RAINBOW WASH AT SR85
FCD GAGE ID# 42807

STATION DESCRIPTION

LOCATION – The gage station is located just east of State Route 85 on Rainbow Wash, which is located approximately 10 miles south of the town of Buckeye. The station is located on the north (right) bank of the channel. Latitude N 33° 46' 51", Longitude W 113° 01' 44". Located in the SW1/4 NW1/4 SE1/4 S23 T2S R4W, in the Cotton Center NW 7.5-minute quadrangle.

ESTABLISHMENT – Gaging was established on November 6, 2000 by the Flood Control District of Maricopa County.

DRAINAGE AREA – 18.3 mi^2 from USGS Streamstats.

GAGE – The gage is a pressure transducer type instrument. The PT diaphragm is at 0.16 feet gage height, 900.22 feet NAVD88, levels of December 13, 2024.

There is no staff gage at this location.

There is one crest gage at this location. Pin elevation is at 0.65 feet gage height, levels of January 27, 2015.

ZERO GAGE HEIGHT – Is defined in relation to the transducer gage when installed. It is equivalent to elevation 900.06 feet NAVD88.

HISTORY – No previous gaging at this location. Gaging established November 6, 2000. Crest gage was installed on February 21, 2001. The elevation between RM-RAIN85 and the PT appears to be migrating as its absolute vertical distance difference has changed from 4.72 feet in November 2000 to 5.31 feet in June 2001 to 5.13 feet in July 2004. This change may be related to soil moisture which would cause elevation to fluctuate as soils expand and contract. A major flood occurred in September 2014 and buried the original benchmark. The flood also caused significant drop of sediment on the upstream side of the northbound SR-85 bridge due to significant ponding in the area of the gage station.

REFERENCE MARKS –

RM-RAIN85 is an FCD brass cap located about 40 feet northwest of the station standpipe. Elevation is 905.370 feet NAVD88, or 5.31 feet gage height, levels of July 20, 2006. Northing 814020.806, Easting 479057.17. It is currently buried under sediment that dropped during the September 8, 2014 event.

BM-50428 is an FCDMC brass cap located about 20 feet west of the station tube. It is at elevation 905.516 feet NAVD88, levels of July 27, 2020. 5.46 feet gage height.

RP-1 is the top of a stainless steel bolt in the concrete base of the crest gage. Elevation 900.150 feet NAVD88, levels of January 18, 2001. This reference was found during a post event reconnaissance on October 7, 2015. Elevation was measured to be 0.61 feet below the CSG pin, or 0.04 feet gage height.

RP-2 is a chiseled 'X' in the top of the left upstream wingwall of the SR85 bridge. Elevation 908.567, 8.52 feet gage height levels of July 27, 2020.

CHANNEL AND CONTROL – The channel at the gage has a sandy bottom with mostly trapezoidal shape. The control for lower flows is either undefined, or is channel control. At an undetermined level, the downstream bridge begins to be the control. A flood event of September 8, 2014 caused significant ponding upstream of the bridge opening, which is determined to be able to pass approximately 7,500 cfs. The ponding upstream of the bridge extended hundreds of feet into the wash's overbanks. It also dropped up to a foot of sediment upstream in the overbanks.

RATING – The current rating is Rating #4. It was developed from an eight cross section survey in July 2020. The survey data were used in an HEC-RAS model.

Rating #3 was developed from existing rating information and from indirect measurement data acquired since installation. The rating is effective from the beginning of Water Year 2010. Rating #2 is based on three indirect discharge measurements. It was found that rating #1 overestimated flow during a flood in August 2001. At that time there were not enough data to warrant a rating revision. A recent flow was also somewhat different from the rating #1. Rating #2 will be the rating for the entire gage record because one of the points was obtained from a flood measurement that occurred before gage installation and was used in development of rating #1. Rating #1 was developed from survey data and a HEC-RAS model. The rating is valid to about 2,500 cfs or about 5 feet gage height. Above this level, flow will begin to spill out of the channel into the unconfined right overbank. Flows in the channel are subcritical. Channel slope in the reach considered is 0.0045 ft/ft.

DISCHARGE MEASUREMENTS – Low flow measurements could be made by wading the channel. Higher flow measurements can be done by indirect methods in a three cross section reach located with the gage cross section as the middle cross section.

POINT OF ZERO FLOW – The PZF at the gage cross section is near the PT and is at -0.5 feet gage height, levels of July 27, 2020.

FLOODS – The largest flood on record occurred on September 8, 2014. Water rose to nearly the top of the culvert downstream, which is about 8.5 feet gage height. Flow was limited by the culvert itself, which passes a maximum of about 7,500 cfs. Because inflow caused water to pond behind the culvert, the maximum inflow may have greatly exceeded 7,500 cfs.

REGULATION – None

DIVERSIONS – None

ACCURACY – Fair

JUSTIFICATION – Provide warning to MCDOT for road closure at Old US80.

UPDATE – December 13, 2024
E S Thomas