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MEMORANDUM

TO: CITY OF PHOENIX ADVISORY COMMITTEE ON REACH FOUR OF THE FLOOD CONTROL DISTRICT
ARIZONA CANAL DIVERSION CHANNEL RECEIVED

FROM: CITIZENS AGAINST REACH FOUR NOV 12 '85

DATE: NOVEMBER 8, 1985

RE: DOCUMENTS FROM FILES OF THE ARMY CORPS OF ENGINEERS

CH ENG	HYDRO
ASST	LMgt
ADMIN	SUSP
C & O	FILE
ENGR	DESTROY
FINANCE	
REMARKS	

I. INTRODUCTION.

On September 7, 1984, a request was made to the Los Angeles District, Corps of Engineers, pursuant to the Freedom of Information Act (FOIA), for records relating to the Arizona Canal Diversion Channel (ACDC), Reach Four and destruction of documents concerning the ACDC or Reach Four. The request also asked that search and duplication fees be waived, as provided by the FOIA, because release of the requested documents would primarily benefit the general public.

On September 21, 1984, the District's FOIA Officer responded that the District: (a) had no records in addition to those already made public concerning the ACDC or Reach 4; and (b) had destroyed no records. When the District's response was challenged as incomplete and inaccurate on all counts, the FOIA Officer rejected our request as an "unacceptable" and non-specific "fishing expedition". The Officer demanded that the request identify each document by title, date, author and file location, and refused to grant the request for a waiver of search and duplication fees.

On December 24, 1984, the Deputy Chief Counsel of the Corps of Engineers upheld the District FOIA Officer's demand that the request describe with specificity each document requested from the Corps and formally denied the request for waiver of search and duplication fees. In support of that denial, he claimed that a release of ACDC records would

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not "contribute to constructive public discussion and debate, or primarily benefit the general public."

On January 10, 1985, an appeal was filed with the Office of the Secretary of the Army. Although the FOIA requires that such appeals be determined within 20 days of their receipt by an agency of the federal government, the Secretary of the Army took no action on the appeal for eight months. Finally, on September 20, 1985, Thomas F. Kranz, the Principal Deputy General Counsel to the Secretary of the Army, reversed the decision of the Army Corps of Engineers and granted a waiver of search and duplication fees associated with our FOIA request. In support of his decision, Mr. Kranz noted that "making the project documents available to the interested public will insure the integrity of public decisions over the water project."

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The entire month following the approval of the FOIA request was spent attempting to receive a commitment from the Corps as to the process and date for the document search. Finally, on October 28-29, 1985, a team of three lawyers and a paralegal went to the Los Angeles office of the Corps of Engineers and reviewed files in just three of the 18 sections within that office. The following is a summary of some of the more important documents found during that search. A much larger quantity of documents requested from the Corps based on the search still need to be reviewed, and a search of the files in the remaining 15 sections of the Corps office must still be conducted. Undoubtedly, additional critical information regarding Reach Four which has been jealously guarded by the Corps of Engineers and the Flood Control District will become available.

II. CORPS DOCUMENTS FROM INITIAL SEARCH.

A. Need For Reauthorization By Congress Of Reach Four and Reanalysis Of Costs And Benefits.

An alarming piece of information found in the search of the Corps' files is the fact that the Corps apparently knew what the opponents

to Reach Four have argued from the start--that it was not within the discretion of the Corps to add Reach Four to the congressionally authorized project and that a separate congressional authorization and a new economic analysis under existing criteria and current discount rates are required for Reach Four. This conclusion is based upon a series of memoranda from various levels of the Corps of Engineers hierarchy.

On February 1, 1974, the South Pacific Division of the Corps held a required plan formulation conference on the ACDC in the Los Angeles District of the Corps of Engineers. One of the items on the agenda was the question of whether the post-authorization addition of Reach Four was within the discretionary authority of the Chief of Engineers so that no independent congressional authorization would be necessary and the original 3-1/4% discount rate could be used in the incremental economic analysis of that Reach. The conference concluded that the extension of the ACDC to include Reach Four was not within the discretionary authority of the Chief of Engineers (See Document A, page six, paragraph j.) If the addition of Reach Four is not within the discretion of the Corps then a separate congressional authorization and economic analysis using current discount rates are required.

On April 5, 1974 the Office of the Chief of Engineers, Washington, D.C., wrote to the Division Engineer of the South Pacific Division to comment on the proposed use of the 3-1/4% discount rate for the economic evaluation of Reach Four. The Office of the Chief of Engineers concurred with the Conference reports finding that the addition of Reach Four was not within its discretionary authority and therefore was not eligible to use the 3-1/4% discount rate. The Chief of Engineers stated that:

If estimate of additional cost for extension of Arizona Canal Diversion Channel, from 12th to 40th Street is approximately \$20,000,000 (July 1973 prices) or approximately 15% of total project cost (Stages I, II, III), the extension can be considered within the discretionary authority of the Chief. (See Document B, paragraph 2.)

But the original cost estimate for Reach Four was much greater than the \$20,000,000 maximum.

Finally, on April 28, 1975, the Division Engineer for the South Pacific Division wrote to its District Engineer for the Los Angeles District, in charge of the ACDC, to comment on the Draft Design Memorandum No. 3 for that project. The Division Engineer stated:

Incremental analysis of the extension of the Arizona Canal diversion channel from Dreamy Draw channel to 40th Street is presented on Table 7, page 95, of the main report. OCE reply to MER of Plan Formulation conference on the subject project noted that if the cost of the extension reach is approximately \$20 million (July 1973 prices) or approximately 15 percent of total project cost the extension can be considered to be within the discretionary authority of the Chief of Engineers and also the discount rate of 3-1/4 percent for economic evaluation may be applied. The cost of \$39.555 million for the extension noted in Table 7 reflects 18.5 percent of total project cost. Inasmuch as this percentage is greater than the limit indicated by OCE, it is envisioned that a special report would need to be submitted to Congress for authorization and inclusion of this portion of the diversion channel as an element of the authorized plan. The special report would probably require economic evaluation under existing criteria and current discount rate. (See Document C, paragraph d (emphasis added).)

It is apparent that the Corps of Engineers knew that it could not add Reach Four to the ACDC without independent congressional authorization and a new cost-benefit analysis based on current directives

and discount rate. However, the Corps has failed to receive such authorization and has steadfastly maintained that the old 3-1/4% discount rate used for the original 1965 project can be used for the economic analysis of Reach Four. When opponents of Reach Four have argued that Reach Four is not cost justified, the Corps has replied that based on the 3-1/4% discount rate it is economically justified and Congress has authorized the use of that unreasonably low rate. We now see that the Corps' reliance on the old 3-1/4% discount rate is misplaced and that Reach Four must be analyzed at the current higher discount rate as the opponents to Reach Four have argued all along.

The Maricopa County Flood Control District does not want such a reanalysis of the costs and benefits of Reach Four because it knows that the project can not withstand such scrutiny. In a letter from Dan Sagramoso, Chief Engineer and General Manager for the Flood Control District to Jack Pfister, General Manager of Salt River Project, dated August 30, 1985, Mr. Sagramoso was openly concerned about Representative Rudd's requirement in the House Appropriations Bill, H.R. 2959, instructing the Corps of Engineers to conduct a benefit-cost analysis of ACDC Reach Four using current guidelines and policy directives, including the current discount rate of 8-3/8%. Mr. Sagramoso stated that:

It is very unlikely that Reach Four will show a favorable B/C ratio at the current, higher discount rate and this unusual reanalysis of an authorized project may lead to the withholding of federal funding. (See Document D, paragraph 4.)

In that August 1985 letter, Mr. Sagramoso requested that Mr. Pfister attempt to persuade Congressman Rudd to withdraw his request for an economic reanalysis and noted that other elected officials and private citizens might do the same. Apparently the Flood Control District is so concerned about the results of an appropriate cost-benefit analysis of Reach Four using current guidelines and policy directives that it has resorted to using political pressure on the Congressman to derail his intervention in the project. Moreover, this letter indicates that while the District and Corps have publicly promised cooperation in the

preparation of a new economic analysis to Mr. Rudd and the Committee, they have in fact been secretly attempting to block the requested analysis.

The Flood Control District has good reason to be concerned about a reanalysis of the costs and benefits of Reach Four. An economic analysis of Reach Four, dated April 3, 1985, found in the Corps' Economic and Social Analysis Section files and sent to Stan Lutz, Corps Project Manager for the ACDC, indicates that based on the current discount rate Reach Four only provides \$.63 worth of benefits for every \$1.00 spent. (See Document E.) Obviously this .63:1 benefit-cost ratio is substantially lower than the 1:1 ratio required for the construction of the project. A separate document in the files indicates that a substantially lower discount rate of half the current discount rate of 8-3/8%, is required to achieve an acceptable 1:1 benefit-cost ratio for Reach Four. (See Document F.)

Thus, the Corps of Engineers and Flood Control District apparently know that a new economic analysis could demonstrate that the project is a "boondoggle" and will not receive support from the City of Phoenix and Congress.

B. Flood Protection Provided By Reach Four Is No Longer Necessary.

Opponents of Reach Four have argued that many various improvements in the Reach Four area have made the area less flood prone and have eliminated the need for Reach Four which was added in response to the flood of 1972. The most significant flood protection improvement in that area was the installation of large flood gates in the Arizona Canal to drain the irrigation water and additional flood water down the Crosscut Canal. However, the Corps of Engineers and Flood Control District have maintained that the gates at the Crosscut Canal and other improvements provide insufficient flood protection and would not have prevented the June 22, 1972 flood. A significant document found in the Corps files now refutes that contention and questions the need for Reach Four.

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Thus, the Corps of Engineers and Flood Control District apparently know that a new economic analysis of Reach Four will demonstrate that the project is a "boondoggle" and will result in the loss of support from the City of Phoenix and Congress.

B. Flood Protection Provided By Reach Four Is No Longer Necessary.

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After the 1972 flood, the Flood Control District proposed the installation of the Arizona Canal gates and improvement of the Crosscut Canal. The proposal was initially discussed at the regular meeting of the Citizens Advisory Board of the Flood Control District on September 13, 1982. At that meeting, Colonel John C. Lowry, Chief Engineer and General Manager of the Flood Control District, stated the benefits of the project:

The opening of those gates after the channel is completed will permit the Salt River Project to almost immediately empty the canal at that point. If that had been in operation on June 22, 1972, the canal would not have broken, the damage along the canal, particularly down where Cudia City is where the Salt River Project has a wash and spillway, and where the canal broke near 38th Street people were badly damaged by floods, would probably not have occurred because the emptying of that Arizona Canal is going to permit that flood water to be picked up coming from the east of 48th Street into this Cave Creek and Old Cross-Cut channel. (See Document G, page 4, paragraph 8 (emphasis added).)

The Flood Control District believed that the installation of the Arizona Canal gates at the Crosscut Canal would alleviate the risk of flooding from another flood like that which occurred in 1972, the most severe flood which has occurred in the Reach Four area. As you know, those gates were indeed installed in the Arizona Canal at the taxpayers' expense, but the Flood Control District now wants to duplicate the flood protection by spending millions of dollars to construct Reach Four. Thus, the familiar question is resurrected - is Reach Four really needed? It may be that the Flood Control District has other plans for the Crosscut Canal which do not include protecting the Reach Four area, as discussed below.

C. Alternatives To Reach Four Not Fairly Considered.

Opponents of Reach Four have believed that the Corps and Flood Control District have been "wed" to the Reach Four alternative from the beginning and have never fairly considered alternatives to Reach Four. A good example of this bias against alternatives to Reach Four is the way in

which the PRC Toups proposal was dismissed by the Corps and District. After the PRC plan was presented to the Task Force at the public hearing, Mr. Sagramoso and Mr. Lutz disputed the large cost savings which were concluded by PRC and stated that their analysis showed that the alternative was only 3% less expensive. This same conclusion is stated in a letter from the Corps of Engineers to Mr. Sagramoso, dated November 30, 1983. (See Document H, page 1, last paragraph.) However, the analysis attached to that letter indicates that based on their own calculations the PRC proposal would save \$8.2 million. While the Corps is correct that this is only a 3% savings when compared to the cost of the entire ACDC project, it is a savings of almost 15% when compared to the cost of Reach Four. Since the PRC plan is an alternative to Reach Four the cost savings should be compared to the cost of that component of the project, but the Corps chose to compare it to the cost of the total ACDC to diminish the effect of the cost savings.

In addition, the Corps and District have argued that the PRC proposal would be opposed by Paradise Valley and the Phoenix Country Day School. However, the Town of Paradise Valley passed a resolution which "strongly opposed" the construction of Reach Four, yet the Corps and Flood Control District considers the approval of Reach Four by the Board of Directors of the Flood Control District as adequate authority to proceed with Reach Four. (See Document I, page 1, paragraph 3 and page 2, paragraph 3.) Also, the PRC proposal entails the use of holding basins to reduce the high peak discharges of floodwaters and thereby reduce the size and cost of Reach Four. Of course, as the PRC representative noted at the public hearing, it is not necessary that the major Cudia City basin be located on the Country Day School property, but could be located elsewhere along the Cudia City wash or Reach Four channel.

In fact, the Chief of the Corps of Engineers Hydrologic Engineering Section, Joseph B. Evelyn, recognized the value of this use of small holding basins as a "viable alternative" to Reach Four, and made such recommendation to the Chief of the engineering section in charge of the ACDC project. Mr. Evelyn stated that:

In reviewing some SPF and discharge frequency values computed in the Phoenix area, the idea occurred to me to compare the volume of the design flood hydrograph for the Arizona Canal Diversion (ACDC) to the volume of the proposed ACDC channel itself. The important concept is that although the design flood hydrograph have very high peak discharges, the total volume of the flood hydrographs are relatively small due to the local (thunderstorms) nature of the design storm. The net result is that the introduction of relatively small quantity of storage will result in a large reduction in the required channel capacity necessary to convey the flood. (See Document J, paragraph 1 (emphasis added).)

Importantly, Mr. Evelyn concluded that the potential reduction in costs, required right-of-way, and impact on the community appear to be significant enough to warrant further intensive study. However, no such study has been presented by the Corps or found through the search of their files. The Corps and District seem determined to simply proceed with Reach Four despite the costs and effect on the community.

Finally, the group Citizens Against Reach Four and numerous members of the Phoenix Advisory Committee have expressed an interest in the use of the Crosscut Canal as an alternative to Reach Four. Many believe that the Corps and District have not given fair consideration to that alternative because they have other future plans for the use of that canal. A March 9, 1984 letter found in the Corps of Engineers files indicates that they do indeed have plans for a "Old Crosscut Canal Flood Control Project" and are working to obtain funding to continue the development of that project. (See Document K, paragraph 2 and last attachment.) Apparently, the project will capture and divert down the Crosscut Canal stormwater from east of the Reach Four area, between 40th Street and 68th Street. However, the economics of the project seem uncertain and a preliminary estimate of the costs and benefits indicates a favorable benefit-cost ratio only for a 25-year flood protection project. (See Document L, page 3, paragraphs 3 and 5.)

Since the Corps and District can only justify the use of the Crosscut Canal for that area between 40th Street and 68th Street for a 25-year flood project, it would seem more valuable to use the Crosscut to provide 100-year flood protection for the Reach Four area. Alternatively, it may prove more economically feasible to increase the flood protection benefits of the Crosscut Canal project by capturing and diverting floodwaters in both the Reach Four area and the area to the east. However, again there is no study of these alternatives by the Corps and District and they seem content to simply push forward with Reach Four.

D. Inadequacy Of The ACDC And Liability Of The Flood Control District And Taxpayers For Flood Damages.

Opponents of Reach Four have also argued that the 100-year flood design of the ACDC is inadequate and may cause flooding in urban areas where such flooding would not have otherwise occurred, and that liability for the cost of such flood damage will fall on the Flood Control District and ultimately the taxpayers. Moreover, this cost has not been calculated into the cost-benefit analysis of the project. The Corp and Flood Control District have responded that the people below the Arizona Canal will be better off with than without the project. However, it now appears that the Corps realized that many people will be far worse off after the construction of the project.

The Corps' files confirm the fears of the opponents of Reach Four. They indicate that as far back as 1976 the Office of the Chief of Engineers, Washington, D.C., was also concerned about the inadequacy of the 100-year (1% chance) flood design of the ACDC, believed that the ACDC could cause flooding in areas where flooding would not otherwise occur and recognized that liability for damages would rest with the local sponsor. Specifically, the Chief of Engineers stated:

The selection of the 1% chance flood as a basis for design along the Arizona Canal Diversion Channel should be better supported. The information presented in the GDM indicates the absolute minimum acceptable design to be a 0.5% chance flood. The data indicate that a 0.2% chance design flood would be economically

feasible. The proposed channel could cause flooding in urban areas where flooding would not otherwise occur. Accordingly, we suggest that you consider providing a higher degree of protection unless there are compelling reasons for adoption of a lesser degree of protection. We request that you submit additional information substantiating the selection of the design flood. In addition, the local sponsor should be made fully aware of the hold-and-save responsibilities as they pertain to areas where the project could induce flooding in the event that the project design flood is exceeded. (See Document M, paragraph 2 (emphasis added).)

The only answer that has been provided by the Corps and District for the selection of the 100-year (1% chance) flood design is that a 200-year (.5% chance) or standard project flood design would be economically and politically impractical.

Opponents of Reach Four have also pointed to the destruction created by floodwaters in excess of the 100-year flood capacity being diverted through proposed overflow structures and spillways into exiting residential and commercial areas. The same memorandum from the Chief of Engineers confirms this concern and cautions the Los Angeles District:

Hazardous conditions created by spillway flows should be considered carefully. In general, spillways should be located in such a way as to minimize hazards to people and property. A real estate interest should be acquired downstream of spillways to a location where "with project" conditions essentially equal "without project" conditions, or where hazards caused by inundation, velocity or debris would be acceptable. Review the criteria in the attached EC 1110-2-183 to determine their applicability to this project. After you determine the impact of this EC on the Phoenix project, submit information to either support the original decision not to acquire lands below the spillways or to explain and define areas in which acquisition will be necessary. Local interests should be made aware of the risk of project-induced damages in these areas. (See Document M, paragraph 3 (emphasis added).)

In the Reach Four, the Cudia City wash overflow structure and the spillways before the covered channel at Stanford Drive and the Biltmore Hotel could cause unacceptable inundation, velocity or debris in residential and commercial properties, but the District has made no effort to acquire such properties.

Finally, opponents of Reach Four have argued that a standard project flood with velocities much greater than the 100-year flood capacity of the ACDC could cause the sides of the channel to fail with very serious consequences to persons and property below. Again, the Chief of Engineers recognized this concern:

The proposed levees should be designed for the standard project flood, as a minimum, where overtopping or failure would create hazardous or catastrophic conditions. The information presented indicates that design of at least three, and perhaps four, of the levees should be predicated on SPF floods. (See Document M, paragraph 4.)

As noted above, the Chief of Engineers recognized that liability for the cost of flood damages caused by the inadequacy of the ACDC would rest with the Flood Control District under the hold harmless clause in the contract between the Corps and District. (See Document M, paragraph 1.) The Corps were so concerned about the liability of the United States for flood damage that it requested and received less than a year ago an opinion from its District legal counsel. The Corps lawyers concluded that:

With regard to your inquiry concerning the liability of the United States for flood damages, 33 U.S.C. 702c provides a statutory immunity for the United States from any liability for damages arising from floods or flood waters. The immunity protects the government from liability even when it has acted negligently in the design, construction or operation of a flood control project. (See Document N, paragraph 1 (emphasis added).)

However, the counsel found that such immunity does not, of course, apply to the Flood Control District:

The immunity provided by 33 U.S.C. 702c only applies to the United States. The local sponsor, therefore, may be liable for damages to such downstream landowners under the laws of the State of Arizona. (See, document N, paragraph 3.)

Therefore, the liability for flood damage due to the inadequacy of the project would fall on the District and ultimately the taxpayers of the District. This cost should be included in the economic analysis and weighed heavily by the Phoenix Advisory Committee.

E. The Reach Four Right-Of-Way Through The Biltmore Is Insufficient.

Finally, the owners of the Biltmore Hotel have maintained that the right-of-way for Reach Four granted by its predecessor is insufficient for the channel and that the cost to the Flood Control Project to condemn the additional land will greatly increase the cost of the project. Correspondence found in the Corps' files now confirm this contention.

In 1974 the Corps and District informed the City of Phoenix that they needed an increase in the right-of-way through the Biltmore from 65 to 120 feet. However, the City concluded that an agreement with the Biltmore had already been completed for the 65 foot width and negotiations could not be reopened. (See Document O, paragraph 1-3.) Consequently, the District committed that it would acquire (presumably through condemnation) the additional lands required by the Corps for Reach Four. (See document P, paragraph 2.)

Furthermore, in 1975 the Flood Control District wrote to the City of Phoenix to again request that even more additional right-of-way be acquired immediately adjacent to the Biltmore Hotel. This additional land is required due to the backslope from the channel and the relocation of the Arizona Canal to the South. (See Document Q, paragraph 3-4 and attachment.) However, based on the Biltmore Estates plat map and to the

knowledge of the owners of the Biltmore Hotel, such additional land was not included in the right-of-way grant.

Accordingly, while the Corps and District have stated that they have the necessary right-of-way through the Biltmore, it now appears that they have known for some time that the District will need to condemn additional land within the Biltmore substantially increasing the cost of Reach Four.

III. CONCLUSION.

The documents found in just the first step of the review of the Corps of Engineers' files support the contentions made all along by opponents to Reach Four and disclose the less than forthright information provided to the City of Phoenix and its citizens by the Corps and Flood Control District. It appears that there was good reason for the Corps to jealously guard its files and documents from public scrutiny.

The Corps and District have admitted that Reach Four can be eliminated from the ACDC project with no effect on the ability of the rest of the channel to function and that the remaining three reaches can be downsized accordingly. (See Document R, paragraph 4, and Document 5, page 5, paragraph 4.) The City of Phoenix, as the main beneficiary of the Project, can make the decision whether Reach Four is constructed or not. Although Mr. Sagramoso requested an opinion from the Corps regarding the necessity for City of Phoenix approval, in an obvious attempt to circumvent the decision of the City if necessary, the Corp wisely replied that:

Strictly speaking, we need nothing further from the city or the Flood Control District to continue and construct all of the ACDC. On the other hand, should the city of Phoenix take a stand against any portion of the ACDC, it will be very difficult to obtain funding to construct that portion. (See Document T, page 1, paragraph 5 (emphasis added).)

Citizens Against Reach Four strongly urge that the City of Phoenix take a strong stand against the construction of Reach Four.



EXHIBIT A

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, OFFICE OF ENGINEERS
634 Sansome Street, Room 1216
San Francisco, California 94111

REPLY TO
ATTENTION OF:

8 March 1974

SPDPD-U

MEMORANDUM FOR THE RECORD

SUBJECT: Milestone 02 Conference, New River and Phoenix City Streams,
Arizona

1. Subject project Plan Formulation conference required during pre-construction planning of the Phase I GDM was held in the Los Angeles District on 1 February 1974. In addition to SPD and SPL personnel (Inclosure 1), representatives from OCE (Joseph D. Brewer) and BERH (William R. Pearson) were in attendance as part of Intensive Management Program implementation.
2. Conference proceedings chaired by Kermit V. Speeg (SPDPD) began with presentation of background information and status of project features by SPL, as shown on agenda outline (Inclosure 2), and followed by discussion and elaboration of major items of concern to conferees. Decisions and actions required on the major issues discussed were separated into those related to "questions on policy" to be handled by OCE, and those to be addressed by the District prior to submittal of the draft Phase I, GDM.
3. Items on policy matters are as noted:
 - a. Regarding cost sharing for recreation, local interests indicate that their assurances for the recreation aspect of the project is contingent upon repayment of their share over a period of time (50 years). Clarification on this matter is needed as to whether the required non-Federal cash contribution for this project's recreation development proposed in the detention basins and along the diversion channel can be repaid in installments over 50 years as per P. L. 89-72. A related question was also raised on whether a separate interest rate would be applied to recreation which is an added feature in the Phase I GDM. It should be noted, however, that the authorizing document stated studies should be made to determine if facilities for fish and wildlife and recreation should be added following authorization of the project.

Informal discussion with OCE personnel indicated that cost sharing of recreation features for the project may be repaid over a long term basis. Also, the interest rate for project formulation of recreation features should be the applicable rate of 3-1/4 percent.

SPDPD-U

8 March 1974

SUBJECT: Milestone 02 Conference, New River and Phoenix City Streams,
Arizona

b. The proposed project also includes extension of the Arizona Canal diversion channel upstream from 12th Street (Dreamy Draw Channel) to 40th Street, a distance of about 4.6 miles. The extension is considered a post-authorization change and the applicable interest rate to use in the incremental analysis for this reach needs to be determined.

4. Discussion and actions on the major issues raised are as follows:

a. Central Arizona Project. A full discussion and status of the Central Arizona Project and its impact on this project should be included in the GDM.

b. State of Arizona Law on Flood Plain Management. Questions on the interpretation and implementation of the recently passed State law concerning the 100-year flood plain will need to be clarified in order to determine its impact on project analysis. A firm understanding of this aspect is required for proper formulation of alternative plans and related cost estimates. A direct implication of the new law is in regard to the issue of flowage easement versus flood plain regulation of lands along Skunk Creek, New River, and Agua Fria River channels. The proposed plan should include positive measures to prevent infringement on flowage areas required for operational releases from upstream dams. An added issue which should also be addressed in the GDM is whether diversion of waters through the project's Arizona Canal Diversion Channel would create flood problems which do not exist at this time.

c. Hydrology and Hydraulic Design. The preliminary discharges and hydrologic data for the various alternative plans presented in the conference material should be finalized as soon as possible to firm up project design features. Processing of Design Memorandum No. 2, Hydrology, which presents methods and techniques to model the runoff process used for Tables 1 and 2 (conference data) will be closely monitored to see if any adjustment in hydrologic data would be required as a result of review by OCE.

The basis of the "n" values used in project design and overflow areas of the Agua Fria River, New River, and Skunk Creek should be discussed and coordinated with SPDP staff elements for concurrence.

d. Overflow Areas. The predicted overflow areas and frequency of such occurrence as the result of anticipated breaks in the Arizona Canal will need to be discussed and presented in the Phase I GDM.

e. Alternative Plans.

(1) General.

Project formulation of alternative plans which includes dams and channels uses two different degrees of protection, i.e., SPF for dams

8 March 1974

SUBJECT: Milestone 02 Conference, New River and Phoenix City Streams,
Arizona

and 100-year for channels. The formulation of the "best" plan based on the combination of the various dams and channels should be determined and then scaling of the plan made on the basis of maximization of net benefits with variations from that point properly justified. The basis and rationale related to formulation of the total project together with the analysis of the integration of the recreation features and the cost allocation procedures used should be fully described in the GDM.

At least one of the alternative plans should include provisions for channel improvement along the lower Agua Fria River upstream of the confluence of the Gila River as desired by local interests voiced at the public meeting of 26 April 1972.

(2) Dam Site. Suggest that dam site analysis compare dam costs to benefits rather than dam costs versus cost per drainage area for alternative dam site selection.

(3) Foundation and Materials. The impacts of proposed dams on existing gravel operations, including the impact on costs if allowed to continue, at both the Cave Buttes and Adobe sites should be determined as soon as possible so that resolution of any major problems can be handled expeditiously.

(4) Alternative Flood Control Plans. The magnitude of the flood damage potential downstream of the proposed dams especially in the reach along Cave Creek between Cave Buttes Dam and the Arizona Canal should be fully described. The effects under the with and without condition of the project together with possible channel improvement along Cave Creek and/or related effects from operation of Cave Buttes Dam on downstream channel crossings and the Arizona Canal should be discussed in the GDM.

In the area south of the Arizona Canal (AC) (downstream of Cave Creek confluence with AC), the flood problems and possible alternative plans (for this area) should also be explored and discussed in the GDM.

With regard to the pros and cons of Alternative plans 5a and 5b, a comparison of the differences of the alternative plans should be presented including the required economic, social, and environmental analysis as well as the following items: (a) operation of the dams and the required downstream channel needs including rights-of-ways, improvements, etc.; (b) required structures such as gates to accommodate operation procedures; and (c) other differences and/or requirements of the alternative plan.

f. Project Economics and Benefit Analysis.

(1) Analysis of project economics should use conditions of "with and without" instead of the "before and after" analysis presented in the conference material.

SPDPD-U

SUBJECT: Milestone 02 Conference, New River and Phoenix City Streams,
Arizona

8 March 1974

(2) The analysis of productivity factors in the project economics should fully discuss the basis of the assumptions used and the associated impacts on project benefits. The deviation of the correlation coefficients should be discussed in terms of data used.

(3) The projected land use data showing future expansion of the Phoenix area should indicate source of the data and the compatibility of projections with OBERS data. Generalized economic data of a broad regional scope should be kept minimal to permit a more detailed economic presentation on the specific project area.

(4) Data in table showing non-preventable damages of over \$10 million for Alternatives 5a and 5b need to clarify what portion of the project area these residual damages occur. Discussion should also include analysis of what measures have been considered to reduce the large residual damages indicated and the effectiveness of the Arizona Canal as a flood control structure. Also see comments on Alternative Flood Control Plans.

(5) Lands and easement costs for the Adobe dam site show costs for 1973 and 1978 with the difference based on increase due to anticipated change in land use. Cost data should reflect only current price levels in site selection analysis.

(6) In addition to economic justification, an analysis of the economic impacts of the project should be included in the GDM.

g. Recreation and Beautification.

(1) Recreation, as a project function, should be included and treated as an element in a multipurpose project and not as an "add on" to the flood control project. Also see comment on Alternative Plans.

(2) Data reflecting capacities of proposed project recreation facilities in relation to amount of total recreation demand should be presented in the GDM. Also, recreation analysis should use "recreation day" unit values as basis of benefit computation rather than participation days.

(3) Recreation developments at the reservoirs including either water-based or dry-land facilities should be clearly described including the basis for arriving at the plan proposed. Information relating the source and cost of water for the permanent pool, the assurance of obtaining the amount of required water for sustaining the fishery resource at the sites, the evaporation losses that must be considered to maintain a viable recreation/fishery pool, and possible water quality problems including recirculation of available water should be presented in the GDM.

SPDPD-U

SUBJECT: Milestone 02 Conference, New River and Phoenix City Streams,
Arizona

8 March 1974

(4) Width requirements of the recreation trail system along the Arizona Canal Diversion Channel should be reanalyzed. Are the full widths shown on the typical section plate needed? Why not combine the jogging and bicycle path and use only one service road?

(5) Consideration should be given in the design of ancillary dikes, required with the various dams, to include irregular shapes and/or treatment of the sloping face to provide a pleasing and esthetic appearance.

h. Environmental Considerations.

(1) The preliminary Environmental "Working Paper" is adequate for the intended purpose of the document. Close field coordination should be continued with the Environmental Protection Agency on water quality and air quality aspects; with the National Park Service in regard to archaeological matters; and with local and State groups/agencies to bring out any concerns at an early stage.

(2) Any wildlife mitigation that would be required as a result of project construction should be identified, the mitigation measures defined, and the appropriate Federal and non-Federal costs included in the project analysis (reference ER 1105-2-129).

(3) Determination is required as to whether enough information will be available to prepare a single comprehensive EIS at this time or the EIS will contain special emphasis on Cave Buttes Dam as per DAEM-CWO-C letter dated 2 February 1972. The EIS would be updated to emphasize additional stages as they are recommended for construction.

i. Public Participation.

(1) The recently formed Citizen's Advisory Committee that will assist the Maricopa County Flood Control District on this project should include representatives of all concerned interest groups. Inasmuch as the present 14-member committee does not include a representative of local Indian tribes, consideration should be given to addition of such a member.

(2) The past informal meetings that have been held with environmental groups and the Recreation Task Force to discuss the different aspects of this project should continue to be pursued in order to incorporate their views and concerns in the project.

SPDPD-U

8 March 1974

SUBJECT: Milestone 02 Conference, New River and Phoenix City Streams,
Arizona

(3) Appropriate aspects of social and public assessments of the project should be addressed in the CDD as required under Section 122 guidelines in addition to those aspects reflecting economic and environmental effects.

j. Post-Authorization Change. In the discussion of post-authorization changes as applied to this project, the following aspects appear to be either under discretionary or not-discretionary authority of the Chief of Engineers:

- (1) Change in dam site - (discretionary).
- (2) Deletion of authorized channel improvements due to acquisition of flowage easement --(discretionary).
- (3) Extension of diversion channel - (not discretionary).
- (4) Deletion of authorized channel improvements due to lack of economic justification - (discretionary).
- (5) Mitigation lands - (not discretionary).
- (6) Change in land enhancement contribution of 2.3 percent of construction cost by local interest - (not discretionary).
- (7) Addition of recreation - (not discretionary).

2 Incls
as

Richard K. Yamamoto
RICHARD K. YAMAMOTO
Urban Studies Branch

CF:
SPDPD File

8 January 1973

ADEQUACY OF PROJECT AUTHORIZATION

GILA RIVER BASIN, NEW RIVER AND PHOENIX CITY STREAMS, ARIZONA

1. The Gila River Basin, New River and Phoenix City Streams, Arizona project referred to as Phase B of a comprehensive five-phase flood control plan set forth in House Document 216, 89th Congress, 1st Session was approved 27 October 1965 by Act of Congress, Public Law 89-298, Eighty-Ninth Congress, 1st Session. The authorized plan provided for four dams - Dreamy Draw, Cave Buttes, Adobe and New River; 29.1 miles of channel improvements - Dreamy Draw, Cave Creek, Skunk Creek, New River and Agua Fria River Channels; and 24.5 miles of diversion channel - Adobe Dam diversion channel and Union Hills and Arizona Canal diversion channels.
2. A request to separate the Dreamy Draw increment with a Feature Design Memorandum in advance of a GDM on the remaining portions of the project was approved in ENGCW (18 December 1970) 2d Indorsement, dated 24 February 1971, subject: "Phoenix, Arizona and Vicinity Project - Proposed submittal of Feature Design Memorandum for Dreamy Draw Detention Basin." However, it was stipulated that no other portions of the overall project would be started until the General Design Memorandum is approved. Construction started on Dreamy Draw Dam in October 1972.
3. The authorized project is engineeringly feasible and, based on escalated interim report costs and benefits, would provide economically justified protection to a part of metropolitan Phoenix. The protected area would include an intensively developed residential and commercial section along Cave Creek between the Arizona Canal and the Salt River; a rapidly developing residential and commercial area along Cave Creek between Bell Road and the Arizona Canal; agricultural development along Skunk Creek, the New River, and the lower Agua Fria River; and residential and commercial development in the communities of Peoria and Avondale, which are on the New River and Agua Fria River, respectively.
4. The authorized project would regulate Cave Creek, Skunk Creek and New River floodflows, divert flows in Deer Valley and Cave Creek to Skunk Creek, and provide improvement of Skunk Creek and the New and Agua Fria Rivers so that they can carry these flows to an adequate point of disposal. This is considered essential for the mitigation of potential problems from diverted flows.
5. The authorized dams were designed to control all floods up to a standard project flood. Recent office and field investigations indicate the need to modify the existing Cave Creek Dam to prevent its failure from large floods.

6. The authorized channels were designed to control all floods up to the 100-year flood. They would be entrenched, thus eliminating the need for levees whose rupture would create destructive flows. In the reformulation studies, consideration will be given to increasing the design discharge, perhaps to a standard project flood design. Land owners at the downstream end of the Agua Fria River have requested consideration be given to extending the terminus of the proposed Agua Fria River channel improvement further downstream. In addition, the Flood Control District of Maricopa County and the city of Phoenix have requested consideration be given to extending the upstream end of the Arizona diversion channel further east to 20th Street, 24th Street or 32nd Street.

7. Subsequent to authorization, firmer plans have been developed on the Granite Reef Aqueduct of the Bureau of Reclamation's Central Arizona Project. A flood control dike designed to protect their aqueduct would significantly reduce the drainage area to the Union Hills diversion channel east of Cave Creek and make the economic justification of that reach of channel doubtful. Because of this development, a shorter Cave Creek diversion channel will be considered as an alternative to the Cave Creek channel and the Union Hills diversion channel recommended in the interim report.

8. The authorized plan would prevent substantial damages in the overflow areas, however, residual damages would still result from flows originating downstream from the proposed works. It is considered even more essential under present conditions that local interests construct more storm drainage improvements for the control of local storm waters. The authorized channel improvements would provide a major outlet for part of the local storm drainage system.

9. Studies to determine the economic justification of modifying the detention basins to provide fish and wildlife and recreation facilities will be undertaken as recommended in the House Document.

10. In addition to normal ABC assurances, the project authorization requires that local interests contribute 2.3 percent toward the cost of construction. This contribution is based on equal sharing by Federal and non-Federal interests of the portion of the first cost of the project allocated to appreciation in land value on the basis of the relation between land appreciation benefits and total benefits, with allowance for non-Federal assumption of related costs for land, easements, and rights-of-way, including spoil disposal areas, and for construction, alteration, or relocation of highways, roads, highway bridges, utilities, and street modifications necessary in connection with the project.

11. At this point in the study, it appears that the project authorization is adequate.



EXHIBIT B

DAEN-CWP-W (13 Mar 74) 1st Ind
SUBJECT: New River and Phoenix City Streams, Arizona

DA, Office of the Chief of Engineers, Washington, D. C. 20314 5 April 1974

TO: Division Engineer, South Pacific

1. Reference is made to paragraph 3 of subject MFR as follows:

(a) Repayment of the local share of recreation in installments with interest over a period of 50 years is considered appropriate.

(b) The discount rate for project economic evaluation is 3½%, including recreation, and the extension of the Arizona Canal diversion channel from 12th Street to 40th Street.

2. OCE concurs with SPD MFR dated 8 March 1974, Subject: Milestone 02 Conference, New River and Phoenix City Streams, Arizona except for the following comments:

(a) (Reference paragraph j(3), MFR). If estimate of additional cost for extension of Arizona Canal Diversion Channel, from 12th to 40th Street is approximately \$20,000,000 (July 1973 prices) or approximately 15% of total project cost (Stages 1, 2, 3), the extension can be considered within the discretionary authority of the Chief.

(b) (Reference paragraph j(7), MFR). The addition of recreation to the project is within the discretionary authority of the Chief.

(c) (Reference paragraphs j(6) and e(1), MFR). If a change in the requirement for a cash contribution of 2.3% of first cost of construction by local interests is appropriate, an alternate plan should be presented which reflects the authorized project in order to establish the basis for the change in local cash contribution. It is agreed that such a change would be outside the discretionary authority of the Chief and would require modification of the authorized project by Congressional action.

3. A Post-Authorization Change Report is required with the submission of the Phase 1 GDM.

FOR THE CHIEF OF ENGINEERS:

1 Incl
nc.


IRWIN REISLER
Chief, Planning Division
Directorate of Civil Works



SPDFD-U (7 Feb 75) 1st Ind

SUBJECT: New River and Phoenix City Streams, Arizona, Milestone 03,
Submittal of Draft Design Memorandum No. 5

DA, South Pacific Division, Corps of Engineers, 630 Sansome Street,
Room 1216, San Francisco, California 94111 28 April 1975.

TO: District Engineer, Los Angeles

1. Subject draft report and accompanying documents and the draft EIS have been reviewed. The following items must be appropriately addressed and/or resolved prior to further processing of the subject draft Phase I GDM including field level review by other agencies and holding of the final public meeting:

a. Changes in plan necessitated by withdrawal of local interest support for water-based recreation. (Reference SPLED-DC letter, subject: New River and Phoenix City Streams, dated 18 March 1975). The deletion of water based recreation will require considerable modification of the Phase I GDM, supporting appendices and the EIS. Revision of these documents prior to further action on the report noted in paragraph 1 are considered essential.

b. Paragraph 3 of the basic letter describes action proposed for acquisition of mitigation land as compensation for proposed features of the recommended plan. It is noted that discussion of mitigation land acquisition by the flood control district of Maricopa County in this paragraph deals only with those mitigation lands apportioned to Cave Buttes Dam. The main report of the Phase I GDM, page 190, indicates that all mitigation lands will be acquired by local interests. The final report should clearly describe the procedures that will be followed regarding acquisition of all mitigation lands whether in one payment or as individual features of the recommended plan are implemented. Letters of intent from local interests to cover all local cooperation requirements and their intent to execute final agreements or contracts when required should be included in the final GDM. The Section 221 Agreement will specify the details of local cooperation including the acquisition of mitigation lands and will be processed prior to initiation of construction. Further with regard to these matters, SPD has been recently advised informally that OCE is currently giving consideration to the need for further Congressional action versus discretionary authority of the Chief of Engineers in cases where mitigative lands are being added to a previously authorized project. Definitive guidance is expected soon. In the interim your coordination with local interests should take cognizance of this OCE activity.

c. Regarding economic analysis, the uncompleted evaluation of affluence factors for commercial and industrial establishments referred to in paragraph 4 should be accomplished and applied as appropriate in the final report. The level of detail in projecting future flood losses as required by Corps procedures and measurement techniques for evaluation of economic benefits for flood control projects contained in 38 FR 29540-29550, is predicted on the extent to which existing project benefits justify the recommended plan. A benefit cost ratio

SPDPD-U (7 Feb 75) 1st Ind 28 April 1975
SUBJECT: New River and Phoenix City Streams, Arizona, Milestone 03,
Submittal of Draft Design Memorandum No. 3

for existing condition will be shown. The table on page A6-31 of the Economics Appendix indicates the flood damage reduction benefits under existing conditions may justify the plan. If this be the case, detailed information needs to be presented in the text to support this assertion. Once supported, the level of detail required to be presented in the report to substantiate future flood damages under the evaluation guidance can be abbreviated.

d. Incremental analysis of the extension of the Arizona Canal diversion channel from Dreamy Draw channel to 40th Street is presented on Table 7, page 95, of the main report. OCE reply to MER of Plan Formulation conference on the subject project noted that if the cost of the extension reach is approximately \$20 million (July 1973 prices) or approximately 15 percent of total project cost, the extension can be considered to be within the discretionary authority of the Chief of Engineers and also the discount rate of 3-1/4 percent for economic evaluation may be applied. The cost of \$39.555 million for the extension noted in Table 7 reflects 18.5 percent of total project cost. Inasmuch as this percentage is greater than the limit indicated by OCE, it is envisioned that a special report would need to be submitted to Congress for authorization and inclusion of this portion of the diversion channel as an element of the authorized plan. The special report would probably require economic evaluation under existing criteria and current discount rate.

e. Real estate cost estimates and relocation expenses noted in the GDM have been a subject of concern during this review. It is our understanding that these costs have not yet been affirmed by appropriate district elements and that SPLRE is currently completing the analysis to verify or change the above data. Until such verification has been completed by the district Real Estate office and has been coordinated with SPDRE, those costs associated with the project features cannot be considered valid. Only the agreed estimates are acceptable for use in reports that are distributed for field coordination and review.

f. The Environmental "Working Paper" included several omissions which must be addressed prior to completion and circulation of the draft EIS. These omissions cover the items of "Probable Impact of the Proposed Project" and "Adverse Environmental Effects Which Cannot be Avoided" in Sections III through VI of the "Working Paper".

2. Additional comments which should be incorporated and/or addressed in the final Phase I GDM and EIS are inclosed as Inclosures 6 and 7, respectively. To help expedite completion of the subject GDM and EIS, SPD would be pleased to participate in a SPL-SPD meeting to discuss the handling of the comments and

SPDPD-U (7 Feb 75) 1st Ind

SUBJECT: New River and Phoenix City Streets, Arizona, Milestone 03,
Submittal of Draft Design Memorandum No. 3

28 April 1975

procedures to be followed in processing of the GDM should you so desire.
Please provide a revised milestone schedule after evaluation of future courses
of action has been made.

FOR THE DIVISION ENGINEER:

7 Incl
wd 1 thru 5
Added 2 incl
as -

Kermit V. Speeg
KERMIT V. SPEEG
for Chief, Planning Division



FLOOD CONTROL DISTRICT

of

Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501



BOARD of DIRECTORS
Tom Freestone, Chairman
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Carole Carpenter
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Ed Pastor

D. E. Sagramoso, P.E., Chief Engineer and General Manager

AUG 30 1985

Mr. A. J. Pfister
General Manager
Salt River Project
Phoenix, Arizona

HAND CARRIED

Dear Jack:

This is a follow up to our phone conversation of today concerning Congressman Rudd's intervention in the Arizona Canal Diversion Channel (ACDC) project.

Apparently at the request of Kemberly Clark (Enclosure 1), Mr. Rudd has had language added to the FY 86 House Appropriations Subcommittee for Energy and Water Development mark-up of the House Appropriations Bill, H.R. 2959. This bill has passed the House and any differences between the House and Senate versions will be resolved in September.

The added language would require the Corps of Engineers to conduct a benefit-cost analysis of ACDC Reach 4, using current guidelines and policy directives. This would amount to doing an economic analysis using a discount rate of 8 3/8% rather than the rate of 3 1/4% under which the project is already authorized (see Enclosure 2 for details).

It is very unlikely that Reach 4 will show a favorable B/C ratio at the current, higher discount rate, and this unusual reanalysis of an authorized project may lead to the withholding of federal funding. In short, Mr Rudd's action may preempt any decision that may be reached by the Phoenix City Council to support the project.

The Chairman of the Flood Control Advisory Board has asked Mr. Rudd to reconsider his action (Enclosure 3), and I expect a variety of elected officials and private citizens will also do so.

I would appreciate your assistance in intervening with Mr. Rudd so that the requirement for reanalysis is withdrawn and the Congressman's long term support for the project is restored.

Sincerely yours,

D. E. Sagramoso, P.E.

Enclosures

Copy to: Don Weesner

COMMITTEE ON APPROPRIATIONS

Congress of the United States
House of Representatives

Washington, DC 20515

DISTRICT OFFICE
8900 E. CAMELBACK ROAD
SCOTTSDALE, AZ 85261
(602) 241-2801

July 3, 1985

Mr. Kemberly S. Clark
Chairman - Citizens Against Reach Three
Kemberly S. Clark, Ltd.
3737 North 7th Street
Suite #105
Phoenix, Arizona 85014

Dear Mr. Clark,

Thank you for your letter of June 25, 1985 in which you expressed your opposition to continued funding for the Arizona Canal Diversion Channel, and specifically the Reach 3 and Reach 4 portions.

As you may already be aware, as part of the FY86 House Appropriations Subcommittee for Energy and Water Development mark-up, I requested that technical language be inserted which would require the U. S. Army Corps of Engineers to provide a cost benefit ratio analysis, using current guidelines and policy directives, for the ACDC to the Subcommittee for review. This analysis can be completed without expenditure of funds and should be ready for review before finalization of appropriations legislation for the water project. In addition, I have also contacted officials at the General Accounting Office to ascertain if they would be willing to conduct an independent cost benefit evaluation for the channel.

Enclosed is the recent Corps testimony for ACDC construction. This testimony will provide you with the exact breakdown of the project expenditures for FY86. As you can see, almost all of the total appropriations amount of \$18 million will be used for non-Reach 3 and non-Reach 4 purposes.

It is greatly appreciated that you have taken the time to share your thoughts and concerns with me. Your input is always welcome. I am closely monitoring the ACDC situation. Contact with citizens like yourself, the City officials from Peoria, Glendale and Phoenix, and the Army Corps of Engineers has been and will continue to be on-going.

With every good wish,

Sincerely,



Eldon Rudd
Member of Congress

ER:dd
Enclosure - (1)

ENCLOSURE #1

COMMITTEE ON APPROPRIATIONS

Congress of the United States
House of Representatives
Washington, DC 20515

July 29, 1985

Mr. Tony Piasecki
Arizona Canal Diversion Channel Task Force
251 West Washington Street
Phoenix, Arizona 85003

Dear Mr. Piasecki,

Thank you for contacting my District Office on July 24, 1985 to request information about my efforts to obtain an up-dated cost benefit ratio analysis on the Reach 4 portion of the ACDC.

Although I was unable to have the opportunity to discuss the ACDC project with you personally, I have been thoroughly briefed by my District Representative about your telephone conversation.

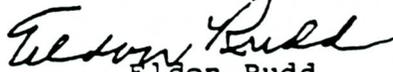
Enclosed for your reference are copies of the following: 1) the technical report language which I had included in the Energy and Water Development Subcommittee Report for FY86 Appropriations legislation; and, 2) the U. S. Army Corps of Engineers most recent testimony on the status and funding justification for the Phoenix and Vicinity Flood Control Project, including the ACDC.

The House Appropriations Bill for Energy and Water Development, H.R. 2959, passed two weeks ago. The Senate Appropriations legislation will be forthcoming. Any discrepancies between the two versions will be worked out in Joint Conference Committee, probably sometime in September, and then be sent to the President for his signature. Once this appropriations legislation becomes law, the Corps is then required to respond to my request. I anticipate that I will be receiving all the information regarding the ACDC no later than January 1, 1986. This will afford me the opportunity to evaluate this data long before the FY87 Appropriations process begins.

It is greatly appreciated that you have taken the time to share your thoughts and concerns with me. Your input is always welcome.

With every good wish,

Sincerely,



Eldon Rudd
Member of Congress

ER:dd
Enclosures - (2)

ENCLOSURE 2

PHYSICAL DATA

Elevations:
Railroad bridge: 8890,000

Retention Basins:
Adobe: 18,350 acre-feet
New River: 34,300 acre-feet

Channels:
Concrete rectangular: 11.5 miles
Concrete trapezoidal: 1.0 miles
Earth bottom trapezoidal: 4.0 miles
Levees: 3.4 miles

Bank Stabilization: 1.3 miles

Dikes/Floodwalls: 3.0 miles

Flowage Regament: 19.5 miles

JUSTIFICATION: The authorized plan of improvement will protect the Phoenix Metropolitan Area from floodflow originating in the New River Mountains, to the north and west of the city. Damage to property in the overflow area is caused principally by inundation and debris deposition. Floodflows result primarily from local thunderstorms of high intensity and short duration. The population of Phoenix has increased from 107,000 in 1950 to an estimated 850,000 in 1984. The incorporated area of Phoenix increased from 17 to 289 square miles between 1950 and 1981. This growth, which resulted in the conversion of agricultural and desert properties into urban uses, is the principal reason for the aggravation of the flood problem. The entire project will prevent about 72 percent of the total average annual damages in the overflow area. The 1984 value of the protected area is \$11.9 billion, and the 1984 population within the area protected by the entire proposed project is about 243,000. Stage 2 and Remaining Work is the second part of the overall Phoenix, Arizona and Vicinity project. Stage 1 provided for construction of the Cave Buttes and Dreamy Draw Detention Basins. The overall project will provide protection to about 30,500 acres consisting of 19,000 acres of valuable residential land, 2,900 acres of valuable commercial land, 4,400 acres of urban-related land uses, 12,300 acres of valuable agricultural land, and 11,900 acres of undeveloped land and wetland. In August 1967, a flood occurred about 10 miles from the project area. Had this storm been countered over the project area, it would have caused estimated damages of \$437 million (1984 prices), of which about \$346 million would have been prevented by the project. Estimated average annual benefits are as follows:

Benefits

	<u>Amount</u> (1 October 1984)
Flood Control	\$15,185,000
Recreation	4,130,000
Area Redevelopment	<u>1,982,000</u>
	\$21,300,000

Phoenix, Arizona and Vicinity (Including New River)(Stage 2 and Remaining Work)

Continue Channel Construction for Arizona Canal Diversion Channel (Shunk Creek to Cactus Road)	\$11,890,000
Initiate and complete Recreation Facilities Construction for Adobe Detention Basin - Sports Area	440,000
Initiate and Complete Construction of Railroad Relocations, Channel, Levees and Bank Stabilization for Shunk Creek, Bow and Agua Fria Rivers	1,099,000
Engineering and Design	1,800,000
Supervision and Administration	171,000
Total	\$18,000,000

NON-FEDERAL COSTS: The cost to the local sponsor of complying with the requirements of local cooperation for construction of the project is \$188,000,000, broken down as follows:

Lands and Damages	\$129,010,000
Relocations of Utilities, Highways and Bridges	40,490,000
Cash Contribution	18,500,000
Total	\$188,000,000

As of September 1984, local interests have incurred costs of about \$58,500,000. Local interests are also required to maintain and operate the project upon completion. The estimated annual cost for operation and maintenance is \$1,540,000.

STATUS OF LOCAL COOPERATION: The Flood Control District of Maricopa County, Arizona, the legally responsible agency, through the Board of Directors, by resolution dated 4 November 1963 (prior to project authorization), indicated its willingness to participate to the best of its ability by assuming the required items of local cooperation. However, at that time, the local cooperation requirements did not include any monetary contribution toward land enhancement benefits. By resolution dated 23 October 1967, local interests provided unequivocal assurances that they will meet all local requirements (including a 2.3 percent cash contribution) for Cave Buttes and Dreamy Draw Detention Basins. By 9 December 1974 resolution, the Flood Control District indicated its willingness to participate in the additional requirements since authorization of the project. By resolution dated 3 March 1975, the Board of Supervisors for Maricopa County, the responsible agency for recreation, provided the required assurances for recreation facilities. A flood control tax of 20 cents per \$100 assessed valuation was authorized by State legislation 4 May 1972 and established by the Board of Directors of Maricopa County for FY 1975. In 1983 the maximum levy was raised to 50 cents per \$100. In August 1984 the Board of Directors of Maricopa County was given the authority to establish the amount of the tax. The tax will continue with the amount established on a fiscal year basis.

Phoenix, Arizona and Vicinity (Including Bow River)(Stage 2 and Remaining Work)

6/1/84

2203

HISTORICAL CHANGES IN BASELINE FEDERAL COST ESTIMATE:

Division: South Pacific
District: Los Angeles

Project: Phoenix, Arizona and Vicinity (Including New River)
(Stage 2 and Remaining Work)

Item	Estimate Presented to Congress (\$1,000)				
	Original Baseline (1)	Cumulative Changes (2)	Less (3)	Incremental Change (4)	Current (5)
Federal Cost (Price Level)	210,172 1/ (Oct 78)		257,200 1/		246,000 1/ 2/
Reason for Change		(47,028) 1/		(-)(11,200) 2/	
a. Price Escalation		53,422		(-) 13,674	
b. Design Changes		1,245		902 2/	
c. Additional Function Added Under General Authorization					
d. Authorized Modifications					
e. Post-Contract Award and Other Estimating Adjustments		(-)10,643			
f. Schedule Changes		407		1,572 3/	
g. Sundry		2,597			
h. Real Estate					

1/ Includes an allowance for estimated inflation through the construction period.

2/ Includes a reduction of \$20,300 for adjustments in the estimated inflation allowance through the construction period.

3/ Increase in planned recreation facilities at Adobe Detention Basin.

4/ Increase of \$1,121 for Engineering and Design and \$449 for Supervision and Administration, due to reanalysis of requirements.

2205

Phoenix, Arizona and Vicinity (Including New River)(Stage 2 and Remaining Work)

APPROPRIATION TITLE: CONSTRUCTION, GENERAL		CLASSIFICATION: LOCAL PROTECTION (FLOOD CONTROL)				
SUMMARY CONSTRUCTION PROGRAM (PB-1)						
FISCAL YEARS 1982 AND 1983						
LINE NO	ITEM (a)	PROJECT COST ESTIMATE (b)	TOTAL TO 30 SEP 1982 (c)	CURRENT FY 1982 (d)	BUDGET FY 1982 (e)	BALANCE TO COMPLETE AFTER FY 1982 (f)
1	FEDERAL FUNDS					
2	TOTAL APPLIED COST	248,000,000	27,891,000	2,925,000	18,000,000	184,243,000
3	Undistributed Cost (None)					
4	TOTAL PROJECT COST	248,000,000	27,891,000	2,925,000	18,000,000	184,243,000
5	Funding Adjustments (None)					
6	TOTAL COST	248,000,000	27,891,000	2,925,000	18,000,000	184,243,000
7	Unfulfilled Orders		281,000	-281,000		
8	TOTAL OBLIGATIONS		18,782,000	2,644,000	18,000,000	184,243,000
9						
10	HOW FEDERAL CONTRIBUTIONS					
11	TOTAL APPLIED COST	18,300,000	1,008,000	272,000	900,000	16,220,000
12	Undistributed Cost (None)					
13	TOTAL PROJECT COST	18,300,000	1,008,000	272,000	900,000	16,220,000
14	Funding Adjustments (None)					
15	TOTAL COST	18,300,000	1,008,000	272,000	900,000	16,220,000
16	Unfulfilled Orders		78,000	-78,000		
17	TOTAL OBLIGATIONS		1,008,000	194,000	900,000	16,220,000
18						
19	METHOD OF FINANCING					
20	FEDERAL FUNDS					
21	ALLOCATIONS		29,427,000	4,200,000 1/		
22	UNOBLIGATED CARRYOVER FROM PRIOR YEAR			482,000		
23	TOTAL FUNDS AVAILABLE FOR OBLIGATION			4,682,000		
24	APPROPRIATIONS REQUIRED				18,000,000	184,243,000
25						
26	HOW FEDERAL CONTRIBUTIONS					
27	CONTRIBUTIONS		1,280,000	100,000		
28	UNOBLIGATED CARRYOVER FROM PRIOR YEAR			194,000		
29	TOTAL FUNDS AVAILABLE FOR OBLIGATION			294,000		
30	CONTRIBUTIONS REQUIRED				900,000	16,220,000
31						
32	1/ Includes \$1,700,000 reduction as savings and allowances.					
33	EFFECTIVE DATE	DIVISION: SOUTH PACIFIC	REGION: LOWER COLORADO	PROJECT:	PHOENIX, ARIZONA AND VICINITY (INCLUDING NEW RIVER)	
34	JAN 82	DISTRICT: LOS ANGELES	Basin: GILA - SALT		(STAGE 1 AND REMAINING WORK)	

2207



B/C's: ALC - DREAMY DRAIN TO CULIA CITY
WASH & CULIA CITY CURB
SEDIMENT BASIN

8/25

COSTS :

(\$000)

(MAX)	<u>8 3/8%</u>	<u>8 7/8</u>	<u>3 1/4%</u>
	2214	2892	1444
QAM	<u>61</u>	<u>61</u>	<u>61</u>
EAC -	<u>2280</u>	2953	<u>1505</u>

RENIS :	<u>8 3/8%</u>	<u>8 7/8</u> (1805)	<u>3 1/4%</u>
EAC -	<u>1537</u>	1805 ←	<u>2717</u>

B/C (.67) (.63) (1.81)



EXHIBIT F

from Army Corp. of
Engineers Economics
and Social Analysis
File

Reach 4, ACDC
Break Even Interest Rate

Based on data presented in the Main Report, Gila River Basin, New River and Phoenix City Streams, Phase I GDM (page 73), a discount rate of 4% is required to obtain at least a 1.0 to 1 benefit-cost ratio for reach 4 of the ACDC.

First costs for Reach 4 at October 1975 price levels were \$39,000,000. Note that this cost estimate includes costs associated with Reach 4 incurred in Reaches 1, 2, & 3. Discounted at an interest rate of 4% over a 100 year project life, the equivalent annual charge is \$1,272,000. Estimated annual operation and maintenance costs for Reach 4 are \$53,000. Therefore, total equivalent annual charges are \$1,297,000.

Equivalent annual benefits for Reach 4 at 4% are \$1,325,000.

The benefit-cost ratio is 1.02 to 1.



CITIZENS ADVISORY BOARD OF THE
FLOOD CONTROL DISTRICT OF
MARICOPA COUNTY

CAB MEETING
SEPTEMBER 13, 1972

A Regular Meeting of the Citizens Advisory Board, together with the Citizens Advisory Group, of the Flood Control District of Maricopa County, was called to order by Chairman William Schrader at 2 PM on September 13, 1972 in the office of Col. John C. Lowry. The following Board members were present:

William Schrader, Chairman of the CAB
Louis R. Jurwitz, Member CAB
Roy Garber, Member CAB (Representing City of Phoenix Engineering)
Reid Teeples, Member CAB (Representing Salt River Project)
H. Lynn Anderson, Member CAB
Larry Richmond, FCD and CAB Attorney

Others present were:

Col. John C. Lowry, Chief Engineer & Gen'l Mgr., FCD
Lee Ohsiek, FCD
Ken Fooks, City of Chandler
Milton R. Schrader, Jack Browns' Task Force
Dennie G. Burns, Soil Conservation Service
Anthony Sommer, Phoenix Gazette
William Alexander, Representative - 40th St. & Camelback Area
Major Worthington, Corps of Engineers
Ben Esch, Jack Browns' Task Force
Randy Scoville, Jack Browns' Task Force
Don Womack, Salt River Project
Marc Stragier, City of Scottsdale Public Works Director
Grover Serenbetz, City of Tempe
Bob L'Ecuyer, Jack Browns' Task Force
Jack E. Brown, Jack Brown's Task Force

The meeting was opened thusly:

LOWRY: (Read a letter addressed to Mr. W. Schrader from the Arizona section of the American Society of Civil Engineers inviting Col. Lowry to give a speech at their annual fall meeting in Phoenix on October 6, 1972.

SCHRADER: I don't see any reason why the Col. shouldn't do that.

JURWITZ: No, I think that's good publicity and the Engineers should know what our plans are. It's a good group.

(Note: Recommendation to the Board of Directors was approved)

LOWRY: (Read a letter from the Arizona Water Information Systems office of Arid Land Studies inviting the Flood Control District of Maricopa County to participate in the AWIS. CAB recommended this invitation be accepted.

(Note: Recommendation to the Board of Directors was approved)

LOWRY: Mr. Chairman, may I make a statement, I forgot to say this before we started. We do have a new secretary, Teri Meri. She doesn't know any of you and she won't be able to recognize any of your voices when she types the minutes, therefore, I respectfully have you request, Mr. Chairman, that before anyone says anything, including me, that they state their name, so she'll know who said what.

SCHRADER: I think it might be well at this time, since we do have several people here today, to get up and state your name. I'll start with the fellow in the right corner over there.

BEN ESCH: I'm with Jack Browns' Task Force.

RANDY SCOVILLE: Also with Jack Browns' Task Force.

BILL ALEXANDER: 40th St. & Camelback flood area.

DON WOMACK: Salt River Project.

TONY SOMMER: Phoenix Gazette
DENNIE BURNS: Soil Conservation Service
KEN FOOKS: City of Chandler
MAJOR WORTHINGTON: Corps of Engineers
MILTON SCHRODER: Jack Browns' Task Force
MARC STRAGIER: City of Scottsdale
GROVER SERENBETZ: City of Tempe
BOB L'ECUYER: Jack Browns' Task Force
BILL SCHRADER: Citizens' Advisory Board Chairman
ROY GARBER: City of Phoenix, Advisory Board member
REID TEEPLES: Salt River Project, Advisory Board member
LARRY RICHMOND: Flood Control District Attorney
LOUIS JURWITZ: Advisory Board member
JOHN LOWRY: Chief Engineer, Flood Control District

LOWRY: I have another matter that requires your recommendation to the Board of Supervisors. I think I can best handle this by reading it. I might first state that we are involved with SCS in surveying the right-of-way channel along the RWCD Canal, for the floodway channel. We find that their survey is not tied into section corners because they're not permitted to survey that way, they merely survey for the proper width of the required channel and those surveys are not tied into section corners. In order for the descriptions to be prepared for the acquisition of rights-of-way, legal descriptions, the survey must be made so that the survey made by the SCS people can be tied into these section corners. It takes about two or three days work in the field for each of the 12 sections that are involved. Preparation of the paper work involved afterwards from the field notes at a total cost of approximately \$6,000. We got that information from Mr. Wackerly who surveyed the alignment of the RWCD Canal for SCS. This will require recommendation to the Board of Directors that the Flood Control District be authorized to spend \$6,000 for this purpose. It's something we have to have in order for us to buy the land after SCS surveys it.

SCHRADER: Can you explain to me, why there's a difference in the price of surveying here?

LOWRY: Lee can give you more detail on that.

OHSIEK: Yes, sir. What this is, is the Soil Conservation Service is doing the field work but they're not permitted to make the land surveys. The RWCD Canal, in acquiring 100 feet of right-of-way through certain sections, were interested only in acreage and so they had Wackerly make the survey and not tie it into section corners and just get the amount of acreage which was involved through various tracts of land which he did, but it's not tied into section corners. In order for our Right-of-Way people to make up descriptions of right-of-ways, which we want, and which we hope to acquire, we'll have to have it tied into section corners. It's just as simple as that. And it's a simple survey matter and that's the only way we can do it, is to have it surveyed. The simplest way seems to be to get Mr. Wackerly, who made the survey and has all the notes for the survey of the canal itself, to tie it into the section corners.

LOWRY: Is he the one then that we would normally consult?

OHSIEK: Well, I would think so.

LOWRY: Is he a registered Surveyor?

OHSIEK: Yes, he is.

JURWITZ: But does he have adequate notes that he can do that as a desk job?

OHSIEK: No, he'll have to go out and do a field survey. He has to go out and do the field ties. It wasn't done originally. And it has to be done. That's the only way we can get the description so that we can acquire the land from the owners.

LOWRY: The surveys do not show where the section corners are because he hadn't located them yet.

GARBER: Is his estimate the \$6,000?

OHSIEK: That was his estimate, he says \$5,000-6,000.

SCHRADER: Do we have any other comments pertaining to this request?

LOWRY: Will this take a whole survey crew?

OHSIEK: Oh, yes.

SCHRADER: Reid, do you have any comment on this?

TEEPLES: If it has to be done, it has to be done.

JURWITZ: It just seems strange that RWCD doesn't have exact locations of what the section corners are and the land involved. If we go along on their original surveys and take another 400-500 feet, the location of the section corners should be in your hands already.

OHSIEK: I checked with Bub, who is the man handling Right-of-Way for RWCD and they do not have it. I noticed that in their descriptions of their right-of-way it says the old right-of-way was 100 feet wide, 50 feet on each side of the center line, they're acquiring in certain areas, an additional 100 feet on the east side of the existing right-of-way and that's the way they acquire the right-of-way and that's an awful open ended way of getting right-of-way as far as I'm concerned and I think Mr. Teeples and Mr. Garber can see that this is a real weak system of acquiring right-of-way but that's the way they did it. It's a cheap way of doing it, they didn't tie it into section corners.

GARBER: Would that normally be a responsibility of the Flood Control District?

OHSIEK: Yes, as the sponsoring agency it is our responsibility. We're taking advantage of the survey which was done about seven months ago of the center line, they had never had the center line of the RWCD Canal, and that's what they had done. Now we're taking advantage of that and all we need to do is tie it in wherever it crosses section lines so that we can get the information needed so we can write a legal description of it.

JURWITZ: How about our fiscal set-up? Have we got money that can be assigned to that? I move that the Board of Directors be instructed to proceed.

TEEPLES: I second it.

SCHRADER: Motion has been made and seconded. Is there any discussion on the motion? All in favor of the motion signify by saying Aye,

MEMBERS: Aye

SCHRADER: Opposed?

MEMBERS: No answer.

LOWRY: Mr. Chairman, the next item is the Old Cross-Cut Canal. I have broken this down. First we have in the 1972-73 budget, \$200,000 set aside for the Old Cross-Cut Canal conversion from an irrigation canal into a flood channel, which will run eventually from the Arizona Canal just north of Indian School Road, south into the Salt River. The City of Phoenix has already constructed the channel from the Grand Canal down into the Salt River. The Salt River Project, by their letter of August the 28th, and I have it here, have agreed to provide the rights-of-way for this purpose. The firm of Van Loo & Associates are under contract to the City of Phoenix to prepare the design for the Old Cross-Cut Canal. Gentlemen, I'm talking about a multi-purpose agreement right now between the City of Phoenix and the Flood Control District and the Salt River Project. Now we haven't asked the City of Scottsdale if they would join in yet, whether they're going to participate financially or not. Are you?

STRAGIER: We're certainly interested in participating in the extension of the drainage way up between 64th & 68th and will consider participating in the provision of capacity in the Old Cross-Cut Canal if we can show that it is of benefit to us.

LOWRY: Mr. Chairman, at this time I would like to tell you what the intended plans are, if I may do that.

SCHRADER: Yes, go ahead.

LOWRY: The capacity of the Canal is 1,000 cfs. The proposal is to install gates with the capacity of 1,000 cfs at the Arizona Canal and enlarge it gradually so that when it hits the channel that the City of Phoenix has developed at the Grand Canal end of the river, 2,000 cfs. The difference being in order to take the input of flood waters occurring along the various east-west streets that cross the Old Cross-Cut Canal, and it's not as much as a 100-year flood would be but it's certainly a step in the right direction. The City of Phoenix is going to participate to the extent of, I think right now, about \$600,000. Is that what you've set aside?

GARBER: We have this much allocated, yes.

LOWRY: The Salt River Project is dedicating land that they otherwise could sell for about \$2,000,000, I think, and one of the letters I have gave the value of the land. Of course, they will benefit from the protection this operation is going to give the Arizona Canal too.

SCHRADER: At this point, Col., I think we have people here that are involved in that 40th Street problem and this is something that is going to help that situation.

LOWRY: The opening of those gates after the channel is completed will permit the Salt River Project to almost immediately empty the canal at that point. If that had been in operation on June 22, 1972, the canal would not have broken, the damage along the canal, particularly down where Cudia City is where the Salt River Project has a wash and spillway, and where the canal broke near 38th Street people were badly damaged by floods, would probably not have occurred because the emptying of that Arizona Canal is going to permit that flood water to be picked up coming from the east of 48th Street into this Cave Creek and Old Cross-Cut channel. It means, then, that probably everybody along the canal from 68th Street, or between Scottsdale Road and 68th Street down to around 38th or 40th Streets will benefit from this operation we're now planning. The removal of flood waters from the streets of Phoenix from Indian School Road clear down to Washington. Do you agree with me?

WOMACK: Yes, so far.

LOWRY: Van Loo is under contract, as I said, for the design of this and I do say here that there is one thing in the letter written by Mr. Womack. Therefore I request approval of the Maricopa County Flood Control District to complete the design and construction of this structure, meaning the gates, at the Maricopa County Flood Control Districts expense, that expense estimated to be \$45,000. We will need approval by September 22, 1972 for January construction. I don't know what he means by that statement. That means you're going to build the gates?

WOMACK: Yes, sir. That was the plan.

LOWRY: Then why don't you just build them and put them in then?

JURWITZ: It's during the dry-up period.

LOWRY: Oh, I see.

WOMACK: It has to be done during the northside dry-up, which starts the second week in January.

LOWRY: Why don't you pay for it anyway?

WOMACK: There's no need for it.

LOWRY: I knew that's what you were going to say, I just had to ask the questions for the records.

GARBER: Would that come out of our \$200,000 allotment?

LOWRY: Yes, I'll be getting to that in a minute. Right now, it would, yes, sir. We have another problem. We have this letter from the Salt River Project where they say they're going to give us the right-of-way for this Old Cross-Cut Canal by converting the Old Cross-Cut Canal into a flood channel, but I find after going by there and seeing this big high wire fence and these trailers behind the fence, in that opening between the building which rises over the top of the canal and the Indian museum to the west it's all closed in. The right-of-way from Washington street south, therefore, on an area that's been leased by the Salt River Project for 99 years, which creates a problem. I understand that the lease must be for the building too. It's \$1.00 a year. I don't know who's problem that is. Somebody told me and I mentioned this to Fred Glendening and Jim Attebery at the last MAG meeting that I attended last week, that who's going to provide this right-of-way from Washington Street? Salt River said they were going to and now they find they're leasing it for 99 years. Maybe somebody should tear down the building, it isn't worth anything anyway.

SCHRADER: Don, do you have any statement on that?

WOMACK: I believe that Roy Garber is in a better position, the City is very well aware of this and they have made their plans for increasing the capacity from Washington Street south with the knowledge that there is a lease, and an alternative.

LOWRY: The plan that Van Loo gave is that it was going to go around the building, underground, but around the building is where this fence and the trailers are.

SCHRADER: Let's see what Roy has to say about it.

GARBER: Yes, we, the City of Phoenix, are in the process of taking care of this. As a matter of fact, the Washington Street culvert crossing, which is not necessary to bring this up to the 2,000 cfs capacity you referred to, is more than double what's there now. This is under design with Coe & Van Loo at the present time, which you indicated. We have taken steps towards eliminating the use of the right-of-way that is under lease and we've taken steps through the City Council to condemn a path through that property to the west, through the fences and storage areas that you're talking about, but our design for the culvert is based on going around the building. The lease appears bonafide by all concerned and there's nothing we can do about it so we're going to go around it.

LOWRY: The lease was just for the building, not for the space.

GARBER: No, he's got the right-of-way for 100 foot width.. So, there's no way we can tamper with that particular lease, but we're condemning to go through the parking lot to go on through. So this we are taking care of.

SCHRADER: Will that be an underground situation?

GARBER: Yes, sir. Complete enclosed culvert, a box culvert under his parking lot and on through the street, it will be restored so he can still use it.

JURWITZ: You're condemning land that is actually under ownership of Salt River Valley.

GARBER: No, we are not, and this is a point I'd like to make clear. We're condemning outside of the 100 foot right-of-way which is under lease. This is his adjacent property which he owns and it will only be, of course, for an easement, he can still utilize on top without building over it again.

LOWRY: A condemnation area is something which is privately owned.

GARBER: Yes.

ANDERSON: How far south does that extend?

GARBER: That takes in one lot depth, it's probably 200 feet deep, from Washington Street and beyond that we would take a triangle of the Pueblo Grande Park and we've already checked it and there's no significant diggings in that triangle so we'll be able to go through that. Then that configuration will

bring it back into the original bonafide 100 foot right-of-way. That's the way it's being designed, from there on down to the Grand.

ANDERSON: That's the question at hand.

SCHRADER: From this point it's not a problem.

GARBER: It's not a problem, it's just a matter of dollars.

✓ LOWRY: After discussing all this, Mr. Chairman, I'd like to bring up a suggestion. Phase B, the big project here with the Corps of Engineers, Major Worthington will concur, I believe, is under process of a new study that's been going on now for a year or a little more. A Project Formulation Memorandum, which is in addition to the normal construction memorandum specifications, a lot of that brought about by the Congressional Environmental Act of 1969, is going to delay the acquisition of the land for the Phase B project other than what we've already acquired from Cave Buttes, which is all completed, and Dreamy Draw, which is all acquired except for Melluzzo's Mine Claim which we've filed condemnation on. That bid has been opened, we know who the low bidder is and the bid is to be awarded as soon as we get the right-of-entry from the court. The condemnation proceedings won't cost us anything in the event that the claim of Melluzzo, which went to the Court of Appeals in San Francisco and concurs in the Federal District Court here found with the Bureau of Land Management, that the claim is no good and doesn't exist. Otherwise, it may cost us something. We may have to put up as much as \$97,000, is that the figure? That's the figure of the appraised value of this land and we have the money in land acquisitions funds which we can spend. To my knowledge now, Mr. Chairman, that is the only money that we will spend during the fiscal year 1972-73. And I don't want to end up 1973, June 30th, with another million dollars not spent. We do have \$330,000 of our funds set aside for acquisition on the RWCD Canal channel from the County line to Ray Road. The other ones in excess of the \$200,000 or in excess of the \$330,000 is probably \$500,000-600,000 more. Except for these condemnation expenditures of \$48,000, I'd like to make the statement, if approved, in order to speed up this Old Cross-Cut Canal, which would let people see what we're doing and would be beneficial, will include not only Dreamy Draw but will include a study that Van Loo is making of some pipes east of 56th Street emptying into this channel from some alleys behind the north side of the Arizona Canal, into the Canal at 56th Street, eliminating that flooding there. It's a small part of the Old Cross-Cut Canal, but it's included in that plan.

GARBER: Help eliminate it, anyway.

LOWRY: Right, help eliminate it, it won't eliminate it all. If approved, additional funds in excess of the \$200,000 could therefore be made available for the continuation and greater completion of the Old Cross-Cut Canal. That would require a recommendation of the Advisory Board to the Supervisors, if they want to do that.

SCHRADER: In other words, you feel that we could introduce this \$200,000 for maybe \$500,000-600,000?

LOWRY: I would say \$500,000, yes, without hurting us at all.

SCHRADER: Well, gentlemen, here we are. We've got the right-of-way, the City of Phoenix has certainly gone a long way with us, and this is one time that we can utilize our flood control funds for something other than right-of-way and go into actual flood control work and if there's any way possible, I think this is probably as good a project as we can go on right now. Spending this money here would bring us more benefits than anywhere else we could spend it.

JURWITZ: A point of information, Col. Lowry, right above that I-10 bridge across Aqua Fria and the Channel, have we committed ourselves to right-of-way purchases there?

LOWRY: That's a part of the Phase B that we can't spend any money on because we don't know if the Corps of Engineers will enlarge or decrease the size of the Aqua Fria channel.

JURWITZ: But there's no chance of that happening during this year?

LOWRY: No, sir.

JURWITZ: I just wanted to make sure that we extended....

✓ LOWRY: I don't think those plans will be ready before June, do you?

✓ WORTHINGTON: They won't be ready by that time, I'm sure of that.

ANDERSON: Mr. Chairman, I'd like to suggest that the faster we can move this money into relieving flood damage, no matter where it is, the better off all of us are.

JURWITZ: In view of the fact that we've already got some design work on this particular part.

ANDERSON: We'd be foolish to hold this money and not use it on places we do have a problem. That's what we make the plans for.

OHSIEK: May I ask a question, sir? To the City of Phoenix representative; could that be spent this year?

GARBER: I just happen to have a break down of what we foresee at the present time. (Attached) I, not to complicate things, will pass a few of these things out, of what we put together in cooperation with Salt River Project, of course, in the last few days of what we've already been studying and what we've been doing and what we thought on earlier, just in general. I'm wondering if with the Salt River Project offering the right-of-way, with the City putting some money into it and starting in the interest of the Flood Control District, which is formed, of course, for this purpose, shouldn't there be some sort of formalized agreement whereby it would become a project which is.....

LOWRY: We have an agreement similar to what we had with the City of Scottsdale and when the City of Scottsdale constructed those flood gates at the Arizona Canal.

GARBER: I know, but it would go far enough to have the alternate responsibility and this sort of thing that goes with it.

LOWRY: Who's going to operate and maintain it and spend how much money, for what?

GARBER: But we haven't taken any steps in that direction at the present time.

LOWRY: No, sir. I must know if that is the next step we have to take.

GARBER: I would like to give you gentlemen, for whatever you'd like to do with them, some xerox copies of what we see, this fiscal year - as well as into next fiscal year, and that's all we've written on this because we feel that this commitment of the 1,000cfs at the upper reaches of the Old Cross-Cut and the 2,000 at the lower reaches will take care of anything that will be, and could possibly be brought in by the Arizona Canal. And it could really be accommodated. This does not include one of the things that you mentioned we're already doing that has nothing to do with this except that we need capacity in the Old Cross-Cut, an additional capacity, before we can have the additional rapid flow from the area of the Arcadia & 56th Street to 64th Street and beyond, whatever it picks up there. We need the added capacity in the Old Cross-Cut before we can do those things, so, this then is what we're representing here. That, however, is a City project and there is no request to the Flood Control District for any need for the Arcadia area itself. Perhaps we can get together with Scottsdale and do a little more than we're planning right now, I'm not sure. This is strictly for the Old Cross-Cut.

LOWRY: From my experience with Scottsdale, they've been pretty cooperative and I think if we showed them that they're going to benefit from this, they'll go on the band wagon.

GARBER: So, if we have, and for the record we'll give Teri one of these for the records, on here we have total expenditures for the year just short of \$700,000 on the canal itself, now, this is in addition to \$250,000 we've already spent, on that outlet but that isn't included here, and anticipating about \$800,000 next fiscal year, 73-74, we'll do essentially the entire job on the Old Cross-Cut, will serve for the Flood Control District.

SCHRADER: You have marked here for 73-74 that \$800,000.

GARBER: That is an estimate. This, Bill, is an estimate of what the costs are, with no regard to who's paying what. We really feel that this should be a Flood Control project but we're willing to put a considerable amount into it but we think the Flood Control District should really put the majority of the money in to relieve the tax payers and it is helping in Paradise Valley on the over-all problem.

SCHRADER: Marc, do you have any comments you'd like to make?

STRAGIER: We feel that the improvement of the drainage along the north side of the canal, what Roy has referred to as the Arcadia drain, is an important work and we've been trying to stir up funds to participate, but in any case, we would like to, if you like, buy-in capacity in the project and I'm sure that the City of Scottsdale would be interested in participating both in Old Cross-Cut and in Arcadia Drain. Is that what you call it, the Arcadia Drain?

GARBER: Yes.

STRAGIER: Particularly in the latter, we'd like to study it, we haven't done any more than acquaint ourselves with what the proposal is at this point. Certainly there is no question, if nothing else, that work on the Cross-Cut ought to be expedited. I'm sure that if there is any way that Scottsdale can give it's support to that project, I think that that's a fine way for the district to spend funds to get something done in the metropolitan area where the flooding is so hazardous and creates such expensive damages.

TEEPLES: Mr. Chairman, I'd like to bring up, before we decide on the amounts of funds to be spent on the Old Cross-Cut, as you know, there was lots of damage done down Indian Bend Wash and the City of Scottsdale, the Corps of Engineers and others have been working on this, and I'm just wondering, I don't know what is on the docket here, but if Indian Bend Wash is going to be coming under discussion and there is some need for some of these funds over there, I think we ought to take a look at that project too, in the hopes of getting things straightened out.

✓ LOWRY: Mr. Chairman, may I make a statement? I couldn't agree with Mr. Teeple's more. That's the first project I ever heard of when I came on this job; Indian Bend Wash. I thought at that time, that by 1965, at least, it would be finished, but it wasn't. The thing is right now about discussing funds that might be earmarked for Indian Bend Wash is that the Corps of Engineers have not yet finished their green belt study, they have not presented their plans to the City of Scottsdale. They are scheduled to meet with the City officials of Scottsdale, do you mind me giving this date, Major?

WORTHINGTON: (Shook his head)

LOWRY: On September 21, 1972. The study at that time will not yet have been completed but they have gotten far enough along to give the City Fathers of Scottsdale what they think they might be coming up with. Is that correct?

WORTHINGTON: We view this meeting as a meeting of Hydraulic Engineers and a broader scope meeting will follow this, but we've got a basic decision that we hope to reach at this meeting, and that is whether or not the green belt will handle 30,000 cubic feet per second. And, although everyone is involved, we hope to keep it at a working level, as was mutually agreed upon before.

TEEPLES: The reason I brought this up is because in Marc's Phase II Program it says that "this phase will cost the City about \$925,000 and about \$185,000 more to be put up by the County Flood Control District", and they're hoping that this will begin about 1973, so that's why I brought up this question.

LOWRY: I don't know if he means this fiscal year.

SCHRADER: Marc, it might be well to hear your comments on this.

TEEPLES: I'd like to hear from Marc Stragier to hear what means of help they need over there on Indian Bend Wash for this fiscal year that we're talking about.

STRAGIER: Mr. Chairman, I had hoped that perhaps under other business, the Board would give me some time to kind of bring you up to date on what is happening as far as Indian Bend Wash goes, and report to you on the progress or lack of progress on the sites and what we foresee, and also to suggest some areas where the District may wish to begin investing funds or begin at least looking forward to using your financial resources to help the project along. If you'd like, I'd be glad to...

SCHRADER: Well, I think with the concurrence of the Board here that we probably should consider this right now. Everything has come to this point and I think we should bring it up.

ANDERSON: Col. Lowry, if I may put this question to you, if we proceed on this basis, the thing you would need here would be a motion that we recommend to the Supervisors that the District proceed with the development of agreement, with an amount of money set aside for this project, say, with a figure of, not to exceed \$500,000.

LOWRY: We've only got \$200,000 in there now.

ANDERSON: Well, you'd have to have additional monies then.

LOWRY: Up to \$500,000.

ANDERSON: That would be about the nature....

LOWRY: We have another figure we got from Salt River Project of \$45,000 for the design and installation of the gates which could be taken out of the \$500,000 or it could be a separate figure, whatever the Advisory Board wants to do.

ANDERSON: Ok, then let's go into the discussion on Scottsdale.

LOWRY: But you have to act upon that, and I'd like you to act upon it today.

GARBER: Did you make a motion?

ANDERSON: No, I was waiting, but I lose my train of thought if I don't say it.

TEEPLES: Well, I didn't mean to distract from the Old Cross-Cut Canal, and I agree with everything that's been said, but I didn't think we should consider allocating funds just to this without giving consideration to some other problems.

GARBER: I would say, too, that you have your budget, you've approved your budget for the year, you don't have to make adjustments in that today anyway, and I think maybe we should dispose of the first item. Marc has suggested that we do that too.

JURWITZ: One item in that respect, Reid,; we're talking about an additional \$300,000.

TEEPLES: Right, and whether we want to go that strong, more or less, I think we ought to give it some thought.

JURWITZ: The fact that we do have in reserve more than the \$300,000, so a proposition of whether we're going to go along with a maximum of \$300,000 and more or not make any action at all.

TEEPLES: No, I think we have to take some action, but I think we ought to give some thought to the amount of money before we decide how much to spend where.

ANDERSON: Well, I think we ought to keep in mind that we have to have this agreement drawn and agreed upon prior to the dry-up of the Canal, so we can get it right into construction. We already have 1/3 of the fiscal year behind.

TEEPLES: The City of Phoenix needs to know right away so that they can proceed with Coe & Van Loo and move right along.

SCHRADER: And certainly Scottsdale needs to know.

TEEPLES: Gentlemen, I'm going to have to leave, Don Womack will take my place.

LOWRY: I might state that, Mr. Chairman, in connection with finances, in the budget, we have set aside for Old Cross-Cut, approximately \$200,000, \$330,000 for RWCD and \$330,000 from \$937,000, the \$200,000 we thought was construction was right-of-way, is under separate figure from the \$937,000. So, we've got \$937,000 of which \$330,000 is ear-marked for the RWCD Floodway Channel, plus a possible \$48,000 we may have to set aside for the Dreamy Draw condemnation case, which we can't spend because we might need it. We have, therefore, \$889,000 to spend. That doesn't include money we need for the Dreamy Draw Detention Basin, moving of the telephone lines or the Guadalupe Project this fiscal year of \$122,000, or the Buckeye Project of \$46,000, or the other miscellaneous expenditures. It would leave us then; \$937,000 less \$330,000 is \$607,000 less the \$48,000 possibly needed for the condemnation case leaves us \$559,000 that we can spend some place else. We can put \$300,000 in the Old Cross-Cut Canal for a total of \$500,000.

ANDERSON: That would still leave us \$122,000 for the Guadalupe and \$46,000 for Buckeye.

LOWRY: It leaves us all the money needed for that. We already have that set aside.

SCHRADER: This \$300,000 is in addition to what's already budgeted for the Cross Cut. So, this leads up to one point, Marc, when do you think these funds would be needed.

STRAGEIR: I think that the Board might want to consider some expenditures fairly soon, but as far as predicting exactly how soon that it's going to be urgent and necessary and how soon we can lay out a plan and get going on it, we probably won't know that until we get a little further along with the Corps study. We have a couple of suggestions for you to consider, areas where you might want to make investments, I would think that probably the more urgent area is to begin in helping the City of Tempe with some of their rights-of-way requirements and my proposal to the Board this afternoon is going to be that we find a way to get to work on that study and at least acquire enough land for the concrete channel so that we can begin to make a commitment there. The other area is Scottsdale....

SCHRADER: I suggest you go into your presentation now, Marc.

STRAGIER: Let me begin by just quickly describing the problem. This is a map of the southern portion of Scottsdale, Indian Bend Road is just north of the Arizona Canal. Here's Indian School Road and Scottsdale Road, which runs right down the middle of the community, the Arcadia Drain is a drain along the north bank of the Arizona Canal which goes past 64th Street into Phoenix down to 56th Street then into the Canal and down the Old Cross-Cut. The main problem in the Indian Bend Wash, there are two problems; the first is that the Arizona Canal forms a dike across and the water coming down the Indian Bend Wash ponds on the upstream side, during the recent storm, flowed out of the canal, just overflowed, there was more water than could possibly be handled, and flooded all the properties through here and eventually flooded enough that it went through the south bank of the canal down by 40th Street and was beginning to go over portions of the south bank along here but before it got deep enough in here to do any real damage, the water subsided. So, the first problem is that we've got to get the Arizona Canal out of the way so that the water can flow down the Indian Bend Wash. Second, is that the land is privately owned and you just can't dump our storm drainage into somebody's backyard, we have to acquire the property. The map shows in green, the areas that we've either acquired or have begun negotiation on and have some prospect of acquiring, in other words, the City expects to acquire. Areas shown in brown are areas which we expect to purchase and where we hope that the Advisory Board could be of some assistance. To solve the first problem, getting the Arizona Canal out of the way, remember that about a year ago we discussed the idea of installing additional gates in the south bank and the Board recommended at a considerable expenditure, upwards of \$100,000, to construct those gates and pointed out that the importance of improving the channel downstream and also of improving the channel on the upstream side of the canal. Subsequently, last spring we reported to you on the results of the study and began the work of constructing those gates. The Engineering study showed that until this portion of the Indian Bend Wash could be lowered there isn't

enough gradient to make a channel very practical. It's only a mile and a half to Indian Bend Wash and you can build all the channels you want but you just don't get enough water to make that worthwhile. And so, our hope is that if the green belt goes, we can lower this four or five feet and we've graded this park, have agreed with this property owner to grade his property and so forth with a view toward lowering that enough that we can channelize this. Meanwhile, we began last spring, after the gates had been installed, a meeting with this property owner, the Riley's, to agree with them on the basis for acquiring the property needed to widen the channel. We had worked out the agreement in May and had agreed that the City, at it's expense, would excavate the channel and put the excavated materials on the Riley property so that it could be developed and in exchange for that, the Riley's would give us a deed to the needed channel. Unfortunately, just about the time we were preparing that deed, Mrs. Riley passed away and all the property went into her estate. We've since met with her three sons and daughter who agreed to go ahead with the plan, but are unable to deliver the deed until the estate closes, we expect that will be shortly, it may have been within the last few days. So, we expect, this fall, to be able to excavate the channel and then we'll be able to place these gates in operation. We'll be able to discharge through the canal, about 10,000 cubic feet per second. During the June 22, 1972 storm, about 20,000 cubic feet per second crossed Indian Bend, according to USGS, and of that, about 14,000 crossed Thomas Road, according to your records, I believe, Mr. Ohsiek. So, you can see that a substantial portion has been diverted and really ends up in somebody's back yard, and probably in their living room. The Salt River Project has recently indicated interest in working with us to explore the idea of constructing a siphon. At any rate, I wanted to report to the Board on the status of this work, and also on the status of the right-of-way availability for the green belt. You can see that there is a fairly continuous channel and that some upwards of 80% of the land needed for the green belt in Scottsdale is available for it and that's available so far, at no cost to any Flood Control District funds for any of that right-of-way.

ANDERSON: Marc, may I interrupt you for just a moment? In conjunction with the proposed site, is the proposal then to take all the anticipated flow from Indian Bend across the Canal at that point?

STRAGIER: Yes.

ANDERSON: And now, somewhere, you will have the hydrology involved in determining that which passed down the north side of that canal on June 22, 1972. In addition to the 40,000 that passed over the canal and this siphon and the channel then would be able to handle x-amount of water.

STRAGIER: Yes.

ANDERSON: That's my point, would you clarify that?

STRAGIER: Sure, you recall that right now, 30,000 cubic feet per second is a 100-year storm. By the time the upper tributary area develops it will be a 50-year storm. Our plan has been to cooperate with the Central Arizona Project to build an impoundment upstream clear across the tributary area. That impoundment will mean that the 100-year storm, at this point, will produce a run-off of something close to 30,000, we're hoping to find that out on the 21st, something close to 30,000 so that if we can design this siphon and channel for 30,000 we expect to provide protection against the 100-year storm with a fully developed tributary area.

ANDERSON: Thank you.

STRAGIER: As we've begun to make progress in Scottsdale, and as we're beginning to see a little light at the end of the tunnel, and as we've been encouraged by some of the preliminary results of the Corps study; the very fact that they're continuing to study the green belt study is encouragement, we've developed now and as a result of the stimulation of the June 22 storm and the concern of our citizens that resulted from that, we've put together a plan for completing the work of providing for flood control and storm drainage. I'd like just briefly to tell you what that plan involves. We've divided it into four phases and let me quickly run through what each phase is;

PHASE I is - We hope to get as much for your money and take advantage of what's there now. That means building our portion of the Arcadia Drain and participating with Phoenix to buy-in to what they're proposing to do. And then we're hoping to purchase this property. We're appraising it now, the old dairy, with the idea that we might persuade the Salt River Project to lower the canal bank opposite that property so that we can control the location of the flood instead of flooding over at any random place or particularly flooding out the north side, we can lower this canal bank enough that the water would flow over on the property we control and into a wash which has been improved to accept the flow. The next thing we would do is build an embankment along 78th Street to protect these two subdivisions which were flooded and we're now working with the City of Phoenix to design a relocated water line on Thomas Road so that we could put a culvert in Thomas Road, which would lower the water level upstream, to add to the protection of these two subdivisions, and which would provide us a crossing that would be available. As it is, when Indian Bend Wash flows, the two portions of the city are separated and you have to drive almost to Chandler to get across and come back around. And so, in the first phase, those are the things that we hope to do.

PHASE II - We hope to persuade the Flood Control District to help us purchase the remainder of the right-of-way and in

PHASE III - We hope that the Corps of Engineers will begin their construction or that the Salt River Project will construct the siphon, improve the channel and provide the embankment protection and the energy dissipator and so forth. The CAP, about then, will construct their works so that we reduce the amount of water we have to deal with. And then in

PHASE IV - We would construct the storm sewers that would provide service to areas of the city that are otherwise floodable. This whole area is subject to flooding, all the water runs down 86th Street clear to the Salt River. We've got an area here by the Cross-Cut where Ken McDonald and I sat in the car one morning and watched a property owner, just like he did it every morning, come out, put his lunch bucket in his boat, launch his boat, row up the street about two blocks, pull his boat up on the lawn and get in a parked car and drive to work. Well, that flooding could be relieved by a connection to an existing storm sewer and that works. We can get to, when we have the land available and when we have the capacity under control. As far as any projects that the Board might want to participate in, it seems to me that you might want to consider assisting the City in the purchase of this property or the purchase of the right to flood it. Now, provided the project will agree whether to build the siphon or to lower the canal bank as a temporary expedient to reduce the hazard, that would seem to me to be a rather productive thing that we can do now. It might want to consider some participation in this dike, but both of these are things that the Council has at least authorized us to investigate. We have to find some more money before we can do it, but we have hopes of finding that. Perhaps most important in the City of Tempe, this is just a small part of the storm drainage problems in Tempe, and unfortunately the land is zoned industrial. We have acquired a good deal of the land in Scottsdale by swapping some zoning around and working with developers to increase the density on the portion that they can salvage in return for which they have dedicated the portion in the wash or reduced the price of it to a point where we can buy it, but in Tempe that's less possible because of the zoning. It's also not been nearly so much of a concern. This is an undeveloped portion of the city, perhaps I shouldn't be speaking for Grover, but in any case, it seems to me that the Board ought to look into the acquisition of property in Tempe and I suggested to Col. Lowry that one thought might be that since the Board of Supervisors has agreed to the concrete lined channel plan, that the Board might wish to consider purchasing the right-of-way to implement that plan, to show that it's important that we do this and that we get these things done and we're moving in that direction. If we later decide that the green belt is the route we're going to go, it would merely mean widening the right-of-way that's available. But in the meanwhile, the small channel for the lined work would make space available so we could construct an earth embanked channel, do some improvement work that would help us keep the water, except in the major storms, keep the water out of businesses that have been built, which are just flooded by sheet flow. Once Indian Bend Wash moves down over the Salt River bank it spreads out all over the place and does a lot of damage which could be reduced substantially if only a small portion of the future green belt channelization was available. What we'd like to suggest is that the three agencies; Scottsdale, Tempe and the Flood Control District, cooperate with the Corps of Engineers to tie down an acceptable alignment and

begin acquisition of property which could be used in any case, for whatever flood solution, as finally agreed upon. That, it seems to me, is probably the project that the Board should most seriously consider. You may want to look into joining us in this plan. Thank you, Mr. Chairman, I'll be glad to answer any questions. I certainly appreciate the opportunity today to take your time to explain what we're after, what we're doing and to review the progress that we've made and to bring you up-to-date on this important work that we've worked together on in the last year. I'm sorry that we're not further along.

ANDERSON: Marc, you may not be far enough along to have me ask this, but the excavation of a channel would be sufficient to give you gradient from the east.

STRAGIER: We're grading this park about, by the time we get to the north end, this is a 3/4 mile long park, and by the time we get to the north end, we're grading it an extra foot and a half, by the time we get to the canal we pick up about four feet and that allows us to excavate this section up here about six, it's already got some silt deposits so it's over two feet higher than this anyway, or maybe it's because this has been graded, but in any case, we've got about six feet and that gives us enough gradient that this channel begins to flow and we can start taking a look at it.

ANDERSON: About a tenth to a hundred.

STRAGIER: Yes, if that's what it is, if we can get that much.

ANDERSON: It's about 7,500 feet.

STRAGIER: Right.

JURWITZ: Marc, have you gone far enough to know how much money is involved in buying the old dairy?

STRAGIER: No, we're appraising it now. Maybe Bill can tell us better. We're looking at something around \$200,000. Our hope has been that we can sell some of the dirt to this guy and this guy and recover something like \$80,000 - this is the plan, let me whip it past you; We proposed to the Council that when we get the appraisal, make an offer, and if we can agree on it, or if not, enter condemnation, when we know the date when we're going to have it on an all-out basis, whether we're going to be able to buy or whether we're only going to purchase the right to flood it, if we can buy the ownership we would approach the owners of these two properties, this one has indicated some interest, in buying the dirt and then when we have sold the dirt, we would then approach (we have a developer over there) the Hilton people, and we have already approached them on the idea that they might be able to build a golf cart route down to have a golf course here and that we might lease this property to them for a golf course, it's entirely suitable for that even though it's flooded. And with lease pre-paid, we might come close to paying the cost of this land. We'd try to line up those two things before we actually purchased the property but we've had some preliminary meetings with the owner, Mrs. Hudson, she's an old-timer here, and we just don't know, really at this point, whether we're going to be able to work with her to acquire either the right to flood it or the property. But in any case, if we can line up the golf course, and that's a big shot, and if we can sell the soil, we'll reduce the cost of the land to a matter of \$60-80,000 so the Board might be interested in participating in that or which the City may be able to come up.

JURWITZ: Marc, my other question is on the south end. Do you have any idea what that involves financially?

STRAGIER: I think there what we really need to start with is a plan of action and if the Board indicates its interest I'm sure that the City of Tempe will come up with a plan and we'll certainly help them to whatever extent we can. I don't have any specific proposal, I've just been trying to promote one with Grover and he's certainly interested, maybe he'd like to speak on that point.

SERENBETZ: I think what Marc has outlined here, I think that one of the reasons that perhaps we haven't had any real stimulation there south of McKellips is because the opinion is that "we've been hearing about this for so long that we don't think we're ever going to see anything", and therefore, they have

just adopted this attitude. I think that if we could do something, if, #1, in conjunction with the Corps we could locate or establish the center line of the wash and then if the County Flood Control District could come in and start an acquisition program for at least the 200 foot width aligned channel, which is the only project that has been approved, as I understand it.

LOWRY: It's about 1,000 feet down there.

SERENBETZ: Well, right at McKellips I think it's about 200 feet, isn't it? But for whatever approved plan you may have and with the condition that that would be the minimum and then if it should become feasible to go with the green belt proposal then there would have to some additional right-of-way acquired to accomplish that. I think that would be very helpful in, #1, showing the public that something is being done, and #2, establishing the definite alignment for this channel, which hasn't been done, and #3, I think that even with 200 feet at McKellips, we could help relieve some of the situation, even if it just meant moving some earth for awhile. As Marc says, when we have flow there, it's just sheet flows and we, I think, are in a position now, with some of the people that own land here, they want to start building on it and they want to stand on what they have. We are trying to hold them off as best we can. We either require them to enter into special agreements where they will not hold the City responsible for any of the work that they do and that will not be part of any possible condemnation costs to the City to acquire this for flood control purposes. So, we're struggling to do this, but we haven't been able to come in and start acquisition of any rights-of-way, and I think that we could really begin to make some headway south of here if that could be done. So far, everybody, everytime we talk to them says, "Yea, that's what we've been hearing for 12 years -- but there's nothing here yet and we've talked to the Corps and they still don't know" and so on and so forth. So we really haven't been able to get hold of this thing. It is zoned industrial, we do not have subdividers so we don't have any leverage here, we don't have anything to trade, it's just merely when they come in to start building, then we have to say, if we're not going to issue the building permit, they certainly can mandame us, or else we're going to have to be able to purchase. So, that's kind of why we feel it's awfully important now, we're just going to add to the cost of acquisition here. And if we could start with a minimum 200 foot width and then follow the flare this would be wonderful.

LOWRY: Mr. Chairman, Mr. Serenbetz may not understand the procedure which we normally follow in the acquisition of rights-of-way of land. When we once know the boundary line of that which is going to be built, we then hire a registered appraiser who goes inside that line with a legal description, which we give him, takes photographs, exams the land, checks the sales of land in the immediate vicinity and makes an appraisal of that land and gives that to us. We exam that and if we find it reasonable, in our estimation, based on our facts from buying other land, we give it to our right-of-way agents, who proceed with that information and negotiate the purchase of that land with the owners. Of course, the first offer they make is that which is appraised. I do know from past experiences that some improvements might be existing upon the land and the appraiser might have overlooked it.

SHCRADER: Well, that's a problem that should be located there.

LOWRY: And it's holding up the price and we realize that, but the first thing we have to know before we can take any steps, to recommend to the Board, for example, that we spend so much money to buy so much land some place for a specific purpose, is where that land is; we have to know the perimeters, the boundaries. We don't know that now.

WORTHINGTON: Col. Lowry, may I make a comment?

LOWRY: Yes, sir.

WORTHINGTON: I'd like to endorse the proposal as it's been made from the Corps point of view. As you know, some of the rights-of-way for Phases A & B are pretty well firmed up now, and other areas are not. I would like to offer our assistance to identify, for the purposes of anybody who is interested, those areas which we know right now must be a part of any plan and also to identify those areas which are subject to change and which we should not be investing money in. And I've seen this back in our District where they know

JURWITZ: Could the Corps of Engineers come up with two alternatives then? Not the lined channel, which has been approved, and the green belt channel

WORTHINGTON: Yes, we can, we can do that pretty well now. The thing that we want to avoid is having money invested before we get locked in on a plan. Our General Design Memorandum pretty well outlines what the plan is that we're going to participate in and we work it up in our District in Los Angeles and then it goes through a number of reviews in San Francisco and Washington and Congress reviews it, so its subject to many changes and until we get the thing back with everyones signature on it we stand the risk of investing money and having our plans changed.

JURWITZ: But we would know definitely the width of the channel under the lined

WORTHINGTON: I think we might have something we can identify now that we know we've got to have and then maybe make

COL.: These plans which we have now which were prepared some years ago, 1962, I think, all the plans contained in that interim report are marked

JURWITZ: But what we're facing now, as Marc says, are things that can be done and we not going to lose ground on. And this is where we can proceed.

ANDERSON: Mr. Chairman, I'd like to just point out that if hydrology indicates that the siphon is in order that legal advisors in Scottsdale and Tempe and probably our own would be very hesitant about increasing the capacity of discharge into the Indian Bend Channel at the siphon until there had been adequate protection to the properties below, so it seems to me that this seems to be the thing that we should do.

COL.: Work upstream

ANDERSON: Right, work upstream

COL.: I'm quite sure that if a channel of a proper size, be it green belt or any other structure, that the Corps of Engineers would consider siphoning of the canal underneath the wash in order to eliminate a long tremendous dike they were going to build north of the canal, and save them some money, that they would then participate in the construction of the siphoned channel but that it would cost local people an ex of \$370,000, and that figure was back in 1964-65. So, they will participate as a project because it's an approved project, but I'm quite sure they won't participate in a siphon until the channel downstream is ready to receive that water.

ANDERSON: Exactly.

COL.: And I wouldn't want to either, and I wouldn't want to recommend it to the Board because we're liable to find ourselves in court along with the rest of the people.

STRAGIER: I would like to comment, that I don't think the siphon really increases the flow in the Indian Bend Wash, the hazard is that if we don't build a siphon and the water ponds and stores up there and then a section of the canal were to wash out and the ponded flow would be added to the normal inflow, so we stand a chance of having more water in this section of the wash than we would if the siphon were built and so as far as the flow in the wash and the amount of property damage that occurs, it's not unlikely that we'll be better off with a siphon than without it and I don't think that, it may be a legal question, and one that we ought to investigate, but I don't think we ought to conclude that just because it happened this one time that the was less flow down stream than up stream that that will always be the case. Had there been another 2,000-3,000 cfs coming in and had it washed out a section of the canal someplace we may very well have had the canal in both directions if the pond added to the flow that we had and produced a maximum down here that would have been considerably in excess of the maximum we had down there.

ANDERSON: Marc, I don't mean to infer that, what I was attempting to point out was that in virtue of installing the siphon we shouldn't be a party to diverting a disproportionate run-off.

STRAGIER: Again, I'd like to urge you to consider that by not building the siphon we did some 4-5 million dollars worth of damage to homes; had the siphon been available, it might have flooded 10 or 20 more homes than we did and we're trading off 1,000 for 20 when we offered to the SRP that we would accept responsibility for breaking the dike here to prevent a break somewhere at random, we realized that we were taking responsibility for that kind of an event and we certainly were willing to accept that and we're ready to accept it again in order to get this same situation put together on a little bit grander scale.

ANDERSON: Marc, as long as we all recognize that the hazard is there and that Col. Lowry's actions are in an approach to this, if we had the money and the time, we can go from there and we may just have to gamble and maybe you don't get the storm, so, you got away with it, if you get the storm, you got caught.

COL: I think, Mr. Chairman and Mr. Anderson, that we have enough money in the budget that sometime this fiscal year we should be in a position to start acquiring land at the south end of Indian Bend Wash if we know the location, Major Worthington said he'd help us arrive at it if they possibly can.

SCHRADER: Ok, do we have any other comments pertaining to the discussions that we've had here?

BILL

ANDERSON: Getting back to the 40th Street area and Camelback in that plan for the Cross-Cut proposed now by the City of Phoenix

COL.: We haven't left the Cross-Cut Canal yet

BILL ANDERSON: Do you want me to wait until we get back to that for a couple of questions?

COL.: Now that we've discussed this, Mr. Chairman, I think that we should make some decision; if the Board wishes to, for a recommendation of some kind to the Board of Supervisors for this \$45,000 which could be included in the \$300,000, changing this \$200,000 to \$500,000 because of the availability of funds, as outlined here.

JURWITZ: I make the motion to that effect.

ANDERSON: I second it.

COL.: That's an increase of \$300,000.

SCHRADER: Any discussion on the motion?

GARBER: That meant specifically that the \$45,000 would be included, because they need guidance to proceed.

COL.: We'll recommend it.

SCHRADER: And that I believe we should have in there that a contract drawn up

COL.: I've got it right here, an agreement between Phoenix, Salt River Project and the Flood Control District

GARBER: Would this be the proper approach?

SCHRADER: No further discussion? All in favor of the motion signify by saying "Aye"

MEMBERS: Aye

SCHRADER: Opposed?

MEMBERS: No comment

SCHRADER: Motion carried.

COL.: Another thing on the agenda here before we get to Mr. Brown and his constituents, I want to bring up a question that has been before us for the last two or three years of Old Cave Creek Dam Maintenance. I'm going to make this statement and that will be all we'll have to do on it right now; We received an agreement from Salt River Project on August 22, and that agreement was studied by myself and I turned it over to our attorney, who is present, and it was OK except for Paragraph 6, which I didn't like and our attorney didn't like. I discussed that with Mr. Hank Shipley and he agreed with me and said he had tried to get Paragraph 6 eliminated but that their lawyers said it had to be in there. It's an agreement wherein we hold the SRP harmless from everything and pay for all the equipment, and we're not going to do it. I told Hank we weren't and he said "don't do anything about it, revise it the way you want it and we'll get together and revise it to your concurrence", or something like this, so all I want to say at this time is we are working on it and it'll be presented at the next meeting, we hope, as an agreement acceptable to both parties.

SCHRADER: I don't think that was so bad, Don.

MCMICKEN: Reid Teeples mentioned this to me before he left. He said that he had discussed it with Mr. Shipley and with our attorneys and we don't particularly care for the "hold harmless" clause either, Col., but they felt that the proper procedure, from my understanding, is to suggest that we would have one agreement that would include both transferring the facility to the Flood Control District and also take care of the maintenance, suggesting that there be an agreement to make the transfer and that the maintenance would be entirely separate; it might be an agreement with the Salt River Project or it might be something the County would handle.

COL.: That's what we have with McMicken Dam and we hired Maricopa County Water District #1 to maintain that for us. We have the Highway Department maintaining the 48th Street drain and the Tempe Canal drain.

ANDERSON: Mr. Chairman, did this agreement envision changing the original agreement I had in mind maintaining the 12' aperture over....

COL.: There's nothing said in this agreement about it, they have three openings there; one is an ungated one, two are gated, and the SRP prefers that the two ungated ones not be opened except in emergencies because three together would release about 1,500 cfs and they'd rather have 500 cfs go down against the Arizona Canal than 1,500 and I don't blame them. And the people that live down below the Canal probably don't blame them either; like that trailer home right below the wash. We're hoping that when we build the new Cave Buttes Dam down about 2½ below that with these wing walls, they can open all three of those gates and leave them open because the big dam is the thing that is going to protect everything in the case, if it looks like water is going down the spillway, which is east and north of the dam itself and is the natural spillway that comes down into the wash, then it might be time to consider opening those two gates. We have a house up there we had to buy on the high water mark. We have a man living there now but we can't pay him because he's a Deputy Sheriff and he can't get two paychecks from one County; I think it would be illegal, but as a matter of a good citizen, he lives up there and he can open those gates if we call him and tell him to.

ANDERSON: When that was initially built there was a very strong feeling that we should be able to close that second gate and open one on a controlled flow basis, and at that time the logic was that "wait if a summer shower caught you and there was nobody up there to do it", but there would come a time when there would be people up there to exercise that function and get control on that water so that you wouldn't have to combat the 50 cfs at the Arizona Canal. If we get the new dam, it would then obviate the systems.

COL.: If there wasn't going to be a new dam then I wouldn't suggest it, but we install electronic controls and they would be operated by Salt River Project from their central headquarters, to open and shut those gates as they please.

ANDERSON: But this is way off in the future.

COL.: That's all on that one. The next thing I have on the agenda is the bond issue. We have some gentlemen here and I have some statements I'd like to read from two people and I've had a number of calls also. This is from a lady, Evonne Beattie and it's addressed to me and every member of the Board; "I am strongly in favor of presenting the county-wide Corps of Engineers flood control project to the voters as soon as possible, this fall, hopefully." She means the bond issue, I would guess. She lives at 4634 N. 36th St., and from her address I can understand why she's for it. The other one is from Robert "Bud" Decot," Please be advised that my family and I, who live at 3520 E. Meadowbrook in Phoenix, are in favor of your Board voting on a bond issue this September the 13th. Thank you, Robert Decot." I bring those up in advent of the presentation that we are about to receive, Mr. Chairman, from representatives of what was first called, and may still be, Jack Brown's Flood Control Task Force. I attended a meeting at Sahuaro High School with Bob Stark and Jim Attebery, the City Engineer of Phoenix, and other officials when this was first brought to my attention, and I might say that while many people were at the meeting were candidates for office both Republican and Democrat, it was not a political meeting. Your speaker is available, Mr. Chairman, if you so desire.

SCHRADER: Mr. Brown?

BROWN: Let me say that I could've come with at least 50 similar letters, and I have received a number of telephone calls asking whether or not we wanted people to come along or whether we wanted them to sign a petition or whatever and I said, "NO, this isn't the appropriate time", and I did not stimulate those two letters. There were approximately 50 people who signed cards provided on the evening of the meeting at Sahuaro High School who said they wanted to help in forming a citizens committee in favor of supporting a bond issue providing it would get on the ballot. Apart from

50, there were many more who expressed an interest, there were people who said
were willing to work, and that is defined in various ways but we take that quite
serious. I must say that I hope you don't feel that I'm.....(?).....by
coming to a meeting where all of you have been so dedicated to this particular prob-
lem, and I'm enormously impressed with the work you've done, especially with what
the City of Scottsdale is doing. (Remainder of tape inaudible due to malfunction)

(The members of the Citizens Advisory Board decided, after listening to Mr. Brown
and others, that a decision as to a bond issue as a referendum on the General Electric
to be held on November 7, would require additional study before a decision could be
reached. The Chairman of the Citizens Advisory Board stated that he would call a
special meeting to discuss this matter on September 22, 1972.)

Meeting adjourned by Chairman at 4:50 p.m.



EXHIBIT H

November 30, 1948

SEL-101

Dr. S. L. Sacramento
Chief Engineer and General Manager
Flood Control District of Maricopa County
3335 W. Durango Street
Phoenix, Arizona 85009

Dear Mr. Sacramento:

As you know, my staff has been working for some time on a series of cost estimates for several design alternatives for the Arizona Canal Diversion Channel (ACDC). The principal reason for developing the design alternatives is to account for the impact of sediment that will be carried into the diversion channel during periods of flooding. We have also included the detention basin plan developed by F&C Toups in our alternative studies.

A brief description of each of the alternatives analyzed follows:

- a. Alternative A-4 includes 4 sediment basins, 1 each located at Cudia City Wash, Bready Draw, Little Bready Draw and Cave Creek. The basins would be located as close to the ACDC as is consistent with good hydraulic design. The basin on Cave Creek would be located just downstream from Peoria Avenue. This plan requires no increase in the size of the ACDC to account for sediment inflow.
- b. Alternative B provides for sediment inflow by widening the ACDC.
- c. Alternative C provides for sediment inflow by deepening the ACDC.
- d. Alternative D provides for sediment inflow by a combination of widening the ACDC east of Cave Creek and deepening it west of Cave Creek.
- e. Alternative T-2 is the plan proposed by F&C Toups. The plan includes detention basins on Cudia City Wash and at 35th Street and sediment basins on Little Bready Draw, Bready Draw and Cave Creek as in alternative A-4. The plan also includes a covered conduit from Cudia City Wash to 24th Street and results in a reduced channel depth between 24th Street and Shank Creek.

Enclosure 1 is a summary of the estimated apportioned flood control costs of each of the 5 alternatives analyzed. Enclosure 2 provides summarized cost estimates by features for each of the 5 alternatives.

As is apparent from the summary table, the first cost for the detention basin proposal (T-2) is almost identical to the next lowest alternative varying by only 3%. The cost estimate for the detention basin plan is predicated on the following assumptions:

* An available and acceptable site for relocation of the Phoenix Country Day School can be found within a radius of a few miles of the present location.

* A new school can be constructed and made ready for operation prior to vacating the existing facilities.

* The school can be relocated in such a way as to minimize disruption of operations.

If any of the above conditions are not met, significant costs above our current cost estimate could be incurred. We are aware that the retention basin plan is likely to be vigorously opposed by the town of Paradise Valley and the Phoenix Country Day School.

The second least costly plan is plan A-4, the sediment basin plan. The sediment basin plan also entails serious conflicts with existing and proposed developments. The sediment basin at Cudia City Wash would be excavated on a portion of the Phoenix Country Day School property. As you requested, we are presently reviewing conceptual grading plans prepared for the site by Dooley-Jones and Associates, Inc. that would permit the school to develop athletic fields within the sediment basin. Assuming that the school's proposal is technically feasible, right-of-way and perhaps liability questions would need to be addressed. We appreciate the positive approach being taken by the school and will gladly cooperate with you in developing a basin plan that will optimize the use of the school's lands.

SPLFD

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SPLFD

The second serious conflict of the sediment basin plan A-4 is on Cave Creek. The location of the basin would be downstream (south) from Peoria Avenue. The location is one for which the Parks, Recreation and Library Department of the city of Phoenix has well advanced plans for a regional park development. This conflict must be resolved before a sediment basin can be constructed at the site. Early coordination with the city of Phoenix is suggested. We stand ready to participate in the coordination.

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After you have had a chance to review this letter and the cost data included, I suggest that you contact me at (213) 684-5470 to discuss the next steps to be taken for local coordination and final plan selection.

Sincerely,

Garson Arnd
Chief, Engineering Division

Enclosure
Copies Furnished:

- H&E
- CDR
- SPLFD
- SPLFD-D
- SPLFD-DB ✓
- SPLFD-DB

ARIZONA CANAL DIVERSION CHANNEL
 Flood Control Alternatives A-4, B, C, D, and T-2
 Summary of Apportioned Flood Control Preliminary First Costs (in thousands of dollars)
 July 1983 Price Levels

10 Nov 1985

Item	Alt. A-4 (Cave Cr. sed. basin below Peoria Ave.) ^a	Alt. B (Wider ACDC) ^b	Alt. C (Deeper ACDC) ^c	Alt. D (Wider ACDC E. of Cave Cr, deeper ACDC W. of Cave Cr.) ^d	Alt. T-2 (Toups plan: flood control basins and smaller ACDC) ^e
FOR EXPANDED DESCRIPTION SEE FOOTNOTES a THRU e					
FEDERAL					
Construction ^{f,g}	\$134,990	\$132,480	\$154,350	\$143,130	\$117,570 ^d
Cash contribution ^h	<u>-3,100</u>	<u>-3,050</u>	<u>-3,550</u>	<u>-3,290</u>	<u>-2,700</u>
Total	131,890 ^f	129,430 ^f	150,800 ^f	139,840 ^f	114,870 ^f
NON-FEDERAL					
Lands and damages	119,860	125,530	113,430	121,030	130,280
Relocations ⁱ					
Bridges	30,150	33,590	29,720	30,390	28,950
Cash contribution ^h	<u>3,100</u>	<u>3,050</u>	<u>3,550</u>	<u>3,290</u>	<u>2,700</u>
Total	153,110 ⁱ	162,170 ⁱ	146,700 ⁱ	154,710 ⁱ	161,930 ⁱ
FEDERAL AND NON-FEDERAL					
Total	285,000 ^{f,i}	291,600 ^{f,i}	297,500 ^{f,i}	294,550 ^{f,i}	276,800 ^{f,i}

- a Cudia City Wash, Dreamy Dr, Little Dreamy Dr, & Cave Cr. (below Peoria Ave.) Sediment Basins; Cave Creek Channel; & AC
- b Wider ACDC, no basins.
- c Deeper ACDC, no basins.
- d Wider ACDC east of Cave Cr. and deeper ACDC west of Cave Cr., no basins.
- e Same as "a" except Cudia City Wash flood control basin instead of sediment basin, addition of 35th St. Wash flood control basin, and smaller ACDC.
- f Excluding esthetic treatment and side drain junction structures for ACDC.
- g Contributed funds for covered channel street crossings deducted and transferred to bridge costs.
- h 2.3 percent of construction cost.
- i Excluding utilities and roads.

ARIZONA CANAL DIVERSION CHANNEL
 Flood Control Alternative A-4
 Summary of Flood Control First Costs^a
 July 1983 Price Levels

4 Nov 1983

Costs (in thousands of dollars)

<u>Description</u>	<u>Construction</u>	<u>Lands and Damages</u>	<u>Relocations</u>			<u>Total</u>
			<u>Utilities^b</u>	<u>Roads</u>	<u>Bridges</u>	
Cudia City Wash Sediment Basin	\$2,570	\$1,080				\$3,650 ^c
Dreamy Draw Sediment Basin	560	70				630 ^c
Little Dreamy Draw Sediment Basin	230	180				410 ^c
Cave Creek Sediment Basin (Site 4 below Peoria Av.)	7,280	5,500				12,780 ^c
Cave Creek Channel (Cave Cr. Sed. Bas. to ACDC)	1,600	1,030			\$1,600	4,230 ^c
Arizona Canal Diversion Channel						
Cudia City Wash to Dreamy Draw	32,770 ^{d,e}	28,000		b	4,330	65,100 ^c
Dreamy Draw to Cave Creek	32,880 ^{d,e}	27,400		b	4,370	64,650 ^c
Cave Creek to Cactus Road	38,400 ^d	43,900		b	12,100	94,400 ^c
Cactus Road to Skunk Creek	18,700 ^d	12,700		b	7,750	39,150 ^c
Total	134,990^c	119,860	c	c	30,150	285,000^c

a Preliminary.

b Excluded.

c See excluded items.

d Excluding esthetic treatment and side drain junction structures.

e Contributed funds for covered channel street crossings deducted and transferred to bridge cost.

ARIZONA CANAL DIVERSION CHANNEL
 Flood Control Alternative B
 Summary of Flood Control First Costs^a
 July 1983 Price Levels

4 Nov 1983

Costs (in thousands of dollars)

<u>Description</u>	<u>Construction</u>	<u>Lands and Damages</u>	<u>Relocations</u>			<u>Total</u>
			<u>Utilities</u> ^b	<u>Roads</u>	<u>Bridges</u>	
Cave Creek Channel (Peoria Av. to ACDC)	\$3,820	\$1,430			\$1,600	\$6,850 ^c
Arizona Canal Diversion Channel						
Cudia City Wash to Dreamy Draw	34,660 ^{d,e}	31,100		b	5,240	71,000 ^c
Dreamy Draw to Cave Creek	32,400 ^{d,e}	29,800		b	5,200	67,400 ^c
Cave Creek to Cactus Road	42,900 ^d	50,500		b	13,800	107,200 ^c
Cactus Road to Skunk Creek	18,700 ^d	12,700		b	7,750	39,150 ^c
Total	132,480^c	125,530	c	c	33,590	291,600^c

a Preliminary.

b Excluded.

c See excluded items.

d Excluding esthetic treatment and side drain junction structures.

e Contributed funds for covered channel street crossing deducted and transferred to bridge cost.

ARIZONA CANAL DIVERSION CHANNEL
 Flood Control Alternative C
 Summary of Flood Control First Costs^a
 July 1983 Price Levels

4 Nov 1983

Costs (in thousands of dollars)

<u>Description</u>	<u>Construction</u>	<u>Lands and Damages</u>	<u>Relocations</u>			<u>Total</u>
			<u>Utilities^b</u>	<u>Roads</u>	<u>Bridges</u>	
Cave Creek Channel (Peoria Av. to ACDC)	\$3,820	\$1,430			\$1,600	\$6,850 ^c
Arizona Canal Diversion Channel						
Cudia City Wash to Dreamy Draw	40,680 ^{d,e}	28,000		b	4,370	73,050 ^c
Dreamy Draw to Cave Creek	38,900 ^{d,e}	27,400		b	4,700	71,000 ^c
Cave Creek to Cactus Road	49,100 ^d	43,900		b	12,400	105,400 ^c
Cactus Road to Skunk Creek	21,850 ^d	12,700		b	6,650	41,200 ^c
Total	<u>154,350^c</u>	<u>113,430</u>	<u>c</u>	<u>c</u>	<u>29,720</u>	<u>297,500^c</u>

a Preliminary.

b Excluded.

c See excluded items.

d Excluding esthetic treatment and side drain junction structures.

e Contributed funds for covered channel street crossing deducted and transferred to bridge cost.

ARIZONA CANAL DIVERSION CHANNEL
 Flood Control Alternative D
 Summary of Flood Control First Costs^a
 July 1983 Price Levels

4 Nov 1983

Costs (in thousands of dollars)

<u>Description</u>	<u>Construction</u>	<u>Lands and Damages</u>	<u>Relocations</u>			<u>Total</u>
			<u>Utilities</u> ^b	<u>Roads</u>	<u>Bridges</u>	
Cave Creek Channel (Peoria Av. to ACDC)	\$3,820	\$1,430			\$1,600	\$6,850 ^c
Arizona Canal Diversion Channel						
Cudia City Wash to Dreamy Draw	35,400 ^{d,e}	31,200		b	5,400	72,000 ^c
Dreamy Draw to Cave Creek	33,360 ^{d,e}	29,800		b	5,040	68,200 ^c
Cave Creek to Cactus Road	48,700 ^d	45,900		b	11,700	106,300 ^c
Cactus Road to Skunk Creek	21,850 ^d	12,700		b	6,650	41,200 ^c
Total	143,130^c	121,030	c	c	30,390	294,550^c

a Preliminary.

b Excluded.

c See excluded items.

d Excluding esthetic treatment and side drain junction structures.

e Contributed funds for covered channel street crossings deducted and transferred to bridge cost.

ARIZONA CANAL DIVERSION CHANNEL
 Flood Control Alternative T-2
 Summary of Flood Control First Costs^a
 July 1983 Price Levels

4 Nov 1983

Costs (in thousands of dollars)

<u>Description</u>	<u>Construction</u>	<u>Lands and Damages</u>	<u>Relocations</u>			<u>Total</u>
			<u>Utilities</u> ^b	<u>Roads</u>	<u>Bridges</u>	
Cudia City Wash Detention Basin	\$8,000	\$16,850 ^c				\$24,850 ^d
35th Street Wash Detention Basin	3,450	2,350 ^c				5,800 ^d
Dreamy Draw Sediment Basin	560	70				630 ^d
Little Dreamy Draw Sediment Basin	230	180				410 ^d
Cave Creek Sediment Basin (Site 4 below Peoria Av.)	7,280	5,500				12,780 ^d
Cave Creek Channel (Cave Cr. Sed. Bas. to ACDC)	1,600	1,030			\$1,600	4,230 ^d
Arizona Canal Diversion Channel						
Cudia City Wash to Dreamy Draw	19,100 ^{e,f}	20,300		b	3,800	43,200 ^d
Dreamy Draw to Cave Creek	26,450 ^{e,f}	27,400		b	4,050	57,900 ^d
Cave Creek to Cactus Road	33,400 ^f	43,900		b	11,500	88,800 ^d
Cactus Road to Skunk Creek	17,500 ^f	12,700		b	8,000	38,200 ^d
Total	117,570^d	130,280	d	d	28,950	276,800^d

a Preliminary.

b Excluded.

c From Flood Control District of Maricopa County, except for additional land.

d See excluded items.

e Contributed funds for covered channel street crossings deducted and transferred to bridge cost.

f Excluding esthetic treatment and side drain junction structures.



FLOOD CONTROL DISTRICT of Maricopa County

3325 West Durango Street • Phoenix, Arizona 85009 • Telephone (602) 262-3630/262-3639



December 9, 1974

Colonel John V. Foley
Department of the Army
Los Angeles District,
Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

Dear Colonel Foley:

On October 10, 1974, representatives from your office and myself met with the Paradise Valley Town Council to discuss the flood problems associated with the Cudia City Wash. The objective of the meeting was to obtain the viewpoint of the Council relating to the construction of a series of detention basins within the town limits of Paradise Valley to control the Cudia City Wash. A copy of the minutes of this meeting is enclosed.

Mr. Vance Carson of your office can provide you with the details of this meeting. The Town Council adopted a motion not only disapproving the concept of detention basins within the town, but also disapproving the proposed extension of the Arizona Canal Diversion Channel within the town limits.

In view of the objection of the Town Council for detention basins on Cudia City Wash, it is recommended that no further consideration be given to this concept. As far as their objection to the ACDC, the Flood Control District considers that approval obtained from the Board of Directors to adopt alternative plan 5B is adequate authority to proceed with planning in accordance with the Board's approval.

Sincerely,

Herbert P. Donald
Herbert P. Donald, P.E.
Chief Engineer and General Manager

HPD:s
Enc.

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FLOOD CONTROL
DISTRICT
MAY 19 1974

asked that the staff inform Town residents of the Bicentennial and encourage Townspeople to participate in the celebration, with donations of talent or money. Mr. Richard also requested the Council give consideration to a donation of money from the Town. He said the City of Scottsdale had given \$2,000. He presented to Mayor Tribken a Certificate of Recognition of the Town of Paradise Valley as a Bicentennial Community from the American Revolution Bicentennial. It was agreed the upcoming issue of the Town Reporter would include an item about the Bicentennial if possible. The Town Manager would review the budget and make a recommendation to the Council concerning a cash donation.

Audit Report
tion

The Council had reviewed the Audit Report for the Fiscal Year Ending June 30, 1974, prepared by Lucas and Schwarz, Certified Public Accountants, and the report was approved as submitted upon motion by Councilman Oscar Palmer, and second by Councilman Barry Palmer.

Cudia City
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Mr. Herb Donald, of the Maricopa County Flood Control District outlined for the Council the background of flood control studies by the Army Corps of Engineers for the Gila River Basin, New River and Phoenix. He introduced Mr. Vance Corson of the Los Angeles Corps of Engineers who explained problems associated with the Cudia City Wash and recommended alternatives for flood control in the City of Phoenix which involved construction within the Town of Paradise Valley. One plan called for the construction of a concrete channel along the north bank of the Arizona Canal from 40th St. to Skunk Creek, which would cost approximately \$34,200,000. An alternative plan under consideration, was the construction of 10 detention basins along tributaries feeding the Cudia City Wash, eight of which would be in the Town of Paradise Valley. Cost of these detention basins was estimated at \$6,200,000. Mr. Corson said they were presenting the plans to the Council in an effort to get the feelings of the Council toward the two projects. A report would be forwarded to the U. S. Army Corps of Engineers in one month and the preferences of the Town would be included in the report. It was ascertained that the proposed construction within the Town would demolish some existing homes in Paradise Valley, but would not provide any flood protection to property within the Town, as the project was aimed at protecting property in Phoenix. Following a general discussion Councilman Oscar Palmer moved the Council go on record to the Corps of Engineers as being opposed to both of the projects presented, noting that the detention basins plan was the more objectionable project of the two. Councilman Brock seconded, and Councilman Barry Palmer suggested the motion be amended to say "strongly opposed." The proposed amendment was agreed to by Councilmen Oscar Palmer and Brock, and it carried unanimously.

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At 8:50 P.M., the Council recessed for ten minutes.

Camelback
quet Club
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pense
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Camelback Racquet Club had applied for a No. 10 spirituous Liquor License. In accordance with A.R.S. 4-201, the Council must enter with the State Department of Liquor Licenses and Control, an order recommending approval or disapproval. Mr. Bill Tull was present on behalf of the petitioner. Councilman Oscar Palmer moved the Council express approval of the license. Councilman Hitchcock seconded. It was determined



DISPOSITION FORM

For use of this form, see AR 340-15, the proponent agency is TAGCEN.

REFERENCE OR OFFICE SYMBOL

SUBJECT

A Viable Alternative Plan of Improvement to the Recommended Arizona Canal Diversion Channel

TO	THRU: Chief, Chief, Channel Section	FROM	Chief, Hydrologic Engineering Section	DATE	12/13/77 pg/4753	CMT 1
----	----------------------------------------	------	------------------------------------------	------	---------------------	-------

TO: Cliff Ford

1. In reviewing some SPF and discharge frequency values computed in the Phoenix area, the idea occurred to me to compare the volume of the design flood hydrograph for the Arizona Canal Diversion (ACDC) to the volume of the proposed ACDC channel itself. The important concept is that although the design flood hydrograph have very high peak discharges, the total volume of the flood hydrographs are relatively small due to the local (thunderstorms) nature of the design storm. The net result is that the introduction of relatively small quantity of storage will result in a large reduction in the required channel capacity necessary to convey the flood.
2. Some very cursory calculations illustrate the potential benefits in reduced size of project. The maximum 6 hour 100-year flood hydrograph volume for the ACDC at its confluence with Skunk Creek is approximately 6000 acre-feet. Introduction of this quantity of storage at appropriate locations would enable reduction of the ACDC channel capacity from a maximum of 36000 CFS to less than 10000 CFS.
3. The proposed ACDC itself has a channel volume of approximately 1500 acre-feet
4. Judicious location of storage would permit altering the timing of subarea flood peaks from combining in a critical (maximum peak production) manner, thereby further reducing the required channel capacity to the final point of disposal.
5. The purpose of this DF is to alert the project manager of the probable viability of such an alternative approach to the flood problem to which the ACDC addressed itself. The potential reduction in costs, required right-of-way, and impact on the community appear at first glance to be significant enough to warrant further intensive study.

Joseph B. Evelyn
Chief, Hydrologic Engineering Section





EXHIBIT K
FLOOD CONTROL DISTRICT
of
Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager

BOARD of DIRECTORS
Fred Koory, Jr., Chairman
Hawley Atkinson
George L. Campbell
Tom Freestone
Ed Pastor

MAR 09 1984

Colonel Paul W. Taylor
Los Angeles District, Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

Dear Paul:

My purpose in writing is to convey the sense of the Phoenix City Council's attitude toward the Arizona Canal Diversion Channel (ACDC) and to point out an area of potential problems or opportunities, depending on how we, the Corps and the Flood Control District, handle it.

On February 21, Joe Dixon and I made a presentation to the Phoenix City Council concerning the Old Cross Cut Canal flood control project, for which we are working to obtain funding to continue project development beginning in fiscal year 1985. The Council was very supportive of this effort.

Since the Mayor and many of the Council members are newly elected, I gave each of them a packet of reference material which included the enclosed information about the Phoenix and Vicinity (including New River) project as well as a paper on the Old Cross Cut Canal. Our presentation pointed out the geographical relationship and functional similarity between the Old Cross Cut Canal and the Arizona Canal Diversion Channel (ACDC), which drew some questions and comments about the ACDC.

The Council was very supportive of the ACDC, recognizing its value as a flood control measure. Some concern was expressed, however, about the aesthetic aspects of the project. Council members Goode, Korrick, and Starr (see enclosed map) have all served previous terms, and expressed the desire to be involved in the planning process. ||

This Mayor and Council are deeply committed to the principle of continuing public involvement in public works projects. The opportunity is ripe for a presentation to the Council on the ACDC aesthetic treatment. We should also get on with the neighborhood workshops which were postponed a year ago, and plan for additional public meetings to obtain input from people who do not live adjacent to the ACDC.

Colonel Paul W. Taylor
Page 2

I look forward to working with you and your staff in taking advantage of the opportunities now available and avoiding problems that may arise if we do not act.

Sincerely,



D. E. Sagramoso, P. E.

Enclosures

Copies to: Joseph R. Dixon, Corps of Engineers, Phoenix
Stanley Lutz, Corps of Engineers, Los Angeles District



FLOOD CONTROL DISTRICT
of
Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager

BOARD of DIRECTORS
Fred Koory, Jr., Chairman
Hawley Atkinson
George L. Campbell
Tom Freestone
Ed Pastor

Flood Control District Expenditures (as of December 1983)

For Projects Affecting the City of Phoenix

*Phoenix and Vicinity (Including New River):

Dreamy Draw Dam (complete)	\$ 42,000
Cave Buttes Dam (complete)	3,686,000
Adobe Dam (complete)	11,326,000
New River Dam (under construction)	5,247,000
Arizona Canal Diversion Channel (under design)	<u>39,373,000</u>
Subtotal	\$59,674,000
Cost Sharing in Projects Managed by the City of Phoenix	<u>2,810,000</u>
Total	<u>\$62,484,000</u>

*When completed, total estimated costs (1982 dollars) are:

Federal	\$219 million
Flood Control District	<u>171 million</u>
Total	<u>\$390 million</u>



FLOOD CONTROL DISTRICT

of

Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager

February 16, 1984

BOARD of DIRECTORS
Fred Koory, Jr., Chairman
Hawley Atkinson
George L. Campbell
Tom Freestone
Ed Pastor

FLOOD CONTROL IN THE DESERT: A PROGRESS REPORT

The Phoenix and Vicinity Flood Control Project is rapidly becoming a reality. Authorized by Congress in 1965, the project is being designed and constructed by the Army Corps of Engineers under the local sponsorship of the Flood Control District of Maricopa County. The District's job is to acquire the necessary rights-of-way, relocate affected people and facilities, and to operate and maintain the completed structures.

The project is an integrated system (see enclosed map) consisting primarily of four dams, about 20 miles of channelization and 19 miles of flowage easements. It is designed to protect against floodwaters originating north of the Arizona Canal, the main water supply canal north of the Salt River. Outdoor recreational developments are also included.

The backbone of the system is the Arizona Canal Diversion Channel (ACDC), a 17 mile long floodway upslope from and parallel to the Arizona Canal. The Arizona Canal does not have the capacity to handle all the storm runoff than can flow into it. Excess runoff has periodically overflowed the Canal at predetermined spillways and from random breaks in its southern bank. In 1972, for example, over 2,600 homes were damaged from breaks at 32nd and 40th Streets. The ACDC will extend from Cudia City Wash (near 40th Street in Phoenix) to Skunk Creek (about 75th Avenue in Peoria).

As in any large, multi-year endeavor, a certain amount of controversy and questioning is inevitable. The following questions are those most frequently asked by people concerned about the ACDC:

Q: How does the project work?

A: The Dreamy Draw Dam and Cave Buttes Dam (Cave Creek) will store the standard project floods (about 200 year frequency) and release the floodwater at low rates. The ACDC will accept these releases plus runoff originating below the two dams and additional runoff from washes, streets and storm drains. The ACDC will be large enough to convey flows from up to the 100-year storm harmlessly into Skunk Creek. These design flows vary from 6,800 cubic feet per second (cfs) at the eastern end to 29,000 cfs at Skunk Creek.

Adobe Dam on Skunk Creek and New River Dam are designed to store the standard project flood and to reduce the peak flows on those streams by the same amount as the diverted flows from the ACDC. Flowage easements downstream from the ACDC confluence with Skunk Creek will compensate for more frequent or longer duration lower flows.

Q: What is the current status of the project and when will it be completed?

A: Dreamy Draw, Cave Buttes and Adobe Dams are already completed. Construction on New River Dam is underway and will be finished about December 1984. Construction of the ACDC will start at the western end in 1985 and will progress in four increments with completion in 1991. About 74% of the land for the ACDC has already been acquired, and relocation of utilities, bridges and roads is in progress.

Q: How much does the project cost?

A: In 1982 dollars, total project costs are \$390 million, of which \$171 million are non-federal costs. Included are ACDC total costs of \$251 million, of which \$96 million are non-federal. To date, about \$40 million of the ACDC non-federal money has been spent or obligated.

Q: The project was authorized over 18 years ago. Is it still needed?

A: It is needed even more. Urbanization has increased storm runoff and city storm drains have been designed and built anticipating completion of the flood control project.

Q: Are there other (better) alternatives?

A: Seven system alternatives were studied, along with four alternatives to the ACDC. The authorized project was selected based on its acceptability to the public and concerned governments, and because it provided more benefits for the money.

Q: When property is acquired, are the owners treated fairly?

A: All properties are appraised by an independent fee appraiser. The District cannot, by law, offer less than the appraised value. Relocation assistance is also required by law for residential tenants, owner occupants, and small businesses. For example, relocation assistance to a homeowner includes reimbursement for moving costs, escrow fees and payment to offset higher mortgage interest rates.

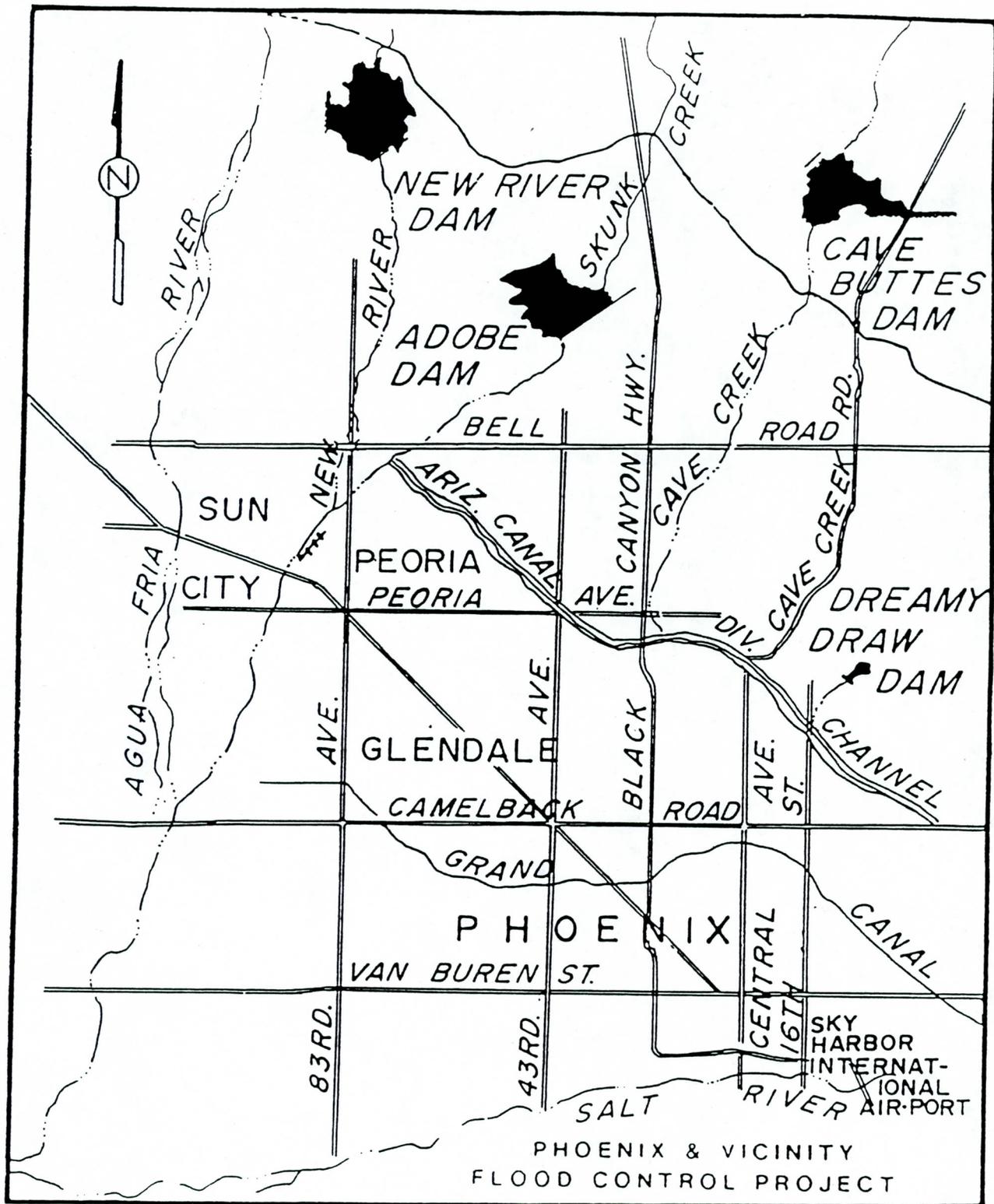
Q: Will the ACDC be ugly?

A: Since the channel will be entrenched along its entire length, the visual impact will be minimal. The ACDC will be concrete lined from 40th Street to Cactus Road (near 51st Avenue). Relatively narrow concrete lined channels do not dominate urban areas when viewed from low altitudes or acute angles at a distance. The channel will be obvious only from bridge crossings. In addition, landscaping and channel wall designs will soften the channel's impact. The channel will be covered at Sunnyslope High School and near the Biltmore Hotel in order to permit continued use of the athletic field, parking lot and other facilities. From Cactus Road to Skunk Creek the ACDC will be wider and unlined to permit recreational uses of the channel bottom.

Q: Will the diversion of flows cause increased risk of flooding to certain areas along the ACDC?

A: No. Only flows exceeding the 100-year capacity of the ACDC would overflow into the Arizona canal and spill out from the Arizona Canal in the same way that they do now. This is much greater protection than now exists.

The Phoenix and Vicinity Flood Control Project is an integrated system of project features designed to provide a high degree of flood protection to the people of the Greater Phoenix Metropolitan Area. It is well underway. We need to maintain the level of public awareness and support for this project until it is completed.





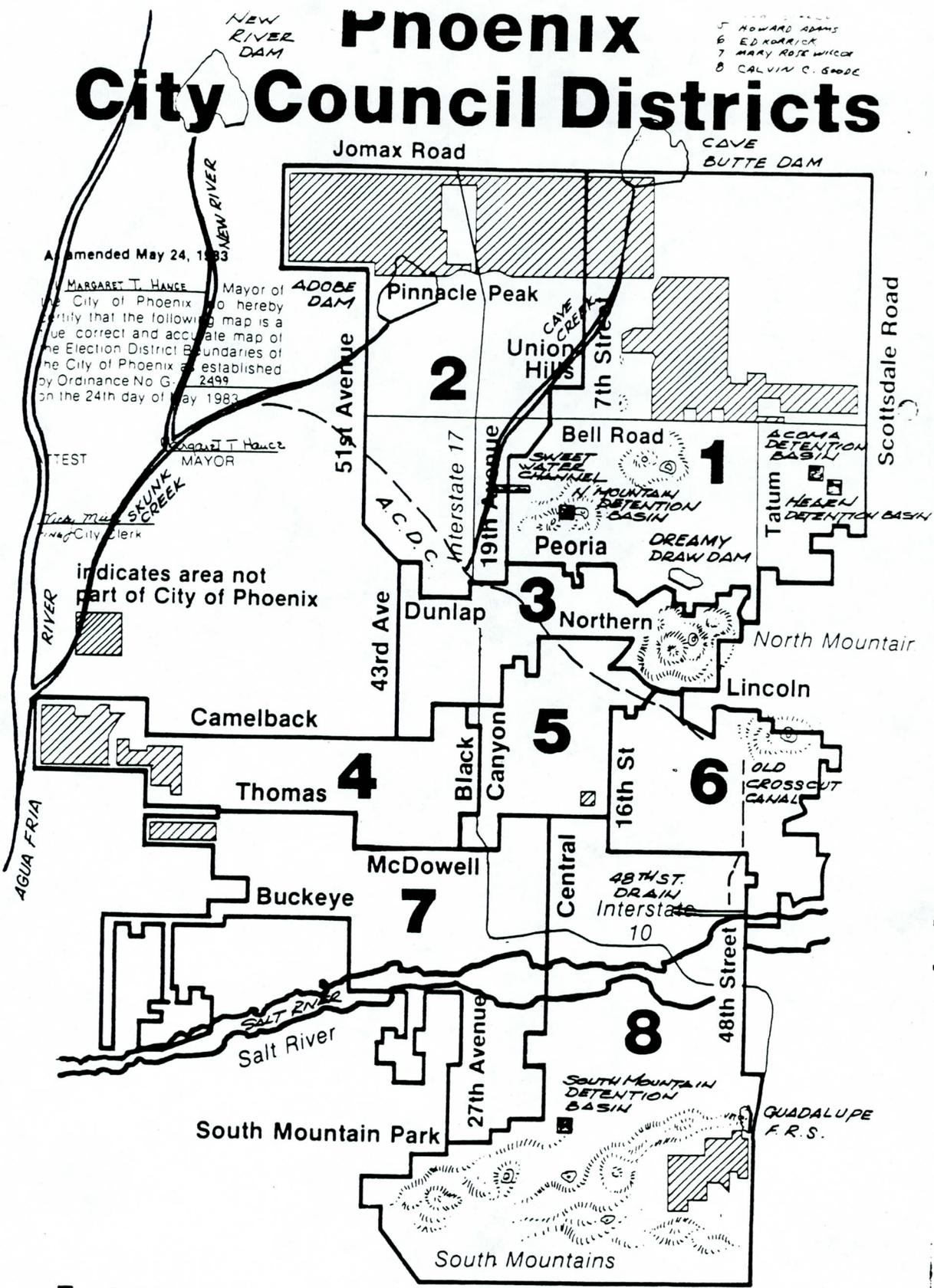
This family stands disconsolate in knee-deep floodwaters that entered their home at 38th Place and Camelback Road in Phoenix.



Young girl experiences difficulty crossing the intersection of 32nd Street and Campbell Avenue in Phoenix.

Phoenix City Council Districts

- 5 HOWARD ADAMS
- 6 ED ROARICK
- 7 MARY ROSE WILCOX
- 8 CALVIN C. GOOD



Amended May 24, 1983

MARGARET T. HANCE Mayor of the City of Phoenix do hereby certify that the following map is a true, correct and accurate map of the Election District Boundaries of the City of Phoenix as established by Ordinance No. G-2499 on the 24th day of May 1983.

MARGARET T. HANCE MAYOR

City Clerk

indicates area not part of City of Phoenix

- PROJECTS SPONSORED BY FLOOD CONTROL DISTRICT.
- CITY PROJECTS COST SHARED WITH FLOOD CONTROL DISTRICT.



EXHIBIT L

CITIZENS' FLOOD CONTROL ADVISORY BOARD September 28, 1983

Project Update

Flowage Easements - Skunk Creek, New and Agua Fria Rivers

At a meeting held on September 9, 1983, with the Flood Control District, Corps of Engineers representatives reiterated the position set forth in their letter of June 22, 1983 that channelization in-lieu of flowage easements is not acceptable. They advised that aerial photography is or will be flown during September 1983 from which topography and the easement delineation will be made. They indicated that bridge crossings and protective measures for crossings will be taken into consideration in producing the delineation which we can expect in preliminary draft form by July 84. The General Design Memorandum (GDM) for the Arizona Canal Diversion Channel (ACDC) will include the delineation when published in March 85.

Prior to the September meeting, we had met with local Corps' real estate representatives and agreed upon the wording for a flowage easement to be acquired over property in the floodway district of the floodplain where no structural work will be accomplished.

The physical work has been completed on filling the gravel pits south of Indian School Road on the east side of the Agua Fria River in accordance with the stipulated court settlement. Our consulting engineer is nearing finalization of the plans for channelization in this area. We anticipate presenting an intergovernmental agreement between the County Highway Department and the District for channel and levee work in conjunction with bridge construction for Board approval at a meeting in mid-October 1983.

McMicken Dam Restoration

The Agreement for cost sharing in the restoration of McMicken Dam between the FCD and the Maricopa Water Conservation District has been signed and recorded. The Agreement provides for the Water District's share to be paid on the basis of 50% upon completion and acceptance of the work with the remainder paid in three (3) equal annual installments.

Bids were opened for the restoration on September 8, 1983, at 2:00 p.m. Eight bids were received ranging from a high of \$3,190,000 to the low bid submitted by James Kraus, Mesa, at \$1,849,628.57. The second low bidder was B. L. Gustafson at \$2,518,117.97. We are currently checking the low bidders qualifications and waiting for his performance bonds before awarding the contract.

Indian Bend Wash Collector and Side Channels, Phase II, Reach 4

The construction is approximately 30 percent complete. Work is progressing along the west side of the Arizona Canal northeasterly of the intersection of Scottsdale and Camelback Roads. Work has also been started near the China Inn Restaurant at that intersection. We are continuing to work with the City of Phoenix concerning installation of their 12 inch waterline in Camelback Road so as to minimize the disruption to traffic.

Skunk Creek Channelization

Lufkin Construction Company is continuing to place toe rock protection and levee rock protection upstream of I-17. This contract is currently 97% complete and it is expected that the contractor will finish in September. Construction of asphalt service roads has been completed.

New River Dam

Bids were opened for this project August 2, 1983. M & M Sundt Construction Company was the low bidder of seven bids on the Corps of Engineers \$10.2 million construction contract. The contract was signed and the notice to proceed was given to the contractor on August 25.

Adobe Dam Sewer Line

A sewer line is being constructed from the State Detention Center above Adobe Dam to connect to the City of Phoenix sewer. This line passes through Adobe Dam at the easterly end. A section of this dam has been removed and encased 15" sewer line is being installed. The dam will be reconstructed to original Corps of Engineers standards. This job is about 40% complete and should be done within the next two weeks.

Arizona Canal Diversion Channel (ACDC)

Temporary Bridge East of 51st Avenue

Breinolt Construction Company was the successful bidder for this small project. The work is 100% complete. This bridge was built in order to permit Salt River Project construction equipment to cross the Arizona Canal with heavy construction during the construction of a relocated section east of the Arizona Canal easterly of 51st Avenue. SRP is proceeding with their relocation efforts.

Thunderbird Floodway Bridge

C & S Construction Company has completed 8% of the work to date. They have constructed a 15" temporary sewer line, detour, and placed temporary concrete and steel drain pipes and have begun excavation for the bridge footings (50% complete).

59th Avenue Floodway Bridge

Artcraft Construction Company was the successful bidder for this project. It is anticipated that construction began September 12. The start of construction was delayed to allow the City of Glendale to continue to use a well adjacent to 59th Avenue through September 15 rather than installing a costly temporary waterline.

Old Cross Cut Canal

The Old Cross Cut Canal was constructed the late 1880s to transfer water between the Arizona Canal and the Grand Canal.

The Old Cross Cut Canal begins near 48th Street in Phoenix, and courses south from a gated outlet in the Arizona Canal to the Grand Canal, a distance of 3.6 miles. The canal is an earth channel, deeply incised, much of which is unimproved. Culverts at the major street crossings vary in size, shape, and combinations and are of limited capacity. The canal is no longer used by the Salt River Project as a water supply transfer system between the Arizona and Grand Canals, but it is used for wasting from the Arizona Canal during rainstorms or floods. The canal also receives local storm drainage from the east through overland flow and from east and west storm sewer conduits. Gates in the Grand Canal with an outlet to the Salt River assist in dumping storm flows in the Old Cross Cut Canal and the Grand Canal.

The drainage area contributing stormwater runoff to the headgate of the Old Cross Cut Canal comprises nearly 4 square miles and lies between Camelback Mountain and the Arizona Canal from 40th Street to 68th Street. Runoff from Camelback Mountain-Arcadia area results in sheet flow and ponds behind the north levee of the Arizona Canal. Runoff from floods exceeding the 25-year event overtops the north levee at various locations and is intercepted by the Arizona Canal. During such events, the Arizona Canal is emptied into the Old Cross Cut Canal. Floodwaters eventually fill the Arizona Canal and overflow its south bank. Floodflows then disperse into sheet flow through developed areas below the canal. Some of the sheet flow will be intercepted by the Old Cross Cut. The remaining flows will pond along the north bank of the Grand Canal.

The standard project flood immediately north of the Arizona Canal would result in a ponded area about 300 feet in width. Depths of ponding would vary from 0 to 5 feet. Below Arizona Canal, an estimated 3,000 acres of residential property would be flooded to depths varying from 0.5 feet as sheet flow to depths 3.5 feet in ponded areas adjacent to the Grand Canal.

A preliminary estimate of the costs and benefits for a flood control project (see Figure VIII-6) consisting of improved channels indicated a favorable benefit/cost ratio for 25-year protection. The project, however, was withdrawn from further consideration by the Phoenix Urban Study on July 18, 1978. This action resulted from the policies and guidance contained in Engineering Regulation 1165-2-21 which provided criteria for Corps of Engineers participation in flood control projects in urban areas. According to this regulation, the Corps can participate only in flood control projects associated with natural streams or modified natural waterways. It was determined that the Old Cross Cut Canal project did not conform to these criteria.

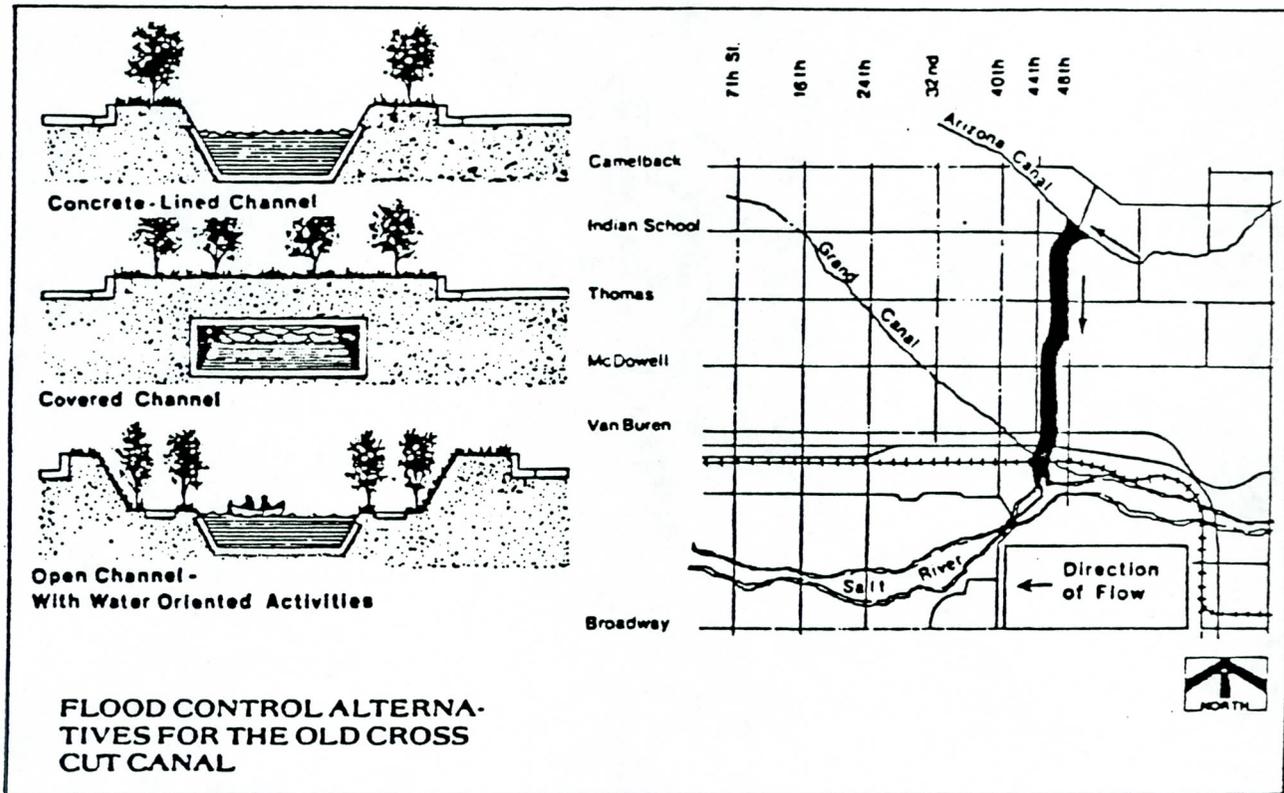


FIGURE VIII-6



EXHIBIT M

OCE REVIEW COMMENTS

Phoenix, Arizona, and Vicinity (Including New River)
Memorandum for the Record
Milestone 08 Meeting, 15 December 1976

1. The comments below respond to the MFR. Comments 2 and 3 require submission of supplemental information before the Phase I GDM can be approved.
2. The selection of the 1% chance flood as a basis for design along the Arizona Canal Diversion Channel should be better supported. The information presented in the GDM indicates the absolute minimum acceptable design to be a 0.5% chance flood. The data indicate that a 0.2% chance design flood would be economically feasible. The proposed channel could cause flooding in urban areas where flooding would not otherwise occur. Accordingly, we suggest that you consider providing a higher degree of protection unless there are compelling reasons for adoption of a lesser degree of protection. We request that you submit additional information substantiating the selection of the design flood. In addition, the local sponsor should be made fully aware of the hold-and-save responsibilities as they pertain to areas where the project could induce flooding in the event that the project design flood is exceeded.
3. Hazardous conditions created by spillway flows should be considered carefully. In general, spillways should be located in such a way as to minimize hazards to people and property. A real estate interest should be acquired downstream of spillways to a location where "with project" conditions essentially equal "without project" conditions, or where hazards caused by inundation, velocity or debris would be acceptable. Review the criteria in the attached EC 1110-2-183 to determine their applicability to this project. After you determine the impact of this EC on the Phoenix project, submit information to either support the original decision not to acquire lands below the spillways or to explain and define areas in which acquisition will be necessary. Local interests should be made aware of the risk of project-induced damages in these areas.
4. The proposed levees should be designed for the standard project flood, as a minimum, where overtopping or failure would create hazardous or catastrophic conditions. The information presented indicates that design of at least three, and perhaps four, of the levees should be predicated on SPF floods.
5. For future projects of this type, you should use the modified-Puls routing method, with the same routing method for both pre- and post- project conditions. Using Muskingum routings for natural channels and Tatum routings for modified channels may result in different answers caused by the use of the methods themselves rather than by different physical conditions in the channels. Using different routings may result in lack of confidence in the answers.

on New River, Brunk Creek and Cave Creek by flood plain zoning and regulation up to the 1% chance flood is acceptable and necessary for a complete project. The report should specifically describe the stream channels as part of the project. We must insure that local interests do maintain the channels properly in order to assure adequate capacity for possible prolonged reservoir releases and a functional project. The information presented at the meeting indicate that the Flood Control District has adequate powers to achieve the required maintenance as required by the terms of the 221 agreement.

7. The Phase II GDM's should address the following comments:

a. We note that you will provide ranges throughout the project area with costs for these ranges included in the project first costs. The Phase II GDM's should contain discussions of the locations of these ranges, the water-surface profiles, and the maintenance requirements as well as a discussion of the time intervals between the surveys which local interests must perform. Over time and in the absence of major flood events, the survey interval may be longer. Channel design and maintenance requirements should be based upon a reasonable amount of channel aggradation and the increased "n" values expected to develop between maintenance periods. Water surface profiles should not be based on clean channels.

b. The Phase II GDM's should describe more fully the assumptions and results of flood routings. Include flood hydrographs at key locations such as stream confluences and side drainages.

c. The Phase II GDM's should address whether or not loss of valley storage because of landfill effects is an important consideration.

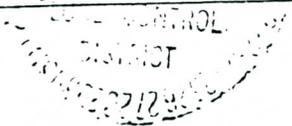






CITY OF PHOENIX
ENGINEERING DEPARTMENT

EXHIBIT 0



December 11, 1974

SEARCHED	INDEXED
SERIALIZED	FILED
DEC 11 1974	
FLOOD CONTROL DISTRICT	

Mr. Herbert P. Donald, P.E.
Chief Engineer and General Manager
Flood Control District of Maricopa County
3325 West Durango Street
Phoenix, Arizona 85009

Dear Herb:

Biltmore Development Flood Control Channel R/W
Adjacent to Arizona Canal

Your letter of November 7, 1974, advised us that you had received recent information from the Corps of Engineers that the minimum right of way needed for the flood control channel north of the Arizona Canal should be increased from 65 to 120 feet in areas where cuts are required between the Biltmore Hotel and 24th Street.

We appreciate receiving this information, however verbal agreements had already been reached between the City and the Biltmore Developers based on the 65 foot width as indicated by the Corps of Engineers, April, 1974, Report of Alternative Plans for Flood Control and Recreation Development.

As the Biltmore Developers reluctantly agreed to give the 65 foot drainage easement, it would appear totally untimely to reopen negotiations for additional right of way. Such action could indicate uncertainty of requirement and might allow the Developers to seek a court determination for giving any right of way.

Very truly yours,

J. E. ATTEBERY, P.E., City Engineer

Roger Gwillim
Roger Gwillim, P.E.
Deputy City Engineer

WRG:nl

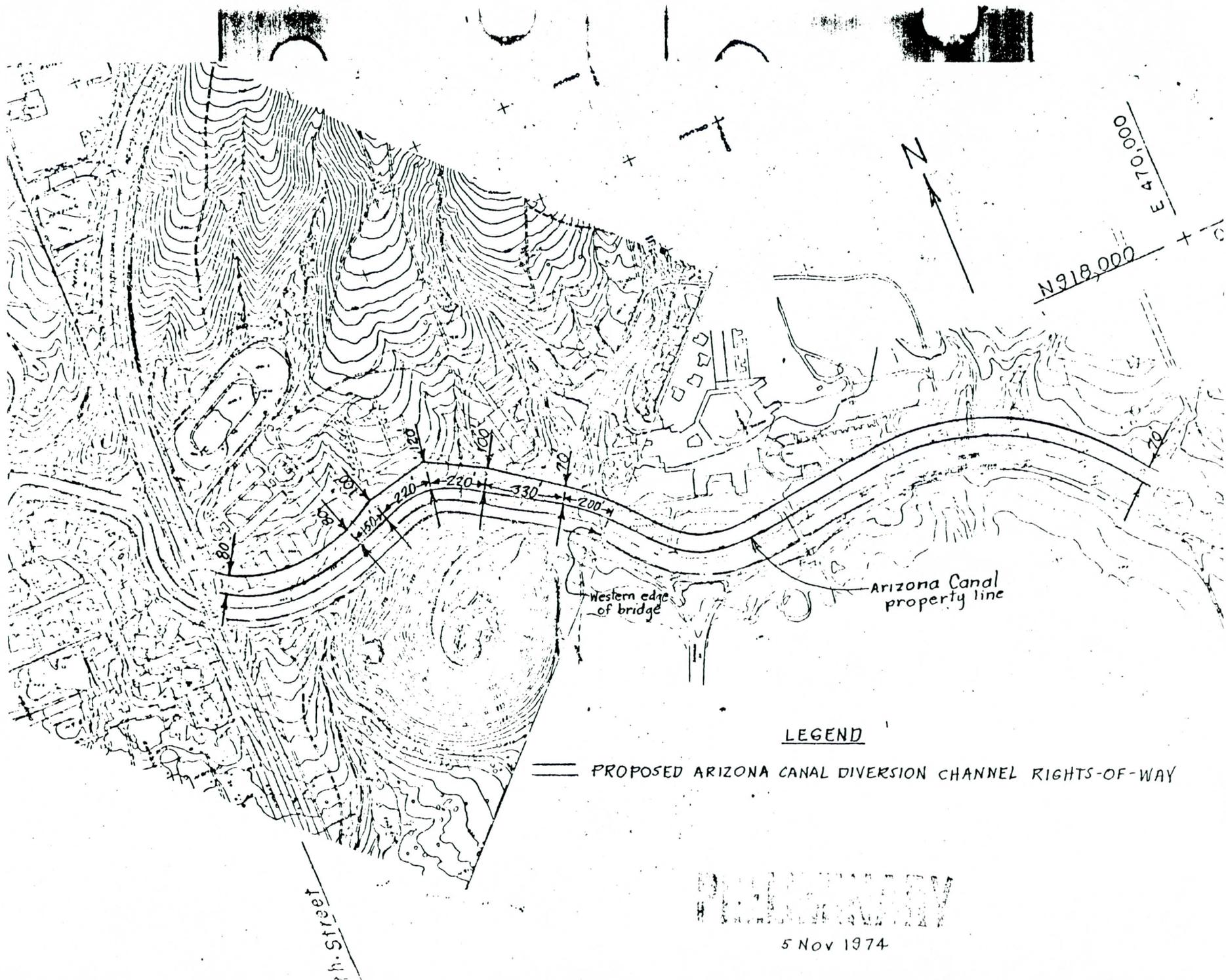
- c: Mr. Attebery
- Mr. Clymer
- Mr. Glendening
- Mr. Park

TRANSMITTAL RECORD			SECURITY CLASSIFICATION:		SHIPMENT NO.:			
For use of this form, see AR 18-7: the proponent agency is Office of the Assistant Vice Chief of Staff.								
TITLE/FILE IDENTIFICATION Gila River Basin, New River and Phoenix City Streams, Ariz.			AS OF DATE			DATE OF SHIPMENT		
			DAY	MONTH	YEAR	DAY	MONTH	YEAR
AUTHORITY FOR SHIPMENT			NO. OF RECORDS BEING TRANSMITTED			TYPE TRANSMISSION		
REPORTS CONTROL SYMBOL (if any)			NO. BOXES	NO. ITEMS/REELS		<input type="checkbox"/> PUNCHED CARDS <input type="checkbox"/> MAGNETIC TAPE <input type="checkbox"/> HARD COPY <input checked="" type="checkbox"/> OTHER		
SPLED-DC			2					
SHIPPED TO: Mr. Herbert P. Donald Chief Engineer & General Manager Flood Control District of Maricopa Co. 3325 West Durango Street Phoenix, Arizona 85009			METHOD OF SHIPMENT					
			REGULAR MAIL			RAIL EXPRESS		
			REG MAIL REGISTERED		AIR EXPRESS			
			REG MAIL CERTIFIED		FREIGHT			
			AIRMAIL		AIRFREIGHT			
			AIRMAIL REGISTERED		COURIER			
			AIRMAIL CERTIFIED		AIR COURIER			
			PARCEL POST					
			FOR MAGNETIC TAPE SHIPMENTS					
			<input type="checkbox"/> TAPE HAS HEADER LABEL <input type="checkbox"/> DATA WRITTEN BEYOND END OF REEL REFLECTIVE SPOT TAPE MARK <input type="checkbox"/> PRECEDES <input type="checkbox"/> FOLLOWS HEADER LABEL RECORDS ARE <input type="checkbox"/> PACKED <input type="checkbox"/> FIXED <input type="checkbox"/> VARIABLE LENGTH PARITY IS <input type="checkbox"/> ODD <input type="checkbox"/> EVEN TAPE IS <input type="checkbox"/> SEVEN <input type="checkbox"/> NINE CHANNELS RECORDING MODE IS <input type="checkbox"/> BCD <input type="checkbox"/> EBCDIC <input type="checkbox"/> BINARY					
TYPED NAME AND TITLE OF SENDER GARTH A. FUQUAY Chief, Engineering Division								
SIGNATURE OF SENDER <i>Walter Rabetic</i>								
<input type="checkbox"/> When checked here, acknowledgment of receipt is requested. Sign and return one copy of this transmittal to address below.			DENSITY		NO. OF TAPE MARKS	NO. CHARACTERS PER RECORD	NO. RECORDS PER BLOCK	
REMARKS Per your request, attached are 2 prints of a map showing the preliminary rights-of-way requirements for the proposed Arizona Canal Diversion Channel through the Arizona Biltmore Estates extending eastward from 24th Street.			FOR MULTI-REEL FILES, LIST REEL NUMBERS, TOTAL BLOCKS EACH, AND FILE SEQUENCE (1 of 4, 2 of 4, ETC) (For multi-file reels, indicate no. files and records).					
SIGNATURE OF RECEIVER			DATE RECEIVED					
SHIPPED FROM: U. S. Army Corps of Engineers Department of the Army P. O. Box 2711 Los Angeles, California 90053			PERSON TO CONTACT SIMON LIGHT Chief, Channels Section					
			TELEPHONE 213-688-5530			TYPE COMPONENT USED		

DA FORM 200
1 SEP 72

EDITION OF 1 FEB 67 IS OBSOLETE.

GPO-1972-769 852/1025



LEGEND

== PROPOSED ARIZONA CANAL DIVERSION CHANNEL RIGHTS-OF-WAY

5 Nov 1974



EXHIBIT P

FLOOD CONTROL DISTRICT of Maricopa County

3325 West Durango Street • Phoenix, Arizona 85009 • Telephone (602) 262-3630/262-3639

December 13, 1974

Department of the Army
Los Angeles District, Corps of Engineers
P. O. Box 2711
Los Angeles, California 90053

ATTENTION: Mr. Garth A. Fuquay

Dear Mr. Fuquay:

Enclosed is a copy of a letter from the City of Phoenix concerning dedication of rights-of-way for the proposed Arizona Canal Diversion Channel through the Biltmore Estates properties. The City of Phoenix and the Biltmore developers have previously agreed that a 65 foot width right-of-way would be required as indicated in the enclosed letter.

The Flood Control District will acquire all lands in excess of the 65 feet in accordance with sketches submitted to this office by Transmittal Record dated November 5, 1974, copy enclosed.

This office will work closely with the City of Phoenix to prevent developments within the maximum right-of-way requirements as indicated on the above mentioned sketches.

Sincerely,


Herbert P. Donald, P.E.
Chief Engineer and General Manager

HPD/ly

Enclosures: 1 letter
1 Transmittal Record



EXHIBIT Q

FLOOD CONTROL DISTRICT of Maricopa County

3325 West Durango Street • Phoenix, Arizona 85009 • Telephone (602) 262-3630/262-3639



September 4, 1975

City of Phoenix
Development Coordination Office
251 West Washington
Phoenix, Arizona 85003

RE: Biltmore Estates Total Project

Gentlemen:

We have reviewed the preliminary plat for the above referenced project with respect to the proposed Arizona Canal Diversion Channel.

Our most recent information from the Corps of Engineers indicates right-of-way requirements shown on the preliminary plat have been altered.

The red shaded area near 24th Street will be required because of the backslope from channel excavation into the hillside in that area.

Near the east plat boundary we anticipate relocation of the Arizona Canal to the south thus requiring the additional area shown in red, but reducing the requirement north of the canal shown in green. This should be to the advantage of all parties since no existing Biltmore Hotel buildings will be affected by the Arizona Canal Diversion Channel. As you are aware the right-of-way requirements for the Arizona Canal Diversion Channel are preliminary. However, we feel that further revisions in the right-of-way requirement in this area are unlikely.

Consequently, we request that the revisions shown be added to the plat in coordination with the Flood Control District and the Corps of Engineers prior to approval by the City of Phoenix.

Please feel free to contact Bob Gehle of this office for further coordination.

Sincerely,

HERBERT P. DONALD, P. E.
CHIEF ENGINEER AND GENERAL MANAGER

HPD:RVG:det

Enclosure

cc: Toups Engineering Co.
Cliff Ford, Corps of Engineers, L. A.
Mai Terry Kirkpatrick, Corps of Engineers, Phoenix



EXHIBIT B

SPDED-TC

1 MAR 1983

Honorable Eldon Rudd
House Of Representatives
Washington, DC 20510

Dear Mr. Rudd:

This letter is to provide you with the current status of our planning for the Arizona Canal Diversion Channel project (ACDC).

You are aware that one of the Phoenix City Councilman recently issued a memorandum withdrawing his support for the project. This action was taken in spite of the strong support for the project by the Phoenix City Engineer and the apparent lack of opposition by the remaining City Council members. As the local sponsor, the Maricopa County Flood Control District continues to strongly support the projects, however.

Recently, at the request of local interests, our Los Angeles District completed an analysis of federal interest in providing a covered channel for sections of the ACDC above Drenny Draw Dam. This analysis demonstrated that a covered channel could be constructed more cheaply, in terms of overall cost including rights-of-way, than an open channel between 24th Street and the eastern property line of the Biltmore Hotel, a distance of about 4,100 feet. Presumably, this will alleviate concerns of the Biltmore Hotel about impacts of the ACDC on their operation.

Currently, a small group of homeowners in the Biltmore Estates area have expressed concern about the esthetics of the project and the disruption from its construction. We shall continue to work closely with the Flood Control District as they resolve problems of this nature. As you know the 4.6 mile long interval of the ACDC from 12th Street to Guila Wash was added as an extension after the project was authorized at the request of the local sponsor. Although we certainly don't recommend it, this interval could be eliminated if desired by the local sponsor, and the remainder of the project could be designed to function without the upper

SFDED-TC
Honorable Eldon Rudd

9 MAR 1963

interval. It is important to note, however, that the area south of upper interval, including the Biltmore Estates, would not have flood protection from Guila Wash. We shall continue to work closely with the Maricopa County Flood Control District as they resolve public information questions such as these.

I trust that the foregoing is of interest and benefit to you. Should you have any questions about this project or other Corps of Engineers projects in the Phoenix area, please let us know.

Sincerely,

RSH/dh
25 Feb 63

SIGNED
HOMER JOHNSTONE
HOMER JOHNSTONE
Brigadier General, USA
Division Engineer

CNG
SFDED-TC

JMH
SFDED-T

CF:
SPLDE (Col P. Taylor)
LTC W. Green (Phoenix Area Office)
SEDPB
SFDPD-R
SFDED-TC
SPLPD-R
SPD RF

WCK

AEW
SPDED

DLF
SPDCO

PFD
SPDPD

HLE
SPDEA

GRL
SPDED-C

WDB
SPDDD-M

HJ
SPDDE



August 12, 1985

Office of the Chief
Design Branch

Honorable Eldon Rudd
House of Representatives
Washington, D.C. 20515

Dear Mr. Rudd:

This is in response to your letter of July 22, 1985, concerning Reach 4 of the Arizona Canal Diversion Channel (ACDC), as part of the Phoenix, Arizona and Vicinity (including New River) flood control project. Your interest and past support of this project is very much appreciated.

I share your concern over the substantial opposition to Reach 4 of the Arizona Canal Diversion Channel. The ACDC is a major feature of the overall Phoenix, Arizona and Vicinity project. Reach 4 is the segment of the ACDC extending from Dreamy Draw, just west of 12th Street, to Cudia City Wash, near 40th Street. This part of channel was added in response to a local request to provide flood protection through this reach after the occurrence of a severe flood on Cudia City Wash and neighboring smaller washes in June of 1972. That flood caused about \$4.0 million in economic losses (1972 dollars) by damaging 2,600 homes, 15 apartments and other property. The channel extension was added, after appropriate studies, under the Chief of Engineers authority for post-authorization changes.

Opposition to Reach 4 first surfaced about 1982. At that time, we made an economic determination that the channel should be covered through the Arizona Biltmore Estates, and we believed that this determination had resolved most of the issue. The more recent upsurge of opposition has shown the issue to not be completely resolved.

The Phoenix City Council recognizes the need for flood control of the washes that would be controlled by Reach 4. However, responding to the concerns of the opposition, the Council has established a citizens committee to review alternatives for providing the necessary flood control. The committee is now in operation, is holding weekly meetings and has scheduled a series of public hearings. The committee has 11 members and appears to have a good mix of opponents, proponents and members with a neutral opinion with regard to the presently proposed design of Reach 4. Technical support for the committee is being provided by Phoenix city staff, the Flood Control District of Maricopa County (the local sponsor for the Phoenix and Vicinity project) and the Los Angeles District of the Corps of Engineers. The current schedule calls for the committee to complete its work and report to the City Council by the end of September. The committee has latitude to support Reach 4 as presently designed or to recommend some other alternative. The following responses are keyed numerically to the issues raised in your letter:

1. The Los Angeles District can provide a new cost-benefit ratio analysis for Reach 4 by end of Fiscal Year 1986. Work will commence October 1, 1985, with FY 1986 funds. The new economic analysis will also require conducting basic hydrologic and hydraulic analysis to reflect current conditions.

2. The esthetic treatment concepts being developed are based on buffering and softening the hard, linear geometric form of the channel. The plans are designed to integrate the channel, insofar as possible, into the urban neighborhoods through which it passes. Reach 4 extends from Dreamy Draw Wash (west of 12th Street) to Cudia City Wash (west of 40th Street). It is approximately 4.2 miles long, of which about 4,580 feet will be covered. The covered portion will eliminate the need for esthetic design since the area will be restored, essentially, to its original condition. The remaining portion will be a rectangular concrete channel, varying in width from 36' to 50', and approximately 22' deep. The esthetic design concepts for Reach 4 consist of two major design elements:

- (1) Landscaping the strips of land bordering the channel; and
- (2) Architectural enhancement of the channel structure.

I. LANDSCAPE DESIGN - PLANTING

Landscaping along the strips of land adjacent to the ACDC is necessary to control soil erosion and lessen the project's visual impact. Where practical, vegetation existing along the project alignment will be saved. Landscaping is planned for both the north and south sides of the ACDC. The northern border of the channel alignment adjoins housing developments, schools, and commercial/industrial establishments. The landscaping will buffer views of the channel from these urban neighborhoods. Where sufficient project land remains following channel construction, landscaped nodes will be built to help divert views away from the concrete channel. The south side of the ACDC is adjacent to the Salt River Project (SRP) embankment. Landscaping along this strip will alleviate the visual impact of cut slopes as seen from the north. Plantings will provide a buffer between the channel and the maintenance road/trail system, enhancing the recreational experience of trail users. On both sides of the ACDC, the landscaping will break the visual monotony of the linear concrete channel. Two different planting design concepts have been developed in response to variations in esthetic-treatment requirements and available rights-of-way. The "Moderate-Visibility" design concept is employed along most of the ACDC alignment; the "High-Visibility" concept is used only in the areas with the most severe visual impacts.

A. Moderate-Visibility Landscaping. This design concept is used between the ACDC and the Arizona Canal along the cut slopes adjacent to the existing Sun Circle Trail along the Arizona Canal and also on those stretches along the north side of the channel where exposure of the ACDC is lowest. An

assemblage of low-water demanding, cultivated plants will be installed to provide varying colors, textures, and heights which will break up the hard, linear form of the channel. The cut slopes will be hydroseeded with ground cover plants and irrigated. The plantings will not only subdue the visual impact of the cut slopes on both sides of the channel, but also will control soil erosion. Where space is available, the cut slopes on the north side also will be graded to create an undulating appearance which will provide additional visual relief. Trees, shrubs, and ground covers were selected for their ability to stabilize the slope, ease of maintenance, and low-water requirements.

B. High-Visibility Landscaping. This design concept aims to enhance project esthetics in the spots where the ACDC is most exposed; the need is greatest on the north side of the channel. More extensive esthetic treatment is proposed for these critically visible places: residential areas facing the channel, busy intersections, and the Metro Center retail complex. These planting plans consist of a selection of low- and moderate-water demanding trees, shrubs, vines and ground covers designed to furnish a wide range of colors, textures and heights. No land was acquired specifically for mitigation of esthetic impacts, but since the width of the project's right-of-way varies, construction of the channel will leave some excess parcels of land too small to resell. Where possible, this higher-density landscaping scheme will be used as a buffer between the channel and visually-sensitive neighboring areas. At selected locations and some street crossings, the leftover rights-of-way are wide enough to allow development of landscaped nodes. These nodes will accentuate and enhance the visual quality of these areas, divert views from the channel and provide counterpoint to the channel's linear geometry. Where enough land is available, the landscaped nodes will be graded to obtain topographic variety. Small earth mounds have been designed to provide a more esthetically-pleasing environment. The grading treatments of the cut slopes described above also will be used, as space permits, in the high-visibility areas. As in all of the landscaping plans, the criteria for plant selection were the plants' ability to control erosion and to minimize requirements for maintenance and water.

II. ARCHITECTURAL AESTHETIC TREATMENTS

Enhanced architectural treatments will be employed either where the available rights-of-way are insufficient to develop landscaping adequate to mask areas of high visibility or in conjunction with landscaped nodes. Three types of structural enhancements are planned in Reach 4 to reduce the project's esthetic impact: a) channel tinting and/or graphic design; b) esthetic safety fences; and c) other textural features. Innovative architectural use of the limited available rights-of-way is planned in order to provide maximum visual relief from the monotonous concrete channel while enhancing simultaneously the recreational experience of trail users.

A. Channel Tinting and/or Graphic Design. The ACDC at intersections of major streets and selected other exposed reaches of the project. These will add visual interest and diminish the massive scale of the concrete channel. Two different methods will be employed to achieve this effect:

- 1) The application of graphics based on Indian motifs; and
- 2) The incorporation into the structure of a light tan tint. The graphics will be applied by stencils; the designs will emulate glyphs and other motifs appropriate to the desert Southwest. Concrete stains will be applied to obtain the darker colors needed in the graphic design patterns. Tinting the channel walls will be accomplished by means of an integral color-concrete mix, or by staining, and will create a mellower, earth-tone channel appearance by reducing reflection and glare. These methods have been employed successfully by the Arizona Department of Transportation on the Hohokam Expressway and by the Los Angeles District on the inlet works at Indian Bend Wash.

B. Esthetic Safety Fences. A standard, galvanized-steel chain-link fence was planned for both sides of the channel for safety and security reasons. However, at highly visible locations, chain-link fence will be inappropriate for the purposes of improving the ACDC's visual impacts. We are now planning to replace at least some sections of the chain-link fence with more esthetic safety fencing constructed from such architectural materials as square tubular steel. These fences will be designed to provide safety barriers which are more esthetically-pleasing while retaining views into the channel necessary for emergency flood control observation.

C. Other Textural Features. Within the landscaped nodes developed at some locations, other architectural enhancements will be used to reduce the visual impact of the ACDC. These will include walls of differing heights which will function as visual-relief barriers. Some landscaped areas also will incorporate pavement, stonework or other hard multiple-use surfaces designed to add textural variety to the project. This textural relief will result from finishing the concrete surfaces with any of the following methods: exposed aggregate, stamped patterns, brooming, etc.

The following is an itemized estimate of the esthetic design costs for Reach 4 of the ACDC:

REACH 4

LANDSCAPING

Trees	990 x \$110.00	= \$109,000.00
Shrubs	4467 x \$ 30.00	= \$134,000.00

ESTHETIC FENCE	11800' \$14.10	= \$166,000.00
(Tubular Steel 2" posts 6' High) - Chainlink		

CHANNEL COLORING & GRAPHICS

Integral Mix 13,680 cy x 33.60/cy	= \$460,000.00
Stain 57,500 x \$. 60 S.F.	= \$ 35,000.00
Pictographs 336 x 100	= \$ 34,000.00

EROSION CONTROL

Native Vegetation (Hydroseeded) \$.10 S.F.	= \$ 38,000.00
Decomposed Granite 720 cy \$33.00 c.y.	= \$ 24,000.00
	<u>\$1,000,000.00</u>

The above mentioned esthetic design concepts were a result of public workshops, each held at a different location affected by the project, so that local residents could express their concerns. The cost of the esthetic measures is about 1.5 percent of the estimated cost of construction and rights-of-way for Reach 4. In addition, a special esthetic design task force, composed of landscape architects representing local interests and the Corps of Engineers was established to review individual elements of the plan. The design which emerged from these discussions is based on the concept of relieving the monotonous linear geometric appearance of the project features through the use of varying forms, colors and textures without acquiring additional rights-of-way for esthetics.

3. One principal public concern with regard to the ACDC is that someone may fall into the 20 to 24 feet high, concrete, vertical-walled channel. The concern is a reasonable one, however, the danger can easily be exaggerated. Security fencing has been an integral part of ACDC design for safety reasons. From a series of local workshops and coordination with the Phoenix City Council; however, we learned that chain-link fencing, which the Corps normally uses, is esthetically distasteful to the local residents. Investigating other types of fencing, we have learned that metal, simulated wrought iron fencing, although more expensive, is not only more esthetically acceptable, it is more secure because it is more difficult to climb. We plan to recommend this type of fencing at highly visible areas. No one will be able to fall into the channel without first climbing the fence. Anyone climbing the fence will have to be quite strong and agile. With this physical ability, they would probably not fall into the channel if they successfully climb the fence, unless they commit some additional foolhardy act. Obviously we cannot state categorically that no one will ever fall into the channel. We do feel, however, that the likelihood is small.

4. Elimination of Reach 4 as a part of the ACDC would have no effect on the ability of the rest of the channel to function as designed. Without alternative flood control of the major washes in Reach 4, the area below the Arizona Canal would remain vulnerable to serious flooding such as that which occurred in June of 1972, in which 2,600 homes were damaged. If a local decision is made to reject Reach 4 as presently designed, a decision would have to be made whether or not to downsize remaining portions of the channel.

Unless a viable alternative with a strong chance of implementation is identified, downsizing might not be wise because it would preempt a future decision to implement Reach 4 as designed should local opinion be changed by a recurrence of a flood event similar to 1972.

5. Changed physical conditions or public support can lead to a review at any time in the course of a project. If the approved plan is not presently acceptable, then study of other alternatives can be undertaken. This will generally cause delays in implementing a solution, and invariably there will be the impact of increased cost. However, this may be acceptable in order to provide full opportunity for public participation and decision making. From a technical viewpoint, we believe the plan formulation process has so far produced the best solution to the flooding problem that can be attained.

I hope this information will prove useful to you and the subcommittee. A copy of this reply is being forwarded to your local office, and to the Department of the Army, Civil Works.

Sincerely,

Dennis F. Butler
Colonel, Corps of Engineers
District Engineer

CF:
~~MGR~~
CDR
SPLED
SPLED-D
SPLED-DM (2)
SPLPD
SPLPD-W (Hopkins)
SPLDE-AN
SPDED



BUTLER
SPLED
363
DOUBY 8/1
SPLED

ARNO 7/2
SPLED 12A

KOPLIN
SPLED



ENSON
SPLED
7/8 8/1

HOOPER
SPLPD-1
W 8/8 8/1

HALL
SPLED-D

526 8/8
LUTZ

SPLED-D
X2754/100

ELDON RUDD
4TH DISTRICT, ARIZONA

COMMITTEE ON APPROPRIATIONS

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(602) 241-2801

Congress of the United States
House of Representatives
Washington, DC 20515

July 22, 1985

Colonel Fred D. Butler
District Engineer
U. S. Army Corps of Engineers
300 N. Los Angeles Street
Los Angeles, CA. 90012-3375

Dear Colonel Butler,

Of great concern to me, is the ever-increasing opposition to construction of the Reach 4 portion of the Arizona Canal Diversion Channel, as part of the Phoenix, Arizona and Vicinity (including New River) Flood Control Project.

A number of issues have been raised with regard to the Reach 4 segment, and I am respectfully requesting that you provide me with the following information:

1. A new cost-benefit ratio analysis, using current Federal guidelines and policy directives, for Reach 4 (contained in the FY86 Energy and Water Appropriations Subcommittee Report is a directive to conduct such an undertaking - express Report language is enclosed for your reference);
2. What steps are being taken to enhance the aesthetics of the ACDC, and what are the projected increased costs of such improvements;
3. What steps are being taken to enhance the safety features of the ACDC to avoid injury and possible loss of life to humans or animals;
4. What impact would a possible re-routing or elimination of the Reach 4 portion have on the ACDC and the project as a whole;
5. Any other existing or future consideration which would help justify continuing construction and planning as originally conceptualized.

Your kind attention to this matter is greatly appreciated. Please let me know when I might expect the above-requested information.

With every good wish,

Sincerely,

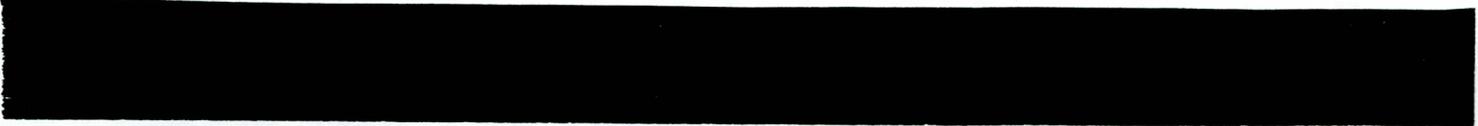


Eldon Rudd
Member of Congress

ER:dd

FY86 Mark-up, House Appropriations Subcommittee for Energy and Water Development:

The Committee directs that the U. S. Army Corps of Engineers conduct a cost-benefit ratio analysis, using current Federal guidelines and policy directives, of that portion of the Phoenix, Arizona and Vicinity (including New River) Flood Control Project known as Reach 4 from Dreamy Draw to Cudia City Wash, and provide this analysis to the Committee for its review.



ELDON RUDD
4TH DISTRICT, ARIZONA

COMMITTEE ON APPROPRIATIONS

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House of Representatives
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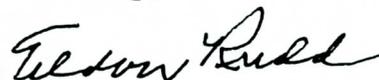
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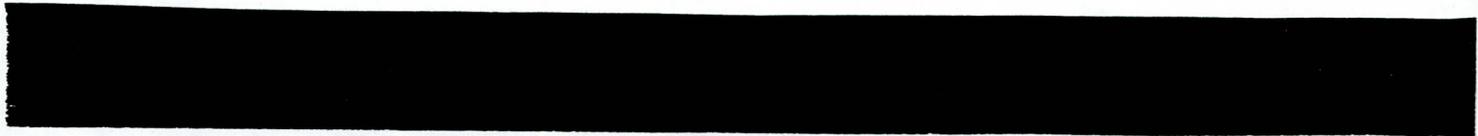




EXHIBIT T

July 9, 1985

Office of the Chief
Design Branch

Mr. Dan Sagramoso
Chief Engineer
Maricopa County Flood Control District
3335 West Durango Street
Phoenix, Arizona 85009

Dear Mr. Sagramoso:

This is in reply to your call to me on June 19, 1985 requesting a statement on the necessity for a resolution from the city of Phoenix supporting the Arizona Canal Diversion Channel (ACDC).

The only formal requirement we have to initiate construction is for a local cooperation agreement to be signed by the local sponsor, the Flood Control District of Maricopa County. The agreement for this project was signed in 1977. Beyond that there is no requirement, either by regulation or written policy, for any resolutions by Maricopa County, the city of Phoenix or any other entity.

However, it is customary for us to request resolutions of support from local sponsors and other political entities impacted by our projects. The resolutions are then used to demonstrate support for the projects. Frequently funding is provided only after such resolutions are received. Occasionally resolutions are used to formalize the local sponsor's position on an issue.

The ACDC project benefits primarily the city of Phoenix. The city also carries the burden of impacts of the ACDC. A resolution of support for the entire project by the city of Phoenix was last provided in 1974. The City Council was asked to provide a current resolution on the ACDC in part to alert them to the start of this very significant project and in part to assess the current Council's position on the channel. As a result of our request the Council has passed a resolution of support for reaches 1, 2 and 3, and has deferred a decision on Reach 4.

Strictly speaking, we need nothing further from the city or the Flood Control District to continue and construct all of the ACDC. On the other hand, should the city of Phoenix take a stand against any portion of the ACDC, it will be very difficult to obtain funding to construct that portion. I don't believe that is true for the other cities impacted by the project. They receive very little in direct benefit from the ACDC, but basically have accepted the project as necessary for the common good.

I hope this letter clarifies the situation regarding the ACDC. If I can be of further assistance or can elaborate on any of these points, please don't hesitate to call me.

Sincerely,

Dennis F. Butler
Colonel, Corps of Engineers
District Engineer

CF:
SPLED
SPLED-D
SPLED-DM
CDR
M&R
SPLPD
SPLOC

~~BT~~
BUTLER
SPLDE

WAGNER
SPLEE-C

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TEMME
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ARNO
SPLED

REK 7/16
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HALL
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SEL 7/15
LUTZ
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