievement of 1974.

The Indian Bend Wash Greenbelt Flood Control Project has been nominated for the Outstanding Engineering Achievement of 1974 because it is the forerunner of a new concept in environmentally compatible urban flood control. The greenbelt project incorporates in its design and construction, not only a highly technological solution to a complex engineering problem, but simultaneously allows for the environmental, recreational, aesthetic and social needs of the citizens of the area. The project meets these objectives at a minimal cost to the taxpayer. It has meshed federal, state, county, city and private interests into what will serve to be a model for the U.S. Army Corps of Engineers, as a viable alternative to concrete channels which have been employed as flood control measures in the past.

Specifically, the Indian Bend Wash Greenbelt Flood Control Project:

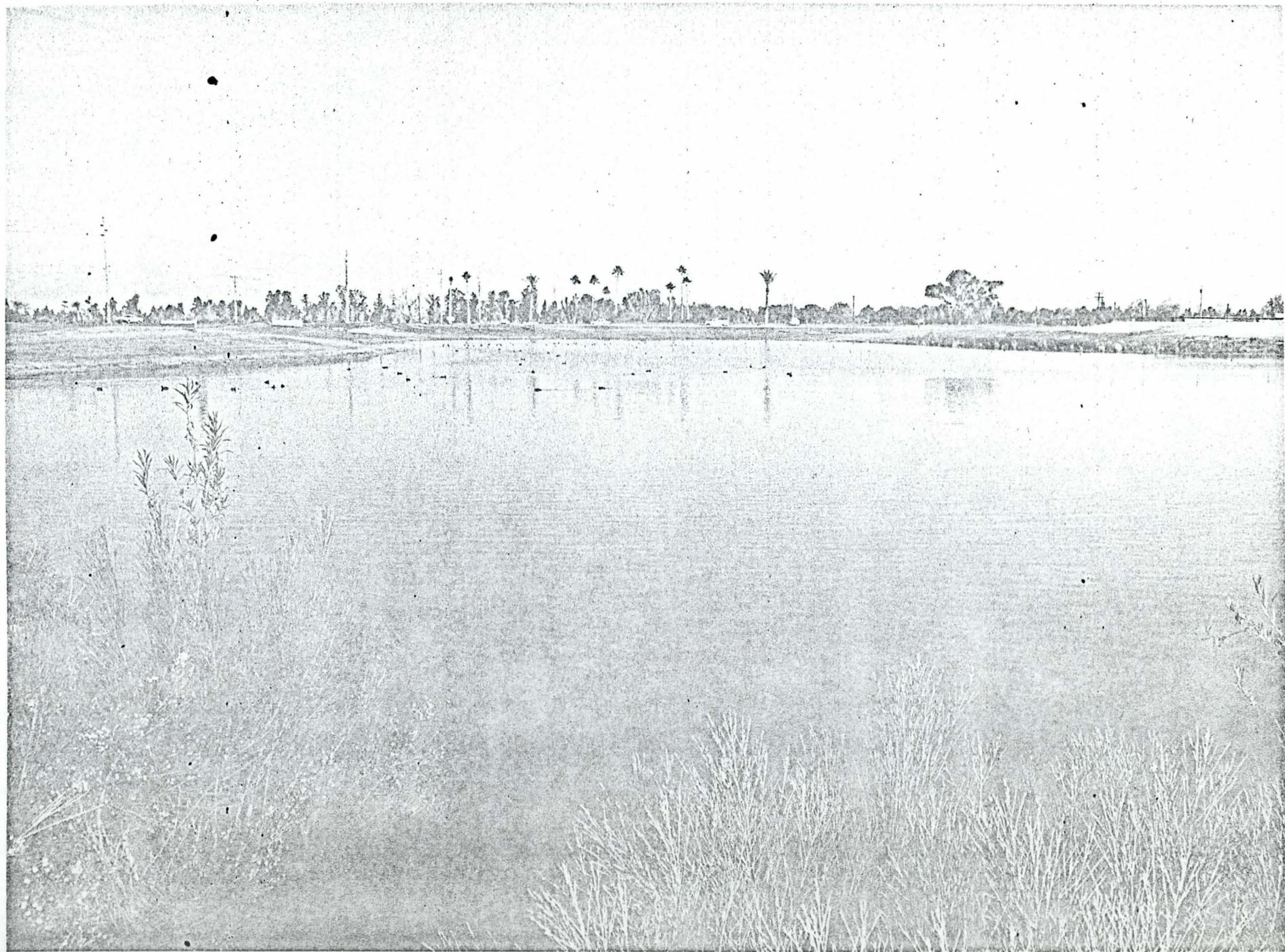
- provides protection against potential loss of life and property due to flooding.
- provides improved road and wash crossings, thereby reducing inconvenience, and effectively joining the city, which has been divided in the past by the wash.
- provides for the preservation of over 900 acres of open space from urban encroachment.
- provides for preservation and use of existing vegetation around rest areas, in keeping with sound ecological practices.

- requires considerably more engineering acumen than for concrete channels because of the highly variable hydraulic parameters.
- provides for savings on flood control and mitigation costs over the concrete alternative.
- provides for the creation of an urban greenbelt, engendering project-related recreation opportunities, including parks, courts, picnic areas, ramadas, playgrounds, exhibit areas for cultural events, and a bicycling and hiking trail system.
- increases the land value of surrounding residential areas.
- permits the grass lined channel to assist ground water recharge.
- permits the integration of recreational facilities with flood control structures (lakes as energy dissipators, drop structures and dikes as stadium-type seating, etc.).
- includes, in its design provisions to minimize adverse environmental effects and to mitigate, where possible, for those unavoidable adverse environmental effects.
- has received national praise, from the Bureau of Outdoor Recreation, as being one of the best conceived non-reservoir flood projects it has ever seen.

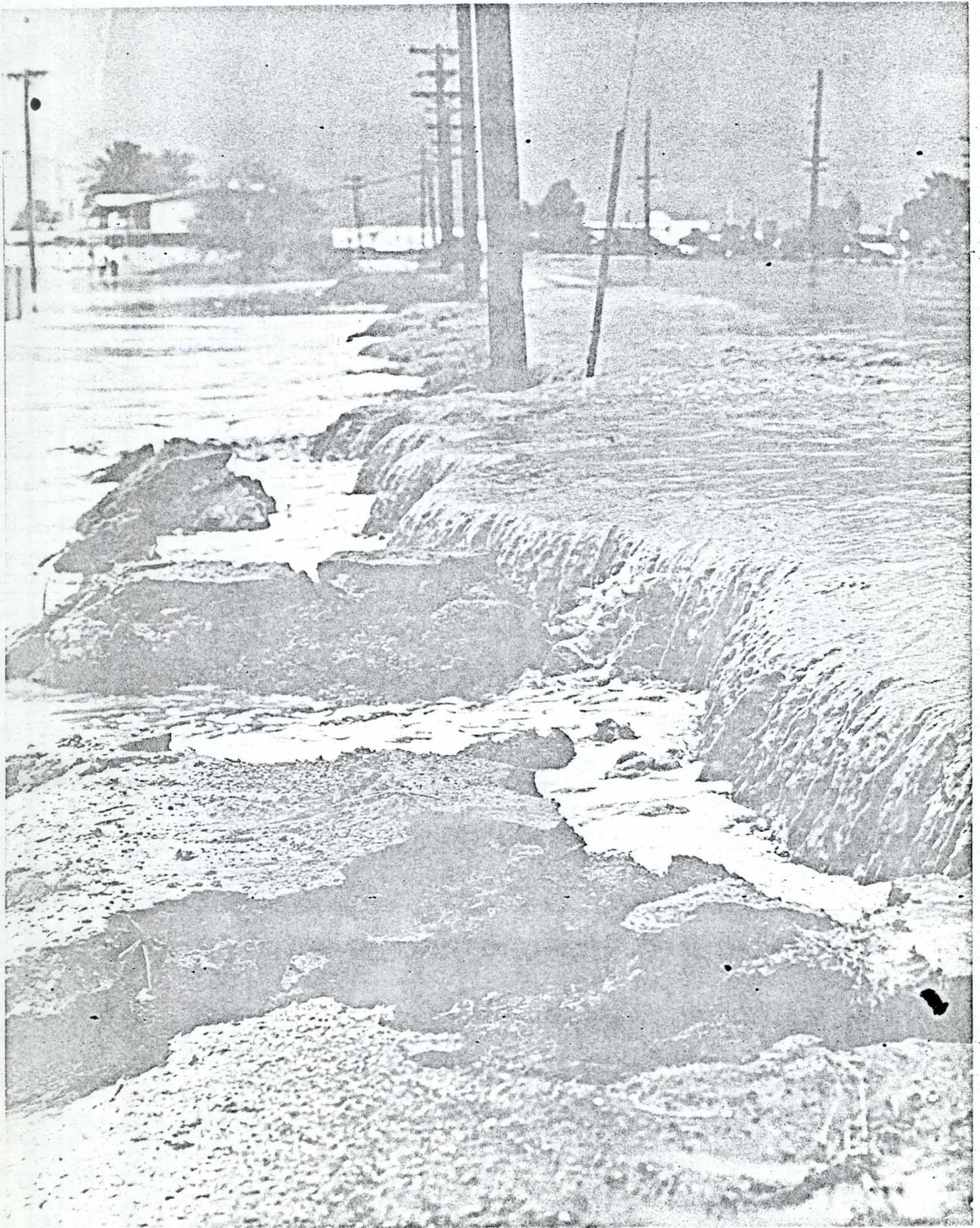


Aerial Photo showing Wash in center running from North (upper portion) to South through the City of Scottsdale.

Beginning of Indian Bend Wash Project at north end of City of Scottsdale

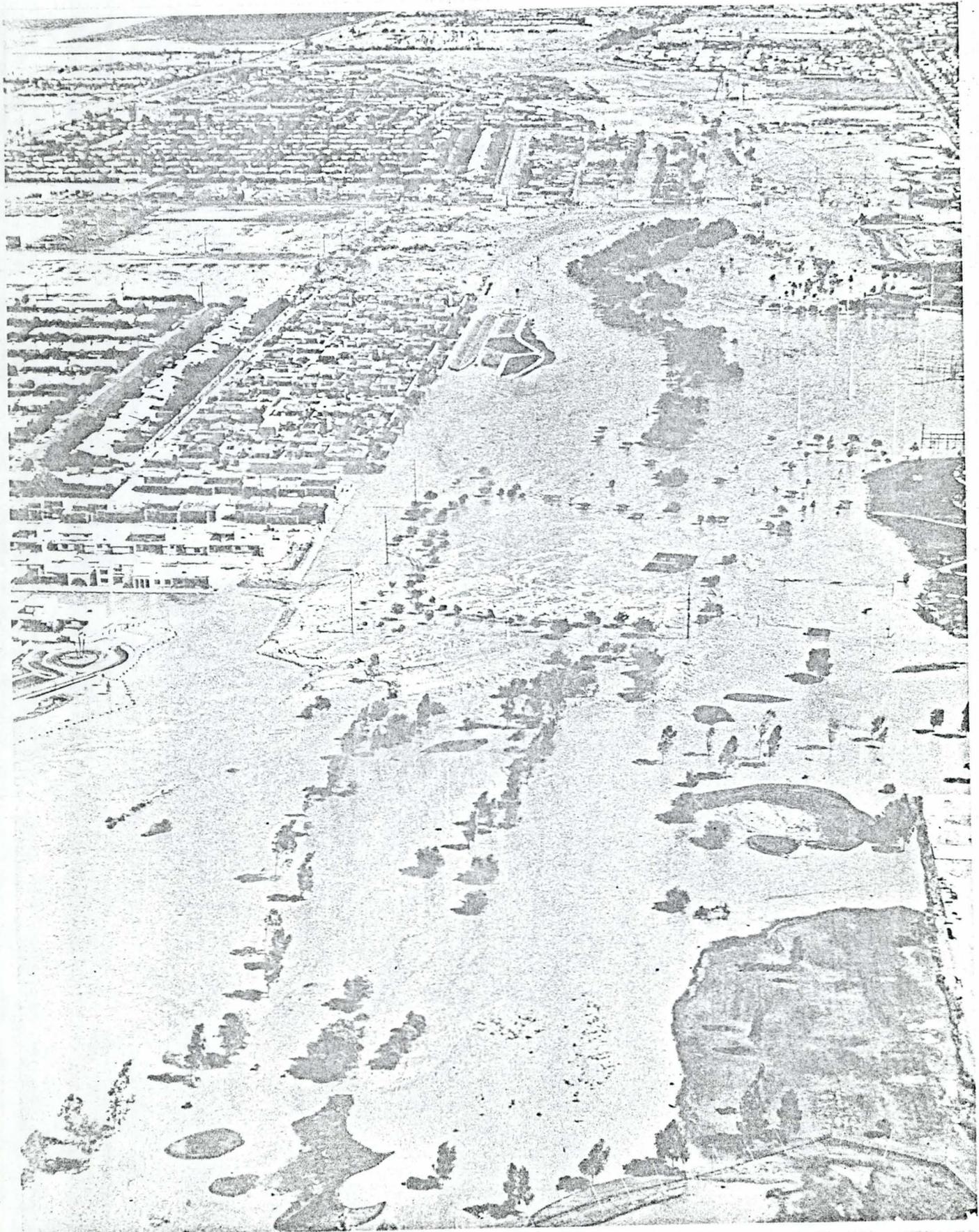


The Indian Bend Wash Flood project was designed to guard against this type of devastation, as occurred in an undeveloped area during the 1972 flood.



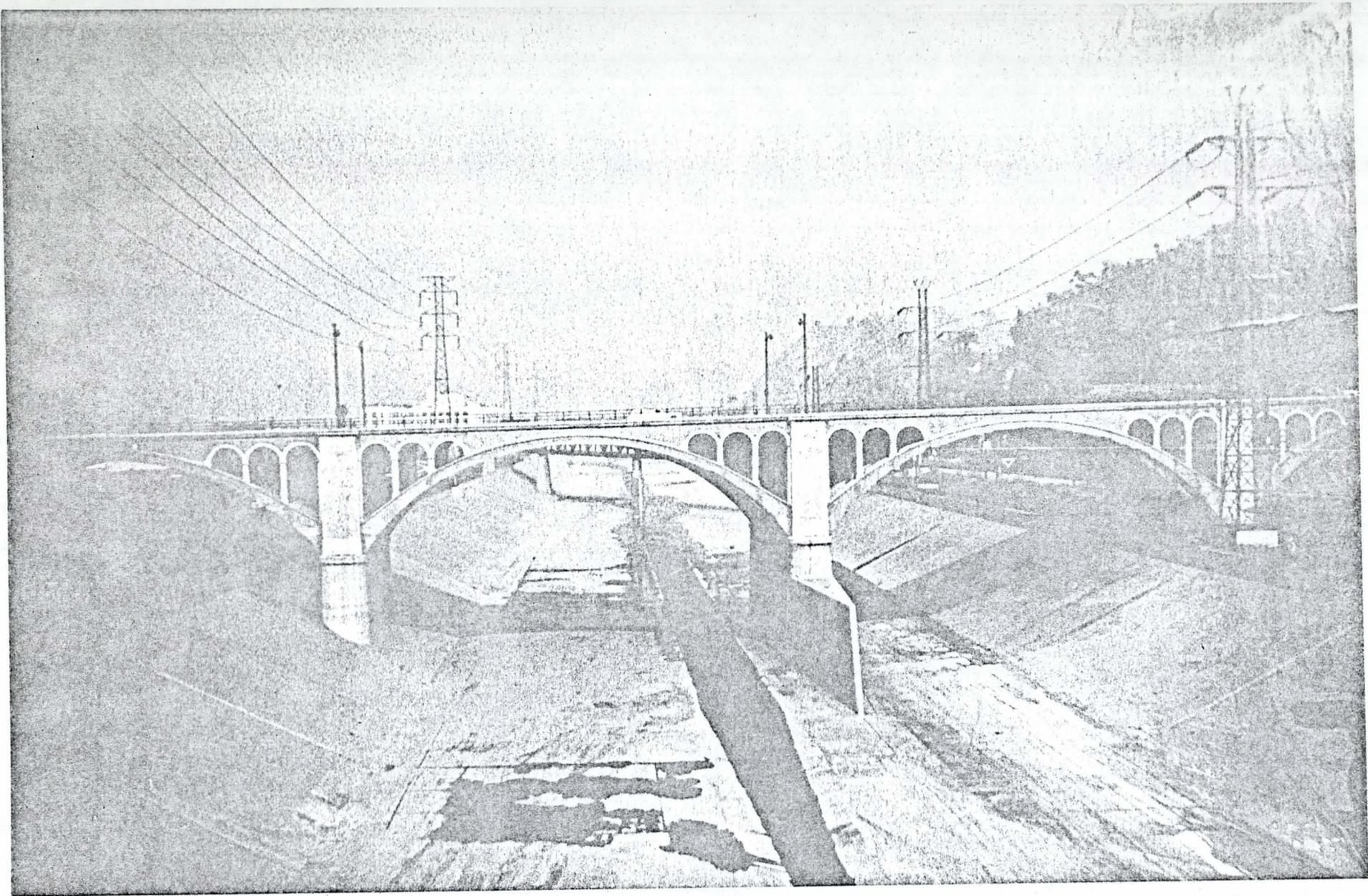
The effectiveness of the greenbelt concept is demonstrated in this photograph of a developed section in the Indian Bend Wash flood control project, in which homes were protected against flooding by the low-lying grassed-in channel. This storm occurred in June, 1972.

(Note: The housing area in the upper right corner of the picture has been redeveloped as per the following photo.)





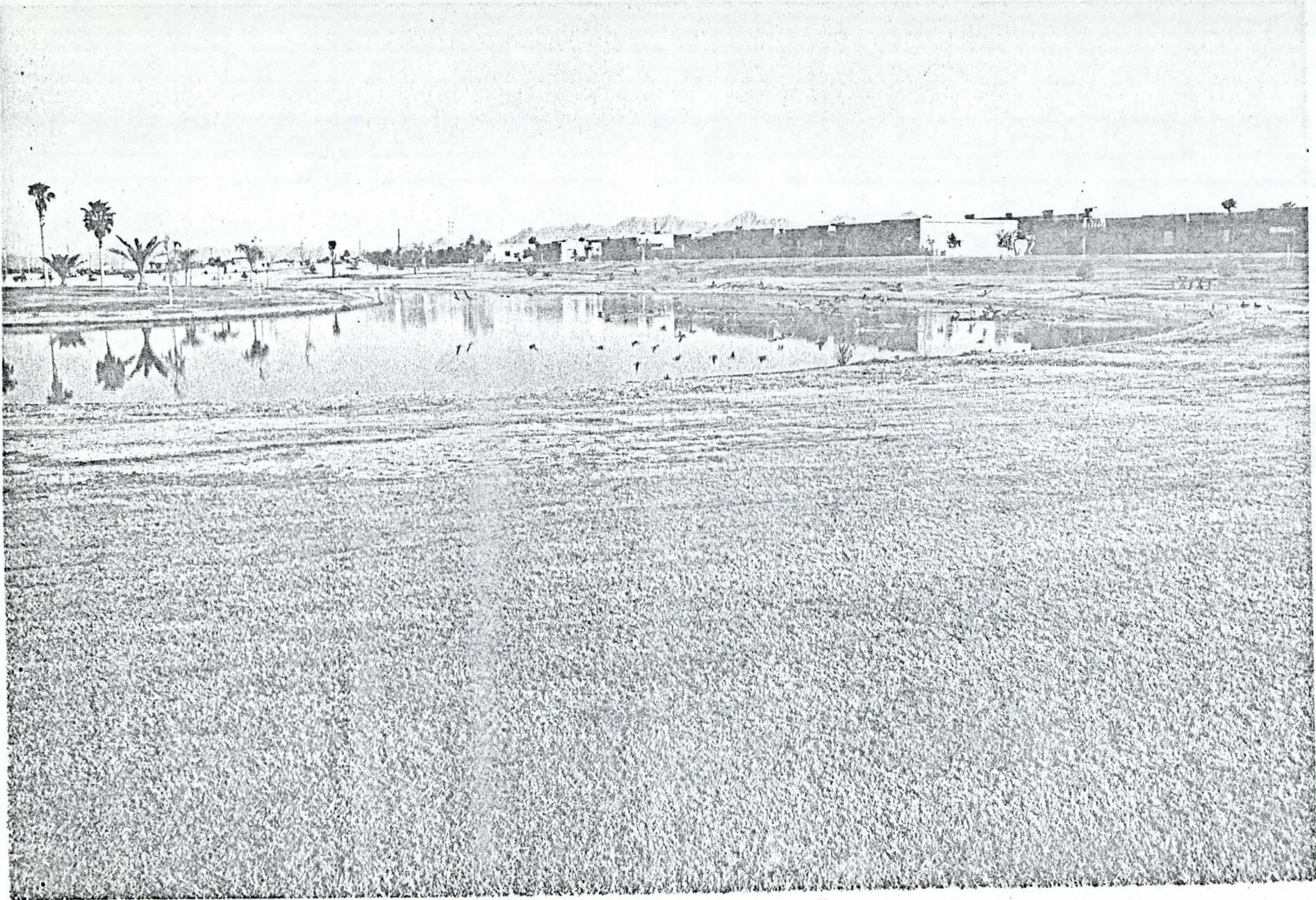
Redeveloped area in the Indian Bend Wash Greenbelt showing the low-lying channel as it exists today.



What it might have been! This is typical of the concrete-lined channels used elsewhere for flood control. It was to avoid this type of flood control that the Indian Bend Wash Project was initiated.

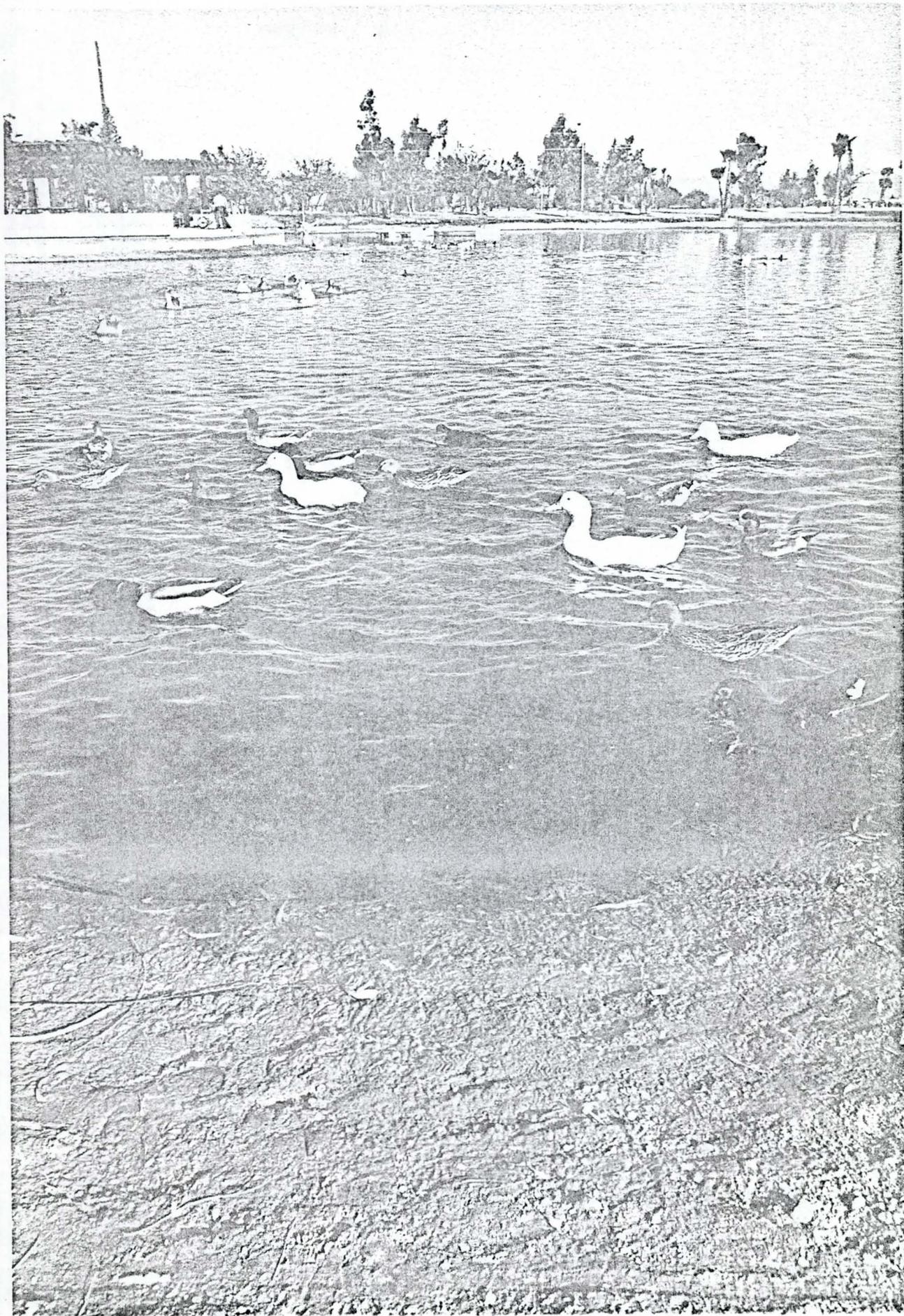


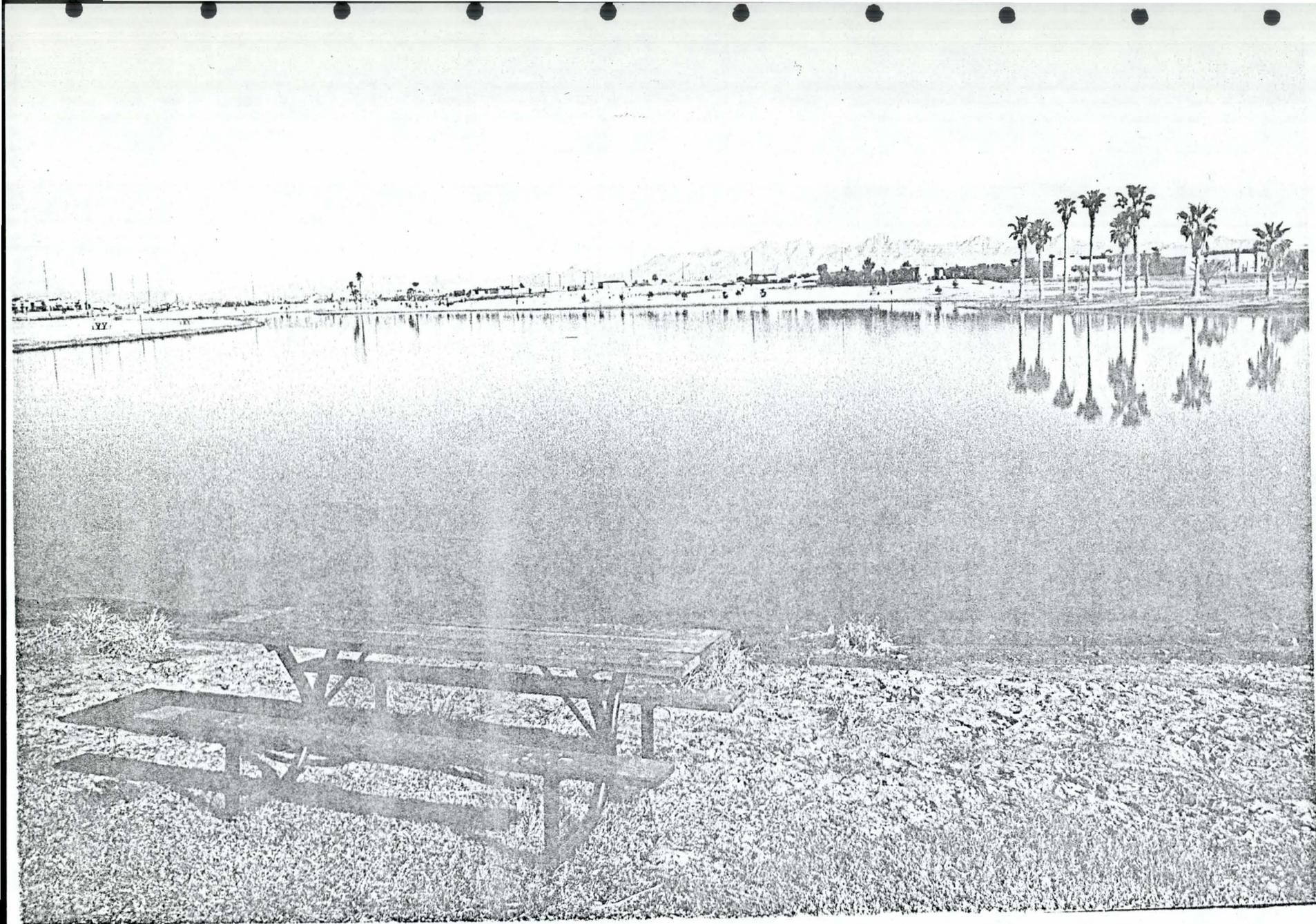
Undeveloped portion of channel in Indian Bend Wash



Recreation and wild-fowl uses of Indian Bend Wash Flood Control Project, showing residential housing on the edges of the wash.

Lake at El Dorado Park in Indian Bend Wash Flood Control Project, showing wild life uses of channel.





Year-round recreation uses of Indian Bend Wash Flood Control Project, showing townhouse development on edge of wash.



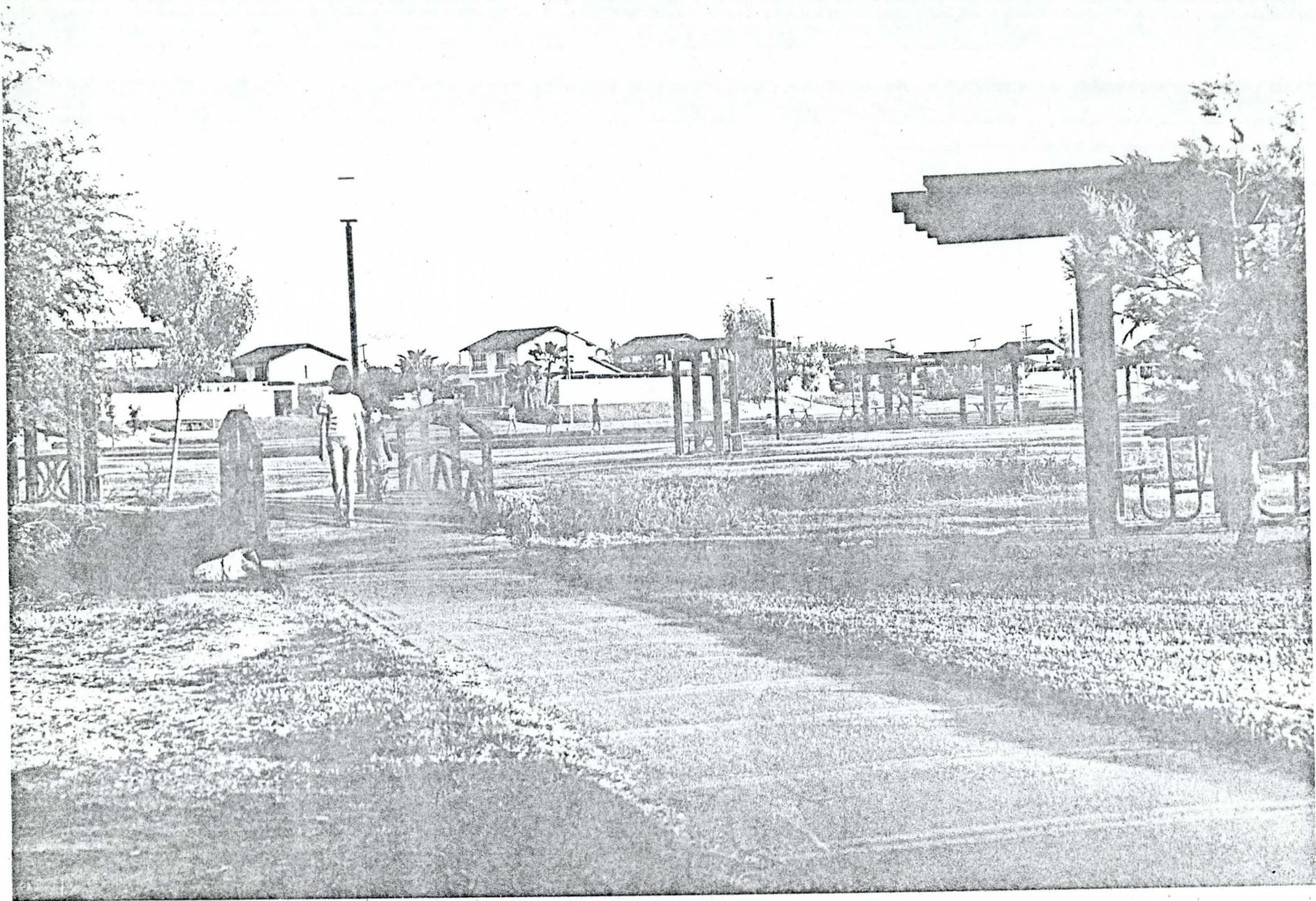
Undeveloped section of land in Indian Bend Wash.



An integral part of the Indian Bend Wash Flood control plan is the development of parks and lakes for both flood control and recreational uses.



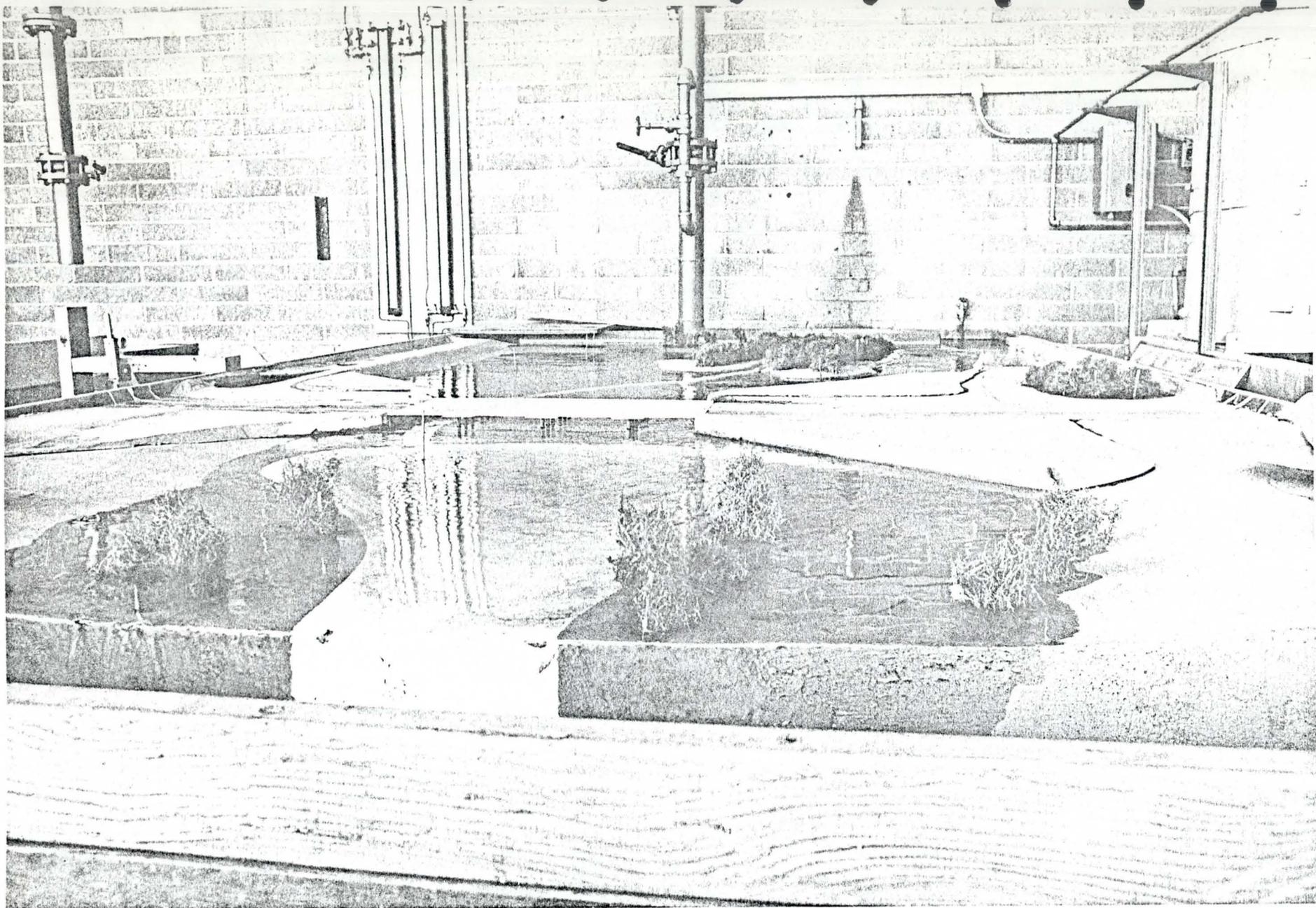
As part of the recreational pattern established for the Indian Bend Wash there is a series of bike paths being developed that in future years will serve to connect various parts of the City with the university community to the south and the mountain preserve to the north.



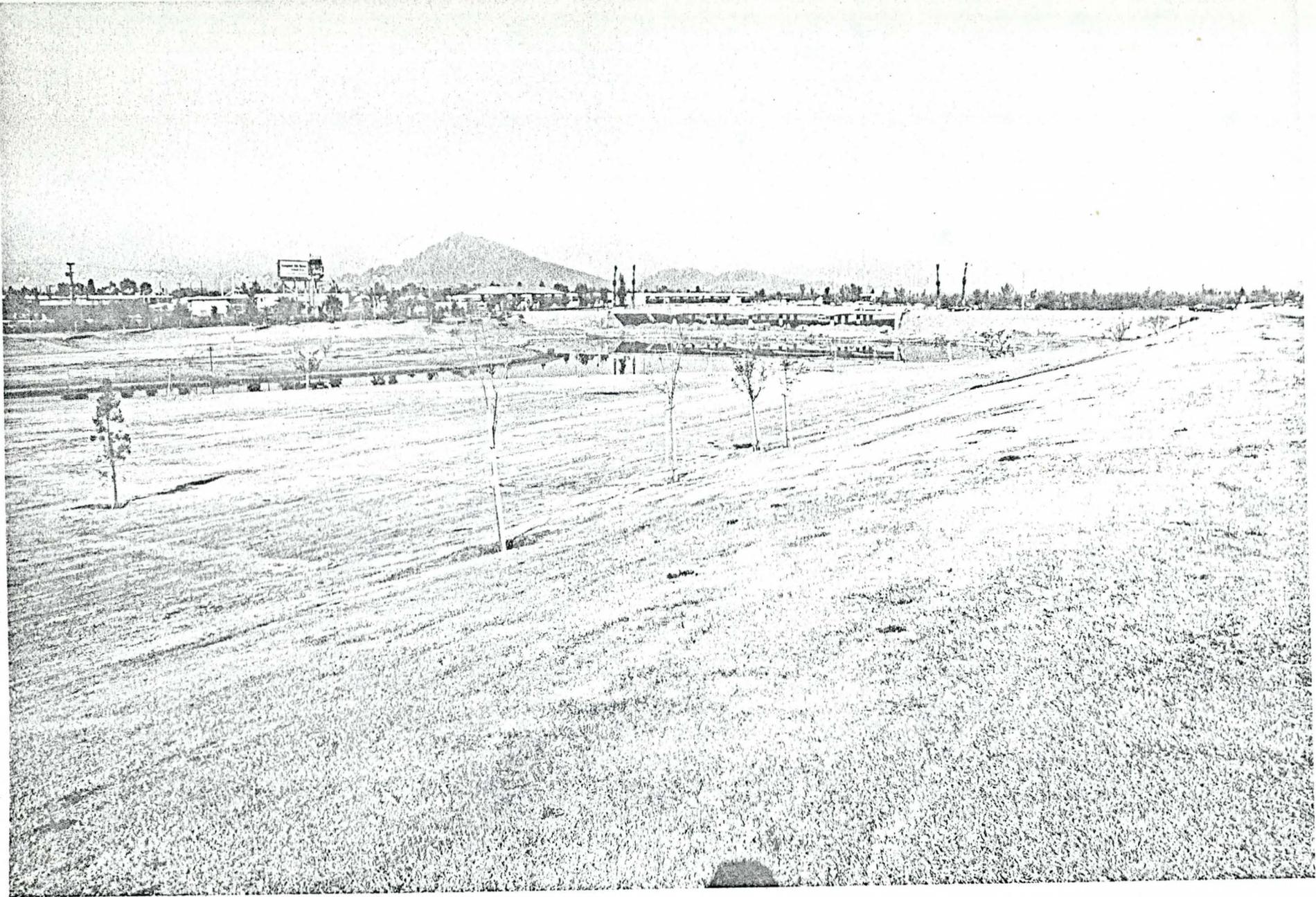
Running the full length of the Indian Bend Wash is a low flow channel capable of handling normal runoff waters without disrupting any park usage.



Engineers modeled in a laboratory setting a number of the hydraulic parameters for the Indian Bend Wash Flood Control Project.

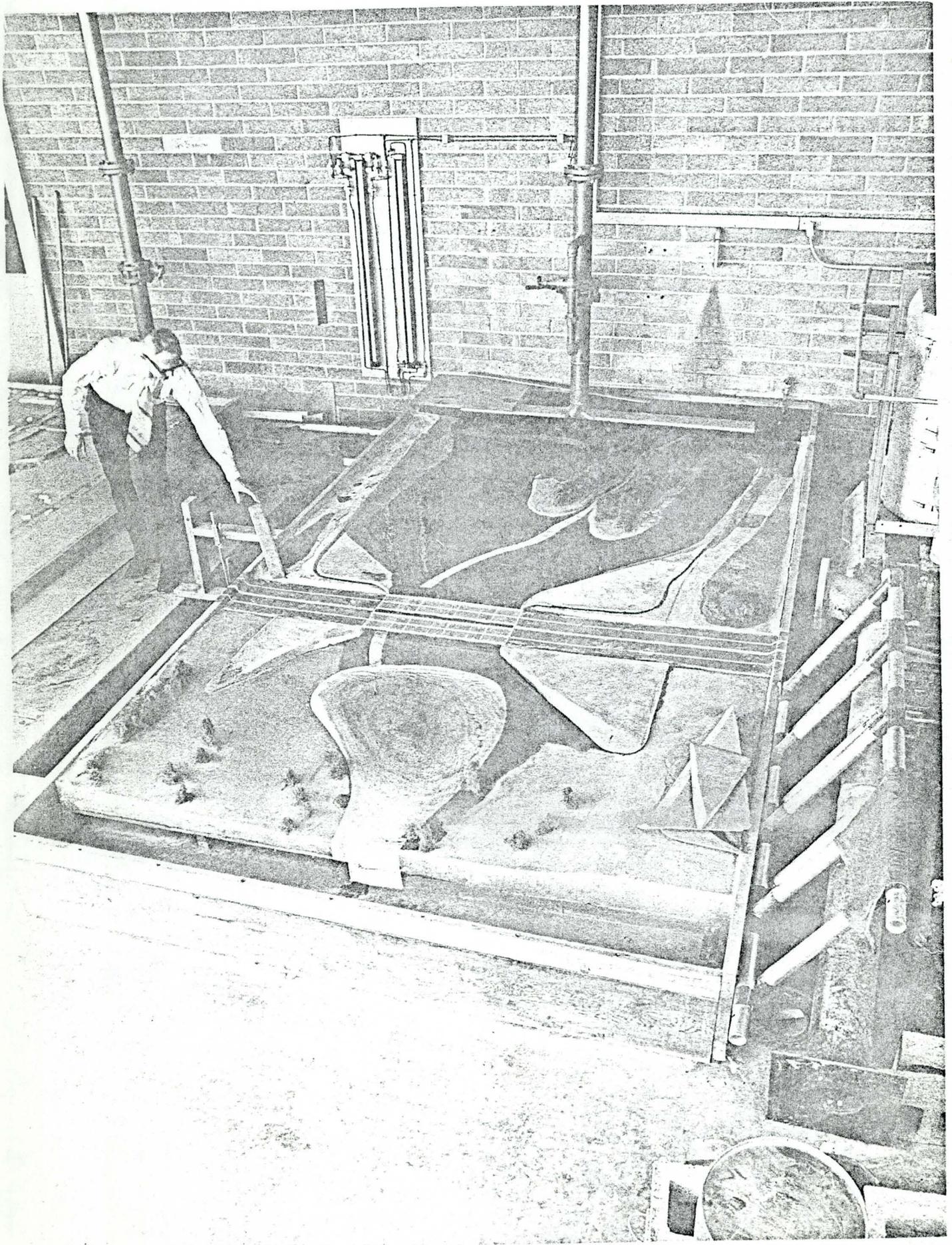


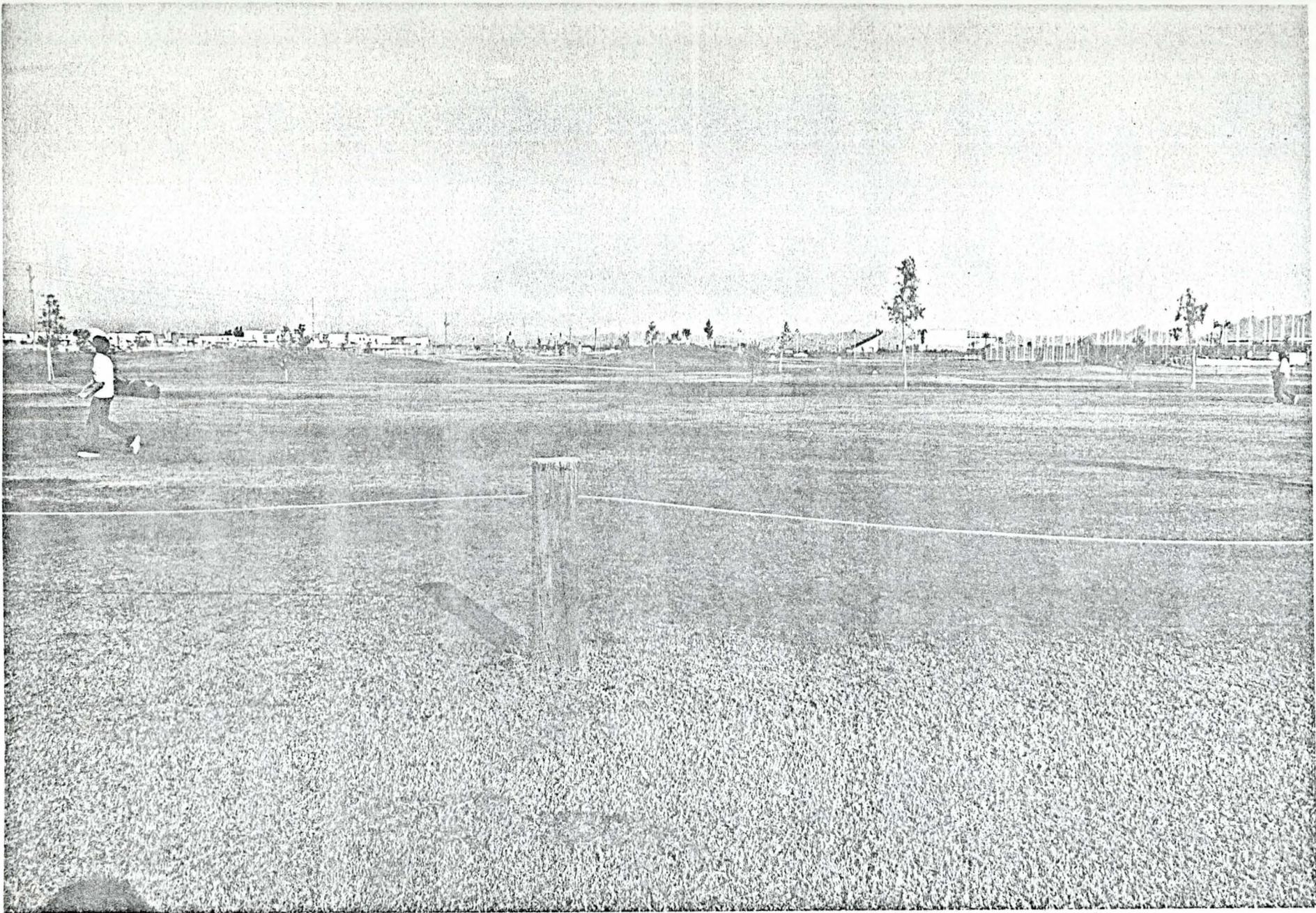
Laboratory hydraulic model of flow around phototype McDowell Road Bridge.  
Actual bridge seen in following photo.



McDowell Road Bridge in Indian Bend Wash Flood Control Project.  
Hydraulic Model of bridge is seen in previous photo.

An engineering professor views the hydraulic model of a section of the Indian Bend Wash Flood Control Project.





Golf course in Indian Bend Wash Flood Control Project.

Photo - 4/75/74  
Town studies

Mar 14  
PAGE 20 Section A

# Scottsdale Given Green Belt Land

Foxgal Inc. of Arizona has donated a parcel of approximately nine acres of land just north of the McDowell Road bridge to the City of Scottsdale. The land is in the Indian Bend Wash.

In making the gift, official of the firm company "is promoting the Arizona Republic."

Dr. Heinz Hink, vice president of the firm, said he and we are most happy to make this gift. He accepted the gift on behalf of the city, and thanks to people such as these who wonder "Why?"

# Scottsdale is granted \$494,195 for floodway

The Arizona Republic, Washington Bureau, Tuesday, May 14, 1974

WASHINGTON - The Interior Department is granting \$494,195 to Scottsdale on a 50-50 matching basis to complete purchase of a 5-mile Greenbelt floodway. Rep. John J. Rostenkowski, D-Ill., was notified.

# Greenbelt plan

## Scottsdale Green Belt Hopes High

Gazette Scottsdale Bureau  
SCOTTSDALE - The fate of Scottsdale's Green Belt (Green Belt) the Indian Bend Wash will be decided by the city council in October, but the city is hoping for approval from the Arizona State Board of Flood Control.

to  
m's  
trol  
ugh  
bts-  
belt  
ying  
ved,  
very  
pers  
s not

# Flood aid revived by county

The Maricopa County Board of Supervisors Monday tentatively tacked \$600,000 onto the County Flood Control District's budget to provide funds for flood control projects in the Indian Bend Wash.

The action by the supervisors, meeting in a budget review session, reversed an earlier decision of the district's advisory board. The advisory group trimmed the Indian Bend Wash funds from the district's budget last month.

The \$600,000 from the county, matched by an equal amount from the city, would provide funds for acquisition of property in the wash, channel crossings on three streets and other projects.

The city council tonight will consider an agreement calling for each body to provide \$300,000. The ultimate fate of the agreement will be decided July 2 when the supervisors meet for a final vote on the budget.

City officials were stunned in May when the advisory board trimmed the wash funds from the budget. The city said the district was renegeing on an earlier promise to come up with the money.

City officials pointed out that Scottsdale taxpayers already planned to have paid more than \$2 million for development of the wash along the Indian Bend Wash. Officials contended that the district should provide the funds along with the city.

City officials contended that the district should provide the funds along with the city. The advisory board will meet Wednesday afternoon to discuss flood control projects in the wash.

Prog  
June  
29



June 28  
Proc

# Flood work may become 'pilot' project

The U.S. Corps of Engineers, once a staunch defender of the concrete-lined flood channel concept, now is so much in favor of Scottsdale's green-belt plan that it may become a pilot program for projects elsewhere.

Maj. Will Worthington, head of corps projects in Arizona, said several corp staff officials have suggested that the Scottsdale plan become a pilot project.

Nearly 10 years ago the corps had started design work and obtained congressional approval of a seven-mile-long concrete channel to handle flood water in the Indian Bend Wash.

# Indian Bend greenbelt praised as money saver

Some \$3 million will be saved by the greenbelt approach to the Indian Bend Wash Flood Control project, a congressional subcommittee was told Thursday.

Brig. Gen. George B. Fink of the Army Corps of Engineers explained the flood control project to the House Public Works Appropriations Subcommittee. Gen. Fink toured the project earlier this year.

Although the former concrete-lined ditch approach to the problem was discarded some time ago, this plan is still carried on the books by the federal government and the Corps. But the greenbelt approach with extensive

recreation facilities in the wash is going full speed ahead, with the Corps' blessings.

George Iannella, the city's capital improvements engineer, noted that Fink's estimate of savings may be a bit conservative, since it is based on cost estimates which were made 10 years ago.

Iannella noted that the city is doing the lion's share of the work on the project, using county, local and federal funds, with the Corps doing the work on the inlet portion between Indian Bend Road and McDonald Drive and the outlet section from McKellips Road down to the Salt River.

total expense on the wash project during the next five years.

Worthington said General Fink was impressed when he visited Scottsdale last year to take a personal look at the wash problems.

He said that Fink told him that the green-belt concept of flood control was something entirely new to the corps and that the general was anxious to get the project completed for the corps to use as a "showcase" for other communities with similar problems.

Worthington pointed out that Scottsdale had taken advantage of a "completely new" corps program which allows federal monies to be spent for recreational facilities in flood-prone areas.

Stragier estimates the corps eventually will supply funds for about \$7 million worth of recreational grounds to be developed in the wash in the next five years.

The recreational development will include construction of bicycle trails which will extend the full length of the wash and allow bicyclists to travel from Arizona State University to northern Scottsdale without crossing a single street.

Proc 1/2 of 7/78

# State Senate okays funds for Indian Bend flood work

PHOENIX (UPI) — The State Senate today sent to the House major appropriations for the Indian Bend Wash flood control project and the Rio Salado development.

strengthening laws against fraudulent acquisition or use of food stamps.

## Scottsdale flood control

Rep 6-29

# \$16 million price put on Indian Bend project

SCOTTSDALE — This city's flood control project for Indian Bend Wash is expected to cost \$16 million and end all

course for Camelback Country Club.

Butt said the town may attempt to acquire the 560 acres

Serenbetz said that Tempe could install turf in the "natural terrain" wash but he personally believes the turf would be uprooted during a

Attention on flooding in Scottsdale usually focuses on the wash south of the Arizona Canal. But the wash also goes through a portion of Scottsdale near

# Mayor seeks Rhodes' help in obtaining funds for siphon

Phog 25 July 1951  
empting in this

Mayor Bud Tims said today he has asked U.S. Congressman John J. Rhodes for help in obtaining funding for a \$1 million siphon which will funnel the Arizona Canal under Indian Bend Wash.

Tims will meet with Rhodes at breakfast on Aug. 21 when the latter comes here to preside at groundbreaking

variety of other developments. Another 280 acres of the wash provides a golf course of Engineers

ceremonies for the \$350,000 bridge over the wash at McDowell Road.

Also invited to the dedication is Brig. Gen. George B. Fink, commander of the Pacific Coast Division of the U.S. Corps of Engineers.

City officials hope that both Rhodes and General Fink will agree with those who claim the greenbelt concept of wash development could be used by the corps as an example of a "good method of flood control" for other communities across the nation.

Tims wrote Rhodes that corps officials have said that it may require legislation by Congress for the corps to use funds in building the siphon which Scottsdale officials claim is a critical need for the success of the complete project.

Tims went into the history of wash development and told Rhodes how the concept of developing the wash into a greenbelt recreational area had been changed from a 1960 plan of building a concrete-lined channel the full length of the seven-mile-long wash.

The letter continued:

"With your help, the corps has accepted the idea of the greenbelt concept, and work has progressed to a point where they feel it is a workable, practical solution, and are preparing a submittal to their Washington office. We hope to have their hope for construction in the next couple of years.

"Recognizing the change in the character of the new plan, we have asked the corps to consider providing construction of a siphon for the Arizona Canal and the large outfall needed to drain water impounded above the canal, between 64th Street and McDonald, into the wash."

Other city officials are now contacting Senators Barry Goldwater and Paul Fannin and Rep. John Conlan to get their aid in devising methods of getting the \$1 million necessary for construction of the siphon.

Rep 9 Dec 73

# Greenbelt project nearing completion

By GORDON ROBBINS

SCOTTSDALE — The city's long desired urban greenbelt, expected to be the major by-product of the city and U.S. Army Corps of Engineers Indian Bend Wash flood control program, is 20 per cent developed, according to Tim Bray, assistant public works director.

While most recreation facilities in the greenbelt area are dependent on U.S. Corps of Engineers programs that will not be acted on until 1975, the greenbelt itself lacks only 1 1/2 miles of being completed. It will contain almost 1,000 acres, Bray said.

City Manager Dale Carter said the developed areas stretch from just north of McDonald Drive south to Indian School Road and from Thomas Road south to the Tempe boundary at McKellips Road.

A mile-long, 160-acre area between Indian School Road and Thomas Road, except for a small strip of land on the north side of Thomas, is to be developed by Continental Homes, Carter said.

"Continental officials have tentative plans for a golf course in the wash and townhouses along the west side of Hayden Road," Carter said, "but we have not received any formal development application."

The City is spending approximately \$1 million on the Indian Bend Wash, including \$1.5 million for parks improvement and \$2.5 million in flood control.

If the Corps of Engineers recommendations are approved, an additional \$2.9 million will be spent for recreational facilities. In addition \$6.6 million will be spent on more flood control facilities by the corps, Bray said.

Both public and private projects have aided in development of the greenbelt.

golf courses and a tennis club with 151 acres.

A 65-acre golf course may be developed on the Hudson Dairy property immediately south of the Arizona Canal, and Continental Homes may use as much as 95 acres for a golf course between Indian School and Thomas.

This totals 585 acres but Bray says the city has plans to purchase additional land which will bring the total to about 1,000 acres. The greenbelt will vary from 800 feet to 600 feet in width as it passes through Scottsdale, he said.

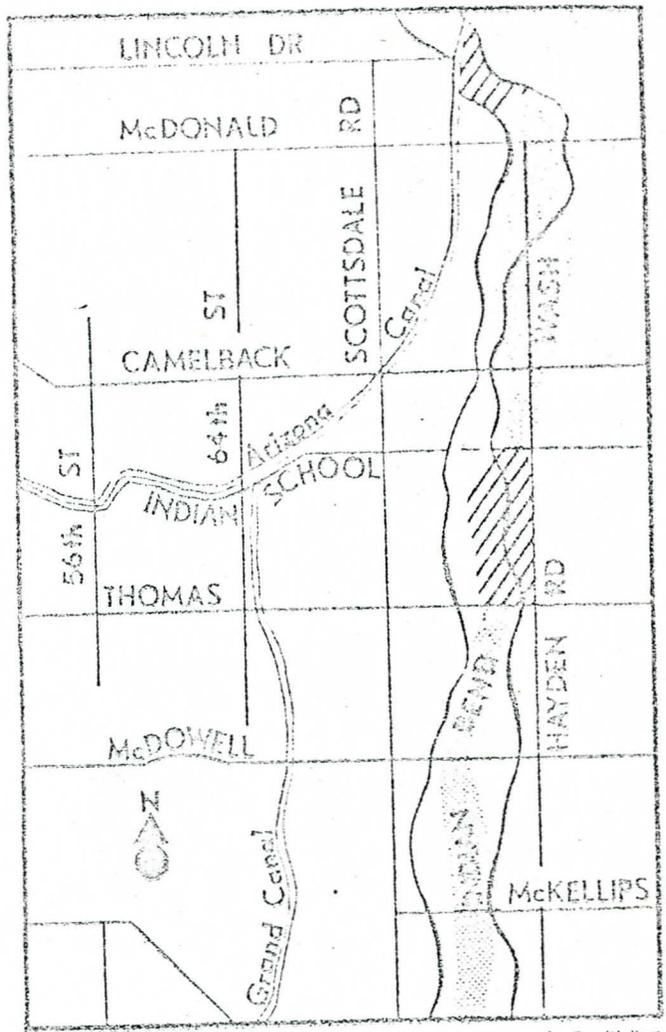
Corps recreational funds, if approved, will be used to install a picnic grounds north of the Arizona Canal, a children's playground and game and sports facilities between Camelback and Indian School Roads, and picnic areas at Thomas Road.

A major exhibition area for outdoor activities is to be built in the wash at the McDowell Road bridge, and equestrian, hiking, and bicycle trails are contemplated to run the 6 1/2-mile length of the wash from the Arizona Canal to McKellips Road.

Corps of Engineers flood control programs include installation of a grass line channel from Indian Bend Road to the canal's north side, according to Bray.

The city is installing bridges across the wash at McDowell Road and McDonald Drive. Bridges also are planned at The Indian School, Carr and Chaparral.

Hayden P north of V a bridge planned



Republic map by Gus Walker

Existing greenbelt areas in Scottsdale's Indian Bend Wash are represented by dotted areas and total 425 acres. Slash lines indicate areas where an estimated 165-acres of undeveloped land will become part of greenbelt project that is being developed by the city and private concerns. The city plans to bring the greenbelt total to nearly 1,000 acres.

way to Indian Bend Road. Completion of all the bridge projects is three years away, although the McDowell, McDonald, and Thomas bridges may be completed this year, Bray said.

OUR GIANT 2-STORE BUYING POWER SAVES



# Unsolicited praise given city's green belt project

A Scottsdale real estate agent told officials of the U.S. Corps of Engineers Wednesday that Scottsdale's green belt concept of flood control has raised the value of homes along Indian Bend Wash as much as \$8,000 per living unit.

Bill Overend of Overend Realty told officials that owners of other properties along the green belt property were well satisfied with the city's flood control projects and realized the development had "greatly increased the values of their homes."

"His  
had w  
Direct  
assure  
meetin  
when v  
"It  
Overer  
homeo  
Stragie

## Flood Control And Fun, Too

Unless the U.S. Army Corps of Engineers insists again on pouring concrete, an unlikely prospect, Scottsdale soon may have flood control with a difference. A green belt flood channel down Indian Bend wash will serve as a recreation area, too.

The City of Scottsdale should know by October whether the green belt design meets the approval of the Army Engineers. After all the wrangling that has gone on for so many years, however, it is almost inconceivable that the federal authorities will insist on a concrete channel to carry off flood waters.

The concrete wouldn't provide any more protection. The green belt design will take the "100-year-storm," a term used to describe the worst possible flood condition. In between storms, moreover, the people of Scottsdale

with all sorts of information including pamphlets explaining the development there."

He said William Pearson, a member of the corps' board of engineers for rivers and harbors in Washington, D.C., was impressed with the green belt concept.

Stragier said that Pearson asked if the corps could bring officials from other cities to view the project as it is being finished. Pearson, according to Stragier, said his

county of Maricopa  
Gag June 18, '73

will have a recreation area, a game court, a bike trail and other facilities for having fun.

If the engineers approve the green belt flood channel, it could be a reality in three years, according to Scottsdale Public Works Director Marc Stragier. Arizona's congressional delegation should be prepared to move swiftly to cut red tape if Washington balks at the plan.

Both the city officialdom and the people of Scottsdale have worked hard to get the kind of flood control they believe is best for their city. If residents and governments in other areas of the Valley show a similar interest, the complete flood control works needed here will become a reality. If public interest fades, however, so will the protection against high water.

# Board backs city flood plan

July 19 July 72

By JACK KARIE

The advisory board of the Maricopa County Flood Control District was urged Wednesday to "jump on the band wagon" to assure it a share in the credit for successful flood control projects being carried out in Scottsdale.

advertised as the most critical need of the project.

"Just a couple of months ago we read that the siphon (to funnel the canal under the wash) was the most important thing for Scottsdale — next week it probably will be something else," Teebles said in a voice filled

## Flood project gets \$2.5 million

The Indian Bend flood-control project here was approved for \$2.46 million in funding by the state Senate Appropriations Committee Friday and state water engineer Wes Steiner said he expects to request an additional \$1.2 million for the project next year.

The com in an all-d pending Sen were impre

slides showing what Scottsdale already has done with the Indian Bend project.

Scottsdale deputy Marc St the was track th 1966, 10t damage ch yez ridge e pre feder

Wash

project

studied

project will prevent 30,000 people from being isolated on the east side of the city as they were in the 1970 and 1972 floods, he said.

The federal money will be used as matching funds, he added.

Scottsdale funds have been used to develop a seven-mile green-belt, which includes lakes and a golf course, in "anticipation" of the state funding aid for the project, Stragier aid.

Siphon

PR bill goes 7

to Nixon

City officials received word today that a bill providing \$1 million for the U.S. Army Corps of Engineers to construct a siphon to funnel the Arizona Canal under the Indian Bend Wash is on President Nixon's desk awaiting his signature.

The city received the word in a letter from Congressman John Conlan to Mayor Bud Tins.

The bill was sponsored in the House last year by Congressman John Rhodes after city officials went to him for federal assistance for the project. The legislation is because the Corps of Engineers cannot use its civil engineering funds for a federally funded project without

ing us pr it do id the pillw

High-ranking civilians from the U.S. Army Corps of Engineers were here today to review the Indian Bend Wash flood control project before making a recommendation on Congressional approval of federal funding for the project.

ement. out in detail what wash and we should lp them," Schrader e a move even if we eting next week."

The representatives will report on their findings to the Corps headquarters in Washington and to Congress. Meeting today with City Manager Dale Carter, Public Works Director Marc Stragier and other city officials were John Bogue, chief economist with the economics section of the Corps' Water Sources branch in Los Angeles; Bill Pearson, a member of the Corps' Board of Engineers, Rivers and Harbors in Washington; Joe Brewer from the Office of the Chief of Engineers in Washington and Dick Yamamoto with the Corps' office in San Francisco. Pearson is a key member of the board which reviews projects and then makes recommendations to Congress on funding of such

# Flood works bill provides \$2.4 million for Scottsdale

A bill providing a major allocation of state funds for the Indian Bend Wash flood control project, here was introduced in the Legislature Monday.

year," Linsler explained. "We anticipate a request for about this amount this year."

City Public Works Director Marc Stragler said Scottsdale plans to request about \$2.4 million from the state as a reimbursement for the work done by the city or reimbursement by the state.

He noted that there is some disagreement between city and state officials over all of the work done by the city or reimbursement by the state. Stragler pointed out that the legislation would allow the state to reimburse local or part of the cost associated with projects of the wash project, such as acquisition and relocation of utility roadways and so forth.

The money cannot be used to pay the net costs incurred in developing the

## City has flood unit backing in project

Public Works Director Mark Stragler gave assurances today that Scottsdale has the full backing of the Maricopa County Flood Control District in completing more than \$7 million worth of flood work in Indian Bend Wash

# \$1 million bill to aid flood work

Federal legislation was introduced today for the funding of a \$1 million project

channel running the seven-mile length of the

## Flood Control Rolling Along

Inasmuch as the U.S. Army Corps of Engineers is in charge of flood control, it might be appropriate now to burst into a paraphrased version of that famous Army song, making it go, "And flood control goes rolling along."

After years of trying to put a concrete ditch through Scottsdale against the community's wishes, the Corps of Engineers is now enthusiastic about a green-belt flood control channel on Indian Bend Wash. In dry times, the channel would serve as a park.

Significantly, an official proposal on the double-duty project drew only one complaint at a recent public hearing. And that was a rather obtuse one, from a citizen who wanted the record to show the project would not protect his neighborhood. Other speakers among the 250 persons present at the hearing praised the project and the Corps of Engineers.

Meanwhile, the Corps has finished work on the \$450,000 Dreamy Draw Dam that protects a large residential and commercial area between Seventh and

26th Streets. At the top of the list of proposed projects is Cave Buttes Dam, scheduled for construction in October of 1975. It would protect a large corridor from the Black Canyon Freeway to Seventh Street all the way through Phoenix.

Some people, especially in flood danger areas, might hope that flood control would go rolling along a little faster. That might be possible, if the community exhibits the same sort of cohesiveness that Scottsdale has on the Indian Bend project.

The work also could be slowed down unless all elements of the community bring up any objections early, talk them out and reach compromises as soon as possible. If the machinery doesn't already exist to facilitate that process, it should be created at once. A late-blooming local dispute on any project could slow flood control intolerably.

Some areas of greater Phoenix are safe from the ravages of floods now; others will be soon if the community sticks together.



# The Green Belt

An urban dream come true

page 5



New credit rating earns AAA

How to stay alert by working at it

page 6

Once \$15. million nightmare

## The Unshatterable Dream -- it's all coming true

There are those who have been dreaming it for 10 years or more. Some of them have been working diligently at it more than half that time — working, planning, even conniving, to make the dream a reality, and residents voted overwhelmingly to make it so. Now at last the cooperation, the \$12 million funding, the schematic designing are virtually complete. The City is to transform the sometimes rampaging Indian Bend Wash into a belt of green. It will be as unusual as the City itself, seven miles of uninterrupted facilities for outdoor recreation.

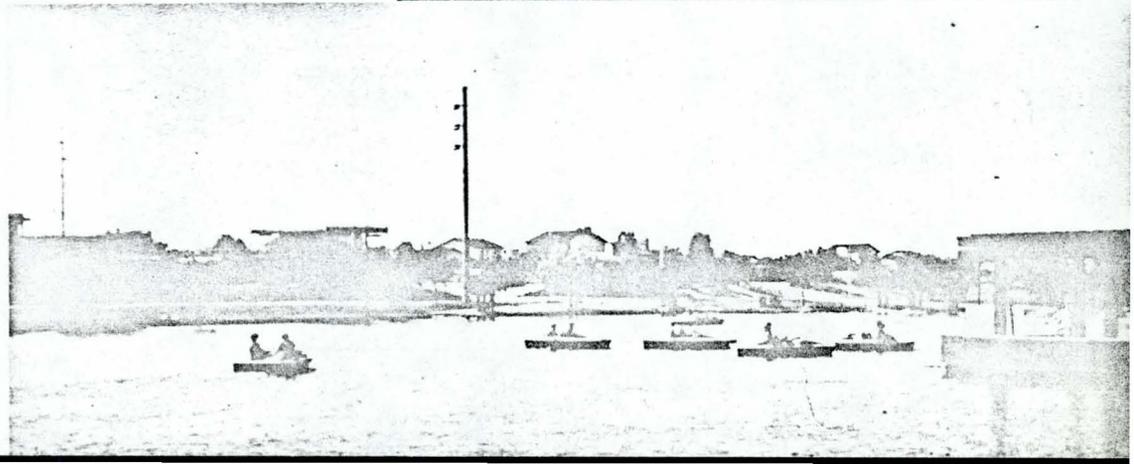
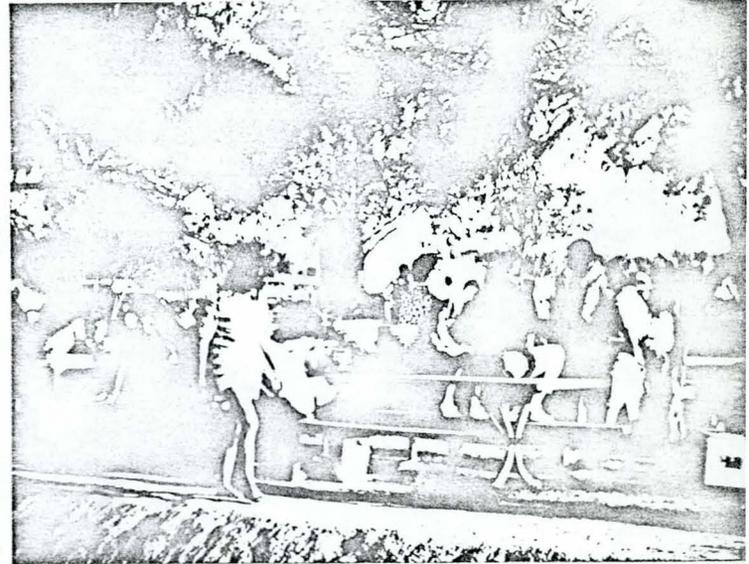
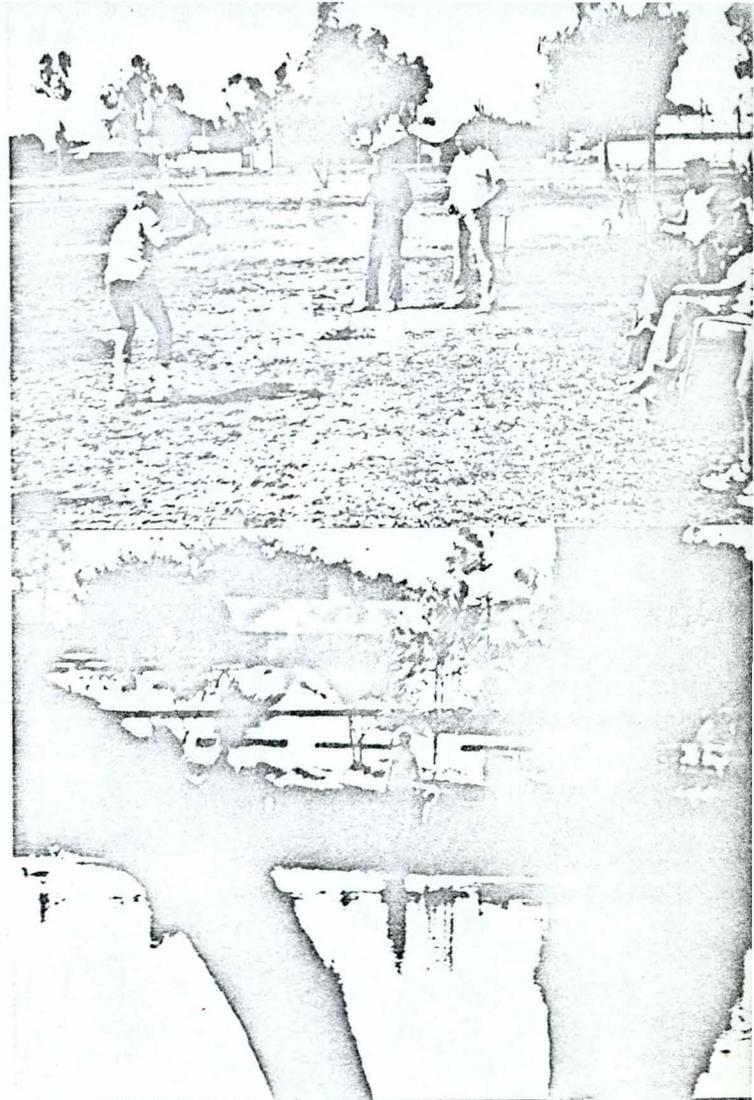
It's all there on a seven-foot long master plan map in the office of Public Works Director Marc G. Stragier. Bicycle paths that will eventually connect ASU and the McDowell Mountains and north to Taliesin and every school, park and regional shopping center in the City, without a single arterial street crossing!

### It's all there

It's all there — boating and fishing lakes; places to hike and camp where autos can't penetrate, trees and shade and golf — five or more courses — and every court game from badminton to volley ball; from bowls to croquet. All inter-connecting with present parks and parks now building.

Flooding started it all. Water from the sometimes heavy storms in the Phoenix and McDowell mountains and their long slopes converged in periodic floods. Old timers said the bad ones came along only every 50 years or so. But as the area built up and waterproof roofs and streets and parking lots spread everywhere, the water run-off increased alarmingly, threatening huge and increasing investments in homes. Twice in two years — not 50 — floods reached disaster proportions, inundating 1000 homes or more. And the long-brewing need for action entered the decisive phase last year.

to page 11



## The Impossible Dream *from page 5*

But the green belt dream got its first glimpse of reality when Scottsdale rejected the proffered nightmare solution of a \$15 million concrete channel that would split the city in half, though carrying water only a few hours each year. Armed with an authoritative feasibility study — the famed Erickson Report — the City set out in 1967 to convince the doubters that, backed by upstream storage, green grass could channel water as well as concrete. The City was bearing the brunt of the floods. It would also determine how they would be controlled. Building in the Wash was prohibited. Trades were made with land owners, sometimes even concessions.

In time the City's Eldorado Park, the Coronado Golf Course, and the Villa Monterey Golf Course tested the theory during heavy flooding. It became clear that the green belt theory of flood containment could do the job. No concrete eyesore was needed.

## No eyesore needed here

Then the voters approved flood control seven to one. The City could go it alone, if necessary, without normal help from County or federal flood control agencies. The dream became tangible enough to walk on. With this show of determination and accomplishment, the U. S. Corps of Engineers and finally the Maricopa County Flood Control District agreed to back Scottsdale with funds for accelerating flood control and to enhance the recreation potential of the green belt area.

As reality of accomplishment emerges, attempts have been made to assess the values in the green belt recreation area for the citizens of the City. What does it add to living in this community when 90 percent of the residents can walk to such a facility? And all of them are within a short bicycle ride. What does it mean for a young couple — or an old couple — to hold hands under a shade tree in a place that's comfortable and uncrowded? Or for a hiker to hike or to camp right in town? What do such intangibles add to personal enrichment?

Or what does it mean on the tangible or money side? At virtually no discernable cost — outside agencies are now contributing \$14 million to this dream to Scottsdale's \$7 million — and the homeowner will find himself part owner of one of the finest such facilities anywhere. Of course, his property values will go up. Or if they should go down elsewhere, his will be more stable. He

doesn't have to use the green belt to benefit by it. Yet, if he only looks at it he will benefit. If it merely relieves urban tension now and again it will put him ahead.

To incur a massive infection of enthusiasm for the green belt one needs merely to listen for a few minutes to any of several hundred people from the mayor and city councilmen on down to STEP committee participants since its formative days of 1965. But at the moment the data and plans for this massive development — as well as some 10 years of accumulated enthusiasm — are in the office of Public Works Director Stragier.

Briefly what plans are involved are these. Starting at the southern end of Indian Bend Wash and connecting with ASU and the proposed Rio Solado project, the cooperating City of Tempe will construct a major rest stop for joggers, hikers and cyclists, with picnicking and toilet facilities. The route passes Big Surf. In adjoining Scottsdale, with the help of the Corps of Engineers, the City will develop a large fishing lake and with the help and blessing of the Arizona fish and game authorities, keep it stocked with fish.

Moving north, parallel to Hayden Road through Vista del Camino Park, there is a major neighborhood facility and next an exhibit area of four acres where community shows will be centered. These will range from arts and crafts exhibitions with portable booths — including Indian exhibitions — to shows of animal breeds and working dogs, antique automobiles and other organized hobbies.

## Green golfing and parks

Next comes Eldorado Park, created by the City as its first major development in the green belt to come, then Coronado Golf Course, Mountain View pitch and putt greens.

At Thomas Road a "wayside" picnic center is planned, heavily wooded for deep shade.

North of Thomas a public golf course is planned by major builders — Continental Homes.

Each school on the east side of the City, with its neighborhood center and park, is to be connected to the green belt area by bicycle paths.

In the area south of where the Arizona Canal crosses the Wash, the City is acquiring a large dairy farm which will be leased for a golf course.

At Indian School Road there is the only crossing where two arterials intersect in the entire seven mile length (with Tempe) of the development. Naturally, there will be safe passage for

*to next page*

## Green Belt *from page eleven*

the bicyclists, but here is envisaged a visitor center and a water feature such as a fountain. Between Indian School and Camelback there will also be a sports center. In one area there will be space for passive court games such as horseshoes, shuffleboard and lawn bowls. In a separate place nearby will be active court games: squash, badminton, tennis, volley ball where regional championships can be decided.

Moving further north an area affected by the Wash widens from its average quarter-mile width so the green belt will include the Villa Monterey Golf Course, the large new Jackrabbit Park with its Olympic aquatic and other facilities now under construction. Above the park will be private golf and tennis facilities open to the public and McCormick Park then finally McCormick Ranch.

At the Ranch the path of the cyclists will continue on a special Ranch thoroughfare called Camelback Walk, which meanders north and east and north through the huge property and will bring the cyclist to Pima Road. There is already one golf course in McCormick Ranch; another is under construction, and riding trails and stables.

Appropriately, at the end of the planned green belt development there will be youth and related hostel facilities accessible to horse riders as well as cyclists and hikers. And by the time they get there, if they have sampled the opportunities for outdoor enjoyment enroute, they may well be ready for them.

---

## More on building inspection *from page 8*

therein may have been built without a code. Department records show this or what code it was built under. They also reveal the name of the contractor whose standing can be checked with the Arizona State Registrar of Contractors.

While a commercial building is inspected four times, each by a different specialist, a residence is usually inspected only once. Every one of Scottsdale's building inspectors has at least five years' experience either as a plumber, electrician, carpenter or in block laying. The staff meet at seven each morning — on their own time — to discuss new developments, such as zoning changes, and new materials, and decide whether a new plastic pipe fitting, for instance, will hold up when attached to a clay pipe. When last year's great wind



storm damaged roofs and carports, a decision was reached in such a meeting to strengthen the requirements for wind vulnerable structures.

Perhaps the most cogent advice Mr. Scheele can give a family which wants to build a home without an architect is to choose the contractor carefully. As in any business, there are some unreliable operators. More than 400 are licensed for Scottsdale. Bank references should be checked. Several former customers should be interviewed and the Better Business Bureau and the Registrar of Contractors consulted. Do not rely on the mortgage institution to make these checks. They check on you.

With sensible precautions, says Inspector Scheele, begins the enhancement of living enjoyment in Scottsdale.

### Green Belt *from page eleven*

the bicyclists, but here is envisaged a visitor center and a water feature such as a fountain. Between Indian School and Camelback there will also be a sports center. In one area there will be space for passive court games such as horseshoes, shuffleboard and lawn bowls. In a separate place nearby will be active court games: squash, badminton, tennis, volley ball where regional championships can be decided.

Moving further north an area affected by the Wash widens from its average quarter-mile width so the green belt will include the Villa Monterey Golf Course, the large new Jackrabbit Park with its Olympic aquatic and other facilities now under construction. Above the park will be private golf and tennis facilities open to the public and McCormick Park then finally McCormick Ranch.

At the Ranch the path of the cyclists will continue on a special Ranch thoroughfare called Camelback Walk, which meanders north and east and north through the huge property and will bring the cyclist to Pima Road. There is already one golf course in McCormick Ranch; another is under construction, and riding trails and stables.

Appropriately, at the end of the planned green belt development there will be youth and related hostel facilities accessible to horse riders as well as cyclists and hikers. And by the time they get there, if they have sampled the opportunities for outdoor enjoyment enroute, they may well be ready for them.

---

APPENDIX I - LETTERS OF ENDORSEMENT



# ARIZONA SOCIETY OF PROFESSIONAL ENGINEERS

PHONE: (602) 266-4926 • 3625 NORTH 16TH STREET • PHOENIX, ARIZONA 85016

**President**

Richard B. Williams, P.E.

**President-Elect**

Lamar C. Michaels, P.E.

**Vice Presidents**

Keith W. Hubbard, P.E.

F. Shelby Bennett, P.E.

Joseph Troxler, P.E.

William A. Ordway, P.E.

**Secretary-Treasurer**

James E. Attebery, P.E.

**National Directors**

Gerald F. Sudbeck, P.E.

Wayne W. Linthacum, P.E.

**Past President**

Frederic W. Gabbard, P.E.

**Executive Secretary**

William A. Sawyer

## MEMORANDUM

**TO:** Mr. Leonard J. Arzt, NSPE Dir. of Public Relations

**FROM:** R. B. Williams, President Arizona Society

**SUBJECT:** Outstanding Engineering Achievement of 1974

The Board of Directors of the Arizona Society of Professional Engineers, meeting December 18, 1974, endorsed its Central Chapter's nomination for the Outstanding Engineering Achievement of 1974; namely, the Indian Bend Wash Flood Control Project.

By this action, the State Society joins in entering this project as its nomination for this award.



DEPARTMENT OF THE ARMY  
LOS ANGELES DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 2711  
LOS ANGELES, CALIFORNIA 90053

SPLPA

2 January 1975

- Central Arizona Chapter  
Arizona Society of Professional Engineers

Gentlemen:

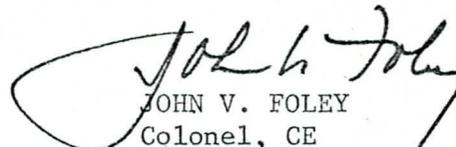
I have been informed that the flood control project along Indian Bend Wash, with its associated green belt and conservation of open space, is under consideration by your chapter for nomination for an outstanding engineering achievement award for 1974.

Although this District has been deeply involved in the Indian Bend Wash planning, I have no reservations in stating that I feel it is well qualified for your consideration. This is a truly outstanding example of far-sighted planning by local government, in this case the City of Scottsdale.

The Indian Bend Wash project represents a significant and important departure from traditional methods of solving flood problems in urban areas. The plan was developed through the joint efforts of responsible city, county, state and Federal agencies and is an excellent example of imaginative and creative planning and engineering to achieve local community goals. The City of Scottsdale deserves particular recognition for the local commitments it has made in support of this concept.

The project has strong local support, and has been enthusiastically received at all levels within the Corps of Engineers. I am convinced that it will not only enhance the quality of life in Scottsdale, but will serve as a model for future urban flood control projects throughout the nation.

Sincerely yours,

  
JOHN V. FOLEY  
Colonel, CE  
District Engineer

APPENDIX III — INDIVIDUALS, GOVERNMENT  
AGENCIES AND, OTHER CONTRIBUTORS TO  
THE CREATION OF THE INDIAN BEND WASH  
GREENBELT FLOOD CONTROL PROJECT.

VIII. Appendix III - Individuals, government agencies, and other contributors to the creation of the Indian Bend Wash Greenbelt Flood Control Project.

United States Congress

U. S. Congressman John J. Rhodes  
2310 Rayburn House Office Building  
Washington, D. C. 20515  
Phone: (202) 225-2635

U. S. Senator Paul Fannin  
1313 Senate Office Building  
Washington, D. C. 20510  
Phone: (202) 225-4521

U. S. Senator Barry Goldwater  
440 Senate Office Building  
Washington, D. C. 20510  
Phone: (202) 225-2235

U. S. Congressman John Conlan  
429 Cannon House Office Building  
Washington, D. C. 20515  
Phone: (202) 225-3361

Arizona State Senate

Senator Sandra O'Conner  
District 24 - Maricopa County  
3651 East Denton Lane  
Paradise Valley, Arizona 85253

Senator John Roeder  
District 26 - Maricopa County  
6265 East Catalina Drive  
Scottsdale, Arizona

Senator Bob Hungerford  
District 28 - Maricopa County  
11234 North Miller Road  
Scottsdale, Arizona

Senator David Kret  
District 28 - Maricopa County  
2420 North 73rd Street  
Scottsdale, Arizona 85257

Senator John C. Pritzlaff  
District 24 - Maricopa County  
4954 E. Rockridge Road  
Phoenix, Arizona 85018

Arizona House of Representatives

Representative Americo "Mac" Carvalho  
District 28 - Maricopa County  
3000 Civic Center Plaza  
Scottsdale, Arizona 85251

Representative Peter Corpstein  
District 24 - Maricopa County  
4342 East Highlands Drive  
Paradise Valley, Arizona 85253

Representative Richard Burgess  
District 24 - Maricopa County  
1700 West Washington  
Phoenix, Arizona 85007

Representative Peter Kay  
District 26 - Maricopa County  
5002 East Calle Redonda  
Phoenix, Arizona

Representative Frank Kelley  
District 26 - Maricopa County  
5009 East Sheridan  
Phoenix, Arizona

Representative William E. Rigel  
District 28 - Maricopa County  
7680 East Coolidge  
Scottsdale, Arizona

Arizona State Water Commission

State Water Engineer's Office

Mr. Wes Steiner  
Executive Director and State Water Engineer  
222 North Central, Suite 801  
Phoenix, Arizona 85004  
Phone: (602) 258-8596

Maricopa County Board of Supervisors

Supervisor Eldon Rudd  
111 South Third Avenue, Room 602  
Phoenix, Arizona 85003

Arizona Outdoor Recreation Coordinating Commission

Mr. Thomas Wardell, Chairman  
Arizona Outdoor Recreation Coordinating Commission  
4433 North 19th Avenue, Suite 203  
Phoenix, Arizona 85013  
Phone: (602) 271-5013

U. S. Army Corps of Engineers

Brigadier General Richard M. Connell  
Division Engineer  
South Pacific Division  
U.S. Corps of Engineers  
630 Sanome Street  
San Francisco, California 94111  
Phone: (415) 556-0914

Brigadier General George B. Fink  
(Former) Division Engineer  
South Pacific Division  
U.S. Corps of Engineers  
630 Sansome Street  
San Francisco, California 94111  
Phone: (415) 556-0914

Lt. Col. James Metalios  
Deputy District Engineer  
Los Angeles District, Corps of Engineers  
P.O. Box 2711  
Los Angeles, California 90053  
Phone: (213) 688-5300

Mr. Garth A. Fuquay  
Chief, Engineering Division  
Los Angeles District, Corps of Engineers  
P.O. Box 2711  
Los Angeles, California 90053  
Phone: (213) 688-5470

Mr. Robert Joe  
Chief, Environmental Resources Branch  
Los Angeles District, Corps of Engineers  
P.O. Box 2711  
Los Angeles, California 90053  
Phone: (213) 688-5413

Major William Terry Kirkpatrick  
Special Assistant to the District Engineer  
U.S. Army Corps of Engineers  
2721 North Central Avenue  
Phoenix, Arizona 85014  
Phone: (602) 261-3851

Bureau of Outdoor Recreation

Mr. Frank Sylvester, Regional Director  
Pacific Southwest Region  
Bureau of Outdoor Recreation  
U.S. Department of Interior  
450 Golden Gate Avenue  
P.O. Box 36062  
San Francisco, California 94102  
Phone: (415) 556-0182

Department of Housing and Urban Development

Mr. Mark Fredricks  
Supervisor of Real Estate Services  
HUD Area Office  
2500 Wilshire Boulevard  
Los Angeles, California 90057  
Phone: (213) 588-5196

Mr. Roger Anderson  
Program Representative  
HUD Area Office  
2500 Wilshire Boulevard  
Los Angeles, California 90057  
Phone: (213) 588-5805

Mr. Yuh Hwa Hsiung, Civil Engineer  
HUD Area Office  
2500 Wilshire Boulevard  
Los Angeles, California 90057  
Phone: (213) 688-3745

Community Service Organizations (Assistance in passing  
flood control bond  
issue for Scottsdale)

STEP Committees  
Scottsdale Chamber of Commerce  
Scottsdale Jaycees  
East Maricopa League of Women Voters  
Volunteers for a Better Scottsdale  
Community Action Group  
Coronado High School City Problems' Classes  
Mohave Citizens' Committee on Flood Control