IBW AT McDONALD DRIVE
FCD GAGE ID# 57207 (4628)

STATION DESCRIPTION

LOCATION – The gage is located in Scottsdale, Arizona just west of the intersection of Hayden Road and McDonald Drive. Latitude N33° 31' 26.5", Longitude W111° 54' 35.1". Located in the SE1/4 SE1/4 S11 T2N R4E in the Paradise Valley 7.5-minute quadrangle.

ESTABLISHMENT – The gage was installed November 24, 1997.

DRAINAGE AREA – 91.1 mi^2

GAGE – The gage is a pressure transducer type instrument located in the low flow channel about 60 feet left of the right bank wall. The PT diaphragm is at -1.90 feet gage height, levels of March 5, 2019.

There is one staff gage at this location. It is located on the left (east) upstream side of the wash. It displays directly in gage height, levels of March 5, 2019.

There is one crest stage gage at this location. The pin elevation is 0.20 feet gage height, levels of March 5, 2019.

ZERO GAGE HEIGHT – Zero gage height is defined as 0.00 on the staff gage. It is equivalent to 1,262.365 feet NAVD88.

HISTORY – The stage gage established on November 24, 1997. A crest gage was established on January 25, 2000. A small low flow channel was established as drainage from the Links Golf Course on the north side of McDonald Drive. Establishment was sometime in mid-2003. Level sensor was moved from the right bank to the low flow channel on July 27, 2004.

REFERENCE MARKS –

BM-4628 is an FCDMC brass cap located on the right downstream bank above an outlet of a side channel. It is at elevation 6.155 feet gage height and 1,268.520 feet NAVD88, levels of March 5, 2019.

RM-1 is a Corps of Engineers Brass Cap 78-106, located on the east end of the upstream (north) bridge rail. It is at elevation 11.110 feet gage height and 1,273.475 feet NAVD88, levels of March 5, 2019.

RM-2 is a Coast and Geodetic Survey Brass Cap S473 (1981) located on top of east upstream wingwall. It is at elevation 6.820 feet gage height and 1,269.185 feet NAVD88, levels of March 5, 2019.

RM-3 is a chiseled 'X' on the upstream streamward side of the sidewalk near the right bank. It is at elevation 0.156 feet gage height and 1,262.521 feet NAVD88, levels of March 5, 2019.

RM-4 is a chiseled 'X' on the downstream right bridge abutment. It is at elevation 8.681 feet gage height and 1,271.046 feet NAVD88, levels of March 5, 2019.

RP-1 is a bolt on the right bank wall upstream of the bridge. It is at elevation 1.605 feet gage height, levels of March 5, 2019.

RP-2 is the upstream bolt securing the transducer housing. It is at elevation -1.568 feet gage height, levels of March 5, 2019.

CHANNEL AND CONTROL – The gage measures the low flow portion of the channel. Just upstream of the McDonald Drive bridge, all flows are contained within the channel. However, just upstream of the bridge, high flows are able to spill over Hayden Road into the high flow area to the left of the main channel. Upstream of McDonald Drive, water will spill over Hayden Road at approximately 5.4 feet gage height. The channel downstream of the bridge also spills onto Hayden Road at about 3.6 feet gage height and 3,000 cfs.

The channel up and downstream of the gage is essentially a grass lined trapezoidal channel. In 1999, the Silverado golf course was constructed in the wash upstream of the bridge. The golf course extends upstream to just downstream of Indian Bend Road.

The bridge section at McDonald Drive and the low flow channel downstream is the control. The minimum channel elevation occurs in a low flow channel about 60 feet streamward of the right bank.

RATING – The current rating is Rating #4. It was developed from surveyed data and used in an HEC-RAS model. The rating correlated well with the updated rating upstream at Indian Bend Road gage, and making comparison with high water mark data also collected following the significant flow event of October 2018.

DISCHARGE MEASUREMENTS – Low flow measurements can be made by wading the channel. High flow discharges can be measured from the bridge at this location. Swift undercurrents may make this activity difficult.

POINT OF ZERO FLOW – The PZF is in a small trapezoidal low flow channel about 40 feet left of the right bank wall. Elevation -2.05 feet gage height, levels of November 5, 2003.

FLOODS – The largest flow of record occurred August 24, 2006. The peak stage was 3.83 feet and discharge of 3,718 cfs.

REGULATION – None of any consequence. There are numerous aesthetic lakes in the wash upstream.

DIVERSIONS – The small lakes for the golf course and recreation may divert some initial flow. There are no diversions of consequence. Water in the upper watershed is completely diverted by the CAP dike and canal.

ACCURACY – Fair

JUSTIFICATION – Monitor flood flows in Indian Bend Wash. Gage is also used to determine when flood stage approaches spilling across Hayden Road as part of the Scottsdale Flood Warning System.

UPDATE - July 25, 2019
D. E. Gardner