HYDROLOGY REPORT

In accordance with the United States Geological Survey (USGS) StreamStats online website (v4.3.11), the watershed at the Route 27 crossing over Alder Stream (Alder Bridge No. 3265) within the Township of Jim Pond, Franklin County, Maine is 51.4 mi^2, including 5% comprised of storage areas.

The flows for the project were determined using the USGS StreamStats website. The design discharges for the Route 27 bridge over Alder Stream are summarized below and miscellaneous Hydrology information is included in Appendix E. A max flood of record is not available for this site.

SUMMARY

Drainage Area	51.4	mi^2
Q1.1	864	ft^3/s
Q10	3349	ft^3/s
Q25	4267	ft^3/s
Q50	4988	ft^3/s
Q100	5751	ft^3/s
Q500	7653	ft^3/s

Reported by: Erdman Anthony
Date: March 11, 2020

Note: All elevations based on North American Vertical Datum (NAVD) of 1988.

The existing Bridge No. 3265 is a three-span, rolled steel beam structure with a concrete deck. The bridge has nominal span lengths of 30 ft – 60 ft – 30 ft between bearings (28 ft - 58 ft - 28 ft modeled clear span) and is on an approximate 6º skew. The bridge is 31 ft wide out-to-out (26 ft wide curb-to-curb), and the approach roadway width is 30 ft. The hydraulic opening of the existing bridge is approximately 1290 ft^2. Topographic evidence of oxbow lakes in the study area indicate Alder Stream has a meandering alignment. The current meander in the stream alignment upstream of the bridge is a potential future oxbow.

Bridge 3265 is located within the corporate limits of Franklin County. However, this portion of the county is not in a FEMA study area and therefore is not subject to FEMA floodplain regulations.

The U.S. Army Corp of Engineers HEC-RAS Version 5.0.7 was used to model the hydraulics at the Route 27 Bridge. The existing conditions were modeled using MDOT's survey data of the channel, floodplain, and existing bridge and the peak flow data presented in the Hydrology section. Manning's n values were estimated based on photographs and channel bottom descriptions from the HEC-RAS Hydraulic Reference Manual Version 5.0, February 2016, Table 3-1. A main channel Manning's n of 0.035 was selected as the channel appears to be clean with some pools. The floodplain has a mix mature trees and brush resulting in a range of Manning's n values from 0.08 to 0.1.

The survey information provided by MDOT includes some 500 ft of channel and floodplain upstream and downstream of Alder Stream. The slope of the streambed through the study reach has some irregularity due to meandering but is generally flat through the study reach. The study bridge is within the influence of backwater flood elevations of the North Branch Dead River. The downstream boundary condition for Alder Stream is established by developing water surface elevations for various flood events at the junction of Alder Stream with the North Branch Dead River. Incorporating the North Branch Dead River into the hydraulic model requires establishing a boundary condition at the downstream end of this reach. A normal depth assumption is used to establish the boundary condition at the downstream limit of the North Branch Dead River model reach. To manage the inherent error associated with the use of this boundary condition assumption the North Branch Dead River downstream reach limit is located considerably away from the junction to disperse the computational error prior to the study reach junction. This was confirmed through a sensitivity analysis where high and low energy slope assumptions were applied at the boundary and then noting graphical convergence of the water surface profiles downstream of the area of interest (i.e. the junction of North Branch Dead River and Alder Stream).

The determination of the flood event frequencies to simultaneously occur on each watercourse at the junction or confluence, otherwise known as the "frequencies of coincidental occurrence", is based on a drainage area ratio between watersheds. For this project the North Branch Dead River, the receiving main watercourse, has a drainage area to the confluence of approximately 88 square miles. Alder Stream, the tributary watercourse, has a drainage area to the confluence of approximately 51 square miles. The area ratio 88 to 51 equals 1.7 to 1. Per FHWA publication HEC-22, Table 7-3 a project area ratio most closely associated with the project ratio is 1 to 1. The 1 to 1 ratio determination indicates utilizing like flood frequency flow rates for a given flood event. For example, considering a 50-year storm occurring over both drainage basins, the flow rate in the main watercourse will equal a 50-year peak discharge and the flow rate of the tributary watercourse will also experience a 50-year peak discharge at the confluence.

The upstream and downstream low chord elevations for the existing bridge are 1199.62 ft and 1199.75, respectively. The upstream deck thickness for the existing bridge is modeled as varying between 3.5 to 4.0 feet. The existing conditions analysis resulted in a subcritical flow regime utilizing a downstream slope of 0.0045 ft/ft, for the normal depth boundary condition. Energy method and Pressure/Weir was selected for the low flow and high flow bridge modeling approach, respectively. The resulting water surface profiles show that all flows are conveyed through the existing bridge opening with 3.1 ft. and 2.2 ft of freeboard over the 50-year and 100-year flood events, respectively.

According to coordination with the local municipality, there is no documented history of the bridge having ever been overtopped at the project location. In addition, Highway Bridge Inspection Reports made available by the Department (dated 2013 through 2017) document a rating of 9 - "bridge above flood water elevations" as the appraisal for waterway adequacy. The 2019 field survey did not include a high water stage reference point for the study bridge, nor did the bridge inspection reports indicate a high water mark. If available, this information could potentially have provided a means to calibrate the model with real world data. However, in the absence of surveyed water stage data, the existing conditions hydraulic model appears suitable in assessing the channel forming low flows (i.e. 1.1-year and 2-year) with survey channel geometry. In addition, the modeling of the smaller flood events seems consistent with local township testimony regarding annual spring flooding in the overbanks around the bridge area. The model also is consistent with the local testimony for the higher floods (i.e 50-year design and 100-year) not overtopping the roadway.

The proposed replacement structure will be located along the same horizontal alignment as the existing structure. The roadway vertical profile will be maintained to match the existing through the site. The proposed structure will be a single span, 135 ft long (bearing to bearing), 132 ft

(clear), 33.33 ft wide (out to out), and a total hydraulic opening of approximately 1333 ft^2. The superstructure will consist of 56 5/8" deep steel girders with a concrete deck and concrete wearing surface supported on integral abutments.

The low chord elevation for the proposed bridge is 1198.11 ft and 1197.58 ft at the Begin and End abutments, respectively. The proposed hydraulic model was analyzed using the same assumptions for Manning's n values, downstream boundary condition, flow regime, and bridge modeling approach as the existing hydraulic model.

The results from the proposed conditions model shows that the water surface elevations for all flow events are lower than existing conditions. The hydraulic analysis summary from the existing and proposed hydraulic models is shown on the following table.

SUMMARY

		Existing Structure	Recommended Structure
		3- Span (30'-60'-30')	Single-Span (132')
Total Area of Waterway Opening	ft^2	1290	1333
Headwater elevation @ $Q_{1.1}$	ft	1189.01	1189
Headwater elevation @ Q_{10}	ft	1194.23	1194.15
Headwater elevation @ Q_{25}	ft	1195.59	1195.45
Headwater elevation @ Q_{50}	ft	1196.51	1196.35
Headwater elevation @ Q_{100}	ft	1197.39	1197.2
Headwater elevation @ Q_{500}	ft	1199.37	1199.02
Freeboard @ Q_{50}	ft	3.1	1.2
Freeboard @ Q_{100}	ft	2.2	0.4
Flood Of Record - NA			
Outlet Velocity @ $Q_{1.1}$	ft/s	1.09	1.09
Outlet Velocity @ Q_{10}	ft/s	2.23	2.23
Outlet Velocity @ Q_{25}	ft/s	2.52	2.52
Outlet Velocity @ Q_{50}	ft/s	2.74	2.74
Outlet Velocity @ Q_{100}	ft/s	2.95	2.96
Outlet Velocity @ Q_{500}	ft/s	3.44	3.46

Reported by: Erdman Anthony

Date: March 11, 2020

Note: All elevations based on North American Vertical Datum (NAVD) of 1988.

Headwater elevation and velocity information is taken from the upstream bounding bridge cross section (Section 1403) in the hydraulic model for the existing and proposed structures. The freeboard is computed as the difference between the superstructure minimum low chord elevation at the upstream bridge opening and the computed water surface elevation at the upstream bounding hydraulic cross section (backwater elevation).

Scour

The bridge appraisal scour rating (item 113) is listed as an 8 – "stable for scour conditions" for recent bridge inspection reports dated 2013 to 2017 and there is no documented evidence of significant scour or erosion at the structure foundation. The meandering stream channel at the bridge site was re-aligned during the construction of the existing bridge. Upstream, the shape of the channel is highly meandering, and several oxbows are present within the floodplain. Streambed material is comprised primarily of sand.

A contraction scour analysis was conducted in accordance with FHWA Hydraulic Engineering Circular No. 18 (HEC-18) entitled "Evaluating Scour at Bridges" (Fifth Edition, April 2012). The study bridge is considered to occur under Case 1c contraction scour condition during flood events where overbank flow on the floodplain is forced back to the main channel by the approaches to the bridge with the abutments set back from the main stream channel. Standard contraction scour analysis is applicable to most of the flood event flows which occur with the water surface elevation below the bridge low chord in a non-submergence condition. The submergence of the low chord by 500-year flood event dictates a pressure scour analysis for this event only.

Local scour calculations for the abutments are not developed due to the proposed use of properly designed plain riprap countermeasure protection (in accordance with MaineDOT Bridge Design Manual Section 2.3.11.3) at the bridge, negating the need to compute local scour depths. Riprap will protect the streambanks below the bridge including the large mammal path. In addition, stone fill aprons will extend to protect the roadway embankments primarily at the northwest corner due to existing erosion, but also at the other three corners. Supplementing the riprap, the retained buried existing piers will provide additional scour protection.

An assumed D_{50} value of 1 mm, based on foundation investigations, was used for the analysis. This value was obtained from site borings and is considered conservative for use in the analysis. D_{50} classification from foundation boring data is not ideal for scour analysis in that it is not necessarily representative of typical undisturbed streambed material but is utilized in this analysis as "best available information". Analysis of the critical velocities indicate clear water scour is anticipated for the overbank (abutment) areas and live-bed scour for the channel area

based on the assumed D_{50} for each flow event. A summary of computed potential scour depth is presented in the following table.

Summary of Contraction/Pressure Scour Potential

Alder Stream			
Return Period	Left Set-back Overbank (ft.)	Channel (ft.)	Right Set-back Overbank (ft.)
10-yr	0	5.9	0
50-yr	0	7.5	0
100-yr	0	8.0	0
500-yr	0.1	14.0	1.8

Appendix E

Hydraulics Data

https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

Search...

FEMA's National Flood Haz...

Free Hotmail | Google | Suggested Sites | Using HEC-RAS models w... | Web Slice Gallery

FEMA's National Flood Hazard Layer (NFHL) Viewer

with Web AppBuilder for ArcGIS

nd, Town of Jim Pond, ME, USA

Show search results for **Jim Pond, To...**

Legend

Effective FIRM Panels

GeoIndex

- No Digital Data Available
- Digital Data Available
- Unmapped

NFHL

LOMRs

- Effective

River Mile Markers

Cross-Sections

Coastal Transects

Base Flood Elevations

Profile Baselines

Transect Baselines

Limit of Moderate Wave Action

Political Jurisdictions

Levees

600ft

-70.549 45.260 Degrees

USGS The National

WIN:	23104.00	**Project Name:**	Jim Pond Twp., Alder Stream Bridge #3265
Town:	Jim Pond Twp	**Stream Name:**	Alder Stream
Route No.	ME 27	**Bridge Name:**	Alder Stream Birdge
Asset ID:	3265	**Analysis by:**	meg
Lat:	45.25421 **Long:** -70.547	**Date:**	6/10/2019

Peak Flow Calculations by USGS Regression Equations (Hodgkins, 1999 & Lombard/Hodgkins, 2015)

Enter data in blue cells only!

ver. 2018 Jul 09

	km²	mi²	ac	*Enter data in [mi²]*
A	133.13	51.40	32896.0	Watershed Area *DRNAREA*
W	7.20	2.8	1779.7	Wetlands area (by NWI)
P_c	369447.2	5010547		watershed centroid (E, N; UTM 19N; meters)
County	Franklin			*choose county from drop-down menu*
pptA				mean annual precipitation (inches; by look-up)
A (km²)	133.13	**Conf Lvl**	0.67	
W (%)	5.41			NWI Wetlands % *STORNWI*

Worksheet prepared by:
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Environmental Office
Maine Dept. Transportation
Augusta, ME 04333-0016
207-557-1052
Charles.Hebson@maine.gov

References:

Hodgkins, G.A., 1999.
Estimating the magnitude of peak flows for streams in Maine for selected recurrence intervals
WRIR 99-4008, USGS Augusta, ME

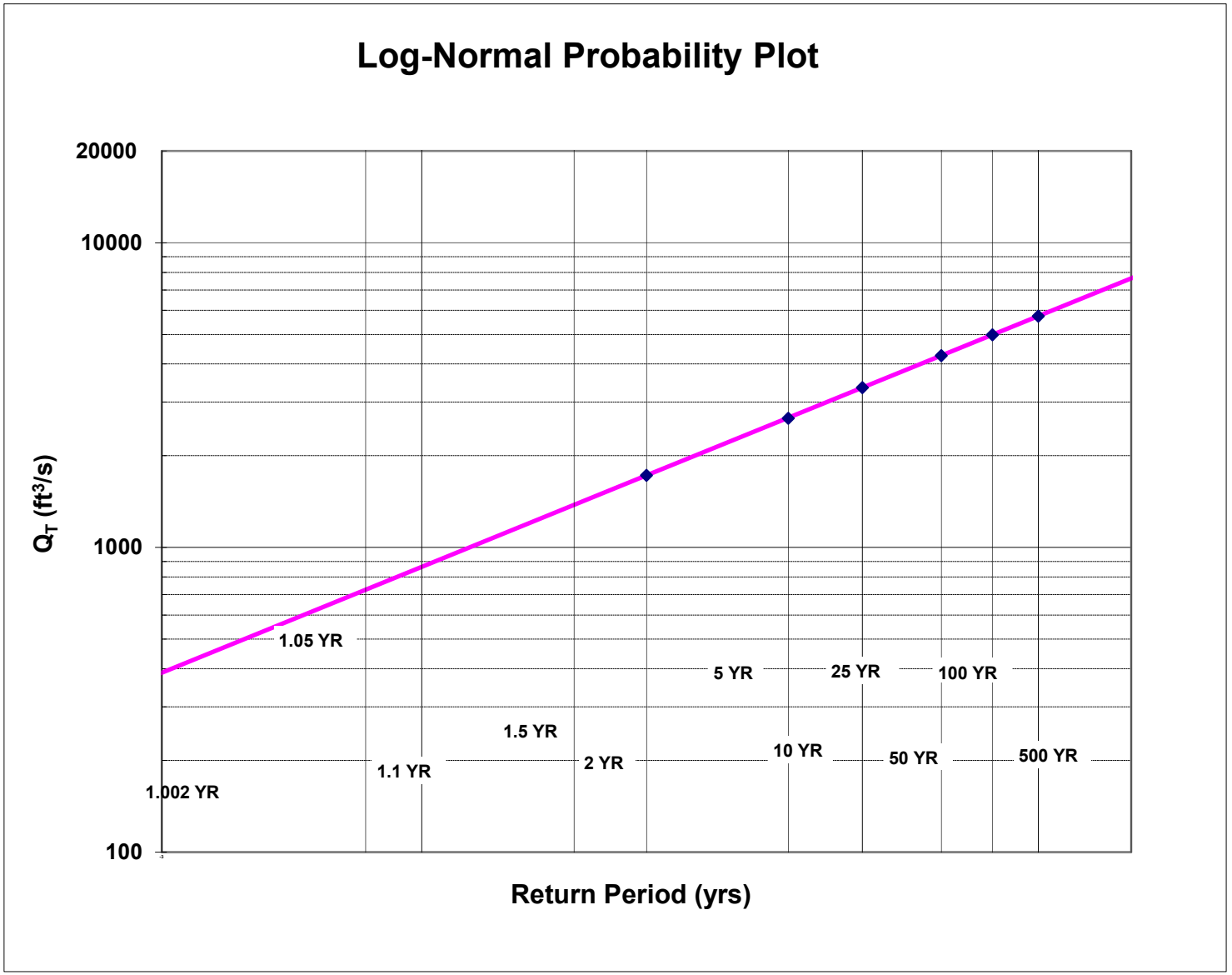
Watershed Characteristics for Monthly & Daily Flows

EAVG	2070.8	mean basin elevation (ft)
SLOPE	17.2	mean basin slope (%)
EMAX	3967.3	maximum basin elevation (ft)
WATER	0.24	percent of drainage basin land cover classified as open water
PRECIP	47.1	mean annual precipitation
SG	0.42	sand & gravel aquifer as decimal fraction of watershed A
HGA	4.29	mean basin percentage of hydrological soil group A
DIST	138.00	distance from the coast (mi)

Ret Pd T (yr)	Peak Flow Estimate Lower	Q_T (m³/s)	Upper	Q_T (ft³/s)
1.1		24.47		864.1
2	34.99	48.85	68.20	1724.9
5	53.69	75.26	105.50	2657.4
10	67.05	94.85	134.16	3349.0
25	84.28	120.85	173.29	4267.2
50	97.40	141.27	204.89	4988.2
100	110.99	162.88	239.04	5751.3
500	143.13	216.74	0.00	7653.1

Lombard, P.J. & G.A. Hodgkins, 2015.
Peak flow regression equations for small, ungaged streams in Maine - Comparing map-based to field-based variables
SIR 2015-4059, USGS, Augusta, ME

$Q_T = b \times A^a \times 10^{-wW}$


Log-Normal Probability Plot
20000
10000
1000
100
Q_T (ft^3/s)
1.05 YR
1.1 YR
1.5 YR
2 YR
5 YR
10 YR
25 YR
50 YR
100 YR
500 YR
1.002 YR
Return Period (yrs)

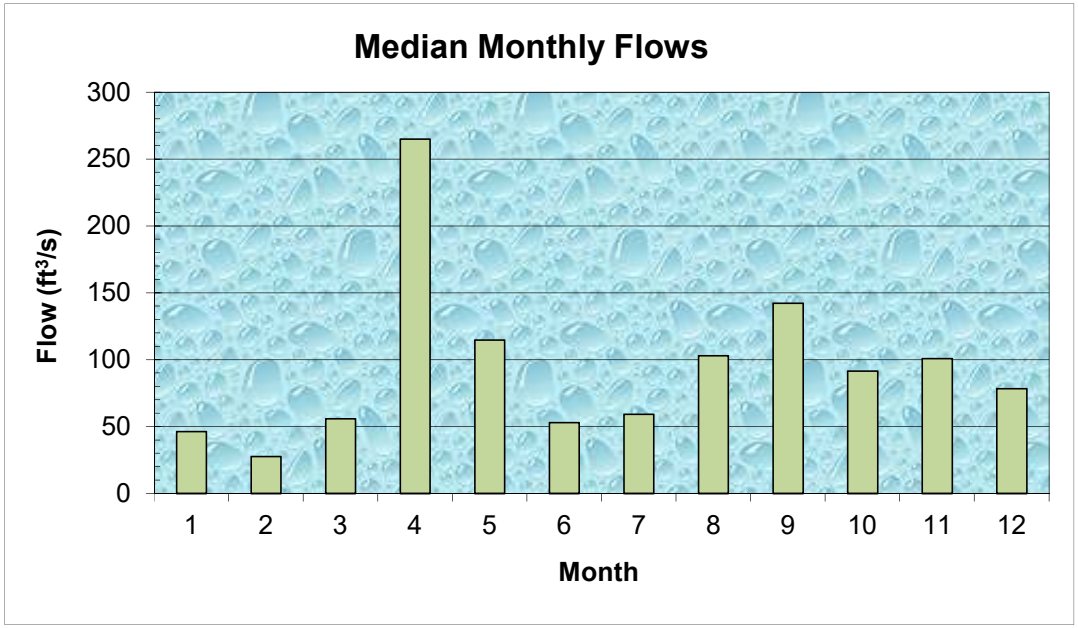
WIN:	23104.00	**Project Name:**	Jim Pond Twp., Alder Stream Bridge #3265
Town:	Jim Pond Twp	**Stream Name:**	Alder Stream
Route No.	ME 27	**Bridge Name:**	Alder Stream Birdge
Asset ID:	3265	**Analysis by:**	meg
Lat:	45.25421 **Long:** -70.54702	**Date:**	6/10/2019

DO NOT ENTER ANY DATA ON THIS PAGE; EVERYTHING IS CALCULATED

MAINE MONTHLY MEDIAN FLOWS and HYDRAULIC GEOMETRY BY USGS REGRESSION EQUATIONS (2004, 2013, 2015)

	Value	Variable	Explanation
	51.40	*A*	Area (mi^2)
369447.2	5010547	P_c	Watershed centroid (E,N; UTM; Zone 19; meters)
	137.06	*DIST*	Distance from Coastal reference line (mi)
	47.1	*pptA*	Mean Annual Precipitation (inches)
	0.00	*SG*	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q_{median} (ft3/s)	(m^3/s)
Jan	**46.36**	1.3139
Feb	**27.77**	0.7870
Mar	**55.85**	1.5828
Apr	**265.06**	7.5115
May	**114.82**	3.2539
Jun	**53.14**	1.5059
Jul	**59.20**	1.6777
Aug	**103.08**	2.9211
Sep	**142.19**	4.0295
Oct	**91.58**	2.5953
Nov	**100.88**	2.8587
Dec	**78.30**	2.2190



Q_{bf}	**324.8**	
ann avg	**169.1**	
ann med	**116.2**	
$Q_{1.002}$	**388.4**	
$Q_{1.01}$	**516.0**	
$Q_{1.05}$	**726.8**	
Q_{bf}	**522.1**	assume v = 4ft/s

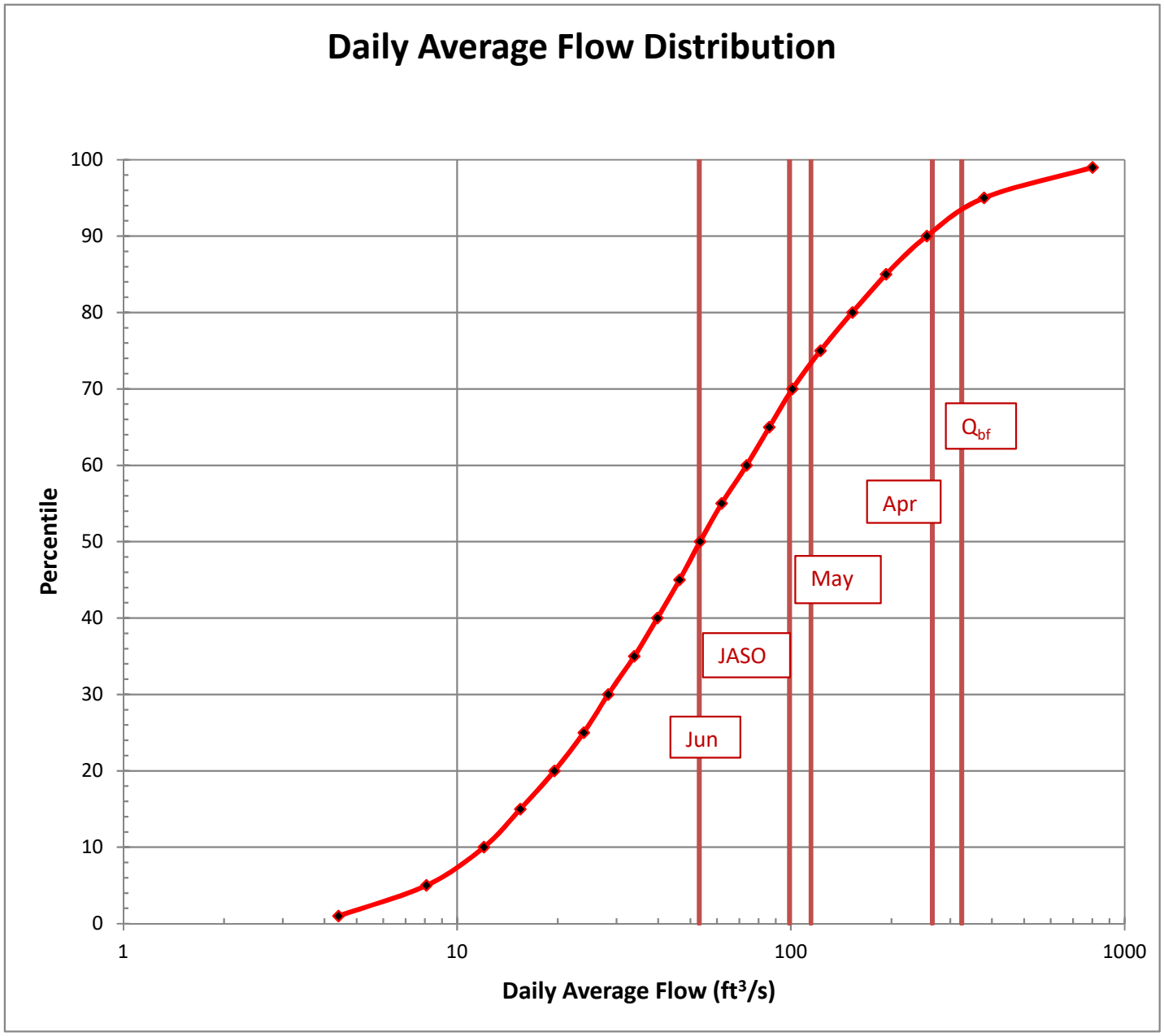
W_{bf}	**57.6**	estimated bankfull width (ft)
d_{bf}	**2.3**	estimated bankfull depth (ft)
A_{bf}	**134.7**	estimated bankfull flow area (ft^2)

References

Dudley, R.W., 2013. FY2013 Progress Report - Phase 1 …, USFWS QRP Project

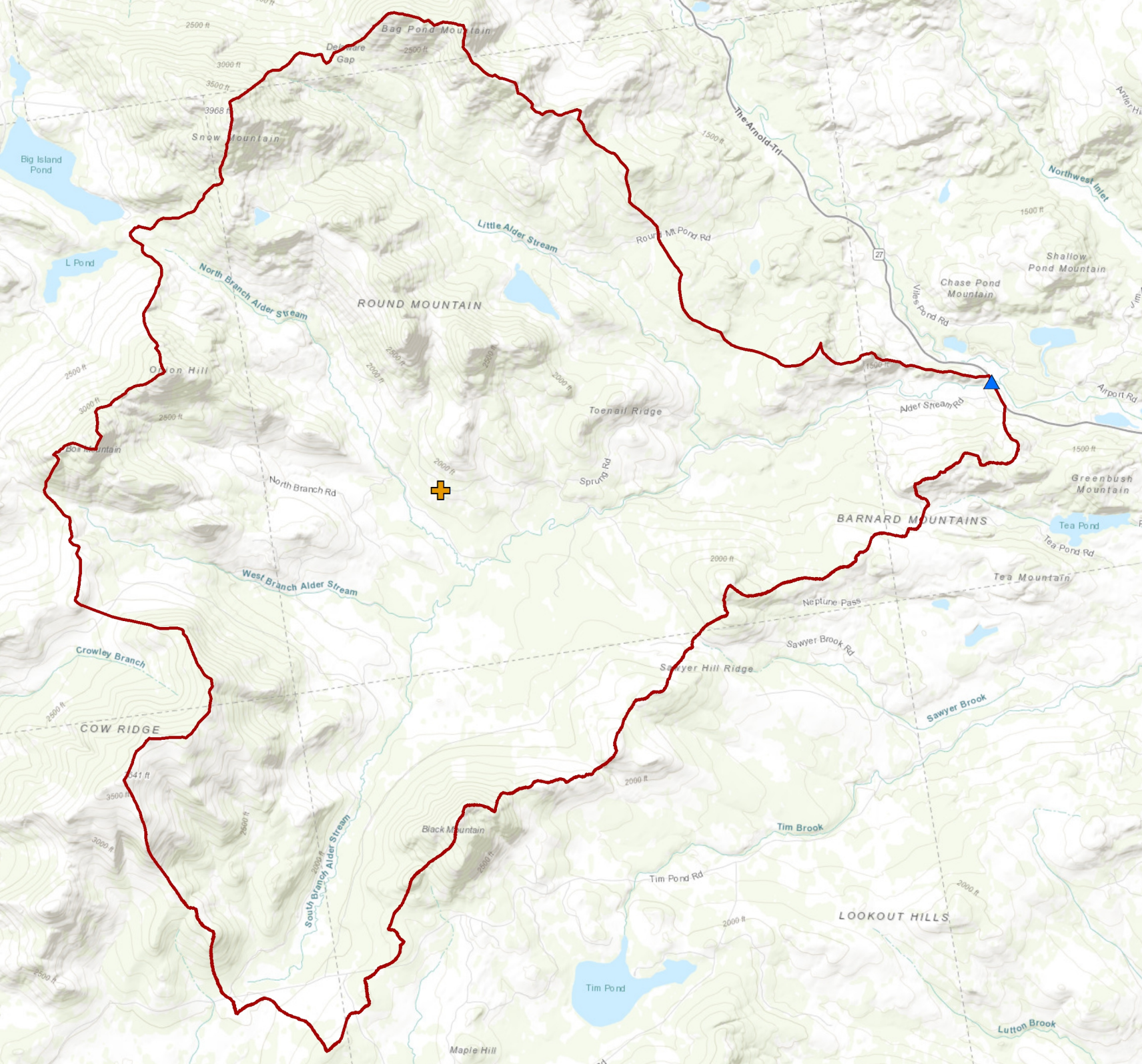
Dudley, R.W., 2004. Estimating Monthly Streamflows … , SIR 2004-5026

Dudley, R.W., 2015. Regression Equations for Monthly and Annual Mean..., USGS SIR 2015-5151



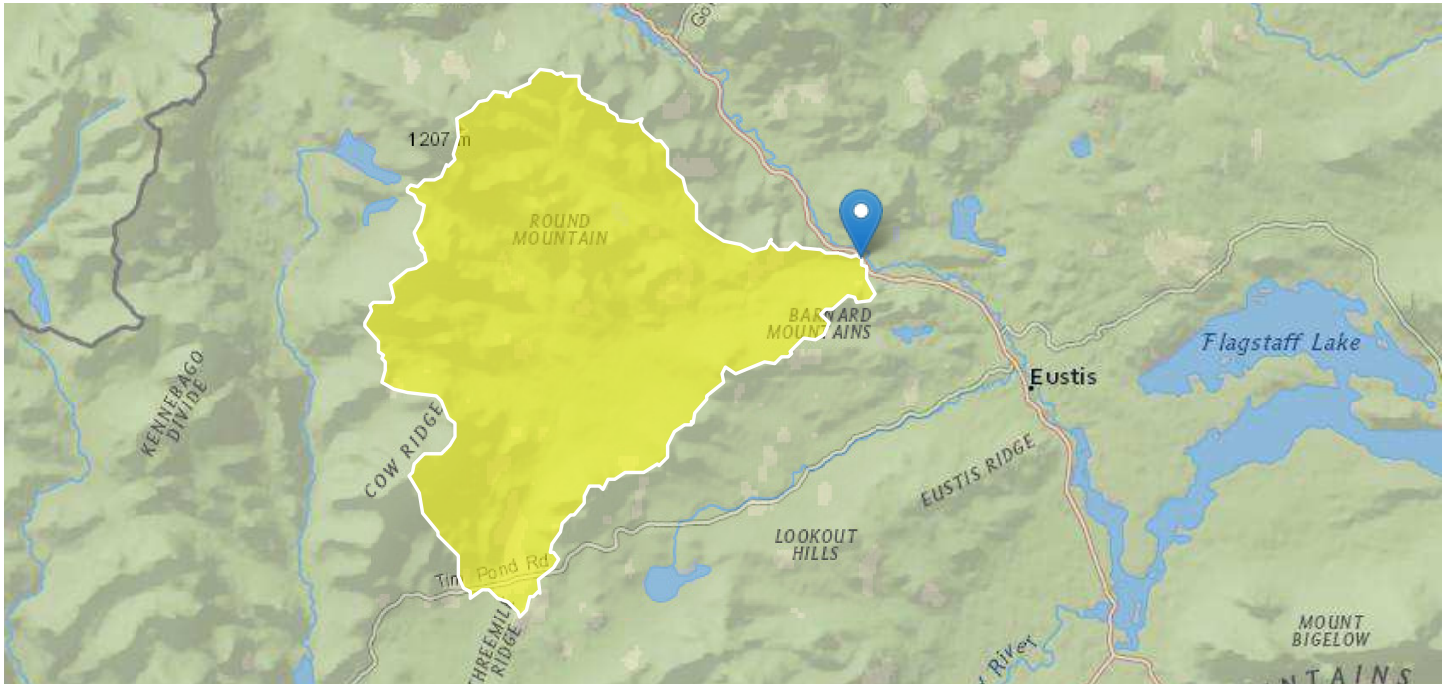
Daily Avg Flow Dist		
A_{ws} = (mi^2)		51.4
Q (ft^3/s)		
Pctl	**Median**	**84th pctl**
1	4.41	7.80
5	8.09	13.02
10	12.02	18.07
15	15.45	22.56
20	19.56	27.36
25	23.93	32.07
30	28.32	36.53
35	33.93	41.75
40	39.79	48.01
45	46.38	54.29
50	53.39	64.09
55	62.00	74.60
60	73.64	87.57
65	86.15	102.02
70	101.05	119.02
75	122.50	143.13
80	152.77	170.89
85	192.76	218.99
90	255.35	294.06
95	378.96	457.29
99	801.36	1055.02

Q_{bf}	324.8
$Q_{1.002}$	388.4
$Q_{1.1}$	864.1
Q_2	1724.9


Bag Pond Mountain
Delaware Gap
Snow Mountain
Big Island Pond
L Pond
The Arnold Trl
Northwest Inlet
Little Alder Stream
Round Mt Pond Rd
North Branch Alder Stream
ROUND MOUNTAIN
Shallow Pond Mountain
Chase Pond Mountain
Viles Pond Rd
Airport Rd
Alder Stream Rd
Toenail Ridge
Sprung Rd
North Branch Rd
Greenbush Mountain
BARNARD MOUNTAINS
Tea Pond
Tea Pond Rd
Tea Mountain
West Branch Alder Stream
Neptune Pass
Sawyer Brook Rd
Sawyer Hill Ridge
Sawyer Brook
Crowley Branch
COW RIDGE
Black Mountain
South Branch Alder Stream
Tim Brook
Tim Pond Rd
LOOKOUT HILLS
Tim Pond
Lutton Brook
Maple Hill

StreamStats Report-Jim Pond Twp 23104.00

Region ID: ME
Workspace ID: ME20190610132511142000
Clicked Point (Latitude, Longitude): 45.25418, -70.54695
Time: 2019-06-10 09:25:30 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	51.4	square miles
STORNWI	Percentage of storage (combined water bodies and wetlands) from the National Wetlands Inventory	5.41	percent
BSLDEM10M	Mean basin slope computed from 10 m DEM	17.2	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	369447.16	feet
CENTROIDY	Basin centroid vertical (y) location in state plane units	5010546.99	feet
COASTDIST	Shortest distance from the coastline to the basin centroid	138	miles

Parameter Code	Parameter Description	Value	Unit
ELEV	Mean Basin Elevation	2070.8	feet
ELEVMAX	Maximum basin elevation	3967.3	feet
LC06WATER	Percent of open water, class 11, from NLCD 2006	0.24	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	0.0877	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.012	percent
PRECIP	Mean Annual Precipitation	47.1	inches
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0.004	dimensionless
SANDGRAVAP	Percentage of land surface underlain by sand and gravel aquifers	0.42	percent
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	4.29	percent

Bankfull Statistics Parameters[10 Percent (5.09 square miles) Central and Coastal Bankfull 2004 5042]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.4	square miles	2.92	298

Bankfull Statistics Disclaimers[10 Percent (5.09 square miles) Central and Coastal Bankfull 2004 5042]

Weighted flows were not calculated. Users should be careful to evaluate the applicability of the provided estimates. Percentage of area falls outside where region is undefined. Whole estimates have been provided using available regional equations.

Bankfull Statistics Flow Report[10 Percent (5.09 square miles) Central and Coastal Bankfull 2004 5042]

Statistic	Value	Unit
Bankfull Streamflow	325	ft^3/s
Bankfull Width	59.5	ft
Bankfull Depth	2.27	ft
Bankfull Area	135	ft^2

Bankfull Statistics Citations

Dudley, R.W.,2004, Hydraulic-Geometry Relations for Rivers in Coastal and Central Maine: U.S. Geological Survey Scientific Investigations Report 2004-5042, 30 p (http://pubs.usgs.gov/sir/2004/5042/pdf/sir2004-5042.pdf)

Peak-Flow Statistics Parameters[Statewide Peak Flow Full GT 12sqmi WRI 99 4008]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.4	square miles	0.93	1653
STORNWI	Percentage of Storage from NWI	5.41	percent	0.7	26.7

Peak-Flow Statistics Flow Report[Statewide Peak Flow Full GT 12sqmi WRI 99 4008]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	1720	ft^3/s	965	3080	35.1	35.1	1.8
5 Year Peak Flood	2660	ft^3/s	1470	4790	36.1	36.1	2.5
10 Year Peak Flood	3350	ft^3/s	1830	6130	36.8	36.8	3.2
25 Year Peak Flood	4270	ft^3/s	2270	8010	38.6	38.6	4.1
50 Year Peak Flood	4990	ft^3/s	2610	9550	39.9	39.9	4.8
100 Year Peak Flood	5750	ft^3/s	2940	11200	41.2	41.2	5.4
500 Year Peak Flood	7650	ft^3/s	3700	15800	44.9	44.9	6.4

Peak-Flow Statistics Citations

Hodgkins, G. A.,1999, Estimating the Magnitude of Peak Flows for Streams in Maine for Selected Recurrence Intervals: U.S. Geological Survey Water-Resources Investigations Report 99-4008, 45 p. (http://me.water.usgs.gov/99-4008.pdf)

Annual Flow Statistics Parameters[Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.4	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.004	dimensionless	0	0.212
ELEV	Mean Basin Elevation	2070.8	feet	239	2120

Annual Flow Statistics Flow Report[Statewide Annual SIR 2015 5151]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp

Statistic	Value	Unit	SEp
Mean Annual Flow	133	ft^3/s	16

Annual Flow Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Application Version: 4.3.1

WIN:	23104.00	**Project Name:**	
Town:	Jim Pond	**Stream Name:**	N Br Dead R just abive Alder Str
Route No.	ME-27	**Bridge Name:**	Alder Stream Bridge
Asset ID:	3265	**Analysis by:**	CSH
Lat:	45.35432 **Long:** 70.54525	**Date:**	1/27/2020

Peak Flow Calculations by USGS Regression Equations (Hodgkins, 1999 & Lombard/Hodgkins, 2015)

NOTE: This is NOT project location; this is N Br Dead Rvr just above jct with Alder Stream

Enter data in blue cells only!

ver. 2018 Jul 09

	km^2	mi^2	ac	***Enter data in [mi^2]***
A	227.66	87.90	56256.0	Watershed Area *DRNAREA*
W	16.71	6.5	4129.2	Wetlands area (by NWI)
P_c	367088	5022212		watershed centroid (E, N; UTM 19N; meters)
County	Franklin			*choose county from drop-down menu*
pptA				mean annual precipitation (inches; by look-up)
A (km^2)	227.66	**Conf Lvl**	0.67	
W (%)	7.34			NWI Wetlands % *STORNWI*

Worksheet prepared by:
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Maine Dept. Transportation
Augusta, ME 04333-0016
207-557-1052
Charles.Hebson@maine.gov

References:

Hodgkins, G.A., 1999.
Estimating the magnitude of peak flows for streams in Maine for selected recurrence intervals
WRIR 99-4008, USGS Augusta, ME

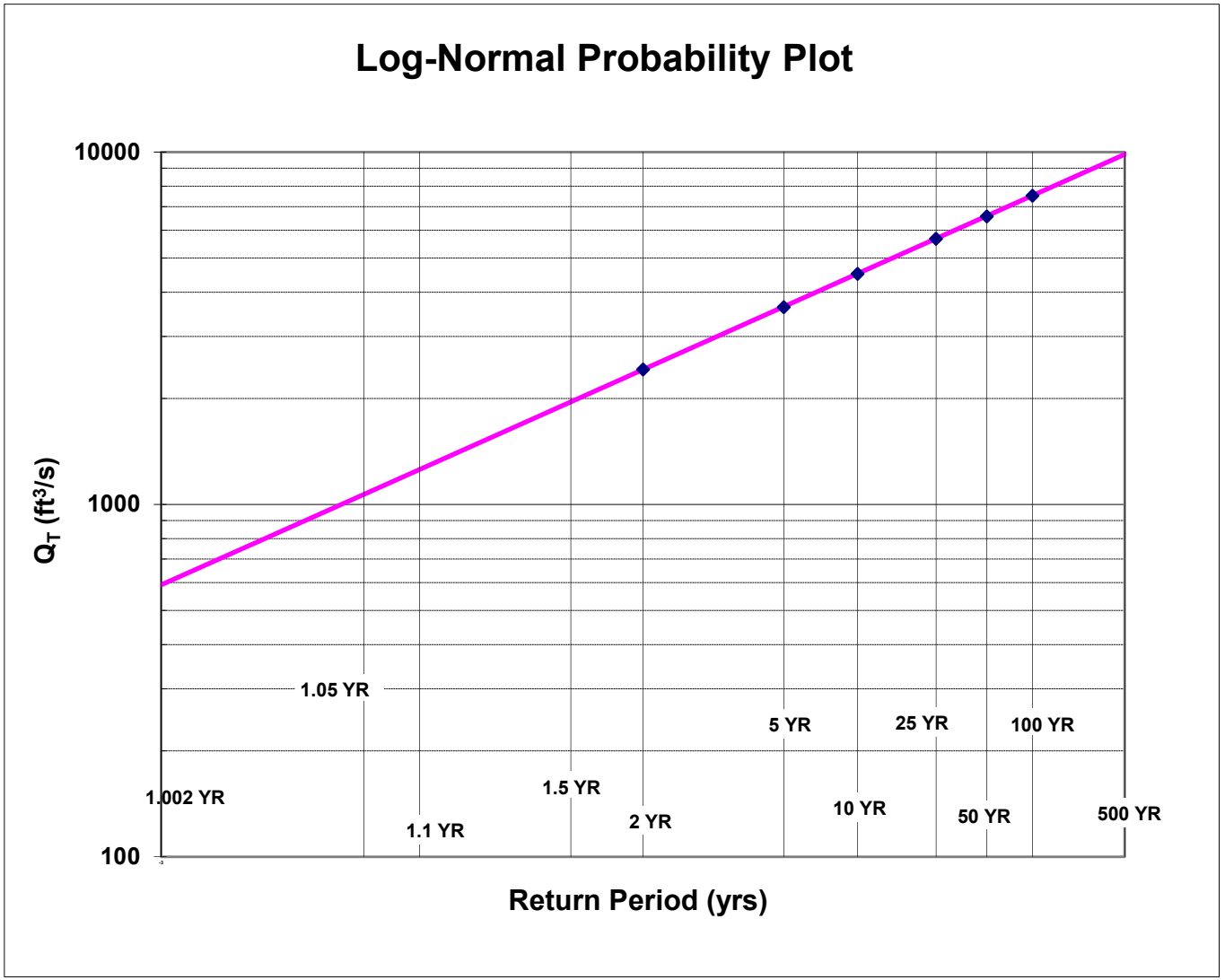
Watershed Characteristics for Monthly & Daily Flows

EAVG	1843	mean basin elevation (ft)
SLOPE	16.4	mean basin slope (%)
EMAX	3848.5	maximum basin elevation (ft)
WATER	2.49	percent of drainage basin land cover classified as open water
PRECIP	44.9	mean annual precipitation
SG	0.10	sand & gravel aquifer as decimal fraction of watershed A
HGA	9.13	mean basin percentage of hydrological soil group A
DIST	145.00	distance from the coast (mi)

Ret Pd T (yr)	**Peak Flow Estimate Lower**	**Q_T (m^3/s)**	**Upper**	**Q_T (ft^3/s)**
1.1		35.62		1257.9
2		68.41		2415.7
5		102.82		3630.5
10		127.92		4516.8
25		160.74		5675.7
50		186.23		6575.7
100		213.12		7525.1
500		279.27		9861.0

Lombard, P.J. & G.A. Hodgkins, 2015.
Peak flow regression equations for small, ungaged streams in Maine - Comparing map-based to field-based variables
SIR 2015-4059, USGS, Augusta, ME

$Q_T = b \times A^a \times 10^{-wW}$


Log-Normal Probability Plot
10000
1000
100
Q_T (ft³/s)
1.05 YR
5 YR
25 YR
100 YR
1.002 YR
1.5 YR
10 YR
1.1 YR
2 YR
50 YR
500 YR
Return Period (yrs)

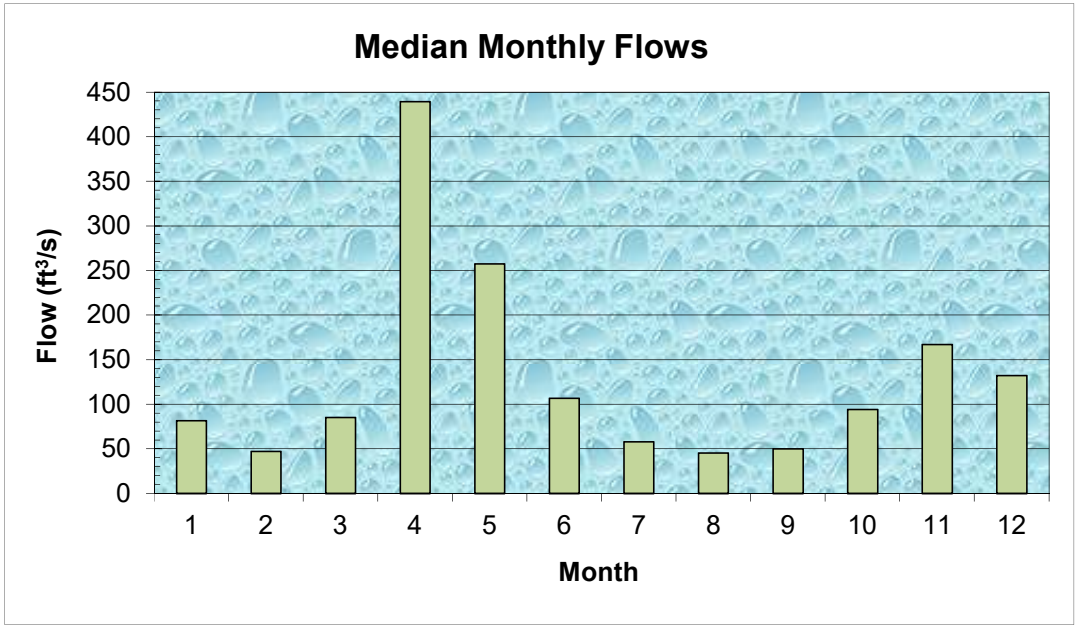
WIN:	23104.00	**Project Name:**	0
Town:	Jim Pond	**Stream Name:**	N Br Dead R just abive Alder Str
Route No.	ME-27	**Bridge Name:**	Alder Stream Bridge
Asset ID:	3265	**Analysis by:**	CSH
Lat:	45.35432 **Long:** 70.54525	**Date:**	1/27/2020

DO NOT ENTER ANY DATA ON THIS PAGE; EVERYTHING IS CALCULATED

MAINE MONTHLY MEDIAN FLOWS and HYDRAULIC GEOMETRY BY USGS REGRESSION EQUATIONS (2004, 2013, 2015)

	Value	Variable	Explanation
	87.90	*A*	Area (mi^2)
367088	5022212	P_c	Watershed centroid (E,N; UTM; Zone 19; meters)
	145.00	*DIST*	Distance from Coastal reference line (mi)
	44.9	*pptA*	Mean Annual Precipitation (inches)
	0.00	*SG*	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q_{median} (ft3/s)	(m^3/s)
Jan	**81.62**	2.3130
Feb	**47.24**	1.3387
Mar	**85.38**	2.4195
Apr	**439.29**	12.4490
May	**257.62**	7.3005
Jun	**106.67**	3.0229
Jul	**57.93**	1.6417
Aug	**45.37**	1.2856
Sep	**50.29**	1.4251
Oct	**94.15**	2.6680
Nov	**167.26**	4.7399
Dec	**132.45**	3.7534



Q_{bf}	**570.6**	
ann avg	**227.2**	
ann med	**113.5**	
$Q_{1.002}$	**591.2**	
$Q_{1.01}$	**773.0**	
$Q_{1.05}$	**1068.2**	
Q_{bf}	**789.2**	assume v = 4ft/s

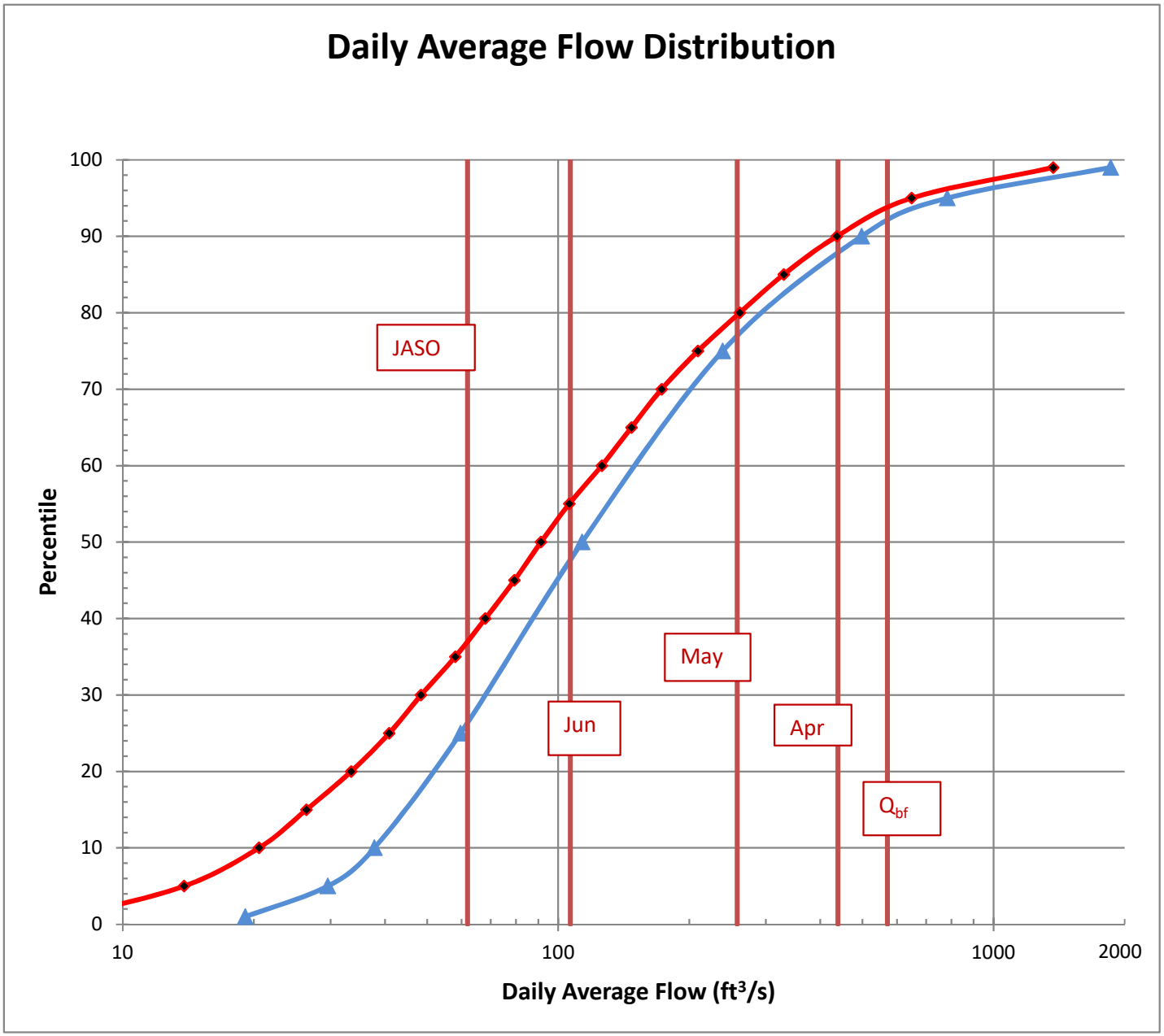
W_{bf}	**72.5**	estimated bankfull width (ft)
d_{bf}	**2.7**	estimated bankfull depth (ft)
A_{bf}	**213.7**	estimated bankfull flow area (ft^2)

References

Dudley, R.W., 2013. FY2013 Progress Report - Phase 1 …, USFWS QRP Project

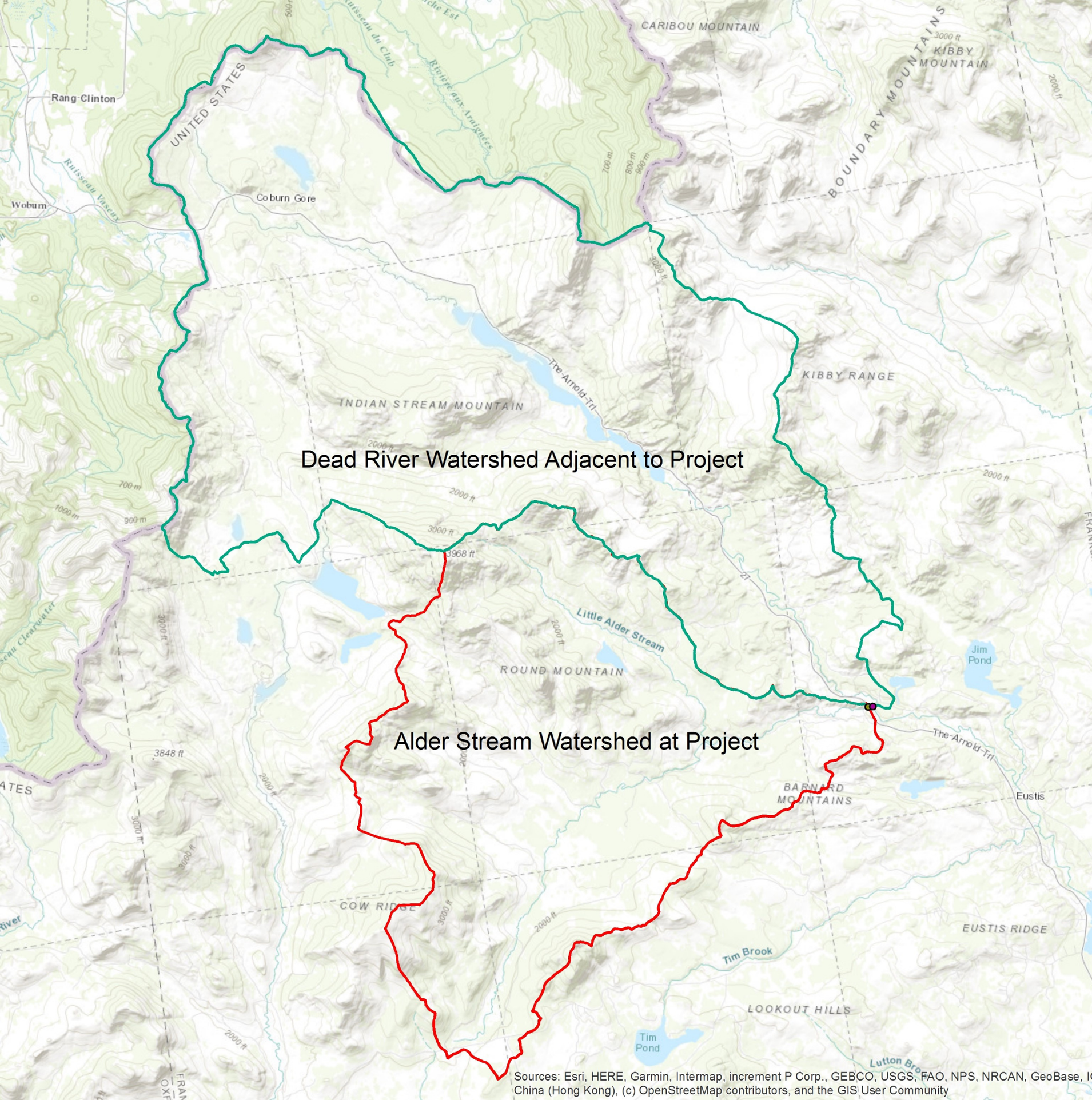
Dudley, R.W., 2004. Estimating Monthly Streamflows … , SIR 2004-5026

Dudley, R.W., 2015. Regression Equations for Monthly and Annual Mean..., USGS SIR 2015-5151



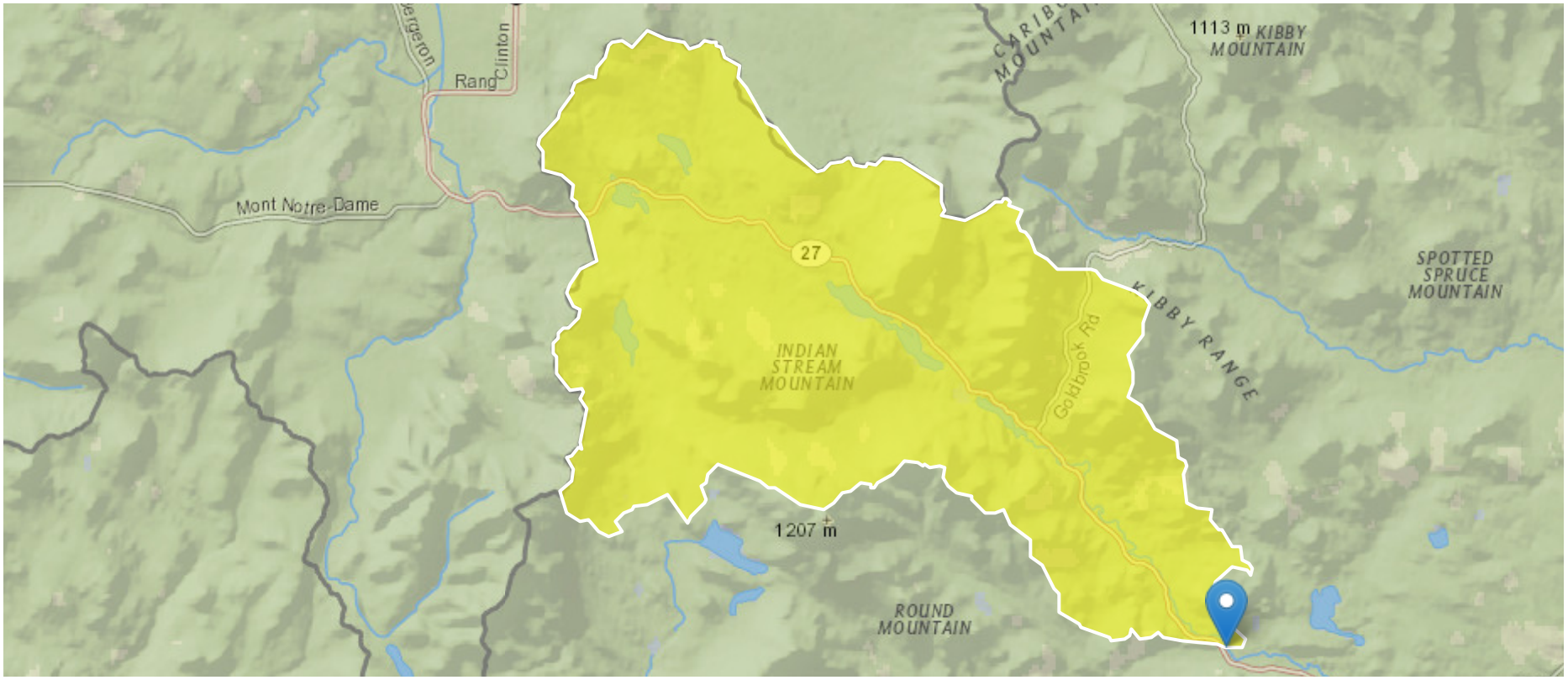
Daily Avg Flow Dist		
A_{ws} = (mi^2)		87.9
Q (ft^3/s)		
Pctl	Median	84th pctl
1	7.53	13.34
5	13.84	22.27
10	20.55	30.90
15	26.42	38.59
20	33.45	46.79
25	40.93	54.85
30	48.43	62.47
35	58.02	71.40
40	68.04	82.11
45	79.31	92.84
50	91.31	109.60
55	106.03	127.57
60	125.93	149.75
65	147.32	174.46
70	172.81	203.54
75	209.49	244.77
80	261.26	292.24
85	329.65	374.50
90	436.67	502.88
95	648.06	782.02
99	1370.42	1804.21

Q_{bf}	570.6
$Q_{1.002}$	591.2
$Q_{1.1}$	1257.9
Q_2	2415.7


Dead River Watershed Adjacent to Project
Alder Stream Watershed at Project
CARIBOU MOUNTAIN
KIBBY MOUNTAIN
BOUNDARY MOUNTAINS
KIBBY RANGE
INDIAN STREAM MOUNTAIN
ROUND MOUNTAIN
BARNARD MOUNTAINS
COW RIDGE
EUSTIS RIDGE
LOOKOUT HILLS
UNITED STATES
Rang Clinton
Woburn
Coburn Gore
The Arnold Trl
Little Alder Stream
Tim Brook
Jim Pond
Tim Pond
Eustis
3968 ft
3848 ft
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase,
China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Jim Pond 23104 N Br Dead Rvr just above Alder Jct

Region ID: ME
Workspace ID: ME20200127200436291000
Clicked Point (Latitude, Longitude): 45.25432, -70.54525
Time: 2020-01-27 15:04:54 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	87.9	square miles
STORNWI	Percentage of storage (combined water bodies and wetlands) from the National Wetlands Inventory	7.34	percent
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0.102	dimensionless
ELEV	Mean Basin Elevation	1843.2	feet
BSLDEM10M	Mean basin slope computed from 10 m DEM	16.4	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	367088.21	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	5022212.03	meters
COASTDIST	Shortest distance from the coastline to the basin centroid	145	miles
ELEVMAX	Maximum basin elevation	3848.5	feet
LC06WATER	Percent of open water, class 11, from NLCD 2006	2.49	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	1.8	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.37	percent
PRECIP	Mean Annual Precipitation	44.9	inches
SANDGRAVAP	Percentage of land surface underlain by sand and gravel aquifers	10.19	percent
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	9.13	percent

Peak-Flow Statistics Parameters[100 Percent (87.8 square miles) Statewide Peak Flow Full GT 12sqmi WRI 99 4008]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	87.9	square miles	0.93	1653

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
STORNWI	Percentage of Storage from NWI	7.34	percent	0.7	26.7

Peak-Flow Statistics Flow Report[100 Percent (87.8 square miles) Statewide Peak Flow Full GT 12sqmi WRI 99 4008]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	2420	ft^3/s	1350	4310	35.1	35.1	1.8
5 Year Peak Flood	3630	ft^3/s	2010	6540	36.1	36.1	2.5
10 Year Peak Flood	4520	ft^3/s	2470	8260	36.8	36.8	3.2
25 Year Peak Flood	5680	ft^3/s	3030	10600	38.6	38.6	4.1
50 Year Peak Flood	6580	ft^3/s	3440	12600	39.9	39.9	4.8
100 Year Peak Flood	7530	ft^3/s	3860	14700	41.2	41.2	5.4
500 Year Peak Flood	9860	ft^3/s	4780	20300	44.9	44.9	6.4

Peak-Flow Statistics Citations

Hodgkins, G. A.,1999, Estimating the Magnitude of Peak Flows for Streams in Maine for Selected Recurrence Intervals: U.S. Geological Survey Water-Resources Investigations Report 99-4008, 45 p. (http://me.water.usgs.gov/99-4008.pdf)

Flow-Duration Statistics Parameters[100 Percent (87.8 square miles) Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	87.9	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.102	dimensionless	0	0.212
ELEV	Mean Basin Elevation	1843.2	feet	239	2120

Flow-Duration Statistics Flow Report[100 Percent (87.8 square miles) Statewide Annual SIR 2015 5151]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
1 Percent Duration	19.1	ft^3/s	144
5 Percent Duration	29.6	ft^3/s	62
10 Percent Duration	37.8	ft^3/s	41
25 Percent Duration	59.7	ft^3/s	22
50 Percent Duration	113	ft^3/s	20
75 Percent Duration	239	ft^3/s	17
90 Percent Duration	497	ft^3/s	17
95 Percent Duration	782	ft^3/s	18
99 Percent Duration	1860	ft^3/s	29

Flow-Duration Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Annual Flow Statistics Parameters[100 Percent (87.8 square miles) Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	87.9	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.102	dimensionless	0	0.212
ELEV	Mean Basin Elevation	1843.2	feet	239	2120

Annual Flow Statistics Flow Report[100 Percent (87.8 square miles) Statewide Annual SIR 2015 5151]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
Mean Annual Flow	227	ft^3/s	16

Annual Flow Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Application Version: 4.3.11

WIN:	23104.00	**Project Name:**	Jim Pond Twp., Alder Stream Bridge #3265
Town:	Jim Pond Twp	**Stream Name:**	Alder Stream
Route No.	ME 27	**Bridge Name:**	Alder Stream Birdge
Asset ID:	3265	**Analysis by:**	meg
Lat:	45.25421 **Long:** -70.547	**Date:**	6/10/2019

NOTE: this is at Alder - Dead Jct DS of project, to set model boundary conditions

Peak Flow Calculations by USGS Regression Equations (Hodgkins, 1999 & Lombard/Hodgkins, 2015)

Enter data in blue cells only!

ver. 2018 Jul 09

	km^2	mi^2	ac	***Enter data in [mi^2]***
A	360.79	139.30	89152.0	Watershed Area *DRNAREA*
W	23.92	9.2	5910.8	Wetlands area (by NWI)
P_c	367960	5017905		watershed centroid (E, N; UTM 19N; meters)
County	Franklin			*choose county from drop-down menu*
pptA				mean annual precipitation (inches; by look-up)
A (km^2)	360.79	**Conf Lvl**	0.67	
W (%)	6.63			NWI Wetlands % *STORNWI*

Worksheet prepared by:
Charles S. Hebson, PE
Environmental Office
Maine Dept. Transportation
Augusta, ME 04333-0016
207-557-1052
Charles.Hebson@maine.gov

References:

Hodgkins, G.A., 1999.
Estimating the magnitude of peak flows for streams in Maine for selected recurrence intervals
WRIR 99-4008, USGS Augusta, ME

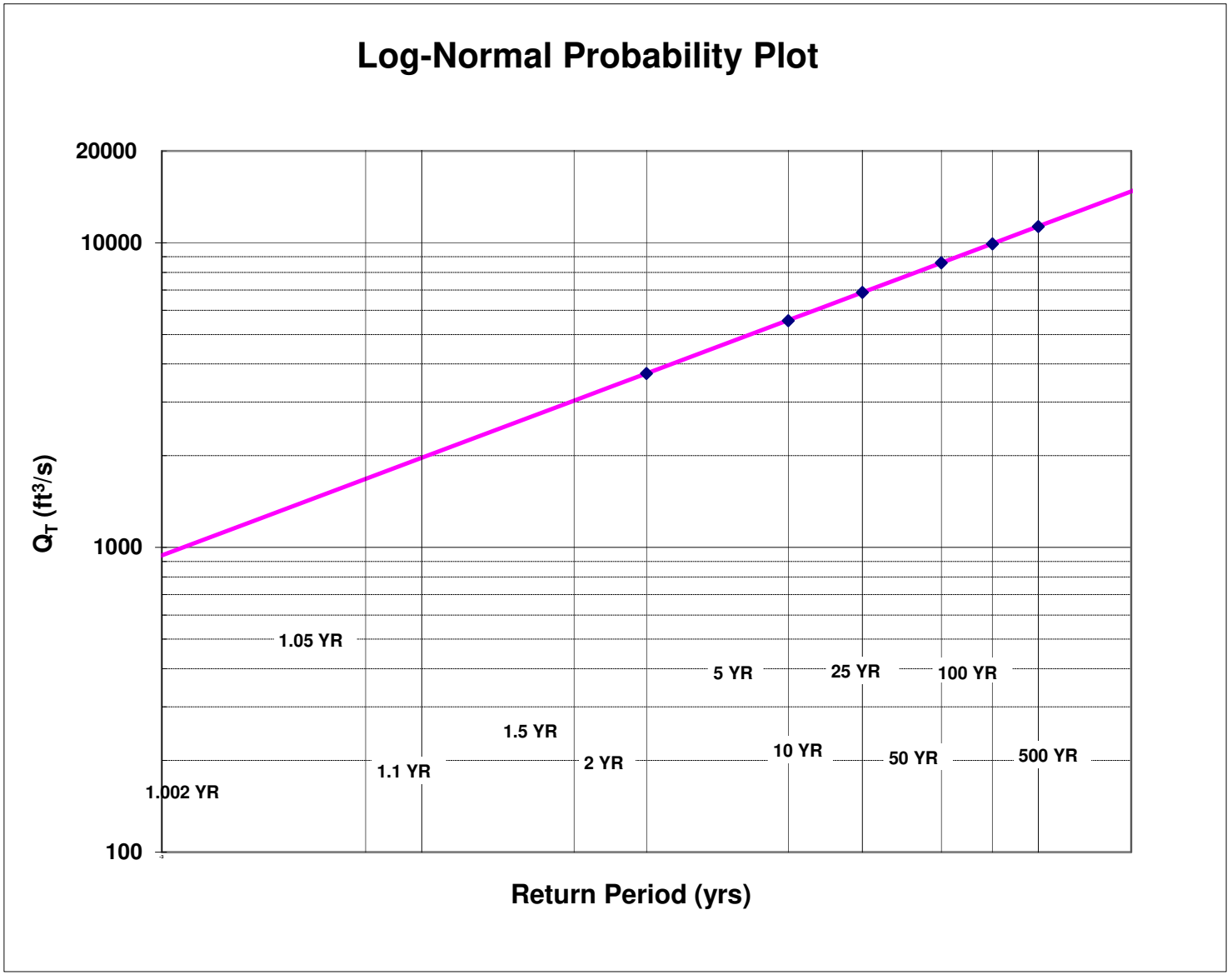
Watershed Characteristics for Monthly & Daily Flows

EAVG	1927	mean basin elevation (ft)
SLOPE	16.7	mean basin slope (%)
EMAX	3967.3	maximum basin elevation (ft)
WATER	1.66	percent of drainage basin land cover classified as open water
PRECIP	45.7	mean annual precipitation
SG	0.07	sand & gravel aquifer as decimal fraction of watershed A
HGA	7.34	mean basin percentage of hydrological soil group A
DIST	143.00	distance from the coast (mi)

Ret Pd T (yr)	**Peak Flow Estimate Lower**	**Q_T (m^3/s)**	**Upper**	**Q_T (ft^3/s)**
1.1		55.78		1969.6
2	75.77	105.58	147.13	3728.2
5	112.42	157.21	219.85	5551.1
10	138.01	194.72	274.72	6875.5
25	170.24	243.36	347.88	8592.9
50	194.42	281.02	406.18	9922.7
100	219.27	320.58	468.69	11319.6
500	277.14	417.77	0.00	14751.4

Lombard, P.J. & G.A. Hodgkins, 2015.
Peak flow regression equations for small, ungaged streams in Maine - Comparing map-based to field-based variables
SIR 2015-4059, USGS, Augusta, ME

$Q_T = b \times A^a \times 10^{-wW}$


Log-Normal Probability Plot
20000
10000
1000
100
Q_T (ft^3/s)
1.05 YR
1.1 YR
1.5 YR
2 YR
5 YR
10 YR
25 YR
50 YR
100 YR
500 YR
1.002 YR
Return Period (yrs)

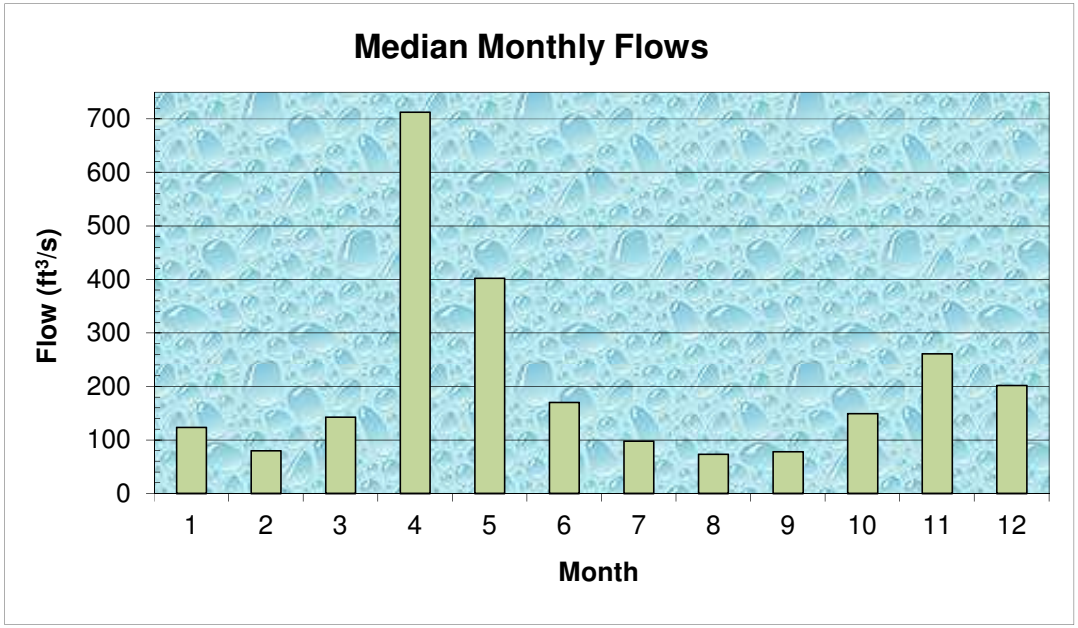
WIN:	23104.00	**Project Name:**	Jim Pond Twp., Alder Stream Bridge #3265
Town:	Jim Pond Twp	**Stream Name:**	Alder Stream
Route No.	ME 27	**Bridge Name:**	Alder Stream Birdge
Asset ID:	3265	**Analysis by:**	meg
Lat:	45.25421 **Long:** -70.54702	**Date:**	6/10/2019

DO NOT ENTER ANY DATA ON THIS PAGE; EVERYTHING IS CALCULATED

MAINE MONTHLY MEDIAN FLOWS and HYDRAULIC GEOMETRY BY USGS REGRESSION EQUATIONS (2004, 2013, 2015)

	Value	Variable	Explanation
	139.30	*A*	Area (mi^2)
367960	5017905	P_c	Watershed centroid (E,N; UTM; Zone 19; meters)
	141.45	*DIST*	Distance from Coastal reference line (mi)
	45.7	*pptA*	Mean Annual Precipitation (inches)
	0.00	*SG*	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q_{median} (ft3/s)	(m^3/s)
Jan	**123.50**	3.4997
Feb	**79.84**	2.2626
Mar	**142.54**	4.0393
Apr	**712.77**	20.1990
May	**402.44**	11.4046
Jun	**170.21**	4.8236
Jul	**97.65**	2.7673
Aug	**73.19**	2.0742
Sep	**78.22**	2.2167
Oct	**149.34**	4.2322
Nov	**261.39**	7.4074
Dec	**202.05**	5.7257



Q_{bf}	**925.4**	
ann avg	**350.6**	
ann med	**171.0**	
$Q_{1.002}$	**941.3**	
$Q_{1.01}$	**1223.5**	
$Q_{1.05}$	**1678.6**	
Q_{bf}	**1125.1**	assume v = 4ft/s

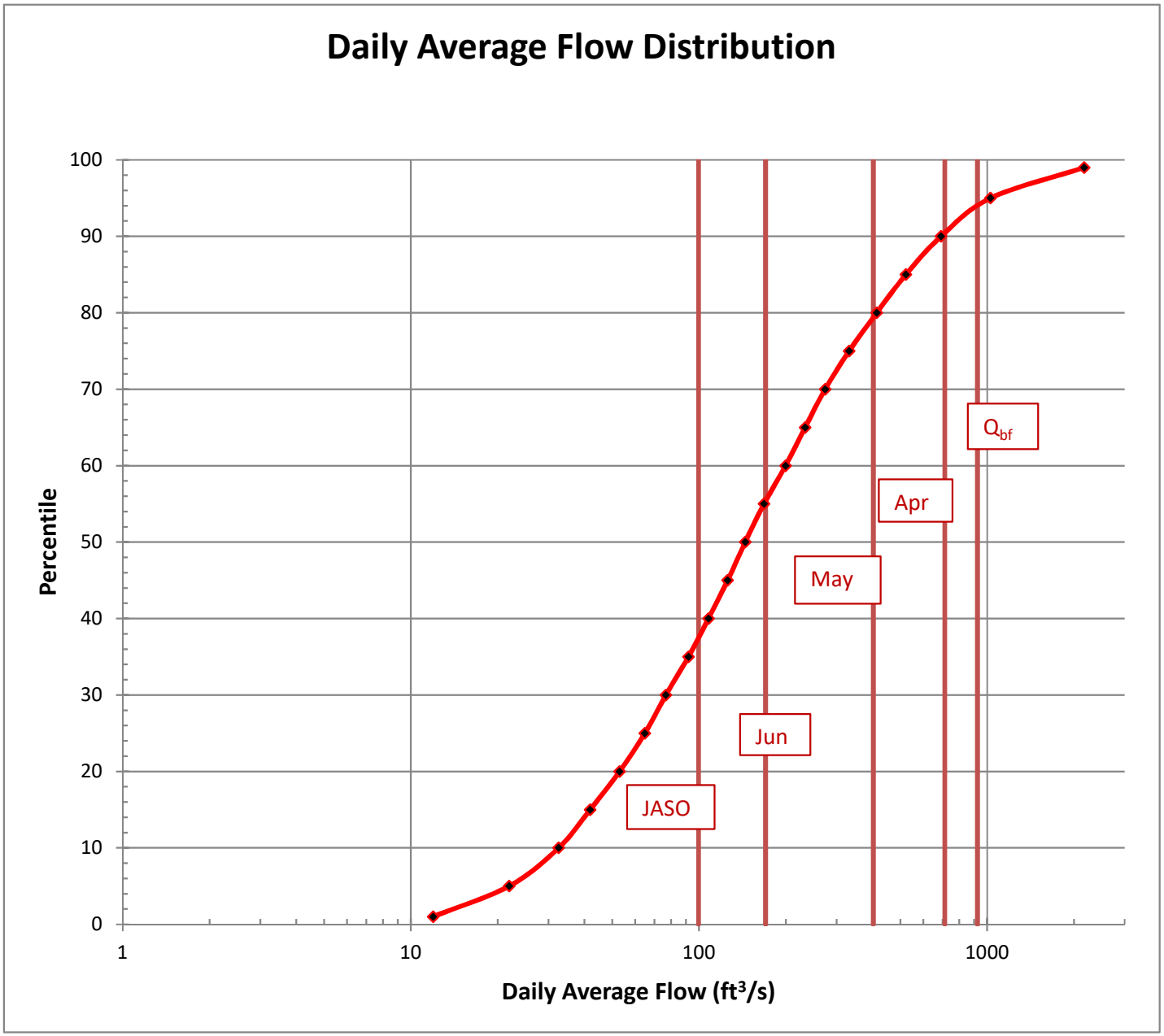
W_{bf}	**88.4**	estimated bankfull width (ft)
d_{bf}	**3.2**	estimated bankfull depth (ft)
A_{bf}	**317.5**	estimated bankfull flow area (ft^2)

References

Dudley, R.W., 2013. FY2013 Progress Report - Phase 1 …, USFWS QRP Project

Dudley, R.W., 2004. Estimating Monthly Streamflows … , SIR 2004-5026

Dudley, R.W., 2015. Regression Equations for Monthly and Annual Mean..., USGS SIF



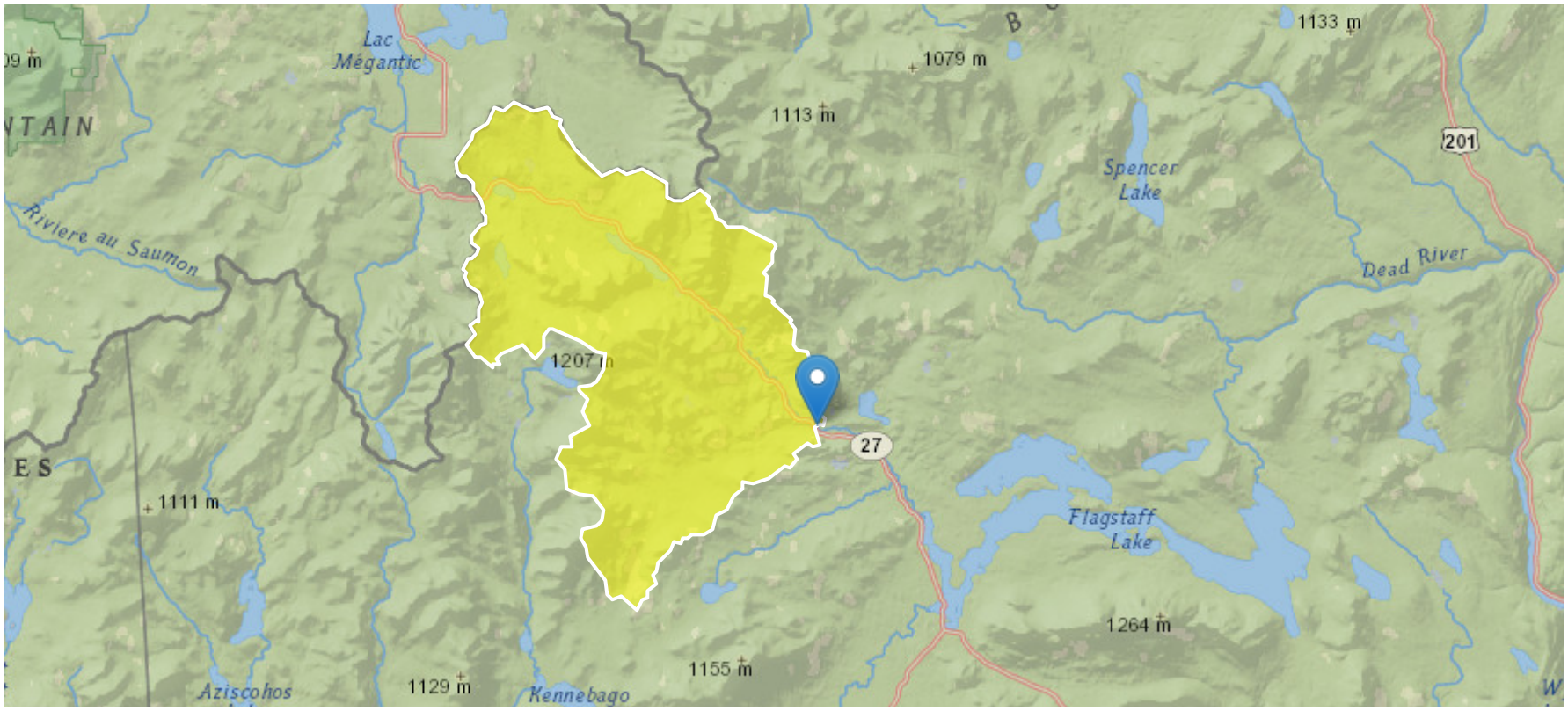
Daily Avg Flow Dist	
A_{ws} = (mi^2)	139.3
Q (ft^3/s)	

Pctl	Median	84th pctl
1	11.94	21.14
5	21.93	35.29
10	32.57	48.97
15	41.86	61.15
20	53.02	74.15
25	64.86	86.93
30	76.75	99.00
35	91.95	113.15
40	107.83	130.12
45	125.68	147.13
50	144.70	173.70
55	168.04	202.17
60	199.57	237.31
65	233.47	276.48
70	273.86	322.56
75	331.99	387.90
80	414.03	463.13
85	522.41	593.50
90	692.02	796.94
95	1027.02	1239.30
99	2171.79	2859.24

Q_{bf}	925.4
$Q_{1.002}$	941.3
$Q_{1.1}$	1969.6
Q_2	3728.2

Jim Pond 23104 Alder - Dead Rvr Junction

Region ID: ME
Workspace ID: ME20200108171255630000
Clicked Point (Latitude, Longitude): 45.25371, -70.54452
Time: 2020-01-08 12:13:13 -0500



Downstream of project, to establish model boundary conditions

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	139.3	square miles
STORNWI	Percentage of storage (combined water bodies and wetlands) from the National Wetlands Inventory	6.63	percent
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0.066	dimensionless
ELEV	Mean Basin Elevation	1927.1	feet
BSLDEM10M	Mean basin slope computed from 10 m DEM	16.7	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	367959.95	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	5017905.41	meters
COASTDIST	Shortest distance from the coastline to the basin centroid	143	miles
ELEVMAX	Maximum basin elevation	3967.3	feet
LC06WATER	Percent of open water, class 11, from NLCD 2006	1.66	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	1.17	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.24	percent
PRECIP	Mean Annual Precipitation	45.7	inches
SANDGRAVAP	Percentage of land surface underlain by sand and gravel aquifers	6.59	percent
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	7.34	percent

Peak-Flow Statistics Parameters[100 Percent (139 square miles) Statewide Peak Flow Full GT 12sqmi WRI 99 4008]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	139.3	square miles	0.93	1653

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
STORNWI	Percentage of Storage from NWI	6.63	percent	0.7	26.7

Peak-Flow Statistics Flow Report[100 Percent (139 square miles) Statewide Peak Flow Full GT 12sqmi WRI 99 4008]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PII	PIu	SE	SEp	Equiv. Yrs.
2 Year Peak Flood	3730	ft^3/s	2090	6660	35.1	35.1	1.8
5 Year Peak Flood	5550	ft^3/s	3080	10000	36.1	36.1	2.5
10 Year Peak Flood	6880	ft^3/s	3760	12600	36.8	36.8	3.2
25 Year Peak Flood	8590	ft^3/s	4590	16100	38.6	38.6	4.1
50 Year Peak Flood	9920	ft^3/s	5200	18900	39.9	39.9	4.8
100 Year Peak Flood	11300	ft^3/s	5810	22100	41.2	41.2	5.4
500 Year Peak Flood	14800	ft^3/s	7160	30400	44.9	44.9	6.4

Peak-Flow Statistics Citations

Hodgkins, G. A.,1999, Estimating the Magnitude of Peak Flows for Streams in Maine for Selected Recurrence Intervals: U.S. Geological Survey Water-Resources Investigations Report 99-4008, 45 p. (http://me.water.usgs.gov/99-4008.pdf)

Flow-Duration Statistics Parameters[100 Percent (139 square miles) Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	139.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.066	dimensionless	0	0.212
ELEV	Mean Basin Elevation	1927.1	feet	239	2120

Flow-Duration Statistics Flow Report[100 Percent (139 square miles) Statewide Annual SIR 2015 5151]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
1 Percent Duration	27.5	ft^3/s	144
5 Percent Duration	44.9	ft^3/s	62
10 Percent Duration	58.4	ft^3/s	41
25 Percent Duration	91.2	ft^3/s	22
50 Percent Duration	171	ft^3/s	20
75 Percent Duration	367	ft^3/s	17
90 Percent Duration	780	ft^3/s	17
95 Percent Duration	1230	ft^3/s	18
99 Percent Duration	2850	ft^3/s	29

Flow-Duration Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Annual Flow Statistics Parameters[100 Percent (139 square miles) Statewide Annual SIR 2015 5151]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	139.3	square miles	14.9	1419
SANDGRAVAF	Fraction of Sand and Gravel Aquifers	0.066	dimensionless	0	0.212
ELEV	Mean Basin Elevation	1927.1	feet	239	2120

Annual Flow Statistics Flow Report[100 Percent (139 square miles) Statewide Annual SIR 2015 5151]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SEp
Mean Annual Flow	351	ft^3/s	16

Annual Flow Statistics Citations

Dudley, R.W.,2015, Regression equations for monthly and annual mean and selected percentile streamflows for ungaged rivers in Maine: U.S. Geological Survey Scientific Investigations Report 2015–5151, 35 p. (http://dx.doi.org/10.3133/sir20155151)

Application Version: 4.3.11

Highway Bridge Inspection Report

ALDER STREAM

ROUTE 27

over

ALDER STREAM

Asset Code: 3265

Inspection Date: 07/27/2017

Inspected By: Jamie Hannum

Inspection Type(s): Routine

(48) LENGTH OF MAXIMUM SPAN (ft.)	60
(49) STRUCTURE LENGTH (ft.)	128.0
(50) CURB/SIDEWALK WIDTHS	
(50A) LEFT CURB SIDEWALK (ft.)	1.5
(50B) RIGHT CURB SIDEWALK (ft.)	1.5
(51) BRDG RDWY WIDTH CURB-TO-CURB (ft.)	26.0
(52) DECK WIDTH, OUT-TO-OUT (ft.)	31.0
(32) APPROACH ROADWAY WIDTH (ft.)	30
(33) BRIDGE MEDIAN	0 - No median
(34) SKEW (deg.)	0
(35) STRUCTURE FLARED	0 - No flare
(10) INV RTE, MIN VERT CLEARANCE (ft.)	328.05
(47) TOTAL HORIZONTAL CLEARANCE (ft.)	26.0
(53) VERTICAL CLEARANCE OVER BRIDGE ROADWAY (ft.)	327.76
(54) MIN VERTICAL UNDERCLEARANCE	
(54A) REFERENCE FEATURE	N - Feature not a highway or railroad
(54B) MIN VERTICAL UNDERCLEARENCE (ft.)	0
(55) MIN LATERAL UNDER CLEARANCE RIGHT	
(55A) REFERENCE FEATURE	N - Feature not a highway or railroad
(55B) MIN LATERAL UNDER CLEARANCE RIGHT (ft.)	327.76
(56) MIN LATERAL UNDER CLEARANCE (ft.)	0

Classification

(112) NBIS BRIDGE LENGTH	Yes
(104) HIGHWAY SYSTEM OF THE INVENTORY ROUTE	0 - Structure/Route is NOT on NHS
(26) FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE	07 - Rural - Major Collector
(100) STRAHNET HIGHWAY DESIGNATION	Not a STRAHNET route
(101) PARALLEL STRUCTURE DESIGNATION	N - No parallel structure
(102) DIRECTION OF TRAFFIC	2-way traffic
(103) TEMP STRUCTURE	
(105) FEDERAL LANDS HIGHWAYS	Not Applicable
(110) DESIGNATED NATIONAL NETWORK	Inventory route not on network
(20) TOLL	3 - On Free Road
(21) MAINTENANCE RESPONSIBILITY	01 - State Highway Agency
(22) OWNER	01 - State Highway Agency
(37) HISTORICAL SIGNIFICANCE	4 - Not determinable

Condition

(58) DECK	6 - Satisfactory Condition (minor deterioration)
(59) SUPERSTRUCTURE	4 - Poor Condition (advanced deterioration)
(60) SUBSTRUCTURE	7 - Good Condition (some minor problems)
(61) CHANNEL & CHANNEL PROTECTION	5 - Bank eroded.. major damage
(62) CULVERT	N - Not Applicable

Load Rating and Posting

(31) DESIGN LOAD	5 - HS 20
(63) METHOD USED TO DETERMINE OPERATING RATING	8 - Load and Resistance Factor
(64) OPERATING RATING	1.19
(65) METHOD USED TO DETERMINE INVENTORY RATING	8 - Load and Resistance Factor
(66) INVENTORY RATING	0.92
(70) BRIDGE POSTING	5 - Equal to or above legal
(41) STRUCTURE OPEN/POSTED/CLOSED	A - Open

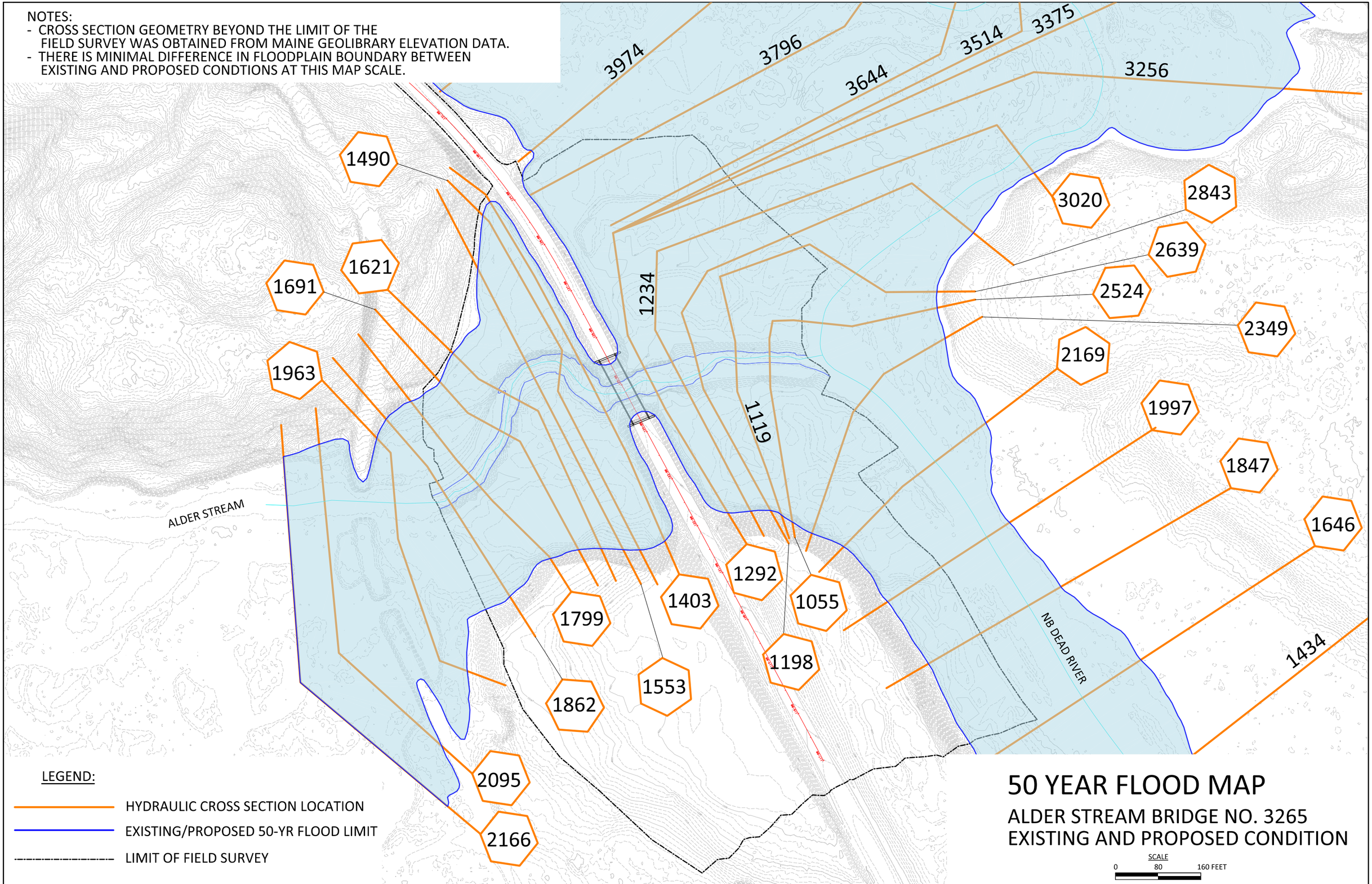
Appraisal

(67) STRUCTURAL EVALUATION	6
(68) DECK GEOMETRY	5
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL	N
(71) WATERWAY ADEQUACY	9 - Bridge Above Flood Water Elevations
(72) APPROACH ROADWAY ALIGNMENT	8 - Equal to present desirable criteria
(36) TRAFFIC SAFETY FEATURE	
36A) BRIDGE RAILINGS:	0 - Does not meet acceptable standards/safety feature is required
36B) TRANSITIONS:	0 - Does not meet acceptable standards/safety feature is required
36C) APPROACH GUARDRAIL	0 - Does not meet acceptable standards/safety feature is required
36D) APPROACH GUARDRAIL ENDS	0 - Does not meet acceptable standards/safety feature is required
(113) SCOUR CRITICAL BRIDGES	8 - Stable for scour conditions

Proposed Improvements

(75) TYPE OF WORK

NOTES:
- CROSS SECTION GEOMETRY BEYOND THE LIMIT OF THE FIELD SURVEY WAS OBTAINED FROM MAINE GEOLIBRARY ELEVATION DATA.
- THERE IS MINIMAL DIFFERENCE IN FLOODPLAIN BOUNDARY BETWEEN EXISTING AND PROPOSED CONDTIONS AT THIS MAP SCALE.



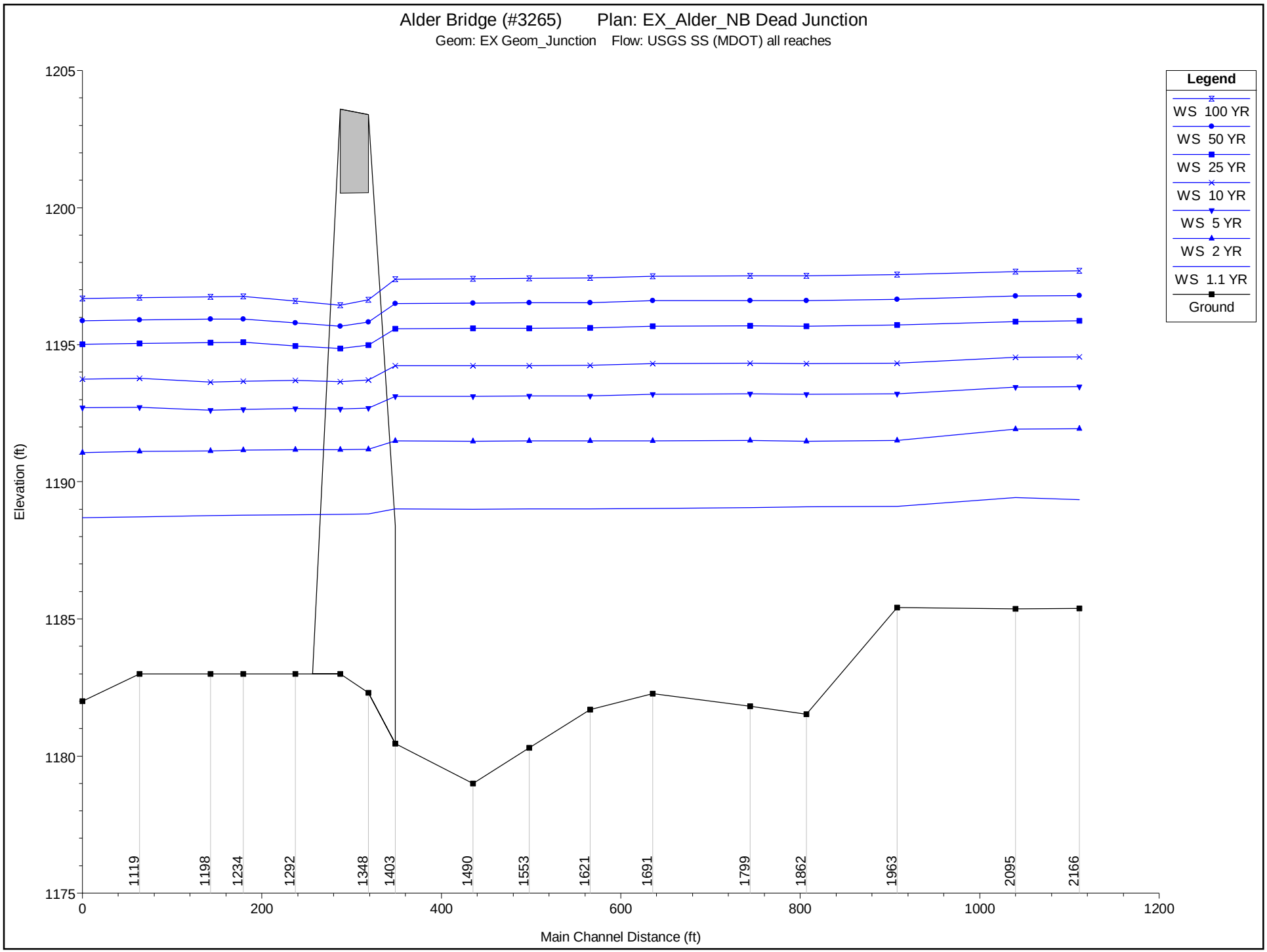
LEGEND:

- HYDRAULIC CROSS SECTION LOCATION
- EXISTING/PROPOSED 50-YR FLOOD LIMIT
- LIMIT OF FIELD SURVEY

50 YEAR FLOOD MAP

ALDER STREAM BRIDGE NO. 3265
EXISTING AND PROPOSED CONDITION

SCALE
0 80 160 FEET


Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Elevation (ft)
Main Channel Distance (ft)
1205
1200
1195
1190
1185
1180
1175
0
200
400
600
800
1000
1200
1119
1198
1234
1292
1348
1403
1490
1553
1621
1691
1799
1862
1963
2095
2166

HEC-RAS Plan: EX_Alder_NB Dead River: Alder Stream Reach: Study

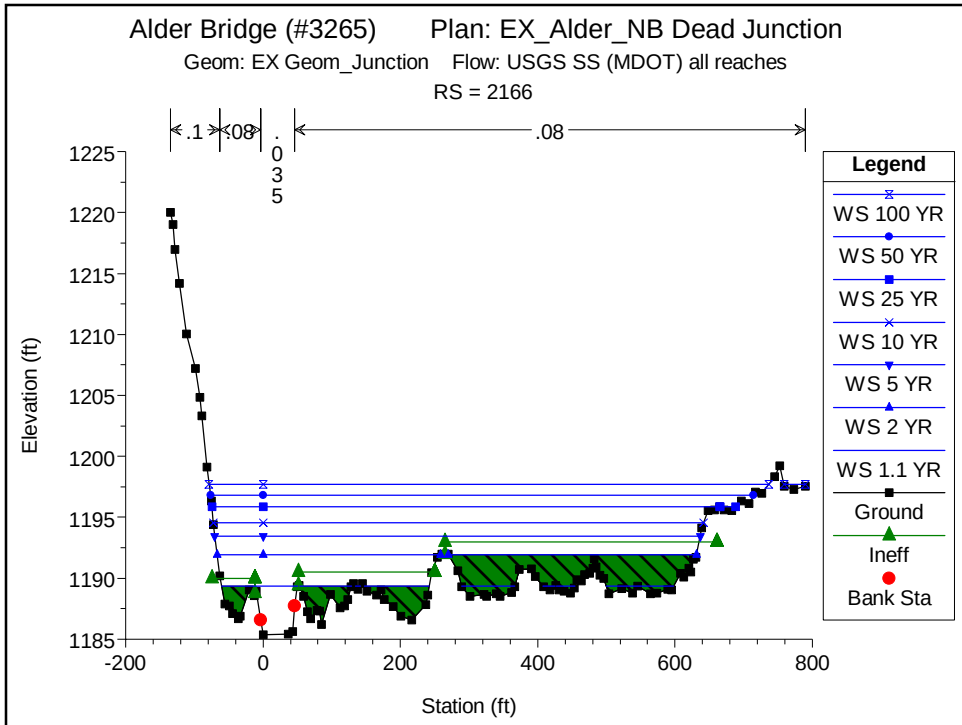
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Study	2166	1.1 YR	864.00	1185.38	1189.35	1187.65	1189.67	0.001963	4.54	201.58	508.86	0.41
Study	2166	2 YR	1725.00	1185.38	1191.94	1188.93	1192.00	0.000355	2.73	1348.10	686.81	0.19
Study	2166	5 YR	2657.00	1185.38	1193.47	1190.01	1193.49	0.000158	2.10	3306.74	706.73	0.13
Study	2166	10 YR	3349.00	1185.38	1194.56	1190.47	1194.59	0.000133	2.10	4084.36	714.05	0.12
Study	2166	25 YR	4267.00	1185.38	1195.87	1190.51	1195.90	0.000117	2.15	5033.66	761.69	0.12
Study	2166	50 YR	4988.00	1185.38	1196.80	1190.51	1196.82	0.000112	2.24	5755.52	790.87	0.12
Study	2166	100 YR	5751.00	1185.38	1197.70	1190.79	1197.72	0.000106	2.29	6486.58	845.19	0.12
Study	2095	1.1 YR	864.00	1185.36	1189.42	1187.12	1189.53	0.000715	2.83	416.59	428.25	0.25
Study	2095	2 YR	1725.00	1185.36	1191.93	1188.11	1191.98	0.000242	2.28	1549.13	555.36	0.16
Study	2095	5 YR	2657.00	1185.36	1193.45	1188.95	1193.48	0.000164	2.16	2845.32	562.46	0.14
Study	2095	10 YR	3349.00	1185.36	1194.54	1189.41	1194.58	0.000145	2.22	3465.62	571.26	0.13
Study	2095	25 YR	4267.00	1185.36	1195.85	1190.02	1195.89	0.000132	2.31	4236.81	602.16	0.13
Study	2095	50 YR	4988.00	1185.36	1196.77	1190.51	1196.81	0.000134	2.47	4814.43	661.40	0.13
Study	2095	100 YR	5751.00	1185.36	1197.67	1190.51	1197.71	0.000136	2.61	5437.60	724.32	0.13
Study	1963	1.1 YR	864.00	1185.41	1189.10	1187.48	1189.35	0.001715	3.98	221.19	165.42	0.38
Study	1963	2 YR	1725.00	1185.41	1191.51	1188.53	1191.83	0.001129	4.60	412.26	338.21	0.34
Study	1963	5 YR	2657.00	1185.41	1193.20	1189.49	1193.40	0.000635	4.09	1263.44	429.90	0.26
Study	1963	10 YR	3349.00	1185.41	1194.33	1190.14	1194.50	0.000518	4.05	1660.91	442.73	0.24
Study	1963	25 YR	4267.00	1185.41	1195.72	1191.01	1195.83	0.000342	3.63	2663.86	485.04	0.20
Study	1963	50 YR	4988.00	1185.41	1196.65	1191.54	1196.77	0.000305	3.64	3122.20	494.13	0.19
Study	1963	100 YR	5751.00	1185.41	1197.56	1192.31	1197.67	0.000280	3.68	3572.75	503.81	0.19
Study	1862	1.1 YR	864.00	1181.52	1189.08	1185.30	1189.21	0.000445	2.81	325.72	149.23	0.21
Study	1862	2 YR	1725.00	1181.52	1191.48	1186.55	1191.71	0.000539	3.90	503.61	348.05	0.24
Study	1862	5 YR	2657.00	1181.52	1193.19	1187.63	1193.32	0.000327	3.45	1634.32	370.75	0.19
Study	1862	10 YR	3349.00	1181.52	1194.31	1188.36	1194.44	0.000301	3.55	2056.80	382.04	0.19
Study	1862	25 YR	4267.00	1181.52	1195.68	1189.23	1195.80	0.000275	3.67	2588.02	396.24	0.18
Study	1862	50 YR	4988.00	1181.52	1196.61	1189.86	1196.73	0.000265	3.78	2960.10	404.12	0.18
Study	1862	100 YR	5751.00	1181.52	1197.51	1190.52	1197.64	0.000257	3.89	3325.75	409.23	0.18
Study	1799	1.1 YR	864.00	1181.81	1189.05	1185.37	1189.18	0.000476	2.85	316.75	253.99	0.21
Study	1799	2 YR	1725.00	1181.81	1191.51	1186.64	1191.66	0.000406	3.35	787.10	342.98	0.21
Study	1799	5 YR	2657.00	1181.81	1193.20	1187.72	1193.29	0.000246	2.97	1903.94	357.86	0.17
Study	1799	10 YR	3349.00	1181.81	1194.32	1188.41	1194.41	0.000233	3.10	2311.41	368.09	0.17
Study	1799	25 YR	4267.00	1181.81	1195.69	1189.12	1195.78	0.000220	3.26	2821.03	379.63	0.16
Study	1799	50 YR	4988.00	1181.81	1196.62	1190.05	1196.71	0.000216	3.39	3178.54	389.72	0.16
Study	1799	100 YR	5751.00	1181.81	1197.51	1190.65	1197.61	0.000214	3.53	3530.69	394.84	0.17
Study	1691	1.1 YR	864.00	1182.28	1189.03	1185.51	1189.12	0.000386	2.41	382.55	297.73	0.19
Study	1691	2 YR	1725.00	1182.28	1191.49	1186.63	1191.61	0.000333	2.93	820.76	347.75	0.19

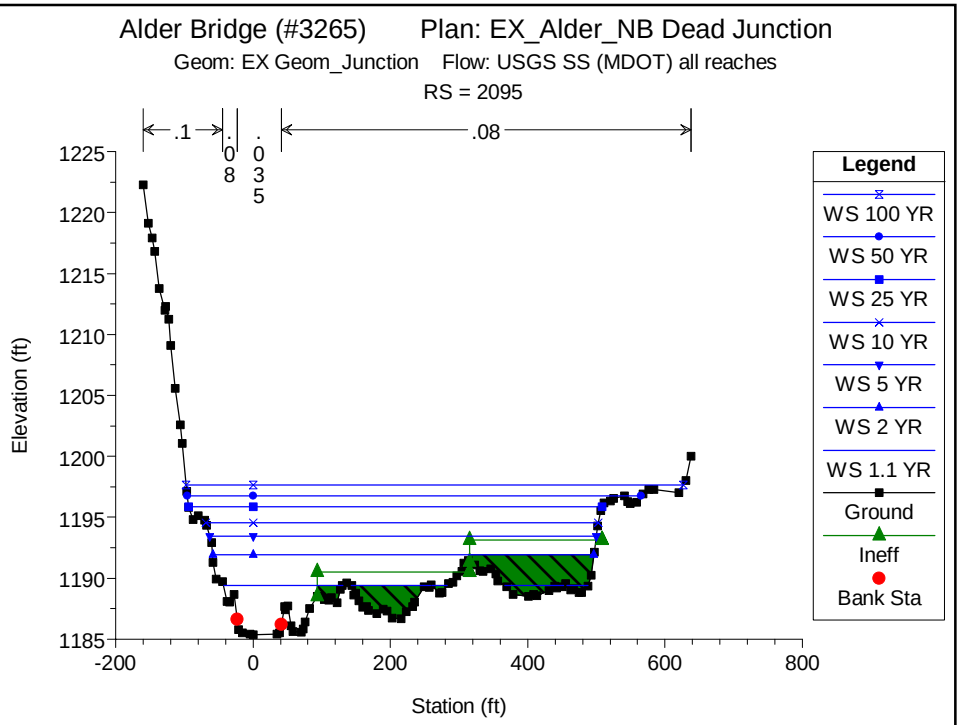
HEC-RAS Plan: EX_Alder_NB Dead River: Alder Stream Reach: Study (Continued)

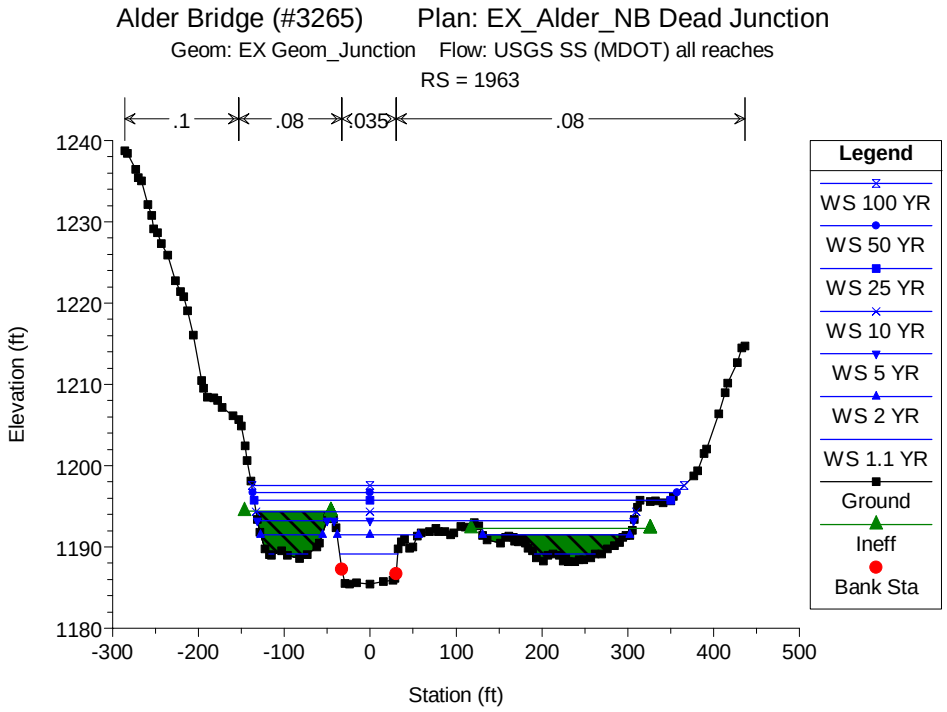
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Study	1691	5 YR	2657.00	1182.28	1193.19	1187.55	1193.26	0.000204	2.63	1968.70	383.50	0.15
Study	1691	10 YR	3349.00	1182.28	1194.31	1188.19	1194.38	0.000193	2.76	2405.85	397.26	0.15
Study	1691	25 YR	4267.00	1182.28	1195.67	1188.93	1195.75	0.000182	2.91	2957.12	412.44	0.15
Study	1691	50 YR	4988.00	1182.28	1196.60	1189.76	1196.69	0.000178	3.03	3344.75	420.48	0.15
Study	1691	100 YR	5751.00	1182.28	1197.50	1190.29	1197.59	0.000176	3.15	3725.26	428.94	0.15
Study	1621	1.1 YR	864.00	1181.69	1189.01	1185.12	1189.09	0.000336	2.38	495.55	297.20	0.18
Study	1621	2 YR	1725.00	1181.69	1191.49	1186.36	1191.58	0.000268	2.73	1111.34	372.02	0.17
Study	1621	5 YR	2657.00	1181.69	1193.13	1187.49	1193.24	0.000274	3.12	1561.73	385.30	0.18
Study	1621	10 YR	3349.00	1181.69	1194.25	1188.40	1194.36	0.000268	3.33	1885.35	425.49	0.18
Study	1621	25 YR	4267.00	1181.69	1195.61	1189.22	1195.73	0.000256	3.52	2355.19	462.81	0.18
Study	1621	50 YR	4988.00	1181.69	1196.54	1189.67	1196.67	0.000252	3.67	2692.98	476.36	0.18
Study	1621	100 YR	5751.00	1181.69	1197.43	1190.14	1197.57	0.000249	3.81	3023.07	480.38	0.18
Study	1553	1.1 YR	864.00	1180.30	1189.01	1184.71	1189.07	0.000248	2.09	595.29	334.92	0.15
Study	1553	2 YR	1725.00	1180.30	1191.49	1185.95	1191.56	0.000215	2.47	1186.28	401.07	0.15
Study	1553	5 YR	2657.00	1180.30	1193.13	1187.16	1193.22	0.000234	2.91	1598.56	444.95	0.16
Study	1553	10 YR	3349.00	1180.30	1194.24	1187.94	1194.35	0.000235	3.14	1922.86	544.79	0.17
Study	1553	25 YR	4267.00	1180.30	1195.60	1188.72	1195.72	0.000232	3.37	2337.40	591.52	0.17
Study	1553	50 YR	4988.00	1180.30	1196.52	1189.21	1196.65	0.000234	3.55	2619.03	597.56	0.17
Study	1553	100 YR	5751.00	1180.30	1197.42	1189.57	1197.56	0.000237	3.73	2891.17	602.64	0.17
Study	1490	1.1 YR	864.00	1178.99	1189.00	1183.60	1189.05	0.000200	1.98	643.56	368.77	0.14
Study	1490	2 YR	1725.00	1178.99	1191.48	1185.23	1191.55	0.000184	2.37	1256.84	407.34	0.14
Study	1490	5 YR	2657.00	1178.99	1193.12	1186.43	1193.21	0.000207	2.82	1666.42	577.42	0.15
Study	1490	10 YR	3349.00	1178.99	1194.23	1187.47	1194.33	0.000213	3.06	1944.98	684.42	0.16
Study	1490	25 YR	4267.00	1178.99	1195.59	1188.41	1195.71	0.000218	3.33	2284.66	701.31	0.16
Study	1490	50 YR	4988.00	1178.99	1196.51	1189.00	1196.64	0.000224	3.54	2515.27	706.75	0.17
Study	1490	100 YR	5751.00	1178.99	1197.40	1189.35	1197.54	0.000232	3.75	2737.84	711.09	0.17
Study	1403	1.1 YR	864.00	1180.45	1189.01	1183.46	1189.03	0.000058	1.09	808.59	358.23	0.08
Study	1403	2 YR	1725.00	1180.45	1191.49	1184.29	1191.52	0.000075	1.54	1228.51	409.80	0.09
Study	1403	5 YR	2657.00	1180.45	1193.12	1184.95	1193.18	0.000098	1.97	1508.19	580.08	0.11
Study	1403	10 YR	3349.00	1180.45	1194.23	1185.36	1194.31	0.000110	2.23	1698.28	696.57	0.12
Study	1403	25 YR	4267.00	1180.45	1195.59	1185.89	1195.68	0.000121	2.52	1930.04	714.92	0.12
Study	1403	50 YR	4988.00	1180.45	1196.51	1186.25	1196.62	0.000131	2.74	2087.31	720.22	0.13
Study	1403	100 YR	5751.00	1180.45	1197.39	1186.64	1197.52	0.000140	2.95	2239.08	723.82	0.14
Study	1348		Bridge									
Study	1292	1.1 YR	864.00	1183.00	1188.79	1185.18	1188.91	0.000517	2.77	312.41	158.73	0.21
Study	1292	2 YR	1725.00	1183.00	1191.17	1186.34	1191.36	0.000563	3.59	602.02	564.12	0.23

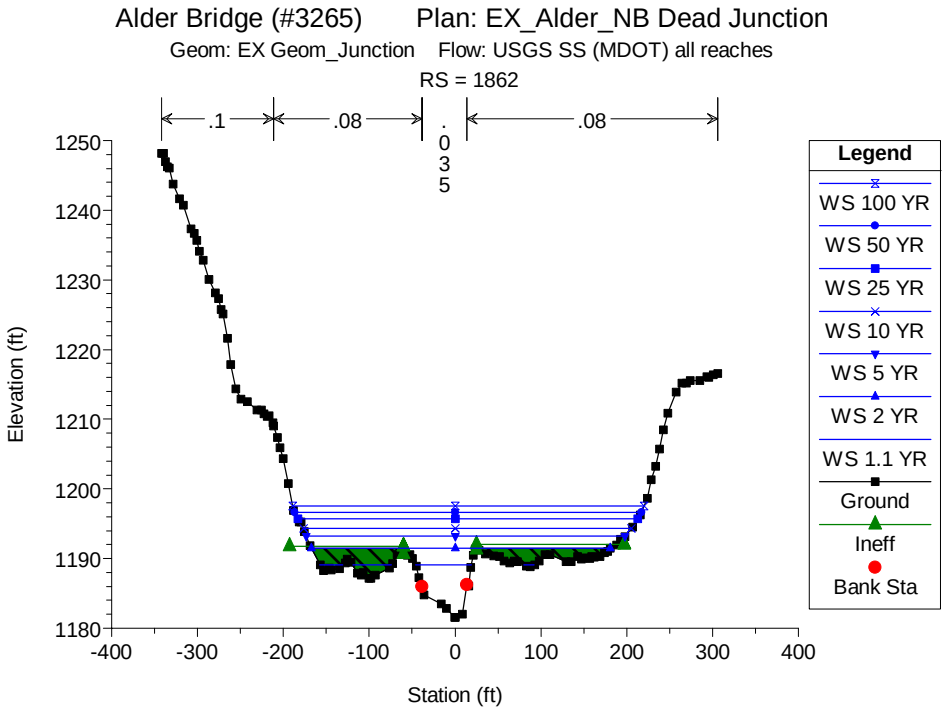
HEC-RAS Plan: EX_Alder_NB Dead River: Alder Stream Reach: Study (Continued)

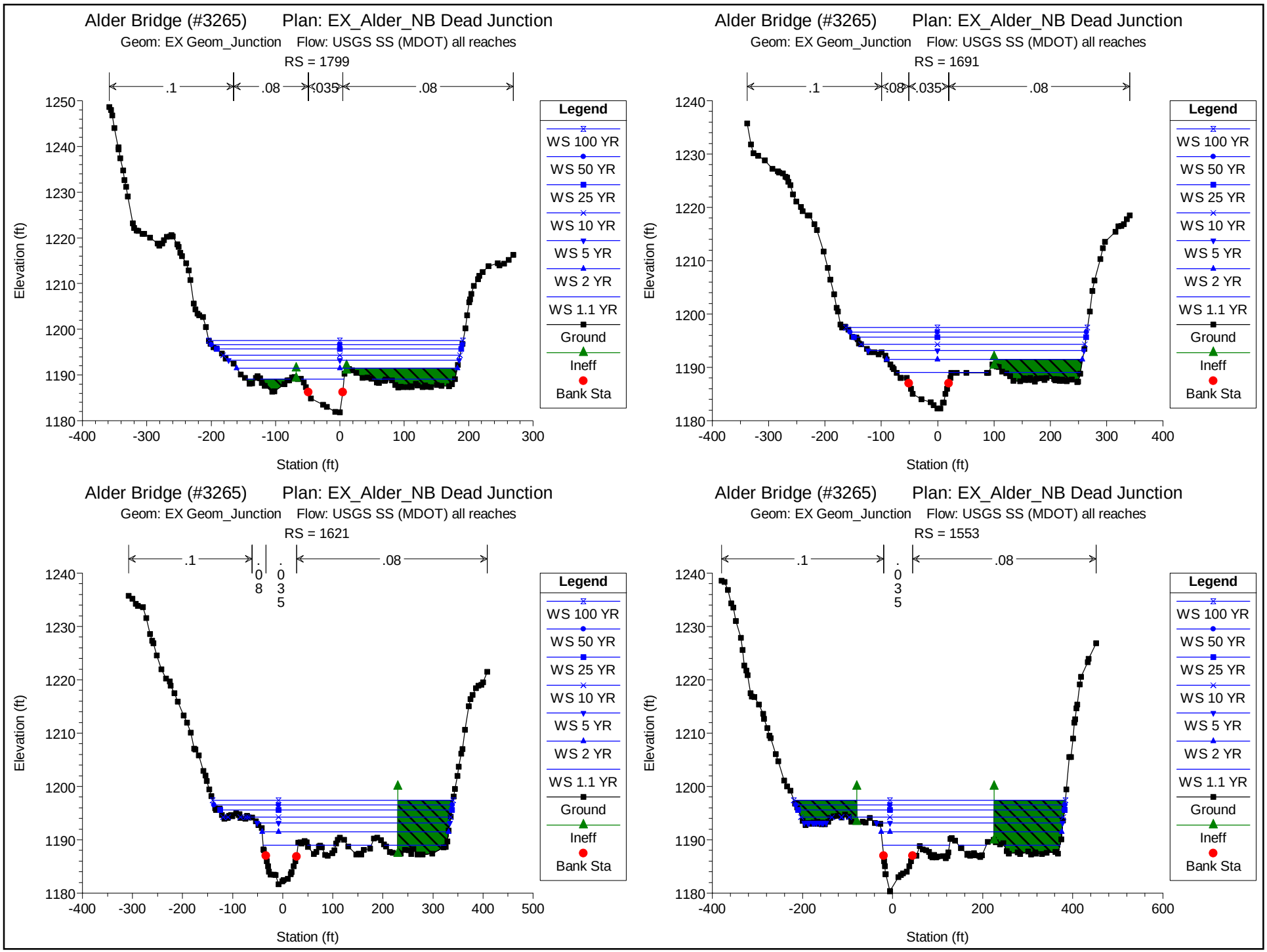
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Study	1292	5 YR	2657.00	1183.00	1192.68	1187.41	1192.94	0.000636	4.32	842.46	571.18	0.25
Study	1292	10 YR	3349.00	1183.00	1193.70	1188.11	1194.00	0.000650	4.69	1006.55	573.68	0.26
Study	1292	25 YR	4267.00	1183.00	1194.96	1188.96	1195.30	0.000654	5.09	1207.53	576.72	0.27
Study	1292	50 YR	4988.00	1183.00	1195.80	1190.08	1196.17	0.000671	5.41	1341.37	578.45	0.27
Study	1292	100 YR	5751.00	1183.00	1196.60	1190.78	1197.01	0.000692	5.73	1469.14	580.11	0.28
Study	1234	1.1 YR	864.00	1183.00	1188.78	1185.11	1188.87	0.000461	2.50	345.07	283.03	0.20
Study	1234	2 YR	1725.00	1183.00	1191.15	1186.27	1191.32	0.000469	3.29	553.29	496.17	0.22
Study	1234	5 YR	2657.00	1183.00	1192.65	1187.29	1192.90	0.000549	4.06	776.93	527.30	0.24
Study	1234	10 YR	3349.00	1183.00	1193.67	1187.99	1193.96	0.000568	4.45	933.34	528.64	0.25
Study	1234	25 YR	4267.00	1183.00	1195.09	1188.80	1195.14	0.000159	2.58	3575.63	530.48	0.14
Study	1234	50 YR	4988.00	1183.00	1195.94	1189.34	1196.00	0.000154	2.67	4029.53	531.60	0.14
Study	1234	100 YR	5751.00	1183.00	1196.76	1189.87	1196.82	0.000151	2.76	4464.68	532.67	0.14
Study	1198	1.1 YR	864.00	1183.00	1188.76	1185.23	1188.86	0.000385	2.49	352.29	296.91	0.19
Study	1198	2 YR	1725.00	1183.00	1191.13	1186.31	1191.30	0.000429	3.37	571.27	474.47	0.22
Study	1198	5 YR	2657.00	1183.00	1192.62	1187.24	1192.88	0.000519	4.18	789.32	493.74	0.24
Study	1198	10 YR	3349.00	1183.00	1193.64	1187.85	1193.94	0.000547	4.60	941.36	495.25	0.26
Study	1198	25 YR	4267.00	1183.00	1195.07	1188.61	1195.13	0.000160	2.72	3479.62	497.77	0.14
Study	1198	50 YR	4988.00	1183.00	1195.93	1189.16	1195.99	0.000157	2.83	3905.54	499.69	0.14
Study	1198	100 YR	5751.00	1183.00	1196.74	1189.72	1196.81	0.000156	2.94	4314.36	501.53	0.14
Study	1119	1.1 YR	864.00	1183.00	1188.73	1185.29	1188.83	0.000441	2.54	346.72	226.63	0.20
Study	1119	2 YR	1725.00	1183.00	1191.10	1186.38	1191.26	0.000428	3.26	674.64	455.56	0.21
Study	1119	5 YR	2657.00	1183.00	1192.72	1187.36	1192.80	0.000226	2.71	2079.81	459.87	0.16
Study	1119	10 YR	3349.00	1183.00	1193.77	1188.00	1193.85	0.000208	2.79	2564.41	462.06	0.16
Study	1119	25 YR	4267.00	1183.00	1195.05	1188.78	1195.12	0.000191	2.90	3154.49	464.61	0.15
Study	1119	50 YR	4988.00	1183.00	1195.90	1189.36	1195.98	0.000186	3.01	3551.95	466.29	0.15
Study	1119	100 YR	5751.00	1183.00	1196.72	1190.14	1196.80	0.000185	3.13	3933.22	468.00	0.15
Study	1055	1.1 YR	864.00	1182.00	1188.69	1185.08	1188.79	0.000513	2.63	328.46	251.93	0.21
Study	1055	2 YR	1725.00	1182.00	1191.06	1186.31	1191.23	0.000500	3.38	569.92	361.95	0.23
Study	1055	5 YR	2657.00	1182.00	1192.70	1187.38	1192.78	0.000255	2.78	1870.56	376.16	0.17
Study	1055	10 YR	3349.00	1182.00	1193.75	1188.08	1193.83	0.000241	2.92	2265.47	377.63	0.17
Study	1055	25 YR	4267.00	1182.00	1195.02	1188.89	1195.11	0.000227	3.08	2746.06	379.37	0.16
Study	1055	50 YR	4988.00	1182.00	1195.87	1189.54	1195.96	0.000225	3.22	3069.54	381.02	0.17
Study	1055	100 YR	5751.00	1182.00	1196.68	1190.19	1196.78	0.000226	3.38	3379.80	382.59	0.17

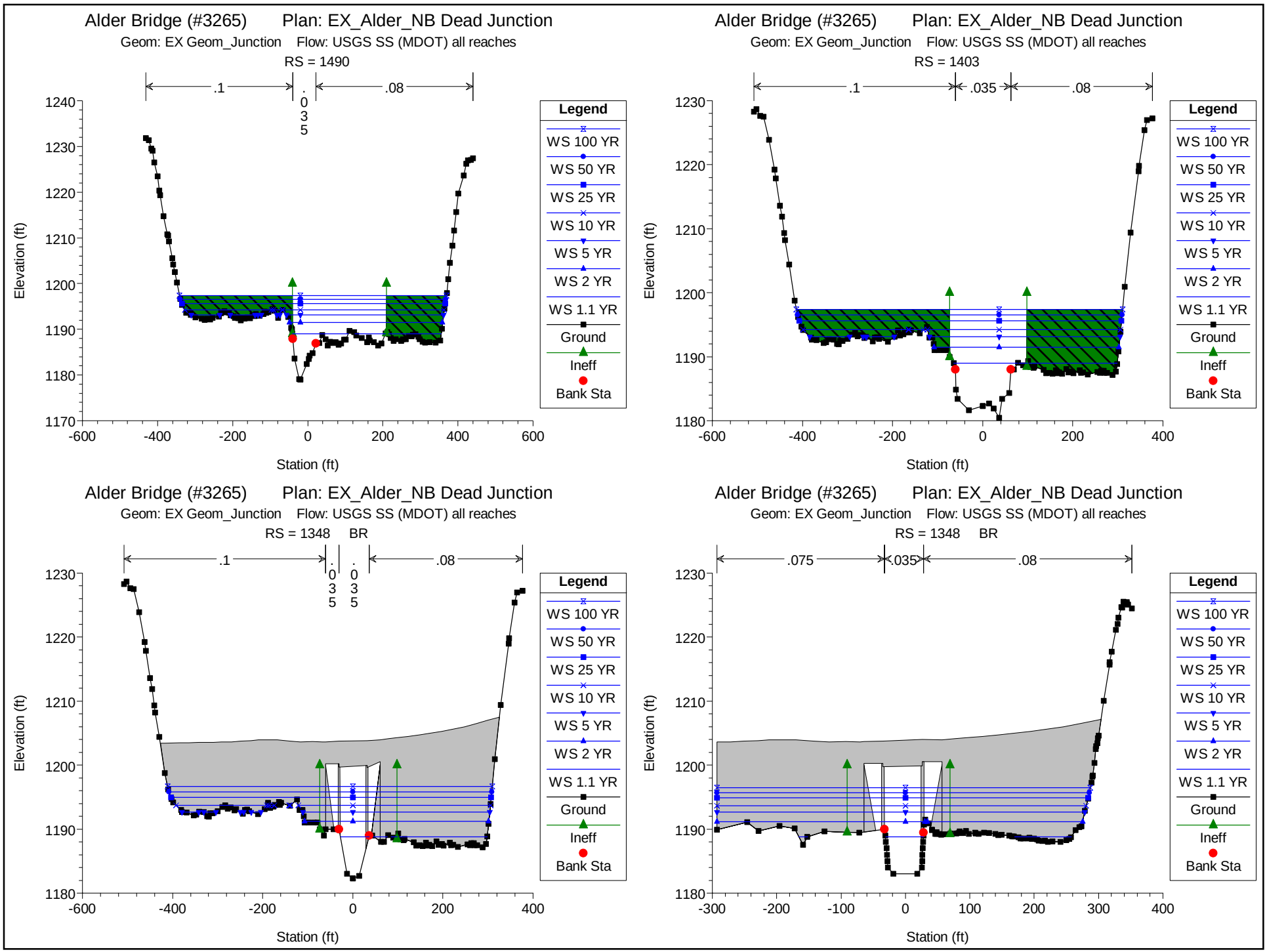

Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 2166
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta

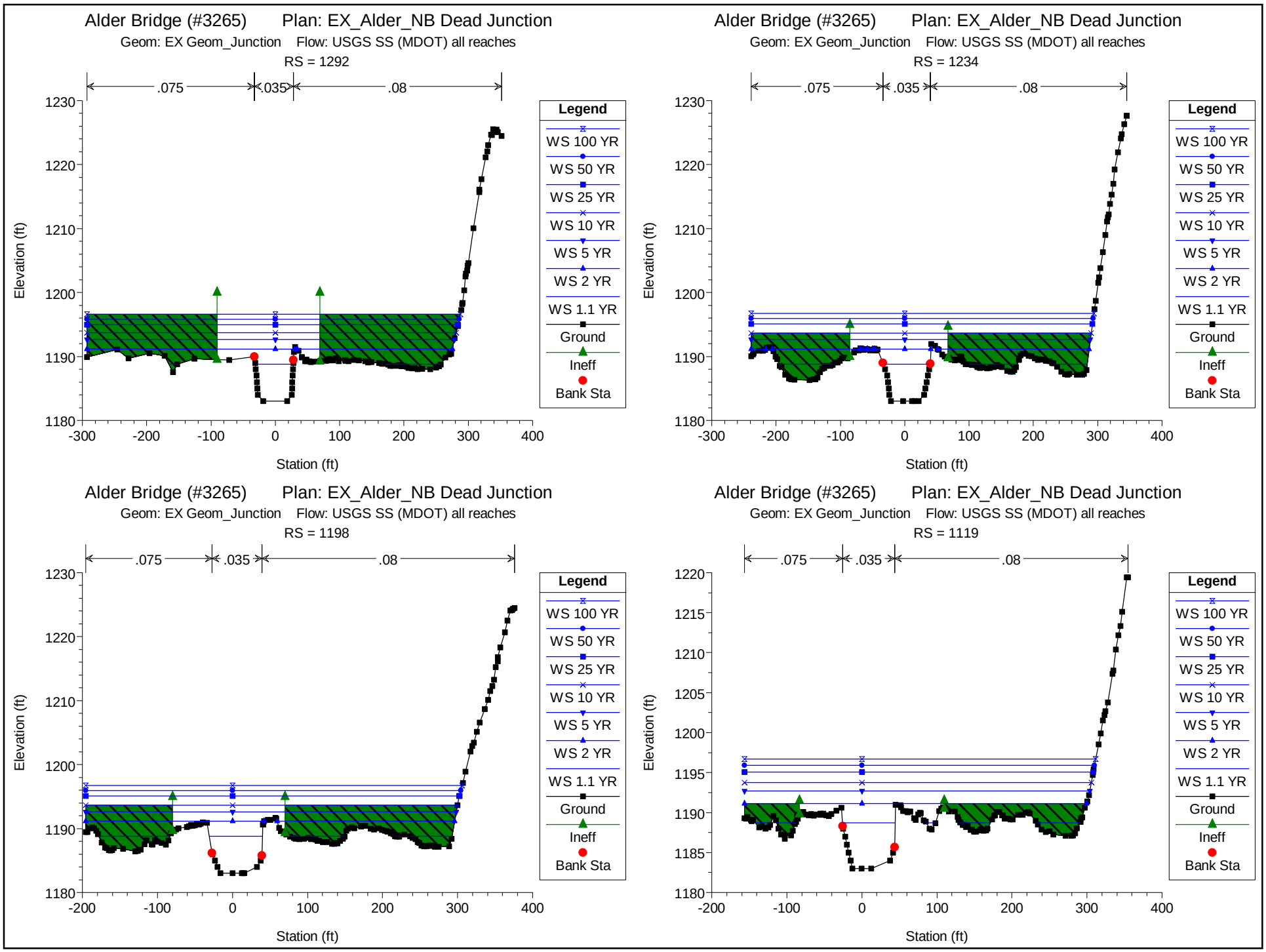

Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 2095
.1
.08
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta

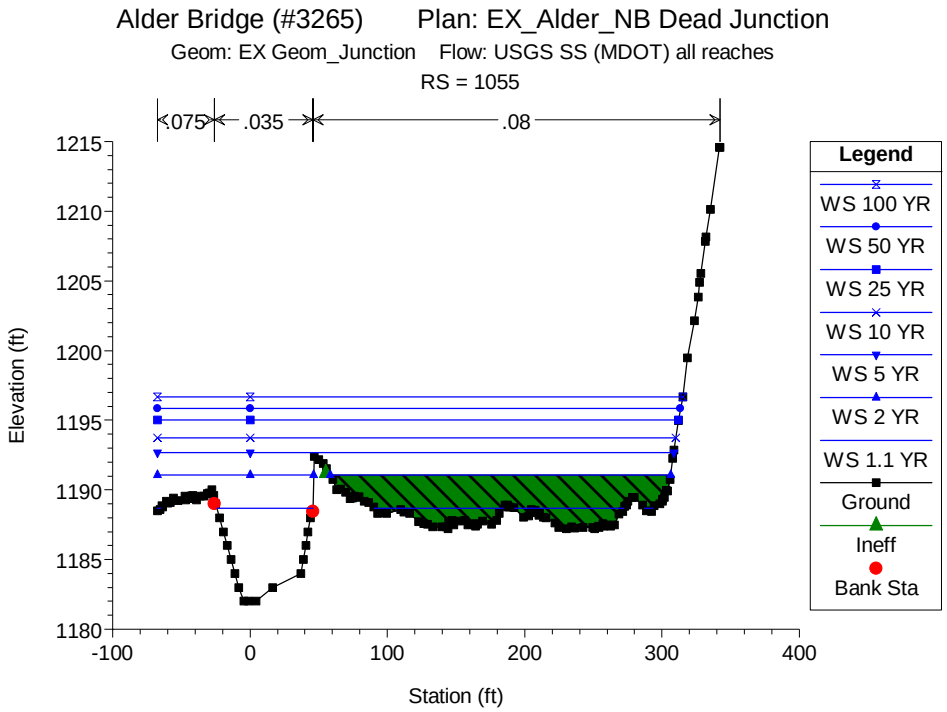

Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1963
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta

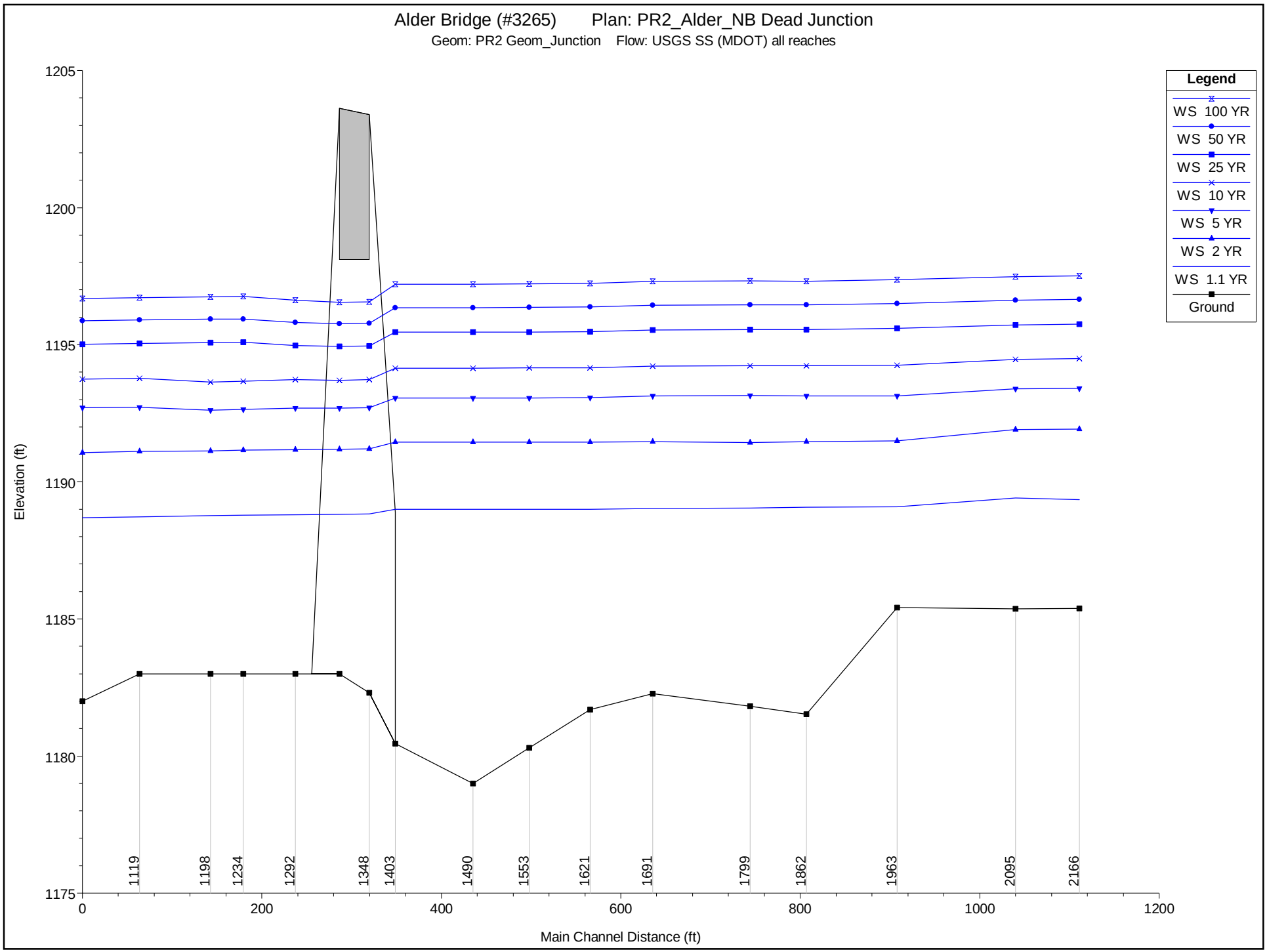

Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1862
.1
.08
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1799
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1691
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1621
.1
.08
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1553
.1
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1490
.1
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1403
.1
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1348 BR
.1
.035
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1348 BR
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1292
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1234
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1198
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1119
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: EX_Alder_NB Dead Junction
Geom: EX Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1055
.075
.035
.08
Elevation (ft)
1215
1210
1205
1200
1195
1190
1185
1180
-100
0
100
200
300
400
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Elevation (ft)
Main Channel Distance (ft)
1205
1200
1195
1190
1185
1180
1175
0
200
400
600
800
1000
1200
1119
1198
1234
1292
1348
1403
1490
1553
1621
1691
1799
1862
1963
2095
2166

HEC-RAS Plan: PR2_Alder_NBDead River: Alder Stream Reach: Study

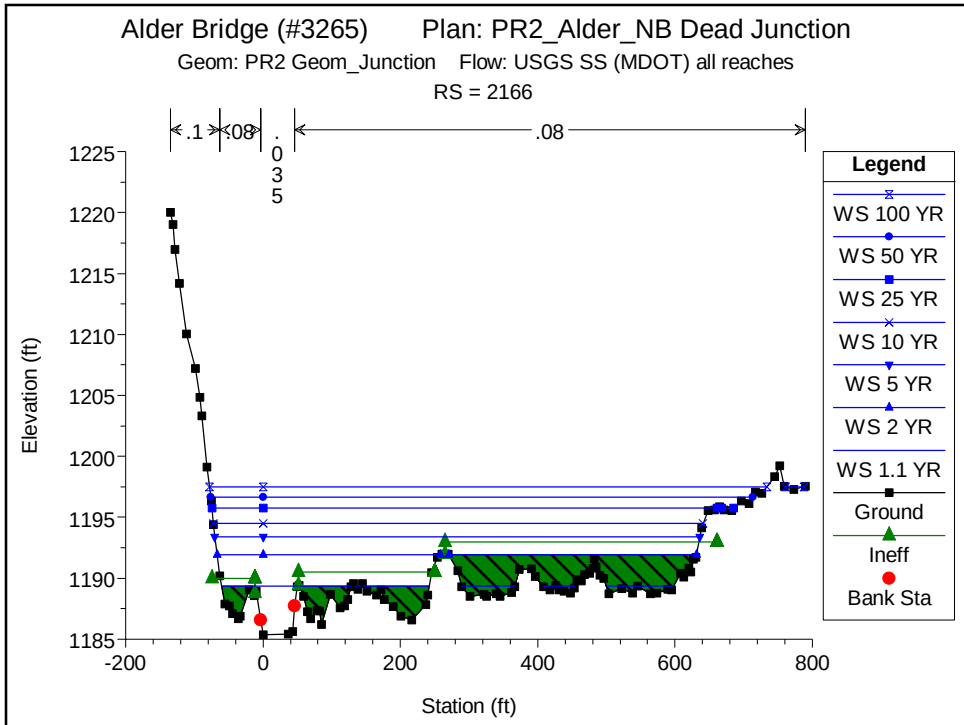
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Study	2166	1.1 YR	864.00	1185.38	1189.35	1187.65	1189.67	0.001971	4.55	201.31	508.08	0.41
Study	2166	2 YR	1725.00	1185.38	1191.92	1188.93	1191.98	0.000359	2.74	1342.34	686.14	0.19
Study	2166	5 YR	2657.00	1185.38	1193.41	1190.01	1193.44	0.000164	2.13	3269.31	706.43	0.13
Study	2166	10 YR	3349.00	1185.38	1194.49	1190.47	1194.51	0.000138	2.13	4031.04	713.47	0.13
Study	2166	25 YR	4267.00	1185.38	1195.75	1190.51	1195.77	0.000123	2.19	4939.17	753.09	0.12
Study	2166	50 YR	4988.00	1185.38	1196.65	1190.51	1196.68	0.000120	2.28	5640.48	789.13	0.12
Study	2166	100 YR	5751.00	1185.38	1197.52	1190.79	1197.55	0.000114	2.34	6336.21	838.83	0.12
Study	2095	1.1 YR	864.00	1185.36	1189.42	1187.12	1189.52	0.000718	2.83	415.97	427.53	0.25
Study	2095	2 YR	1725.00	1185.36	1191.91	1188.11	1191.96	0.000245	2.29	1542.46	555.30	0.16
Study	2095	5 YR	2657.00	1185.36	1193.39	1188.95	1193.43	0.000169	2.19	2815.25	562.07	0.14
Study	2095	10 YR	3349.00	1185.36	1194.47	1189.41	1194.50	0.000151	2.25	3422.63	570.45	0.13
Study	2095	25 YR	4267.00	1185.36	1195.72	1190.02	1195.76	0.000139	2.35	4161.19	600.56	0.13
Study	2095	50 YR	4988.00	1185.36	1196.63	1190.51	1196.67	0.000135	2.46	4719.96	647.73	0.13
Study	2095	100 YR	5751.00	1185.36	1197.49	1190.51	1197.53	0.000146	2.68	5307.20	722.21	0.14
Study	1963	1.1 YR	864.00	1185.41	1189.10	1187.48	1189.34	0.001725	3.99	220.79	164.56	0.38
Study	1963	2 YR	1725.00	1185.41	1191.49	1188.53	1191.81	0.001143	4.62	410.24	337.60	0.34
Study	1963	5 YR	2657.00	1185.41	1193.14	1189.49	1193.34	0.000661	4.15	1241.59	429.28	0.27
Study	1963	10 YR	3349.00	1185.41	1194.24	1190.14	1194.42	0.000542	4.12	1630.87	442.40	0.25
Study	1963	25 YR	4267.00	1185.41	1195.59	1191.01	1195.71	0.000345	3.62	2605.36	466.57	0.20
Study	1963	50 YR	4988.00	1185.41	1196.50	1191.54	1196.62	0.000326	3.73	3046.33	492.48	0.20
Study	1963	100 YR	5751.00	1185.41	1197.37	1192.31	1197.49	0.000302	3.78	3478.41	501.80	0.19
Study	1862	1.1 YR	864.00	1181.52	1189.08	1185.30	1189.20	0.000447	2.82	325.32	148.85	0.21
Study	1862	2 YR	1725.00	1181.52	1191.46	1186.55	1191.69	0.000544	3.91	501.77	347.82	0.24
Study	1862	5 YR	2657.00	1181.52	1193.13	1187.63	1193.26	0.000338	3.49	1611.13	369.83	0.20
Study	1862	10 YR	3349.00	1181.52	1194.23	1188.36	1194.36	0.000313	3.61	2024.47	381.20	0.19
Study	1862	25 YR	4267.00	1181.52	1195.55	1189.23	1195.68	0.000290	3.74	2535.33	395.03	0.19
Study	1862	50 YR	4988.00	1181.52	1196.45	1189.86	1196.59	0.000280	3.86	2897.49	403.00	0.19
Study	1862	100 YR	5751.00	1181.52	1197.32	1190.52	1197.45	0.000274	3.98	3248.16	408.32	0.19
Study	1799	1.1 YR	864.00	1181.81	1189.05	1185.37	1189.17	0.000478	2.85	316.34	253.75	0.21
Study	1799	2 YR	1725.00	1181.81	1191.43	1186.64	1191.66	0.000556	3.90	495.78	342.50	0.24
Study	1799	5 YR	2657.00	1181.81	1193.14	1187.72	1193.23	0.000254	3.00	1881.73	357.05	0.17
Study	1799	10 YR	3349.00	1181.81	1194.24	1188.41	1194.33	0.000242	3.15	2280.44	367.49	0.17
Study	1799	25 YR	4267.00	1181.81	1195.56	1189.12	1195.65	0.000231	3.32	2770.83	378.45	0.17
Study	1799	50 YR	4988.00	1181.81	1196.46	1190.05	1196.56	0.000228	3.45	3118.41	388.48	0.17
Study	1799	100 YR	5751.00	1181.81	1197.32	1190.65	1197.43	0.000227	3.60	3456.11	393.93	0.17
Study	1691	1.1 YR	864.00	1182.28	1189.02	1185.51	1189.11	0.000388	2.42	381.50	297.48	0.19
Study	1691	2 YR	1725.00	1182.28	1191.46	1186.63	1191.58	0.000339	2.94	814.25	347.45	0.19

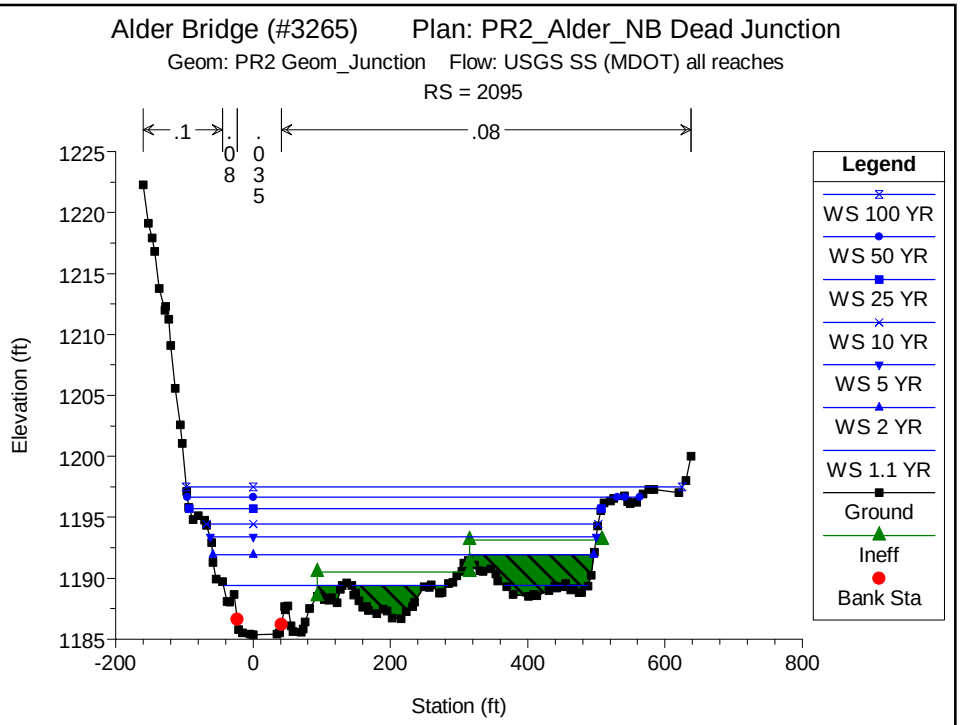
HEC-RAS Plan: PR2_Alder_NBDead River: Alder Stream Reach: Study (Continued)

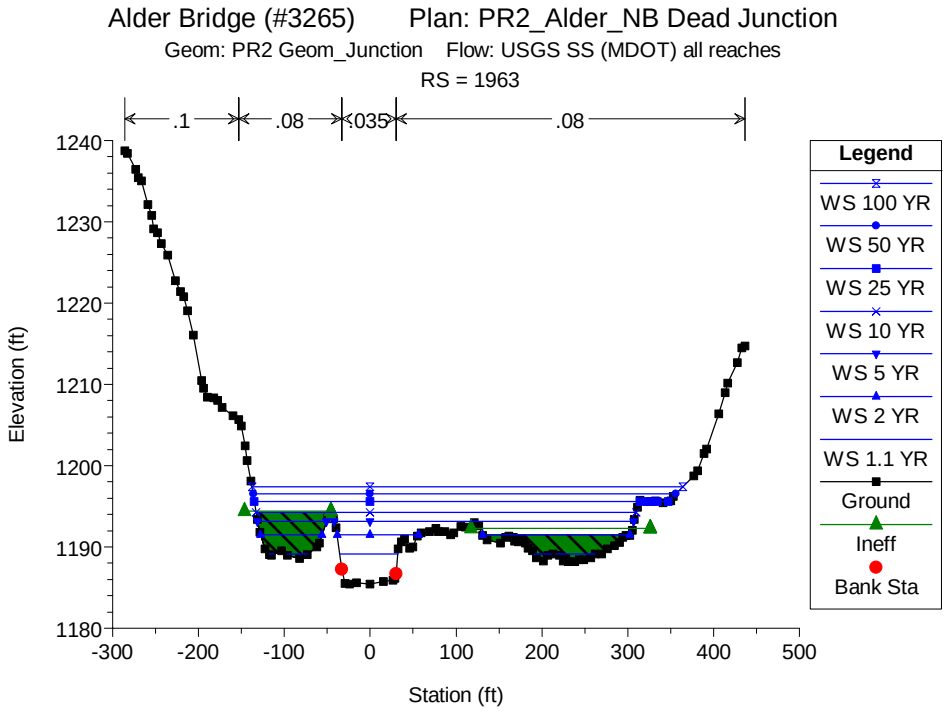
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Study	1691	5 YR	2657.00	1182.28	1193.13	1187.55	1193.20	0.000211	2.66	1944.75	382.93	0.16
Study	1691	10 YR	3349.00	1182.28	1194.22	1188.19	1194.30	0.000201	2.80	2372.19	396.12	0.15
Study	1691	25 YR	4267.00	1182.28	1195.54	1188.93	1195.62	0.000191	2.96	2902.62	407.38	0.15
Study	1691	50 YR	4988.00	1182.28	1196.45	1189.76	1196.53	0.000188	3.08	3279.59	419.49	0.15
Study	1691	100 YR	5751.00	1182.28	1197.31	1190.29	1197.40	0.000187	3.22	3644.07	426.48	0.16
Study	1621	1.1 YR	864.00	1181.69	1189.00	1185.12	1189.09	0.000338	2.39	494.20	296.98	0.18
Study	1621	2 YR	1725.00	1181.69	1191.45	1186.36	1191.55	0.000274	2.75	1101.95	371.94	0.17
Study	1621	5 YR	2657.00	1181.69	1193.07	1187.49	1193.18	0.000283	3.16	1543.77	384.73	0.18
Study	1621	10 YR	3349.00	1181.69	1194.16	1188.40	1194.28	0.000278	3.37	1857.95	415.29	0.18
Study	1621	25 YR	4267.00	1181.69	1195.47	1189.22	1195.60	0.000269	3.58	2306.90	462.08	0.18
Study	1621	50 YR	4988.00	1181.69	1196.38	1189.67	1196.51	0.000266	3.74	2634.83	475.64	0.18
Study	1621	100 YR	5751.00	1181.69	1197.24	1190.14	1197.38	0.000265	3.90	2951.41	479.51	0.19
Study	1553	1.1 YR	864.00	1180.30	1189.00	1184.71	1189.06	0.000249	2.10	593.87	334.74	0.15
Study	1553	2 YR	1725.00	1180.30	1191.45	1185.95	1191.53	0.000219	2.49	1177.60	400.99	0.15
Study	1553	5 YR	2657.00	1180.30	1193.06	1187.16	1193.16	0.000240	2.94	1582.11	428.61	0.17
Study	1553	10 YR	3349.00	1180.30	1194.15	1187.94	1194.26	0.000244	3.18	1896.30	540.27	0.17
Study	1553	25 YR	4267.00	1180.30	1195.46	1188.72	1195.59	0.000243	3.42	2295.88	590.59	0.17
Study	1553	50 YR	4988.00	1180.30	1196.37	1189.21	1196.50	0.000246	3.61	2570.67	596.44	0.18
Study	1553	100 YR	5751.00	1180.30	1197.22	1189.57	1197.37	0.000251	3.80	2832.03	601.66	0.18
Study	1490	1.1 YR	864.00	1178.99	1188.99	1183.60	1189.05	0.000201	1.99	641.99	368.57	0.14
Study	1490	2 YR	1725.00	1178.99	1191.45	1185.23	1191.51	0.000187	2.39	1248.14	407.16	0.14
Study	1490	5 YR	2657.00	1178.99	1193.06	1186.43	1193.14	0.000212	2.84	1650.43	567.79	0.16
Study	1490	10 YR	3349.00	1178.99	1194.15	1187.47	1194.25	0.000220	3.10	1923.19	679.35	0.16
Study	1490	25 YR	4267.00	1178.99	1195.45	1188.41	1195.57	0.000228	3.38	2250.53	700.51	0.17
Study	1490	50 YR	4988.00	1178.99	1196.35	1189.00	1196.49	0.000235	3.60	2475.52	705.82	0.17
Study	1490	100 YR	5751.00	1178.99	1197.21	1189.35	1197.35	0.000245	3.82	2689.27	710.19	0.18
Study	1403	1.1 YR	864.00	1180.45	1189.00	1183.46	1189.02	0.000058	1.09	808.54	357.87	0.08
Study	1403	2 YR	1725.00	1180.45	1191.45	1184.29	1191.49	0.000075	1.54	1245.93	409.65	0.09
Study	1403	5 YR	2657.00	1180.45	1193.06	1184.95	1193.12	0.000099	1.97	1543.05	572.99	0.11
Study	1403	10 YR	3349.00	1180.45	1194.15	1185.36	1194.22	0.000111	2.23	1744.40	691.66	0.12
Study	1403	25 YR	4267.00	1180.45	1195.45	1185.89	1195.55	0.000123	2.52	1985.97	714.04	0.12
Study	1403	50 YR	4988.00	1180.45	1196.35	1186.25	1196.46	0.000132	2.74	2151.96	719.59	0.13
Study	1403	100 YR	5751.00	1180.45	1197.20	1186.64	1197.33	0.000142	2.96	2309.63	723.04	0.14
Study	1348		Bridge									
Study	1292	1.1 YR	864.00	1183.00	1188.79	1185.18	1188.91	0.000517	2.77	312.41	158.73	0.21
Study	1292	2 YR	1725.00	1183.00	1191.17	1186.34	1191.36	0.000551	3.56	627.70	564.16	0.23

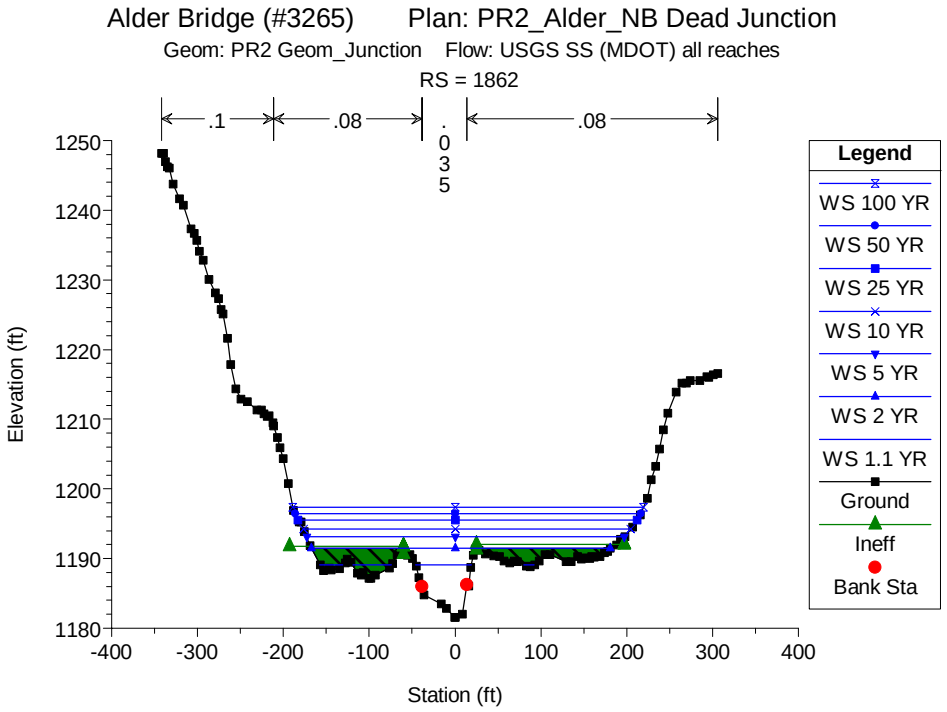
HEC-RAS Plan: PR2_Alder_NBDead River: Alder Stream Reach: Study (Continued)

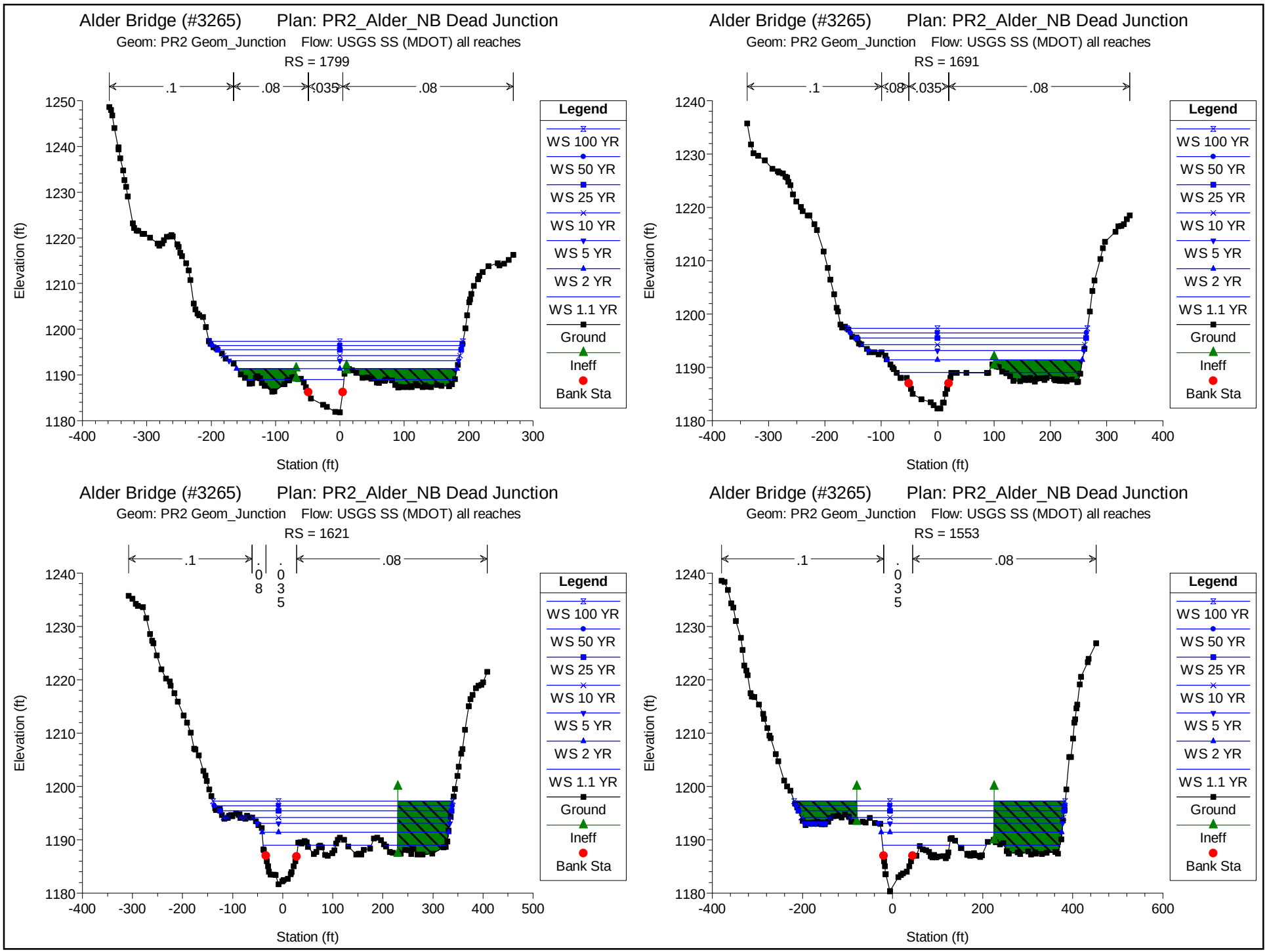
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Study	1292	5 YR	2657.00	1183.00	1192.68	1187.41	1192.93	0.000611	4.23	890.44	571.20	0.25
Study	1292	10 YR	3349.00	1183.00	1193.72	1188.11	1194.00	0.000615	4.57	1071.45	573.73	0.25
Study	1292	25 YR	4267.00	1183.00	1194.97	1188.96	1195.28	0.000616	4.94	1288.97	576.74	0.26
Study	1292	50 YR	4988.00	1183.00	1195.82	1190.19	1196.15	0.000628	5.23	1435.17	578.48	0.27
Study	1292	100 YR	5751.00	1183.00	1196.62	1190.82	1196.99	0.000644	5.53	1574.80	580.15	0.27
Study	1234	1.1 YR	864.00	1183.00	1188.78	1185.11	1188.87	0.000461	2.50	345.07	283.03	0.20
Study	1234	2 YR	1725.00	1183.00	1191.15	1186.27	1191.32	0.000469	3.29	553.29	496.17	0.22
Study	1234	5 YR	2657.00	1183.00	1192.65	1187.29	1192.90	0.000549	4.06	776.93	527.30	0.24
Study	1234	10 YR	3349.00	1183.00	1193.67	1187.99	1193.96	0.000568	4.45	933.34	528.64	0.25
Study	1234	25 YR	4267.00	1183.00	1195.09	1188.80	1195.14	0.000159	2.58	3575.63	530.48	0.14
Study	1234	50 YR	4988.00	1183.00	1195.94	1189.34	1196.00	0.000154	2.67	4029.53	531.60	0.14
Study	1234	100 YR	5751.00	1183.00	1196.76	1189.87	1196.82	0.000151	2.76	4464.68	532.67	0.14
Study	1198	1.1 YR	864.00	1183.00	1188.76	1185.23	1188.86	0.000385	2.49	352.29	296.91	0.19
Study	1198	2 YR	1725.00	1183.00	1191.13	1186.31	1191.30	0.000429	3.37	571.27	474.47	0.22
Study	1198	5 YR	2657.00	1183.00	1192.62	1187.24	1192.88	0.000519	4.18	789.32	493.74	0.24
Study	1198	10 YR	3349.00	1183.00	1193.64	1187.85	1193.94	0.000547	4.60	941.36	495.25	0.26
Study	1198	25 YR	4267.00	1183.00	1195.07	1188.61	1195.13	0.000160	2.72	3479.62	497.77	0.14
Study	1198	50 YR	4988.00	1183.00	1195.93	1189.16	1195.99	0.000157	2.83	3905.54	499.69	0.14
Study	1198	100 YR	5751.00	1183.00	1196.74	1189.72	1196.81	0.000156	2.94	4314.36	501.53	0.14
Study	1119	1.1 YR	864.00	1183.00	1188.73	1185.29	1188.83	0.000441	2.54	346.72	226.63	0.20
Study	1119	2 YR	1725.00	1183.00	1191.10	1186.38	1191.26	0.000428	3.26	674.64	455.56	0.21
Study	1119	5 YR	2657.00	1183.00	1192.72	1187.36	1192.80	0.000226	2.71	2079.81	459.87	0.16
Study	1119	10 YR	3349.00	1183.00	1193.77	1188.00	1193.85	0.000208	2.79	2564.41	462.06	0.16
Study	1119	25 YR	4267.00	1183.00	1195.05	1188.78	1195.12	0.000191	2.90	3154.49	464.61	0.15
Study	1119	50 YR	4988.00	1183.00	1195.90	1189.36	1195.98	0.000186	3.01	3551.95	466.29	0.15
Study	1119	100 YR	5751.00	1183.00	1196.72	1190.14	1196.80	0.000185	3.13	3933.22	468.00	0.15
Study	1055	1.1 YR	864.00	1182.00	1188.69	1185.08	1188.79	0.000513	2.63	328.46	251.93	0.21
Study	1055	2 YR	1725.00	1182.00	1191.06	1186.31	1191.23	0.000500	3.38	569.92	361.95	0.23
Study	1055	5 YR	2657.00	1182.00	1192.70	1187.38	1192.78	0.000255	2.78	1870.56	376.16	0.17
Study	1055	10 YR	3349.00	1182.00	1193.75	1188.08	1193.83	0.000241	2.92	2265.47	377.63	0.17
Study	1055	25 YR	4267.00	1182.00	1195.02	1188.89	1195.11	0.000227	3.08	2746.06	379.37	0.16
Study	1055	50 YR	4988.00	1182.00	1195.87	1189.54	1195.96	0.000225	3.22	3069.54	381.02	0.17
Study	1055	100 YR	5751.00	1182.00	1196.68	1190.19	1196.78	0.000226	3.38	3379.80	382.59	0.17

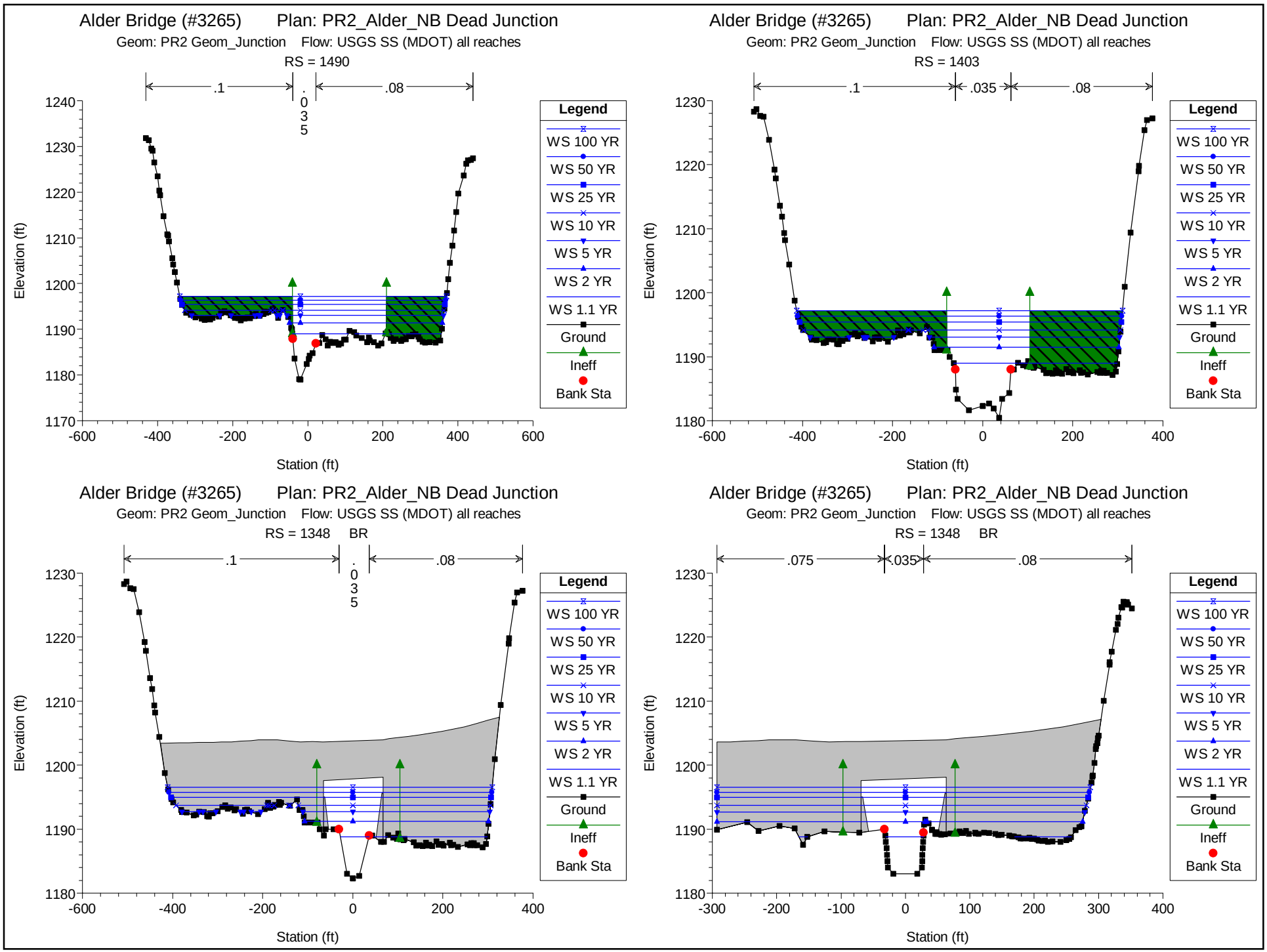

Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 2166
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta

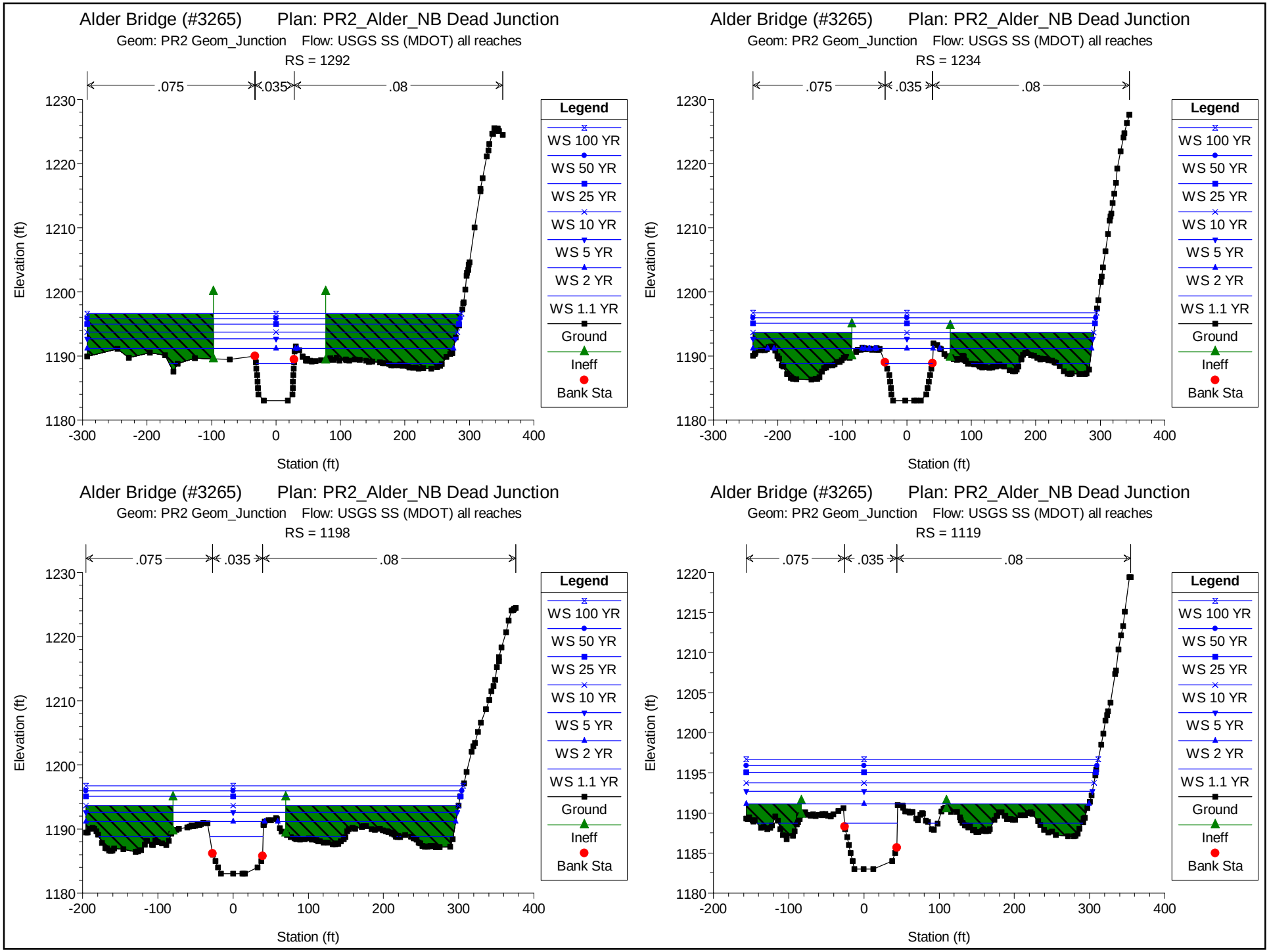

Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 2095
.1
.08
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta

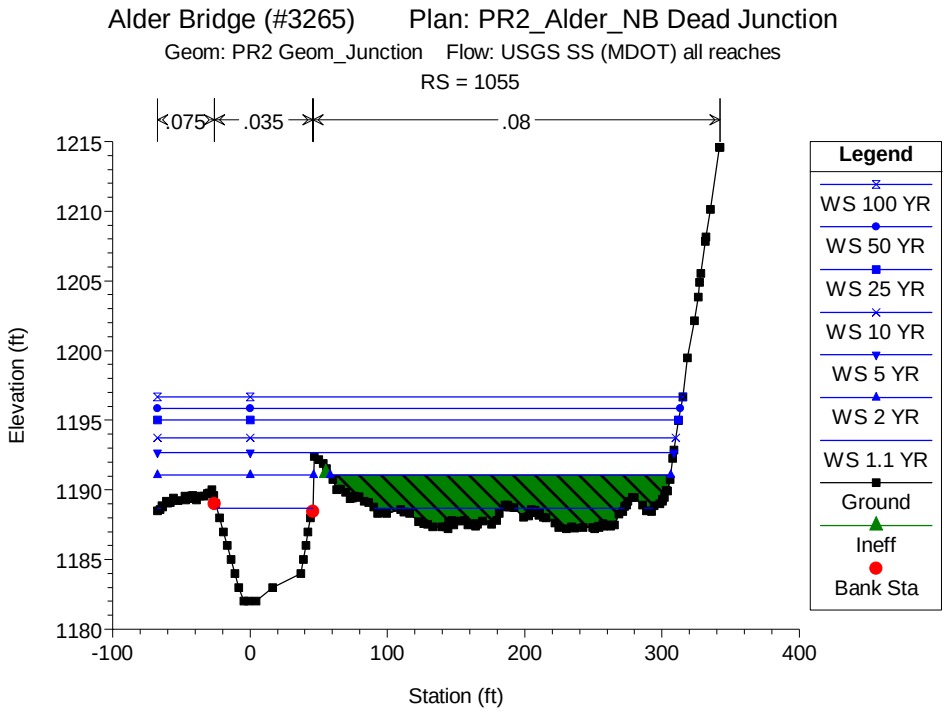

Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1963
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1862
.1
.08
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1799
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1691
.1
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1621
.1
.08
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1553
.1
.08
.035
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1490
.1
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1403
.1
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1348 BR
.1
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1348 BR
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1292
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1234
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1198
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta
Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1119
.075
.035
.08
Elevation (ft)
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta


Alder Bridge (#3265) Plan: PR2_Alder_NB Dead Junction
Geom: PR2 Geom_Junction Flow: USGS SS (MDOT) all reaches
RS = 1055
.075
.035
.08
Elevation (ft)
1215
1210
1205
1200
1195
1190
1185
1180
-100
0
100
200
300
400
Station (ft)
Legend
WS 100 YR
WS 50 YR
WS 25 YR
WS 10 YR
WS 5 YR
WS 2 YR
WS 1.1 YR
Ground
Ineff
Bank Sta