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# MEMORANDUM

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Date: August 6, 2019

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

From: C.H. Huckelberry  
County Administrator 

Re: **Town of Ajo Flooding**

On July 31, 2019 the Ajo Community received a significant intense rainfall event. The Quantitative Participation Estimate (QPE) is a radar estimated rainfall amount and is included in the attached images of Eastern Pima County as well as the Ajo area. (Attachment 1) The alert rainfall sensors in Ajo reported 2.56 and 2.28 inches of rain in less than one hour. Using National Oceanic and Atmospheric Administration (NOAA), National Weather Service, a 60-minute rainfall duration of this amount measured is a rainfall event that has a 1.0 to 0.5 percent probability of occurring in any one year. Hence, the storm was significant and occurs very infrequently, or could be classified as a 100-year rainfall intensity event or greater.

There is both good and bad news for the Ajo Community. Actual flood damages were almost insignificant, no structures were observed to be flooded in Ajo by our Regional Flood Control District (RFCD) Field staff. The Curley School Detention Basin operated as expected and likely prevented significant flooding in the community. Enclosed are a series of photographs showing the basin with appropriate high water marks where significant rapid inflow was discharged over a period of time significantly reducing flooding potential. (Attachment 2) The other areas of historic flash flooding; the Second Avenue Bridge crossing, Ajo Ballfield, Ajo Cemetery and Tolera Street Bridge crossing, all operated to prevent and reduce flood damages. Hence, given the intensity of the event RFCD infrastructure and improvements prevented significant flood damage to the community.

The bad news is that a portion of the Ajo Curley School roof collapsed. Facilities Management is reviewing the collapse and resulting damages to the Ajo Curley School now operated by the nonprofit International Sonoran Desert Alliance (ISDA). Pima County's Building Inspection Manager has prepared a report that will be forwarded to the building owner, ISDA, for their information and use. It appears the section of the collapsed roof was above the building maintenance area and probably caused by clogged roof drains with no options for overflow; hence, the water ponded until the roof structure could not accommodate the water weight, therefore, collapsing. Appropriate repair and retrofitting recommendations will be made by the Building Inspections Department and Development Service. We will fully cooperate with the building's insurance carrier to make necessary repair and modifications of the roof drains such that they are equipped with overflows should the drains become clogged. This will reduce the ponding on the roof and avoid catastrophic collapse.

The Honorable Chairman and Members, Pima County Board of Supervisors  
**Re: Town of Ajo Flooding**  
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The public buildings in Ajo received little, if any, damage with the minor exception of water accumulating in the basement window openings of the Ajo Courthouse. This may require paint replacement on a wall nearest the basement window casement that accumulated water. Finally, attached is an August 6, 2019 summary memorandum from the Facilities Management Director regarding building flood damages. (Attachment 3)

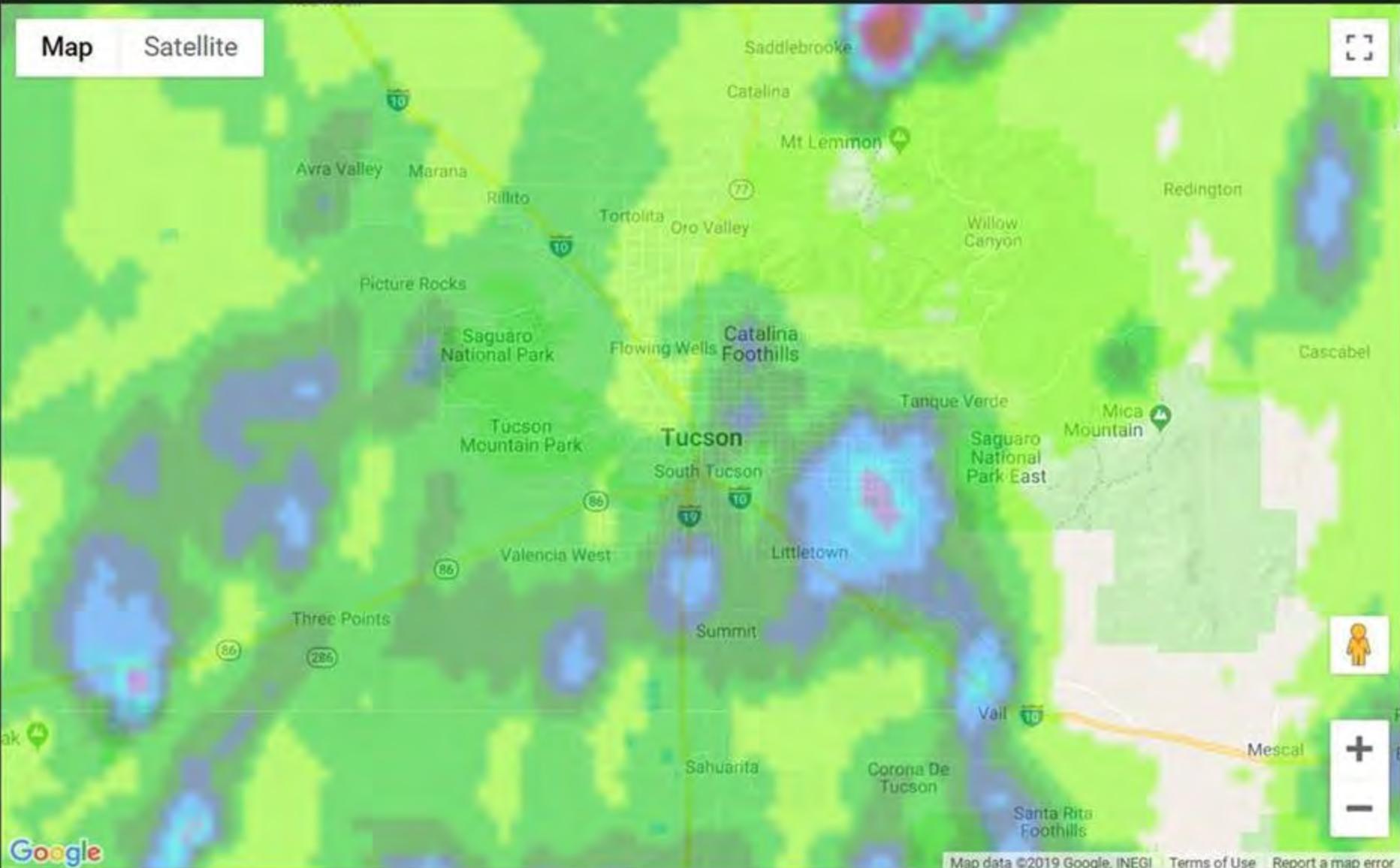
CHH/lab

Attachments

c: Jan Leshar, Chief Deputy County Administrator  
Carmine DeBonis, Deputy County Administrator for Public Works  
Tom Burke, Deputy County Administrator for Administration  
Lisa Josker, Director, Facility Management  
Suzanne Shields, Director, Regional Flood Control District

# ATTACHMENT 1

## 24 hour Quantitative Precipitation Estimate (QPE)



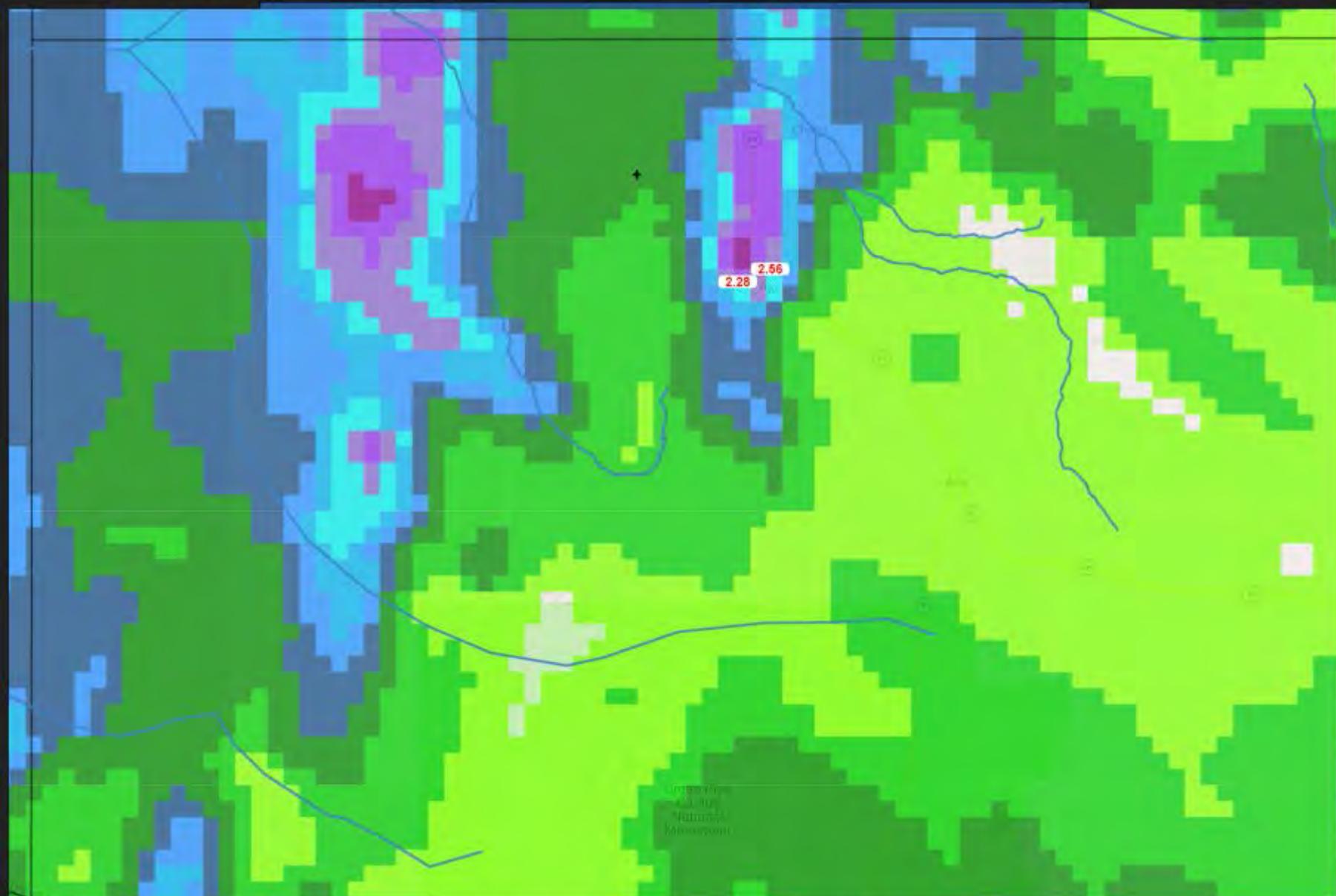
### 24 hour Quantitative Precipitation Estimate (QPE)



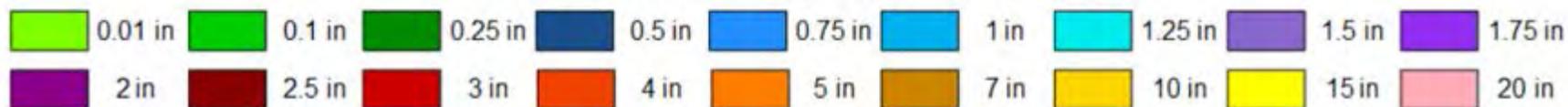
**Preliminary Storm Report - 07-31-2019**

Following are precipitation and stream flow registered by ALERT sensors

Values are preliminary and not field verified



**24 hour Quantitative Precipitation Estimate (QPE)**



# ATTACHMENT 2

Town of Ajo Curley School Basin Post Storm Event 7-31-19

Map Satellite



Drainage under Esperanza Ave.

Low flow outlet culverts

Northwest erosions

main inlet channel

# Ajo Storm Event 7/31/19 - Curley School Basin Overview to the west of the basin

High Water mark



N 32° 22' 15.25"  
W 112° 52' 00.18"

RIMG3402.JPG 1904 ft

2019/08/01

10:54:15 AM  
8/1/2019

# Ajo Storm Event 7/31/19 - Curley School Basin

## Brush and debris in the outlet culverts



6' - top of high water to inlet elevation

N 32° 22' 16.52"  
W 112° 52' 01.52"

RIMG3405.JPG 1786 ft

2019/08/01 10:55:51 AM  
8/1/2019

# Ajo Storm Event 7/31/19 - Curley School Basin

## Northeast view across the basin

High water mark



N 32° 22' 14.20"  
W 112° 52' 02.69"

RIMG3412.JPG 1780 ft

2019/08/01

11:05:09 AM  
8/1/2019



grade Control Structure

Exposed gas line

300' north of the Arch culvert

2nd Avenue Bridge crossing

Bank erosion

300' south of the Arch culvert



The Church of Christ of Latter...

Good Shepherd Presbyterian Church

Desert Dairy

Ballpark

Map labels include street names: W 4th Ave, W 3rd Ave, W 2nd Ave, W 1st St, W Arroyo Ave, E 4th Ave, E 3rd Ave, E 2nd Ave, E 1st Ave, E Arroyo Ave, N Railroad Dr, N Copper Dr, N Well Rd, Cedar St, Elm St, Palm St, Water St.

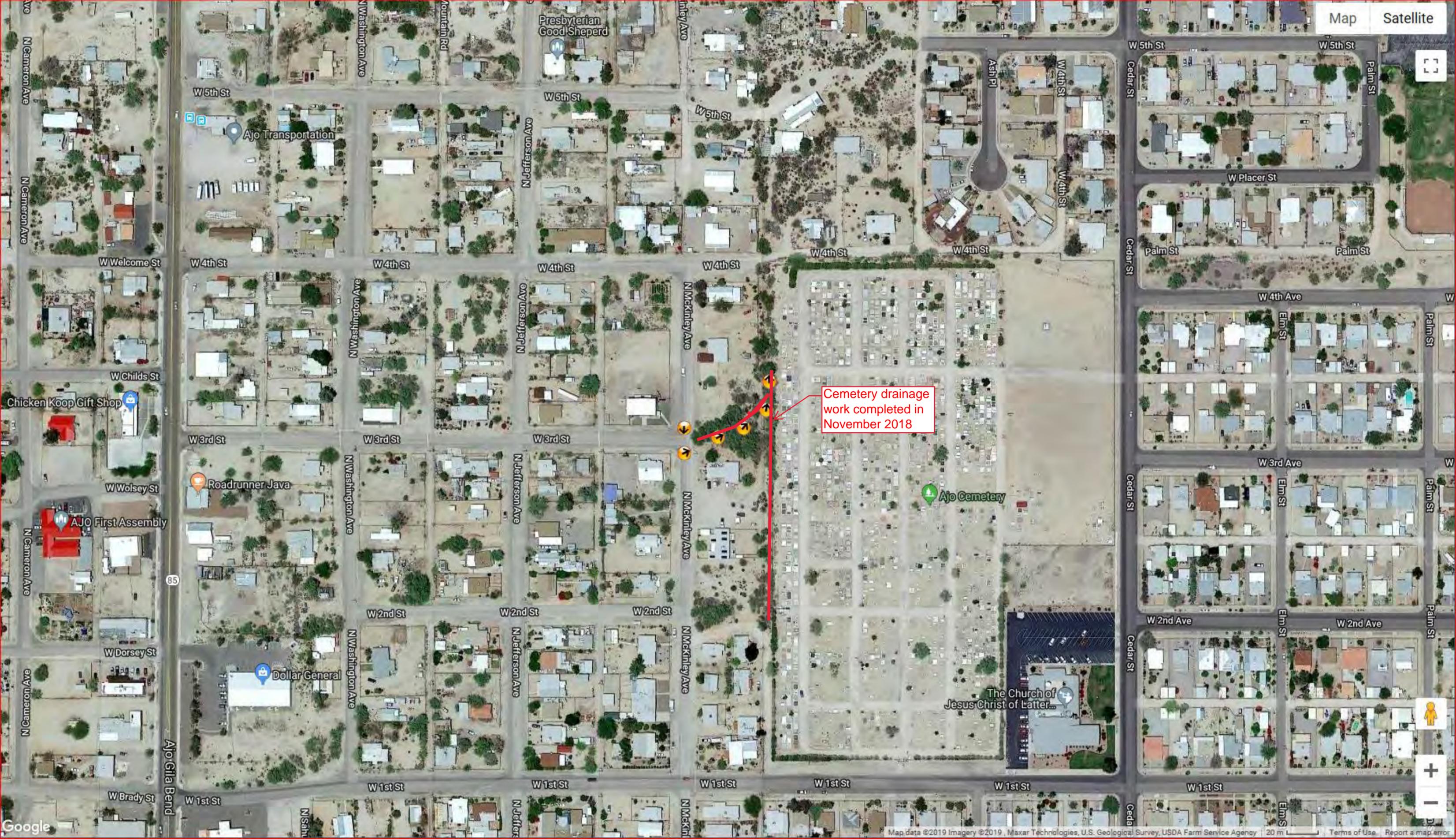
**Gibson Wash and 2nd Avenue Arch Bridge crossing 7-31-19**  
**At the culvert - visual of the sediment load increase**



**N 32° 22' 46.94"**  
**W 112° 51' 44.90"**

**RIMG3439.JPG 1735 ft**

**2019/08/01 12:24:12 PM**  
**8/1/2019**



Cemetery drainage work completed in November 2018

Ajo Cemetery

The Church of Jesus Christ of Latter...

Dollar General

Ajo Transportation

Chicken Koop Gift Shop

AJO First Assembly

Roadrunner Java

Presbyterian Good Sheperd





# ATTACHMENT 3



FACILITIES MANAGEMENT

MEMORANDUM

Date: August 6, 2019

To: C.H. Huckelberry  
County Administrator

From: Lisa Josker, Director  
Facilities Management

Via: Tom Burke  
Deputy County Administrator - Administration

Re: Water Damage in Ajo, Arizona

On Wednesday July 31, 2019 there was a rain event in Pima County which affected the Ajo area quite drastically. Descriptions vary but, the area was hit with a heavy rainstorm which dumped around two inches of rain in less than an hour. This amount of rain in a short period of time nearly always results in water infiltration and building damage. This storm was no exception.

Below is a description at individual County-owned buildings.

**Ajo Courthouse** – Due to the heavy rains, water and debris flowed to the Courthouse exterior yard area from adjacent properties. Water and debris filled and plugged the drains at the bottom of the window wells adjacent to the exterior basement window walls. The drains from the window wells drain into the sump pump located in the basement. On site staff immediately cleared out recessed window wells of all the debris and mud as soon as the storm let up.

Due to the window wells filling with water and debris, water penetrated down the adjacent basement walls resulting in wet flooring and blistering in the wall paint. Once the existing walls dry out, they will be cleaned and repainted. Attached picture shows the mud and waterline on the window.

**120 Estrella** – Health Clinic/Simpatico lease – Ground level water penetration at back of building through the exterior doors resulting in wet carpeting. Staff dried it up and there was no permanent damage. The contracted janitorial staff is on-site today cleaning all the carpets.

**Ajo Library** – Landlord was notified of water infiltration which came in the back door, resulting in wet carpet. The infiltration was caused by the water running rapidly down the adjacent alley way which is at or near the same elevation as the exterior door. No water penetration at the walls. We will provide sandbags as a precaution for the next rain.

Site modifications and modifications to the buildings in recent years, helped mitigate what could have been a disastrous situation. The buildings themselves received minor water infiltration which required minor cleanup with no damage to the buildings.

Another non-county owned building of concern to the Ajo community is the Curley School.

**Curley School** - A site visit and assessment of the Curley School collapsed roof was performed on Thursday August 1st, by Ric Hick from Development Services. Attached is his letter to Vicki Tapp, the Curley School Site Manager. His assessment of the collapsed roof is as follows:

The room into which the roof fell is a maintenance shop and is only used by Curley School staff; it should remain locked to all access with the exception of a qualified demolition crew or construction company. There are portions of the collapsed roof that are supported by broken framing members and any disturbance could cause the fallen structure to shift and move and fall further to the floor of the room.

The walls that supported the roof structure do not appear to have been damaged or suffer from any structural issues. There are no cracks in the masonry structure or in plaster covering some portions of the walls. The exterior wall that supported the roof has a concrete bond beam that is intact and does not show evidence of failure. The ledger attachment is one I have not seen before; from what I can see it appears to be a heavy gage wire with several strands looped into the concrete bond beam and then attached through the ledger. Because the wires were not sheared off at the bond beam, it appears the rafters failed somewhere mid span and pulled the ledger off the wall as the roof collapsed.

The roof slope butts against a parapet wall and slopes from the middle to drains at each corner. These are drains connected to interior piping, with deep wells and no means of overflow. The drain in the corner where the collapse occurred is visible from a window overlooking the collapsed roof and one can clearly see that it is clogged with debris. Because there was no overflow outlet the roof filled with water until the structure could no longer hold the weight of the water. Current code requires an overflow drain or scupper be located to allow no more accumulation than the roof is designed to hold.

There is an identical roof on the opposite side of the school auditorium with the same type of drainage structure and would be subject to the same type of failure should those drains become clogged. This twin roof covers a men's' and women's' restrooms as well as a storage area. All three areas have hard ceilings with no access but in the storage area near the outside wall was a large area of wet ceiling. This roof area should be investigated but would require cutting an access to the ceiling space above.

The maintenance shop is directly above the electric room and water from the collapsed roof made its way into the electric room via large holes in the floor that used to have plumbing drain pipes in them. It appears that to protect from possible leaks in plumbing drains that remained connected, a metal shed roof type deflector was mounted to the wall and extended over new electric meters mounted below and fortunately the water that came through these open holes was deflected away from the equipment. Of course the room was still wet in areas and staff was in the process of drying it out but the musty odor of the room and rust and corrosion on the original switchgear is an indication that this is normally a damp area. Any penetrations in the floor/ceiling of this room should be closed to prevent future water entering the room this way, and at least a method of passive ventilation be provided. As a side note it was noticed that on the upper right portion of the free standing switch gear there are a couple of closure panels missing that exposes energized parts of the switch gear those panel should be replaced as soon as possible to prevent accidental injury to people working around this equipment.

C.H. Huckelberry  
Water Damage in Ajo, Arizona  
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With the exception of closing the holes in the floor/ceiling area all work requires plans, permits, and inspections.

LJ/dlm