



# OHIO DEPARTMENT OF TRANSPORTATION

Mike DeWine, Governor

Jack Marchbanks, Ph.D., Director

## District 6

400 E. William St., Delaware, OH 43015

740-833-8000

[transportation.ohio.gov](http://transportation.ohio.gov)

August 26, 2024

Chad Wilson  
Mayor & Local Flood Plain Coordinator  
Magnetic Springs, Ohio

Re: UNI-37-12.24 PID: 122277  
Letter of Notification

Dear Mayor Wilson:

Enclosed please find the floodplain analysis for Ohio Department of Transportation project County-Route-Section (PID). The subject roadway project encroaches upon a Special Flood Hazard Area Zone A within your community at the location identified in the attached report. The hydraulic calculations and No-Rise Certification Form (if Zone AE) provide the necessary documentation of compliance to all federal, state, and local floodplain standards as required.

If you need additional information regarding our analysis please feel free to contact Jeff Hipp 740.497.1834 [jeff.hipp@dot.ohio.gov](mailto:jeff.hipp@dot.ohio.gov).

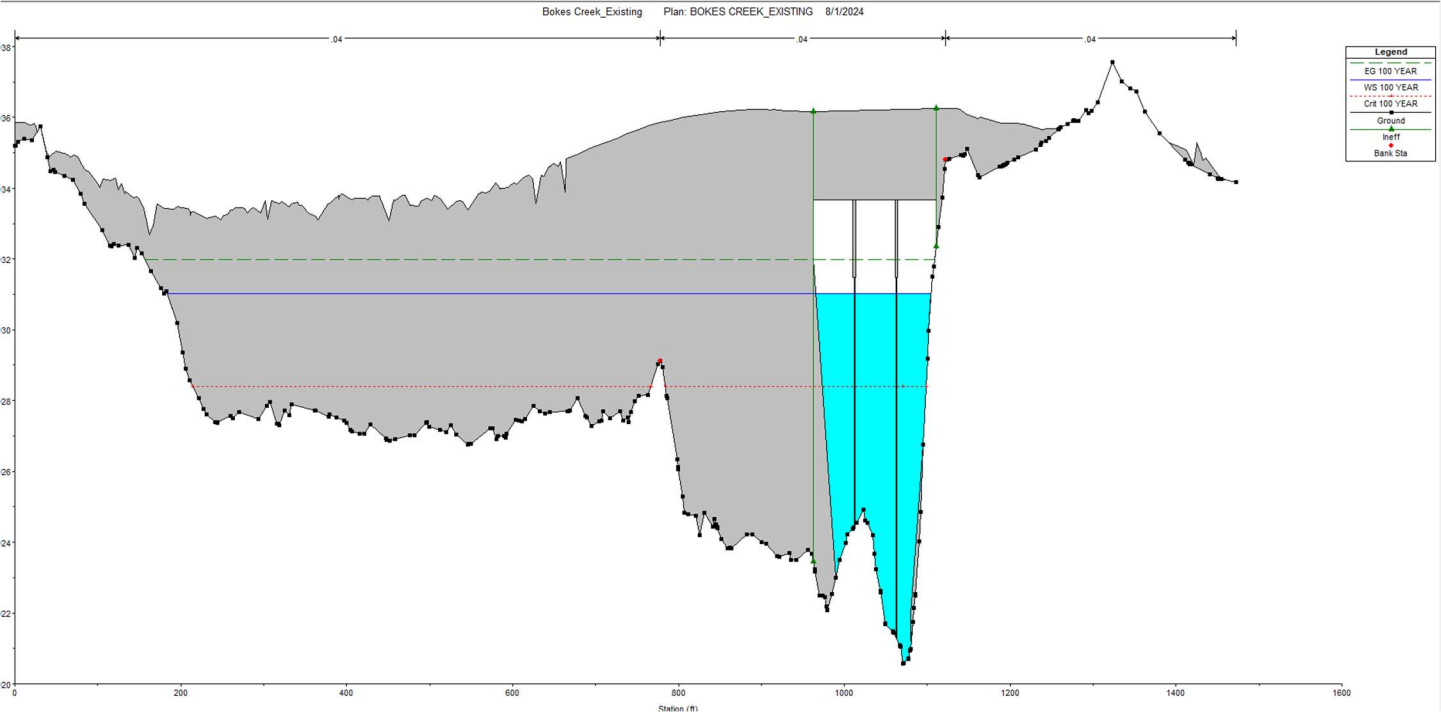
Respectfully,

Jeff Hipp, P.E.  
Bridge Design Manger  
ODOT D6 Capital Programs

**Excellence in Government**

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Existing 3-Span Box Beam Bridge Hec-Ras Cross Section:

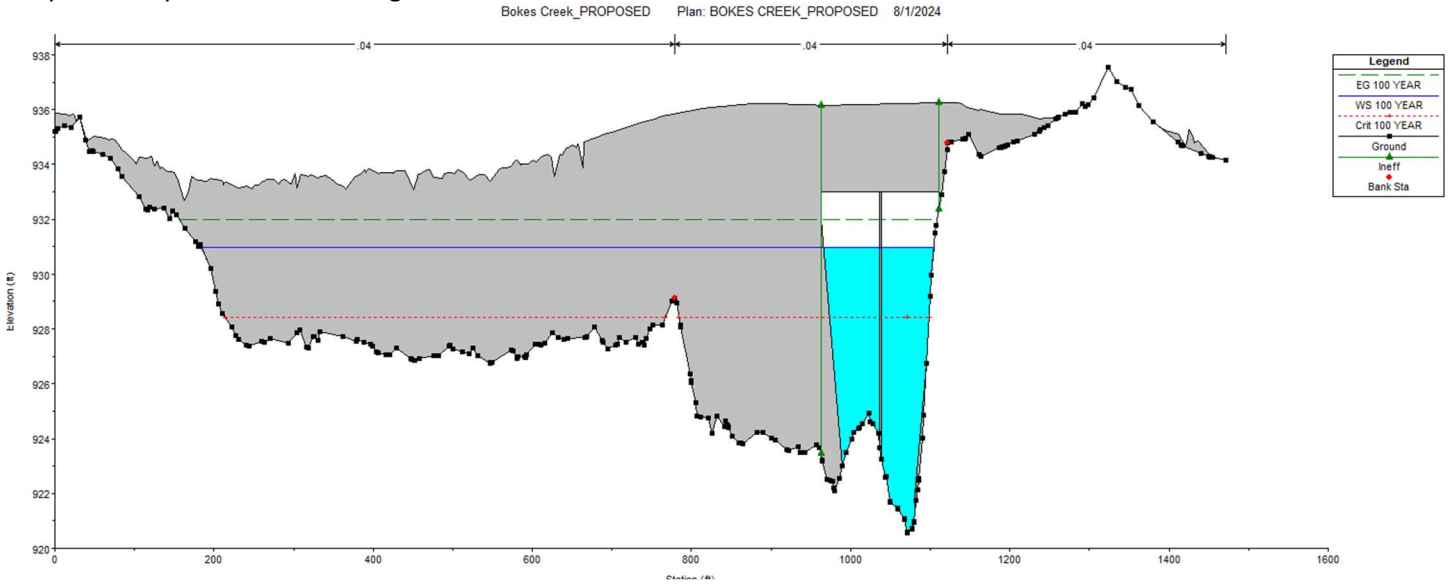


Existing 3-Span Box Beam Bridge Hec-Ras Output Table (4% & 1%):

File Options Std. Tables Locations Help

HEC-RAS Plan: BOKES CREEK River:												
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach	676.3184	25 YEAR	5330.00	922.03	931.26		931.48	0.001209	4.46	1522.89	859.82	0.30
Reach	676.3184	100 YEAR	7320.00	922.03	932.37		932.62	0.001096	4.62	1929.94	872.14	0.29
Reach	434.4189	25 YEAR	5330.00	920.56	930.72	926.61	931.12	0.001323	5.08	1049.67	915.67	0.33
Reach	434.4189	100 YEAR	7320.00	920.56	931.57	927.50	932.17	0.001778	6.25	1170.55	940.14	0.39
Reach	350	Bridge										
Reach	333.8944	25 YEAR	5330.00	920.45	930.34	925.84	930.70	0.001104	4.79	1121.96	1026.58	0.30
Reach	333.8944	100 YEAR	7320.00	920.45	930.99	926.82	931.56	0.001590	6.07	1217.72	1035.31	0.37
Reach	152.1553	25 YEAR	5330.00	919.26	928.92	928.92	930.07	0.006022	9.42	765.26	1089.13	0.67
Reach	152.1553	100 YEAR	7320.00	919.26	929.54	929.54	930.83	0.006444	10.39	969.32	1099.01	0.70

## Proposed 2-Span Box Beam Bridge Hec-Ras Cross Section:

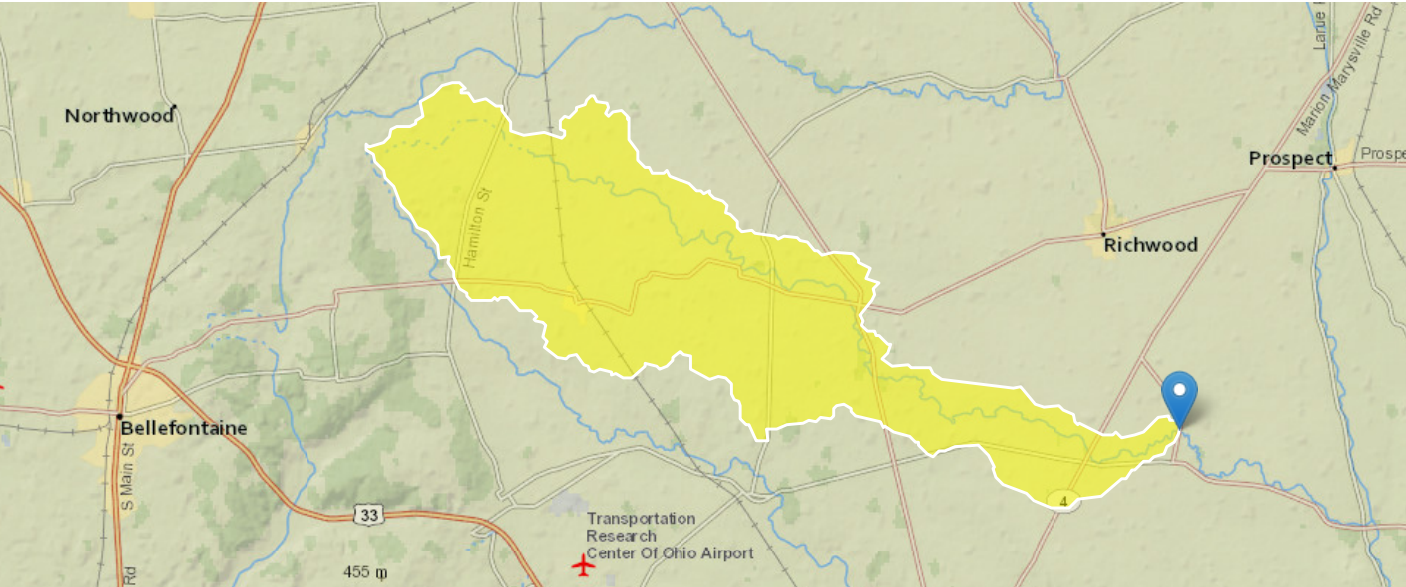


## Proposed 2-Span Box Beam Bridge Hec-Ras Output Table (4% & 1%):

HEC-RAS Plan: BOKES CREEK_PROPOSED												
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach	676.3184	25 YEAR	5330.00	922.03	931.26		931.47	0.001213	4.47	1521.06	859.78	0.30
Reach	676.3184	100 YEAR	7320.00	922.03	<u>932.37</u>		932.61	0.001099	4.62	1928.41	872.07	0.29
Reach	434.4189	25 YEAR	5330.00	920.56	930.71	926.61	931.11	0.001326	5.08	1048.84	915.57	0.33
Reach	434.4189	100 YEAR	7320.00	920.56	<u>931.56</u>	927.50	932.17	0.001781	6.26	1169.77	939.97	0.39
Reach	350		Bridge									
Reach	333.8944	25 YEAR	5330.00	920.45	930.34	925.84	930.70	0.001104	4.79	1121.96	1026.58	0.30
Reach	333.8944	100 YEAR	7320.00	920.45	930.99	926.82	931.56	0.001590	6.07	1217.72	1035.31	0.37
Reach	152.1553	25 YEAR	5330.00	919.26	928.92	928.92	930.07	0.006022	9.42	765.26	1089.13	0.67
Reach	152.1553	100 YEAR	7320.00	919.26	929.54	929.54	930.83	0.006444	10.39	969.32	1099.01	0.70

# StreamStats Report

Region ID: OH  
Workspace ID: OH20240726140110423000  
Clicked Point (Latitude, Longitude): 40.35627, -83.26167  
Time: 2024-07-26 10:01:36 -0400



+ Collapse All

## Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	5.21	feet per mi
DRNAREA	Area that drains to a point on a stream	68.7	square miles
FOREST	Percentage of area covered by forest	6.41	percent
LAT_CENT	Latitude of Basin Centroid	40.4058	decimal degrees
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	0.51	percent
OHREGA	Ohio Region A Indicator	1	dimensionless
OHREGC	Ohio Region C Indicator	0	dimensionless
PRECIPCENT	Mean Annual Precip at Basin Centroid	35.4	inches
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.96	dimensionless

## Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Full Model Reg A SIR2019 5018]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	68.7	square miles	0.04	5989

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
OHREGC	Ohio Region C Indicator 1 if in C else 0	0	dimensionless	0	1
OHREGA	Ohio Region A Indicator 1 if in A else 0	1	dimensionless	0	1
CSL1085LFP	Stream Slope 10 and 85 Longest Flow Path	5.21	feet per mi	1.53	516
LC92STOR	Percent Storage from NLCD1992	0.51	percent	0	25.35

#### Peak-Flow Statistics Flow Report [Peak Flow Full Model Reg A SIR2019 5018]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	2100	ft <sup>3</sup> /s	1110	3960	40.1
20-percent AEP flood	3250	ft <sup>3</sup> /s	1800	5860	37.2
10-percent AEP flood	4120	ft <sup>3</sup> /s	2270	7470	37.6
4-percent AEP flood	5330	ft <sup>3</sup> /s	2920	9720	38.1
2-percent AEP flood	6300	ft <sup>3</sup> /s	3420	11600	37.8
1-percent AEP flood	7320	ft <sup>3</sup> /s	3930	13600	39.6
0.2-percent AEP flood	9940	ft <sup>3</sup> /s	5290	18700	40.3

#### Peak-Flow Statistics Citations

**Koltun, G.F.,2019, Flood-frequency estimates for Ohio streamgages based on data through water year 2015 and techniques for estimating flood-frequency characteristics of rural, unregulated Ohio streams: U.S. Geological Survey Scientific Investigations Report 2019–5018, 25 p. (<https://dx.doi.org/10.3133/sir20195018>)**

### ➤ Monthly Flow Statistics

#### Monthly Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	68.7	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	0.51	percent	0	19
PRECIPCENT	Mean Annual Precip at Basin Centroid	35.4	inches	34	43.2
FOREST	Percent Forest	6.41	percent	0	99.1
LAT_CENT	Latitude of Basin Centroid	40.4058	decimal degrees	38.68	41.2
STREAM_VARG	Streamflow Variability Index from Grid	0.96	dimensionless	0.25	1.13

#### Monthly Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct (other -- see report)

Statistic	Value	Unit	SE	ASEp
January Mean Flow	86.7	ft <sup>3</sup> /s	16.6	16.6
February Mean Flow	97.1	ft <sup>3</sup> /s	11.9	11.9
March Mean Flow	117	ft <sup>3</sup> /s	14	14
April Mean Flow	102	ft <sup>3</sup> /s	11.2	11.2
May Mean Flow	73.3	ft <sup>3</sup> /s	19.5	19.5
June Mean Flow	41.4	ft <sup>3</sup> /s	27	27
July Mean Flow	23.7	ft <sup>3</sup> /s	28.2	28.2

Statistic	Value	Unit	SE	ASEp
August Mean Flow	11	ft <sup>3</sup> /s	36.8	36.8
September Mean Flow	6.58	ft <sup>3</sup> /s	43.6	43.6
October Mean Flow	10.1	ft <sup>3</sup> /s	50.8	50.8
November Mean Flow	34	ft <sup>3</sup> /s	37.5	37.5
December Mean Flow	61.2	ft <sup>3</sup> /s	21.8	21.8

*Monthly Flow Statistics Citations*

**Koltun, G. F., and Whitehead, M. T.,2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p (<https://pubs.er.usgs.gov/publication/wri024068>)**

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Application Version: 4.21.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1