

TOWN OF SAHUARITA BASIN MANAGEMENT STUDY PHASE I REPORT

PREPARED FOR:
PIMA COUNTY DEPARTMENT OF
TRANSPORTATION & FLOOD CONTROL DISTRICT
201 N STONE AVE, 4TH FLOOR
TUCSON, ARIZONA 85701

PREPARED BY:
CMG DRAINAGE ENGINEERING INC.
378 N MAIN AVE.
TUCSON, AZ 85701



NOVEMBER 30, 1999

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Pima County
Flood Control District Library
740-6350

**PHASE I
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PLAN REPORT**

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TUCSON, AZ 85701

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JANUARY 5, 2000



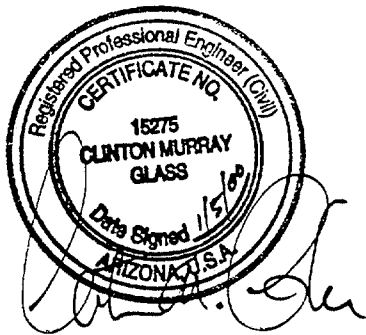


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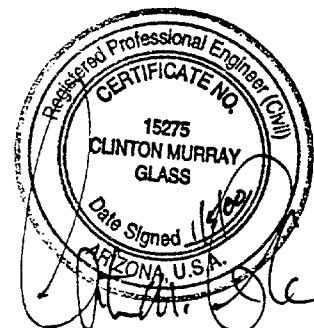
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I INTRODUCTION

The Sahuarita Basin Management Plan Study was authorized by the Pima County Flood Control District (PCFCD) and conducted by CMG Drainage Engineering, Inc. The purpose of the Phase I study is to evaluate existing drainage conditions and to identify alternative flood control/floodplain management strategies which warrant further consideration. The task outline for Phase I includes:

- Review of all available relevant information such as topographic maps, aerial photographs, land use information, drainage reports, drainage complaints, FEMA maps, and environmental resource data;
- Contact governmental agencies including the Town of Sahuarita (Town), PCFCD, Arizona Department of Transportation (ADOT), and the area mining companies of Cyprus Anamax and ASARCO;
- Perform reconnaissance investigations on watershed hydrologic/hydraulic/sediment transport characteristics, maintenance issues, and opportunities for regional detention facilities;
- Analysis of existing drainage conditions including peak discharge computations at wash concentration points along the Town boundaries, La Cañada Drive, and Interstate 19; and
- Prepare a comprehensive report outlining the findings of the study.

The entire area of the Town (as of the date of the Notice to Proceed to CMG Drainage Engineering Inc., January 25, 1999) was studied except the Santa Cruz South Annexation which is an area of approximately 2083 acres in portions of Section 36, Township 17 South, Range 13 East, and Section 1, Township 18 South, Range 13 East, and part of the San Ignacio de la Canoa Land Grant. This area consists entirely of unsubdivided land within the Santa Cruz River floodplain or east of the Old Nogales Highway.

II ENVIRONMENTAL SETTING

2.1 Topography and Vegetation

The Town of Sahuarita is located along Interstate 19 about 15 miles south of the metropolitan Tucson area (see Figure 1). Elevations within the community range from about 2700 feet to 2900 feet above mean sea level. Land form throughout the community slopes west- to-east at a gradient ranging from 2% to 3%. The Santa Cruz River is roughly aligned with the eastern corporate boundary.

Vegetation coverage within the community is characteristic of upland Sonoran desert consisting primarily of palo verde, mesquite, and creosote. Vegetation density is relatively sparse in the upland areas, but higher cover densities occur in the vicinity of the watercourses. Average vegetation cover density was estimated to be about 20%. A significant amount of land has been graded for agricultural purposes, particularly within Sections 25, 35, and 36 of Township 17 South, Range 13 East, east of Interstate 19; however, most of this land is not presently under cultivation. Desert grasses are the predominant vegetation type throughout this disturbed area. Most of the pecan fields which are characteristic of the Green Valley area exist east of the corporate boundary.

2.2 Soils

The soil types which are predominant throughout the community are the Hay Hook sandy loam and Hay Hook-Sonoita complex. These soils have been classified by the Soils Conservation Service (SCS) as Type B. Isolated pockets of Tubac sandy loam exist in some locations within the corporate boundaries. These soils have been

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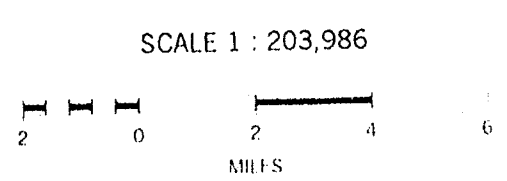
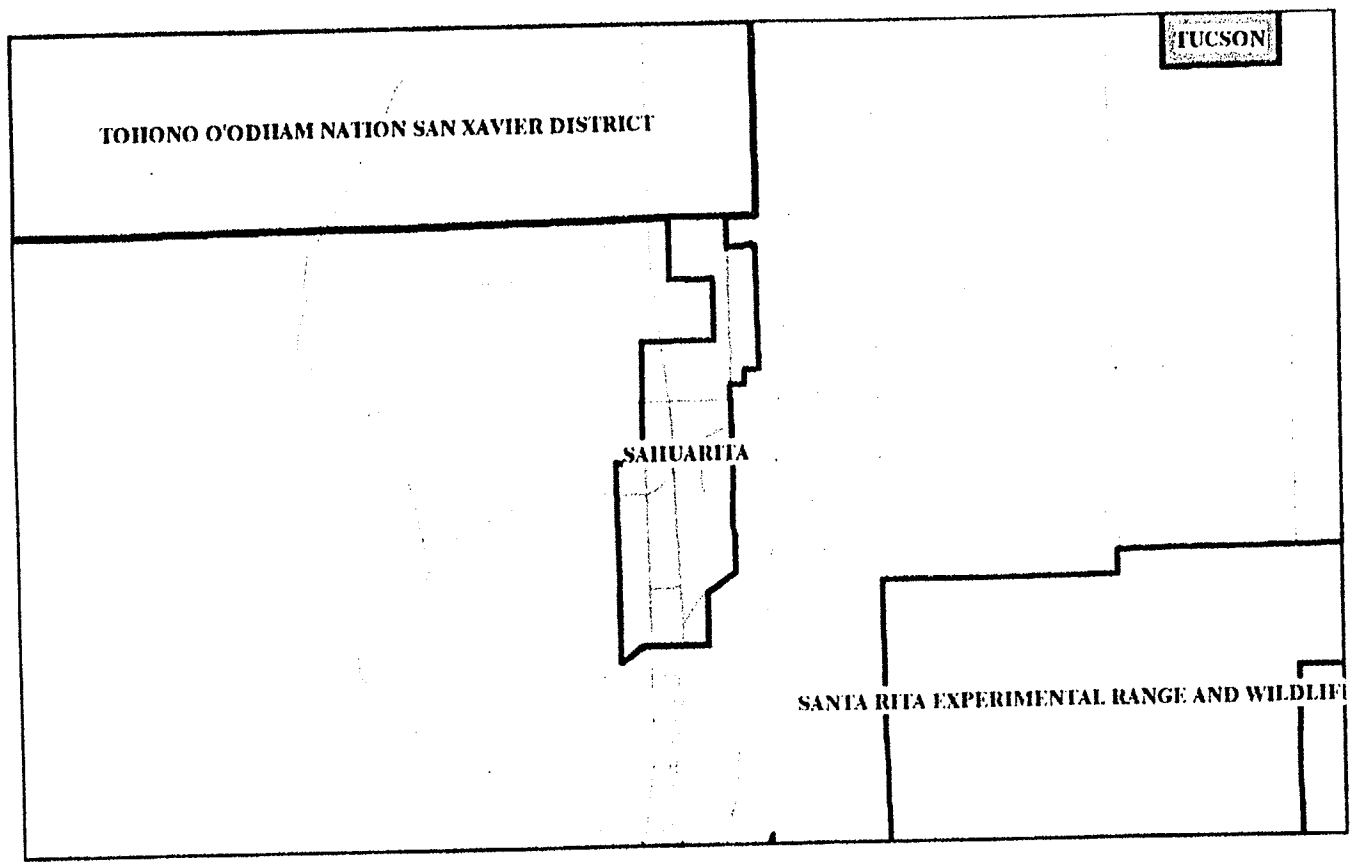


FIGURE 1 - LOCATION MAP

classified by the SCS as Type C. Soil types within the offsite watershed areas which emanate west of the community are predominantly Type B and Type D complexes. A regional soils map is provided in Appendix A.

2.3 Watercourses and Drainageways

The plan form of natural washes which pass through the Town of Sahuarita is related to extremely loose, sandy soils which dominate the area and to the steep watershed slope (2% to 3%). Most of the channels exhibit plan form characteristics similar to an alluvial fan. The watercourses were observed to be wide, extremely shallow and to have divided (braided) flow paths, which is a characteristic of alluvial stream channels with high sediment loads. High velocity flow erodes loose, sandy soils comprising the banks, increasing width/depth ratio to dissipate energy.

There are relatively few constructed drainageways within the community. The ones which have been constructed are along smaller watercourses and were observed to be in generally good condition. Many of the larger constructed drainageways south of the Town of Sahuarita within the community of Green Valley have experienced severe problems with bank erosion and channel bed degradation. In general, channelization of these steep alluvial watercourses tends to increase sediment transport capacity and initiate downcutting.

East of I-19 many of the watercourses begin to lose capacity, which results in wide spread sheet flooding. This is a result of a reduction in channel slope which initiates sediment deposition. Several man-made earthen berms and ditches have been

constructed to collect and divert runoff away from agricultural or residential areas. These berms and ditches have not been maintained, nor have they been stabilized to prevent erosion damages during high magnitude flows.

2.4 Wildlife/Riparian Habitat

There are two areas where Type C Xeroriparian Habitat have been delineated by Pima County. One of the washes follows along the north boundary of Sahuarita High School. The other wash is located within the northwest 1/4 of the northwest 1/4 of Section 23 between La Cañada Drive and Camino de las Quintas. The location of these riparian habitat areas has been identified on the watershed boundary/concentration point maps in Appendix B.

The land area within and surrounding the boundaries of the Town of Sahuarita has been identified as potential habitat for the Pima Pineapple Cactus which is an endangered species. Site surveys for the Pima Pineapple Cactus should be conducted by qualified biologists to ensure that a site is absent of this plant, or if a Section 7 consultation with the U.S. Fish & Wildlife Service is needed.

III EXISTING DATA BASE

3.1 Land Use

3.1.1 Private/Public

A significant percentage of the land area within the Town of Sahuarita corporate limits is under private ownership except for public rights of way, schools and the Pima County landfill which is located on the east side of the Santa Cruz River within a portion of Section 36, Township 17 South, Range 13 East.

3.1.2 Utilities

The only significant public utility within the Town boundaries is the new sewer treatment plant which is being constructed within a portion of Section 36, Township 16 South, Range 13 East as a part of the Rancho Sahuarita project. This treatment plant will serve the Rancho Sahuarita project. Existing development within the community is served by the Pima County Wastewater Treatment Plant located south of the Town boundaries within Section 36, Township 17 South, Range 13 East. Several of the residential subdivisions which were constructed with lots having an area of 1 acre or more utilize septic tanks. There is an active Pima County landfill located within a portion of southwest quarter of Section 14, Township 17 South, Range 13 East (along the east side of La Cañada Drive).

3.1.3 Copper Mines

ASARCO Mining Company and Cyprus Amax Copper Company operate large copper mines just west of the community of Sahuarita. The tailings piles associated with these mining operations are a dominant land form along the west community boundary. They

form the westerly boundary for many of the watersheds which drain through the Town of Sahuarita. Some of the washes which intersect the mining areas are directed into retention areas that do not have an outlet. ASARCO Mining Company is currently constructing a tailings area within portions of Sections 33 and 34, Township 16 South, Range 13 East, and within Sections 3 and 4, Township 17 South, Range 13 East. This tailings pond will have a detention area along the west boundary which outlets to the natural watercourses along the east side of the tailings piles. ASARCO conducted a hydraulic analysis (detention routing computations) to determine the post-project discharge rates along the east boundary of the new tailings area. According to ASARCO, the outflows from this detention area are less than the pre-project discharge rates.

There is a retention pond at the southeast corner of Section 8, Township 17 South, Range 16 East which was constructed by ASARCO to receive runoff collected by diversion channels which direct flow away from processing facilities and tailing dumps. This retention basin was constructed prior to 1970 (exact date unknown). The overflow from this retention basin directs flow along the north side of Helmet Peak Road toward La Canada Drive. No records were discovered which indicate whether or not the basin was designed to engineering standards. The Pima County Floodplain Management Ordinance was not adopted until several years after the basin was constructed. The basin is large, however no data (topographic mapping) was available to estimate its storage capacity or effect upon downstream discharge rates.

Cyprus Amax Mining Company has constructed a detention basin within Section 16 of Township 17 South, Range 13 East. This basin outlets into the natural watercourse which follows along the north side of Helmet Peak Road, then enters the Rancho Resort project just west of La Cañada Drive.

3.2 Previous Studies

The previous studies within this community have been associated with the more recent subdivision development projects. The largest study was associated with the Rancho Sahuarita project which is a large planned community within portions of Sections 35 and 36, Township 16 South, Range 16 East; and of Sections 1, 11, 12, 13, 14, and 23 of Township 17 South, Range 13 East. The total area of this project is approximately 2800 acres. The following documents have been developed thus far in association with this project:

- *Hydrologic and Hydraulic Analysis for Existing Conditions, Rancho Sahuarita Property, Simons, Li & Associates, Inc., August 11, 1995;*
- *Master Drainage Plan Concept for Rancho Sahuarita, Simons, Li & Associates, Inc., November 30, 1995;*
- *Supplemental Drainage Analysis in Support of the Tentative Block Plat for Rancho Sahuarita, Cella Barr Associates, Inc., July 20, 1998.*
- *Rancho Sahuarita Hydrologic/Hydraulic Addendum, Cella Barr Associates, Inc., February 3, 1998.*
- *Rancho Resort Hydrologic and Hydraulic Report, Cella Barra Associates, Inc., August 31, 1998.*

None of the above-referenced reports have been approved by Pima County as of August 20, 1999. Other drainage reports which were obtained and reviewed include:

- *Final Drainage Report for Improvements and Roadway Reconstruction on La Cañada Drive in the Town of Sahuarita*, STP-SAH-0(1)P, 0000 PM-SAH-SS411-01C, Collins/Piña Consulting Engineers, Inc., June 1998.

3.3 Aerial Photography and Topography

The Pima County Department of Transportation and Flood Control District developed 1" = 400' aerial photographic coverage of the Town of Sahuarita and surroundings. This aerial photography is dated October 14, 1998. This photographic coverage was the primary mapping resource used in this study for evaluating land use, watershed boundaries, and drainage conditions throughout the community. U.S.G.S. quadrangle topographic maps were also used to delineate watersheds and determine slopes.

3.4 FEMA Maps

The only area within the Town of Sahuarita which is a federally-mapped floodplain is the Santa Cruz River. This floodplain mapping was completed by CMG Drainage Engineering, Inc., for the PCFCD on February 8, 1995. The current regulatory floodplain boundaries for the Santa Cruz River within the Town of Sahuarita are depicted on panels #2840K, #3405K, and #3415K dated February 8, 1999. FEMA floodplain and floodway limits are shown on the soils map in Appendix A and on the watershed maps in Appendix B.

3.5 Drainage Complaints

Several drainage complaints have been filed with the Town of Sahuarita and PCFCD. These drainage complaints are located predominantly within the older developments and subdivisions within the community. They are primarily associated with shallow sheetflooding of residential property which has resulted in minor erosion damages and sediment deposition. Table 1 provides a list of the drainage complaints which were taken from information on file at the PCFCD. Table 1 lists the drainage complaints by subdivision and chronological order. The first component of the drainage complaint identification number is the year during which the complaint was received by Pima County. The second component is the chronological order in which it was received. The discussion of the drainage complaints and drainage conditions for each subdivision is given in Section IV of this report.

IV DESCRIPTION OF EXISTING SUBDIVISION DRAINAGE CONDITIONS

A map showing the location of subdivisions discussed in Sections 4.1 through 4.19 is given on Figure 2.

4.1 Colonia de la Cañada

Colonia de la Cañada is a new subdivision currently under construction. The west boundary of this subdivision adjoins the ASARCO tailings piles. There is limited offsite drainage which passes through this project. Washes have been left in a natural condition; onsite drainage improvements have been constructed to current Pima County standards. These standards include onsite retention/detention, drainageway stabilization, riparian area preservation (where applicable), and subdivision street drainage. No drainage or erosion/sedimentation problems were identified within this project.

4.2 Cañada Norte

Cañada Norte is a new subdivision currently under construction. The west boundary of this subdivision adjoins the ASARCO tailings piles. There is limited offsite drainage which passes through this project. Washes have been left in a natural condition; onsite drainage improvements have been constructed to current Pima County standards. No drainage or erosion/sedimentation problems were identified within this project.

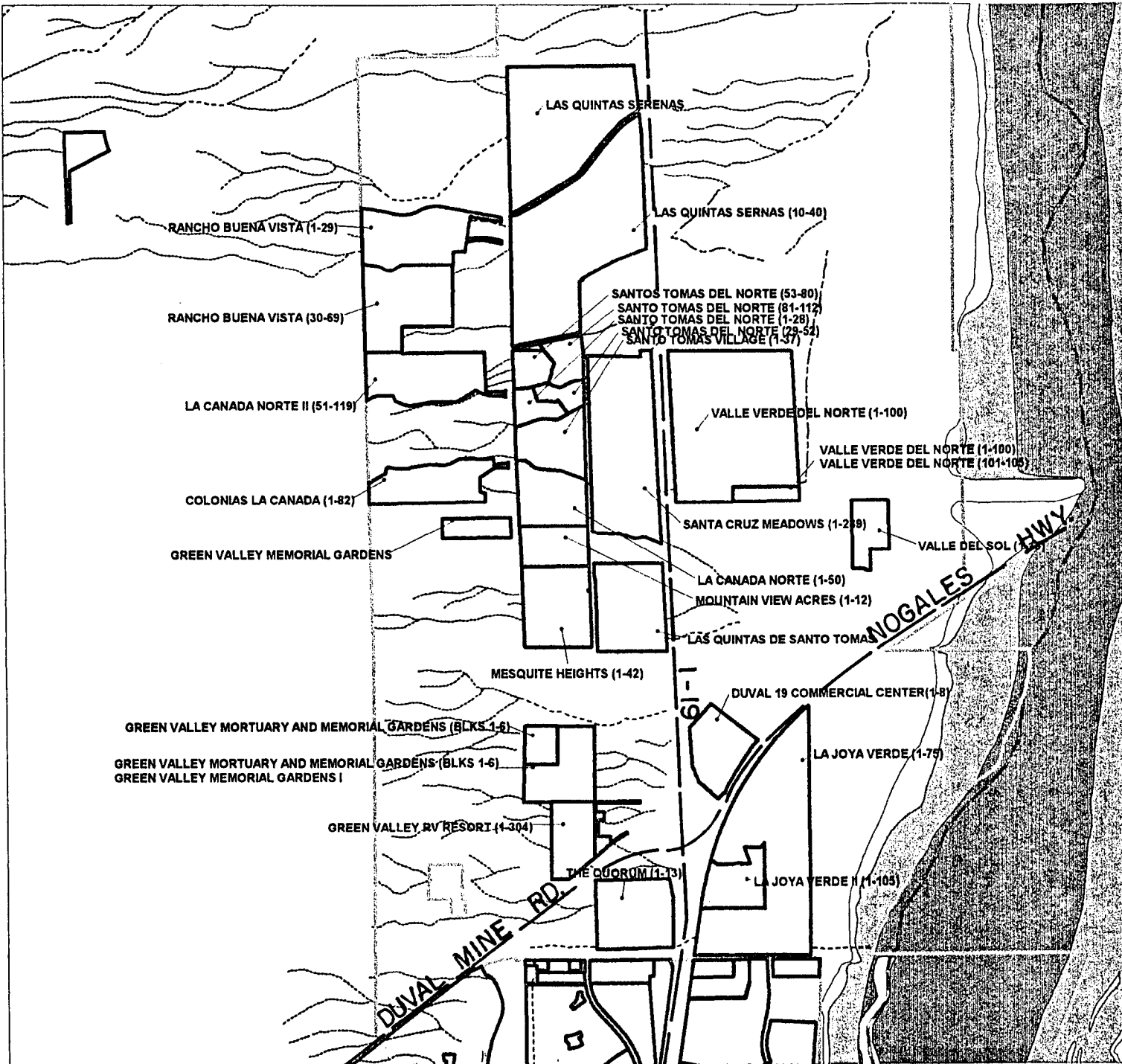
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PARCEL QUERY SYSTEM

- Regional Parcels
- Subdivision Boundaries
- TS Jurisdiction Boundaries
- Wash Network**
- Q Unknown
- 100-500 CFS
- 500-1000 CFS
- 1000-2000 CFS
- 2000-10,000 CFS
- 10,000 - 25,000 CFS
- > 25,000 cfs
- Riparian and Hydromeso Habitats**
- Xeroriparian A
- Xeroriparian B
- Xeroriparian C
- Xeroriparian D
- Hydro-Meso
- FEMA Floodway**
- FEMA Floodway
- AO Depth Boundaries
- Black Wash FLDWY
- FEMA Floodplains**
- Zone A
- Zone AE
- Zone AH
- Zone A0
- Zone A0 - Alluvial Fan
- Shaded Zone X

1" = 2500.00 feet

FIGURE 2- SUBDIVISION LOCATION MAP



4.3 Rancho Buena Vista

The washes which pass through this subdivision are highly undefined. The soils throughout the area are extremely sandy and non-cohesive. There is evidence that many of the small washes have been diverted in association with the construction of large custom homes. Sheetflow is widespread throughout the project. There is evidence of sediment deposition within driveways; many homeowners have constructed diversion swales and installed riprap to control erosion. One drainage complaint has been registered in this subdivision. Examination of the drainage complaint location found the driveway to be experiencing a significant amount of flow. The home is set at a relatively low elevation which indicates the possibility of flood damages. All future building permits in this subdivision should require a minimum of 18-inch finished floor above natural grade. In addition, precautions should be taken with regard to diversion of small stream channels and the potential impact upon adjoining subdivision lots. Site engineering should be required to insure property accommodations of the lot-to-lot flows.

4.4 Las Quintas Serenas

This subdivision has homes on lots with an area of 3.3 acres or more. All washes within the subdivision are in a natural condition and flow crosses the roadway in dip sections. Some of the roads which follow in a west-to-east direction show evidence of conveying surface runoff. Some riprap has been placed along the east shoulder of Las Quintas Road to control minor erosion. Homes within the subdivision appear to be generally elevated well above natural grade. Observed culverts beneath Interstate 19 do not appear to have experienced any consequential sediment deposition. Some

erosion has occurred on the banks of the washes, but no significant lateral migration has occurred. Future building permits in this subdivision should be reviewed for adequate finished floor elevation and erosion hazard setback. One drainage complaint has been registered in this subdivision. The home is immediately adjoining a large watercourse (complaint #88-122).

4.5 Santo Tomas Village and Santo Tomas del Norte

This is a residential subdivision with homes on approximately one-third acre lots. The washes which pass through the subdivision have largely remained natural; however, some encroachment has occurred along the back side of the subdivision lots. The only identified drainage concern within this subdivision is the manner in which flow crossing La Cañada Drive reaches the downstream channel. It appears that the floodwaters can spread into the adjoining subdivision lots along the immediate downstream side of La Cañada Drive. All of the wash crossings of La Cañada Drive adjoining this subdivision occur as dip sections. The flow spreads out across shallow dip sections and across the adjoining subdivision lots before entering the downstream channel. Some erosion has occurred on the downstream side of La Cañada Drive. Riprap and cutoff walls have been installed to control this erosion problem. All wash crossings of Camino de la Quintas occur as dip crossings. Riprap has been installed along the downstream side of the pavement at the major wash crossings to control erosion.

4.6 La Cañada Norte

La Cañada Norte is a small residential subdivision between Camino de las Quintas and La Cañada Drive. There are natural drainageways along the north and south boundaries of the subdivision. Field observations did not identify any drainage problems within this subdivision.

4.7 La Cañada Norte II

This is a built-out subdivision with lots on approximately one-third acre. There is minimal cross drainage through the subdivision. The washes have been left natural and usually adjoin the back side of subdivision lots. There has been one drainage complaint registered on this subdivision. No other drainage problems were identified in this subdivision.

4.8 Mountain View Acres

This subdivision has homes on about one-half acre lots. There is no evidence of significant offsite drainage passing through this subdivision. There are swales on both sides of Eldora Place which convey minor amounts of offsite runoff to the east boundary of the subdivision.

4.9 Las Quintas de Santo Tomas

This subdivision has residential structures on 1-acre lots. Roads within the subdivision are not paved. Washes crossing the site are generally small, but upstream development combined with sandy soils has led to widespread sheetflooding and flow along the roadway shoulders. A significant amount of sediment deposition has been

noted along the roads and at the east end of the project adjoining Interstate 19. Runoff is intercepted by diversion dikes along Interstate 19, then routed either north or south to culverts beneath Interstate 19. There is a large drainageway along the south side of Calle San Jose which conveys runoff arriving at Concentration Point #90. There are several culvert crossings of this channel which provide access to adjoining residences. These culverts generally consist of two 36-inch CMPs; some have headwalls while others are merely pipes projecting from earthen driveways. The channel shows evidence of erosion during past floods, and a significant amount of sediment deposition has occurred at the downstream end adjoining Interstate 19. Some of the culverts which cross the drainageway along the south side of Calle San Jose show sediment deposition and others do not. The sediment deposition appears to be a function of the placement elevation for the culvert flowline. The highly sandy soils along the banks of this wash indicate that there is significant erosion of the banks and deposition in the channel bottom during runoff events. Most of the homes within this subdivision have not been elevated more than a few inches above natural grade. Several drainage complaints have been registered by homeowners who live at the east end of Calle San Jose. This is where the flow intersects Interstate 19, deposits sediment, and then drains north or south to culverts beneath the freeway. Building permits for future residences within this subdivision should be reviewed for potential diversion of sheetflow onto adjoining properties. In addition, minimum finished floor elevations of the structures should be set at least 18 inches above natural grade. In some locations, the minimum finished floor elevations requirement may be greater.

4.10 La Jolla Verde and La Jolla Verde II

La Jolla Verde is a residential subdivision with lots having an area of approximately 0.25 acres. The subdivision was recently platted and is presently under construction. Drainage improvements within this subdivision comply with current Pima County drainage design standards (including retention/detention). No drainage problems were identified in this area.

4.11 Valle Verde Del Norte

The primary drainage feature within this subdivision is an earthen channel which begins at the Calle del Julio/Interstate 19 frontage road intersection. It follows east thereof between subdivision lots. The drainageway is earthen but generally in good condition. The bottomwidth of the channel is about 15 feet. Sideslopes are constructed at an angle of 3:1 or steeper, and the channel depth is approximately 2 feet. The channel outlets across Camino de Agosto in a dip section. The 100-year discharge for the drainageway is 730 cfs (Concentration Point #123).

Field inspections determined that a significant amount of runoff is conveyed down Calle del Septiembre. There are deeply (1-3 feet) eroded ditches on both sides of the street. Homeowners have installed small diameter culverts to cross the ditch to their homes. Several homeowners have also placed riprap along the slopes of their lots adjoining these ditches to control erosion. Most of the homes are elevated well above street grade and wash grade; however, several drainage complaints have been filed along Placita Mayo. Building permits for future construction within this subdivision should be

reviewed for diversion of local drainage and minimum finished floor elevation requirements.

4.12 Section 22 – Twin Buttes Road to El Toro Road

This area has been subdivided into large rural lots. There are few public roads in the area other than La Cañada Drive. One drainage complaint has been registered in this area. The washes are shallow and generally undefined. Some of the existing homes within the area have been constructed immediately adjoining these washes, and in some cases, directly in the watercourse path. Minor grading has been implemented by the homeowners in an effort to redirect flow. Applications for future building permits in this area should be reviewed by floodplain management to insure that adequate finished floor height is provided and that proposed construction does not result in any additional flow diversion.

There is a railroad (which is used by the mines) traversing north/south along the west corporate limit at concentration points #75 through #80. This railroad bed grade is elevated approximately 4 to 6 feet above natural grade. A backwater condition may develop during high magnitude floods but runoff does not divert to adjoining concentration points. Some degradation has occurred on the downstream side of the culverts as a result of flow being contracted through the aperture.

4.13 Section 35 – Duval Road to Duval Mine Road

There are significant drainage features along both Duval Road and Duval Mine Road. There is a large earthen channel which follows between the median along Duval Road

which skirts the south boundary of the Town of Sahuarita. This channel conveys the 100-year discharge of 468 cfs (Concentration Point #136). The channel is generally in good condition, showing little evidence of erosion. Rock riprap has been placed along the banks of the channel for a distance of approximately 400 feet east of La Cañada Drive. The remainder of the channel is earthen with sideslopes of approximately 3 horizontal to 1 vertical. There is an existing 6-10'X8' CBC beneath the Duval Road/Interstate 19 frontage road and Interstate 19 to convey this flow.

4.14 Mesquite Heights

Mesquite Hills is a residential subdivision with homes on about 0.5-acre lots. There are no significant watercourses within this subdivision. Field observations found there to be some lot-to-lot drainage. No problems were identified other than significant sediment deposition within Wood Acre Drive just west of the intersection with Camino de las Quintas. Bosque Drive, which is the other residential street within this subdivision, has not yet been constructed.

4.15 Santa Cruz Meadows

Santa Cruz Meadows is a platted residential subdivision which has not been constructed to date.

4.16 Green Valley R.V. Resort

Offsite drainage which affects the Green Valley RV Resort property is collected within a drainageway along the west side of the project. This drainageway diverts flow south to an improved channel along the north side of Duval Mine Road. Onsite drainage from

the site drains within the street system to the drainageways along the north side of Duval Mine Road. No drainage problems were identified within the Green Valley RV Resort.

4.17 Duval 19 Commerce Center

This project is located at the northeast corner of the intersection of Interstate 19 and Duval Mine Road. It is a commercial shopping center which discharges its onsite runoff to an earthen drainageway along the south boundary of the project. This drainageway follows along the north side of Duval Mine Road to a point of discharge at the southeast corner of the project. No drainage problems were identified within the area of this shopping center.

4.18 The Quorum

The Quorum is a multi-use development which includes commercial and multi-family residential properties. Offsite drainage flows into The Quorum over a gunite-lined embankment along the west boundary of the project. Flow is then drained north or south within a street to a channel which runs through the center of the project. Portions of this channel have been used for a parking lot (including a chain-link fence) around the Jim Click Automotive lot.

4.19 Valle del Sol

Valle del Sol is a residential subdivision located north of Old Nogales Highway about 1 mile east of Interstate 19. The project consists of residential structures on lots having an area of 1 acre or more. Field observations did not identify any drainage problems;

however, the hydrologic analysis has determined that the area can be subject to significant sheetflow. There is a large earthen berm along the east boundary of the subdivision which obstructs drainage. This berm was constructed in conjunction with an agricultural area just east of the development. The berm intercepts runoff and forces it to drain either north or south.

V ROADWAY DRAINAGE

Cross drainage for the arterial roadway system throughout the community occurs primarily at dip sections. Culvert structures have been constructed to convey flow beneath La Cañada Drive at 5 locations. There are relatively few roadway drainage culverts for streets within the residential subdivisions, and the only other identified location where culverts have been used is along Duval Mine Road and Old Nogales Highway. There are several roadway drainage culverts beneath Interstate 19 which are owned and maintained by the Arizona Department of Transportation (ADOT). ADOT has also constructed several diversion dikes along the west side of Interstate 19 to collect and direct surface runoff to these culvert structures.

Table 2 provides a summary of the roadway drainage structures within the Town of Sahuarita. Table 2 lists the structure by concentration point number, roadway, size/type, capacity, and design frequency. The size of the structure is listed along with the capacity of the culvert as computed by FHWA inlet headwater nomographs.

Field measurements were conducted to verify the size of most of the drainage structures. Field inspection of the roadway drainage structures found most of the culverts to be in good condition and not significantly obstructed by sediment deposition. The few culverts which were identified to have experienced significant sediment deposition appear to be in such a state as a result of the culvert flowline being placed at too low of an elevation. Section 3.1.3 of this report describes sediment transport conditions along the watercourses as being a primary factor which has led to significant erosion and deposition along the stream channels. There has been a significant

TABLE 2

Sahuarita Basin Management Plan
Summary of Roadway Drainage Structures

Concentration Point #	Road Name	Culvert Size/Type	HW (ft)	Capacity (cfs)	Design Frequency (years)	Notes
9	I-19	2- 10' x 4' CBC	7.0	840	100	
10	I-19	2- 10' X 8' CBC	12.0	2100	100	
14	I-19	2- 10' x 4' CBC	7.0	840	100	
16	I-19	4- 10' X 7' CBC	9.0	3000	100	
17	I-19	2- 10' x 7' CBC	9.0	1500	100	
18	I-19	2- 10' x 7' CBC	9.0	1500	100	
19	I-19	5- 10' x 6' CBC	8.0	3000	50	
20	I-19	1- 10' x 6' CBC	8.0	600	100	
43	I-19	2- 8' x 4' CBC	18.0	750	100	
50	La Canada Drive	3- 10' x 4' CBC	6.0	740	10	
62	I-19	6- 10' x 8' CBC	25.0	5400	100	
63	I-19	1-48" CMP	12.0	150	100	
64	I-19	3-10' X 7' CBC	10.0	2400	100	
65	I-19	1-36" CMP	11.0	40	5	
66	I-19	105' X 5' Bridge	7.0	5200	100	
78	Placita Palmilla	2- 36" CMP	6.0	150	100	
85	I-19	2- 10' x 4' CBC	7.0	840	100	
86	I-19	2-16" CMP	8.0	170	100	2 ft sediment deposition in culvert
87	I-19	2- 8' x 4' CBC	7.0	670	100	
88	I-19	2- 10' x 3' CBC	6.0	600	100	
89	I-19	1- 36" CMP	7.0	75	5	
90	I-19	3- 10' x 4' CBC	7.0	1260	100	
91	I-19	4- 10' x 6' CBC	10.0	2900	100	
92	I-19	2- 10' x 4' CBC	7.0	840	100	
93	I-19	2- 8' x 4' CBC	8.0	750	50	
115	La Canada Drive	2- 36" CMP	6.0	150	10 - 25	Via DeSanto Tomas Dr. Intersection
120	La Canada Drive	2- 36" CMP	6.0	150	100	
121	La Canada Drive	2- 36" x 22" ACMP	6.5	72	25 - 50	
122	La Canada Drive	2- 65" x 40" ACMP	8.0	240	100	Duval Mine Rd/La Canada Intersection
129	Old Nogales Hwy.	4- 10' x 4' CBC	6.0	1480	100	1 foot sediment deposition
134	I-19	2- 36" CMP	7.0	150	100	
135	Duval Rd/I-19 Frontage Rd.	6- 10' x 8' CBC	12.0	6480	100	Culvert extends through I-19
136	Duval Mine Rd.	1- 10' x 3' CBC	6.0	300	25-50	
137	La Canada Drive	2- 8' x 4' CBC	6.0	560	50 - 100	

TABLE 2

Sahuarita Basin Management Plan
 Summary of Roadway Drainage Structures

Concentration Point #	Road Name	Culvert Size/Type	HW (ft)	Capacity (cfs)	Design Frequency (years)	Notes
138	I-19	2- 8' x 5' CBC	7.0	780	100	
140	El Toro Road	2- 2.5' X2' CBC	7.0	120	5	Sediment and debris blocking inlet

amount of sediment deposition along the west side of Interstate 19. This deposition appears to be associated with flow being blocked by the elevated roadway embankment, but most of the culverts appear to have experienced little problem with sediment deposition. Table 2 makes note of the culverts which were identified to have experienced significant sediment deposition.

VI HYDROLOGIC ANALYSIS

6.1 Methodology

Two different methodologies were used to compute discharge rates. The methodology used to compute peak discharge rates for watersheds having an area less than 2 square miles was taken from the **Hydrology Manual for Engineering Design and Floodplain Management Within Pima County, Arizona** (September, 1979). The Corps of Engineers computer program HEC-1, Version 4.0 was utilized for the watersheds having a drainage area >2.0 square miles.

Discharge rates were computed for the 2-, 5-, 10-, 25-, 50-, and 100-year return period events. These discharge computations were conducted for all watersheds having a drainage area of about 10 acres or more. The points of concentration for these discharge determinations were along the west community boundary along La Cañada Drive, along Interstate 19, and along the easterly boundary of subdivisions east of Interstate 19. Several points of concentration were also defined along the east boundary of the community. The drainage patterns at several of the concentration points east of I-19 are controlled by unstabilized earthen berms or dikes. Discharge computations for these locations assumed that the berms will function to divert flow as they were intended. However, field examination of their condition/stability determined that unpredictable failure may occur.

Summary Description of Pima County Method

Rainfall runoff parameters for the watersheds were developed with input from the PCFCD. The 1-hour precipitation depth for storms for the return periods between 2 years and 100 years were developed from the NOAA atlas. The 1-hour, 100-year return period precipitation depth which was used in the discharge computations is 2.74 inches per hour.

The basin factor which was used in the discharge computations is 0.035 for most watercourses throughout the community. A basin factor of 0.040 to 0.045 was used for some watercourses which were characterized by limited channel capacity and broad, shallow sheetflow conditions. CMG Drainage Engineering, Inc., conducted a basin factor sensitivity analysis and met with the PCFCD to review the results prior to conducting the discharge computations. After review of these results, the PCFCD directed CMG Drainage Engineering, Inc., to utilize a basin factor of 0.035 for the discharge computations.

Impervious cover within the contributing watershed areas was determined based upon land use patterns observed on the October 14, 1998, aerial photography. Field inspections were also used to update current land uses and adjust the impervious cover to reflect current conditions.

HEC-1 Procedures

The discharge computation procedures for the HEC-1 model were derived from Chapter 3 of the **ADOT Highway Design Manual, Hydrology**, March, 1993. This methodology requires the estimation of surface retention loss and the estimation of rainfall infiltration loss by the Green and Ampt equation. The Green and Ampt equation parameters are estimated as a function of soil texture. This classification system places soil into 1 of 12 texture classes based upon the grain size of the soil according to percentage of sand, silt, and clay. One of the Green and Ampt equation parameters can be adjusted for the effects of vegetative ground cover. Values for the surface retention loss and the Green and Ampt infiltration equation loss parameters were derived from Tables 3.1 and 3.2 of the **ADOT Highway Drainage Design Manual**. Computation sheets for area averaging parameter values for non-uniform watersheds and changes in land use intensity are given in Appendix D with the HEC-1 model input/output.

6.2 Discharge Computations

Peak discharge rates were computed for 138 concentration points within or along the boundaries of the community. The locations of the concentration points and the watershed boundaries are shown on sheets 1 through 7 in Appendix B of this report. Hydrologic design data sheets for the discharge computations which were conducted by the Pima County method are provided in Appendix C. Table 3 lists the concentration points, the contributing drainage area, percent impervious cover, and computed discharge rates for the 2-, 5-, 10-, 25-, 50-, and 100-year return period events. Important characteristics for flow conditions at each of these concentration points (if

TABLE 3

Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)	Notes
1	16-13-35	53.7	2	11	41	69	113	155	199	West Corporate Limit, Downstream of I-19
2	16-13-35	50.6	2	11	39	67	106	146	193	West Corporate Limit, Downstream of I-19
3	16-13-35	162.8	1	27	106	182	302	417	545	West Corporate Limit, Downstream of I-19
4	16-13-35	117.8	1	15	63	108	181	256	339	Breakout from CP#133 not included
5	16-13-35	19.8	2	6	21	34	52	75	92	West Corporate Limit, Downstream of I-19
6	16-13-35	23.8	2	6	22	36	58	79	100	West Corporate Limit, Downstream of I-19
7	16-13-35	17.1	2	4	16	26	42	56	72	West Corporate Limit, Downstream of I-19
8	16-13-35	66.3	1	13	50	84	138	190	251	West Corporate Limit, Downstream of I-19
9	17-13-02	43.3	0	10	37	64	100	141	180	at I -19
10	17-13-02	46.5	0	9	37	63	101	141	180	at I -19
11	17-13-02	29.2	0	6	25	42	68	95	121	at I -19
12	17-13-02	19.1	0	5	20	32	52	71	93	at I -19
13	17-13-02	39.1	0	8	32	54	88	123	157	at I -19
14	17-13-02	99.1	0	20	81	138	223	311	398	at I -19
15	17-13-02	34.1	0	7	28	47	77	107	137	at I -19
16	17-13-11	85.2	0	17	66	115	185	259	330	at I -19
17	17-13-11	39.6	0	8	32	53	86	120	154	at I -19
18	17-13-11	62.4	0	12	48	84	135	189	242	at I -19
19	17-13-11	8871.0	1.7	825	1475	1975	2444	3196	3760	at I -19
20	17-13-11	60.0	30	55	97	129	174	221	269	at I -19, Q100 per CBA Rancho Resort report
21	17-13-11	18.8	0	6	20	33	53	74	96	West Corporate Limit
22	17-13-11	20.4	0	6	22	35	58	80	104	West Corporate Limit
23	17-13-11	15.5	0	5	16	27	44	61	79	West Corporate Limit
24	17-13-11	8825.6	1.7	825	1475	1975	2444	3196	3760	Q100 per CBA Rancho Resort report, split flow to CP#25
25	17-13-11	8825.6	1.7	825	1475	1975	2444	3196	3760	Q100 per CBA Rancho Resort report, split flow to CP#24
26	17-13-11	7.1	0	4	9	14	21	28	35	Q100 per CBA Rancho Resort , +175cfs split flow CP#24
27	16-13-35	138.4	1	17	75	132	218	313	405	
28	16-13-35	863.7	1	61	260	473	838	1207	1609	
29	17-13-02	701.8	1	53	245	459	789	1118	1501	East Corporate Limit
30	17-13-11	234.4	1	28	124	216	356	503	669	East Corporate Limit
31	17-13-11	9097.0	1.7	825	1475	1975	2444	3196	3760	East Corporate Limit
32	16-13-36	1365.7	1	65	303	562	995	1481	2057	North Corporate Limit
33	16-13-35	1022.2	1	67	281	508	892	1314	1743	
34	17-13-12	233.1	15	79	197	295	449	607	767	
35	17-13-12	99.1	10	28	79	125	193	267	343	

TABLE 3

Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)	Notes
36	17-13-14	43.7	1	10	39	65	103	143	183	I-19 Ramp
37	17-13-14	29.0	1	7	25	42	68	92	117	I - 19
38	17-13-14	33.2	1	8	29	48	78	105	134	I - 19
39	17-13-14	29.2	1	7	27	45	71	99	129	I - 19
40	17-13-14	14.7	0	5	17	28	44	61	79	I - 19
41	17-13-14	19.5	0	5	20	32	50	73	90	I - 19
42	17-13-14	75.3	1	13	49	84	140	198	259	Q100 per CBA Rancho Resort report
43	17-13-14	24.2	0	5	21	35	58	79	101	I - 19
44	17-13-15	23.9	1	6	21	35	56	76	100	La Canada Dr., Dip Section Split Flow from CP #7 Possible
45	17-13-13	217.7	0	30	130	225	381	539	704	La Canada Dr., Dip Section
46	17-13-13	140.1	1	22	88	154	255	350	456	La Canada Dr., Dip Section
47	17-13-13	498.0	1	53	541	420	709	1006	1320	La Canada Dr., Dip Section
48	17-13-22	268.5	1	24	111	198	338	482	641	La Canada Dr., Dip Section
49	17-13-22	19.8	5	6	20	31	50	67	85	La Canada Dr., Dip Section
50	17-13-22	3072.0	1	300	535	716	887	1160	1364	Existing dip, New 3 - 10'x4' CBC to be installed by ADOT
51	17-13-22	145.1	2	18	77	133	223	314	408	La Canada Dr., Dip Section
52	17-13-22	10.5	15	7	17	25	37	49	59	La Canada Dr., Dip Section
53	17-13-22	399.1	2	29	124	229	407	581	766	La Canada Dr., Dip Section
54	17-13-22	42.9	15	22	54	82	121	158	197	La Canada Dr., Dip Section
55	17-13-22	33.0	20	21	46	67	97	126	157	La Canada Dr., Dip Section
56	17-13-22	34.8	15	18	44	64	95	128	160	La Canada Dr., Dip Section
57	17-13-23	3434.9	1	330	589	788	977	1277	1502	Camino de la Quintas - Dip Section
58	17-13-23	182.4	3	23	91	159	262	375	490	Camino de la Quintas - Dip Section
59	17-13-23	416.3	2	28	123	226	405	580	780	Camino de la Quintas - Dip Section
60	17-13-23	144.5	15	62	154	232	348	464	584	Camino de la Quintas - Dip Section
61	17-13-23	26.4	15	14	35	52	77	100	128	Camino de la Quintas - Dip Section
62	17-13-23	3465.2	1	300	535	716	887	1160	1364	I - 19
63	17-13-23	12.6	15	8	18	27	40	53	68	I - 19
64	17-13-23	201.5	4	24	98	169	277	384	514	I - 19
65	17-13-23	31.6	15	19	45	66	95	126	161	I - 19
66	17-13-23	604.9	2	40	172	314	564	827	1105	I - 19
67	17-13-23	38.5	15	18	43	65	98	129	165	I - 19
68	17-13-23	3489.1	1	300	535	716	887	1160	1364	El Toro Rd Alignment - RR Culvert
69	17-13-24	348.7	3	31	129	238	401	565	756	
70	17-13-13	241.1	1	23	109	193	328	467	628	East Corporate Limit

TABLE 3

Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)	Notes
71	17-13-13	3965.4	1	365	647	862	1078	1409	1658	East Corporate Limit
72	17-13-24	45.5	0	10	39	67	106	148	189	
73	17-13-24	69.0	15	31	76	117	171	230	287	
74	17-13-24	1178.5	2	63	277	509	895	1338	1840	
75	17-13-22	238.4	0	24	113	198	335	477	627	West Corporate Limit
76	17-13-22	3012.0	1	300	535	716	887	1160	1364	West Corporate Limit
77	17-13-22	105.8	1	28	89	144	226	305	394	West Corporate Limit
78	17-13-22	18.0	1	4	16	26	41	57	73	2-36" CMP
79	17-13-22	10.8	5	4	13	20	32	44	54	
80	17-13-22	328.5	2	27	120	221	374	528	708	West Corporate Limit
81	17-13-22	6.8	15	5	11	16	24	30	38	Camino Contianza, Dip Section
82	17-13-22	17.6	20	14	30	43	65	81	103	Camino Contianza, Dip Section
83	17-13-22	12.1	20	11	22	33	47	59	74	Placita Sin Pavada, Dip Section
84	17-13-22	26.0	15	16	38	57	82	110	140	Camino Manoj, Dip Section
85	17-13-23	165.0	25	90	193	285	412	541	665	I - 19 / 2 - 10' x 4' CBC
86	17-13-26	27.2	25	23	47	67	95	124	155	I - 19
87	17-13-26	126.1	25	71	151	222	324	425	522	I - 19 / 2 - 8' x 4' CBC, 2' Sediment
88	17-13-26	59.1	20	33	74	110	158	211	262	I - 19 / 2 - 10' x 3' CBC
89	17-13-26	56.0	20	30	68	101	149	194	240	I - 19 / 1 - 36" CMP
90	17-13-26	86.5	10	27	78	123	193	260	325	I - 19 / 3 - 10 x 3' CBC
91	17-13-26	285.2	1	18	83	156	277	401	539	I - 19 / 4 - 10' x 6' CBC
92	17-13-35	178.6	1	14	65	121	206	294	390	I - 19 / 2 - 10' x 4' CBC
93	17-13-35	288.7	10	71	207	334	523	719	919	I - 19 / 2 - 8' x 4' CBC
94	17-13-35	36.1	95	119	170	200	251	288	325	I - 19 Ramp
95	17-13-35	103.1	2	19	69	118	194	275	349	I - 19 Frontage Rd
96	17-13-35	136.0	20	53	125	181	279	376	476	I - 19 Frontage Rd
97	17-13-26	29.2	35	30	55	75	102	128	160	Camino de las Quintas - Dip Section
98	17-13-26	56.1	30	47	92	129	181	231	283	Camino de las Quintas - Dip Section
99	17-13-26	44.0	25	31	65	92	132	168	208	Camino de las Quintas - Dip Section
100	17-13-26	9.2	50	19	30	38	48	57	67	Camino de las Quintas - Dip Section
101	17-13-26	68.7	30	56	109	152	215	273	335	Camino de las Quintas - Dip Section
102	17-13-26	26.2	40	29	50	69	95	119	140	Camino de las Quintas - Dip Section
103	17-13-26	40.0	25	31	65	89	128	164	206	Camino de las Quintas - Dip Section
104	17-13-26	41.1	25	31	64	92	131	169	212	Camino de las Quintas - Dip Section
105	17-13-26	57.1	4	15	49	80	129	174	228	Camino de las Quintas - Dip Section

TABLE 3

Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₂ (cfs)	Q ₅ (cfs)	Q ₁₀ (cfs)	Q ₂₅ (cfs)	Q ₅₀ (cfs)	Q ₁₀₀ (cfs)	Notes
106	17-13-26	46.7	4	11	39	64	100	137	180	Camino de las Quintas - Dip Section
107	17-13-27	11.3	25	10	19	27	39	51	61	La Canada Dr., Dip Section
108	17-13-27	45.5	25	36	74	105	146	187	234	La Canada Dr., Dip Section
109	17-13-27	23.8	10	12	32	48	72	96	124	La Canada Dr., Dip Section
110	17-13-27	52.7	30	50	98	133	192	248	295	La Canada Dr., Dip Section
111	17-13-27	15.4	45	24	41	52	70	89	104	La Canada Dr., Dip Section
112	17-13-27	19.8	10	11	28	42	66	84	108	La Canada Dr., Dip Section
113	17-13-27	32.3	0	7	29	49	77	105	134	La Canada Dr., Dip Section
114	17-13-27	33.4	0	8	30	49	80	108	139	La Canada Dr., Dip Section
115	17-13-27	181.7	5	17	63	114	194	276	362	La Canada Dr. / 2 - 36" CMP
116	17-13-34	127.2	2	12	54	96	160	227	300	La Canda Dr., Dip Section
117	17-13-34	54.7	0	12	48	80	131	178	227	La Canda Dr., Dip Section
118	17-13-34	28.7	1	8	29	49	78	108	140	La Canda Dr., Dip Section
119	17-13-34	36.6	1	9	33	55	89	120	153	La Canda Dr., Dip Section
120	17-13-34	37.4	5	12	38	62	95	131	169	La Canada Dr. / 2 - 36" CMP
121	17-13-34	24.6	5	8	25	41	62	83	106	La Canada Dr. / 2 - 36" x 22" ACMP
122	17-13-34	25.3	5	12	36	59	89	114	140	La Canada Dr. / 2 - 65" x 40" ACMP
123	17-13-26	194.0	23	90	203	296	441	578	730	Avenida de Augusto
124	17-13-26	50.4	15	22	55	83	125	168	210	Avenida de Augusto
125	17-13-26	199.6	22	89	201	295	438	590	725	Avenida de Augusto
126	17-13-26	118.7		70	145	207	297	387	487	Avenida de Augusto
127	17-13-26	284.8	15	76	203	316	489	658	849	Avenida de Augusto/Calle Marzo Intersection
128	17-13-25	418.6	12	70	217	356	557	783	1021	Old Nogales Hwy CBC
129	17-13-25	781.9	5	65	249	444	786	1107	1471	Old Nogales Hwy 4 - 10' x 4' CBC
130	17-13-35	78.3	30	73	141	191	271	350	416	Old Nogales Hwy CBC
131	17-13-35	423.8	15	319	734	1075	1569	2078	2513	Corp Limit
132	16-13-26	102.8	1	20	78	130	213	294	389	Pima Mine Rd
133	16-13-26	262.8	1	34	147	254	424	593	786	Split flow to CP#24 possible
134	17-13-26	13.8	10	7	19	28	44	59	72	I - 19 / 2 - 36" CMP
135	17-13-35	312.6	15	111	286	441	673	899	1151	I - 19 Frontage Rd / 6 - 10' x 8' CBC
136	17-13-35	94.2	2	20	73	125	198	272	359	Duval Mine Rd / 1 - 10' x 3' CBC
137	17-13-34	160.7	10	50	142	222	348	470	604	La Canda Dr. 2- 8' x 4' CBC
138	17-13-11	35.7	40	28	45	65	84	110	129	I - 19, Q per CBA Rancho Resort Report
139	17-13-13	492.7	1	55	245	432	715	1014	1336	East Corp.limit south of Helmet Peak Rd.
140	17-13-14	154.3	3	20	82	140	230	324	426	El Toro Rd. east of I-19
141	17-13-14	60.9	3	13	44	76	122	168	218	El Toro Rd. east of I-19

any) are also noted on Table 3. The possibility of upstream split flows is noted in Table 3 where applicable. The discharge values presented in Table 3 do not include the split flows. Discharge values for upstream split flow concentration points may need to be added to the stated results in order to determine the additional flow which could arrive at the location of interest.

There are two watersheds which have a drainage area greater than 2 square miles. Computation sheets and input/output for the watersheds which were analyzed by the HEC-1 model are provided in Appendix D. The two large watersheds which were analyzed by the HEC-1 model drain to Concentration Points #24 and #76 along the west property boundary. The boundaries of these watersheds are shown on the 1" = 400' maps in Appendix B to the extent that they were covered by these photographs. A map which was developed on a USGS quad base (1:24,000, 40-foot contour interval) that shows the entire area of the contributing watershed for these washes is provided in Appendix A with the soils delineations.

Discharge values which are given in Table 3 for Concentration Points #19, #20, #24, #25, #26, and #138 were derived from the Cella Barr Associates, Inc., report for Rancho Resort. The discharge values for these concentration points were determined based upon detention routing analysis for regional facilities within the Rancho Resort subdivision. These retention/detention basins were observed to be under construction at the time of this study.

6.3 Discussion of Results

The unit discharge rate for the 100-year return period event varies as a function of the drainage area and time of concentration. Unit discharge rates for the smaller watersheds (<100 acres) generally range from 3 cfs to 4 cfs per acre. Unit discharge rates for watersheds with an area between 100 acres and 1000 acres generally range from about 2 cfs to 3 cfs per acre. Unit discharge rates for the large watercourses (with a drainage area >2 square miles and which was modeled by the HEC-1 model) range from 0.4 cfs to 0.5 cfs per acre.

The results of this study were compared with the results presented in the *Hydrologic and Hydraulic Analysis for Existing Conditions, Rancho Sahuarita Property*, Simons, Li & Associates, August 11, 1995. The basin factors which were used by SLA are generally in the range of 0.040 to 0.045. Basin factor sensitivity analyses which were conducted as a part of this study found the CMG Drainage Engineering, Inc., results to be 5% to 20% higher than the SLA study results. The largest differences occur when comparing results obtained for the larger watersheds. This is because the basin factor has a more significant effect upon time of concentration when the travel distance is longer.

A comparison of this study's results with the SLA study found some locations (concentration points) where there were significant differences in the drainage area. As noted in Section 2.3 of this report, there are several locations where there are divided flow paths which can lead to different interpretations regarding where the flow goes. One of the most notable differences occurred at Concentration Point # 24 which

is located along Helmet Peak Road at the west corporate limit. SLA determined the drainage area at this concentration point to be 54.2 acres. The drainage area at this location was determined by CMG Drainage Engineering, Inc., and by CBA (as a part of the *Rancho Resort Drainage Study*) to be 8825.6 acres. SLA apparently assumed that this flow follows along the south side of Helmet Peak Road. Field investigations conducted as a part of this study identified dip sections in Helmet Peak Road where the flow passes to the north side of the roadway, then enters the Town of Sahuarita and the Rancho Resort project. There are also several other locations where at least minor differences in the drainage area occur. Both study reports should be reviewed and the drainage boundaries checked in the field to confirm the contributing watershed area at these locations.

VII RETENTION/DETENTION FACILITIES

Retention/detention facilities have been constructed in association with the more recent subdivision development projects in the community. These retention/detention basins have been for the purpose of controlling post-development runoff rates. None of the basins have been identified to exist along major watercourses. The major watercourses have been usually left in a natural condition by incorporating them into the project open space and common area.

The reconnaissance-level assessment determined that the costs associated with regional retention/detention facilities far outweighs the benefits to be gained. Existing drainage problems within the community were dispersed and of limited economic consequence. Regional retention/detention facilities require a large amount of land and would be subject to significant sediment deposition and maintenance after runoff events. Release of clear water from the basins would disrupt downstream sediment continuity and initiate bank erosion and streambed degradation unless controlled. The estimated cost for regional retention/detention facilities is \$30,000 - \$50,000/acre-foot of storage. These costs include land acquisition, grading, basic inlet/outlet structures, and mitigation of vegetation loss. These findings lead to the conclusion that regional retention/detention facilities are not a needed or appropriate flood control mechanism for the Town of Sahuarita, unless implemented in conjunction with and for the sole purpose of controlling runoff from future developments.

VIII FLOODPLAIN MANAGEMENT STRATEGIES

Flood damages within the community have been minimal during past floods. Most of the damages have been associated with minor erosion or deposition to residential property within the older subdivisions. Traffic along roads such as La Cañada Drive can be disrupted during periods of time immediately following significant rainfall events. Some of the major watercourses cross La Cañada Drive and Camino de las Quintas in dip sections. These dip sections can remain impassable for a period of a few hours following these storms.

Recommendations for floodplain management strategies have been developed based upon observed drainage conditions and upon problems which have occurred in the past. Some of these policies apply to individual lot drainage design minimum standards while others are directed at future subdivision development plats and development plans. The recommended policies are as follows.

Individual Lot Drainage

- The minimum finished floor elevation for proposed residential structures should be at a height of at least 18 inches above the highest adjoining natural grade unless engineering analyses are submitted to demonstrate that a lesser standard is acceptable.
- Site plans for all residential structures should define the location and method of conveying sheetflow drainage, particularly where lot-to-lot drainage occurs.

- A floodplain use permit should be required for all driveway culverts. At-grade dip crossings should be used wherever possible. Appropriate erosion control measures such as riprap should be installed at the culvert outlets to minimize downstream erosion/sedimentation impacts.

Development Plans and Plats

- The inadequacy of downstream drainage facilities (particularly east of Interstate 19) suggests that all areas within the Town of Sahuarita should be considered for classification as a critical basin. Onsite retention and detention should be implemented in conjunction with future plats and development plans for sites having an area of 1 acre or more, or a land use intensity greater than 1 house per acre. Onsite detention requirements for these projects should yield a 10% reduction in existing conditions discharge rates for onsite runoff, for all storm frequencies.
- Washes which have a 100-year discharge rate greater than 100 cfs should remain natural wherever possible. Encroachment along the floodplain fringe is allowable, but the low flow channel area should be left undisturbed to minimize erosion, downstream sedimentation problems and loss of overbank flood storage volume.

General Policies and Approaches

- A working dialog should develop between the Town of Sahuarita and the mining companies. The mining companies should be kept informed of drainage conditions within the communities and of ongoing development activity. The

companies have constructed have a significant effect upon runoff rates and patterns. Unannounced changes to these structures could result in adverse impacts.

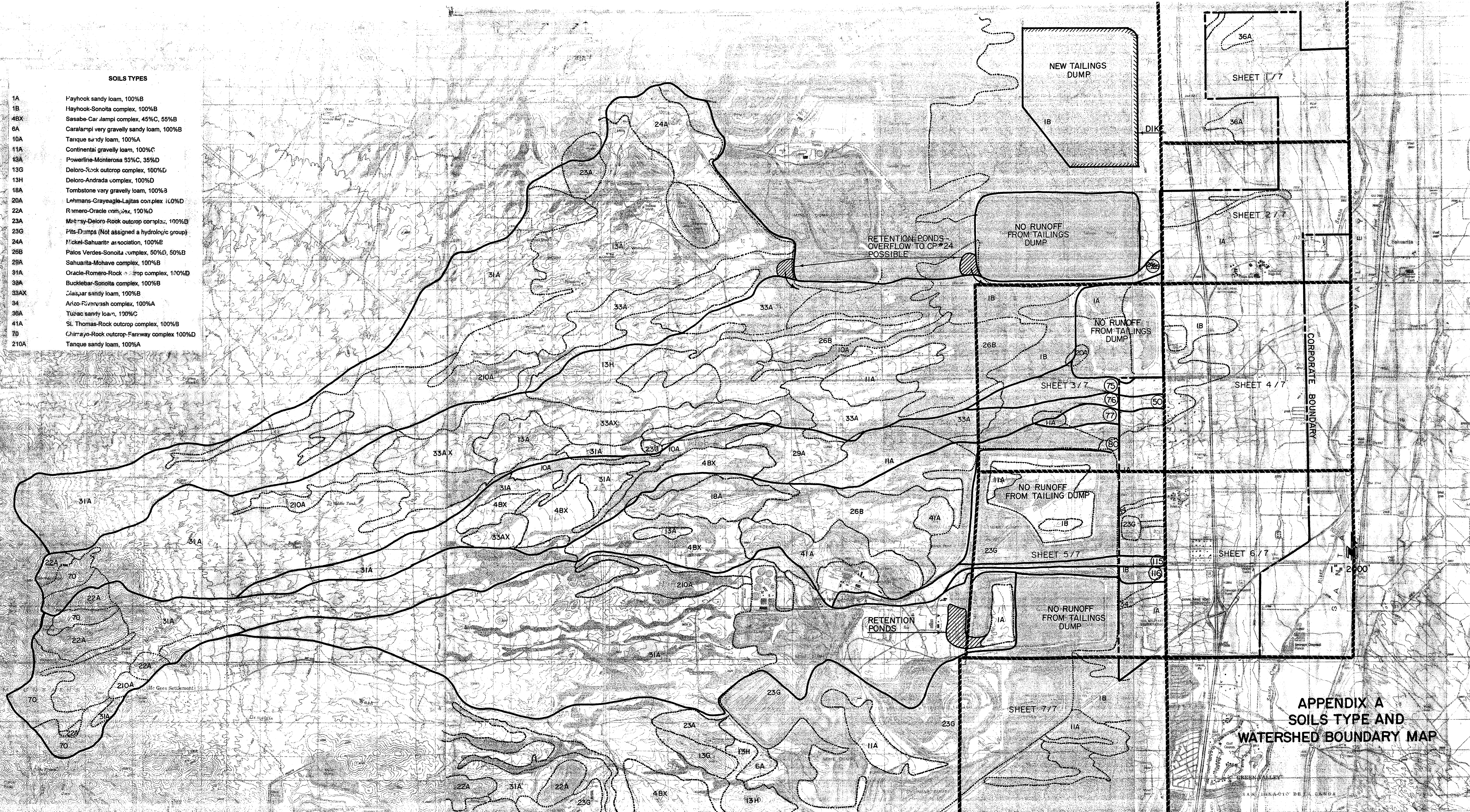
- Any individual structure, development plan, or subdivision plat located downstream of an unstabilized earthen berm or levee should be certified by an Arizona Registered Professional Engineer to be adequately protected from the threat of flooding or flood-related damages associated with a breach of said structure. Otherwise, site drainage features should be designed to accommodate the possibility of berm/levee failure.
- Drainage structure improvements needed to facilitate all-weather access along La Cañada Drive between Helmet Peak Road and Duval Road should be identified. This road is the most important local arterial because it serves most of the residential neighborhoods within the community.
- Future development within the area lying 300 feet west of Interstate 19 should require engineering data to demonstrate that proposed structures are not vulnerable to inundation due to a backwater at the inlet to the Interstate 19 culverts; and that said structures do not divert or obstruct current drainage patterns which may include flow north or south along the freeway embankment.
- When constructed drainageways are required to control runoff within proposed residential, commercial, or industrial developments, channel bank and bottom stabilization should be provided. Channel bank protection should be provided when the flow velocity exceeds 5 feet/sec during the 100-year storm. The banks should also be stabilized along channel bends having a radius of curvature-to-topwidth ratio less than 10 when the velocity exceeds 3 feet/sec during the 100-

year storm. The bottom of the channel should be lined with concrete, soil cement or riprap, or grade-controlled (all channels) to prevent long-term degradation. Channel bed degradation has been observed to be a significant problem in this area because of the steep slopes and loose sandy soils which exist within the Town.

APPENDIX A
REGIONAL SOILS MAP

SOILS TYPES

1A	Fayhook sandy loam, 100%B
1B	Hayhook-Sonoita complex, 100%B
4BX	Sasabe-Carilampi complex, 45%C, 55%B
6A	Caralampi very gravelly sandy loam, 100%B
10A	Tanque sandy loam, 100%A
11A	Continental gravelly loam, 100%C
13A	Powerline-Monterosa 55%C, 35%D
13G	Deloro-Rock outcrop complex, 100%D
13H	Deloro-Andrada complex, 100%D
18A	Tombstone vary gravelly loam, 100%B
20A	Lehmans-Crayeagle-Lajitas complex 100%D
22A	Romero-Oracle complex, 100%D
23A	Murray-Deloro-Rock outcrop complex, 100%D
23G	Pits-Dumps (Not assigned a hydrologic group)
24A	Mickel-Sahuarita association, 100%E
26B	Palos Verdes-Sonoita complex, 50%D, 50%B
29A	Sahuarita-Mohave complex, 100%B
31A	Oracle-Romero-Rock outcrop complex, 100%D
38A	Bucklebar-Sonoita complex, 100%B
33AX	Jaspar sandy loam, 100%B
34	Arizo-Riverwash complex, 100%A
36A	Tuac sandy loam, 100%C
41A	St. Thomas-Rock outcrop complex, 100%B
70	Chimayo-Rock outcrop-Fairway complex 100%D
210A	Tanque sandy loam, 100%A



**APPENDIX A
SOILS TYPE AND
WATERSHED BOUNDARY MAP**

APPENDIX B

WATERSHED BOUNDARY/CONCENTRATION POINT MAPS

SAHUARITA BASIN MANAGEMENT PLAN PHASE I WATERSHED BOUNDARY & CONCENTRATION POINT LOCATION MAP

LEGEND

- WATERSHED BOUNDARIES
- CONCENTRATION POINT LOCATION
- CORPORATE BOUNDARY
- FLOW ARROW
- SPLIT FLOW ARROW

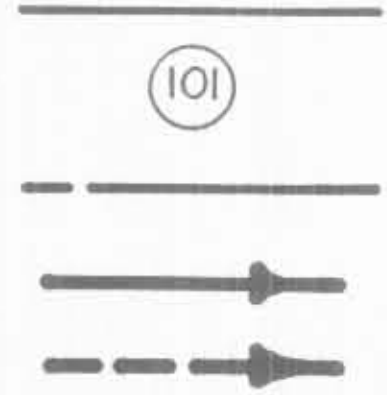


TABLE 3
Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (Acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁ (cfs)	Q _{0.5} (cfs)	Q _{0.2} (cfs)	Q _{0.1} (cfs)	Notes
1	15-13-35	53.7	2	11	41	69	113	155	199	West Corporate Limit, Downstream of I-19
2	15-13-35	53.7	2	11	41	69	113	155	199	West Corporate Limit, Downstream of I-19
3	15-13-35	162.8	1	27	106	182	302	417	545	West Corporate Limit, Downstream of I-19
4	15-13-35	171.9	1	13	43	70	101	136	179	Downstream from CP#13 (not installed)
5	15-13-35	19.8	2	6	21	34	50	75	92	West Corporate Limit, Downstream of I-19
6	15-13-35	21.7	2	6	22	36	50	75	100	West Corporate Limit, Downstream of I-19
7	15-13-35	43.3	2	12	45	74	106	141	183	West Corporate Limit, Downstream of I-19
8	15-13-35	66.3	1	13	50	84	136	189	251	West Corporate Limit, Downstream of I-19
9	15-13-35	66.3	1	13	50	84	136	189	251	West Corporate Limit, Downstream of I-19
10	15-13-35	46.5	0	9	37	63	101	141	180	at I-19
11	15-13-35	43.3	0	16	37	64	100	141	183	at I-19
12	15-13-35	19.1	0	5	20	32	50	71	93	at I-19
13	15-13-35	59.1	0	20	81	138	203	275	357	at I-19
14	15-13-35	34.1	0	7	28	47	77	107	137	at I-19
15	15-13-35	46.5	0	17	66	110	166	229	300	at I-19
16	15-13-35	39.8	0	8	32	53	86	120	154	at I-19
17	15-13-35	62.4	0	12	48	84	135	189	242	at I-19
18	15-13-35	87.1	1.7	850	1475	1975	2444	3196	3760	at I-19
19	15-13-35	87.1	1.7	850	1475	1975	2444	3196	3760	at I-19
20	15-13-35	18.8	0	6	25	43	63	84	104	at I-19, Q100 per CBA Rancho Resort report
21	15-13-35	18.8	0	6	25	43	63	84	104	West Corporate Limit
22	15-13-35	18.8	0	6	25	43	63	84	104	West Corporate Limit
23	15-13-35	15.5	0	5	18	27	46	60	78	West Corporate Limit
24	15-13-35	863.7	1.7	850	1475	1975	2444	3196	3760	Q100 per CBA Rancho Resort report, split flow to CP#24
25	15-13-35	863.7	1.7	850	1475	1975	2444	3196	3760	Q100 per CBA Rancho Resort report, split flow to CP#24
26	15-13-35	17.1	0	4	14	21	31	41	51	Q100 per CBA Rancho Resort report, split flow to CP#24
27	15-13-35	138.4	1	71	275	450	718	959	1245	Q100 per CBA Rancho Resort report, split flow to CP#24
28	15-13-35	863.7	1	81	280	473	838	1207	1609	Q100 per CBA Rancho Resort report, split flow to CP#24
29	15-13-35	701.9	1	71	240	409	708	1108	1501	Q100 per CBA Rancho Resort report, split flow to CP#24
30	15-13-35	234.4	1	28	124	216	386	553	769	East Corporate Limit
31	15-13-35	863.7	1	820	1475	1975	2444	3196	3760	East Corporate Limit
32	15-13-35	1346.7	1	820	1475	1975	2444	3196	3760	North Corporate Limit
33	15-13-35	1022.2	1	67	281	508	892	1314	1743	North Corporate Limit
34	15-13-35	231.1	1	74	197	356	601	857	1167	North Corporate Limit
35	15-13-35	99.1	1	28	79	125	183	259	343	North Corporate Limit
36	15-13-35	43.7	1	13	48	81	120	163	213	1-19 Ramp
37	15-13-35	29.3	0	7	25	42	68	92	117	1-19
38	15-13-35	31.9	1	13	39	68	109	145	192	1-19
39	15-13-35	29.2	1	7	27	45	71	99	129	1-19
40	15-13-35	74.7	0	5	17	34	44	61	79	1-19
41	15-13-35	19.3	0	5	20	32	50	73	90	1-19
42	15-13-35	14.8	0	5	18	29	46	60	78	1-19
43	15-13-35	24.2	0	13	48	81	120	163	213	Q100 per CBA Rancho Resort report
44	15-13-35	23.8	0	6	21	35	56	78	100	La Canada Dr. Dip Section Split Flow from CP#1 Possible
45	15-13-35	212.0	0	30	109	205	381	538	704	La Canada Dr. Dip Section
46	15-13-35	140.1	1	22	85	154	256	350	456	La Canada Dr. Dip Section
47	15-13-35	489.0	1	51	141	260	458	657	870	La Canada Dr. Dip Section
48	15-13-35	269.5	1	24	111	198	338	482	641	La Canada Dr. Dip Section
49	15-13-35	13.9	0	6	20	31	50	71	90	La Canada Dr. Dip Section
50	15-13-35	3572.8	1	300	835	1518	2487	3644	5194	Existing on Nov 3 - 10' x 4' CIBC to be installed by ADOT
51	15-13-35	140.1	2	17	77	135	235	344	459	La Canada Dr. Dip Section
52	15-13-35	19.5	15	7	17	35	57	85	118	La Canada Dr. Dip Section
53	15-13-35	891.5	2	29	124	229	407	581	786	La Canada Dr. Dip Section
54	15-13-35	42.9	15	21	54	92	131	181	247	La Canada Dr. Dip Section
55	15-13-35	310	20	21	46	87	130	187	257	La Canada Dr. Dip Section
56	15-13-35	160.4	15	18	44	84	128	180	240	La Canada Dr. Dip Section
57	15-13-35	3434.9	1	330	989	1788	2977	4302	5890	Camino de la Quintero - Dip Section
58	15-13-35	160.4	3	22	91	159	262	378	490	Camino de la Quintero - Dip Section
59	15-13-35	416.5	2	28	123	226	405	580	780	Camino de la Quintero - Dip Section
60	15-13-35	144.5	15	82	154	272	468	664	894	Camino de la Quintero - Dip Section
61	15-13-35	20.4	15	14	35	62	97	140	188	Camino de la Quintero - Dip Section
62	15-13-35	3469.5	1	309	855	1538	2587	3760	5194	1-19
63	15-13-35	13.8	15	8	18	37	60	85	118	1-19
64	15-13-35	20.5	15	24	66	109	177	254	344	1-19
65	15-13-35	31.6	15	19	43	76	120	161	210	1-19
66	15-13-35	604.9	2	40	172	314	564	827	1105	1-19
67	15-13-35	34.5	15	18	43	76	120	161	210	1-19
68	15-13-35	3488.1	1	300	835	1518	2487	3644	5194	El Toro Rd Alignment - R/R Culvert
69	15-13-35	348.1	3	31	126	238	401	565	766	El Toro Rd Alignment - R/R Culvert
70	15-13-35	841.1	1	23	109	193	328	467	628	East Corporate Limit

Concentration Point #	T-R-S	Drainage Area (Acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁ (cfs)	Q _{0.5} (cfs)	Q _{0.2} (cfs)	Q _{0.1} (cfs)	Notes
71	17-13-13	395.6	1	365	847	1482	2178	3029	4058	East Corporate Limit
72	17-13-13	45.5	5	15	39	67	106	149	199	1-19
73	17-13-13	88.0	15	31	78	137	201	280	387	1-19
74	17-13-13	177.0	2	63	157	279	405	558	750	1-19
75	17-13-13	238.4	0	24	113	188	285	397	527	West Corporate Limit
76	17-13-13	252.8	2	50	200	348	503	693	924	West Corporate Limit
77	17-13-13	105.8	1	28	89	144	226	305	394	West Corporate Limit
78	17-13-13	18.0	1	4	16	26	41	57	73	2-36' C&P
79	17-13-13	10.8	1	3	11	18	28	39	51	2-36' C&P
80	17-13-13	328.8	2	27	120	221	374	528	728	West Corporate Limit
81	17-13-13	18.8	15	5	13	22	34	47	61	1-19
82	17-13-13	17.8	20	14	30	43	65	81	103	Camino de la Quintero - Dip Section
83	17-13-13	18.8	15	5	13	22	34	47	61	Camino de la Quintero - Dip Section
84	17-13-13	28.8	15	16	38	57	82	110	140	Camino de la Quintero - Dip Section
85	17-13-13	108.0	25	30	105	185	270	370	490	1-19
86	17-13-13	27.2	25	13	29	47	67	90	118	1-19
87	17-13-13	128.8	25	31	101	182	268	370	490	1-19
88	17-13-13	39.1	20	30	74	110	158	211	282	1-19
89	17-13-13	56.0	20	30	68	101	149	194	260	1-19
90	17-13-13	36.5	10	27	78	123	180	250	328	1-19
91	17-13-13	285.2	1	18	81	156	277	401	538	1-19
92	17-13-13	36.5	10	27	78	123	180	250	328	1-19
93	17-13-13	238.8	1	10	37	67	106	149	199	1-19
94	17-13-13	103.1	10	11	20	34	52	70	91	1-19
95	17-13-13	103.1	10	11	20	34	52	70	91	1-19
96	17-13-13	103.1	10	11	20	34	52	70	91	1-19
97	17-13-13	138.0	20	53	125	181	278	376	478	1-19
98	17-13-13	32.2	20	30	55	75	105	140	180	1-19
99	17-13-13	86.1	20	47	92	129	181	251	325	1-19
100	17-13-13	44.2	20	31	65	95	132	180	238	1-19
101	17-13-13	8.2	50	19	30	38	48	57	67	1-19
102	17-13-13	28.2	40	29	50	69	95	119	140	1-19
103	17-13-13	40.0	25	31	65	89	128	164	200	1-19
104	17-13-13	40.0	25	31	65	89	128	164	200	1-19
105	17-13-13	40.0	25	31	65	89	128	164	200	1-19
106	17-13-13	40.0	25	31	65	89	128	164	200	1-19
107	17-13-13	40.0	25	31	65	89	128	164	200	1-19
108	17-13-13	40.0	25	31	65	89	128	164	200	1-19
109	17-13-13	23.8	10	12	32	48	67	90	114	1-19
110	17-13-13	32.2	10	12	32	48	67	90	114	1-19
111	17-13-13	15.4	40	24	41	52	70	89	104	1-19
112	17-13-13	36.5	10	11	29	42	60	84	108	1-19
113	17-13-13	32.3	0	1	29	48	77	105	134	1-19
114	17-13-13	32.3	0	1	29	48	77	105	134	1-19
115	17-13-13	32.3	0	1	29	48	77	105	134	1-19
116	17-13-13	32.3	0	1	29	48	77	105	134	1-19
117	17-13-13	32.3	0	1	29	48	77	105	134	1-19
118	17-13-13	32.3	0	1	29	48	77	105	134	1-19
119	17-13-13	32.3	0	1	29	48	77	105	134	1-19</

SAHUARITA BASIN MANAGEMENT PLAN PHASE I WATERSHED BOUNDARY & CONCENTRATION POINT LOCATION MAP

LEGEND

- WATERSHED BOUNDARIES
- CONCENTRATION POINT LOCATION
- CORPORATE BOUNDARY
- FLOW ARROW
- SPLIT FLOW ARROW

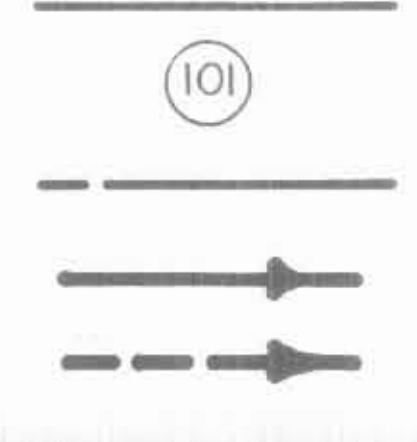


TABLE 3

Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₁₀	Q ₂	Q ₁	Q _{0.5}	Q _{0.2}	Q _{0.1}	Notes
1	16-13-35	53.7	2	11	41	69	113	155	198	West Corporate Limit, Downstream of I-19
2	16-13-35	10.8	2	11	39	67	106	146	193	West Corporate Limit, Downstream of I-19
3	16-13-35	162.8	1	27	106	182	302	417	545	West Corporate Limit, Downstream of I-19
4	16-13-35	19.6	2	6	21	34	52	75	92	West Corporate Limit, Downstream of I-19
5	16-13-35	19.6	2	6	21	34	52	75	92	West Corporate Limit, Downstream of I-19
6	16-13-35	23.8	2	6	22	36	58	79	100	West Corporate Limit, Downstream of I-19
7	16-13-35	66.3	1	13	50	84	138	190	251	West Corporate Limit, Downstream of I-19
8	16-13-35	66.3	1	13	50	84	138	190	251	West Corporate Limit, Downstream of I-19
9	17-13-22	39.2	0	0	25	42	68	93	120	at I-19
10	17-13-22	46.5	0	0	37	63	101	141	183	at I-19
11	17-13-22	46.5	0	0	37	63	101	141	183	at I-19
12	17-13-22	19.1	0	0	5	20	32	42	51	at I-19
13	17-13-22	59.1	0	0	32	54	88	123	157	at I-19
14	17-13-22	59.1	0	0	32	54	88	123	157	at I-19
15	17-13-22	54.1	0	0	28	47	77	107	137	at I-19
16	17-13-22	54.1	0	0	28	47	77	107	137	at I-19
17	17-13-22	39.8	0	0	32	53	86	120	154	at I-19
18	17-13-22	39.8	0	0	32	53	86	120	154	at I-19
19	17-13-22	871.0	17	825	1475	1975	2444	3198	3760	at I-19, Q100 per CBA/Rancho Report
20	17-13-22	871.0	17	825	1475	1975	2444	3198	3760	at I-19, Q100 per CBA/Rancho Report
21	17-13-22	18.8	0	0	20	33	53	74	96	West Corporate Limit
22	17-13-22	20.4	0	0	22	35	55	76	98	West Corporate Limit
23	17-13-22	19.2	0	0	19	27	44	61	79	West Corporate Limit
24	17-13-22	8825.6	17	825	1475	1975	2444	3198	3760	Q100 per CBA/Rancho Report, split flow to CP#24
25	17-13-22	8825.6	17	825	1475	1975	2444	3198	3760	Q100 per CBA/Rancho Report, split flow to CP#24
26	16-13-35	128.4	1	6	79	132	218	313	409	Q100 per CBA/Rancho Report, split flow CP#24
27	16-13-35	128.4	1	6	79	132	218	313	409	Q100 per CBA/Rancho Report, split flow CP#24
28	16-13-35	863.7	1	61	260	473	838	1207	1659	East Corporate Limit
29	17-13-22	128.4	1	6	79	132	218	313	409	East Corporate Limit
30	17-13-22	128.4	1	6	79	132	218	313	409	East Corporate Limit
31	17-13-22	863.7	1	61	260	473	838	1207	1659	East Corporate Limit
32	16-13-35	1185.1	1	61	263	476	841	1210	1662	East Corporate Limit
33	17-13-22	863.7	1	61	260	473	838	1207	1659	East Corporate Limit
34	17-13-22	203.1	1	14	59	105	182	261	343	North Corporate Limit
35	17-13-22	203.1	1	14	59	105	182	261	343	North Corporate Limit
36	17-13-22	89.7	10	28	79	132	218	313	409	I-19 Range
37	17-13-22	89.7	10	28	79	132	218	313	409	I-19 Range
38	17-13-22	29.2	1	7	25	42	68	90	114	I-19
39	17-13-22	29.2	1	7	25	42	68	90	114	I-19
40	17-13-22	29.2	1	7	25	42	68	90	114	I-19
41	17-13-22	29.2	1	7	25	42	68	90	114	I-19
42	17-13-22	29.2	1	7	25	42	68	90	114	I-19
43	17-13-22	29.2	1	7	25	42	68	90	114	I-19
44	17-13-22	29.2	1	7	25	42	68	90	114	I-19
45	17-13-22	29.2	1	7	25	42	68	90	114	I-19
46	17-13-22	29.2	1	7	25	42	68	90	114	I-19
47	17-13-22	29.2	1	7	25	42	68	90	114	I-19
48	17-13-22	29.2	1	7	25	42	68	90	114	I-19
49	17-13-22	29.2	1	7	25	42	68	90	114	I-19
50	17-13-22	29.2	1	7	25	42	68	90	114	I-19
51	17-13-22	29.2	1	7	25	42	68	90	114	I-19
52	17-13-22	29.2	1	7	25	42	68	90	114	I-19
53	17-13-22	29.2	1	7	25	42	68	90	114	I-19
54	17-13-22	29.2	1	7	25	42	68	90	114	I-19
55	17-13-22	29.2	1	7	25	42	68	90	114	I-19
56	17-13-22	29.2	1	7	25	42	68	90	114	I-19
57	17-13-22	29.2	1	7	25	42	68	90	114	I-19
58	17-13-22	29.2	1	7	25	42	68	90	114	I-19
59	17-13-22	29.2	1	7	25	42	68	90	114	I-19
60	17-13-22	29.2	1	7	25	42	68	90	114	I-19
61	17-13-22	29.2	1	7	25	42	68	90	114	I-19
62	17-13-22	29.2	1	7	25	42	68	90	114	I-19
63	17-13-22	29.2	1	7	25	42	68	90	114	I-19
64	17-13-22	29.2	1	7	25	42	68	90	114	I-19
65	17-13-22	29.2	1	7	25	42	68	90	114	I-19
66	17-13-22	29.2	1	7	25	42	68	90	114	I-19
67	17-13-22	29.2	1	7	25	42	68	90	114	I-19
68	17-13-22	29.2	1	7	25	42	68	90	114	I-19
69	17-13-22	29.2	1	7	25	42	68	90	114	I-19
70	17-13-22	29.2	1	7	25	42	68	90	114	I-19

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₁₀	Q ₂	Q ₁	Q _{0.5}	Q _{0.2}	Q _{0.1}	Notes
71	17-13-22	285.4	1	365	647	862	1078	1408	1858	East Corporate Limit
72	17-13-22	65.1	5	19	30	47	62	81	101	I-19
73	17-13-22	69.0	5	19	31	48	63	82	103	I-19
74	17-13-22	119.0	5	30	47	64	84	109	139	I-19
75	17-13-22	238.4	0	24	113	188	335	477	637	West Corporate Limit
76	17-13-22	238.4	0	24	113	188	335	477	637	West Corporate Limit
77	17-13-22	105.8	1	28	89	144	228	305	394	West Corporate Limit
78	17-13-22	105.8	1	28	89	144	228	305	394	West Corporate Limit
79	17-13-22	105.8	1	28	89	144	228	305	394	West Corporate Limit
80	17-13-22	238.5	2	27	120	221	374	528	708	West Corporate Limit
81	17-13-22	238.5	2	27	120	221	374	528	708	West Corporate Limit
82	17-13-22	175.0	20	14	30	43	55	71	90	Camino Coronado, Dip Section
83	17-13-22	175.0	20	14	30	43	55	71	90	Camino Coronado, Dip Section
84	17-13-22	28.0	15	16	30	37	47	60	76	Camino Mono, Dip Section
85	17-13-22	105.0	20	18	28	38	49	62	78	I-19 2'-10" x 4' CBC
86	17-13-22	105.0	20	18	28	38	49	62	78	I-19
87	17-13-22	105.0	20	18	28	38	49	62	78	I-19 2'-10" x 4' CBC
88	17-13-22	105.0	20	18	28	38	49	62	78	I-19 2'-10" x 4' CBC
89	17-13-22	105.0	20	18	28	38	49	62	78	I-19 2'-10" x 4' CBC
90	17-13-22	105.0	20	18	28	38	49	62	78	I-19 2'-10" x 4' CBC
91	17-13-22	285.0	10	17	207	334	523	719	918	I-19 2'-10" x 4' CBC
92	17-13-22	179.0	10	14	65	109	162	216	284	I-19 Range
93	17-13-22	285.0	10	17	207	334	523	719	918	I-19 2'-10" x 4' CBC
94	17-13-22	285.0	10	17	207	334	523	719	918	I-19 2'-10" x 4' CBC
95	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
96	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
97	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
98	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
99	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
100	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
101	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
102	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
103	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
104	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
105	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
106	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
107	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
108	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
109	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
110	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
111	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
112	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
113	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
114	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
115	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
116	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
117	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
118	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
119	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
120	17-13-22	103.0	20	19	69	118	184	275	349	I-19 Frontage Rd
121	17-13-22	103.0	20	19						

SAHUARITA BASIN MANAGEMENT PLAN PHASE I WATERSHED BOUNDARY & CONCENTRATION POINT LOCATION MAP

LEGEND
WATERSHED BOUNDARIES
CONCENTRATION POINT LOCATION
CORPORATE BOUNDARY
FLOW ARROW
SPLIT FLOW ARROW

TABLE 3
Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Area (Acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁ (cfs)	Q _{0.5} (cfs)	Q _{0.2} (cfs)	Q _{0.1} (cfs)	Notes
1	16-13-35	33	2	11	41	69	113	155	199	West Corporate Limit, Downstream of 119
2	16-13-35	56.6	2	11	39	67	108	146	183	West Corporate Limit, Downstream of 119
3	16-13-35	162.8	1	27	106	182	302	417	545	West Corporate Limit, Downstream of 119
4	16-13-35	117.8	1	15	63	108	181	256	339	Breakout from CP#133 not included
5	16-13-35	85.3	2	6	22	38	58	79	100	West Corporate Limit, Downstream of 119
6	16-13-35	23.9	2	6	22	38	58	79	100	West Corporate Limit, Downstream of 119
7	16-13-35	66.3	1	13	50	86	142	195	251	West Corporate Limit, Downstream of 119
8	16-13-35	43.5	0	10	37	64	100	141	180	at 119
9	17-13-02	48.5	0	8	29	51	77	107	141	at 119
10	17-13-02	29.0	0	6	20	42	68	95	121	at 119
11	17-13-02	18.1	0	4	14	25	39	53	70	at 119
12	17-13-02	39.1	0	8	32	54	88	123	157	at 119
13	17-13-02	18.1	0	7	28	50	77	107	141	at 119
14	17-13-02	34.1	0	7	28	50	77	107	141	at 119
15	17-13-02	34.1	0	7	28	50	77	107	141	at 119
16	17-13-02	18.1	0	7	28	50	77	107	141	at 119
17	17-13-11	39.6	0	17	60	115	185	259	339	at 119
18	17-13-11	62.4	0	12	48	84	135	189	242	at 119
19	17-13-11	871.8	1.7	820	1475	1975	2444	3196	3760	at 119; Q100 per CBA Ranch Report
20	17-13-11	60.0	0	30	55	97	129	174	221	at 119; Q100 per CBA Ranch Report
21	17-13-11	18.1	0	8	29	51	77	107	141	West Corporate Limit
22	17-13-11	20.4	0	6	22	38	58	80	104	West Corporate Limit
23	17-13-11	18.1	0	8	29	51	77	107	141	West Corporate Limit
24	17-13-11	8425.8	1.7	825	1475	1975	2444	3196	3760	Q100 per CBA Ranch Report; split flow in CP#25
25	17-13-11	8425.8	1.7	825	1475	1975	2444	3196	3760	Q100 per CBA Ranch Report; split flow in CP#24
26	17-13-11	8425.8	1.7	825	1475	1975	2444	3196	3760	Q100 per CBA Ranch Report; split flow in CP#24
27	16-13-35	138.4	1	11	39	69	113	155	199	East Corporate Limit
28	16-13-35	138.4	1	11	39	69	113	155	199	East Corporate Limit
29	16-13-35	701.8	1	41	145	259	417	570	741	East Corporate Limit
30	16-13-35	294.4	1	24	82	145	219	300	394	East Corporate Limit
31	16-13-35	8097.0	1.7	805	1475	1975	2444	3196	3760	East Corporate Limit
32	16-13-35	1085.1	1	81	285	562	841	1120	1451	East Corporate Limit
33	16-13-35	1022.2	1	81	285	562	841	1120	1451	North Corporate Limit
34	17-13-02	23.9	1	10	36	63	96	132	174	at 119
35	17-13-02	99.1	1	10	36	63	96	132	174	at 119
36	17-13-14	432.7	1	10	39	69	113	155	199	119 Ramp
37	17-13-14	294.4	1	7	26	42	68	95	121	119
38	17-13-14	332.1	1	6	26	48	75	105	134	119
39	17-13-14	294.4	1	7	26	42	68	95	121	119
40	17-13-14	147.0	0	5	17	28	44	61	79	119
41	17-13-14	294.4	1	7	26	42	68	95	121	119
42	17-13-14	294.4	1	7	26	42	68	95	121	119
43	17-13-14	294.4	1	7	26	42	68	95	121	119
44	17-13-14	294.4	1	7	26	42	68	95	121	119
45	17-13-14	294.4	1	7	26	42	68	95	121	119
46	17-13-14	294.4	1	7	26	42	68	95	121	119
47	17-13-14	294.4	1	7	26	42	68	95	121	119
48	17-13-14	294.4	1	7	26	42	68	95	121	119
49	17-13-14	294.4	1	7	26	42	68	95	121	119
50	17-13-14	294.4	1	7	26	42	68	95	121	119
51	17-13-02	18.1	0	7	28	50	77	107	141	at 119
52	17-13-02	18.1	0	7	28	50	77	107	141	at 119
53	17-13-02	39.1	0	7	28	50	77	107	141	at 119
54	17-13-02	39.1	0	7	28	50	77	107	141	at 119
55	17-13-02	39.1	0	7	28	50	77	107	141	at 119
56	17-13-02	39.1	0	7	28	50	77	107	141	at 119
57	17-13-02	39.1	0	7	28	50	77	107	141	at 119
58	17-13-02	39.1	0	7	28	50	77	107	141	at 119
59	17-13-02	39.1	0	7	28	50	77	107	141	at 119
60	17-13-02	39.1	0	7	28	50	77	107	141	at 119
61	17-13-02	39.1	0	7	28	50	77	107	141	at 119
62	17-13-02	39.1	0	7	28	50	77	107	141	at 119
63	17-13-02	39.1	0	7	28	50	77	107	141	at 119
64	17-13-02	39.1	0	7	28	50	77	107	141	at 119
65	17-13-02	39.1	0	7	28	50	77	107	141	at 119
66	17-13-02	39.1	0	7	28	50	77	107	141	at 119
67	17-13-02	39.1	0	7	28	50	77	107	141	at 119
68	17-13-02	39.1	0	7	28	50	77	107	141	at 119
69	17-13-02	39.1	0	7	28	50	77	107	141	at 119
70	17-13-02	39.1	0	7	28	50	77	107	141	at 119

Concentration Point #	T-R-S	Area (Acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁ (cfs)	Q _{0.5} (cfs)	Q _{0.2} (cfs)	Q _{0.1} (cfs)	Notes
71	17-13-13	33.1	1	365	647	862	1078	1309	1605	East Corporate Limit
72	17-13-24	45.5	0	15	59	67	108	146	183	East Corporate Limit
73	17-13-24	69.5	0	31	116	137	210	282	364	East Corporate Limit
74	17-13-24	1178.5	2	63	227	506	895	1330	1840	East Corporate Limit
75	17-13-22	239.2	0	24	119	188	335	477	627	West Corporate Limit
76	17-13-22	2672.0	1	200	335	716	847	1160	1364	West Corporate Limit
77	17-13-22	106.8	1	28	89	144	226	305	394	West Corporate Limit
78	17-13-22	18.0	1	4	16	26	41	57	73	West Corporate Limit
79	17-13-22	10.8	5	4	13	20	32	44	54	West Corporate Limit
80	17-13-22	328.8	2	27	100	201	374	528	706	West Corporate Limit
81	17-13-22	8.8	15	5	11	16	24	30	38	Camino Colorado, Dip Section
82	17-13-22	19.6	20	14	33	57	85	113	141	Camino Colorado, Dip Section
83	17-13-22	12.1	20	11	22	33	45	59	74	Camino Colorado, Dip Section
84	17-13-22	12.1	20	11	22	33	45	59	74	Camino Colorado, Dip Section
85	17-13-22	165.0	25	16	38	57	85	113	140	Camino Colorado, Dip Section
86	17-13-26	27.2	25	80	191	292	428	625	822	1-18/2-8 x 4 C&C 2-Section
87	17-13-26	27.2	25	80	191	292	428	625	822	1-18/2-8 x 4 C&C 2-Section
88	17-13-26	59.1	20	33	74	110	158	211	262	1-18/2-10 x 3 C&C
89	17-13-26	18.0	1	4	16	26	41	57	73	1-18/2-10 x 3 C&C
90	17-13-26	86.5	10	27	78	123	180	250	320	1-18/2-10 x 3 C&C
91	17-13-26	296.2	20	18	40	60	84	114	144	1-18/2-10 x 3 C&C
92	17-13-26	178.6	1	14	65	121	227	401	539	1-18/2-10 x 3 C&C
93	17-13-26	248.7	0	10	207	334	523	719	919	1-18/2-10 x 3 C&C
94	17-13-26	36.1	90	119	170	260	351	468	595	1-18/2-10 x 3 C&C
95	17-13-26	153.3	2	19	69	118	184	275	349	1-18/2-10 x 3 C&C
96	17-13-26	128.0	20	83	205	321	478	678	878	1-18/2-10 x 3 C&C
97	17-13-26	29.2	35	35	75	102	138	180	240	1-18 Frontage Rd
98	17-13-26	126.1	30	47	126	182	271	381	491	Camino de las Quintas, Dip Section
99	17-13-26	44.0	25	31	65	92	132	168	208	Camino de las Quintas, Dip Section
100	17-13-26	2.1	10	10	20	28	37	47	57	Camino de las Quintas, Dip Section
101	17-13-26	68.7	30	48	109	152	215	273	335	Camino de las Quintas, Dip Section
102	17-13-26	26.2	40	29	60	80	96	115	140	Camino de las Quintas, Dip Section
103	17-13-26	46.2	31	60	126	176	244	326	408	Camino de las Quintas, Dip Section
104	17-13-26	41.1	25	31	64	92	131	169	212	Camino de las Quintas, Dip Section
105	17-13-26	12.1	15	15	30	40	50	60	70	Camino de las Quintas, Dip Section
106	17-13-26	46.7	4	11	39	64	100	137	182	Camino de las Quintas, Dip Section
107	17-13-27	11.3	25	16	33	48	63	81	101	La Canada, Dip Section
108	17-13-27	45.5	25	38	74	105	146	187	234	La Canada, Dip Section
109	17-13-27	23.8	15	12	24	35	47	60	74	La Canada, Dip Section
110	17-13-27	52.7	30	40	88	133	190	248	306	La Canada, Dip Section
111	17-13-27	136.0	10	11	28	50	70	89	104	La Canada, Dip Section
112	17-13-27	19.8	10	24	48	72	108	144	180	La Canada, Dip Section
113	17-13-27	32.1	0	1	3	5	8	10	13	La Canada, Dip Section
114	17-13-27	32.1	0	1	3	5	8	10	13	La Canada, Dip Section
115	17-13-27	181.7	5	17	63	114	184	276	362	La Canada, Dip Section
116	17-13-24	127.2	2	12	54	96	160	227	300	La Canada, Dip Section
117	17-13-24	54.7	0	12	48	80	131	178	227	La Canada, Dip Section
118	17-13-24	26.1	1	8	29	49	78	108	140	La Canada, Dip Section
119	17-13-24	58.6	1	9	33	55	89	120	153	La Canada, Dip Section
120	17-13-24	37.4	9	12	38	65	95	131	169	La Canada, Dip Section
121	17-13-24	24.8	5	8	25	41	62	83	106	La Canada, Dip Section
122	17-13-24	25.								

SAHUARITA BASIN MANAGEMENT PLAN PHASE I WATERSHED BOUNDARY & CONCENTRATION POINT LOCATION MAP

LEGEND

- WATERSHED BOUNDARIES
- CONCENTRATION POINT LOCATION
- CORPORATE BOUNDARY
- FLOW ARROW
- SPLIT FLOW ARROW

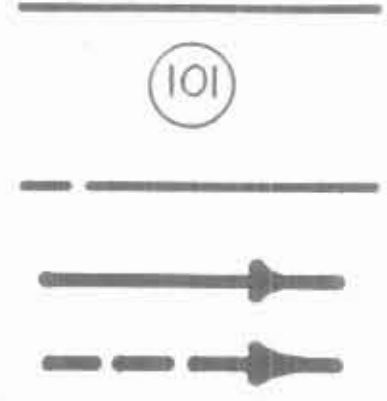
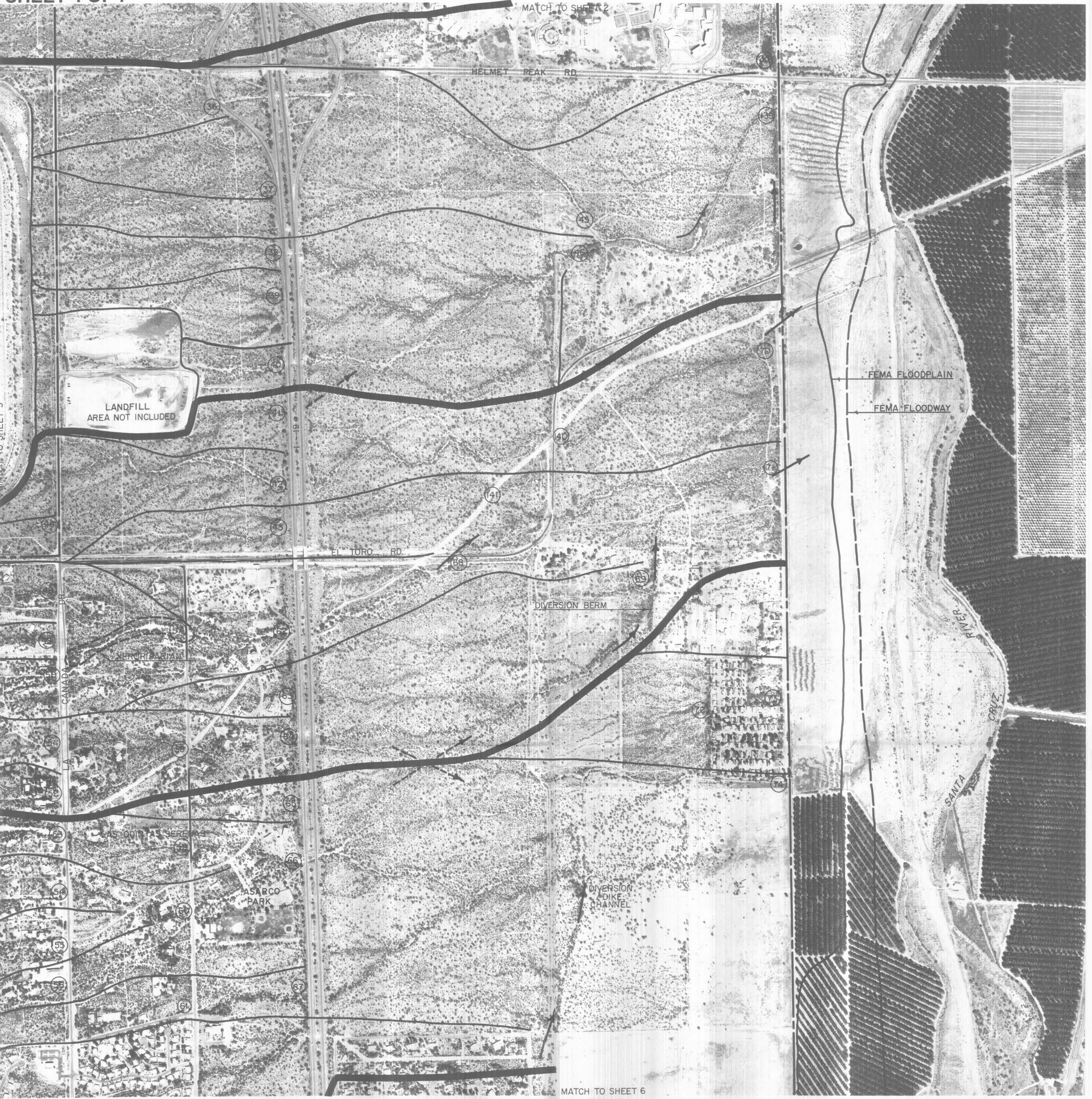


TABLE 3 Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (Acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂ (cfs)	Notes	
1	16-13-35	50.6	2	11	41	89	133	155	169
2	16-13-35	162.6	1	27	108	167	108	145	183
3	16-13-35	117.8	1	19	63	108	181	236	339
4	16-13-35	117.8	1	19	63	108	181	236	339
5	16-13-35	117.8	1	19	63	108	181	236	339
6	16-13-35	23.8	2	6	22	36	58	79	105
7	16-13-35	66.3	1	13	35	44	138	190	251
8	16-13-35	66.3	1	13	35	44	138	190	251
9	16-13-35	66.3	1	13	35	44	138	190	251
10	16-13-35	66.3	1	13	35	44	138	190	251
11	16-13-35	66.3	1	13	35	44	138	190	251
12	16-13-35	66.3	1	13	35	44	138	190	251
13	16-13-35	66.3	1	13	35	44	138	190	251
14	16-13-35	66.3	1	13	35	44	138	190	251
15	16-13-35	66.3	1	13	35	44	138	190	251
16	16-13-35	66.3	1	13	35	44	138	190	251
17	16-13-35	66.3	1	13	35	44	138	190	251
18	16-13-35	66.3	1	13	35	44	138	190	251
19	16-13-35	66.3	1	13	35	44	138	190	251
20	16-13-35	66.3	1	13	35	44	138	190	251
21	16-13-35	66.3	1	13	35	44	138	190	251
22	16-13-35	66.3	1	13	35	44	138	190	251
23	16-13-35	66.3	1	13	35	44	138	190	251
24	16-13-35	66.3	1	13	35	44	138	190	251
25	16-13-35	66.3	1	13	35	44	138	190	251
26	16-13-35	66.3	1	13	35	44	138	190	251
27	16-13-35	66.3	1	13	35	44	138	190	251
28	16-13-35	66.3	1	13	35	44	138	190	251
29	16-13-35	66.3	1	13	35	44	138	190	251
30	16-13-35	66.3	1	13	35	44	138	190	251
31	16-13-35	66.3	1	13	35	44	138	190	251
32	16-13-35	66.3	1	13	35	44	138	190	251
33	16-13-35	66.3	1	13	35	44	138	190	251
34	16-13-35	66.3	1	13	35	44	138	190	251
35	16-13-35	66.3	1	13	35	44	138	190	251
36	16-13-35	66.3	1	13	35	44	138	190	251
37	16-13-35	66.3	1	13	35	44	138	190	251
38	16-13-35	66.3	1	13	35	44	138	190	251
39	16-13-35	66.3	1	13	35	44	138	190	251
40	16-13-35	66.3	1	13	35	44	138	190	251
41	16-13-35	66.3	1	13	35	44	138	190	251
42	16-13-35	66.3	1	13	35	44	138	190	251
43	16-13-35	66.3	1	13	35	44	138	190	251
44	16-13-35	66.3	1	13	35	44	138	190	251
45	16-13-35	66.3	1	13	35	44	138	190	251
46	16-13-35	66.3	1	13	35	44	138	190	251
47	16-13-35	66.3	1	13	35	44	138	190	251
48	16-13-35	66.3	1	13	35	44	138	190	251
49	16-13-35	66.3	1	13	35	44	138	190	251
50	16-13-35	66.3	1	13	35	44	138	190	251
51	16-13-35	66.3	1	13	35	44	138	190	251
52	16-13-35	66.3	1	13	35	44	138	190	251
53	16-13-35	66.3	1	13	35	44	138	190	251
54	16-13-35	66.3	1	13	35	44	138	190	251
55	16-13-35	66.3	1	13	35	44	138	190	251
56	16-13-35	66.3	1	13	35	44	138	190	251
57	16-13-35	66.3	1	13	35	44	138	190	251
58	16-13-35	66.3	1	13	35	44	138	190	251
59	16-13-35	66.3	1	13	35	44	138	190	251
60	16-13-35	66.3	1	13	35	44	138	190	251
61	16-13-35	66.3	1	13	35	44	138	190	251
62	16-13-35	66.3	1	13	35	44	138	190	251
63	16-13-35	66.3	1	13	35	44	138	190	251
64	16-13-35	66.3	1	13	35	44	138	190	251
65	16-13-35	66.3	1	13	35	44	138	190	251
66	16-13-35	66.3	1	13	35	44	138	190	251
67	16-13-35	66.3	1	13	35	44	138	190	251
68	16-13-35	66.3	1	13	35	44	138	190	251
69	16-13-35	66.3	1	13	35	44	138	190	251
70	16-13-35	66.3	1	13	35	44	138	190	251

Concentration Point #	T-R-S	Drainage Area (Acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂ (cfs)	Notes	
71	17-13-35	45.5	1	11	38	67	107	140	188
72	17-13-35	45.5	1	11	38	67	107	140	188
73	17-13-35	45.5	1	11	38	67	107	140	188
74	17-13-35	45.5	1	11	38	67	107	140	188
75	17-13-35	45.5	1	11	38	67	107	140	188
76	17-13-35	45.5	1	11	38	67	107	140	188
77	17-13-35	45.5	1	11	38	67	107	140	188
78	17-13-35	45.5	1	11	38	67	107	140	188
79	17-13-35	45.5	1	11	38	67	107	140	188
80	17-13-35	45.5	1	11	38	67	107	140	188
81	17-13-35	45.5	1	11	38	67	107	140	188
82	17-13-35	45.5	1	11	38	67	107	140	188
83	17-13-35	45.5	1	11	38	67	107	140	188
84	17-13-35	45.5	1	11	38	67	107	140	188
85	17-13-35	45.5	1	11	38	67	107	140	188
86	17-13-35	45.5	1	11	38	67	107	140	188
87	17-13-35	45.5	1	11	38	67	107	140	188
88	17-13-35	45.5	1	11	38	67	107	140	188
89	17-13-35	45.5	1	11	38	67	107	140	188
90	17-13-35	45.5	1	11	38	67	107	140	188
91	17-13-35	45.5	1	11	38	67	107	140	188
92	17-13-35	45.5	1	11	38	67	107	140	188
93	17-13-35	45.5	1	11	38	67	107	140	188
94	17-13-35	45.5	1	11	38	67	107	140	188
95	17-13-35	45.5	1	11	38	67	107	140	188
96	17-13-35	45.5	1	11	38	67	107	140	188
97	17-13-35	45.5	1	11	38	67	107	140	188
98	17-13-35	45.5	1	11	38	67	107	140	188
99	17-13-35	45.5	1	11	38	67	107	140	188
100	17-13-35	45.5	1	11	38	67	107	140	188

SHEET 4 OF 7



SAHUARITA BASIN MANAGEMENT PLAN PHASE I WATERSHED BOUNDARY & CONCENTRATION POINT LOCATION MAP

LEGEND

- WATERSHED BOUNDARIES
- CONCENTRATION POINT LOCATION
- CORPORATE BOUNDARY
- FLOW ARROW
- SPLIT FLOW ARROW

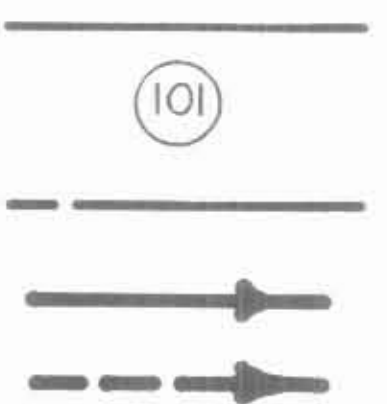


TABLE 3 Sahuarita Basin Management Plan Summary of Watershed Parameters and Discharge Rates

Concentration Point #	F.R.#	Drainage Area (acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁ (cfs)	Q _{0.2} (cfs)	Q _{0.1} (cfs)	Notes
1	16-13-35	50.6	2	11	39	67	106	146	West Corporate Limit, Downstream of I-19
2	16-13-35	162.6	1	27	106	182	302	417	West Corporate Limit, Downstream of I-19
3	16-13-35	117.4	1	19	63	108	181	256	Revised from CFA#13 and not included
4	16-13-35	18.8	2	6	21	34	52	75	West Corporate Limit, Downstream of I-19
5	16-13-35	23.8	2	8	22	36	54	79	West Corporate Limit, Downstream of I-19
6	16-13-35	17.1	2	4	16	26	42	56	West Corporate Limit, Downstream of I-19
7	16-13-35	43.3	0	10	39	64	100	141	West Corporate Limit, Downstream of I-19
8	17-13-02	46.5	0	9	31	53	81	111	al-19
9	17-13-02	29.2	0	6	20	32	52	71	al-19
10	17-13-02	19.1	0	5	16	27	44	61	al-19
11	17-13-02	34.1	0	8	22	36	54	79	al-19
12	17-13-02	18.1	0	5	16	27	44	61	al-19
13	17-13-02	18.1	0	5	16	27	44	61	al-19
14	17-13-02	89.1	0	20	81	138	223	311	al-19
15	17-13-02	18.1	0	5	16	27	44	61	al-19
16	17-13-02	18.1	0	5	16	27	44	61	al-19
17	17-13-02	18.1	0	5	16	27	44	61	al-19
18	17-13-02	18.1	0	5	16	27	44	61	al-19
19	17-13-02	18.1	0	5	16	27	44	61	al-19
20	17-13-02	18.1	0	5	16	27	44	61	al-19
21	17-13-02	18.1	0	5	16	27	44	61	al-19
22	17-13-02	18.1	0	5	16	27	44	61	al-19
23	17-13-02	18.1	0	5	16	27	44	61	al-19
24	17-13-02	18.1	0	5	16	27	44	61	al-19
25	17-13-02	18.1	0	5	16	27	44	61	al-19
26	17-13-02	18.1	0	5	16	27	44	61	al-19
27	17-13-02	18.1	0	5	16	27	44	61	al-19
28	17-13-02	18.1	0	5	16	27	44	61	al-19
29	17-13-02	18.1	0	5	16	27	44	61	al-19
30	17-13-02	18.1	0	5	16	27	44	61	al-19
31	17-13-02	18.1	0	5	16	27	44	61	al-19
32	17-13-02	18.1	0	5	16	27	44	61	al-19
33	17-13-02	18.1	0	5	16	27	44	61	al-19
34	17-13-02	18.1	0	5	16	27	44	61	al-19
35	17-13-02	18.1	0	5	16	27	44	61	al-19
36	17-13-02	18.1	0	5	16	27	44	61	al-19
37	17-13-02	18.1	0	5	16	27	44	61	al-19
38	17-13-02	18.1	0	5	16	27	44	61	al-19
39	17-13-02	18.1	0	5	16	27	44	61	al-19
40	17-13-02	18.1	0	5	16	27	44	61	al-19
41	17-13-02	18.1	0	5	16	27	44	61	al-19
42	17-13-02	18.1	0	5	16	27	44	61	al-19
43	17-13-02	18.1	0	5	16	27	44	61	al-19
44	17-13-02	18.1	0	5	16	27	44	61	al-19
45	17-13-02	18.1	0	5	16	27	44	61	al-19
46	17-13-02	18.1	0	5	16	27	44	61	al-19
47	17-13-02	18.1	0	5	16	27	44	61	al-19
48	17-13-02	18.1	0	5	16	27	44	61	al-19
49	17-13-02	18.1	0	5	16	27	44	61	al-19
50	17-13-02	18.1	0	5	16	27	44	61	al-19
51	17-13-02	18.1	0	5	16	27	44	61	al-19
52	17-13-02	18.1	0	5	16	27	44	61	al-19
53	17-13-02	18.1	0	5	16	27	44	61	al-19
54	17-13-02	18.1	0	5	16	27	44	61	al-19
55	17-13-02	18.1	0	5	16	27	44	61	al-19
56	17-13-02	18.1	0	5	16	27	44	61	al-19
57	17-13-02	18.1	0	5	16	27	44	61	al-19
58	17-13-02	18.1	0	5	16	27	44	61	al-19
59	17-13-02	18.1	0	5	16	27	44	61	al-19
60	17-13-02	18.1	0	5	16	27	44	61	al-19
61	17-13-02	18.1	0	5	16	27	44	61	al-19
62	17-13-02	18.1	0	5	16	27	44	61	al-19
63	17-13-02	18.1	0	5	16	27	44	61	al-19
64	17-13-02	18.1	0	5	16	27	44	61	al-19
65	17-13-02	18.1	0	5	16	27	44	61	al-19
66	17-13-02	18.1	0	5	16	27	44	61	al-19
67	17-13-02	18.1	0	5	16	27	44	61	al-19
68	17-13-02	18.1	0	5	16	27	44	61	al-19
69	17-13-02	18.1	0	5	16	27	44	61	al-19
70	17-13-02	18.1	0	5	16	27	44	61	al-19

Concentration Point #	F.R.#	Drainage Area (acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁ (cfs)	Q _{0.2} (cfs)	Q _{0.1} (cfs)	Notes
71	17-13-02	18.1	0	5	16	27	44	61	East Corporate Limit
72	17-13-02	45.5	0	10	39	67	106	146	East Corporate Limit
73	17-13-02	69.5	0	15	57	100	171	235	East Corporate Limit
74	17-13-02	117.5	0	27	106	182	302	417	East Corporate Limit
75	17-13-02	236.4	0	24	113	188	330	477	East Corporate Limit
76	17-13-02	302.0	1	30	120	200	340	480	East Corporate Limit
77	17-13-02	105.8	1	28	88	144	226	305	East Corporate Limit
78	17-13-02	18.1	0	5	16	27	44	61	East Corporate Limit
79	17-13-02	10.8	5	4	13	20	32	44	East Corporate Limit
80	17-13-02	10.8	5	4	13	20	32	44	East Corporate Limit
81	17-13-02	10.8	5	4	13	20	32	44	East Corporate Limit
82	17-13-02	17.6	20	14	30	43	65	81	East Corporate Limit
83	17-13-02	12.1	20	11	24	33	47	58	East Corporate Limit
84	17-13-02	26.0	15	16	38	57	82	110	East Corporate Limit
85	17-13-02	105.0	20	80	103	188	278	372	East Corporate Limit
86	17-13-02	27.2	25	23	47	67	95	124	East Corporate Limit
87	17-13-02	106.1	20	71	101	188	278	372	East Corporate Limit
88	17-13-02	69.0	20	53	74	110	158	211	East Corporate Limit
89	17-13-02	66.0	20	50	68	101	149	194	East Corporate Limit
90	17-13-02	86.0	20	67	78	120	168	224	East Corporate Limit
91	17-13-02	285.2	1	18	83	156	277	401	East Corporate Limit
92	17-13-02	178.8	1	14	65	121	206	284	East Corporate Limit
93	17-13-02	288.7	1	19	71	127	214	291	East Corporate Limit
94	17-13-02	186.0	1	14	65	121	206	284	East Corporate Limit
95	17-13-02	103.1	2	19	69	118	194	275	East Corporate Limit
96	17-13-02	136.0	20	83	105	188	278	372	East Corporate Limit
97	17-13-02	29.0	30	30	55	75	102	128	East Corporate Limit
98	17-13-02	44.0	25	31	60	109	161	211	East Corporate Limit
99	17-13-02	62.0	30	31	60	109	161	211	East Corporate Limit
100	17-13-02	92.0	30	31	60	109	161	211	East Corporate Limit
101	17-13-02	188.0	30	68	109	161	211	273	East Corporate Limit
102	17-13-02	26.0	40	29	50	69	95	119	East Corporate Limit
103	17-13-02	49.0	40	31	60	109	161	211	East Corporate Limit
104	17-13-02	41.0	35	31	64	92	131	168	East Corporate Limit
105	17-13-02	118.0	40	41	70	118	178	238	East Corporate Limit
106	17-13-02	46.0	4	11	30	48	66	84	East Corporate Limit
107	17-13-02	11.0	25	10	16	27	38	51	East Corporate Limit
108	17-13-02	18.0	10	10	16	27	38	51	East Corporate Limit
109	17-13-02	23.0	10	12	30	48	72	96	East Corporate Limit
110	17-13-02	13.0	10	8	16	27	38	51	East Corporate Limit
111	17-13-02	15.4	45	24	41	62	79	99	East Corporate Limit
112	17-13-02	10.0	10	11	16	27	38	51	East Corporate Limit
113	17-13-02	32.0	0	7	29	49	77	105	East Corporate Limit
114	17-13-02	33.4	0	8	30	49	77	105	East Corporate Limit
115	17-13-02	181.0	5	17	63	114	184	276	East Corporate Limit
116	17-13-02	127.4	5	12	48	80	127	168	East Corporate Limit
117	17-13-02	17.0	10	12	30	48	72	96	East Corporate Limit
118	17-13-02	18.0	10	12	30	48	72	96	East Corporate Limit
119	17-13-02	37.4	1	8	20	36	54	72	East Corporate Limit
120	17-13-02	37.4	1	8	20	36	54	72	East Corporate Limit
121	17-13-02	24.0	8	12	30	48	72	96	East Corporate Limit
122	17-13-02	25.0	5	12	36	59	89	114	East Corporate Limit
123	17-13-02	184.0	20	80	203	369	541	735	East Corporate Limit
124	17-13-02	50.4	15	22	55	83	125	168	East Corporate Limit
125	17-13-02	24.0	20	18	20	30	41	53	East Corporate Limit
126	17-13-02	118.0	15	16	215	359	547	747	East Corporate Limit
127	17-13-02	284.0	20	78	200	369	541	735	East Corporate Limit
128	17-13-02	418.0	12	10	145	257	387	521	East Corporate Limit
129	17-13-02	781.0	15	65	240	444	666	891	East Corporate Limit
130	17-13-02	781.0	30	71	241	444	666	891	East Corporate Limit
131	17-13-02	423.8	15	519	734	1075	1589	2078	East Corporate Limit
132	17-13-02	102.8	1	20	73	130	213	284	East Corporate Limit
133	17-13-02	262.8	1	14	147	254	424	563	East Corporate Limit
134	17-13-02	134.0	1	20	73	130	213	284	East Corporate Limit
135	17-13-02	312.6	15	111	286	441	673	899	East Corporate Limit
136	17-13-02	102.8	20	65	125	188	278	372	East Corporate Limit
137	17-13-02	160.0							

SAHUARITA BASIN MANAGEMENT PLAN PHASE I WATERSHED BOUNDARY & CONCENTRATION POINT LOCATION MAP

LEGEND

- WATERSHED BOUNDARIES
- CONCENTRATION POINT LOCATION
- CORPORATE BOUNDARY
- FLOW ARROW
- SPLIT FLOW ARROW

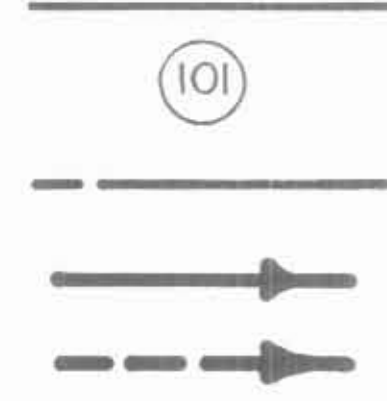


TABLE 3
Sahuarita Basin Management Plan
Summary of Watershed Parameters and Discharge Rates

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂ (cfs)	Notes		
1	16-13-35	55.7	2	11	41	69	113	155	199	West Corporate Limit, Downstream of I-19
2	16-13-35	105.4	2	11	39	67	105	143	187	West Corporate Limit, Downstream of I-19
3	16-13-35	162.8	2	11	27	106	182	262	417	West Corporate Limit, Downstream of I-19
4	16-13-35	117.8	2	15	63	108	181	256	339	Breakdown from CP#33 not included
5	16-13-35	19.8	2	6	21	34	52	75	92	West Corporate Limit, Downstream of I-19
6	16-13-35	23.8	2	6	22	36	54	79	100	West Corporate Limit, Downstream of I-19
7	16-13-35	17.1	2	4	16	26	42	63	72	West Corporate Limit, Downstream of I-19
8	16-13-35	66.3	1	13	50	84	138	190	251	West Corporate Limit, Downstream of I-19
9	16-13-35	62.4	2	12	48	84	135	189	242	at I-19
10	17-13-02	46.5	0	9	37	63	101	141	182	at I-19
11	17-13-02	29.4	0	6	20	32	52	75	93	at I-19
12	17-13-02	29.4	0	6	20	32	52	75	93	at I-19
13	17-13-02	29.1	0	6	20	32	54	83	123	at I-19
14	17-13-02	29.1	0	6	20	32	54	83	123	at I-19
15	17-13-02	34.1	0	7	28	47	77	107	137	at I-19
16	17-13-11	62.4	0	12	48	84	135	189	242	at I-19
17	17-13-11	38.6	0	8	32	53	86	120	154	at I-19
18	17-13-11	62.4	0	12	48	84	135	189	242	at I-19
19	17-13-11	807.0	1.7	820	1475	1979	2444	3196	3760	at I-19, Q100 per CBA Rancho Report
20	17-13-11	62.4	0	12	48	84	135	189	242	West Corporate Limit
21	17-13-11	62.4	0	12	48	84	135	189	242	West Corporate Limit
22	17-13-11	20.4	0	6	22	35	56	80	104	West Corporate Limit
23	17-13-11	15.5	0	6	16	27	44	63	79	West Corporate Limit
24	17-13-11	8026.0	1.7	820	1475	1979	2444	3196	3760	Q100 per CBA Rancho Report, split flow to CP#25
25	17-13-11	8026.0	1.7	820	1475	1979	2444	3196	3760	Q100 per CBA Rancho Report, split flow to CP#24
26	17-13-11	17.1	0	4	14	21	33	48	63	Q100 per CBA Rancho Report - 175cfs split flow CP#25
27	16-13-30	883.7	1	61	260	473	838	1207	1659	at I-19
28	17-13-02	201.8	1	35	124	219	366	511	699	at I-19
29	17-13-02	201.8	1	35	124	219	366	511	699	at I-19
30	17-13-11	8026.0	1.7	820	1475	1979	2444	3196	3760	at I-19
31	17-13-11	8026.0	1.7	820	1475	1979	2444	3196	3760	at I-19
32	16-13-30	1022.3	1	67	281	508	892	1314	1743	at I-19
34	17-13-11	2021.1	1.9	79	197	359	649	957	1291	at I-19
35	17-13-11	99.1	1.9	26	79	125	193	287	343	at I-19
36	17-13-14	23.7	1	10	38	65	100	140	183	I-19 Ramp
37	17-13-14	29.0	1	10	38	65	100	140	183	I-19
38	17-13-14	29.0	1	10	38	65	100	140	183	I-19
39	17-13-14	29.2	1	7	27	45	71	99	129	I-19
40	17-13-14	29.2	1	7	27	45	71	99	129	I-19
41	17-13-14	18.5	0	5	20	26	42	61	81	I-19
42	17-13-14	75.5	0	15	49	84	140	198	258	I-19
43	17-13-14	29.2	1	7	27	45	71	99	129	I-19
44	17-13-15	23.9	1	6	21	35	56	76	100	I-19
45	17-13-15	23.9	1	6	21	35	56	76	100	I-19
46	17-13-15	140.1	1	23	89	154	255	350	458	I-19
47	17-13-15	488.9	1	53	241	420	709	1000	1302	I-19
48	17-13-20	268.5	1	24	111	198	338	482	641	I-19
49	17-13-20	18.8	5	6	20	31	47	67	87	I-19
50	17-13-20	3072.0	1	300	535	716	897	1160	1364	Existing sp. New 3' 10" x 4' CBC to be installed by ADOT
51	17-13-20	148.1	2	18	77	115	203	281	378	I-19
52	17-13-20	148.1	2	18	77	115	203	281	378	I-19
53	17-13-20	399.1	2	29	124	229	407	581	769	I-19
54	17-13-20	148.1	2	18	77	115	203	281	378	I-19
55	17-13-20	33.0	20	21	49	67	97	126	157	I-19
56	17-13-20	34.8	15	18	44	64	95	128	165	I-19
57	17-13-20	3404.9	1	330	589	786	977	1277	1502	I-19
58	17-13-20	187.4	3	20	91	159	262	375	490	I-19
59	17-13-20	418.3	2	28	123	228	405	580	782	I-19
60	17-13-20	144.5	15	15	124	207	348	494	654	I-19
61	17-13-20	26.4	15	14	35	52	77	105	139	I-19
62	17-13-20	3469.2	15	300	530	716	897	1160	1364	I-19
63	17-13-20	27.8	15	4	18	27	40	56	75	I-19
64	17-13-20	201.5	4	24	88	169	277	384	514	I-19
65	17-13-20	31.6	15	15	45	66	95	128	161	I-19
66	17-13-20	604.9	2	40	172	314	564	827	1105	I-19
67	17-13-20	18.5	15	15	45	66	95	128	165	I-19
68	17-13-20	3489.1	1	300	535	716	897	1160	1364	I-19
69	17-13-20	148.1	3	21	128	238	401	568	756	I-19
70	17-13-13	241.1	1	23	109	193	328	467	628	East Corporate Limit

Concentration Point #	T-R-S	Drainage Area (acres)	Impervious Cover %	Q ₁₀ (cfs)	Q ₂ (cfs)	Q ₁₀ (cfs)	Q ₂ (cfs)	Notes		
71	17-13-13	365.4	1	365	647	862	1078	1409	1858	East Corporate Limit
72	17-13-24	45.1	5	10	39	67	106	144	189	I-19
73	17-13-24	49.0	15	31	76	117	171	230	287	I-19
74	17-13-24	179.3	5	63	79	108	145	198	264	I-19
75	17-13-24	238.4	0	24	113	188	335	477	627	West Corporate Limit
76	17-13-24	238.4	0	24	113	188	335	477	627	West Corporate Limit
77	17-13-24	105.8	1	28	89	144	226	305	394	West Corporate Limit
78	17-13-24	18.0	1	4	16	26	41	57	73	2-3" CMP
79	17-13-24	10.8	1	3	12	20	32	44	58	2-3" CMP
80	17-13-24	328.5	2	27	120	221	374	528	708	West Corporate Limit
81	17-13-24	10.8	1	3	12	20	32	44	58	2-3" CMP
82	17-13-24	17.6	20	14	36	63	85	111	140	Camino Colorado, Dip Section
83	17-13-24	17.6	20	14	36	63	85	111	140	Camino Colorado, Dip Section
84	17-13-24	26.0	15	16	38	67	92	120	140	Camino Colorado, Dip Section
85	17-13-24	26.0	15	16	38	67	92	120	140	Camino Colorado, Dip Section
86	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
87	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
88	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
89	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
90	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
91	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
92	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
93	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
94	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
95	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
96	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
97	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
98	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
99	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
100	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
101	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
102	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
103	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
104	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
105	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
106	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
107	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
108	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
109	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
110	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
111	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
112	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
113	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
114	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
115	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
116	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
117	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
118	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
119	17-13-24	27.2	25	21	41	67	95	124	155	1-18" / 2" # 4 CBC
120	17-13-24	27.2	25	2						

APPENDIX C
HYDROLOGIC DESIGN DATA SHEETS

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 1

WATERSHED AREA (A): 53.70 acres

LENGTH OF WATERCOURSE (Lc): 3900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1950. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3900. 81.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	50.67	38.20	34.47	31.61	29.95	28.81
RESOLUTION OF Tc (MINUTES):	43	26	21	17	15	14
RAINFL INT. @ Tc (IN/HR):	1.493	2.690	3.524	4.644	5.576	6.485
RUNOFF RATE @ Tc (IN/HR):	.206	.752	1.273	2.084	2.863	3.670
PEAK DISCHARGE (CFS) :	11.	41.	69.	113.	155.	199.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 2

WATERSHED AREA (A): 50.60 acres

LENGTH OF WATERCOURSE (Lc): 3800. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1900. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

3800. 80.0

MEAN SLOPE (Sc): .0211 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	49.61	37.41	33.76	30.95	29.33	28.21
RESOLUTION OF Tc (MINUTES):	42	25	20	17	15	13
RAINFLL INT. @ Tc (IN/HR):	1.517	2.753	3.633	4.644	5.576	6.577
RUNOFF RATE @ Tc (IN/HR):	.209	.769	1.312	2.084	2.863	3.779
PEAK DISCHARGE (CFS) :	11.	39.	67.	106.	146.	193.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 3

WATERSHED AREA (A): 162.80 acres

LENGTH OF WATERCOURSE (Lc): 4900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

4900.

102.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	61.18	45.50	40.93	37.46	35.46	34.08
RESOLUTION OF Tc (MINUTES):	56	32	26	21	19	17
RAINFLL INT. @ Tc (IN/HR):	1.254	2.375	3.122	4.150	4.989	5.911
RUNOFF RATE @ Tc (IN/HR):	.163	.648	1.109	1.841	2.539	3.321
PEAK DISCHARGE (CFS) :	27.	106.	182.	302.	417.	545.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 4

WATERSHED AREA (A): 117.80 acres

LENGTH OF WATERCOURSE (Lc): 6200. ft

LENGTH TO CENTER OF GRAVITY (Lca): 3100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

6200.

122.0

MEAN SLOPE (Sc): .0197 ft BASIN FACTOR (Nb): .0400

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

95. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
5. % C, CN= 88, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.136	.279	.362	.450	.515	.567
Tc (FUNCTION OF i) :	78.69	58.95	53.14	48.71	46.15	44.39
SOLUTION OF Tc (MINUTES):	82	46	37	30	26	23
RAINFL INT. @ Tc (IN/HR):	.911	1.887	2.520	3.397	4.182	5.035
RUNOFF RATE @ Tc (IN/HR):	.124	.527	.911	1.528	2.152	2.857
PEAK DISCHARGE (CFS) :	15.	63.	108.	181.	256.	339.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 5

WATERSHED AREA (A): 19.80 acres

LENGTH OF WATERCOURSE (Lc): 1850. ft

LENGTH TO CENTER OF GRAVITY (Lca): 800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
1850. 39.0

MEAN SLOPE (Sc): .0211 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	30.82	23.24	20.97	19.23	18.22	17.53
SOLUTION OF Tc (MINUTES):	22	14	11	10	8	8
RAINFL INT. @ Tc (IN/HR):	2.258	3.728	4.765	5.805	7.312	8.182
RUNOFF RATE @ Tc (IN/HR):	.312	1.042	1.721	2.605	3.754	4.630
PEAK DISCHARGE (CFS) :	6.22	20.79	34.36	51.99	74.92	92.41

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 9

WATERSHED AREA (A): 43.30 acres

LENGTH OF WATERCOURSE (Lc): 2500. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1250. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2500. 52.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	40.69	29.81	26.74	24.42	23.09	22.17
3OLUTION OF Tc (MINUTES):	32	19	15	13	11	10
RAINFL INT. @ Tc (IN/HR):	1.804	3.209	4.163	5.246	6.383	7.338
RUNOFF RATE @ Tc (IN/HR):	.221	.854	1.455	2.301	3.220	4.122
PEAK DISCHARGE (CFS) :	9.63	37.29	63.50	100.42	140.53	179.92

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 10

WATERSHED AREA (A): 46.50 acres

LENGTH OF WATERCOURSE (Lc): 3000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3000. 64.0

MEAN SLOPE (Sc): .0213 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	46.66	34.18	30.66	28.00	26.47	25.43
SOLUTION OF Tc (MINUTES):	39	22	18	15	13	12
RAINFL INT. @ Tc (IN/HR):	1.601	2.973	3.834	4.902	5.967	6.896
RUNOFF RATE @ Tc (IN/HR):	.196	.792	1.340	2.150	3.010	3.847
PEAK DISCHARGE (CFS) :	9.18	37.10	62.81	100.77	141.08	180.34

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 11

WATERSHED AREA (A): 29.20 acres

LENGTH OF WATERCOURSE (Lc): 2600. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1300. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2600. 55.0

MEAN SLOPE (Sc): .0212 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	41.38	30.31	27.19	24.83	23.48	22.55
RESOLUTION OF Tc (MINUTES):	33	19	16	13	11	10
RAINFL INT. @ Tc (IN/HR):	1.768	3.209	4.053	5.246	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.216	.854	1.417	2.301	3.220	4.122
PEAK DISCHARGE (CFS) :	6.36	25.15	41.69	67.72	94.77	121.33

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 12

WATERSHED AREA (A): 19.10 acres

LENGTH OF WATERCOURSE (Lc): 1700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
1700. 36.0

MEAN SLOPE (Sc): .0212 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.553
Tc (FUNCTION OF i) :	30.24	22.15	19.87	18.15	17.16	16.43
SOLUTION OF Tc (MINUTES):	22	13	11	9	8	7
RAINFL INT. @ Tc (IN/HR):	2.258	3.838	4.765	6.107	7.312	8.620
RUNOFF RATE @ Tc (IN/HR):	.276	1.022	1.665	2.678	3.688	4.809
PEAK DISCHARGE (CFS) :	5.32	19.67	32.06	51.56	71.01	92.59

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 14

WATERSHED AREA (A): 99.10 acres

LENGTH OF WATERCOURSE (Lc): 3000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3000. 64.0

MEAN SLOPE (Sc): .0213 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	44.94	32.92	29.53	26.96	25.50	24.49
SOLUTION OF Tc (MINUTES):	37	21	17	14	12	11
RAINFL INT. @ Tc (IN/HR):	1.649	3.036	3.944	5.096	6.163	7.142
RUNOFF RATE @ Tc (IN/HR):	.202	.808	1.378	2.235	3.109	3.985
PEAK DISCHARGE (CFS) :	20.	81.	138.	223.	311.	398.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 16

WATERSHED AREA (A): 85.20 acres

LENGTH OF WATERCOURSE (Lc): 3250. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

3250. 69.0

MEAN SLOPE (Sc): .0212 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.553
Tc (FUNCTION OF i) :	47.02	34.45	30.90	28.21	26.68	25.62
SOLUTION OF Tc (MINUTES):	39	23	18	15	13	12
RAINFL INT. @ Tc (IN/HR):	1.601	2.894	3.834	4.902	5.967	6.896
RUNOFF RATE @ Tc (IN/HR):	.196	.771	1.340	2.150	3.010	3.847
PEAK DISCHARGE (CFS) :	17.	66.	115.	185.	259.	330

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 17

WATERSHED AREA (A): 39.60 acres

LENGTH OF WATERCOURSE (Lc): 3150. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1550. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3150. 67.0

MEAN SLOPE (Sc): .0213 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	46.11	33.78	30.29	27.67	26.16	25.12
SOLUTION OF Tc (MINUTES):	38	22	18	15	13	12
RAINFL INT. @ Tc (IN/HR):	1.625	2.973	3.834	4.902	5.967	6.896
RUNOFF RATE @ Tc (IN/HR):	.199	.792	1.340	2.150	3.010	3.847
PEAK DISCHARGE (CFS) :	7.93	31.60	53.49	85.81	120.15	153.58

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 18

WATERSHED AREA (A): 62.40 acres

LENGTH OF WATERCOURSE (Lc): 3300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

3300.

70.0

MEAN SLOPE (Sc): .0212 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	47.25	34.62	31.05	28.35	26.81	25.75
SOLUTION OF Tc (MINUTES):	40	23	18	15	13	12
RAINFLL INT. @ Tc (IN/HR):	1.565	2.894	3.834	4.902	5.967	6.896
RUNOFF RATE @ Tc (IN/HR):	.191	.771	1.340	2.150	3.010	3.857
PEAK DISCHARGE (CFS) :	12.	48.	84.	135.	189.	242.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 23

WATERSHED AREA (A): 15.50 acres

LENGTH OF WATERCOURSE (Lc): 1300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 650. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
1300. 27.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	27.50	20.15	18.07	16.50	15.60	14.99
SOLUTION OF Tc (MINUTES):	19	12	10	8	7	6
RAINFL INT. @ Tc (IN/HR):	2.437	3.964	4.930	6.429	7.703	9.085
RUNOFF RATE @ Tc (IN/HR):	.298	1.055	1.723	2.819	3.886	5.069
PEAK DISCHARGE (CFS) :	4.66	16.49	26.92	44.05	60.71	79.20

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 29

WATERSHED AREA (A): 701.80 acres

LENGTH OF WATERCOURSE (Lc): 9900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 5200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
9900. 170.0

MEAN SLOPE (Sc): .0172 ft BASIN FACTOR (Nb): .0400

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	113.52	84.42	75.95	69.50	65.79	63.23
SOLUTION OF Tc (MINUTES):	141	77	60	48	42	37
RAINFL INT. @ Tc (IN/HR):	.581	1.268	1.826	2.516	3.106	3.776
RUNOFF RATE @ Tc (IN/HR):	.076	.346	.649	1.116	1.581	2.122
PEAK DISCHARGE (CFS) :	53.	245.	459.	789.	1118.	1501.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 30

WATERSHED AREA (A): 234.40 acres

LENGTH OF WATERCOURSE (Lc): 7300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 3700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

7300.

138.0

MEAN SLOPE (Sc): .0189 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	78.77	58.57	52.70	48.23	45.65	43.87
SOLUTION OF Tc (MINUTES):	82	45	36	30	26	23
RAINFL INT. @ Tc (IN/HR):	.911	1.919	2.574	3.397	4.182	5.035
RUNOFF RATE @ Tc (IN/HR):	.119	.524	.915	1.507	2.128	2.829
PEAK DISCHARGE (CFS) :	28.	124.	216.	356.	503.	669.

068

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 32

WATERSHED AREA (A): 1365.70 acres

LENGTH OF WATERCOURSE (Lc): 15900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 8300. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
15900. 220.0

MEAN SLOPE (Sc): .0138 ft BASIN FACTOR (Nb): .0400

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	164.15	122.07	109.83	100.50	95.13	91.43
SOLUTION OF Tc (MINUTES):	246	133	104	83	71	62
RAINFL INT. @ Tc (IN/HR):	.363	.808	1.148	1.629	2.115	2.659
RUNOFF RATE @ Tc (IN/HR):	.047	.220	.408	.723	1.076	1.494
PEAK DISCHARGE (CFS) :	65.	303.	562.	995.	1481.	2057.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 33

WATERSHED AREA (A): 1022.20 acres

LENGTH OF WATERCOURSE (Lc): 13400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 6900. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

13400. 195.0

MEAN SLOPE (Sc): .0146 ft BASIN FACTOR (Nb): .0400

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.23	1.60	1.84	2.16	2.45	2.74
P 2	1.36	1.78	2.07	2.43	2.76	3.09
P 3	1.45	1.91	2.21	2.61	2.97	3.32
P 6	1.62	2.14	2.50	2.95	3.36	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.142	.281	.361	.446	.510	.562
Tc (FUNCTION OF i) :	139.63	106.28	96.16	88.30	83.72	80.53
SOLUTION OF Tc (MINUTES):	191	108	85	68	58	52
RAINFL INT. @ Tc (IN/HR):	.459	.970	1.367	1.939	2.500	3.010
RUNOFF RATE @ Tc (IN/HR):	.065	.272	.493	.865	1.275	1.691
PEAK DISCHARGE (CFS) :	67.	281.	508.	892.	1314.	1743.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 34

WATERSHED AREA (A): 233.10 acres

LENGTH OF WATERCOURSE (Lc): 8000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 3500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

8000. 170.0

MEAN SLOPE (Sc): .0213 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.23	1.60	1.84	2.16	2.45	2.74
P 2	1.36	1.78	2.07	2.43	2.76	3.09
P 3	1.45	1.91	2.21	2.61	2.97	3.32
P 6	1.62	2.14	2.50	2.95	3.36	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.250	.372	.442	.517	.573	.613
Tc (FUNCTION OF i) :	58.50	49.90	46.58	43.76	42.01	40.75
SOLUTION OF Tc (MINUTES):	52	36	31	26	23	21
RAINFL INT. @ Tc (IN/HR):	1.348	2.250	2.839	3.697	4.510	5.287
RUNOFF RATE @ Tc (IN/HR):	.337	.838	1.256	1.911	2.582	3.263
PEAK DISCHARGE (CFS) :	79.	197.	295.	449.	607.	767.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 35

WATERSHED AREA (A): 99.10 acres

LENGTH OF WATERCOURSE (Lc): 6100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (H...) - ft
6100. 126.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 10. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.201	.332	.408	.489	.549	.598
Tc (FUNCTION OF i) :	55.73	45.54	41.94	39.01	37.25	36.00
SOLUTION OF Tc (MINUTES):	49	32	27	23	20	18
RAINFL INT. @ Tc (IN/HR):	1.374	2.375	3.067	3.956	4.867	5.746
RUNOFF RATE @ Tc (IN/HR):	.276	.789	1.252	1.936	2.673	3.436
PEAK DISCHARGE (CFS) :	28.	79.	125.	193.	267.	343.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 36

WATERSHED AREA (A): 43.70 acres

LENGTH OF WATERCOURSE (Lc): 3050. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3050. 64.0

MEAN SLOPE (Sc): .0210 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	40.41	30.05	27.04	24.74	23.42	22.51
SOLUTION OF Tc (MINUTES):	32	19	15	13	11	10
RAINFL INT. @ Tc (IN/HR):	1.804	3.209	4.163	5.246	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.235	.876	1.479	2.327	3.248	4.152
PEAK DISCHARGE (CFS) :	10.	39.	65.	103.	143.	183.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 37

WATERSHED AREA (A): 29.00 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1350. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 56.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	41.62	30.95	27.85	25.48	24.12	23.18
SOLUTION OF Tc (MINUTES):	33	20	16	13	12	11
RAINFL INT. @ Tc (IN/HR):	1.768	3.130	4.053	5.246	6.163	7.142
RUNOFF RATE @ Tc (IN/HR):	.230	.854	1.440	2.327	3.136	4.053
PEAK DISCHARGE (CFS) :	6.73	24.97	42.10	68.03	91.68	117.32

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 39

WATERSHED AREA (A): 29.20 acres

LENGTH OF WATERCOURSE (Lc): 2900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 900. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2900. 61.0

MEAN SLOPE (Sc): .0210 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	37.44	27.84	25.05	22.92	21.70	20.85
SOLUTION OF Tc (MINUTES):	29	17	14	12	10	9
RAINFL INT. @ Tc (IN/HR):	1.924	3.397	4.327	5.418	6.603	7.771
RUNOFF RATE @ Tc (IN/HR):	.250	.927	1.538	2.404	3.360	4.367
PEAK DISCHARGE (CFS) :	7.37	27.29	45.26	70.75	98.90	128.54

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 41

WATERSHED AREA (A): 19.50 acres

LENGTH OF WATERCOURSE (Lc): 2400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2400. 50.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	32.23	23.61	21.18	19.34	18.29	17.56
SOLUTION OF Tc (MINUTES):	24	14	12	10	8	3
RAINFL INT. @ Tc (IN/HR):	2.151	3.728	4.601	5.805	7.312	8.182
RUNOFF RATE @ Tc (IN/HR):	.263	.993	1.608	2.546	3.688	4.565
PEAK DISCHARGE (CFS) :	5.17	19.51	31.61	50.04	72.50	89.73

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 44

WATERSHED AREA (A): 23.90 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1300. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

2700.

56.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	41.15	30.60	27.53	25.20	23.85	22.92
SOLUTION OF Tc (MINUTES):	33	19	16	13	12	10
RAINFL INT. @ Tc (IN/HR):	1.768	3.209	4.053	5.246	6.163	7.388
RUNOFF RATE @ Tc (IN/HR):	.230	.876	1.440	2.327	3.136	4.152
PEAK DISCHARGE (CFS) :	5.54	21.09	34.70	56.07	75.56	100.02

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 45

WATERSHED AREA (A): 217.70 acres

LENGTH OF WATERCOURSE (Lc): 6450. ft

LENGTH TO CENTER OF GRAVITY (Lca): 3200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

6450.

160.0

MEAN SLOPE (Sc): .0248 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.553
Tc (FUNCTION OF i) :	66.82	48.95	43.90	40.09	37.91	36.41
SOLUTION OF Tc (MINUTES):	64	36	29	23	20	18
RAINFL INT. @ Tc (IN/HR):	1.129	2.218	2.939	3.956	4.867	5.746
RUNOFF RATE @ Tc (IN/HR):	.138	.591	1.027	1.735	2.455	3.206
PEAK DISCHARGE (CFS) :	30.	130.	225.	381.	539.	704.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 46

WATERSHED AREA (A): 140.10 acres

LENGTH OF WATERCOURSE (Lc): 6150. ft

LENGTH TO CENTER OF GRAVITY (Lca): 3050. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
6150. 152.0

MEAN SLOPE (Sc): .0247 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	63.43	47.17	42.44	38.83	36.76	35.33
SOLUTION OF Tc (MINUTES):	59	34	27	22	20	18
RAINFL INT. @ Tc (IN/HR):	1.207	2.296	3.067	4.064	4.867	5.746
RUNOFF RATE @ Tc (IN/HR):	.157	.627	1.090	1.803	2.477	3.229
PEAK DISCHARGE (CFS) :	22.	88.	154.	255.	350.	456.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 47

WATERSHED AREA (A): 498.00 acres

LENGTH OF WATERCOURSE (Lc): 9400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
9400. 205.0

MEAN SLOPE (Sc): .0218 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	86.22	64.12	57.69	52.79	49.97	48.03
SOLUTION OF Tc (MINUTES):	94	51	41	33	29	26
RAINFL INT. @ Tc (IN/HR):	.813	1.762	2.355	3.182	3.937	4.679
RUNOFF RATE @ Tc (IN/HR):	.106	.481	.837	1.412	2.004	2.629
PEAK DISCHARGE (CFS) :	53.	241.	420.	709.	1006.	1320.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 48

WATERSHED AREA (A): 268.50 acres

LENGTH OF WATERCOURSE (Lc): 11500. ft

LENGTH TO CENTER OF GRAVITY (Lca): 5750. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

11500.

240.0

MEAN SLOPE (Sc): .0209 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	99.04	73.65	66.27	60.64	57.40	55.17
SOLUTION OF Tc (MINUTES):	115	63	50	40	35	31
RAINFL INT. @ Tc (IN/HR):	.689	1.507	2.063	2.817	3.497	4.214
RUNOFF RATE @ Tc (IN/HR):	.090	.411	.733	1.249	1.780	2.369
PEAK DISCHARGE (CFS) :	24.	111.	198.	338.	482.	641.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 51

WATERSHED AREA (A): 145.10 acres

LENGTH OF WATERCOURSE (Lc): 8000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
8000. 168.0

MEAN SLOPE (Sc): .0210 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	78.77	59.39	53.60	49.15	46.57	44.79
SOLUTION OF Tc (MINUTES):	82	46	37	30	26	24
RAINFL INT. @ Tc (IN/HR):	.911	1.887	2.520	3.397	4.182	4.926
RUNOFF RATE @ Tc (IN/HR):	.126	.528	.910	1.524	2.147	2.787
PEAK DISCHARGE (CFS) :	18.	77.	133.	223.	314.	408.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 52

WATERSHED AREA (A): 10.50 acres

LENGTH OF WATERCOURSE (Lc): 1200. ft

LENGTH TO CENTER OF GRAVITY (Lca): 600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

1200.

25.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.613
Tc (FUNCTION OF i) :	20.00	16.90	15.72	14.74	14.13	13.70
SOLUTION OF Tc (MINUTES):	13	9	8	7	6	6
RAINFL INT. @ Tc (IN/HR):	2.915	4.467	5.459	6.773	8.119	9.035
RUNOFF RATE @ Tc (IN/HR):	.699	1.632	2.389	3.485	4.641	5.613
PEAK DISCHARGE (CFS) :	7.40	17.27	25.28	36.89	49.12	59.40

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 53

WATERSHED AREA (A): 399.10 acres

LENGTH OF WATERCOURSE (Lc): 18200. ft

LENGTH TO CENTER OF GRAVITY (Lca): 9100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
18200. 400.0

MEAN SLOPE (Sc): .0220 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	124.82	94.11	84.93	77.88	73.79	70.97
SOLUTION OF Tc (MINUTES):	163	91	71	56	49	42
RAINFL INT. @ Tc (IN/HR):	.515	1.102	1.578	2.258	2.812	3.366
RUNOFF RATE @ Tc (IN/HR):	.071	.308	.570	1.013	1.444	1.905
PEAK DISCHARGE (CFS) :	29.	124.	229.	407.	581.	766.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 54

WATERSHED AREA (A): 42.90 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1350. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

2700.

56.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	32.59	27.54	25.62	24.01	23.02	22.32
SOLUTION OF Tc (MINUTES):	24	17	14	12	11	10
RAINFL INT. @ Tc (IN/HR):	2.151	3.397	4.327	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.516	1.241	1.893	2.788	3.648	4.565
PEAK DISCHARGE (CFS) :	22.	54.	82.	121.	158.	197.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 56

WATERSHED AREA (A): 34.80 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 56.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	32.95	27.84	25.90	24.28	23.28	22.56
SOLUTION OF Tc (MINUTES):	25	17	15	13	11	10
RAINFL INT. @ Tc (IN/HR):	2.091	3.397	4.163	5.246	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.501	1.241	1.821	2.700	3.648	4.565
PEAK DISCHARGE (CFS) :	18.	44.	64.	95.	128.	160.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 58

WATERSHED AREA (A): 182.40 acres

LENGTH OF WATERCOURSE (Lc): 9400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
9400. 195.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 3. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.146	.286	.367	.454	.518	.570
Tc (FUNCTION OF i) :	84.06	64.19	58.09	53.37	50.63	48.72
SOLUTION OF Tc (MINUTES):	90	52	41	34	29	26
RAINFL INT. @ Tc (IN/HR):	.843	1.730	2.355	3.139	3.937	4.673
RUNOFF RATE @ Tc (IN/HR):	.123	.495	.865	1.424	2.039	2.667
PEAK DISCHARGE (CFS) :	23.	91.	159.	262.	375.	490.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 59

WATERSHED AREA (A): 416.30 acres

LENGTH OF WATERCOURSE (Lc): 19500. ft

LENGTH TO CENTER OF GRAVITY (Lca): 9800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
19500. 428.0

MEAN SLOPE (Sc): .0219 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	130.37	98.29	88.71	81.34	77.07	74.12
SOLUTION OF Tc (MINUTES):	174	97	76	60	52	46
RAINFL INT. @ Tc (IN/HR):	.488	1.045	1.489	2.150	2.690	3.284
RUNOFF RATE @ Tc (IN/HR):	.067	.292	.538	.965	1.381	1.858
PEAK DISCHARGE (CFS) :	28.	123.	226.	405.	580.	780.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 63

WATERSHED AREA (A): 12.60 acres

LENGTH OF WATERCOURSE (Lc): 2000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

2000.

42.0

MEAN SLOPE (Sc): .0210 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	24.34	20.56	19.13	17.93	17.19	16.67
SOLUTION OF Tc (MINUTES):	17	12	10	9	8	7
RAINFL INT. @ Tc (IN/HR):	2.581	3.964	4.930	6.107	7.312	8.620
RUNOFF RATE @ Tc (IN/HR):	.619	1.448	2.157	3.142	4.179	5.325
PEAK DISCHARGE (CFS) :	7.86	18.39	27.39	39.91	53.08	67.64

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 64

WATERSHED AREA (A): 201.50 acres

LENGTH OF WATERCOURSE (Lc): 10650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 5300. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
10650. 220.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 4. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.154	.293	.373	.459	.522	.574
Tc (FUNCTION OF i) :	88.74	68.57	62.24	57.29	54.39	52.33
SOLUTION OF Tc (MINUTES):	98	56	45	37	33	29
RAINFL INT. @ Tc (IN/HR):	.785	1.652	2.227	2.967	3.619	4.405
RUNOFF RATE @ Tc (IN/HR):	.121	.483	.831	1.361	1.891	2.528
PEAK DISCHARGE (CFS) :	24.	98.	169.	277.	384.	514.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 65

WATERSHED AREA (A): 31.60 acres

LENGTH OF WATERCOURSE (Lc): 2100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 900. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2100. 44.0

MEAN SLOPE (Sc): .0210 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	26.66	22.52	20.95	19.64	18.83	18.25
SOLUTION OF Tc (MINUTES):	19	13	11	10	9	8
RAINFL INT. @ Tc (IN/HR):	2.437	3.838	4.765	5.805	6.945	8.182
RUNOFF RATE @ Tc (IN/HR):	.584	1.402	2.085	2.988	3.970	5.055
PEAK DISCHARGE (CFS) :	19.	45.	66.	95.	126.	161.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 66

WATERSHED AREA (A): 604.90 acres

LENGTH OF WATERCOURSE (Lc): 20700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 10300. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
20700. 455.0

MEAN SLOPE (Sc): .0220 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	134.64	101.52	91.61	84.01	79.60	76.55
SOLUTION OF Tc (MINUTES):	182	101	80	63	54	48
RAINFL INT. @ Tc (IN/HR):	.471	1.011	1.425	2.061	2.641	3.202
RUNOFF RATE @ Tc (IN/HR):	.065	.283	.515	.925	1.356	1.813
PEAK DISCHARGE (CFS) :	40.	172.	314.	564.	827.	1105.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 67

WATERSHED AREA (A): 38.50 acres

LENGTH OF WATERCOURSE (Lc): 3650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3650. 76.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.613
Tc (FUNCTION OF i) :	38.83	32.81	30.53	28.61	27.43	26.59
SOLUTION OF Tc (MINUTES):	30	21	18	15	14	12
RAINFL INT. @ Tc (IN/HR):	1.888	3.036	3.834	4.902	5.796	6.895
RUNOFF RATE @ Tc (IN/HR):	.453	1.109	1.678	2.523	3.313	4.260
PEAK DISCHARGE (CFS) :	18.	43.	65.	98.	129.	165.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 69

WATERSHED AREA (A): 348.70 acres

LENGTH OF WATERCOURSE (Lc): 14850. ft

LENGTH TO CENTER OF GRAVITY (Lca): 7200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

14850.

310.0

MEAN SLOPE (Sc): .0209 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 3. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.146	.286	.367	.454	.518	.570
Tc (FUNCTION OF i) :	109.30	83.47	75.54	69.41	65.83	63.36
SOLUTION OF Tc (MINUTES):	134	76	59	48	42	37
RAINFL INT. @ Tc (IN/HR):	.606	1.282	1.844	2.516	3.106	3.776
RUNOFF RATE @ Tc (IN/HR):	.088	.367	.677	1.141	1.608	2.152
PEAK DISCHARGE (CFS) :	31.	129.	238.	401.	565.	756.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 70

WATERSHED AREA (A): 241.10 acres

LENGTH OF WATERCOURSE (Lc): 10800. ft

LENGTH TO CENTER OF GRAVITY (Lca): 5400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
10800. 222.0

MEAN SLOPE (Sc): .0206 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.59	1.85	2.19	2.50	2.80
P 2	1.33	1.78	2.08	2.46	2.81	3.16
P 3	1.43	1.91	2.23	2.65	3.03	3.40
P 6	1.60	2.15	2.52	2.99	3.43	3.85
P24	2.00	2.70	3.17	3.77	4.31	4.85

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.278	.363	.453	.519	.572
Tc (FUNCTION OF i) :	95.96	70.78	63.64	58.25	55.16	53.05
SOLUTION OF Tc (MINUTES):	110	59	47	38	33	29
RAINFL INT. @ Tc (IN/HR):	.714	1.605	2.186	2.979	3.697	4.510
RUNOFF RATE @ Tc (IN/HR):	.093	.447	.794	1.350	1.920	2.582
PEAK DISCHARGE (CFS) :	23.	109.	193.	328.	467.	628.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 72

WATERSHED AREA (A): 45.50 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 900. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 45.0

MEAN SLOPE (Sc): .0167 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	41.23	30.20	27.09	24.74	23.39	22.47
SOLUTION OF Tc (MINUTES):	33	19	15	13	11	10
RAINFL INT. @ Tc (IN/HR):	1.768	3.209	4.163	5.246	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.216	.854	1.455	2.301	3.220	4.122
PEAK DISCHARGE (CFS) :	9.92	39.18	66.72	105.52	147.67	189.06

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 73

WATERSHED AREA (A): 69.00 acres

LENGTH OF WATERCOURSE (Lc): 3500. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3500. 59.0

MEAN SLOPE (Sc): .0169 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	39.51	33.38	31.06	29.11	27.91	27.05
SOLUTION OF Tc (MINUTES):	31	22	18	16	14	13
RAINFL INT. @ Tc (IN/HR):	1.840	2.973	3.834	4.773	5.796	6.677
RUNOFF RATE @ Tc (IN/HR):	.441	1.086	1.678	2.456	3.313	4.125
PEAK DISCHARGE (CFS) :	31.	76.	117.	171.	230.	287.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 74

WATERSHED AREA (A): 1178.50 acres

LENGTH OF WATERCOURSE (Lc): 25900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 12900. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
25900. 540.0

MEAN SLOPE (Sc): .0208 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	157.36	118.64	107.07	98.18	93.03	89.47
SOLUTION OF Tc (MINUTES):	231	128	100	80	68	60
RAINFL INT. @ Tc (IN/HR):	.383	.834	1.185	1.680	2.194	2.736
RUNOFF RATE @ Tc (IN/HR):	.053	.233	.428	.754	1.126	1.549
PEAK DISCHARGE (CFS) :	63.	277.	509.	895.	1338.	1840.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 75

WATERSHED AREA (A): 238.40 acres

LENGTH OF WATERCOURSE (Lc): 8900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4450. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

8900.

186.0

MEAN SLOPE (Sc): .0209 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT			100-YR
				25-YR	50-YR		
P 1	1.19	1.57	1.83	2.15	2.45	2.74	
P 2	1.33	1.76	2.05	2.42	2.75	3.09	
P 3	1.43	1.89	2.20	2.60	2.96	3.32	
P 6	1.60	2.13	2.48	2.94	3.35	3.76	
P24	2.00	2.68	3.13	3.71	4.24	4.76	

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	87.01	63.74	57.17	52.21	49.36	47.41
SOLUTION OF Tc (MINUTES):	95	51	41	33	29	26
RAINFL INT. @ Tc (IN/HR):	.805	1.762	2.355	3.182	3.937	4.679
RUNOFF RATE @ Tc (IN/HR):	.099	.469	.823	1.395	1.986	2.611
PEAK DISCHARGE (CFS) :	24.	113.	198.	335.	477.	627

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 77

WATERSHED AREA (A): 105.80 acres

LENGTH OF WATERCOURSE (Lc): 5200. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

5200.

112.0

MEAN SLOPE (Sc): .0215 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

75. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
25. % D, CN= 91, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.181	.329	.410	.496	.558	.608
Tc (FUNCTION OF i) :	53.22	41.93	38.37	35.58	33.94	32.80
SOLUTION OF Tc (MINUTES):	46	29	24	20	18	16
RAINFL INT. @ Tc (IN/HR):	1.434	2.532	3.286	4.279	5.136	6.075
RUNOFF RATE @ Tc (IN/HR):	.260	.832	1.349	2.121	2.864	3.690
PEAK DISCHARGE (CFS) :	28.	89.	144.	226.	305.	394.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 78

WATERSHED AREA (A): 18.00 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1450. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 56.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	42.52	31.62	28.45	26.03	24.64	23.68
SOLUTION OF Tc (MINUTES):	34	20	16	14	12	11
RAINFLL INT. @ Tc (IN/HR):	1.744	3.130	4.053	5.096	6.163	7.142
RUNOFF RATE @ Tc (IN/HR):	.227	.854	1.440	2.261	3.136	4.013
PEAK DISCHARGE (CFS) :	4.12	15.50	26.13	41.01	56.90	72.82

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 80

WATERSHED AREA (A): 328.50 acres

LENGTH OF WATERCOURSE (Lc): 15500. ft

LENGTH TO CENTER OF GRAVITY (Lca): 7500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
15500. 354.0

MEAN SLOPE (Sc): .0228 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	110.54	83.34	75.21	68.97	65.35	62.85
SOLUTION OF Tc (MINUTES):	136	75	59	48	42	37
RAINFL INT. @ Tc (IN/HR):	.599	1.296	1.844	2.516	3.106	3.776
RUNOFF RATE @ Tc (IN/HR):	.083	.362	.666	1.129	1.594	2.137
PEAK DISCHARGE (CFS) :	27.	120.	221.	374.	528.	708.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 81

WATERSHED AREA (A): 6.80 acres

LENGTH OF WATERCOURSE (Lc): 1350. ft

LENGTH TO CENTER OF GRAVITY (Lca): 650. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
1350. 28.0

MEAN SLOPE (Sc): .0207 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	21.26	17.96	16.71	15.66	15.02	14.56
SOLUTION OF Tc (MINUTES):	14	10	9	7	7	6
RAINFL INT. @ Tc (IN/HR):	2.832	4.247	5.185	6.773	7.703	9.085
RUNOFF RATE @ Tc (IN/HR):	.679	1.552	2.269	3.485	4.403	5.613
PEAK DISCHARGE (CFS) :	4.65	10.64	15.55	23.89	30.18	38.47

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 82

WATERSHED AREA (A): 17.60 acres

LENGTH OF WATERCOURSE (Lc): 1300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
1300. 26.0

MEAN SLOPE (Sc): .0200 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 20. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.279	.398	.467	.540	.594	.638
Tc (FUNCTION OF i) :	20.53	17.80	16.71	15.76	15.17	14.75
SOLUTION OF Tc (MINUTES):	14	10	9	7	7	6
RAINFL INT. @ Tc (IN/HR):	2.832	4.247	5.185	6.773	7.703	9.085
RUNOFF RATE @ Tc (IN/HR):	.790	1.692	2.421	3.657	4.576	5.794
PEAK DISCHARGE (CFS) :	14.	30.	43.	65.	81.	103.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 83

WATERSHED AREA (A): 12.10 acres

LENGTH OF WATERCOURSE (Lc): 1100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 550. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

1100. 23.0

MEAN SLOPE (Sc): .0209 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 20. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.279	.398	.467	.540	.594	.638
Tc (FUNCTION OF i) :	17.84	15.47	14.52	13.70	13.19	12.82
SOLUTION OF Tc (MINUTES):	11	9	7	6	6	5
RAINFL INT. @ Tc (IN/HR):	3.118	4.467	5.751	7.139	8.119	9.523
RUNOFF RATE @ Tc (IN/HR):	.870	1.780	2.685	3.855	4.822	6.073
PEAK DISCHARGE (CFS) :	11.	22.	33.	47.	59.	74.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 84

WATERSHED AREA (A): 26.00 acres

LENGTH OF WATERCOURSE (Lc): 1700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 850. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
1700. 35.0

MEAN SLOPE (Sc): .0206 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	24.77	20.93	19.47	18.25	17.50	16.96
SOLUTION OF Tc (MINUTES):	17	12	10	9	8	7
RAINFL INT. @ Tc (IN/HR):	2.581	3.964	4.930	6.107	7.312	8.620
RUNOFF RATE @ Tc (IN/HR):	.619	1.448	2.157	3.142	4.179	5.325
PEAK DISCHARGE (CFS) :	16.	38.	57.	82.	110.	140.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 85

WATERSHED AREA (A): 165.00 acres

LENGTH OF WATERCOURSE (Lc): 5800. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
5800. 140.0

MEAN SLOPE (Sc): .0241 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT						
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	
P 1	1.19	1.57	1.83	2.15	2.45	2.74	
P 2	1.33	1.76	2.05	2.42	2.75	3.09	
P 3	1.43	1.89	2.20	2.60	2.96	3.32	
P 6	1.60	2.13	2.48	2.94	3.35	3.76	
P24	2.00	2.68	3.13	3.71	4.24	4.76	

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 25. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT						
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	
RUNOFF SUPPLY RATE (q/i):	.318	.431	.496	.565	.616	.658	
Tc (FUNCTION OF i) :	42.89	37.97	35.90	34.07	32.92	32.07	
SOLUTION OF Tc (MINUTES):	35	26	22	19	17	16	
RAINFL INT. @ Tc (IN/HR):	1.709	2.690	3.451	4.386	5.282	6.075	
RUNOFF RATE @ Tc (IN/HR):	.543	1.160	1.712	2.480	3.256	3.996	
PEAK DISCHARGE (CFS) :	90.	193.	285.	412.	541.	665.	

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 86

WATERSHED AREA (A): 27.20 acres

LENGTH OF WATERCOURSE (Lc): 2400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (H1) - f
2400. 66.0

MEAN SLOPE (Sc): .0275 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 25. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.318	.431	.496	.565	.616	.658
Tc (FUNCTION OF i) :	22.94	20.31	19.20	18.22	17.61	17.15
SOLUTION OF Tc (MINUTES):	16	12	10	9	8	7
RAINFL INT. @ Tc (IN/HR):	2.652	3.964	4.930	6.107	7.312	8.620
RUNOFF RATE @ Tc (IN/HR):	.844	1.710	2.446	3.452	4.507	5.669
PEAK DISCHARGE (CFS) :	23.	47.	67.	95.	124.	155.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 88

WATERSHED AREA (A): 59.10 acres

LENGTH OF WATERCOURSE (Lc): 4050. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
4050. 102.0

MEAN SLOPE (Sc): .0252 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 20. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.279	.398	.467	.540	.594	.638
Tc (FUNCTION OF i) :	36.07	31.28	29.35	27.69	26.66	25.91
SOLUTION OF Tc (MINUTES):	28	20	17	15	13	12
RAINFL INT. @ Tc (IN/HR):	1.959	3.130	3.944	4.902	5.967	6.896
RUNOFF RATE @ Tc (IN/HR):	.546	1.247	1.841	2.647	3.544	4.353
PEAK DISCHARGE (CFS) :	33.	74.	110.	158.	211.	262.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 89

WATERSHED AREA (A): 56.00 acres

LENGTH OF WATERCOURSE (Lc): 4150. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
4150. 104.0

MEAN SLOPE (Sc): .0251 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 20. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.279	.398	.467	.540	.594	.638
Tc (FUNCTION OF i) :	37.47	32.48	30.49	28.76	27.69	26.91
SOLUTION OF Tc (MINUTES):	29	21	18	15	14	13
RAINFLL INT. @ Tc (IN/HR):	1.924	3.036	3.834	4.902	5.796	6.677
RUNOFF RATE @ Tc (IN/HR):	.536	1.209	1.790	2.647	3.443	4.258
PEAK DISCHARGE (CFS) :	30.	68.	101.	149.	194.	240.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 90

WATERSHED AREA (A): 86.50 acres

LENGTH OF WATERCOURSE (Lc): 5400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f-
5400. 134.0

MEAN SLOPE (Sc): .0248 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 10. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.201	.332	.408	.489	.549	.598
Tc (FUNCTION OF i) :	47.67	38.95	35.88	33.37	31.86	30.80
SOLUTION OF Tc (MINUTES):	40	26	22	18	16	15
RAINFL INT. @ Tc (IN/HR):	1.565	2.690	3.451	4.515	5.429	6.239
RUNOFF RATE @ Tc (IN/HR):	.314	.894	1.409	2.209	2.982	3.730
PEAK DISCHARGE (CFS) :	27.	78.	123.	193.	260.	325.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 91

WATERSHED AREA (A): 285.20 acres

LENGTH OF WATERCOURSE (Lc): 21650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 9000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
21650. 510.0

MEAN SLOPE (Sc): .0236 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	130.49	97.04	87.31	79.90	75.62	72.63
SOLUTION OF Tc (MINUTES):	174	95	74	59	51	45
RAINFL INT. @ Tc (IN/HR):	.488	1.063	1.523	2.172	2.739	3.333
RUNOFF RATE @ Tc (IN/HR):	.064	.290	.541	.963	1.394	1.876
PEAK DISCHARGE (CFS) :	18.	83.	156.	277.	401.	539.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 92

WATERSHED AREA (A): 178.60 acres

LENGTH OF WATERCOURSE (Lc): 15700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 7100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
15700. 375.0

MEAN SLOPE (Sc): .0239 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	109.75	81.61	73.43	67.20	63.60	61.13
SOLUTION OF Tc (MINUTES):	134	73	57	46	40	36
RAINFL INT. @ Tc (IN/HR):	.606	1.327	1.899	2.580	3.204	3.858
RUNOFF RATE @ Tc (IN/HR):	.079	.362	.675	1.145	1.630	2.168
PEAK DISCHARGE (CFS) :	14.	65.	121.	206.	294.	390.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 93

WATERSHED AREA (A): 288.70 acres

LENGTH OF WATERCOURSE (Lc): 6600. ft

LENGTH TO CENTER OF GRAVITY (Lca): 3400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

5600. 124.0
1000. 10.0

MEAN SLOPE (Sc): .0192 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 10. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.201	.332	.408	.489	.549	.598
Tc (FUNCTION OF i) :	62.28	50.89	46.87	43.60	41.63	40.24
SOLUTION OF Tc (MINUTES):	58	38	31	26	23	21
RAINFL INT. @ Tc (IN/HR):	1.219	2.139	2.812	3.677	4.500	5.281
RUNOFF RATE @ Tc (IN/HR):	.244	.711	1.148	1.799	2.471	3.157
PEAK DISCHARGE (CFS) :	71.	207.	334.	523.	719.	919.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 94

WATERSHED AREA (A): 36.10 acres

LENGTH OF WATERCOURSE (Lc): 2000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2000. 41.0

MEAN SLOPE (Sc): .0205 ft BASIN FACTOR (Nb): .0250

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 95. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.866	.894	.907	.920	.930	.937
Tc (FUNCTION OF i) :	11.69	11.54	11.47	11.41	11.36	11.30
SOLUTION OF Tc (MINUTES):	7	6	6	5	5	5
RAINFL INT. @ Tc (IN/HR):	3.763	5.222	6.061	7.483	8.510	9.523
RUNOFF RATE @ Tc (IN/HR):	3.260	4.668	5.499	6.887	7.912	8.923
PEAK DISCHARGE (CFS) :	119.	170.	200.	251.	288.	325.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 95

WATERSHED AREA (A): 103.40 acres

LENGTH OF WATERCOURSE (Lc): 5700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
5700. 140.0

MEAN SLOPE (Sc): .0246 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	59.18	44.62	40.27	36.92	34.99	33.65
SOLUTION OF Tc (MINUTES):	53	32	26	21	18	17
RAINFL INT. @ Tc (IN/HR):	1.302	2.375	3.122	4.150	5.136	5.911
RUNOFF RATE @ Tc (IN/HR):	.180	.664	1.128	1.862	2.637	3.345
PEAK DISCHARGE (CFS) :	19.	69.	118.	194.	275.	349.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 97

WATERSHED AREA (A): 29.20 acres

LENGTH OF WATERCOURSE (Lc): 3800. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
3800. 92.0

MEAN SLOPE (Sc): .0242 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 35. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.396	.497	.555	.616	.661	.698
Tc (FUNCTION OF i) :	25.04	22.86	21.89	20.99	20.41	19.97
SOLUTION OF Tc (MINUTES):	17	14	12	11	10	9
RAINFL INT. @ Tc (IN/HR):	2.581	3.728	4.601	5.612	6.603	7.771
RUNOFF RATE @ Tc (IN/HR):	1.023	1.854	2.553	3.457	4.365	5.422
PEAK DISCHARGE (CFS) :	30.	55.	75.	102.	128.	160.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 98

WATERSHED AREA (A): 56.10 acres

LENGTH OF WATERCOURSE (Lc): 4100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
4100. 102.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 30. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.357	.464	.526	.591	.639	.678
Tc (FUNCTION OF i) :	28.66	25.81	24.56	23.44	22.72	22.19
SOLUTION OF Tc (MINUTES):	21	16	14	12	11	10
RAINFLL INT. @ Tc (IN/HR):	2.306	3.492	4.327	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.824	1.622	2.274	3.201	4.077	5.007
PEAK DISCHARGE (CFS) :	47.	92.	129.	181.	231.	283.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 99

WATERSHED AREA (A): 44.00 acres

LENGTH OF WATERCOURSE (Lc): 3400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
3400. 84.0

MEAN SLOPE (Sc): .0247 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 25. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.318	.431	.496	.565	.616	.658
Tc (FUNCTION OF i) :	31.17	27.59	26.09	24.76	23.92	23.31
SOLUTION OF Tc (MINUTES):	23	17	15	13	12	11
RAINFL INT. @ Tc (IN/HR):	2.198	3.397	4.163	5.246	6.163	7.142
RUNOFF RATE @ Tc (IN/HR):	.699	1.466	2.066	2.966	3.798	4.697
PEAK DISCHARGE (CFS) :	31.	65.	92.	132.	168.	208.

PROJECT NAME AND LOCATION: SAHUATITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 100

WATERSHED AREA (A): 9.20 acres

LENGTH OF WATERCOURSE (Lc): 1400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 600. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
1400. 32.0

MEAN SLOPE (Sc): .0229 ft BASIN FACTOR (Nb): .0250

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 50. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.514	.597	.643	.692	.728	.757
Tc (FUNCTION OF i) :	10.63	10.01	9.72	9.43	9.24	9.10
SOLUTION OF Tc (MINUTES):	6	5	5	5	5	5
RAINFL INT. @ Tc (IN/HR):	3.967	5.474	6.354	7.483	8.510	9.523
RUNOFF RATE @ Tc (IN/HR):	2.038	3.265	4.085	5.179	6.198	7.213
PEAK DISCHARGE (CFS) :	19.	30.	38.	48.	57.	67.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 101

WATERSHED AREA (A): 68.70 acres

LENGTH OF WATERCOURSE (Lc): 4200. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f

4200. 104.0

MEAN SLOPE (Sc): .0248 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 30. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.357	.464	.526	.591	.639	.678
Tc (FUNCTION OF i) :	30.11	27.11	25.80	24.62	23.86	23.30
SOLUTION OF Tc (MINUTES):	22	17	15	13	12	11
RAINFL INT. @ Tc (IN/HR):	2.258	3.397	4.163	5.246	6.163	7.142
RUNOFF RATE @ Tc (IN/HR):	.807	1.578	2.188	3.099	3.936	4.840
PEAK DISCHARGE (CFS) :	56.	109.	152.	215.	273.	335.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 102

WATERSHED AREA (A): 26.20 acres

LENGTH OF WATERCOURSE (Lc): 4100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

4100. 100.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 40. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.435	.531	.584	.641	.683	.718
Tc (FUNCTION OF i) :	26.30	24.30	23.38	22.53	21.96	21.54
SOLUTION OF Tc (MINUTES):	18	15	13	11	10	10
RAINFL INT. @ Tc (IN/HR):	2.509	3.586	4.455	5.612	6.603	7.388
RUNOFF RATE @ Tc (IN/HR):	1.093	1.902	2.603	3.600	4.513	5.302
PEAK DISCHARGE (CFS) :	29.	50.	69.	95.	119.	140.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 103

WATERSHED AREA (A): 40.00 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1350. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 25. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.318	.431	.496	.565	.616	.658
Tc (FUNCTION OF i) :	27.26	24.13	22.81	21.66	20.92	20.38
SOLUTION OF Tc (MINUTES):	19	14	13	11	10	9
RAINFL INT. @ Tc (IN/HR):	2.437	3.728	4.455	5.612	6.603	7.771
RUNOFF RATE @ Tc (IN/HR):	.775	1.608	2.211	3.173	4.070	5.111
PEAK DISCHARGE (CFS) :	31.	65.	89.	128.	164.	206.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 104

WATERSHED AREA (A): 41.10 acres

LENGTH OF WATERCOURSE (Lc): 2800. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2800. 70.0

MEAN SLOPE (Sc): .0250 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 25. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.318	.431	.496	.565	.616	.658
Tc (FUNCTION OF i) :	27.61	24.44	23.11	21.94	21.19	20.65
SOLUTION OF Tc (MINUTES):	20	15	13	11	10	9
RAINFL INT. @ Tc (IN/HR):	2.378	3.586	4.455	5.612	6.603	7.771
RUNOFF RATE @ Tc (IN/HR):	.756	1.547	2.211	3.173	4.070	5.111
PEAK DISCHARGE (CFS) :	31.	64.	92.	131.	169.	212.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 105

WATERSHED AREA (A): 57.10 acres

LENGTH OF WATERCOURSE (Lc): 4100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
4100. 102.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 4. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.154	.293	.373	.459	.522	.574
Tc (FUNCTION OF i) :	44.75	34.58	31.38	28.89	27.43	26.41
SOLUTION OF Tc (MINUTES):	37	23	19	15	14	12
RAINFL INT. @ Tc (IN/HR):	1.649	2.894	3.725	4.902	5.796	6.896
RUNOFF RATE @ Tc (IN/HR):	.253	.847	1.389	2.249	3.027	3.958
PEAK DISCHARGE (CFS) :	15.	49.	80.	129.	174.	228.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 106

WATERSHED AREA (A): 46.70 acres

LENGTH OF WATERCOURSE (Lc): 4100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
4100. 102.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 4. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.154	.293	.373	.459	.522	.574
Tc (FUNCTION OF i) :	47.52	36.72	33.33	30.68	29.13	28.05
SOLUTION OF Tc (MINUTES):	40	24	20	17	15	13
RAINFL INT. @ Tc (IN/HR):	1.565	2.831	3.633	4.644	5.576	6.677
RUNOFF RATE @ Tc (IN/HR):	.240	.829	1.355	2.131	2.912	3.832
PEAK DISCHARGE (CFS) :	11.	39.	64.	100.	137.	180.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 108

WATERSHED AREA (A): 45.50 acres

LENGTH OF WATERCOURSE (Lc): 2600. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2600. 66.0

MEAN SLOPE (Sc): .0254 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 25. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.318	.431	.496	.565	.616	.658
Tc (FUNCTION OF i) :	26.84	23.76	22.46	21.32	20.60	20.07
SOLUTION OF Tc (MINUTES):	19	14	12	11	10	9
RAINFL INT. @ Tc (IN/HR):	2.437	3.728	4.601	5.612	6.603	7.771
RUNOFF RATE @ Tc (IN/HR):	.775	1.608	2.283	3.173	4.070	5.111
PEAK DISCHARGE (CFS) :	36.	74.	105.	146.	187.	234.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 109

WATERSHED AREA (A): 23.80 acres

LENGTH OF WATERCOURSE (Lc): 2000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
2000. 50.0

MEAN SLOPE (Sc): .0250 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 10. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.201	.332	.408	.489	.549	.598
Tc (FUNCTION OF i) :	25.37	20.73	19.10	17.76	16.96	16.39
SOLUTION OF Tc (MINUTES):	18	12	10	9	8	7
RAINFL INT. @ Tc (IN/HR):	2.509	3.964	4.930	6.107	7.312	8.620
RUNOFF RATE @ Tc (IN/HR):	.503	1.317	2.012	2.988	4.016	5.153
PEAK DISCHARGE (CFS) :	12.	32.	48.	72.	96.	124.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 110

WATERSHED AREA (A): 52.70 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 30. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.357	.464	.526	.591	.639	.678
Tc (FUNCTION OF i) :	23.02	20.72	19.72	18.82	18.24	17.82
SOLUTION OF Tc (MINUTES):	16	12	11	9	8	8
RAINFL INT. @ Tc (IN/HR):	2.652	3.964	4.765	6.107	7.312	8.182
RUNOFF RATE @ Tc (IN/HR):	.947	1.841	2.505	3.607	4.670	5.545
PEAK DISCHARGE (CFS) :	50.	98.	133.	192.	248.	295.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 111

WATERSHED AREA (A): 15.40 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1300. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0250

WATERSHED TYPE(S): URBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 45. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.475	.564	.614	.667	.706	.738
Tc (FUNCTION OF i) :	16.40	15.31	14.80	14.32	13.99	13.75
SOLUTION OF Tc (MINUTES):	10	8	8	7	6	6
RAINFL INT. @ Tc (IN/HR):	3.226	4.703	5.459	6.773	8.119	9.085
RUNOFF RATE @ Tc (IN/HR):	1.531	2.650	3.350	4.516	5.731	6.700
PEAK DISCHARGE (CFS) :	24.	41.	52.	70.	89.	104.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 112

WATERSHED AREA (A): 19.80 acres

LENGTH OF WATERCOURSE (Lc): 1400. ft

LENGTH TO CENTER OF GRAVITY (Lca): 700. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
1400. 34.0

MEAN SLOPE (Sc): .0243 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 10. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.201	.332	.408	.489	.549	.598
Tc (FUNCTION OF i) :	22.16	18.11	16.68	15.51	14.81	14.32
SOLUTION OF Tc (MINUTES):	15	10	9	7	7	6
RAINFLL INT. @ Tc (IN/HR):	2.724	4.247	5.185	6.773	7.703	9.033
RUNOFF RATE @ Tc (IN/HR):	.546	1.411	2.117	3.314	4.231	5.431
PEAK DISCHARGE (CFS) :	11.	28.	42.	66.	84.	108.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 113

WATERSHED AREA (A): 32.30 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1250. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	39.04	28.60	25.65	23.42	22.15	21.27
SOLUTION OF Tc (MINUTES):	31	18	14	12	11	10
RAINFL INT. @ Tc (IN/HR):	1.840	3.303	4.327	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.225	.879	1.512	2.376	3.220	4.122
PEAK DISCHARGE (CFS) :	7.33	28.63	49.24	77.36	104.83	134.21

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 114

WATERSHED AREA (A): 33.40 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1250. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 64.0

MEAN SLOPE (Sc): .0237 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	39.52	28.95	25.97	23.71	22.42	21.54
SOLUTION OF Tc (MINUTES):	31	18	15	12	11	10
RAINFL INT. @ Tc (IN/HR):	1.840	3.303	4.163	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.225	.879	1.455	2.376	3.220	4.122
PEAK DISCHARGE (CFS) :	7.58	29.61	48.98	80.00	108.40	138.78

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 115

WATERSHED AREA (A): 181.70 acres

LENGTH OF WATERCOURSE (Lc): 18850. ft

LENGTH TO CENTER OF GRAVITY (Lca): 9425. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
18850. 445.0

MEAN SLOPE (Sc): .0236 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 5. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.161	.299	.379	.464	.527	.578
Tc (FUNCTION OF i) :	116.33	90.88	82.70	76.27	72.48	69.85
SOLUTION OF Tc (MINUTES):	147	86	68	55	48	43
RAINFL INT. @ Tc (IN/HR):	.561	1.155	1.637	2.279	2.861	3.421
RUNOFF RATE @ Tc (IN/HR):	.091	.346	.620	1.057	1.507	1.977
PEAK DISCHARGE (CFS) :	17.	63.	114.	194.	276.	362.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 117

WATERSHED AREA (A): 54.70 acres

LENGTH OF WATERCOURSE (Lc): 2650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2650. 66.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 0. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.122	.266	.349	.439	.504	.558
Tc (FUNCTION OF i) :	39.86	29.20	26.19	23.92	22.62	21.72
SOLUTION OF Tc (MINUTES):	31	18	15	12	11	10
RAINFL INT. @ Tc (IN/HR):	1.840	3.303	4.163	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.225	.879	1.455	2.376	3.220	4.122
PEAK DISCHARGE (CFS) :	12.	48.	80.	131.	178.	227.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 118

WATERSHED AREA (A): 28.70 acres

LENGTH OF WATERCOURSE (Lc): 1325. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1325. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2650. 66.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	31.07	23.10	20.79	19.02	18.01	17.31
SOLUTION OF Tc (MINUTES):	23	14	11	9	8	7
RAINFL INT. @ Tc (IN/HR):	2.198	3.728	4.765	6.107	7.312	8.620
RUNOFF RATE @ Tc (IN/HR):	.286	1.017	1.693	2.709	3.721	4.844
PEAK DISCHARGE (CFS) :	8.28	29.43	48.99	78.36	107.65	140.13

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 119

WATERSHED AREA (A): 36.60 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1350. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	38.97	28.98	26.07	23.86	22.59	21.71
SOLUTION OF Tc (MINUTES):	31	18	15	12	11	10
RAINFL INT. @ Tc (IN/HR):	1.840	3.303	4.163	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.239	.901	1.479	2.404	3.248	4.152
PEAK DISCHARGE (CFS) :	8.83	33.25	54.57	88.67	119.84	153.17

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 120

WATERSHED AREA (A): 37.40 acres

LENGTH OF WATERCOURSE (Lc): 2650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1325. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2650. 66.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 5. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.161	.299	.379	.464	.527	.578
Tc (FUNCTION OF i) :	35.09	27.41	24.95	23.00	21.86	21.07
SOLUTION OF Tc (MINUTES):	27	17	14	12	10	9
RAINFL INT. @ Tc (IN/HR):	2.007	3.397	4.327	5.418	6.603	7.771
RUNOFF RATE @ Tc (IN/HR):	.324	1.017	1.639	2.514	3.478	4.491
PEAK DISCHARGE (CFS) :	12.	38.	62.	95.	131.	169.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 121

WATERSHED AREA (A): 24.60 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1350. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 5. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.161	.299	.379	.464	.527	.578
Tc (FUNCTION OF i) :	35.75	27.93	25.42	23.44	22.28	21.47
SOLUTION OF Tc (MINUTES):	27	17	14	12	11	10
RAINFL INT. @ Tc (IN/HR):	2.007	3.397	4.327	5.418	6.383	7.388
RUNOFF RATE @ Tc (IN/HR):	.324	1.017	1.639	2.514	3.363	4.270
PEAK DISCHARGE (CFS) :	8.04	25.21	40.65	62.33	83.38	105.87

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 122

WATERSHED AREA (A): 25.30 acres

LENGTH OF WATERCOURSE (Lc): 2700. ft

LENGTH TO CENTER OF GRAVITY (Lca): 140. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2700. 66.0

MEAN SLOPE (Sc): .0244 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 5. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.161	.299	.379	.464	.527	.573
Tc (FUNCTION OF i) :	18.11	14.15	12.88	11.88	11.29	10.88
SOLUTION OF Tc (MINUTES):	12	8	6	5	5	5
RAINFL INT. @ Tc (IN/HR):	3.011	4.703	6.061	7.483	8.510	9.523
RUNOFF RATE @ Tc (IN/HR):	.486	1.408	2.296	3.471	4.483	5.503
PEAK DISCHARGE (CFS) :	12.	36.	59.	89.	114.	140.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 123

WATERSHED AREA (A): 194.00 acres

LENGTH OF WATERCOURSE (Lc): 8300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4850. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
8300. 202.0

MEAN SLOPE (Sc): .0243 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 23. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.302	.418	.485	.555	.607	.650
Tc (FUNCTION OF i) :	49.09	43.12	40.66	38.50	37.14	36.15
SOLUTION OF Tc (MINUTES):	42	30	26	22	20	18
RAINFL INT. @ Tc (IN/HR):	1.517	2.485	3.122	4.064	4.867	5.746
RUNOFF RATE @ Tc (IN/HR):	.459	1.039	1.513	2.256	2.956	3.734
PEAK DISCHARGE (CFS) :	90.	203.	296.	441.	578.	730.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 124

WATERSHED AREA (A): 50.40 acres

LENGTH OF WATERCOURSE (Lc): 4000. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1800. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
4000. 80.0

MEAN SLOPE (Sc): .0200 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.618
Tc (FUNCTION OF i) :	40.56	34.27	31.89	29.88	28.66	27.78
SOLUTION OF Tc (MINUTES):	32	22	19	16	14	13
RAINFL INT. @ Tc (IN/HR):	1.804	2.973	3.725	4.773	5.796	6.677
RUNOFF RATE @ Tc (IN/HR):	.433	1.086	1.630	2.456	3.313	4.125
PEAK DISCHARGE (CFS) :	22.	55.	83.	125.	168.	210.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 125

WATERSHED AREA (A): 199.60 acres

LENGTH OF WATERCOURSE (Lc): 8650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
8650. 196.0

MEAN SLOPE (Sc): .0227 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 22. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.295	.412	.479	.550	.603	.646
Tc (FUNCTION OF i) :	50.54	44.21	41.62	39.36	37.95	36.92
SOLUTION OF Tc (MINUTES):	43	31	27	23	20	19
RAINFL INT. @ Tc (IN/HR):	1.493	2.422	3.067	3.956	4.867	5.52?
RUNOFF RATE @ Tc (IN/HR):	.440	.997	1.468	2.176	2.934	3.605
PEAK DISCHARGE (CFS) :	89.	201.	295.	438.	590.	725.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 126

WATERSHED AREA (A): 118.70 acres

LENGTH OF WATERCOURSE (Lc): 7850. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
7850. 194.0

MEAN SLOPE (Sc): .0247 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 28. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.342	.451	.514	.581	.630	.670
Tc (FUNCTION OF i) :	43.14	38.59	36.63	34.89	33.77	32.95
SOLUTION OF Tc (MINUTES):	35	26	23	20	18	16
RAINFL INT. @ Tc (IN/HR):	1.709	2.690	3.359	4.279	5.136	6.075
RUNOFF RATE @ Tc (IN/HR):	.583	1.214	1.726	2.484	3.234	4.068
PEAK DISCHARGE (CFS) :	70.	145.	207.	297.	387.	487.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 127

WATERSHED AREA (A): 284.80 acres

LENGTH OF WATERCOURSE (Lc): 8900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
8900. 168.0

MEAN SLOPE (Sc): .0189 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.613
Tc (FUNCTION OF i) :	68.04	57.49	53.49	50.13	48.07	46.59
SOLUTION OF Tc (MINUTES):	66	44	37	31	28	25
RAINFL INT. @ Tc (IN/HR):	1.099	1.935	2.520	3.311	4.011	4.789
RUNOFF RATE @ Tc (IN/HR):	.263	.707	1.102	1.704	2.292	2.958
PEAK DISCHARGE (CFS) :	76.	203.	316.	489.	658.	849.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 128

WATERSHED AREA (A): 418.60 acres

LENGTH OF WATERCOURSE (Lc): 12300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 6000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
12300. 214.0

MEAN SLOPE (Sc): .0174 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 12. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.216	.346	.420	.499	.558	.606
Tc (FUNCTION OF i) :	89.84	74.48	68.90	64.28	61.48	59.50
SOLUTION OF Tc (MINUTES):	100	64	52	44	38	34
RAINFL INT. @ Tc (IN/HR):	.772	1.486	2.008	2.645	3.326	3.995
RUNOFF RATE @ Tc (IN/HR):	.167	.514	.843	1.321	1.856	2.420
PEAK DISCHARGE (CFS) :	70.	217.	356.	557.	783.	1021.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 129

WATERSHED AREA (A): 781.90 acres

LENGTH OF WATERCOURSE (Lc): 25650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 8250. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
25650. 575.0

MEAN SLOPE (Sc): .0224 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 5. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.161	.299	.379	.464	.527	.578
Tc (FUNCTION OF i) :	125.16	97.78	88.98	82.06	77.99	75.15
SOLUTION OF Tc (MINUTES):	164	96	76	60	53	47
RAINFL INT. @ Tc (IN/HR):	.512	1.054	1.489	2.150	2.666	3.229
RUNOFF RATE @ Tc (IN/HR):	.083	.316	.564	.997	1.404	1.866
PEAK DISCHARGE (CFS) :	65.	249.	444.	786.	1107.	1471.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 130

WATERSHED AREA (A): 78.30 acres

LENGTH OF WATERCOURSE (Lc): 2800. ft

LENGTH TO CENTER OF GRAVITY (Lca): 1400. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
2800. 54.0

MEAN SLOPE (Sc): .0193 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 30. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.357	.464	.526	.591	.639	.678
Tc (FUNCTION OF i) :	25.06	22.56	21.47	20.50	19.86	19.43
SOLUTION OF Tc (MINUTES):	17	13	12	10	9	9
RAINFL INT. @ Tc (IN/HR):	2.581	3.838	4.601	5.805	6.945	7.771
RUNOFF RATE @ Tc (IN/HR):	.922	1.782	2.418	3.429	4.436	5.266
PEAK DISCHARGE (CFS) :	73.	141.	191.	271.	350.	416.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 132

WATERSHED AREA (A): 102.80 acres

LENGTH OF WATERCOURSE (Lc): 4100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2200. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
4100. 102.0

MEAN SLOPE (Sc): .0249 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	50.79	37.77	33.98	31.10	29.43	28.29
SOLUTION OF Tc (MINUTES):	44	25	21	17	15	13
RAINFL INT. @ Tc (IN/HR):	1.470	2.753	3.524	4.644	5.576	6.677
RUNOFF RATE @ Tc (IN/HR):	.191	.751	1.252	2.060	2.838	3.752
PEAK DISCHARGE (CFS) :	20.	78.	130.	213.	294.	389.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 133

WATERSHED AREA (A): 262.80 acres

LENGTH OF WATERCOURSE (Lc): 7200. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
7200. 170.0

MEAN SLOPE (Sc): .0236 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT						
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	
P 1	1.19	1.57	1.83	2.15	2.45	2.74	
P 2	1.33	1.76	2.05	2.42	2.75	3.09	
P 3	1.43	1.89	2.20	2.60	2.96	3.32	
P 6	1.60	2.13	2.48	2.94	3.35	3.76	
P24	2.00	2.68	3.13	3.71	4.24	4.76	

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT						
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562	
Tc (FUNCTION OF i) :	73.46	54.63	49.15	44.98	42.58	40.92	
SOLUTION OF Tc (MINUTES):	74	41	33	27	24	21	
RAINFL INT. @ Tc (IN/HR):	.995	2.029	2.702	3.612	4.402	5.281	
RUNOFF RATE @ Tc (IN/HR):	.129	.554	.960	1.602	2.240	2.968	
PEAK DISCHARGE (CFS) :	34.	147.	254.	424.	593.	786.	

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 134

WATERSHED AREA (A): 13.80 acres

LENGTH OF WATERCOURSE (Lc): 1500. ft

LENGTH TO CENTER OF GRAVITY (Lca): 750. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
 1500. 32.0

MEAN SLOPE (Sc): .0213 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
 IMPERVIOUS COVER= 10. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.201	.332	.408	.489	.549	.598
Tc (FUNCTION OF i) :	24.32	19.88	18.31	17.03	16.26	15.72
SOLUTION OF Tc (MINUTES):	17	11	10	8	7	?
RAINFL INT. @ Tc (IN/HR):	2.581	4.105	4.930	6.429	7.703	8.620
RUNOFF RATE @ Tc (IN/HR):	.518	1.364	2.012	3.145	4.231	5.153
PEAK DISCHARGE (CFS) :	7.20	18.98	27.99	43.75	58.85	71.63

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 135

WATERSHED AREA (A): 312.60 acres

LENGTH OF WATERCOURSE (Lc): 7900. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4500. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f
7900. 200.0

MEAN SLOPE (Sc): .0253 ft BASIN FACTOR (Nb): .0300

WATERSHED TYPE(S): SUBURBAN

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 15. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.240	.365	.438	.515	.572	.619
Tc (FUNCTION OF i) :	51.09	43.16	40.16	37.64	36.09	34.98
SOLUTION OF Tc (MINUTES):	44	30	25	21	19	17
RAINFL INT. @ Tc (IN/HR):	1.470	2.485	3.195	4.150	4.989	5.911
RUNOFF RATE @ Tc (IN/HR):	.352	.908	1.398	2.136	2.852	3.652
PEAK DISCHARGE (CFS) :	111.	286.	441.	673.	899.	1151.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 136

WATERSHED AREA (A): 94.20 acres

LENGTH OF WATERCOURSE (Lc): 4300. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - f

4300. 106.0

MEAN SLOPE (Sc): .0247 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): NATURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 2. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.138	.279	.361	.449	.513	.566
Tc (FUNCTION OF i) :	49.81	37.56	33.89	31.08	29.45	28.32
SOLUTION OF Tc (MINUTES):	42	25	20	17	15	13
RAINFL INT. @ Tc (IN/HR):	1.517	2.753	3.633	4.644	5.576	6.677
RUNOFF RATE @ Tc (IN/HR):	.209	.769	1.312	2.084	2.863	3.779
PEAK DISCHARGE (CFS) :	20.	73.	125.	198.	272.	359.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 139

WATERSHED AREA (A): 492.70 acres

LENGTH OF WATERCOURSE (Lc): 8650. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4325. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

8650.

182.0

MEAN SLOPE (Sc): .0210 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 1. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.130	.273	.355	.444	.509	.562
Tc (FUNCTION OF i) :	83.21	61.88	55.67	50.95	48.23	46.35
SOLUTION OF Tc (MINUTES):	89	49	39	32	28	25
RAINFL INT. @ Tc (IN/HR):	.850	1.809	2.446	3.247	4.011	4.789
RUNOFF RATE @ Tc (IN/HR):	.111	.494	.869	1.440	2.041	2.691
PEAK DISCHARGE (CFS) :	55.	245.	432.	715.	1014.	1336.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 140

WATERSHED AREA (A): 154.70 acres

LENGTH OF WATERCOURSE (Lc): 8100. ft

LENGTH TO CENTER OF GRAVITY (Lca): 4000. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft

8100. 150.0

MEAN SLOPE (Sc): .0185 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %

IMPERVIOUS COVER= 3. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	EVENT					
	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.146	.286	.367	.454	.518	.570
Tc (FUNCTION OF i) :	80.15	61.20	55.39	50.89	48.27	46.45
SOLUTION OF Tc (MINUTES):	84	48	39	32	28	25
RAINFLL INT. @ Tc (IN/HR):	.893	1.840	2.446	3.247	4.011	4.789
RUNOFF RATE @ Tc (IN/HR):	.130	.526	.898	1.473	2.077	2.729
PEAK DISCHARGE (CFS) :	20.	82.	140.	230.	324.	426.

PROJECT NAME AND LOCATION: SAHUARITA BASIN MANAGEMENT STUDY

DRAINAGE CONCENTRATION POINT: 141

WATERSHED AREA (A): 60.90 acres

LENGTH OF WATERCOURSE (Lc): 4600. ft

LENGTH TO CENTER OF GRAVITY (Lca): 2100. ft

INCREMENTAL CHANGE IN LENGTH (Li) - ft INCREMENTAL CHANGE IN ELEV (Hi) - ft
4600. 90.0

MEAN SLOPE (Sc): .0196 ft BASIN FACTOR (Nb): .0350

WATERSHED TYPE(S): RURAL

RAINFALL VALUES

	2-YR	5-YR	10-YR	EVENT		
				25-YR	50-YR	100-YR
P 1	1.19	1.57	1.83	2.15	2.45	2.74
P 2	1.33	1.76	2.05	2.42	2.75	3.09
P 3	1.43	1.89	2.20	2.60	2.96	3.32
P 6	1.60	2.13	2.48	2.94	3.35	3.76
P24	2.00	2.68	3.13	3.71	4.24	4.76

SOIL GROUPS

100. % B, CN= 83, COVER TYPE= DESERT BRUSH , COVER DENSITY= 20 %
IMPERVIOUS COVER= 3. %

RAINFALL/RUNOFF AND PEAK DISCHARGE DATA

	2-YR	5-YR	EVENT			
			10-YR	25-YR	50-YR	100-YR
RUNOFF SUPPLY RATE (q/i):	.146	.286	.367	.454	.518	.570
Tc (FUNCTION OF i) :	54.53	41.64	37.69	34.63	32.84	31.61
SOLUTION OF Tc (MINUTES):	48	29	23	19	17	15
RAINFL INT. @ Tc (IN/HR):	1.398	2.532	3.359	4.386	5.282	6.239
RUNOFF RATE @ Tc (IN/HR):	.204	.724	1.233	1.990	2.736	3.556
PEAK DISCHARGE (CFS) :	13.	44.	76.	122.	168.	218.

APPENDIX D
HEC-1 MODEL INPUT/OUTPUT

SOIL CLASSIFICATION	AREA (acres)	%	X _{SAT}
ROCK OUTCROP	447.6	5.5	0.01
CLAY LOAM	96.3	1.2	0.04
SANDY LOAM	4796.7	59.0	0.40
LOAMY SAND	2789.4	34.3	1.20
	<u>8130.0</u>		

$$\overline{X_{SAT}} = \text{ANTILOG} \left(\frac{\sum A_i \text{LOG } X_{SAT}}{AT} \right)$$

$$\overline{X_{SAT}} = \text{ANTILOG} \left(\frac{\sum (447.6 \cdot \text{LOG}(0.01)) + (96.3 \cdot \text{LOG}(0.04)) + (4796.7 \cdot \text{LOG}(0.4)) + (2789.4 \cdot \text{LOG}(1.20))}{8130} \right)$$

$$\overline{X_{SAT}} = 0.463$$

FROM FIG 3.3

$$D_{THETA} = 0.26 \quad (\text{NORMAL})$$

$$P_{SIF} = 3.8$$

$$\text{IMPERVIOUS AREA} = \frac{447.6 \times 0.3}{8130} = 0.017 \quad (1.7\%)$$

$$IA (\text{DESERT}) = 0.15$$

X_{SAT} CORRECTION

$$VC = 20\% \Rightarrow CK = 1.1$$

$$X_{SAT} = 0.463 \times 1.1 = 0.509$$

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
*
* RUN DATE 06/24/1999 TIME 12:31:39 *
*
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID SAHUARITA BASIN MANAGEMENT STUDY
2 ID CP# 24/25
3 ID FILE : S24-100.H1I
4 ID
5 IT 5 300
6 IO 4
7 KK 24/25
8 KM UPSTREAM END OF RANCHO RESORT CHANNEL
*
*
9 KM 100 YEAR / 24 HOUR STORM
10 BA 13.79
11 PH 0.83 1.63 2.77 3.12 3.35 3.80 4.30 4.80
12 LG 0.15 0.26 3.8 0.509 1.7
13 UC 3.40 2.76
14 UA 0 3 5 8 12 20 43 75 90 96
15 UA 100
16 ZZ

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
*
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SAHUARITA BASIN MANAGEMENT STUDY
 CP# 24/25
 FILE : S24-100.H11

6 IO OUTPUT CONTROL VARIABLES
 IPRNT 4 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
 NMIN 5 MINUTES IN COMPUTATION INTERVAL
 IDATE 1 0 STARTING DATE
 ITIME 0000 STARTING TIME
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 2 0 ENDING DATE
 NDTIME 0055 ENDING TIME
 ICENT 19 CENTURY MARK
 COMPUTATION INTERVAL .08 HOURS
 TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
 DRAINAGE AREA SQUARE MILES
 PRECIPITATION DEPTH INCHES
 LENGTH, ELEVATION FEET
 FLOW CUBIC FEET PER SECOND
 STORAGE VOLUME ACRE-FEET
 SURFACE AREA ACRES
 TEMPERATURE DEGREES FAHRENHEIT

 * *
 7 KK * 24/25 *
 * *

UPSTREAM END OF RANCHO RESORT CHANNEL
 100 YEAR / 24 HOUR STORM

SUBBASIN RUNOFF DATA

10 BA SUBBASIN CHARACTERISTICS
 TAREA 13.79 SUBBASIN AREA

PRECIPITATION DATA

11 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 .83 1.63 2.77 3.12 3.35 3.80 4.30 4.80 .00 .00 .00 .00

STORM AREA = 13.79

12 LG GREEN AND AMPT LOSS RATE
 STRTL .15 STARTING LOSS
 DTH .26 MOISTURE DEFICIT

PSIF 3.80 WETTING FRONT SUCTION
 XKSAT .51 HYDRAULIC CONDUCTIVITY
 RTIMP 1.70 PERCENT IMPERVIOUS AREA

**
 S
 ER

LARK UNITGRAPH

TC 3.40 TIME OF CONCENTRATION
 R 2.76 STORAGE COEFFICIENT

ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0 100.0

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 3.40 HR, R= 2.76 HR
 SNYDER TP= 2.87 HR, CP= .68

UNIT HYDROGRAPH

201 END-OF-PERIOD ORDINATES

2.	35.	57.	79.	96.	109.	121.	133.	148.	167.
5.	203.	223.	247.	271.	294.	327.	374.	425.	475.
.	697.	856.	1009.	1176.	1374.	1582.	1784.	1951.	2047.
..	2157.	2197.	2201.	2182.	2164.	2144.	2117.	2085.	2054.
1.	1974.	1915.	1858.	1803.	1749.	1697.	1647.	1598.	1550.
.	1459.	1416.	1374.	1333.	1293.	1255.	1217.	1181.	1146.
.	1079.	1047.	1016.	985.	956.	928.	900.	873.	847.
4.	799.	774.	751.	729.	707.	686.	666.	646.	627.
3.	590.	572.	555.	539.	523.	507.	492.	477.	463.
.	436.	423.	411.	398.	386.	375.	364.	353.	342.
.	322.	313.	304.	294.	286.	277.	269.	261.	253.
6.	238.	231.	224.	218.	211.	205.	199.	193.	187.
2.	176.	171.	166.	161.	156.	152.	147.	143.	138.
.	130.	126.	123.	119.	115.	112.	109.	105.	102.
.	96.	93.	91.	88.	85.	83.	80.	78.	76.
3.	71.	69.	67.	65.	63.	61.	59.	58.	56.
.	53.	51.	50.	48.	47.	45.	44.	43.	41.
.	39.	38.	37.	36.	35.	33.	32.	32.	31.
0.	29.	28.	27.	26.	26.	25.	24.	23.	23.
2.	21.	21.	20.	19.	19.	18.	18.	17.	17.

RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE	TIME OF MAX STAGE
			6-HOUR	24-HOUR	72-HOUR				
PH AT 24/25	3760.	14.83	2134.	636.	613.	13.79			

IEC-1 ***

*
 R
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1*****
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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
*
* RUN DATE 06/24/1999 TIME 12:34:27 *
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* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
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1

HEC-1 INPUT

PAGE 1

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1 ID SAHUARITA BASIN MANAGEMENT STUDY
2 ID CP# 24/25
3 ID FILE : S24-2.H1I
4 ID
5 IT 5 300
6 IO 4
7 KK 24/25
8 KM UPSTREAM END OF RANCHO RESORT CHANNEL
*
*
9 KM 2 YEAR / 24 HOUR STORM
10 BA 13.79
11 PH 50 0.47 0.85 1.38 1.52 1.62 1.80 2.00 2.20
12 LG 0.15 0.26 3.8 0.509 1.7
13 UC 3.40 2.76
14 UA 0 3 5 8 12 20 43 75 90 96
15 UA 100
16 ZZ

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
*
* RUN DATE 06/24/1999 TIME 12:34:27 *
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* (916) 756-1104
*
*****

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PSIF 3.80 WETTING FRONT SUCTION
 XKSAT .51 HYDRAULIC CONDUCTIVITY
 RTIMP 1.70 PERCENT IMPERVIOUS AREA

13 UC CLARK UNITGRAPH
 TC 3.40 TIME OF CONCENTRATION
 R 2.76 STORAGE COEFFICIENT

14 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
 .0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
 100.0

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 3.40 HR, R= 2.76 HR
 SNYDER TP= 2.87 HR, CP= .68

UNIT HYDROGRAPH

201 END-OF-PERIOD ORDINATES

12.	35.	57.	79.	96.	109.	121.	133.	148.	167.
185.	203.	223.	247.	271.	294.	327.	374.	425.	475.
558.	697.	856.	1009.	1176.	1374.	1582.	1784.	1951.	2047.
2103.	2157.	2197.	2201.	2182.	2164.	2144.	2117.	2085.	2054.
2021.	1974.	1915.	1858.	1803.	1749.	1697.	1647.	1598.	1550.
1504.	1459.	1416.	1374.	1333.	1293.	1255.	1217.	1181.	1146.
1112.	1079.	1047.	1016.	985.	956.	928.	900.	873.	847.
822.	798.	774.	751.	729.	707.	686.	666.	646.	627.
608.	590.	572.	555.	539.	523.	507.	492.	477.	463.
449.	436.	423.	411.	398.	386.	375.	364.	353.	342.
332.	322.	313.	304.	294.	286.	277.	269.	261.	253.
246.	238.	231.	224.	218.	211.	205.	199.	193.	187.
182.	176.	171.	166.	161.	156.	152.	147.	143.	138.
134.	130.	126.	123.	119.	115.	112.	109.	105.	102.
99.	96.	93.	91.	88.	85.	83.	80.	78.	76.
73.	71.	69.	67.	65.	63.	61.	59.	58.	56.
54.	53.	51.	50.	48.	47.	45.	44.	43.	41.
40.	39.	38.	37.	36.	35.	33.	32.	32.	31.
30.	29.	28.	27.	26.	26.	25.	24.	23.	23.
22.	21.	21.	20.	19.	19.	18.	18.	17.	17.
16.									

RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	24/25	825.	14.83	466.	140.	134.	13.79		

*** NORMAL END OF HEC-1 ***

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
*
* RUN DATE 06/28/1999 TIME 09:42:03 *
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY, DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	SAHUARITA BASIN MANAGEMENT STUDY									
2	ID	CP# 50									
3	ID	FILE : SAHUAR.H11									
4	ID	6 HR USACE STORM / 100 YEAR EVENT									
5	ID										
6	IT	5	300								
7	IO	4									
8	KK	A1									
9	BA	4.8									
10	PH		0.84	1.64	2.79	3.14	3.38	3.83	4.34	4.84	
11	LG	0.15	0.26	4.7	0.312	8.8					
12	UC	3.10	3.70								
13	UA	0	3	5	8	12	20	43	75	90	96
14	UA	100									
15	KK										
16	KM										
17	RK	1320	0.02	0.035	80		5				
18	ZZ										

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
*

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SAHUARITA BASIN MANAGEMENT STUDY
CP#
FILE : SAHUAR.H1I
6 HR USACE STORM / 100 YEAR EVENT

7 IO OUTPUT CONTROL VARIABLES
IPRNT 4 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 5 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2 0 ENDING DATE
NDTIME 0055 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

* *
8 KK * A1 *
* *

SUBBASIN RUNOFF DATA

9 BA SUBBASIN CHARACTERISTICS
TAREA 4.80 SUBBASIN AREA

PRECIPITATION DATA

10 PH DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM
..... HYDRO-35 TP-40 TP-49
5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
.84 1.64 2.79 3.14 3.38 3.83 4.34 4.84 .00 .00 .00 .00

STORM AREA = 4.80

11 LG GREEN AND AMPT LOSS RATE

STRTL .15 STARTING LOSS
 DTH .26 MOISTURE DEFICIT
 PSIF 4.70 WETTING FRONT SUCTION
 XKSAT .31 HYDRAULIC CONDUCTIVITY
 RTIMP 8.80 PERCENT IMPERVIOUS AREA

12 UC CLARK UNITGRAPH
 TC 3.10 TIME OF CONCENTRATION
 R 3.70 STORAGE COEFFICIENT

13 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
 .0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
 100.0

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 3.10 HR, R= 3.70 HR
 SNYDER TP= 2.68 HR, CP= .52

UNIT HYDROGRAPH

258 END-OF-PERIOD ORDINATES

3.	10.	16.	22.	27.	31.	35.	39.	44.	50.
56.	62.	69.	77.	84.	96.	112.	127.	149.	187.
234.	280.	332.	392.	455.	516.	557.	579.	600.	617.
624.	624.	623.	622.	618.	613.	608.	600.	588.	574.
562.	549.	537.	525.	513.	502.	491.	480.	469.	459.
448.	438.	429.	419.	410.	401.	392.	383.	374.	366.
358.	350.	342.	335.	327.	320.	313.	306.	299.	292.
286.	279.	273.	267.	261.	255.	250.	244.	239.	233.
228.	223.	218.	213.	208.	204.	199.	195.	191.	186.
182.	178.	174.	170.	166.	163.	159.	156.	152.	149.
145.	142.	139.	136.	133.	130.	127.	124.	121.	119.
116.	113.	111.	108.	106.	104.	101.	99.	97.	95.
93.	91.	89.	87.	85.	83.	81.	79.	77.	76.
74.	72.	71.	69.	68.	66.	65.	63.	62.	60.
59.	58.	56.	55.	54.	53.	52.	50.	49.	48.
47.	46.	45.	44.	43.	42.	41.	40.	39.	38.
38.	37.	36.	35.	34.	34.	33.	32.	31.	31.
30.	29.	29.	28.	27.	27.	26.	26.	25.	25.
24.	23.	23.	22.	22.	21.	21.	20.	20.	20.
19.	19.	18.	18.	18.	17.	17.	16.	16.	16.
15.	15.	15.	14.	14.	14.	13.	13.	13.	12.
12.	12.	12.	11.	11.	11.	11.	10.	10.	10.
10.	10.	9.	9.	9.	9.	9.	8.	8.	8.
8.	8.	7.	7.	7.	7.	7.	7.	6.	6.
6.	6.	6.	6.	6.	6.	5.	5.	5.	5.
5.	5.	5.	5.	5.	4.	4.	4.		

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 15 KK * *
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HYDROGRAPH ROUTING DATA

17 RK KINEMATIC WAVE STREAM ROUTING
 L 1320. CHANNEL LENGTH
 S .0200 SLOPE

N .035 CHANNEL ROUGHNESS COEFFICIENT
 CA .00 CONTRIBUTING AREA
 SHAPE TRAP CHANNEL SHAPE
 WD 80.00 BOTTOM WIDTH OR DIAMETER
 Z 5.00 SIDE SLOPE
 NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	1365.	14.75	872.	283.	273.	4.80		
ROUTED TO		1364.	14.75	872.	283.	273.	4.80		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
 (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME	
						DT	PEAK		
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
	MANE	.73	1364.67	885.88	2.19	5.00	1364.43	885.00	2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5622E+03 EXCESS= .0000E+00 OUTFLOW= .5616E+03 BASIN STORAGE= .6215E+00 PERCENT ERROR=

*** NORMAL END OF HEC-1 ***

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* SEPTEMBER 1990
* VERSION 4.0
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* RUN DATE 09/07/1999 TIME 11:57:49
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
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X X XXXXXXXX XXXXX X
X X X X X XX
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XXXXXXXX XXXX X XXXXX X
X X X X X
X X X X X
X X XXXXXXXX XXXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	SAHUARITA BASIN MANAGEMENT STUDY									
2	ID	CP# 57									
3	ID	FILE : SAHUAR.H1I									
4	ID	6 HR USACE STORM / 100 YEAR EVENT									
5	ID										
6	IT	5	300								
7	IO	4									
8	KK	A1									
9	BA	5.37									
10	PH		0.84	1.64	2.79	3.14	3.38	3.83	4.34	4.84	
11	LG	0.15	0.26	4.7	0.312	8.8					
12	UC	3.18	3.74								
13	UA	0	3	5	8	12	20	43	75	90	96
14	UA	100									
15	KK										
16	KM										
17	RK	1320	0.02	0.035	80		5				
18	ZZ										

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* SEPTEMBER 1990
* VERSION 4.0
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*
* U.S. ARMY CORPS OF ENGINEER
* HYDROLOGIC ENGINEERING CENT
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
*
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SAHUARITA BASIN MANAGEMENT STUDY
CP# 57
FILE : SAHUAR.H1I
6 HR USACE STORM / 100 YEAR EVENT

7 IO OUTPUT CONTROL VARIABLES

IPRNT 4 PRINT CONTROL
IPLST 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN 5 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2 0 ENDING DATE
NDTIME 0055 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

8 KK

* *
* A1 *
* *

SUBBASIN RUNOFF DATA

9 BA

SUBBASIN CHARACTERISTICS
TAREA 5.37 SUBBASIN AREA

PRECIPITATION DATA

10 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM
..... HYDRO-35 TP-40 TP-49
5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
.84 1.64 2.79 3.14 3.38 3.83 4.34 4.84 .00 .00 .00 .00

STORM AREA = 5.37

11 LG

GREEN AND AMPT LOSS RATE

STRTL .15 STARTING LOSS
 DTH .26 MOISTURE DEFICIT
 PSIF 4.70 WETTING FRONT SUCTION
 XKSAT .31 HYDRAULIC CONDUCTIVITY
 RTIMP 8.80 PERCENT IMPERVIOUS AREA

12 UC CLARK UNITGRAPH

TC 3.18 TIME OF CONCENTRATION
 R 3.74 STORAGE COEFFICIENT

13 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
 100.0

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 3.18 HR, R= 3.74 HR
 SNYDER TP= 2.77 HR, CP= .53

UNIT HYDROGRAPH

262 END-OF-PERIOD ORDINATES

4.	11.	18.	24.	30.	34.	38.	42.	48.	54.
60.	66.	74.	82.	90.	101.	117.	133.	150.	182.
232.	282.	332.	392.	460.	527.	586.	624.	646.	668.
684.	689.	688.	688.	685.	681.	675.	670.	661.	647.
633.	619.	605.	592.	579.	566.	554.	541.	529.	518.
506.	495.	484.	474.	463.	453.	443.	433.	424.	414.
405.	396.	388.	379.	371.	362.	354.	347.	339.	332.
324.	317.	310.	303.	297.	290.	284.	277.	271.	265.
259.	254.	248.	243.	237.	232.	227.	222.	217.	212.
208.	203.	199.	194.	190.	186.	182.	178.	174.	170.
166.	163.	159.	155.	152.	149.	145.	142.	139.	136.
133.	130.	127.	124.	122.	119.	116.	114.	111.	109.
106.	104.	102.	100.	97.	95.	93.	91.	89.	87.
85.	83.	81.	80.	78.	76.	75.	73.	71.	70.
68.	67.	65.	64.	62.	61.	60.	58.	57.	56.
55.	53.	52.	51.	50.	49.	48.	47.	46.	45.
44.	43.	42.	41.	40.	39.	38.	37.	37.	36.
35.	34.	33.	33.	32.	31.	31.	30.	29.	29.
28.	27.	27.	26.	26.	25.	24.	24.	23.	23.
22.	22.	21.	21.	20.	20.	20.	19.	19.	18.
18.	18.	17.	17.	16.	16.	16.	15.	15.	15.
14.	14.	14.	13.	13.	13.	13.	12.	12.	12.
11.	11.	11.	11.	10.	10.	10.	10.	10.	9.
9.	9.	9.	9.	8.	8.	8.	8.	8.	8.
7.	7.	7.	7.	7.	7.	6.	6.	6.	6.
6.	6.	6.	5.	5.	5.	5.	5.	5.	5.
5.	5.								

15 KK

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HYDROGRAPH ROUTING DATA

17 RK

KINEMATIC WAVE STREAM ROUTING

L 1320. CHANNEL LENGTH

S .0200 SLOPE
 N .035 CHANNEL ROUGHNESS COEFFICIENT
 CA .00 CONTRIBUTING AREA
 SHAPE TRAP CHANNEL SHAPE
 WD 80.00 BOTTOM WIDTH OR DIAMETER
 Z 5.00 SIDE SLOPE
 NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	1502.	14.83	967.	315.	304.	5.37		
ROUTED TO		1502.	14.83	967.	315.	303.	5.37		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
 (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

INTERPOLATED TO
 COMPUTATION INTERVAL

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
	MANE	.68	1501.71	890.31	2.18	5.00	1501.67	890.00	2.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .6254E+03 EXCESS= .0000E+00 OUTFLOW= .6248E+03 BASIN STORAGE= .6807E+00 PERCENT ERROR=

HEC-1 INPUT

PAGE 1

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	IN	5									
2	PB	3.80									
3	KM	THE FOLLOWING PC RECORD USES A 6-HOUR USACE RAINFALL DISTRIBUTION * 100-YEAR PPN. DIST.									
4	PI	.010	.010	.010	.010	.010	.011	.011	.011	.011	.011
5	PI	.011	.011	.011	.012	.012	.012	.012	.012	.012	.013
6	PI	.013	.013	.013	.013	.014	.014	.014	.014	.015	.016
7	PI	.016	.017	.018	.019	.020	.021	.023	.024	.025	.027
8	PI	.030	.033	.037	.075	.085	.099	.165	.210	.410	.740
9	PI	.300	.184	.109	.092	.080	.039	.035	.031	.029	.026
10	PI	.024	.023	.022	.021	.020	.019	.018	.017	.016	.015
11	PI	.015	.014								
12	ZZ										

*** WARNING *** ZZ-CARD MISSING

 * FLOOD HYDROGRAPH PACKAGE (HEC-1) *
 * SEPTEMBER 1990 *
 * VERSION 4.0 *
 * RUN DATE 09/07/1999 TIME 11:57:49 *

 * U.S. ARMY CORPS OF ENGINEERS *
 * HYDROLOGIC ENGINEERING CENTE *
 * 609 SECOND STREET *
 * DAVIS, CALIFORNIA 95616 *
 * (916) 756-1104 *

*** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
 CARD NO. 1 IN 5

*** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
 CARD NO. 2 PB 3.80

IT HYDROGRAPH TIME DATA
 NMIN 5 MINUTES IN COMPUTATION INTERVAL
 IDATE 1 0 STARTING DATE
 ITIME 0000 STARTING TIME
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 2 0 ENDING DATE
 NDTIME 0055 ENDING TIME
 ICENT 19 CENTURY MARK
 COMPUTATION INTERVAL .08 HOURS
 TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
 DRAINAGE AREA SQUARE MILES
 PRECIPITATION DEPTH INCHES
 LENGTH, ELEVATION FEET
 FLOW CUBIC FEET PER SECOND
 STORAGE VOLUME ACRE-FEET
 SURFACE AREA ACRES
 TEMPERATURE DEGREES FAHRENHEIT

THE FOLLOWING PC RECORD USES A 6-HOUR USACE RAINFALL DISTRIBUTION

SUBBASIN RUNOFF DATA

0 BA SUBBASIN CHARACTERISTICS
 TAREA .00 SUBBASIN AREA

PRECIPITATION DATA

3 PB STORM .00 BASIN TOTAL PRECIPITATION

3 PI INCREMENTAL PRECIPITATION PATTERN

0 UI INPUT UNITGRAPH, 0 ORDINATES, VOLUME = .00

HYDROGRAPH AT STATION

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1	0000	1	.00	.00	.00	0.	*	1	1230	151	.00	-.04	.04	97.		
1	0005	2	.00	.00	.00	0.	*	1	1235	152	.00	.00	.00	108.		
1	0010	3	.00	.00	.00	0.	*	1	1240	153	.00	.00	.00	120.		
1	0015	4	.00	.00	.00	0.	*	1	1245	154	.00	.00	.00	132.		
1	0020	5	.00	.00	.00	0.	*	1	1250	155	.00	.00	.00	145.		
1	0025	6	.00	.00	.00	0.	*	1	1255	156	.00	.00	.00	160.		
1	0030	7	.00	.00	.00	0.	*	1	1300	157	.00	.00	.00	175.		

1	0035	8	.00	.00	.00	0.	*	1	1305	158	.00	.00	.00	193.
1	0040	9	.00	.00	.00	0.	*	1	1310	159	.00	.00	.00	212.
1	0045	10	.00	.00	.00	0.	*	1	1315	160	.00	.00	.00	234.
1	0050	11	.00	.00	.00	0.	*	1	1320	161	.00	.00	.00	262.
1	0055	12	.00	.00	.00	0.	*	1	1325	162	.00	.00	.00	296.
1	0100	13	.00	.00	.00	0.	*	1	1330	163	.00	.00	.00	338.
1	0105	14	.00	.00	.00	0.	*	1	1335	164	.00	.00	.00	390.
1	0110	15	.00	.00	.00	0.	*	1	1340	165	.00	.00	.00	459.
1	0115	16	.00	.00	.00	0.	*	1	1345	166	.00	.00	.00	549.
1	0120	17	.00	.00	.00	0.	*	1	1350	167	.00	.00	.00	651.
1	0125	18	.00	.00	.00	0.	*	1	1355	168	.00	.00	.00	761.
1	0130	19	.00	.00	.00	0.	*	1	1400	169	.00	.00	.00	880.
1	0135	20	.00	.00	.00	0.	*	1	1405	170	.00	.00	.00	1005.
1	0140	21	.00	.00	.00	0.	*	1	1410	171	.00	.00	.00	1128.
1	0145	22	.00	.00	.00	0.	*	1	1415	172	.00	.00	.00	1237.
1	0150	23	.00	.00	.00	0.	*	1	1420	173	.00	.00	.00	1323.
1	0155	24	.00	.00	.00	0.	*	1	1425	174	.00	.00	.00	1386.
1	0200	25	.00	.00	.00	0.	*	1	1430	175	.00	.00	.00	1435.
1	0205	26	.00	.00	.00	0.	*	1	1435	176	.00	.00	.00	1471.
1	0210	27	.00	.00	.00	0.	*	1	1440	177	.00	.00	.00	1491.
1	0215	28	.00	.00	.00	1.	*	1	1445	178	.00	.00	.00	1500.
1	0220	29	.00	.00	.00	1.	*	1	1450	179	.00	.00	.00	1502.
1	0225	30	.00	.00	.00	1.	*	1	1455	180	.00	.00	.00	1499.
1	0230	31	.00	.00	.00	1.	*	1	1500	181	.00	.00	.00	1491.
1	0235	32	.00	.00	.00	1.	*	1	1505	182	.00	.00	.00	1480.
1	0240	33	.00	.00	.00	1.	*	1	1510	183	.00	.00	.00	1466.
1	0245	34	.00	.00	.00	2.	*	1	1515	184	.00	.00	.00	1447.
1	0250	35	.00	.00	.00	2.	*	1	1520	185	.00	.00	.00	1424.
1	0255	36	.00	.00	.00	2.	*	1	1525	186	.00	.00	.00	1397.
1	0300	37	.00	.00	.00	2.	*	1	1530	187	.00	.00	.00	1369.
1	0305	38	.00	.00	.00	2.	*	1	1535	188	.00	.00	.00	1342.
1	0310	39	.00	.00	.00	3.	*	1	1540	189	.00	.00	.00	1314.
1	0315	40	.00	.00	.00	3.	*	1	1545	190	.00	.00	.00	1286.
1	0320	41	.00	.00	.00	3.	*	1	1550	191	.00	.00	.00	1259.
1	0325	42	.00	.00	.00	3.	*	1	1555	192	.00	.00	.00	1233.
1	0330	43	.00	.00	.00	3.	*	1	1600	193	.00	.00	.00	1207.
1	0335	44	.00	.00	.00	3.	*	1	1605	194	.00	.00	.00	1182.
1	0340	45	.00	.00	.00	4.	*	1	1610	195	.00	.00	.00	1157.
1	0345	46	.00	.00	.00	4.	*	1	1615	196	.00	.00	.00	1132.
1	0350	47	.00	.00	.00	4.	*	1	1620	197	.00	.00	.00	1108.
1	0355	48	.00	.00	.00	4.	*	1	1625	198	.00	.00	.00	1085.
1	0400	49	.00	.00	.00	4.	*	1	1630	199	.00	.00	.00	1062.
1	0405	50	.00	.00	.00	4.	*	1	1635	200	.00	.00	.00	1040.
1	0410	51	.00	.00	.00	5.	*	1	1640	201	.00	.00	.00	1018.
1	0415	52	.00	.00	.00	5.	*	1	1645	202	.00	.00	.00	996.
1	0420	53	.00	.00	.00	5.	*	1	1650	203	.00	.00	.00	975.
1	0425	54	.00	.00	.00	5.	*	1	1655	204	.00	.00	.00	954.
1	0430	55	.00	.00	.00	5.	*	1	1700	205	.00	.00	.00	934.
1	0435	56	.00	.00	.00	5.	*	1	1705	206	.00	.00	.00	915.
1	0440	57	.00	.00	.00	6.	*	1	1710	207	.00	.00	.00	895.
1	0445	58	.00	.00	.00	6.	*	1	1715	208	.00	.00	.00	876.
1	0450	59	.00	.00	.00	6.	*	1	1720	209	.00	.00	.00	858.
1	0455	60	.00	.00	.00	6.	*	1	1725	210	.00	.00	.00	840.
1	0500	61	.00	.00	.00	6.	*	1	1730	211	.00	.00	.00	822.
1	0505	62	.00	.00	.00	6.	*	1	1735	212	.00	.00	.00	804.
1	0510	63	.00	.00	.00	6.	*	1	1740	213	.00	.00	.00	787.
1	0515	64	.00	.00	.00	7.	*	1	1745	214	.00	.00	.00	771.
1	0520	65	.00	.00	.00	7.	*	1	1750	215	.00	.00	.00	754.
1	0525	66	.00	.00	.00	7.	*	1	1755	216	.00	.00	.00	739.
1	0530	67	.00	.00	.00	7.	*	1	1800	217	.00	.00	.00	723.
1	0535	68	.00	.00	.00	7.	*	1	1805	218	.00	.00	.00	708.
1	0540	69	.00	.00	.00	7.	*	1	1810	219	.00	.00	.00	693.
1	0545	70	.00	.00	.00	7.	*	1	1815	220	.00	.00	.00	678.
1	0550	71	.00	.00	.00	8.	*	1	1820	221	.00	.00	.00	664.
1	0555	72	.00	.00	.00	8.	*	1	1825	222	.00	.00	.00	650.
1	0600	73	.00	.00	.00	8.	*	1	1830	223	.00	.00	.00	636.

1	0605	74	.00	.00	.00	8.	*	1	1835	224	.00	.00	.00	623.
1	0610	75	.00	.00	.00	8.	*	1	1840	225	.00	.00	.00	609.
1	0615	76	.00	.00	.00	8.	*	1	1845	226	.00	.00	.00	597.
1	0620	77	.00	.00	.00	8.	*	1	1850	227	.00	.00	.00	584.
1	0625	78	.00	.00	.00	8.	*	1	1855	228	.00	.00	.00	572.
1	0630	79	.00	.00	.00	9.	*	1	1900	229	.00	.00	.00	560.
1	0635	80	.00	.00	.00	9.	*	1	1905	230	.00	.00	.00	548.
1	0640	81	.00	.00	.00	9.	*	1	1910	231	.00	.00	.00	536.
1	0645	82	.00	.00	.00	9.	*	1	1915	232	.00	.00	.00	525.
1	0650	83	.00	.00	.00	9.	*	1	1920	233	.00	.00	.00	514.
1	0655	84	.00	.00	.00	9.	*	1	1925	234	.00	.00	.00	503.
1	0700	85	.00	.00	.00	9.	*	1	1930	235	.00	.00	.00	493.
1	0705	86	.00	.00	.00	10.	*	1	1935	236	.00	.00	.00	482.
1	0710	87	.00	.00	.00	10.	*	1	1940	237	.00	.00	.00	472.
1	0715	88	.00	.00	.00	10.	*	1	1945	238	.00	.00	.00	462.
1	0720	89	.00	.00	.00	10.	*	1	1950	239	.00	.00	.00	452.
1	0725	90	.00	.00	.00	10.	*	1	1955	240	.00	.00	.00	443.
1	0730	91	.00	.00	.00	10.	*	1	2000	241	.00	.00	.00	434.
1	0735	92	.00	.00	.00	10.	*	1	2005	242	.00	.00	.00	424.
1	0740	93	.00	.00	.00	11.	*	1	2010	243	.00	.00	.00	416.
1	0745	94	.00	.00	.00	11.	*	1	2015	244	.00	.00	.00	407.
1	0750	95	.00	.00	.00	11.	*	1	2020	245	.00	.00	.00	398.
1	0755	96	.00	.00	.00	11.	*	1	2025	246	.00	.00	.00	390.
1	0800	97	.00	.00	.00	11.	*	1	2030	247	.00	.00	.00	382.
1	0805	98	.00	.00	.00	11.	*	1	2035	248	.00	.00	.00	374.
1	0810	99	.00	.00	.00	12.	*	1	2040	249	.00	.00	.00	366.
1	0815	100	.00	.00	.00	12.	*	1	2045	250	.00	.00	.00	358.
1	0820	101	.00	.00	.00	12.	*	1	2050	251	.00	.00	.00	351.
1	0825	102	.00	.00	.00	12.	*	1	2055	252	.00	.00	.00	343.
1	0830	103	.00	.00	.00	12.	*	1	2100	253	.00	.00	.00	336.
1	0835	104	.00	.00	.00	13.	*	1	2105	254	.00	.00	.00	329.
1	0840	105	.00	.00	.00	13.	*	1	2110	255	.00	.00	.00	322.
1	0845	106	.00	.00	.00	13.	*	1	2115	256	.00	.00	.00	315.
1	0850	107	.00	.00	.00	13.	*	1	2120	257	.00	.00	.00	309.
1	0855	108	.00	.00	.00	13.	*	1	2125	258	.00	.00	.00	302.
1	0900	109	.00	.00	.00	14.	*	1	2130	259	.00	.00	.00	296.
1	0905	110	.00	.00	.00	14.	*	1	2135	260	.00	.00	.00	290.
1	0910	111	.00	.00	.00	14.	*	1	2140	261	.00	.00	.00	284.
1	0915	112	.00	.00	.00	14.	*	1	2145	262	.00	.00	.00	278.
1	0920	113	.00	.00	.00	15.	*	1	2150	263	.00	.00	.00	272.
1	0925	114	.00	.00	.00	15.	*	1	2155	264	.00	.00	.00	266.
1	0930	115	.00	.00	.00	15.	*	1	2200	265	.00	.00	.00	261.
1	0935	116	.00	.00	.00	15.	*	1	2205	266	.00	.00	.00	255.
1	0940	117	.00	.00	.00	16.	*	1	2210	267	.00	.00	.00	250.
1	0945	118	.00	.00	.00	16.	*	1	2215	268	.00	.00	.00	245.
1	0950	119	.00	.00	.00	16.	*	1	2220	269	.00	.00	.00	240.
1	0955	120	.00	.00	.00	16.	*	1	2225	270	.00	.00	.00	235.
1	1000	121	.00	.00	.00	17.	*	1	2230	271	.00	.00	.00	230.
1	1005	122	.00	.00	.00	17.	*	1	2235	272	.00	.00	.00	225.
1	1010	123	.00	.00	.00	17.	*	1	2240	273	.00	.00	.00	221.
1	1015	124	.00	.00	.00	17.	*	1	2245	274	.00	.00	.00	216.
1	1020	125	.00	.00	.00	18.	*	1	2250	275	.00	.00	.00	212.
1	1025	126	.00	.00	.00	18.	*	1	2255	276	.00	.00	.00	207.
1	1030	127	.00	.00	.00	18.	*	1	2300	277	.00	.00	.00	203.
1	1035	128	.00	.00	.00	19.	*	1	2305	278	.00	.00	.00	199.
1	1040	129	.00	.00	.00	19.	*	1	2310	279	.00	.00	.00	195.
1	1045	130	.00	.00	.00	19.	*	1	2315	280	.00	.00	.00	191.
1	1050	131	.00	.00	.00	20.	*	1	2320	281	.00	.00	.00	187.
1	1055	132	.00	.00	.00	20.	*	1	2325	282	.00	.00	.00	183.
1	1100	133	.00	.00	.00	20.	*	1	2330	283	.00	.00	.00	179.
1	1105	134	.00	.00	.00	21.	*	1	2335	284	.00	.00	.00	175.
1	1110	135	.00	.00	.00	21.	*	1	2340	285	.00	.00	.00	172.
1	1115	136	.00	.00	.00	22.	*	1	2345	286	.00	.00	.00	168.
1	1120	137	.00	.00	.00	22.	*	1	2350	287	.00	.00	.00	165.
1	1125	138	.00	.00	.00	22.	*	1	2355	288	.00	.00	.00	161.
1	1130	139	.00	.00	.00	23.	*	2	0000	289	.00	.00	.00	158.

1	1135	140	.00	-.03	.03	23.	*	2	0005	290	.00	.00	.00	155.
1	1140	141	.00	-.04	.04	24.	*	2	0010	291	.00	.00	.00	152.
1	1145	142	.00	-.06	.06	25.	*	2	0015	292	.00	.00	.00	149.
1	1150	143	.00	-.11	.11	26.	*	2	0020	293	.00	.00	.00	146.
1	1155	144	.00	-.16	.16	28.	*	2	0025	294	.00	.00	.00	143.
1	1200	145	.00	-.41	.41	31.	*	2	0030	295	.00	.00	.00	140.
1	1205	146	.00	-.76	.76	37.	*	2	0035	296	.00	.00	.00	137.
1	1210	147	.00	-.27	.27	46.	*	2	0040	297	.00	.00	.00	134.
1	1215	148	.00	-.13	.13	59.	*	2	0045	298	.00	.00	.00	131.
1	1220	149	.00	-.08	.08	73.	*	2	0050	299	.00	.00	.00	129.
1	1225	150	.00	-.06	.06	85.	*	2	0055	300	.00	.00	.00	126.

TOTAL RAINFALL = .00, TOTAL LOSS = -2.32, TOTAL EXCESS = 2.32

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
1502.	14.83	967.	315.	303.	303.
	(INCHES)	1.674	2.181	2.181	2.181
	(AC-FT)	479.	625.	625.	625.

CUMULATIVE AREA = 5.37 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT		1502.	14.83	967.	315.	303.	5.37		

*** 2 ERROR(S) DETECTED BY HEC-1 ***

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
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* RUN DATE 09/07/1999 TIME 11:59:33 *
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
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X X XXXXXXX XXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	SAHUARITA BASIN MANAGEMENT STUDY									
2	ID	CP# 71									
3	ID	FILE : SAHUAR.H1I									
4	ID	6 HR USACE STORM / 100 YEAR EVENT									
5	ID										
6	IT	5	300								
7	IO	4									
8	KK	A1									
9	BA	6.20									
10	PH		0.84	1.64	2.79	3.14	3.38	3.83	4.34	4.84	
11	LG	0.15	0.26	4.7	0.312	8.8					
12	UC	3.47	3.85								
13	UA	0	3	5	8	12	20	43	75	90	96
14	UA	100									
15	KK										
16	KM										
17	RK	1320	0.02	0.035	80		5				
18	ZZ										

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* SEPTEMBER 1990 *
* VERSION 4.0 *
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*
* U.S. ARMY CORPS OF ENGINEER
* HYDROLOGIC ENGINEERING CENT
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
*
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SAHUARITA BASIN MANAGEMENT STUDY
CP# 71
FILE : SAHUAR.H1I
6 HR USACE STORM / 100 YEAR EVENT

7 IO OUTPUT CONTROL VARIABLES

IPRNT 4 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN 5 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2 0 ENDING DATE
NDTIME 0055 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-FEET
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

8 KK

*
* A1 *
*

SUBBASIN RUNOFF DATA

9 BA

SUBBASIN CHARACTERISTICS

TAREA 6.20 SUBBASIN AREA

PRECIPITATION DATA

10 PH

DEPTHS FOR 0-PERCENT HYPOTHETICAL STORM

..... HYDRO-35 TP-40 TP-49
5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
.84 1.64 2.79 3.14 3.38 3.83 4.34 4.84 .00 .00 .00 .00

STORM AREA = 6.20

11 LG

GREEN AND AMPT LOSS RATE

STRTL .15 STARTING LOSS
 DTH .26 MOISTURE DEFICIT
 PSIF 4.70 WETTING FRONT SUCTION
 XKSAT .31 HYDRAULIC CONDUCTIVITY
 RTIMP 8.80 PERCENT IMPERVIOUS AREA

12 UC CLARK UNITGRAPH

TC 3.47 TIME OF CONCENTRATION
 R 3.85 STORAGE COEFFICIENT

13 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
 100.0

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 3.47 HR, R= 3.85 HR
 SNYDER TP= 3.00 HR, CP= .55

UNIT HYDROGRAPH

271 END-OF-PERIOD ORDINATES

4.	11.	18.	25.	31.	36.	40.	44.	49.	55.
61.	67.	74.	81.	89.	97.	107.	121.	138.	155.
175.	213.	265.	316.	366.	426.	496.	565.	632.	679.
705.	727.	748.	762.	764.	762.	761.	758.	753.	746.
740.	732.	720.	705.	689.	675.	660.	646.	632.	619.
605.	593.	580.	567.	555.	543.	532.	520.	509.	498.
488.	477.	467.	457.	447.	438.	428.	419.	410.	401.
393.	384.	376.	368.	360.	352.	345.	338.	330.	323.
316.	310.	303.	296.	290.	284.	278.	272.	266.	260.
255.	249.	244.	239.	234.	229.	224.	219.	214.	210.
205.	201.	196.	192.	188.	184.	180.	176.	173.	169.
165.	162.	158.	155.	152.	148.	145.	142.	139.	136.
133.	130.	127.	125.	122.	119.	117.	114.	112.	110.
107.	105.	103.	100.	98.	96.	94.	92.	90.	88.
86.	84.	83.	81.	79.	77.	76.	74.	73.	71.
70.	68.	67.	65.	64.	62.	61.	60.	58.	57.
56.	55.	54.	52.	51.	50.	49.	48.	47.	46.
45.	44.	43.	42.	41.	40.	40.	39.	38.	37.
36.	36.	35.	34.	33.	33.	32.	31.	31.	30.
29.	29.	28.	27.	27.	26.	26.	25.	25.	24.
24.	23.	23.	22.	22.	21.	21.	20.	20.	19.
19.	19.	18.	18.	17.	17.	17.	16.	16.	16.
15.	15.	15.	14.	14.	14.	13.	13.	13.	13.
12.	12.	12.	12.	11.	11.	11.	11.	10.	10.
10.	10.	9.	9.	9.	9.	9.	9.	8.	8.
8.	8.	8.	7.	7.	7.	7.	7.	7.	7.
6.	6.	6.	6.	6.	6.	6.	6.	5.	5.
5.									

15 KK

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HYDROGRAPH ROUTING DATA

17 RK

KINEMATIC WAVE STREAM ROUTING

L 1320. CHANNEL LENGTH
 S .0200 SLOPE
 N .035 CHANNEL ROUGHNESS COEFFICIENT
 CA .00 CONTRIBUTING AREA
 SHAPE TRAP CHANNEL SHAPE
 WD 80.00 BOTTOM WIDTH OR DIAMETER
 Z 5.00 SIDE SLOPE
 NDXMIN 2 MINIMUM NUMBER OF DX INTERVALS

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	1658.	15.00	1092.	360.	346.	6.20		
ROUTED TO		1657.	15.08	1092.	359.	346.	6.20		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
 (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

INTERPOLATED TO
 COMPUTATION INTERVAL

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
	MANE	.55	1658.12	901.50	2.15	5.00	1657.46	905.00	2.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7131E+03 EXCESS= .0000E+00 OUTFLOW= .7123E+03 BASIN STORAGE= .7905E+00 PERCENT ERROR=

HEC-1 INPUT

PAGE 1

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	IN	5									
2	PB	3.80									
3	KM	THE FOLLOWING PC RECORD USES A 6-HOUR USACE RAINFALL DISTRIBUTION * 100-YEAR PPN. DIST.									
4	PI	.010	.010	.010	.010	.010	.010	.011	.011	.011	.011
5	PI	.011	.011	.011	.012	.012	.012	.012	.012	.012	.013
6	PI	.013	.013	.013	.013	.014	.014	.014	.014	.015	.016
7	PI	.016	.017	.018	.019	.020	.021	.023	.024	.025	.027
8	PI	.030	.033	.037	.075	.085	.099	.165	.210	.410	.740
9	PI	.300	.184	.109	.092	.080	.039	.035	.031	.029	.026
10	PI	.024	.023	.022	.021	.020	.019	.018	.017	.016	.015
11	PI	.015	.014								
12	ZZ										

*** WARNING *** ZZ-CARD MISSING

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* SEPTEMBER 1990
* VERSION 4.0
*
* RUN DATE 09/07/1999 TIME 11:59:33
*
*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTE
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*

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*** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
 CARD NO. 1 IN 5

*** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
 CARD NO. 2 PB 3.80

IT HYDROGRAPH TIME DATA
 NMIN 5 MINUTES IN COMPUTATION INTERVAL
 IDATE 1 0 STARTING DATE
 ITIME 0000 STARTING TIME
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 2 0 ENDING DATE
 NDTIME 0055 ENDING TIME
 ICENT 19 CENTURY MARK
 COMPUTATION INTERVAL .08 HOURS
 TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS

DRAINAGE AREA SQUARE MILES
 PRECIPITATION DEPTH INCHES
 LENGTH, ELEVATION FEET
 FLOW CUBIC FEET PER SECOND
 STORAGE VOLUME ACRE-FEET
 SURFACE AREA ACRES
 TEMPERATURE DEGREES FAHRENHEIT

THE FOLLOWING PC RECORD USES A 6-HOUR USACE RAINFALL DISTRIBUTION

SUBBASIN RUNOFF DATA

0 BA SUBBASIN CHARACTERISTICS
 TAREA .00 SUBBASIN AREA

PRECIPITATION DATA

3 PB STORM .00 BASIN TOTAL PRECIPITATION

3 PI INCREMENTAL PRECIPITATION PATTERN

0 UI INPUT UNITGRAPH, 0 ORDINATES, VOLUME = .00

HYDROGRAPH AT STATION

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1	0000	1	1	.00	.00	.00	0.	*	1	1230	151	151	.00	-.04	.04	102.
1	0005	2	2	.00	.00	.00	0.	*	1	1235	152	152	.00	.00	.00	114.
1	0010	3	3	.00	.00	.00	0.	*	1	1240	153	153	.00	.00	.00	125.
1	0015	4	4	.00	.00	.00	0.	*	1	1245	154	154	.00	.00	.00	137.
1	0020	5	5	.00	.00	.00	0.	*	1	1250	155	155	.00	.00	.00	150.
1	0025	6	6	.00	.00	.00	0.	*	1	1255	156	156	.00	.00	.00	163.

1	0030	7	.00	.00	.00	0.	*	1	1300	157	.00	.00	.00	178.
1	0035	8	.00	.00	.00	0.	*	1	1305	158	.00	.00	.00	194.
1	0040	9	.00	.00	.00	0.	*	1	1310	159	.00	.00	.00	211.
1	0045	10	.00	.00	.00	0.	*	1	1315	160	.00	.00	.00	230.
1	0050	11	.00	.00	.00	0.	*	1	1320	161	.00	.00	.00	251.
1	0055	12	.00	.00	.00	0.	*	1	1325	162	.00	.00	.00	276.
1	0100	13	.00	.00	.00	0.	*	1	1330	163	.00	.00	.00	308.
1	0105	14	.00	.00	.00	0.	*	1	1335	164	.00	.00	.00	347.
1	0110	15	.00	.00	.00	0.	*	1	1340	165	.00	.00	.00	392.
1	0115	16	.00	.00	.00	0.	*	1	1345	166	.00	.00	.00	449.
1	0120	17	.00	.00	.00	0.	*	1	1350	167	.00	.00	.00	525.
1	0125	18	.00	.00	.00	0.	*	1	1355	168	.00	.00	.00	620.
1	0130	19	.00	.00	.00	0.	*	1	1400	169	.00	.00	.00	725.
1	0135	20	.00	.00	.00	0.	*	1	1405	170	.00	.00	.00	837.
1	0140	21	.00	.00	.00	0.	*	1	1410	171	.00	.00	.00	959.
1	0145	22	.00	.00	.00	0.	*	1	1415	172	.00	.00	.00	1089.
1	0150	23	.00	.00	.00	0.	*	1	1420	173	.00	.00	.00	1218.
1	0155	24	.00	.00	.00	0.	*	1	1425	174	.00	.00	.00	1337.
1	0200	25	.00	.00	.00	0.	*	1	1430	175	.00	.00	.00	1434.
1	0205	26	.00	.00	.00	0.	*	1	1435	176	.00	.00	.00	1506.
1	0210	27	.00	.00	.00	0.	*	1	1440	177	.00	.00	.00	1563.
1	0215	28	.00	.00	.00	0.	*	1	1445	178	.00	.00	.00	1607.
1	0220	29	.00	.00	.00	1.	*	1	1450	179	.00	.00	.00	1637.
1	0225	30	.00	.00	.00	1.	*	1	1455	180	.00	.00	.00	1652.
1	0230	31	.00	.00	.00	1.	*	1	1500	181	.00	.00	.00	1657.
1	0235	32	.00	.00	.00	1.	*	1	1505	182	.00	.00	.00	1657.
1	0240	33	.00	.00	.00	1.	*	1	1510	183	.00	.00	.00	1653.
1	0245	34	.00	.00	.00	1.	*	1	1515	184	.00	.00	.00	1645.
1	0250	35	.00	.00	.00	2.	*	1	1520	185	.00	.00	.00	1632.
1	0255	36	.00	.00	.00	2.	*	1	1525	186	.00	.00	.00	1618.
1	0300	37	.00	.00	.00	2.	*	1	1530	187	.00	.00	.00	1599.
1	0305	38	.00	.00	.00	2.	*	1	1535	188	.00	.00	.00	1576.
1	0310	39	.00	.00	.00	2.	*	1	1540	189	.00	.00	.00	1548.
1	0315	40	.00	.00	.00	3.	*	1	1545	190	.00	.00	.00	1519.
1	0320	41	.00	.00	.00	3.	*	1	1550	191	.00	.00	.00	1490.
1	0325	42	.00	.00	.00	3.	*	1	1555	192	.00	.00	.00	1460.
1	0330	43	.00	.00	.00	3.	*	1	1600	193	.00	.00	.00	1430.
1	0335	44	.00	.00	.00	3.	*	1	1605	194	.00	.00	.00	1401.
1	0340	45	.00	.00	.00	4.	*	1	1610	195	.00	.00	.00	1373.
1	0345	46	.00	.00	.00	4.	*	1	1615	196	.00	.00	.00	1345.
1	0350	47	.00	.00	.00	4.	*	1	1620	197	.00	.00	.00	1317.
1	0355	48	.00	.00	.00	4.	*	1	1625	198	.00	.00	.00	1290.
1	0400	49	.00	.00	.00	4.	*	1	1630	199	.00	.00	.00	1264.
1	0405	50	.00	.00	.00	5.	*	1	1635	200	.00	.00	.00	1238.
1	0410	51	.00	.00	.00	5.	*	1	1640	201	.00	.00	.00	1212.
1	0415	52	.00	.00	.00	5.	*	1	1645	202	.00	.00	.00	1187.
1	0420	53	.00	.00	.00	5.	*	1	1650	203	.00	.00	.00	1163.
1	0425	54	.00	.00	.00	5.	*	1	1655	204	.00	.00	.00	1139.
1	0430	55	.00	.00	.00	6.	*	1	1700	205	.00	.00	.00	1116.
1	0435	56	.00	.00	.00	6.	*	1	1705	206	.00	.00	.00	1093.
1	0440	57	.00	.00	.00	6.	*	1	1710	207	.00	.00	.00	1070.
1	0445	58	.00	.00	.00	6.	*	1	1715	208	.00	.00	.00	1049.
1	0450	59	.00	.00	.00	6.	*	1	1720	209	.00	.00	.00	1027.
1	0455	60	.00	.00	.00	6.	*	1	1725	210	.00	.00	.00	1006.
1	0500	61	.00	.00	.00	7.	*	1	1730	211	.00	.00	.00	985.
1	0505	62	.00	.00	.00	7.	*	1	1735	212	.00	.00	.00	965.
1	0510	63	.00	.00	.00	7.	*	1	1740	213	.00	.00	.00	945.
1	0515	64	.00	.00	.00	7.	*	1	1745	214	.00	.00	.00	926.
1	0520	65	.00	.00	.00	7.	*	1	1750	215	.00	.00	.00	907.
1	0525	66	.00	.00	.00	7.	*	1	1755	216	.00	.00	.00	888.
1	0530	67	.00	.00	.00	8.	*	1	1800	217	.00	.00	.00	870.
1	0535	68	.00	.00	.00	8.	*	1	1805	218	.00	.00	.00	852.
1	0540	69	.00	.00	.00	8.	*	1	1810	219	.00	.00	.00	834.
1	0545	70	.00	.00	.00	8.	*	1	1815	220	.00	.00	.00	817.
1	0550	71	.00	.00	.00	8.	*	1	1820	221	.00	.00	.00	801.
1	0555	72	.00	.00	.00	8.	*	1	1825	222	.00	.00	.00	784.

1	0600	73	.00	.00	.00	9.	*	1	1830	223	.00	.00	.00	768.
1	0605	74	.00	.00	.00	9.	*	1	1835	224	.00	.00	.00	752.
1	0610	75	.00	.00	.00	9.	*	1	1840	225	.00	.00	.00	737.
1	0615	76	.00	.00	.00	9.	*	1	1845	226	.00	.00	.00	722.
1	0620	77	.00	.00	.00	9.	*	1	1850	227	.00	.00	.00	707.
1	0625	78	.00	.00	.00	9.	*	1	1855	228	.00	.00	.00	692.
1	0630	79	.00	.00	.00	9.	*	1	1900	229	.00	.00	.00	678.
1	0635	80	.00	.00	.00	10.	*	1	1905	230	.00	.00	.00	664.
1	0640	81	.00	.00	.00	10.	*	1	1910	231	.00	.00	.00	651.
1	0645	82	.00	.00	.00	10.	*	1	1915	232	.00	.00	.00	637.
1	0650	83	.00	.00	.00	10.	*	1	1920	233	.00	.00	.00	624.
1	0655	84	.00	.00	.00	10.	*	1	1925	234	.00	.00	.00	612.
1	0700	85	.00	.00	.00	10.	*	1	1930	235	.00	.00	.00	599.
1	0705	86	.00	.00	.00	11.	*	1	1935	236	.00	.00	.00	587.
1	0710	87	.00	.00	.00	11.	*	1	1940	237	.00	.00	.00	575.
1	0715	88	.00	.00	.00	11.	*	1	1945	238	.00	.00	.00	563.
1	0720	89	.00	.00	.00	11.	*	1	1950	239	.00	.00	.00	552.
1	0725	90	.00	.00	.00	11.	*	1	1955	240	.00	.00	.00	540.
1	0730	91	.00	.00	.00	11.	*	1	2000	241	.00	.00	.00	529.
1	0735	92	.00	.00	.00	12.	*	1	2005	242	.00	.00	.00	518.
1	0740	93	.00	.00	.00	12.	*	1	2010	243	.00	.00	.00	508.
1	0745	94	.00	.00	.00	12.	*	1	2015	244	.00	.00	.00	497.
1	0750	95	.00	.00	.00	12.	*	1	2020	245	.00	.00	.00	487.
1	0755	96	.00	.00	.00	12.	*	1	2025	246	.00	.00	.00	477.
1	0800	97	.00	.00	.00	12.	*	1	2030	247	.00	.00	.00	468.
1	0805	98	.00	.00	.00	13.	*	1	2035	248	.00	.00	.00	458.
1	0810	99	.00	.00	.00	13.	*	1	2040	249	.00	.00	.00	449.
1	0815	100	.00	.00	.00	13.	*	1	2045	250	.00	.00	.00	439.
1	0820	101	.00	.00	.00	13.	*	1	2050	251	.00	.00	.00	430.
1	0825	102	.00	.00	.00	13.	*	1	2055	252	.00	.00	.00	422.
1	0830	103	.00	.00	.00	14.	*	1	2100	253	.00	.00	.00	413.
1	0835	104	.00	.00	.00	14.	*	1	2105	254	.00	.00	.00	405.
1	0840	105	.00	.00	.00	14.	*	1	2110	255	.00	.00	.00	396.
1	0845	106	.00	.00	.00	14.	*	1	2115	256	.00	.00	.00	388.
1	0850	107	.00	.00	.00	15.	*	1	2120	257	.00	.00	.00	380.
1	0855	108	.00	.00	.00	15.	*	1	2125	258	.00	.00	.00	373.
1	0900	109	.00	.00	.00	15.	*	1	2130	259	.00	.00	.00	365.
1	0905	110	.00	.00	.00	15.	*	1	2135	260	.00	.00	.00	358.
1	0910	111	.00	.00	.00	16.	*	1	2140	261	.00	.00	.00	350.
1	0915	112	.00	.00	.00	16.	*	1	2145	262	.00	.00	.00	343.
1	0920	113	.00	.00	.00	16.	*	1	2150	263	.00	.00	.00	336.
1	0925	114	.00	.00	.00	16.	*	1	2155	264	.00	.00	.00	329.
1	0930	115	.00	.00	.00	17.	*	1	2200	265	.00	.00	.00	323.
1	0935	116	.00	.00	.00	17.	*	1	2205	266	.00	.00	.00	316.
1	0940	117	.00	.00	.00	17.	*	1	2210	267	.00	.00	.00	310.
1	0945	118	.00	.00	.00	18.	*	1	2215	268	.00	.00	.00	303.
1	0950	119	.00	.00	.00	18.	*	1	2220	269	.00	.00	.00	297.
1	0955	120	.00	.00	.00	18.	*	1	2225	270	.00	.00	.00	291.
1	1000	121	.00	.00	.00	18.	*	1	2230	271	.00	.00	.00	285.
1	1005	122	.00	.00	.00	19.	*	1	2235	272	.00	.00	.00	280.
1	1010	123	.00	.00	.00	19.	*	1	2240	273	.00	.00	.00	274.
1	1015	124	.00	.00	.00	19.	*	1	2245	274	.00	.00	.00	269.
1	1020	125	.00	.00	.00	20.	*	1	2250	275	.00	.00	.00	263.
1	1025	126	.00	.00	.00	20.	*	1	2255	276	.00	.00	.00	258.
1	1030	127	.00	.00	.00	20.	*	1	2300	277	.00	.00	.00	253.
1	1035	128	.00	.00	.00	21.	*	1	2305	278	.00	.00	.00	248.
1	1040	129	.00	.00	.00	21.	*	1	2310	279	.00	.00	.00	243.
1	1045	130	.00	.00	.00	21.	*	1	2315	280	.00	.00	.00	238.
1	1050	131	.00	.00	.00	22.	*	1	2320	281	.00	.00	.00	233.
1	1055	132	.00	.00	.00	22.	*	1	2325	282	.00	.00	.00	228.
1	1100	133	.00	.00	.00	23.	*	1	2330	283	.00	.00	.00	224.
1	1105	134	.00	.00	.00	23.	*	1	2335	284	.00	.00	.00	219.
1	1110	135	.00	.00	.00	23.	*	1	2340	285	.00	.00	.00	215.
1	1115	136	.00	.00	.00	24.	*	1	2345	286	.00	.00	.00	211.
1	1120	137	.00	.00	.00	24.	*	1	2350	287	.00	.00	.00	206.
1	1125	138	.00	.00	.00	25.	*	1	2355	288	.00	.00	.00	202.

1	1130	139	.00	.00	.00	25.	*	2	0000	289	.00	.00	.00	198.
1	1135	140	.00	-.03	.03	26.	*	2	0005	290	.00	.00	.00	194.
1	1140	141	.00	-.04	.04	26.	*	2	0010	291	.00	.00	.00	190.
1	1145	142	.00	-.06	.06	27.	*	2	0015	292	.00	.00	.00	187.
1	1150	143	.00	-.11	.11	29.	*	2	0020	293	.00	.00	.00	183.
1	1155	144	.00	-.16	.16	31.	*	2	0025	294	.00	.00	.00	179.
1	1200	145	.00	-.40	.40	34.	*	2	0030	295	.00	.00	.00	176.
1	1205	146	.00	-.76	.76	40.	*	2	0035	296	.00	.00	.00	172.
1	1210	147	.00	-.27	.27	50.	*	2	0040	297	.00	.00	.00	169.
1	1215	148	.00	-.13	.13	63.	*	2	0045	298	.00	.00	.00	165.
1	1220	149	.00	-.08	.08	77.	*	2	0050	299	.00	.00	.00	162.
1	1225	150	.00	-.06	.06	90.	*	2	0055	300	.00	.00	.00	159.

TOTAL RAINFALL = .00, TOTAL LOSS = -2.31, TOTAL EXCESS = 2.31

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW				
		6-HR	24-HR	72-HR	24.92-HR	
1657.	15.08	1092.	359.	346.	346.	
		(INCHES)	1.638	2.154	2.154	2.154
		(AC-FT)	542.	712.	712.	712.

CUMULATIVE AREA = 6.20 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT		1657.	15.08	1092.	359.	346.	6.20		

*** 2 ERROR(S) DETECTED BY HEC-1 ***