



MEMORANDUM

Date: August 12, 2016

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator 

Re: **Flash Flooding and Storm Water Flows of August 9, 2016**

Attached is a report from the Regional Flood Control District (RFCD) regarding the recent intense rainfall event that occurred on Tuesday, August 9, 2016. The RFCD report shows rainfall patterns, actual rainfall amounts captured by rain gauges, and flood flows.

This weather event was relatively short-lived, with high-intensity rainfall over much of the urbanized area of Tucson and Pima County in a relatively short period of time – approximately one hour. The rainfall resulted in street flooding; urban washes flowing at or near capacity; and the Arroyo Chico series of detention basins, as well as the Ajo Detention Basin [known as the Kino Environmental Restoration Project (KERP)], near their capacity.

Major river system flows were not consequential; however, the flow in the Santa Cruz River was likely the largest in the last several years.

As you know, the RFCD recently completed the Arroyo Chico drainage basin improvements with the Eighth Street and Fourth Avenue box culvert storm drain. The series of detention basins within the Arroyo Chico watershed – the Del Urich Golf Course, Cherry Field, Park Avenue and the recently completed High School Wash Storm Drain – all contributed to essentially no flood damage on the Arroyo Chico Basin as a result of this intense rainfall event.

CHH/lab

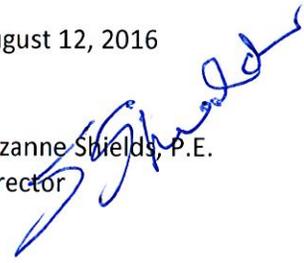
Attachment

c: John Bernal, Deputy County Administrator for Public Works
Nanette Slusser, Assistant County Administrator for Policy, Public Works
Suzanne Shields, Director, Regional Flood Control District

TO: C. H. Huckelberry
County Administrator

DATE: August 12, 2016

FROM: Suzanne Shields, P.E.
Director



SUBJECT: Storm Report for August 9, 2016

On August 9, 2016, eastern Pima County experienced a storm event resulting from Tropical Storm Javier. The morning rainfall event was concentrated in the Tucson metropolitan area where 2 to 3 inches of rainfall fell in less than an hour. Data from our ALERT flood warning system indicated that 2.75 inches fell in one hour at Grant and the Santa Cruz River, and 2.48 inches fell in the Craycroft and Golf Links area (see attached ALERT Storm Report). Data from the National Weather Service's Cooperative Rainfall Monitoring Network showed areas in the Grant Road and Campbell area getting between 2.33 inches to 3.35 inches of rainfall (see attached map). There was little to no flow in the upstream major watercourses (i.e., Santa Cruz River at Valencia, Pantano Wash, Tanque Verde Creek and Canada del Oro Wash); however, the Santa Cruz River at Ina Road had a peak discharge of 16,000 cubic feet per second generated by runoff from the City of Tucson's urban tributaries to the Rillito River and Santa Cruz River.

With the central portions of Tucson receiving so much rainfall in such a short period of time many roadways were flooded including the Ruthrauff and Interstate 10 interchange. Flood waters filled the Arroyo Chico detention basins at Park Avenue, and inundated the Ajo Detention Basin, also know at the Kino Environmental Restoration Project (see location map and attached photographs). The Arroyo Chico basins reduced the potential impacts to Fourth Avenue and the downtown areas. The Ajo detention basin reduced a large area immediately south of the downtown area.

Please let me know if you need any further information.

SS/tj

Attachments

c: John Bernal, Deputy County Administrator – Public Works
Bill Zimmerman, Deputy Director – Regional Flood Control District
Eric Shepp, P.E., Deputy Director – Regional Flood Control District

Preliminary Storm Report Period: 8:00 AM, 08/09/16 - 8:00 AM, 08/10/16

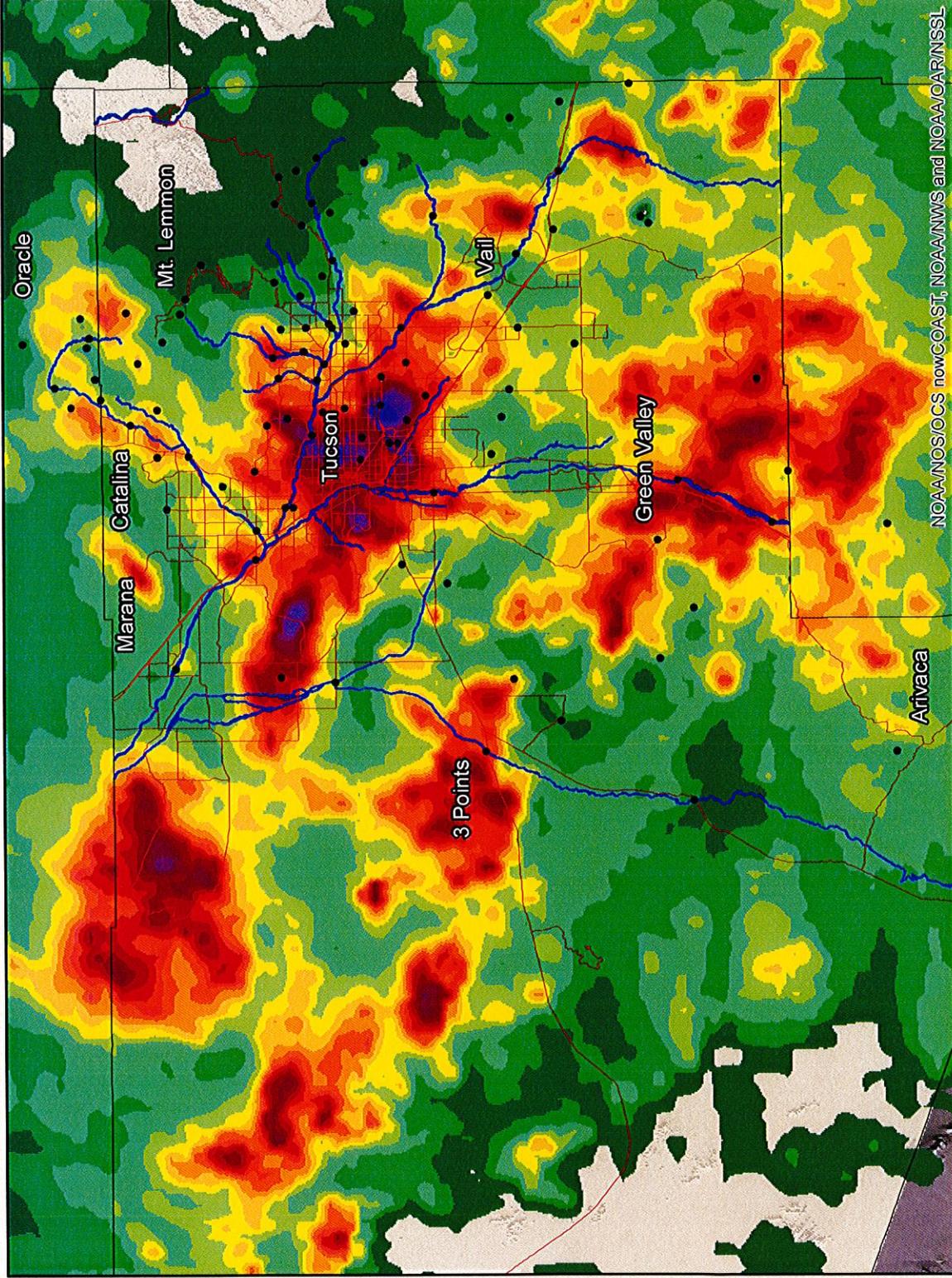
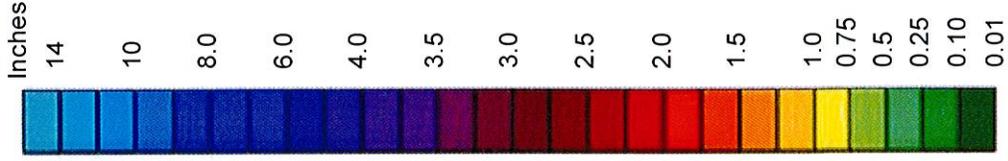
Following are significant precipitation amounts (greater than or equal to 1 inch) and stream flow registered by ALERT sensors:

Reported values are for 24 hours as of 8:00 AM. Streamflow values are preliminary and not field verified.

Sensor ID	Location	Rain Gauge	Stream Gauge	
		(inches)	Depth (feet)	Discharge (cfs)
Catalina Area				
1010	Horseshoe Bend Road in Saddlebrooke	0.16		
1020	approximately 0.5 mile southwest of Oracle			
1040	Edwin Road 1.3 miles east of Lago Del Oro Parkway	0.04		
1050	approximately 1.5 miles west of Charouleau Gap			
1060	approximately 1.1 miles northeast of Charouleau Gap			
1070	northeast corner of Catalina State Park	0.47		
1080	Cañada Del Oro Wash northeast of Saddlebrooke	0.12		
1100	Cañada Del Oro Wash at Golder Ranch Road	0.12		
Santa Catalina Mountains				
1030	Oracle Ridge, approximately 1.5 miles north of Rice Peak	0.04		
1090	Mount Lemmon	0.12		
1110	Cañada Del Oro Wash 0.3 miles south of Coronado Camp			
1130	Samaniego Peak on Samaniego Ridge	0.2		
1140	Dan Saddle on Oracle Ridge	0.04		
2150	Catalina Highway 0.8 miles west of Palisade Ranger Station	0.12		
2280	Green Mountain			
2290	Sabino Creek 0.6 miles south southeast of Marshall Gulch			
Santa Catalina Foothills				
2090	Tanque Verde Wash at Tanque Verde Guest Ranch	0.04	1.1	17
2100	Swan Road at Calle del Pantera	1.46		
2160	Sabino Creek at USFS Dam	1.14	1.2	10
2170	Ventana Canyon Wash at Sunrise Road	0.71		
2190	near El Marah on Bear Canyon Road	0.83		
2200	Agua Caliente Wash at Tanque Verde Road	0.35		
2210	Houghton Road 0.1 miles south of Catalina Highway	0.31		
2220	Agua Caliente Park	0.08		
2230	El Camino Rinconado 0.5 miles north of Reddington Road	0.04		
2240	Mt Lemmon Highway near Mile Post 3	0.08		
2390	Finger Rock Wash at Sunrise Road	1.73		
Rincon Mountains				
2020	Manning Camp in the Rincon Mountains	0.08		
2030	Rincon Creek at X-9 Ranch	0.51	1.6	114
2040				
2050	Greater Tucson			
2070	Tanque Verde Road at Tanque Verde Wash	0.51		
2080	Sabino Canyon Road at Tanque Verde Wash	0.59		
	Rosewood Street west of Harrison Road	0.28		
	Rancho El Mirador north of Broadway Boulevard	0.79		
4100	Beverly Avenue at Hawthorne Street	0.55		
4110	Kolb Road at Golf Links	1.57		
	Rillito Creek at Dodge Boulevard	1.46		3,259

	Rillito Creek at La Cholla Boulevard	0.98		4,044
2110	Alamo Wash at Glenn Street	0.98	3.9	1,516
2120	Ruthrauff Road at La Cholla Boulevard	1.34		
2300	Irvington Road near Pantano Road	1.5		
2310	Pantano Wash at Houghton Road	1.1		
2320	Santa Cruz River below Canada Del Oro Wash	0.94	10.3	16,000
2330	Santa Cruz River above Grant Road	2.76	9.3	6,885
2350	Santa Cruz River at Valencia Road	0.75		
2360	Arroyo Chico at Cherry Street	1.65	5.2	829
2370	Arroyo Chico at Randolph Way	1.81	3	157
2380	Tucson Diversion Channel at Ajo Detention Basin	1.89	3.8	1,899
4160	Country Club Road near Columbia Street	1.65		
4180	Craycroft Road at Golf Links Road	2.48		
6010	Irvington Road at Belvedere Avenue	1.34		
6030				
6040	Vail Area			
6180	approximately 1.8 miles northwest of Vail			
6190	Pantano Wash east of Vail	0.24	2.2	568
6230	Cienega Creek at Interstate 10	0.16	3.5	733
6240				
6250	Green Valley Area			
6260	Santa Cruz River at Continental Road	0.94	3.8	2,348
	Santa Cruz River at Elephant Head Road	0.31	2.7	1,080
4220				
4250				
4280				
6050				
6060				

08-10-2016 0730 Q2 Radar Estimated 24 Hour Precipitation Total



NOAA/NOS/OCS nowCOAST, NOAA/NWS and NOAA/CARINS/SSL

Pine County Regional Flood Control District
 3rd Floor
 87 E Congress
 (520) 243-1800, FAX: (520) 243-1821
<http://www.rfcd.pima.gov>

ALERT Stations

- Major Streets
- County Boundary
- Major Washes

0 5 10 20 Miles

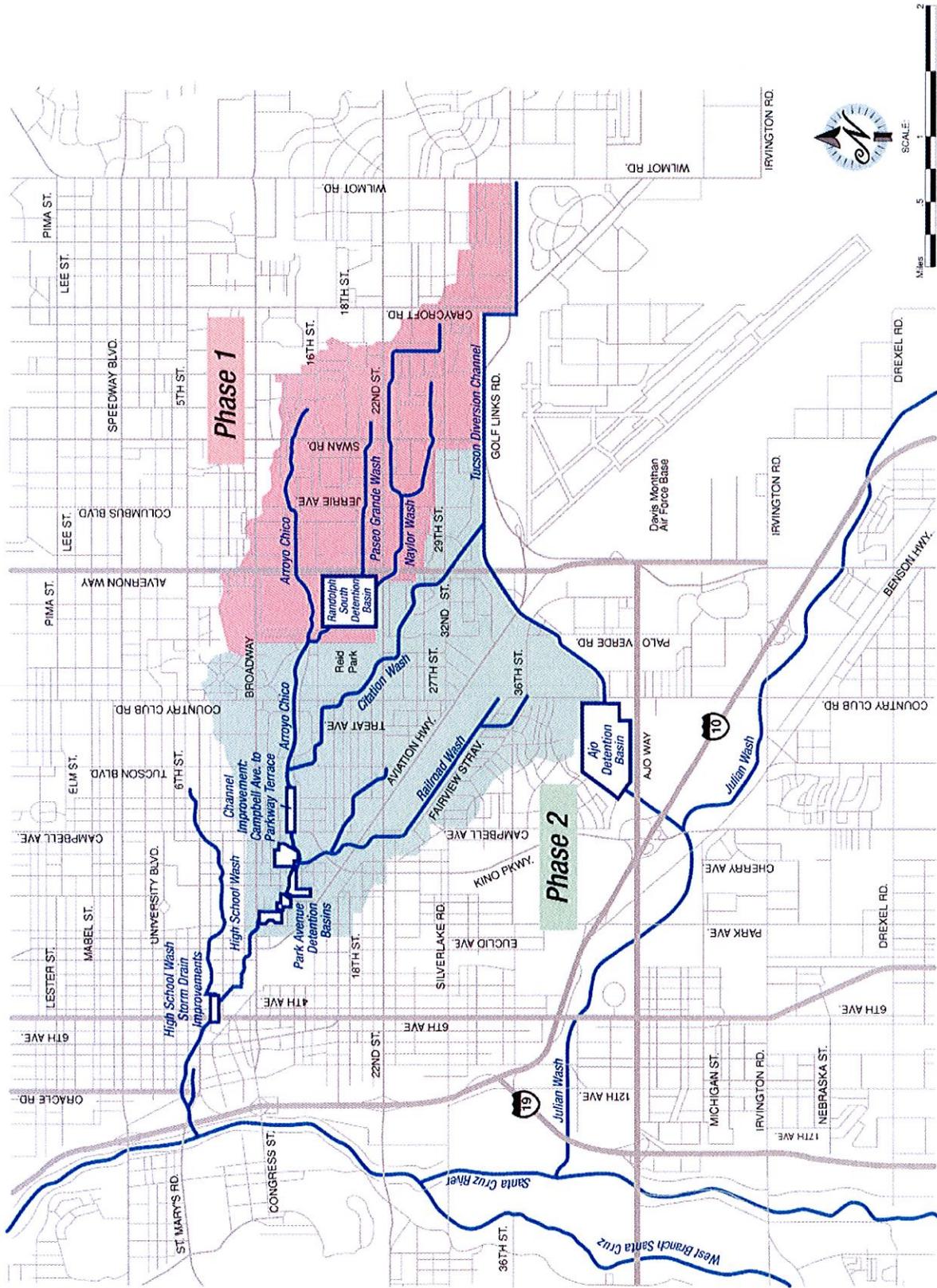
Radat Data Courtesy of NOAA/NOS nowCOAST

The information depicted on this display is the result of digital analyses performed on a variety of databases provided and maintained by several governmental agencies. The accuracy of the information presented is limited to the accuracy of the information presented to the District makes no claims regarding the accuracy of the information depicted herein.

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Tucson Drainage Area • Arroyo Chico



Arroyo Chico Basin storm event 8/9/16
View east Arroyo Chico Wash entering the basin



N 32° 12' 59.41"
W 110° 56' 52.76"

RIMG88891.JPG 2407 ft

2016-08-10:46:37 AM
8/9/2016

Arroyo Chico Basin storm event 8/9/16



**N 32° 12' 59.46"
W 110° 56' 54.05"**

RIMG8909.JPG 2424 ft

**2016-08-11:21:02 AM
8/9/2016**

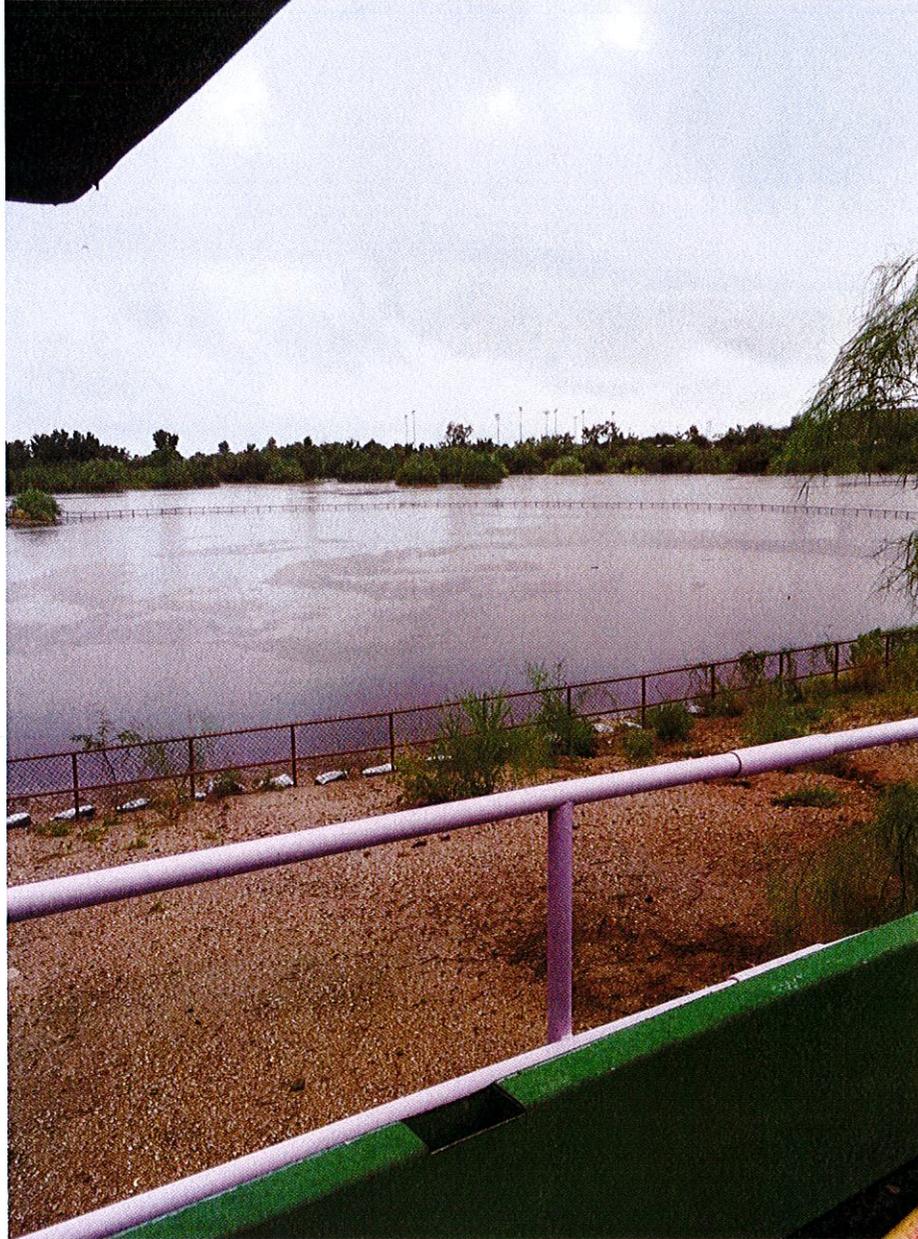
Arroyo Chico Basin storm event 8/9/16
Inlet culvert to the basin # 3



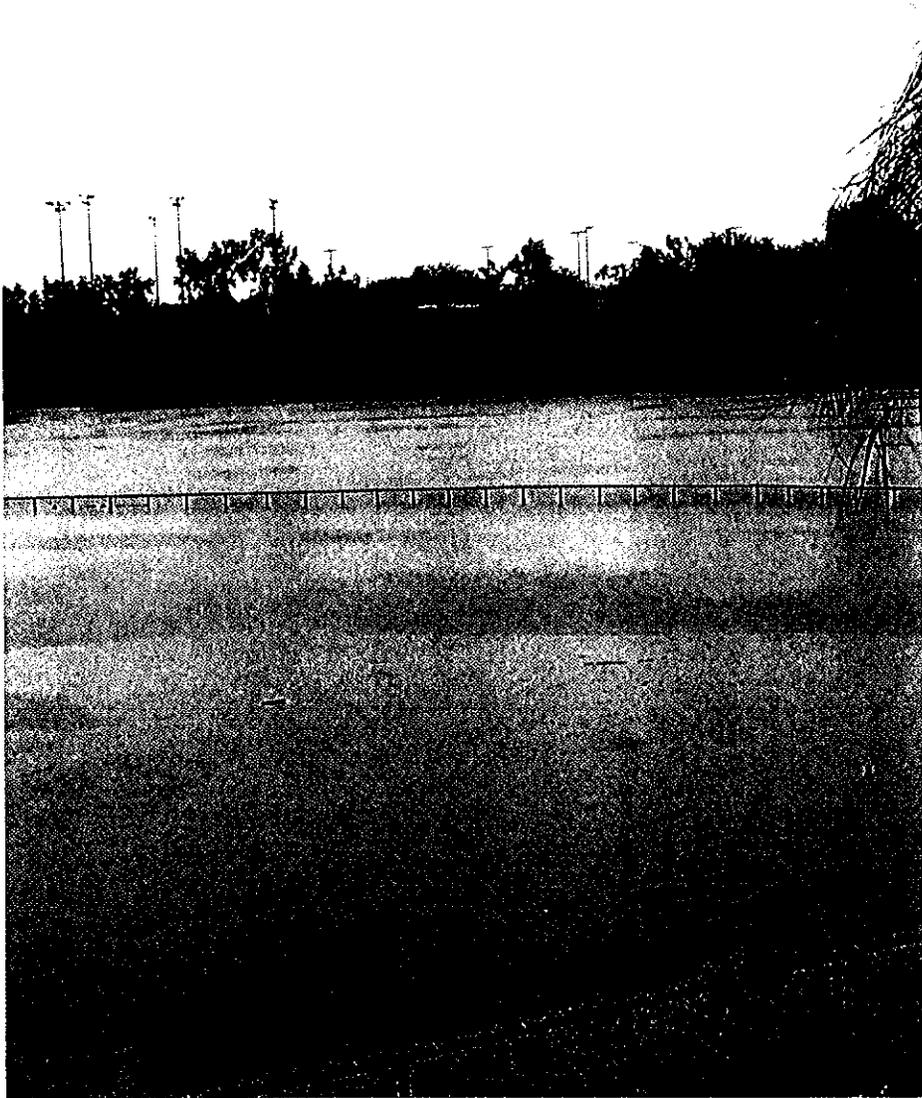
N 32° 12' 59.54"
W 110° 56' 53.53"

RIMG88895.JPG 2415 ft

2016-08-09 10:48:38 AM
8/9/2016



Ajo Detention Basin (KERP) August 9, 2016



Ajo Detention Basin (KERP) August 9, 2016