# AUGLAIZE COUNTY

***Engineering Department***

**P.O. Box 59**
**1014 S. Blackhoof Street**
**Wapakoneta, Ohio 45895**

**TELEHONE 419-739-6520**
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*Douglas Reinhart*
**COUNTY ENGINEER**


December 5, 2005

Brian Miller
HDR Engineering

Brian,

I apologize for not getting you this information any sooner, but hopefully the information that I have for you will help you out in your design. Just recently (April 5, 2004), our office conducted a fairly extensive survey for the Wapakoneta Country Club to determine the 100-year flood elevation at bridge AUG: 501-05.34. I have included a copy of the survey as well as the notes to certify the 100 year flood elevation of that bridge to be 864.8 ft.

Upon further research of the two sites, I also found some watershed information from a past petition. The watershed information included the number of acres as well as the proposed gradient of the ditch when it was petitioned. Based upon this information, we have the 100 year flood elevation at bridge AUG: 501-0509 to be 865.8 ft. I have included a watershed map of the area as well as a copy of the profile of the ditch. It may be a little hard to read, but should you have any questions feel free to give me a call at 419-739-6520.

I have also included a small section of our highway map with several of the surrounding bridges and the flood information that we have at those bridges for your convenience.

Sincerely,

Douglas Reinhart, P.E. P.S.
Auglaize County Engineer
Auglaize County Flood Plain Coordinator

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Carl Wintzer
Wapakoneta, Ohio

April 5, 2004

The following are 100-year flood plain elevations near the Wapakoneta Country Club, Section 7, Duchouquet Township.

The 100-year flood elevation for the stream @ the bridge on SR# 501, approx. 1/3 of a mile south of Buckland Holden Road (east branch of two-mile creek, 2300 acre watershed) is 864.8.

The 100-year flood elevation for two-mile creek at the Buckland Holden Road bridge, approximately ½ mile west of SR# 501, is 858.5.

I would use a straight-line extrapolation between these two points to estimate this flood elevation at any point between the two roads.

Douglas Reinhart, P.E., P.S.
Auglaize County Engineer
Auglaize County Flood Plain Coordinator

100 Yr. HW Elevation
AT
Wapakoneta Country Club

Calculated 100 Year H.W. Depth = 7.2'

This number is based on:

1. The twin culverts controlling the stream since the roadway is 7 feet above the stream bed.
2. The greatest known flooding depth past 23 years is 6.3 feet.

ODOT bridge plans for AUG-501-0534 show the annual flood reaches Elev. 866.0 and that the bottom of the stream is at Elev. 857.9. This would make the depth of water for an annual flood as 8.1 feet deep. This is almost 2' greater than the caretaker has seen.

ODOT's 10-15 year flood elevation is shown as 867.5. Since the basement of the WCC is near 866.85, this would mean the basement of the club would flood every 10 years. They reported no flooding of the basement to me.

Therefore, I recommend that the 100 Year Flood Elevation at the twin culverts be set at Elev. 864.2.

Respectfully,

Dan ~~A. Bennett~~, P.E., P.S.

100 Yr H.W. @ Bridge Elev 864.8

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COUNTY ENGINEER


HDR Engineering
Cincinnati, Ohio

February 22, 2006

Attn: Christian Nyberg, P.E.
Senior Bridge Engineer

Structure AUG-66-17.30: According to our drainage records, this structure is the outlet for the Potts Ditch that has a watershed of 660 acres and an extremely low gradient. The proposed structure will have the capacity to accept the 100-year flood. Your calculated plan elevation for the 100-year flood versus what our office has determined from past flooding events is within 0.1', and is acceptable.

Structures AUG-501-5.03 & AUG-501-5.34: Both proposed structures have comparable cross-sectional openings as the existing and will provide enough capacity for a 100-year flood. Your calculated 100-year event elevations are within a few tenths of a foot of what my office has determined based upon past flooding events, and are acceptable.

My only other comment concerning these structures deal with the design. Both proposed bridges are designed to replicate the existing – a three span structure having a total length of approximately 55'. The short span beams will presumably be designed with a 17" thickness versus a single (55') span having a beam thickness of 27" - 33". Based upon the calculated 100-year flood elevation, even the thicker beam depth will still allow for this flood to pass under the structure. The elimination of the construction of two piers should reduce the road closure by possibly three weeks for each structure. Knowing the local traffic patterns and the fact that there is no other State routes in the immediate proximity, my local roads will see up to an additional six weeks of traffic that normally uses SR# 501. I didn't know if your firm had considered not only the cost difference for a single span structure, along with the effects of the additional road closure. I have found that the single span structures designed by my staff have been just as cost effective as a multi-span structure - - as long as the 100 - year flood elevation does not create extensive roadway reconstruction.

Douglas Reinhart, P.E., P.S.
Auglaize County Engineer
Auglaize County Flood Plain Coordinator