

LEE QUAAS - Preliminary copy

KARAN

# GILA DRAIN PROJECT

## WESTERN CANAL ALTERNATIVE DEVELOPMENT REPORT

GILA DRAIN ALTERNATIVES  
TASK FORCE COMMITTEE

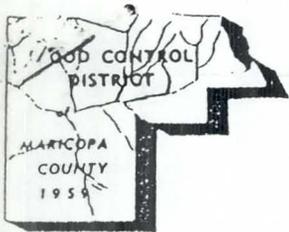
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LEE QUAAS  
HERB MATTINGLY  
HARRY KENT  
DWAYNE WILLIAMS  
ARCHIE FERGUSON

CITY OF TEMPE  
SALT RIVER PROJECT  
CITY OF MESA  
CITY OF PHOENIX  
CITY OF CHANDLER

APRIL 1983

A660.901



FLOOD CONTROL DISTRICT of Maricopa County

Interoffice Memorandum

CMT NO.	SUBJECT: <b>Gila Drain Project</b>	<input type="checkbox"/> FILE _____ <input type="checkbox"/> DESTROY
	TO: <b>For The Record</b>  FROM: <b>Sid Brase</b>  A meeting was held at the Flood Control District office on June 10, 1983. A list of those in attendance is attached.  The purpose of the meeting was to discuss the Gila Drain alternate plan prepared by a Task Force consisting of representatives of the cities of Tempe, Mesa, Phoenix, and Chandler plus a representative of the Salt River Project.  Dan Sagramoso reported that during the last month the District had met with the Gila River Farm Board and proposed a series of retention basins in the present Gila River Drain R/W. The intent being that perhaps the Indian Community could use the flows in the Gila Drain for agricultural irrigation purposes.  The Farm Board recommended we meet with the Gila River Indian Community National Resources Committee. On June 7, 1983 the District did meet with the committee and informed the committee of the alternate plan to pump back stormwater to the Salt River. The resources committee recommended that their staff look into the matter of retention immediately. The District also informed the committee that the Task Force as previously mentioned was demanding action <u>now</u> .  Dan Sagramoso suggested that the Borrow Pit plan developed by the City of Tempe be separated from the Gila Drain project and that the City of Tempe should proceed with the plan. Dan recommended that Tempe and the District share the cost and that Tempe operate and maintain the project when completed.  After hearing from various members of the committee, it was recommended that we proceed with the alternate plan and proceed as follows:  <ol style="list-style-type: none"><li>1. The District will prepare a scope of work that will generally follow the plan as set forth by the Task Force but may be expanded to provide more benefits for the cities of Chandler and Gilbert.</li><li>2. A draft of the scope of work will be provided all committee members no later than June 24, 1983.</li><li>3. A meeting is scheduled to be held at the District office at 9:00 AM on July 12, 1983 to finalize the scope of work.</li><li>4. A consultant will be selected to further develop the alternate plan, prepare a preliminary design and project costs.</li></ol>	DATE: <b>June 15, 1983</b>



FLOOD CONTROL DISTRICT of Maricopa County

Interoffice Memorandum

CMT NO.	SUBJECT: Gila Drain Project <u>Page 2</u>	<input type="checkbox"/> FILE _____ <input type="checkbox"/> DESTROY _____
	TO: Memo for the Record  FROM: Sid Brase  It was noted that the Salt River Project Board has not approved the Task Force plan and according to Herb Mattingly (Salt River Project), their board cannot act on the matter until the month of August 1983.  It was generally agreed that this project be given top priority.  <i>Sid Brase</i> Sid Brase Project Engineer  <u>Copies to:</u> Rich Hoppe - Gilbert Harry Kent - Mesa Marvin Sheldon - ADOT Lee Quaas - Tempe Dwayne Williams - Phoenix Herb Mattingly - SRP Archie Ferguson - Chandler  <i>Enclosure</i>	DATE: June 15, 1983  CO: INFO: NPK TJL SLS DRJ DES RJM EOK RCP JEB

DRAFT

GILA DRAIN PROJECT

WESTERN CANAL ALTERNATIVES  
SCOPE OF WORK FOR CONSULTANT

Design will provide facilities for disposal of retained runoff and additional uncontrolled floodwaters entering the Salt River Project's western canal. The design will not include the collection facilities. The communities of Tempe, Mesa, Chandler, Gilbert and Phoenix will have the responsibility of providing their own collection facilities.

Consultant to further develop the Western Canal Alternative prepared by the Task Force Committee dated April 1983.

The following information shall be made available to the Consultant:

1. Corps of Engineers Report
2. Coe and Van Loo Report
3. Western Canal Report
4. Hydrology prepared by the Flood Control District.

## PHASE I

Phase I shall consist of further developing the Western Canal Alternative.

1. Determination of location and capacity of existing and future retention basins in each community.
2. Determination of discharge points from cities of Tempe, Mesa, Chandler and Gilbert into Salt River Project Canal system.
3. Consultation with each member organization of the Gila Drain Committee to determine their stormwater disposal requirements.
4. Determination of Salt River Project requirements procedures for emptying retention basins into the Western Canal.
5. Determination of number and location of discharge and pump back routes to the Salt River.
6. Exclude the Arizona Department of Transportation borrow pit portion of the Western Canal Alternative.
7. Preparation of report - including description of all alternatives, together with summary concerning Operations and Maintenance requirements and a cost estimate.

## PHASE II

Phase II shall consist of Preliminary Design including the following:

1. Preliminary Plans
2. Recommendation for construction priority.

3. Cost Estimate
4. Right-of-way map, including existing and required rights-of-way
5. Maps, documentation, data and report

#### PHASE III

Phase III shall consist of Final Design, including the following:

1. Final construction plans
2. Construction specifications and special provisions, bid schedule for each recommended construction priority.
3. Construction cost estimate.

#### TIME FRAME

PHASE I - 3 months  
PHASE II - 3 months  
PHASE III - 2 months

Prepared by the Flood Control District 6/14/83

Copies to: Mr. Marvin Sheldon, Az. Dept. of Transportation; Mr. Dwayne Williams, City of Phoenix Engineering Dept; Mr. Harry Kent, City of Mesa; Mr. Rich Hoppe, Town of Gilbert; Mr. Lee Quaas, City of Tempe; Mr. Archie Ferguson, City of Chandler; Mr. Herb Mattingly, Salt River Project

April 26, 1983

Maricopa County Flood Control District  
3335 West Durango Street  
Phoenix, Arizona 85009

Att: Mr. Sid Brase, Project Engineer  
Gila Drain Project

RE: Gila Drain Alternatives Task Force  
Committee Report

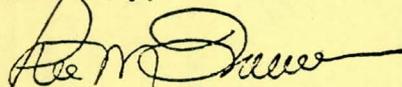
Gentlemen:

This report is the result of the five month effort of the Task Force Committee to develop, evaluate, and recommend a proposed timely alternate to the Current Gila Drain Enlargement Project that was planned as a result of the 1979 Coe and Van Loo Preliminary Design Report.

Task Force members representing Mesa, Tempe, Phoenix, Chandler, and the Salt River Project studied several variations on the general Western Canal alternative and now recommend the project as shown within the report. With merely a timing shift in the funding already planned by Gila Drain Committee Members, it appears the Gila Drain alternate solution could be in place in less than two years.

All members represented on the Task Force support this alternative and are committed to cooperating with the Flood Control District in pursuing completion of this project. Although the bulk of the work for this Task Force is now complete, we stand ready to assist again, if you so wish.

Sincerely,



Lee Quaas, P.E.  
Alternatives Task Force  
Committee Chairman

LMQ:rb

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5.4	Appendix D - Alternative Preliminary Cost Estimate.	

## 1.0 INTRODUCTION

### 1.1 Project History

The Gila Drain Project was evaluated by the Corps of Engineers and the Soil Conservation Service in the late 60's and early 70's but rejected because of an insufficient cost/benefit ratio.

The East Valley Cities of Tempe, Mesa, Chandler and Gilbert as well as the Salt River Project realized the critical value of developing a storm water outlet and in 1979 asked the Maricopa County Flood Control District to act as lead agency in developing this regional flood protection project. A preliminary design report was completed by Coe and Van Loo in 1979 recommending an \$11.9 million enlargement of the existing Gila Drain, along with the development of the ADOT Borrow Pit and Diversion Channel at I-10 Freeway. (See Exhibit A). Due to Gila River Indian Community concern over additional right of way requirements and increased flows in the St. Johns area, there has been no meaningful progress toward completion of the project since 1979.

### 1.2 Purpose of Report

In December of 1982 the Cities of Tempe, Mesa, and Chandler along with the Salt River Project saw increased development and consequent runoff becoming critical and realized that a more expedient alternative to the Gila Drain enlargement must be developed. The Gila Drain Task Force was formed to develop, evaluate, and propose a workable, timely alternative Gila Drain Project that avoided lengthy delays associated with Gila Drain Enlargement.

### 1.3 Study Approach

A series of three meetings were held between technical-management staff members from Tempe, Mesa, Phoenix, and the Salt River Project. Each entity provided technical input as well as indications of need for, as well as interest in, this alternative project. An initial alternative project utilizing the Western Canal as an outlet with a 32nd Street release point to the Salt River was evaluated from a technical, economic, and legal standpoint.

*Note: Aoreo statement that design phase evaluate water quality control consens.*

The finally refined Western Canal Alternative Gila Drain Project is now recommended to the Maricopa County Flood Control District and the full Gila Drain Project Committee.

## 2.0 RECOMMENDED ALTERNATIVE PROJECT AND CONCLUSIONS

### 2.1 Western Canal Alternative

The Western Canal would be used to transport storm water from the City of Mesa retention basin at Price Road plus other possible excess water entering the canal from Tempe, Gilbert, or Chandler to outlets into the Tempe and Phoenix storm drain systems for final transport to the Salt River (See Exhibit B).

### 2.2 South Tempe Retention and Pump Back

In lieu of an enlarged Gila Drain to accommodate a 600 cfs. release at the Western Canal and then the additional 200 cfs. Tempe arterial street runoff, this alternative would pipe the Gila Drain through Tempe to accommodate the 200 cfs. plus the originally allowed 75 cfs. agricultural runoff to a large retention basin at Knox Road adjacent to the Gila Drain. Only 75 cfs. would be allowed to pass Knox Road during the storm or to be pumped back into the drain after the storm. As a contingency, the retention basin could be pumped back to the Western Canal or to a Tempe Storm Drain at Kyrene Road and Guadalupe Road (See Exhibit B).

### 2.3 ADOT Borrow Pit and Diversion Channel

The ADOT Borrow Pit and Diversion Channel portion of the original Gila Drain Project would remain the same for this alternative to control the flows from I-10 Right of Way as well as Maricopa County and City of Phoenix jurisdictions west of I-10 between Guadalupe Road and Warner Road (See Exhibit B).

### 2.4 Conclusions

Although this Task Force was not to perform any project design or detailed project development, very preliminary feasibility analysis was made to assure this to be a viable alternative. The following conclusions were made:

2.4.1 The Western Canal Alternative Gila Drain Project is

less costly than the Original Gila Drain Project (1979) (See Exhibit C).

2.4.2 The Western Canal Alternative Gila Drain Project can be built expeditiously because it requires very little additional Right of Way and has the committment of all entities involved. The essential cooperation of the Salt River Project and the City of Phoenix has been indicated in developing this regional project. (See Appendix A).

2.4.3 The Western Canal Alternative would not face legitimate legal challenges relative to water rights. (See Appendix B).

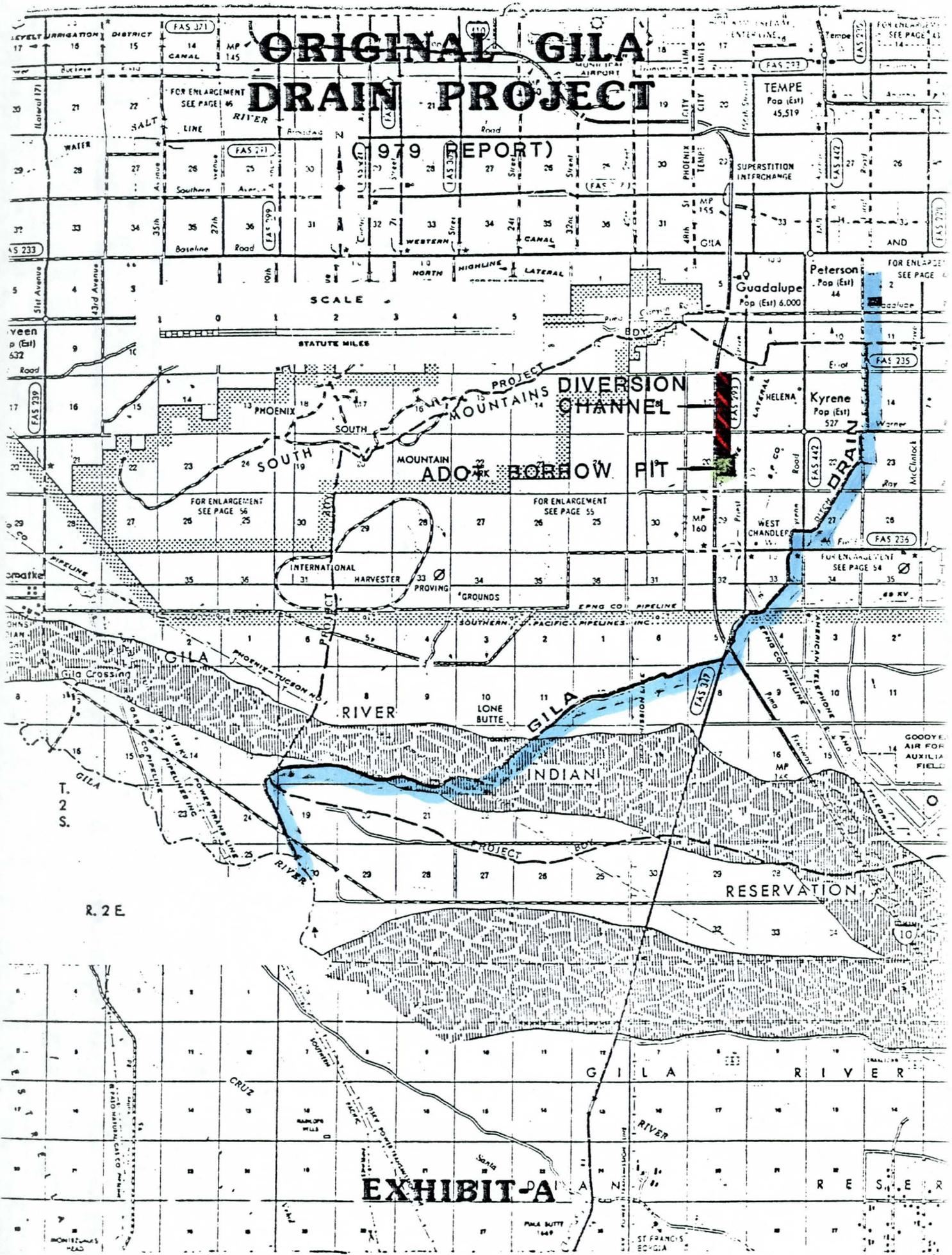
### 3.0 RECOMMENDED IMPLEMENTATION PLAN

To achieve the goal of a timely project, the Maricopa County Flood Control District should take the lead to manage final development and completion of the alternative. Essential steps would be:

- 3.1 Presentation of the alternative by committee members to all governing bodies to update and confirm cooperation as well as support during the month of May.
- 3.2 Meeting of the full Gila Drain Committee by June to commit to the project and request modification of the 1983-84 MCFCD CIP to include both design and construction monies before July 1, 1983.
- 3.3 Engaging a design consultant in July to complete both preliminary design-concept refinement and final design under one ongoing contract during early FY 83-84 to allow for construction in late FY 83-84 as well as through FY 84-85.
- 3.4 Meet to develop detailed member cost split agreement during the design phase prior to bidding the project.
- 3.5 Completion of the Alternative Project by July of 1985.

# ORIGINAL GILA DRAIN PROJECT

## (1979 REPORT)



### EXHIBIT-A

# PROPOSED GILA DRAIN PROJECT WESTERN CANAL ALTERNATIVE

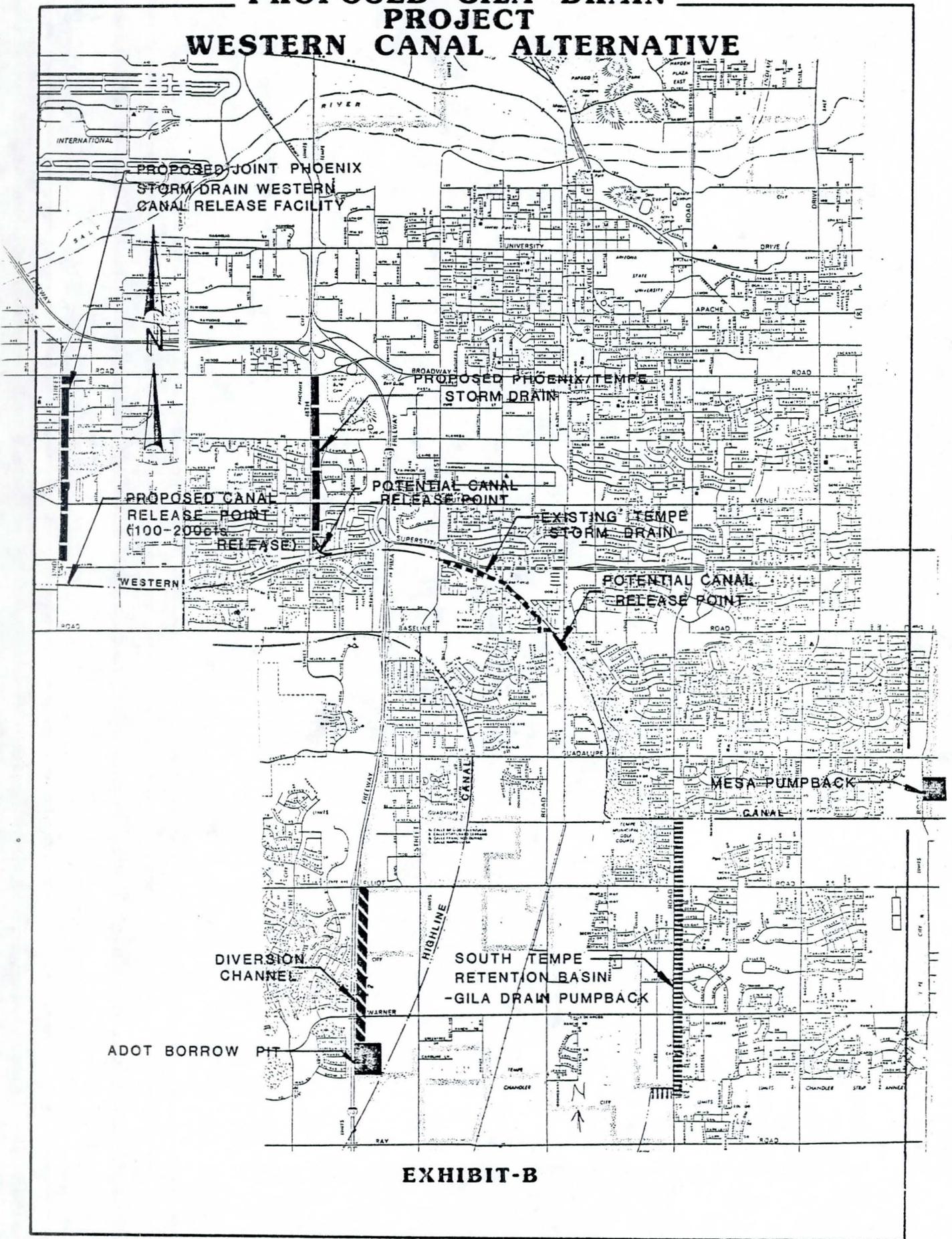


EXHIBIT-B

COMPARATIVE PRELIMINARY ESTIMATES  
GILA DRAIN PROJECT

WESTERN CANAL ALTERNATIVE

WESTERN CANAL PORTION

* 200 cfs Total Release	\$1.7 Million
* 300 cfs Total Release	\$2.2 Million
(200 cfs at 32nd St.)	

SOUTH TEMPE RETENTION PORTION

RECOMMENDED ALTERNATE

Tile Gila Drain for 275 cfs. and Retention Basin with Pump Back to Gila Drain	\$4.5 Million
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Contingency Alternate

Tile Gila Drain for 275 cfs. and Retention Basin with Pump Back to Western Canal	\$5.5 Million
--	---------------

Contingency Alternate

Tile Gila Drain for 275 cfs. and Retention Basin with Pump Back to Kyrene Storm Drain	\$6.0 Million
---	---------------

ADOT BORROW PIT PORTION

Concrete Lined Channel	\$2.0 Million
------------------------	---------------

TOTAL ALTERNATE PROJECT COSTS ..... \$8.2 to \$8.7 Million

ORIGINAL GILA DRAIN PROJECT (1979)

Total Original Cost	
(See Appendix C) .....	\$11.9 Million

APPENDIX A

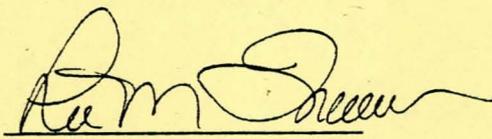
M E M O R A N D U M

TO: GILA DRAIN ALTERNATIVES  
TASK FORCE COMMITTEE MEMBERS

FROM: LEE QUAAS

DATE: JANUARY 3, 1983

Attached are the minutes of our December 20, 1982 meeting. Please note our next meeting to first discuss our individually researched items concerning the alternatives and then begin formulating a feasible plan. (9 a.m. @ Tempe on January 25, 1983).



Lee M. Quaas

LMQ:rb

GILA DRAIN TASK FORCE  
COMMITTEE MEETING - (12-20-82)  
(9 AM @ City of Tempe)

AGENDA

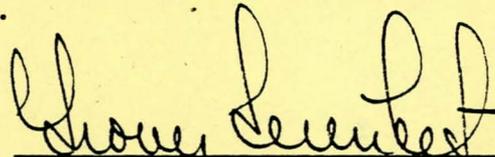
- I. Introduction
  - Welcome, Introduction of Committee members, and preliminary review of Agenda. (time schedule).
- II. Purpose
  - To explore each entity's interest, need and concerns as well as share individual technical input to the potential new concept to the Gila Drain Project.
- III. History of Project
  - A. Brief History of Current Concept
  - B. Recent development of new Western Canal - Salt River Outlet Concept. (Exhibit).
- IV. Review Entity Needs
  - Comment by each member
- V. Discussion of Concept Details
  - A. Western Canal as outlet
  - B. 32nd Street to Salt River
  - C. Development of existing Gila Drain North of Reservation (75 cfs.)
  - D. South Branch of Western Canal (Kyrene)
  - E. North Branch of Western Canal
  - F. Possible 42" Storm Drain Outlet at Guadalupe
  - G. Potential reversal of Highline flow
- VI. Summarize
  - A. Results of meeting
  - B. Plan for possible future meeting
  - C. Assignment of any necessary research

M E M O R A N D U M

To: City Engineer  
From: Public Works Director  
Date: December 17, 1982  
Subject: Gila Drain Task Force Committee

Please include the following in the list of items to be explored by the Committee. These are all based on the premise that SRP would be able to dump the Western Canal into the Salt River and that the Canal could be used to transport storm water to the Salt River after the storm.

1. Utilization of Western Canal after release to the Salt River by Mesa, Chandler, Gilbert and possibly Phoenix and Tempe.
2. Enlargement of existing drain in Rural Rd. between Elliot Rd. and Knox Rd. permitting runoff from Tempe's arterial streets to enter drain with outlet into retention area near Knox Rd. and 71st St. Street runoff to be diverted into retention area with SRP flow (not to exceed 75 cfs) continuing southwestward through existing drain. Following storm, water to be discharged from retention area into:
  - a. Existing drain at maximum rate of 75 cfs.
  - b. South branch of Western (Kyrene) Canal.
  - c. North branch of Western Canal.
  - d. South terminus of existing 42" storm drain at Guadalupe Rd.
4. Tiling existing drain ditch along Rural Rd. from Western Canal to retention area near Knox Rd. & 71st St.
5. Reversal of flow in Highline Canal from Knox Rd. to Highline Pump Line and then east to Western Canal to outlet I-10/Warner Rd. retention area.

  
\_\_\_\_\_  
Grover Serenbetz  
Public Works Director

GRS:bn

Minutes of Gila Drain Alternatives

Task Force Committee Meeting - December 20, 1982

I & II - INTRODUCTION AND PURPOSE

Grover Serenbetz opened the meeting at 9:15 by reviewing past history of Gila Drain Project, describing basic elements of the new Gila Drain-Western Canal Outlet concept, and suggesting plan was for subcommittee to explore details and feasibility of new plan for recommendation and future re-involvement of Maricopa County Flood Control District.

- Mr. Serenbetz left meeting after asking Lee Quaas to chair the ongoing meeting.

III. - HISTORY OF PROJECT

Lee Quaas referred to map exhibit and described new concept as follows:

1. Western Canal serves as outlet to Salt River via proposed outfall facility in 32nd Street corridor.
2. Mesa, Chandler, and Tempe would pump back into the Western Canal from retention basins.
3. Tempe would pursue use of Gila Drain from Western Canal to Knox Road to transport arterial street water to Knox Road Basin to be either (1) pumped back into the Gila Drain after storm or (2) pumped back to Western Canal or into Tempe Storm Drain System at Guadalupe Road.
4. Potentially all entities involved could pump their water north of the GRIC reservation back to the Western Canal.
5. Salt River Project would get needed outfall for their canal and possibly use of City of Tempe retention for Western dump into Gila Drain beyond the original 75 cfs.
6. Gila Drain Diversion Channel and ADOT Borrow Pit Retention is still part of the Gila Drain Project with potential reversal of Highline Canal flow north to a Western Canal outlet.
7. Potential City of Phoenix involvement could be drainage outlet for the Pointe - South Mountain-Guadalupe Basin Area.

IV & V - ENTITY NEEDS AND CONCEPT DETAILS

- Lee asked for each committee members comment on their entity's needs for the project.

1. Archie Ferguson indicated their main problem is viable outlet from their retention basins. Receiving complaints about water standing due to poor dry well percolation. Archie favored the new concept, indicated Chandler was very interested, and that Chandler has ~~engaged~~ engaged a consultant to study their overall drainage scheme. Archie mentioned their valued relationship with the GRIC and said he thought pumping north was realistic.
2. Harry Kent and Wallace Haws spoke to Mesa's needs clarifying that their need is becoming critical as a large portion of the City (S/O Main - East to Greenfield) drains to central basin at Price and the Western Canal - need at least 50 cfs. and preferably 100 cfs outlet pumping ability to Western Canal to clear the ultimate retention. Mesa very interested in pursuing the new concept and have done some detailed thinking of technical alternatives on Western - Canal vs separate pipe etc.
3. Dwayne Williams of City of Phoenix described their interest as informational initially and that Phoenix is willing to cooperate on the project relative to the 32nd Street corridor and possibly joint use of a planned 32nd Street storm drain facility. Dwayne also indicated Phoenix could have some involvement if the South Mountain - Pointe area needs an outlet - relative to the 32nd Street currently planned Phoenix storm drain.
  - A. Currently designed for 2 year storm.
  - B. Ties to existing outlet to river at Broadway and 32nd.
  - C. ADOT very concerned about entrance to river near their Freeway Bridge.
  - D. Phoenix not opposed to change of existing design in 32nd but surface, open channel has some problems such as maintenance - would need flood control maintenance as regional facility.
  - E. Dwayne questioned MCFCD willingness to be involved in 32nd Street facility - comments were that project is regional flood control involving Mesa, Chandler, Tempe, County, Phoenix, SRP, ADOT, etc.

F. Harry Kent asked about South Mountain flow east of 48th - seemed as though these flows are only somewhat retained and potentially would find their way to this Western Canal outlet.

4. Herb Mattingly indicated SRP is very interested in having an outlet and described their need as having a way to outlet the various entity entries to the canal now, plus those proposed. Herb only mentioned the 500-600 cfs number that they had indicated at Gila Drain dump point based on cities storm drains, Motorola, and Tempe water treatment by pass needs. SRP agrees need major outlet Western Canal dumping capacity either to north to Salt or South to Gila - Discussion occurred about potential outlet of ADOT Borrow Pit back to Western - Herb to explore (reversing Highline - Pumphline, etc.) Harry Kent asked Herb about Western Canal Detail:

- A. Increasing Bank Hieght?
- B. Canal lining?
- C. Separate pipe in canal ROW
- D. What happens at dry-up time - potential SRP construction interference
  - Reimbursement
  - Herb commented preliminarily - to follow up further.

- Dwayne Williams mentioned future 48th Street Tempe-Phoenix storm drain and possibility of dump at that location.
- Lee Quaas mentioned possibility of small dump at Guadalupe and Western or other storm drain points as well as some down Gila Drain to Knox Road retention.
- Herb to check with legal department on legal problems of changes in Gila Drain situation, changing water shed outlets (GRIC concern) etc, also to check technical aspects of manipulating canal flows as suggested.
- Mesa to explore watershed change from cities point of view (Water Resources or Flood Control concern) as well as further explore preliminary engineering or technical aspects of the Western Canal corridor.
- Tempe to explore technical and legal aspects of Gila Drain and pump back operations as well as Borrow Pit details - also potential dumps into City of Tempe Storm Drain systems.
- Dwayne Williams to explore Phoenix potential involvement, 32nd Street outlet details, potential 48 Street dump, South Mountain and Guadalupe basin outlet, etc.

VI - SUMMARY

All entities were interested in pursuing this alternate and will report on their research at next meeting (1-25-83 @ 9 a.m. in Tempe) as follows:

1. Chandler - Update on their drainage consultant project relative to this scheme and further confirmation of the feasibility of their potential commitment to this concept.
2. Mesa - Cities view of possible water shed switch legalities, (Water Resource or MCFCD concern) preliminary concept Engineering on Western Canal corridor.
3. Phoenix - Research of South Mountain-Pointe Area flows - details of 32nd Street corridor and facility - further potential dump points in Phoenix.
4. Tempe - Explore technical and legal aspects of Gila Drain between Western and Knox - Update on Borrow Pit details - Preliminary concept Engineering costs, and time estimates - Potential dumps into Tempe system.
5. SRP - To explore legal aspects of possible watershed change (GRIC etc.) pumpback into Gila Drain at 75 cfs. piping potential of Gila Drain, precipitation of preliminary Western Canal Dumping "Q" need etc.

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Lee Quaas, P.E.

LMQ:rb

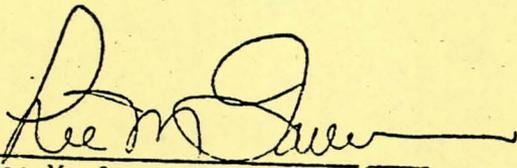
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TO: GILA DRAIN ALTERNATIVES  
TASK FORCE COMMITTEE MEMBERS

FROM: LEE QUAAS

DATE: FEBRUARY 7, 1983

Attached are the minutes of our January 25, 1983 meeting. Please note our next meeting to first discuss our more detailed researched items concerning the alternatives, review the legal opinions, and then formulate a feasible plan. (9:00 a.m. at Tempe, March 1, 1983.)

  
Lee M. Quaas

LMQ:ps

GILA DRAIN TASK FORCE  
COMMITTEE MEETING (1-25-83)  
9 AM @ City of Tempe

AGENDA

- I. Introduction
  - A. Review of Concept
  - B. Review of 12-20-82 minutes.
  
- II. Report from Members
  - A. Technical - Legal Aspects Researched
  - C. Comments from Staff or Elected Body -  
Policy Support
  - D. Other Comments
  
- III. Feasibility of Plan
  - A. Consensus of Members
  - B. Proposed Action
    - 1. More Research?
    - 2. Combined Total Recommendation?
    - 3. Future Task Force Meeting

Minutes of Gila Drain Alternatives

Task Force Committee Meeting - January 25, 1983

I. INTRODUCTION

Chairman Lee Quaas opened meeting by referring to map exhibit and reviewed the proposed new concept as follows:

1. Western Canal serves as outlet to Salt River via proposed outfall facility in 32nd Street corridor.
  2. Mesa, Chandler and Tempe would pump back into the Western Canal from retention basins.
  3. Tempe would pursue use of Gila Drain from Western Canal to Knox Road to transport arterial street water to Knox Road Basin to be either (1) pumped back into the Gila Drain after storm or (2) pumped back to Western Canal or into Tempe Storm Drain System at Guadalupe Road.
  4. Potentially all entities involved could pump their water north of the GRIC reservation back to the Western Canal.
  5. Salt River Project would get needed outfall for their canal and possibly use of City of Tempe retention for Western dump into Gila Drain beyond the original 75 cfs.
  6. Gila Drain Diversion Channel and ADOT Borrow Pit Retention is still part of the Gila Drain Project with potential reversal of Highline Canal flow north to a Western Canal outlet.
  7. Potential City of Phoenix involvement could be drainage outlet for the Pointe - South Mountain - Guadalupe Basin Area.
- Lee Quaas added that Tempe has now started the design of Number 6 and expects Phase 1 to be in place a year from now.
- December 20, 1982 minutes were reviewed and Archi requested a change on page 2. Chandler has selected but not engaged a consultant.

## II. REPORT FROM MEMBERS

1. Archie Ferguson indicated that Chandler has medium size retention basins -- would plan to gather them all up and bring them down to low spot adjacent to Gila Drain and pump back north to the Western. Same basic concept as Mesa. Said his council is not aware of this task force but wants a solution to his "no outlet" problem on retention basins.
2. Harry Kent spoke regarding legal questions of moving water from Gila water shed to Salt outlet. He indicated they had referred it to the Municipal Water Users Association Attorney and asked for opinion after receiving Mesa preliminary legal opinion that we would not be harming any Gila water shed lands and therefore should not be facing valid legal claim.
  - Herb Mattingly commented that there is no mechanism for capturing existing Gila Drain runoff so the GRIC never put it to use. Therefore his research would indicate that there should be no valid claim either, but he also is waiting for written legal opinion.
  - Lee Quaas -- We are considering a controlled situation and would be able to either remove more water from drain if they fear flood damage or allow more to flow south if they want to use it.
  - Archie Ferguson wants to know if you can put more than 75 cfs in the Gila Drain. Herb Mattingly indicated that there historically has been no more than 75 cfs allowed. Existing agreement between SPR and GRIC is for 75 cfs maximum.
  - In answer to question from Lee Quaas, Harry indicated possibly half of their water in question is actually Salt water shed water.
  - Dwayne Williams -- Reported that closer review shows Phoenix has 200 cfs plus capacity from Broadway to the River at 32nd and still is willing to work with the rest to possibly use their proposed 32nd Street facility.
  - Dwayne expressed need to proceed cautiously. Suggested that several Western Canal dumps of smaller quantity are preferable, and that open channel is not acceptable.
  - Lee Quaas agreed with need to evaluate legal ramifications and feasibility carefully but hopes to do this with another meeting of this task force with the plan then to go back to the total Gila Drain Committee that includes the flood control district. Mesa also would like to avoid extended delays, additional consultants, etc.

- Lee suggested the likely dump points to use existing entrances to the Salt would be:
  - A. Increased 32nd Street proposed Phoenix facility (outlet existing).
  - B. Possible Baseline and Western connection to Tempe Storm Drain (up to 65 cfs in controlled situation and existing outlet).
  - C. Planned 48th Street Storm Drain -- Phoenix and Tempe facility tie to Tempe Drain Ditch existing outlet.
  
- 3. Harry Kent offered the attached preliminary profile of possible Western Canal bank separate pipe facility from Mesa to 32nd Street saying a 66" pipe would be necessary.
  - Construction problems, etc., of such a pipe suggest the Western Canal itself is a better choice.
  - Herb Mattingly indicated he still needs some Western Canal survey but that it appeared the canal and future irrigation needs would allow the open channel transportation of this excess water--only one slight restriction south of Baseline at RR crossing of Western.
  - Herb and Lee discussed the limited Tempe Storm Drain-SRP tie at Priest Drive that has been approved but not actually put in place (SRP to pursue completion).
  
- 4. Lee Quaas reported that his check with City Attorney also seemed to confirm that this new concept should be palatable to anyone downstream of the Gila Drain through Tempe.
  - Lee then distributed three preliminary concepts for South Tempe to pipe the Gila Drain from the Western Canal to Knox Road, capture the runoff in a large basin and then either pump back into Gila Drain, Western Canal or Guadalupe-Kyrene Storm outlet to the Salt. Preliminary costing indicates the feasibility for Tempe at approximately the same cost as originally budgeted for Gila Drain. (Copy attached).
  - Several questions remain about details of basin, etc., but preliminarily seems feasible (\$3.3 to \$6 million).
  
- 5. After these reports several comments followed, covering:
  - Dwayne commented that 32nd Street facility is designed for 70 cfs and could be increased, if need be.
  - Dwayne suggested a possible diversion channel adjacent to Western to carry this water further west around South Mountain and eventually South to the Gila. Brief discussion seemed to suggest too many difficulties to be feasible.

- Dwayne and Lee confirmed both are still planning to build 48th Street Storm Drain and could recommend to accelerate the project.
- Herb reconfirmed SRP feels their only need to dump is that due to some city storm runoff as well as Motorola Mesa commitment.
- Harry indicated Mesa needs to be able to pump into Western Canal while SRP is delivering their water.

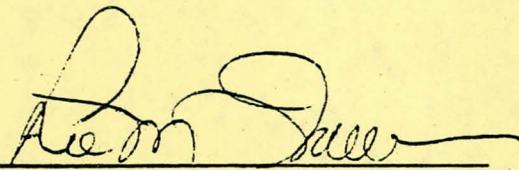
### III. FEASIBILITY OF PLAN AND SUMMARY

In summary all members thought the new concept was feasible and should be pursued further with hope to wrap up legal opinions, add some more Western Canal detail and costs. Detail of concept brought out at this meeting included:

1. General consensus that legal liability should not prevent concept (written opinions to follow from SRP and Mesa).
2. Chandler still very interested and needs to clarify needs and involve Council soon.
3. Phoenix willing to cooperate at 32nd and 48th but suggests avoidance of large single dump and preferred use of existing Salt River entrance due to private ownership of Salt River Bottom.
4. Tempe's alternate South Tempe concepts and costs seem feasible with more detail to follow.
5. SRP now has enough detail of total concept to pursue with upper management and possibly Board of Directors.
6. Tempe will precipitate more detail total concept and costs based on the following:
  - A. Previous South Tempe Q's and costs
  - B. Use of Western Canal and dumps at Baseline, 48th, and 32nd.
  - C. 48th Street and 32nd Street Facility modifications required.
  - D. A 200 cfs total dump need between Price Road and 32nd Street.

IV. FUTURE MEETINGS

- Tentatively set for March 1, 1983, at 9:00 in Tempe.
- Lee Quaas to check the week before with members to assure not premature relative to availability of written opinions as of that date.
- Plan would be that information will be sufficient at this next meeting to make recommendation to total Gila Drain Committee in March.



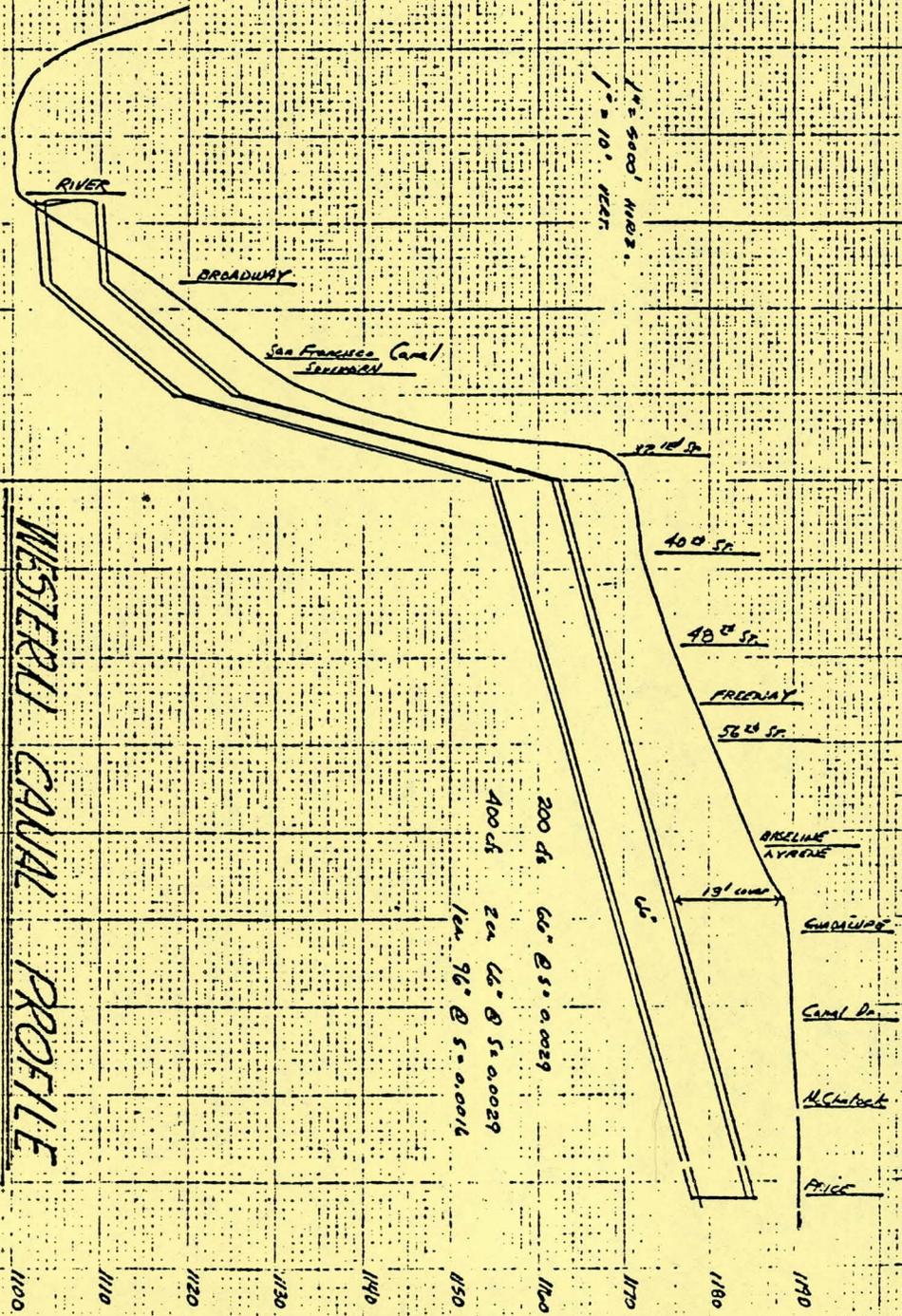
Lee Quaas, P.E.

LMQ:pc

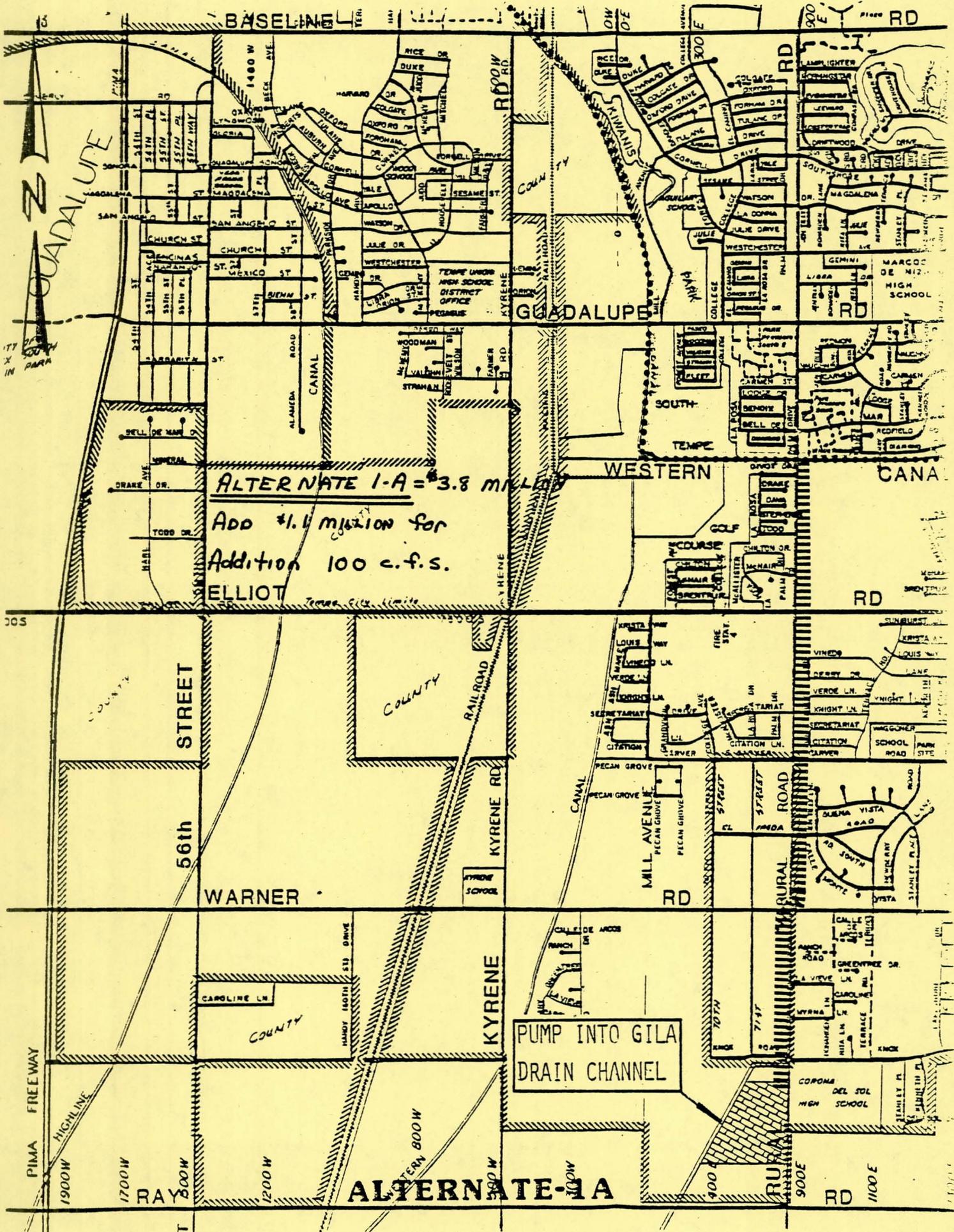
Attach: Preliminary Western Canal Profile  
Preliminary South Tempe Concepts  
List of Members

# WESTERN CANAL PROFILE

DRAWING 1-1-58  
 SEE PLANS ATTACHED



1100  
 1110  
 1120  
 1130  
 1140  
 1150  
 1160  
 1170  
 1180  
 1190



**ALTERNATE 1-A = \$3.8 million**

**Add \$1.1 million for  
Addition 100 c.f.s.**

**ELLIOT**

**PUMP INTO GILA  
DRAIN CHANNEL**

**ALTERNATE-1A**

**GUADALUPE**

**GUADALUPE**

**WESTERN**

**CANA**

**STREET**

**WARNER**

**KYRENE**

**PUMP INTO GILA  
DRAIN CHANNEL**

**ALTERNATE-1A**

**PIMA FREEWAY**

**HIGHLINE**

**1900W**

**1700W**

**RAY 800W**

**1200W**

**WESTERN 800W**

**500W**

**400W**

**900E**

**RD**

**1100E**

**STREET**

**WARNER**

**KYRENE**

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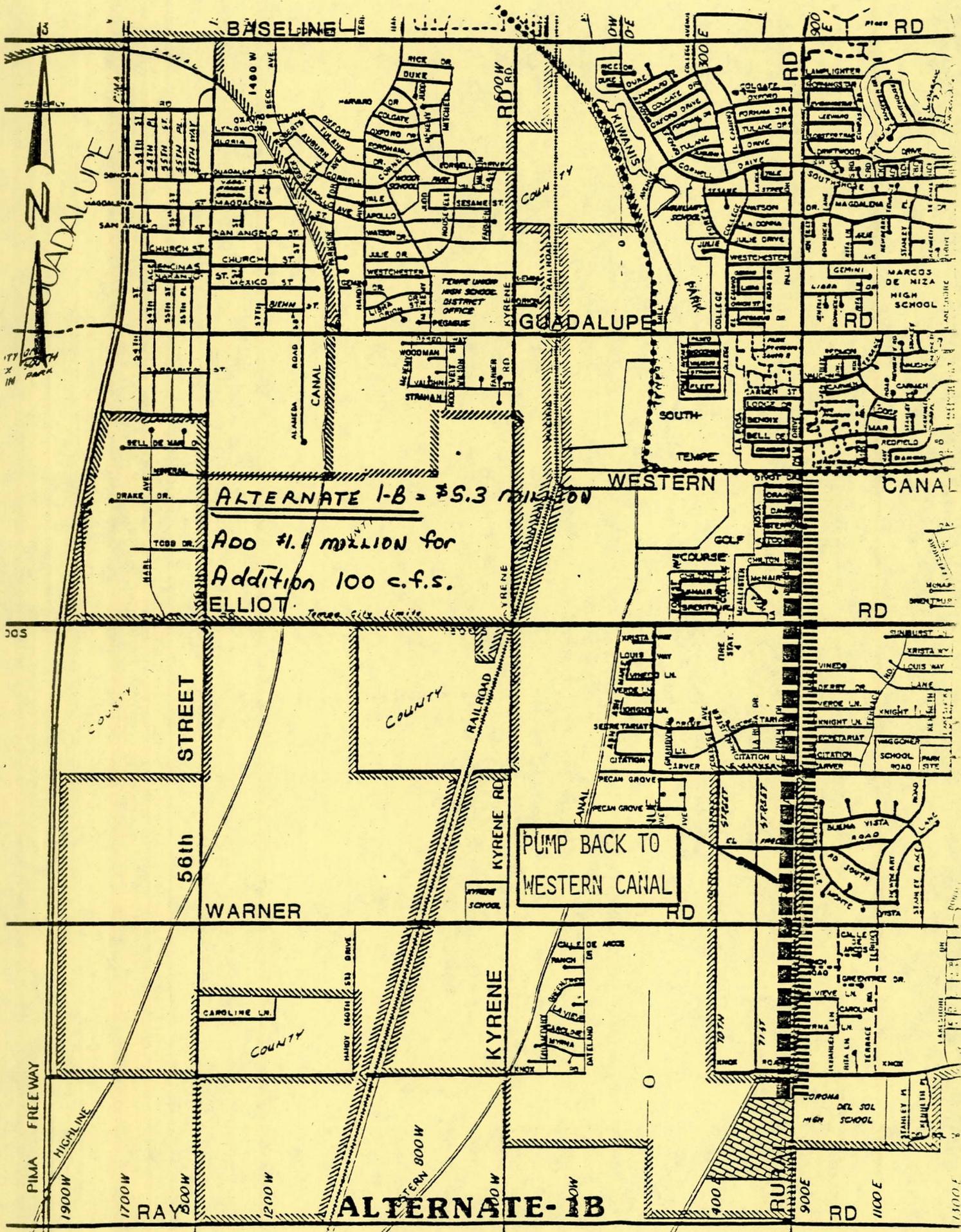
**WARNER**

**KYRENE**

**PUMP INTO GILA  
DRAIN CHANNEL**

**ALTERNATE-1A**

**PIMA FREEWAY**



**ALTERNATE 1-B = \$5.3 MILLION**

**ADD \$1.1 MILLION for  
Addition 100 c.f.s.  
ELLIOT**

**PUMP BACK TO  
WESTERN CANAL**

**ALTERNATE-BB**

PIMA FREEWAY

HIGHLINE

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1700 W

RAY 800 W

1200 W

1000 W

800 W

600 W

400 W

200 W

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COMMITTEE MEMBERS

- |    |                            |          |
|----|----------------------------|----------|
| 1. | Lee Quaas - Tempe          | 968-8200 |
| 2. | Herb Mattingly - SRP       | 273-2521 |
| 3. | Harry Kent - Mesa          | 834-2231 |
| 4. | Wally Haws - Mesa          | 834-2231 |
| 5. | Archie Ferguson - Chandler | 899-9700 |
| 6. | Dwayne Williams - Phoenix  | 256-3441 |

M E M O R A N D U M

To: All Committee Members  
From: Lee Quaas, Chairman  
Date: February 25, 1983  
Subject: Notice of Meeting Change and Update:  
Gila Drain Alternatives Task Force Committee

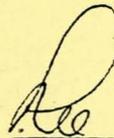
Our tentative next regular meeting of March 1, 1983 at 9:00 has been cancelled and changed to April 12, 1983 at 9:00 in Tempe.

After talking with Herb Mattingly and Harry Kent it appears that the SRP Legal Staff, as well as the Municipal Water Users Association Attorneys, will not be able to render a written opinion concerning the mix of the Salt and Gila watersheds or the effects of the proposed alternative concept on the GRIC before April 1, 1983.

Not only will the meeting delay allow the legal people to complete their work, but also this will give Herb more opportunity to pursue concept review through upper SRP management.

The recent (2-23-82) Maricopa County Flood Control District Citizens Advisory Board Meeting included brief discussion of the Gila Drain Project on their 1983-1988 Capital Improvements Program. Although the 84-88 construction funding schedule is flexible, it would be to this projects' advantage to report our findings and recommendations to MCFCD as soon as possible prior to July 1, 1983. After our April meeting we would hope to go back to the MCFCD as early as May with our recommendation.

One small correction on Page 2 of our 1-25-83 minutes called to my attention by Dwayne Williams is that the City of Phoenix actual entry to the river is west of 2nd Street at approximately 28th Street.



Lee Quaas

LQ:rb

Attach: Copy of MCFCD Preliminary 83-88 CIP

# PRELIMINARY

## SUMMARY, 5 YEAR CAPITAL IMPROVEMENTS PROGRAM

PROJECT NAME	ACTIVITY NO.	PROJECT COSTS FY 83 DOLLARS					TOTAL (\$1000)
		83-84	84-85	85-86	86-87	87-88	
Flood Warning System	6C017S	\$ 61,154	\$ 19,870	\$ 16,253	\$ 16,253	\$ 16,253	\$ 130
City of Mesa	6C024S						
City of Phoenix	6C026S						
Dysart Road-Agua Fria Drain	6C100S	\$ 20,920	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 21
48th Street Drain	6C101S	\$ 26,224	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 26
Old Cross Cut Canal	6C103S						
Salt/Gila Clearing & Channelization	6C105S	\$ 54,939	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 55
Salt/Gila Control Works	6C106S	\$ 1,385,890	\$ 1,034,893	\$ 1,032,798	\$ 1,032,798	\$ 1,029,633	\$ 5,516
Agua Fria River	6C109S	\$ 12,885	\$ 6,715	\$ 7,007	\$ 1,009,543	\$ 1,035,829	\$ 2,072
Agua Fria (ADOT) Agreement	6C110S	\$ 1,405,341	\$ 2,392,930	\$ 1,313,066	\$ -0-	\$ -0-	\$ 5,111
Indian Bend Wash Interceptor & Side Channels	6C114S	\$ 191,320	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 191
Gila Drain	6C115S	\$ 61,030	\$ 2,187,071	\$ 2,473,922	\$ 2,693,922	\$ 2,525,922	\$ 9,942
Arizona Canal Diversion Channel Paradise Valley, Scottsdale, Phoenix Project	6C118S	\$ 13,412,049	\$ 10,635,648	\$ 7,280,632	\$ 11,304,523	\$ 8,893,106	\$ 51,526
RWCD - Williams Chandler	6C120S	\$ 1,117,528	\$ 1,261,961	\$ 6,565	\$ 2,311	\$ 2,311	\$ 2,391
RWCD - Apache Junction/Gilbert	6C121S	\$ 170,222	\$ 582,743	\$ -0-	\$ -0-	\$ -0-	\$ 753
RWCD - Buckhorn Mesa	6C122S	\$ 2,446,694	\$ 1,861,601	\$ 226,916	\$ 152,312	\$ -0-	\$ 4,688
White Tanks Dam #3	6C123S	\$ 1,235,759	\$ 1,299,438	\$ 109,115	\$ -0-	\$ -0-	\$ 2,644
White Tanks Dam #4	6C200S						
McMicken Dam	6C201S						
Signal Butte Floodway	6C202S	\$ 3,424,922	\$ 6,002	\$ -0-	\$ -0-	\$ -0-	\$ 3,431
Pass Mountain FRS & Outlet	6C301S	\$ 367,289	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 367
Apache Jct FRS, Floodway, Outlet & Bulldog Floodway	6C302S	\$ 127,633	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 128
Signal Butte FRS	6C303S	\$ 7,889	\$ 1,114,543	\$ 2,515,607	\$ -0-	\$ -0-	\$ 3,638
Powerline Dam	6C304S	\$ 91,885	\$ -0-	\$ -0-	\$ -0-	\$ -0-	\$ 92
Vineyard Dam	6C310S						
Rittenhouse FRS	6C320S						
Centennial Levee	6C321S						
Adobe Dam	6C333S	\$ 3,148,363	\$ 32,749	\$ 58,877	\$ -0-	\$ -0-	\$ 3,240
New River Dam	6C360S						
Flowage Easements-Skunk Cree	6C370S	\$ 1,879,649	\$ 57,575	\$ 253,548	\$ -0-	\$ -0-	\$ 2,191
New River, Agua Fria	6C400S	\$ 974,420	\$ 3,653,611	\$ 5,664,936	\$ 6,053,532	\$ -0-	\$ 16,346
Flowage Easements-Agua Fria Available for new projects	6C401S	\$ 4,546,723	\$ 7,319,466	\$ 7,111,550	\$ 5,109,368	\$ -0-	\$ 24,087
	6C999S	\$ -0-	\$ (2,814,718)	\$ 2,922,177	\$ 4,425,454	\$ 20,364,910	\$ 24,898
<b>Totals</b>		<b>\$36,170,728</b>	<b>\$30,652,098</b>	<b>\$30,992,969</b>	<b>\$31,800,016</b>	<b>\$33,867,964</b>	<b>\$163,484</b>

AGENDA  
GILA DRAIN ALTERNATIVES  
TASK FORCE COMMITTEE  
MEETING

April 12, 1966

9:00 A.M.

- A. Overall Review of Concept
  - Past meetings and changes since January
- B. Individual Members Concept up date
  - 1. Legal Opinions
    - a. City of Mesa
    - b. Salt River Project
  - 2. Additional Western Canal Gila Drain Alternate costs and feasibility information
    - Tempe
  - 3. Phoenix Update - 32nd South Mountain, 48th Street
  - 4. Chandler Update
    - City Drainage Study and Basin Status
- C. Consensus on Reinvovement of MCFD and Planned Recommendation.

MINUTES OF GILA DRAIN ALTERNATIVES

Task Force Committee Meeting - April 12, 1983

A. INTRODUCTION AND OVERALL REVIEW OF PROJECT

1. Lee Quaas opened the meeting and welcomed Mr. Reggie Swartz from the City of Phoenix who accompanied Committee Member Dwayne Williams. Lee then briefly reviewed the original Gila Drain Project history as well as the new Western Canal alternate concept history. Western Canal alternate concept detail included:
  - a. Western Canal releases into Tempe storm drain system, a near future Phoenix-Tempe joint storm drain, and an up-sized City of Phoenix storm drain - Western Canal release facility in 32nd Street between the Western Canal and Broadway. The existing Phoenix storm drain from Broadway to the Salt River is large enough to accommodate the planned releases.
  - b. The Salt River Project could then allow for some existing storm drain inflow plus the planned approximately 100 cfs. City of Mesa pump out from their City of Mesa-Superstition Freeway Retention Basin East of Price Road.
  - c. SRP would not need a release to the traditional Gila Drain at the Western Canal and Rural Road and the original enlargement of the Gila Drain from the Western Canal to the Gila River would not be necessary (original 600 cfs. Western Canal Dump).
  - d. Tempe would then plan to transport it's approximately 200 cfs. planned inflow to the Gila Drain corridor via the drain only to Knox Road where it would be retained in a large basin with only the originally agreed to 75 cfs being allowed to stay in the drain and to travel on to the Gila Reservation for use there or final delivery to the Gila River. If for some reason the 75 cfs. could not be pumped back into the drain after the storm, it would have to be pumped back to either the Western Canal or to Tempe storm drain at Kyrene and Guadalupe Roads.
  - e. The ADOT Borrow Pit and Diversion Channel portion of the original project would be part of either the Original Gila Drain Enlargement Concept (1979) or this alternative.
2. Lee Quaas then mentioned the Maricopa County Flood Control Districts tentative Five Year Capital Improvements Program that indicates only

design monies in 83-84, with construction monies shown for 1984 thru 1988 based on the old concept. The new Western Canal Alternative Project needs to be presented to the Flood Control District as early as possible to assure opportunity for potential 5 year CIP revision to include earlier construction monies based on the current concept.

B. INDIVIDUAL MEMBERS CONCEPT UPDATE

1. Legal Opinions

- a. Harry Kent of Mesa indicated the requested written opinion has not reached his office by the day of this meeting but will be delivered later this week. In the meantime the Municipal Water Users Association Attorney had verbally given the opinion that possibly taking some Gila River watershed water to the Salt River would not cause a problem unless it were removed from a channel. "Casual Water" that might be diverted could not be claimed by anyone since it has not been quantified in a channel.
- b. Herb Mattingly of SRP indicated that their attorneys had given a similar legal opinion on the potential Gila-Salt watershed mix. Apparently no one can attach a water right to this "casual water". Herb was still hoping for a written opinion also. Herb also indicated SRP Management is ready to go to their governing board when MCFCD becomes reinvolved.

2. Additional Western Canal-Gila Drain Alternative Feasibility Costs and Information.

- a. Lee Quaas spoke to the attached South Tempe Retention portion cost updates as well as the total Western Canal Alternate costs. The total costs presented were well below the cost of the original Gila Drain Enlargement Project. (April 1979 report). Costs shown do not include possible minor upgrading work on the Western Canal itself or pump equipment at the City of Mesa basin, but even such costs, if they should materialize should not increase the price of this new concept above that of the original 1979 report enlargement project.
- b. Harry Kent of Mesa indicated they were looking into ways of diverting storm water that might contribute to an entry at Broadway Road and the Tempe Canal under an Agreement with SRP during the 60's.
- c. Dwayne Williams of Phoenix responded to a question by saying that up to 200 cfs could be accommodated by their existing storm drain at 32nd Street from Broadway to the Salt River. Both Dwayne and Reggie Swartz of Phoenix again urged reducing the 32nd Street dump as much as possible to minimize a new impact on the Salt River. The questions being discussed generally are very small compared to Salt River Flow, but might concern some private river bottom owners.

Dwayne also confirmed that Phoenix feels it is currently retaining water from South Mountain through the development process.

Reggie Swartz also mentioned the possibility of dumping some water into their facility at 40th Street (possibly 30 cfs.) and possibly into other future storm drain points between 32nd and 48th Streets.

d. Control of Western Canal Release Water Versus City Storm Water in Storm Drain Facilities.

1. Assumption has been that the storm drains will not be filled with storm drainage when the Western Canal is releasing. This is probably true for the Mesa pump out water since this would occur after the storm. SRP's emergency releases during a storm might require a control system to allow Western Canal release water to enter storm drains when space is available. The most critical storm pump out case would be during higher duration winter storms when the Intensity factor and therefore capacity crowding is less critical.
2. Phoenix and Tempe have already agreed to allow an SRP tie to their storm drain facilities on a lesser basis.

3. Chandler Update

Archie Ferguson of Chandler indicates he is still very interested in this concept but that Chandler has not moved to complete their Storm Drain Study or Master Plan that might show their needs into the Gila Drain or any Gila Drain Project. Archie also again asked Mesa, Phoenix, and Tempe about their experience with drywells in light of Chandler's concern over failing drywells. All cities said they had not banned drywells at this point; Mesa indicated they were studying their policy and may limit their depth etc., Tempe said they had not noted a problem in the few they have in their parks, and Phoenix indicated they have many of them but do not recommend them as a permanent solution in any critical situation.

C. CONSENSUS ON REINVOLVEMENT OF MCFCD AND PLANNED RECOMMENDATION

Consensus was to reinvolve the MCFCD as soon as possible to recommend the new Western Canal Alternative Project. Lee indicated he would plan to set the meeting with MCFCD to present the Task Force Committee Report within the next two weeks. Exact scheduling might depend on information Herb would get to Lee later this week after discussion with SRP upper management.

  
\_\_\_\_\_  
Lee Quaas, P.E.  
Chairman

Attach: Western Canal Alternative Cost Estimate  
Three South Tempe Portion updated Alternates  
Over all Western Canal Alternative Concept Exhibit

PRELIMINARY ESTIMATES  
GILA DRAIN PROJECT  
WESTERN CANAL ALTERNATE

\* Western Canal - 200 cfs. total release .....\$ 1.7 Million  
\* Western Canal - 300 cfs. total release .....  
with 200 cfs. @ 32nd St. ....\$2.2 Million

South Tempe Alternate 1-A - Retention Basin  
with pump back to Gila Drain .....\$4.5 Million

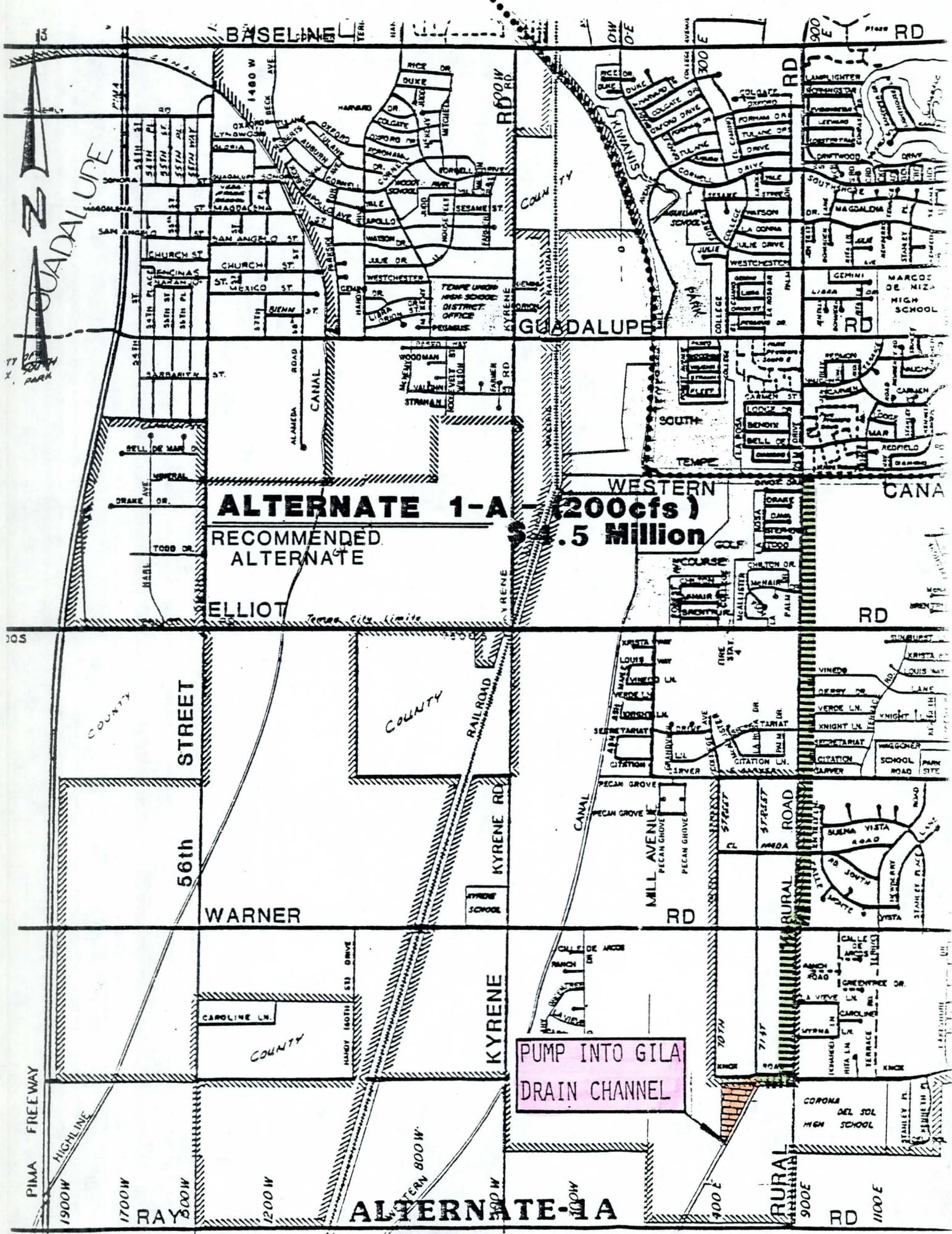
South Tempe Alternate 1-B - Retention Basin  
with pump back to Western Canal .....\$5.5 Million

South Tempe Alternate 1-C - Retention Basin  
with pump back to Kyrene Storm Drain .....\$6.0 Million

ALTERNATE COST .....\$ 5.7 to \$7.6 Million

\* Does not include costs for possible improvement to Western Canal  
itself or Mesa pump back costs.

\* Based on a controlled system to prevent stormwater and irrigation  
water interference.



**ALTERNATE 1-A (200cfs)**  
**\$1.5 Million**  
 RECOMMENDED ALTERNATE

PUMP INTO GILA  
 DRAIN CHANNEL

**ALTERNATE-1A**

GUADALUPE

STREET

56th

WARNER

ELLIOT

WESTERN

CANA

KYRENE

RURAL

RD 900E RD 1100E

PIMA FREEWAY

1900W

1700W

RAY

1500W

1200W

ALTERNATE 800W

1000W

900E

700E

BASELINE

RD 800W

GUADALUPE

RD 900E

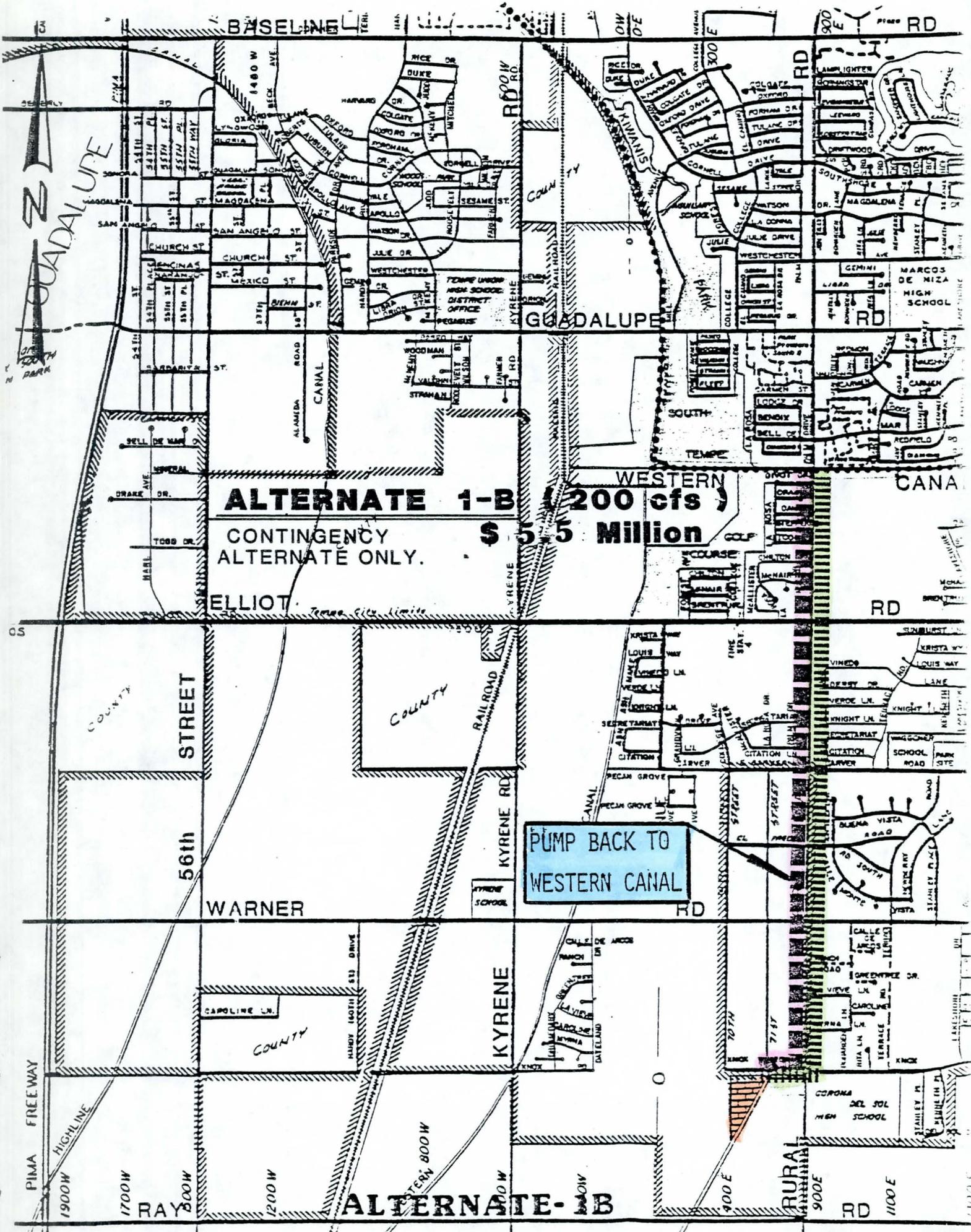
RD 900E

RD

TY 00000 PARA

105

COUNTY



**ALTERNATE 1-B (200 cfs)**  
**CONTINGENCY ALTERNATE ONLY.** **\$ 5.5 Million**

**PUMP BACK TO WESTERN CANAL**

**ALTERNATE-B**

**GUADALUPE**

**GUADALUPE**

**WESTERN**

**CANAL**

**ELLIOT**

**RD**

**STREET**

**COUNTY**

**RAILROAD**

**KYRENE RD**

**WARNER**

**RD**

**KYRENE**

**COUNTY**

**PIMA FREEWAY**

**HIGHLINE**

**1700W**

**RAY**

**1200W**

**ALTERNATE-B**

**RURAL**

**RD**

**1100E**

**05**

**03**

**02**

**01**

**00**

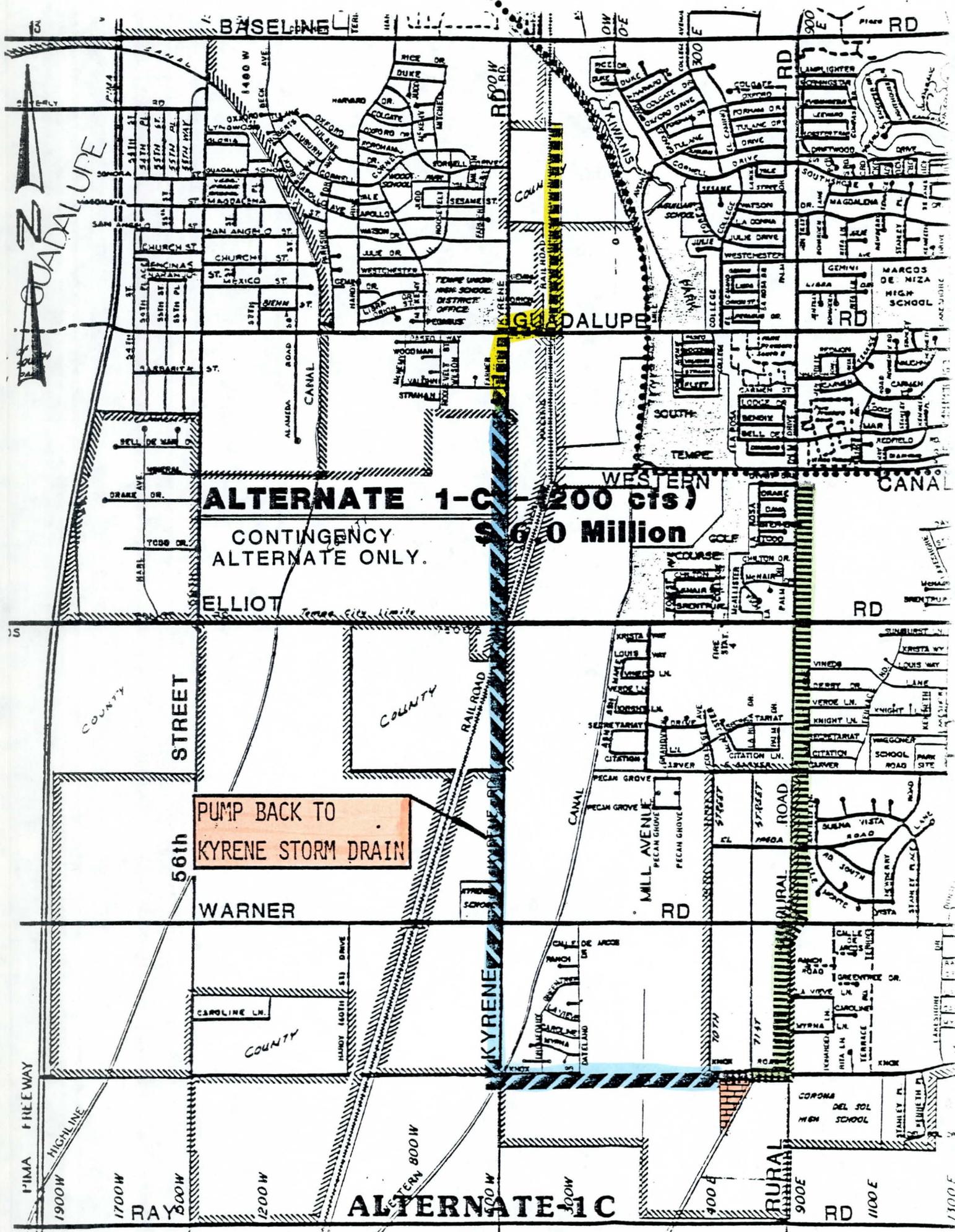
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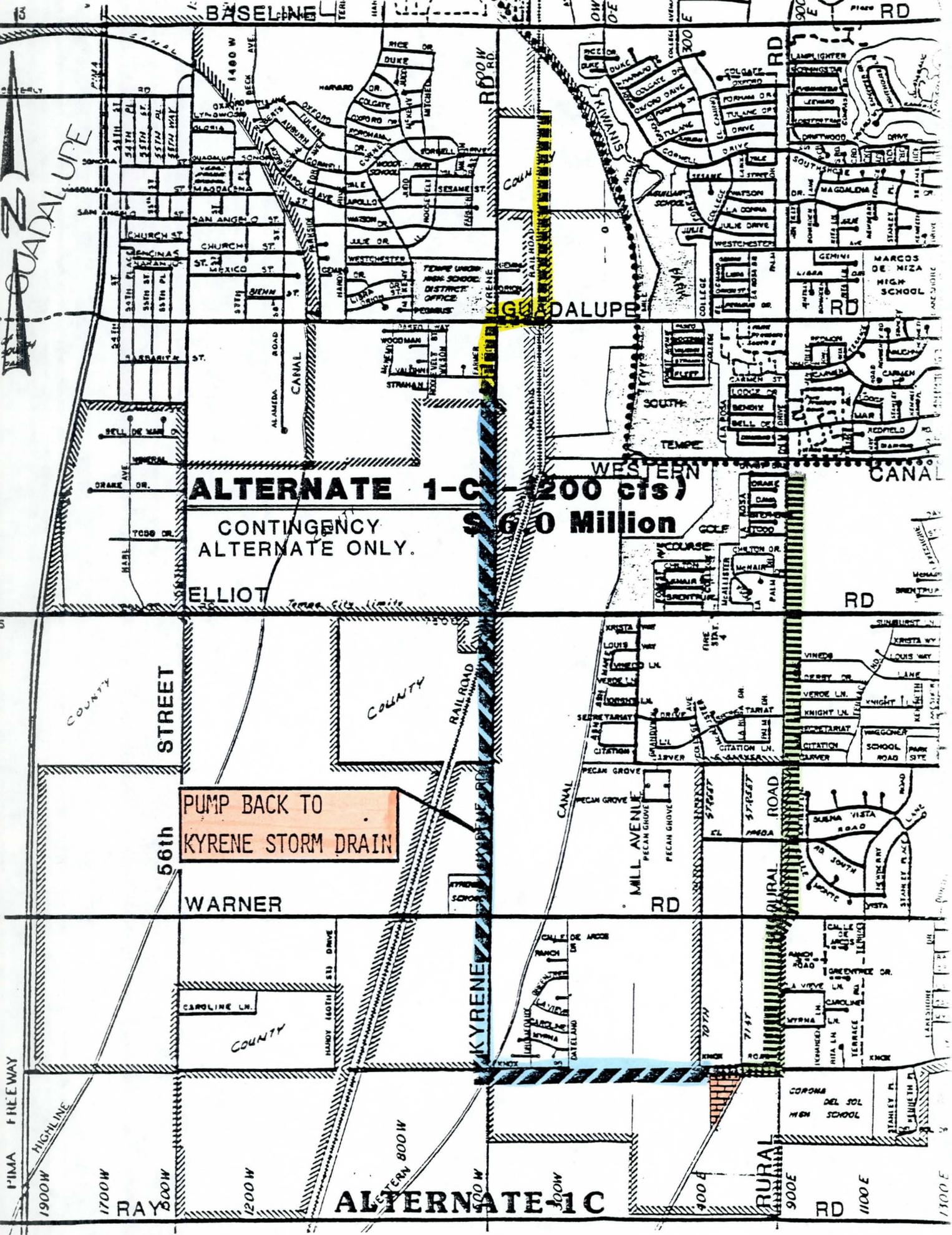
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**ALTERNATE 1-C (200 CFS)**  
**\$60 Million**  
 CONTINGENCY ALTERNATE ONLY.

**PUMP BACK TO  
 KYRENE STORM DRAIN**

**ALTERNATE 1-C**



**ADALUPE**

**KYRENE**

**RURAL**

**ELLIOT**

**WESTERN**

**CANAL**

**STREET**

**56th**

**WARNER**

**PIMA FREEWAY**

**HIGHLINE**

**RAY**

**RURAL**

**RD**

**RD**

15

15

15

15

15

**BASELINE**

**RD**

APPENDIX B



1 III

2 DISCUSSION

3 Downstream appropriators of the Gila River and land-  
4 owners south of the City of Mesa cannot enjoin the City of Mesa  
5 from capturing and diverting rain flood waters flowing over the  
6 City's land as long as the City of Mesa captures this water  
7 prior to the water reaching a natural watercourse. Landowners  
8 south of the City of Mesa have a right to utilize flood  
9 waters from rain which is no longer under the control of the  
10 City of Mesa and which the City of Mesa, the original possessor  
11 of this water, has abandoned. Landowners south of the City of  
12 Mesa and along the Gila River as historical users of this water  
13 are not entitled to a continuance of its flow and may not re-  
14 quire that the water continue to be abandoned. See Wedgeworth  
15 v. Wedgeworth, 20 Ariz. 518, 181 P.952 (1919); Lambeye v. Garcia,  
16 18 Ariz. 178, 157 P. 977 (1916); Vaughan v. Kolb, 280 P. 518  
17 (Ore. 1929).

18 Under Arizona's Appropriation Statute, A.R.S. §45-131  
19 (A), flood waters flowing in natural channels are subject to  
20 appropriation. A.R.S. §45-131 (A) provides that:

21  
22 The waters of all sources flowing in  
23 streams, canyons, ravines or other  
24 natural channels, or in definite  
25 underground channels, whether perennial  
26 or intermittent, flood, waste or surplus  
27 water, and of lakes, ponds and springs  
28 on the surface, belong to the public  
and are subject to appropriation and  
beneficial use as provided in this  
chapter.

///

1           The rain flood waters that flow south from the City  
2 of Mesa are not subject to appropriation while under the control  
3 of the City of Mesa because they are not waters that are flowing  
4 in natural channels. The specific quantities of flood waters  
5 that actually have been abandoned by the City of Mesa into the  
6 Gila River are appropriable under this statute. However, the  
7 City of Mesa may capture rain flood waters flowing over its land  
8 and divert this water through artificial channels into the  
9 Western Canal. These rain flood waters that flow across the  
10 City of Mesa are defined as "diffused surface waters". It is  
11 water:

12

13                         which is diffused over the surface of  
14                         the ground, derived from falling rains  
15                         and melting snows, and continues to be  
16                         such, and may be impounded by the owner  
17                         of the land, until it reaches some well-  
18                         defined channel in which it is accustomed  
19                         to, and does, flow with other waters;

20

21 1, Clark, Waters and Water Rights, §52. 1 (A) at 301 (1967),  
22 quoting Kinney on Irrigation (2d ed.) §318.

23

24           The Arizona Court of Appeals expressly has ruled that  
25 diffused surface waters are not appropriable. In Espil Sheep  
26 Company v. Black Bill & Doney Parks Water Users Association,  
27 16 Ariz. App. 201, 492 P.2d 450 (1972), the court stated that:

28

29                         [a]s noted above, the plaintiff al-  
30                         leged acquisition by appropriation  
31                         of the right to use "surface waters".  
32                         Surface waters are those waters which  
33                         flow on the land from the skies or  
34                         arise in springs and diffuse them-  
35                         selves over the surface of the ground,

1 following no defined course or channel  
2 and are lost by being diffused over the  
3 ground through percolation, evaporation,  
4 or natural drainage. Southern Pacific  
5 Co. v. Proebstel, 61 Ariz. 412, 150 P.2d  
6 81 (1944); Kirkpatrick v. Butler, 14 Ariz.  
7 App. 377, 483 P.2d 790 (1971); 93 C.J.S.  
8 Waters §112 (1956). The essential char-  
9 acteristics of surface waters are that  
10 their flows are shortlived and that the  
11 waters are spread over the ground and  
12 not concentrated or confined in bodies  
13 of water conforming to the definition  
14 of lakes or ponds. See Doney v. Beatty,  
15 124 Mont. 41, 220 P.2d 77 (1950). Since  
16 A.R.S. §45-101, supra, does not provide  
17 for appropriation of "surface waters,"  
18 they are not appropriable. 93 C.J.S.  
19 Waters §170a (1956).

20 The rain flood waters that flow across the City of Mesa  
21 may be captured by the City of Mesa, and when captured they be-  
22 come the property of the City. Vol. 1, Clark, Waters and Water  
23 Rights, §52, 1 (a), at page 302 (1967). In Vaughan v. Kolb, 280  
24 P. 518 (Or. 1929), the Oregon Supreme Court held that water that  
25 is taken into possession and confinement becomes personal pro-  
26 erty and where the city allowed wastewater to flow from its res-  
27 ervoirs without any intent to recapture it, the city only aban-  
28 doned specific quantities of waters and not a water right. The  
court relied on the following principle of water law:

23 [t]he water taken into an artificial  
24 structure and reduced to possession  
25 is private property during the period  
26 of possession. When possession of the  
27 actual water or corpus has been relin-  
28 quished or lost by overflow or dis-  
charge, after use, property in it  
ceases; the water becomes again nobody's  
property and re-enters the negative  
community, or 'belongs to the public'  
just as it was before being taken in

1 the ditch. It has no earmarks to en-  
2 able its former possessor to follow it  
3 and say it is his. The specific water  
4 so discharged or escaped is abandoned;  
5 not an abandonment of a water right,  
6 but an abandonment of specific portions  
7 of water, viz. The very particles that  
8 are discharged or have escaped from control.

9 280 P. at 520, quoting, 1 Weil, Water Rights in the Western  
10 States, §37, (3d ed. 1911) (Emphasis added).

11 The New Mexico Supreme Court expressly has recognized  
12 the principle that once water is reduced to possession it then  
13 becomes the private property of its possessor. In Hagerman  
14 Irrigation Company v. McMurray, 10 N.M. 172, 113, P. 823 (1911),  
15 the court held that water that flows in an artificial drain is  
16 not subject to appropriation by others because the creator of  
17 the flow has control until it has been deposited in a natural  
18 stream. The New Mexico Supreme Court stated that:

19 [w]hile water flowing in a natural stream  
20 is not the subject of private ownership  
21 anymore than the fish in it, yet, when  
22 it is impounded and reduced to possession  
23 by artificial means, it becomes personal  
24 property, as the fish do when caught, or  
25 as the common, ownerless air does, when  
26 it is liquified and held in a vessel.  
27 Water once reduced to possession and control  
28 may be the subject of purchase and sale,  
or of larceny; and it makes no difference  
in that respect whether the captured fluid  
is held in a skin or cask, by an intener-  
ant water vendor, or in the pipes of a  
modern aqueduct company.

113 P. at 825 (relying on Weil, Water Rights in the Western  
States) (Emphasis added).

1           Rain flood waters not flowing in natural channels and  
2 reduced to possession in artificial channels are the private  
3 property of the possessor in control of them. This rule has  
4 been stated as follows:

5  
6           Becoming Personal Property--The  
7 analogy to animals *ferae naturae* is  
8 finally shown by the authorities es-  
9 tablishing that water reduced to pos-  
10 session is personal property. Just  
11 as wild animals, are personalty, so  
12 likewise running water, severed from  
13 its natural wandering, and confined  
14 under private control in a reservoir,  
15 or other works of man that reduce it  
16 to possession, is also personal pro-  
17 perty.

18           The individual particles of water  
19 so impressed by diversion into an  
20 artificial structure or waterworks  
21 that confine it, and become private  
22 property, possess none of the character-  
23 istics of immovability that go with  
24 ideas of real estate; they are still  
25 always moving though privately possessed,  
26 having, as particles, the characteristics of  
27 personal property. The analogy to caged  
28 animals, snared birds, or fish in a net  
shows well the point of use; and the  
particles in the reservoir or artificial  
structure that reduces it to possession,  
now private property, are personalty.  
This is the law as laid down by Justice  
Stephen Field. Water, when collected in  
reservoirs or pipes, and thus separated  
from the original source of supply, is  
personal property, and is as much the  
subject of sale -- an article of commerce  
-- as ordinary goods and merchandise.

24 1, Weil, Water Rights in the Western States, §35a (3d. ed. 1911),  
25 (Emphasis added, footnotes omitted). See 2 Kinney on Water Rights  
26 p. 1153 §662 (2d ed. 1912).

27           The rights of a landowner in wastewater from the  
28 Western Canal was presented before the Arizona Supreme Court in

1 Lambeye v. Garcia, 18 Ariz. 178, 157 P. 977 (1916). In Lambeye,  
2 the court held that a lower landowner who captured wastewater  
3 flowing off the premises of another, after it had been used  
4 for irrigation, could claim no vested right to such waters. The  
5 court further stated that Plaintiff could seize such water  
6 while it was available, however, Plaintiff could not compel the  
7 Defendant to continue to discharge the water onto his land.  
8 The Arizona Supreme Court stated:

9  
10 [t]he authorities hold that while the  
11 water so denominated as wastewater may  
12 be used after it escapes, no permanent  
13 right can be acquired to have the dis-  
14 charge kept up, either by appropriation,  
15 or a right by prescription, estoppel or  
16 acquiescence in its use while it is es-  
17 caping, and that too, even though expensive  
18 ditches or works were constructed for the  
19 purpose of utilizing such wastewater,  
20 unless some other element enters into the  
21 condition of affairs, other than the mere  
22 use of the water.

18 Lambeye v. Garcia, supra, 18 Ariz. at 182. The Court then con-  
19 cluded that appellee, without incurring legal liability, could  
20 deprive appellant of the wastewater by either preventing any  
21 waste or by recapturing the wastewater from his land.

22 Although Lambeye dealt with wastewaters, the reasoning  
23 from that opinion is applicable to the rain flood waters of the  
24 City of Mesa. As to those flood waters that the City of Mesa  
25 actually abandons, lower landowners can seize such waters as they  
26 are obtainable. However, because these waters are not flowing  
27 in natural channels, lower landowners cannot acquire a vested  
28 right to the rain flood water of the City of Mesa by "appropria-

1 tion, right of prescription, estoppel or acquiescence in its use  
2 while it is escaping", Lambeye v. Garcia, supra, at 182.

3  
4 III

5 CONCLUSION

6 The City of Mesa may lawfully recapture any rain flood  
7 waters that flow across its land and historically have made  
8 their way to the Gila River. These waters are not appropriable  
9 except for those specific quantities of water that actually  
10 reach the Gila River. Because these waters are diffused waters  
11 not flowing in a natural watercourse, the City of Mesa may  
12 capture these rain flood waters and divert them through artif-  
13 icial channels into the Western Canal at any point prior to these  
14 waters reaching a natural watercourse or channel.

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APPENDIX C

TABLE NO. 10: Table of Costs and Expenditures

<u>Item</u>	<u>1979</u> <u>(\$)</u>	<u>1980</u> <u>(\$)</u>	<u>1981</u> <u>(\$)</u>	<u>1982</u> <u>(\$)</u>	<u>Total</u> <u>(\$)</u>
<u>CONSTRUCTION</u> <sup>(1)</sup>					
<u>Lateral 9.5</u>					
Check Protection			48,000		48,000
SPRR Culvert			6,800		6,800
Riprap			12,700		12,700
Subtotal			67,500		67,500
<u>Western Canal</u>					
Wasteway			20,400		20,400
Riprap			5,100		5,100
Subtotal			25,500		25,500
<u>Gila Drain</u>					
Excavation		1,411,000	1,382,000		2,793,000
Compacted Fill		22,000	50,000		72,000
Concrete Lining					
Residential Area			176,000		176,000
Curves			115,000	291,000	406,000
Riprap					
Rock				38,000	38,000
Gravel Bed				10,000	10,000
Bridges			1,300,000	1,086,000	2,386,000
Culverts			340,000	330,000	670,000
Fowler Ditch Control				27,000	27,000
Subtotal		1,433,000	3,363,000	1,782,000	6,578,000
<u>ADOT Retention Basin</u>					
Excavation				147,000	147,000
Comp. Embankments				52,000	52,000
Bridges				233,000	233,000
Inlet Structure				133,000	133,000
Riprap				10,000	10,000
Subtotal				575,000	575,000
Contingencies (15%)		215,000	518,000	354,000	1,087,000
TOTAL CONSTRUCTION COST <sup>(1)</sup>		1,648,000	3,974,000	2,711,000	8,333,000

TABLE NO. 10: Table of Costs and Expenditures (continued)

<u>Item</u>	<u>1979</u> <u>(\$)</u>	<u>1980</u> <u>(\$)</u>	<u>1981</u> <u>(\$)</u>	<u>1982</u> <u>(\$)</u>	<u>Total</u> <u>(\$)</u>
(brought forward)					
TOTAL CONSTRUCTION COST <sup>(1)</sup>		1,648,000	3,974,000	2,711,000	8,333,000
RIGHT-OF-WAY					
<u>Gila Drain</u>					
Non-Residential	264,000				264,000
Residential	92,000				92,000
Streets	(54,000) <sup>(2)</sup>				(54,000) <sup>(2)</sup>
<u>ADOT Retention Channel</u>					
Non-Residential	608,000				608,000
Streets	(66,000) <sup>(2)</sup>				(66,000) <sup>(2)</sup>
TOTAL RIGHT-OF-WAY	964,000				964,000
ESCALATION		148,000	748,000	800,000	1,696,000
ENGINEERING					
<u>Design</u>	201,000	200,000			400,000
<u>Construction</u>		90,000	236,000	176,000	502,000
TOTAL ENGINEERING	201,000	290,000	236,000	176,000	903,000
TOTAL COST OF PROJECT	<u>1,165,000</u>	<u>2,086,000</u>	<u>4,958,000</u>	<u>3,687,000</u>	<u>11,896,000</u>

(1) Based on 1978 Construction Costs

(2) Not included in cost of project

APPENDIX D

ALTERNATIVE PRELIMINARY COST ESTIMATE

APPENDIX D

Western Canal Portion

For 200 cfs. release at 32nd Street

10,000 feet of 60" pipe @ \$120/ft. was used

10,000' x \$120	\$1.2 Million
32nd Street Structures and other Misc.	\$0.5 Million

Structures, etc., for 45 cfs. release  
at Baseline, 55 cfs. release at 48th  
St., and/or other Tempe or Phoenix

Storm Drain locations \$0.5 Million

---

300 CFS TOTAL RELEASE \$2.2 Million

South Tempe Retention Portion

A. Tiling of Gila Drain for 275 cfs:

11,000 ft. of 84" pipe (Slope = 0.002)  
at \$210 per foot was used.

11,000 x \$210	\$2.3 Million
----------------	---------------

Contingency	0.2 Million
-------------	-------------

---

\$2.5 Million

B. Retention Basin

A cumulative hydrograph was plotted  
for 100 year storm runoff into the  
retention basin from arterial streets  
only (200 cfs). For retention of  
approximately 3.5 Million Ft.<sup>3</sup>, a 15  
acre site with a 6' deep basin (5 : 1  
side slopes) was required.

15 acres x \$70,000/acre	\$1.1 Million
--------------------------	---------------

(3,500,000 Ft. <sup>3</sup> /27) x \$4/Ft. <sup>3</sup>	\$0.5 Million
---	---------------

Pump out Facility	\$0.1 Million
-------------------	---------------

Contingency	\$0.3 Million
-------------	---------------

---

\$2.0 Million

C. Pressure Line to Western Canal from Retention Basin:

12,000 ft. of 30" pipe at \$75 per foot was used.

12,000' x \$75  
Contingency

\$0.9 Million  
\$0.1

---

\$1.0 Million

D. Pressure Line to Kyrene Storm Drain from Retention Basin:

19,500 ft. of 30" pipe at \$75 per foot was used.

19,500' x \$75

\$1.5 Million