

WIN: 26630.12
 Town: Perry
 Route No. US1
 Asset ID: 88085
 Lat: 44.95382 Long: -67.09841

Project Name:
 Stream Name: u/n
 Bridge Name: u/n
 Analysis by: pl / csh
 Date: 3/5/25 6/18/24

Peak Flow Calculations by USGS Regression Equations (Lombard/Hodgkins, 2021; Hodgkins, 1999 & Lombard/Hodgkins, 2015)

Enter data in blue cells only!

	km ²	mi ²	ac
A	0.78	0.30	192.0
W	0.10	0.0	23.8
P _c	650031	4980441	
County	Washington		

Enter data in [mi²]

Watershed Area *DRNAREA*
 Wetlands area (by NWI)

choose county from drop-down menu

ver. 2021 Jan 01

Worksheet prepared by:

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 Maine Dept. Transportation
 Augusta, ME 04333-0016
 207-557-1052
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Watershed Characteristics from StreamStats

STORAGE	13.03	
STORNWI	12.39	NWI Wetlands %
SANDGRAV	0.00	sand & gravel aquifer as decimal fraction of watershed A
ELEV	141.5	mean basin elevation (ft)
BSLDEM10M	9.67	mean basin slope (%)
COASTDIST	35.00	distance from the coast (mi)
ELEVMAX	211.4	maximum basin elevation (ft)
LC06WATER	0.57	percent of drainage basin land cover as open water
PRECIP	43.1	mean annual precipitation
STATSGOA	11	mean basin percentage of hydrological soil group A

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

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

Lombard, P.J. & G.A. Hodgkins, 2020.
 Estimating Flood Magnitude and Frequency on Gaged and
 Ungaged Streams in Maine
SIR 2020-5092, USGS, Augusta, ME.

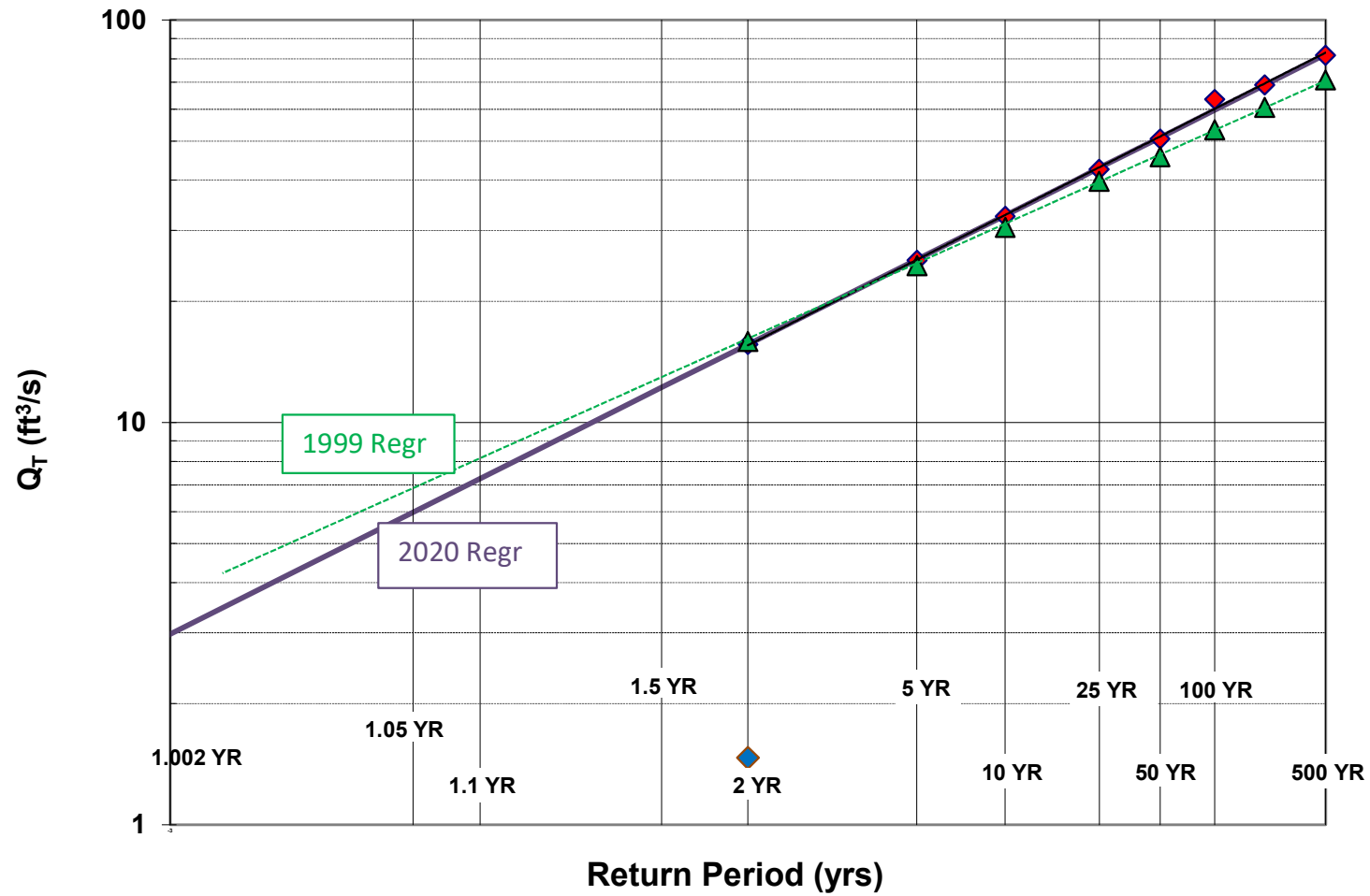
Ret Pd	I24	Q _T (ft ³ /s)		Q _T (ft ³ /s)
T (yr)		1999 / 2015	2020	Design
1.1			7	5
2	3.09	16	16	15
5	3.78	25	25	25
10	4.36	31	33	35
25	5.15	40	43	45
50	5.75	46	51	50
100	6.75	53	64	65
200	7.03	61	69	70
500	7.99	71	82	80

Calculated Bankfull Width: 6.3 ft

Instructions:

Enter values in blue cells only, watershed data from StreamStats
 Copy I24 values from Stream Stats
 Use results under "Design"
 Check against gage data and FEMA studies if available
 Questions? Check with ENV / Hydrology Section

Log-Normal Probability Plot



WIN: 26630.12
Town: Perry
Route No. US1
Asset ID: 88085
Lat: 44.95382 **Long:** -67.09841

Project Name: 0
Stream Name: u/n
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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)

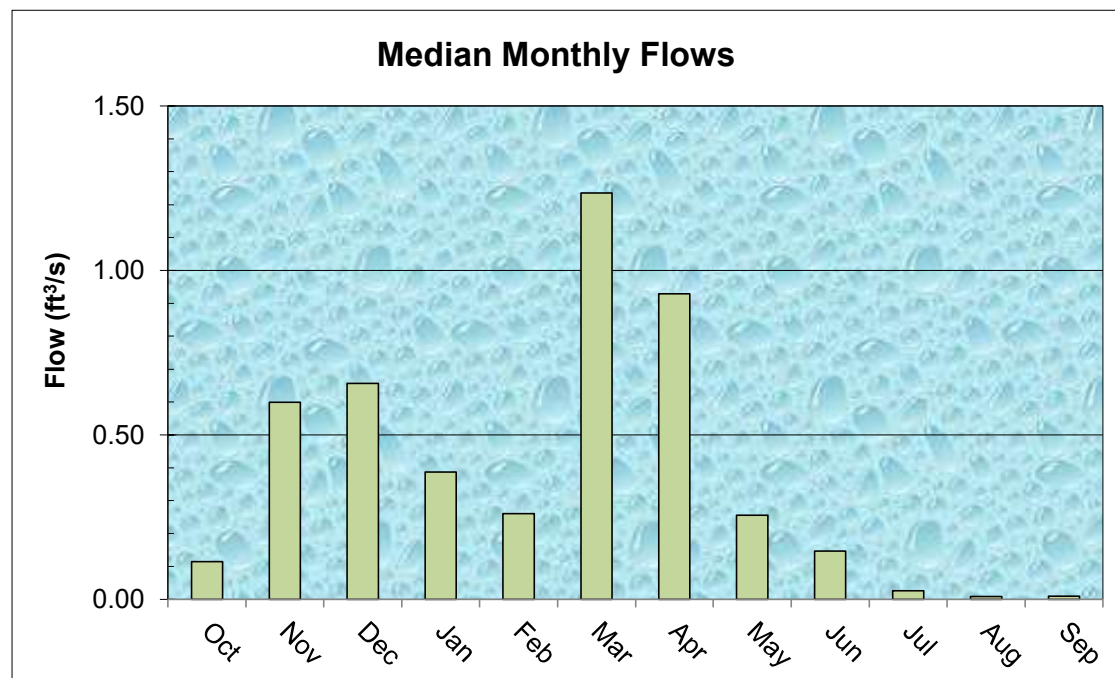
	Value	Variable	Explanation
	0.30	A	Area (mi ²)
650031	4980441	P _c	Watershed centroid (E,N; UTM; Zone 19; meters)
	35.00	DIST	Distance from Coastal reference line (mi)
	43.1	pptA	Mean Annual Precipitation (inches)
	0.00	SG	Sand & Gravel Aquifer (decimal fraction of watershed area)

Month	Q _{median} (ft ³ /s)	(m ³ /s)
Jan	0.39	0.0110
Feb	0.26	0.0074
Mar	1.24	0.0350
Apr	0.93	0.0263
May	0.26	0.0072
Jun	0.15	0.0042
Jul	0.03	0.0007
Aug	0.01	0.0002
Sep	0.01	0.0003
Oct	0.11	0.0032
Nov	0.60	0.0170
Dec	0.66	0.0186

Q _{bf}	1.5
ann avg	0.7
ann med	0.3
Q _{1.002}	3.0
Q _{1.01}	4.1
Q _{1.05}	6.0
Q _{1.1}	7.3
Q _{bf}	6.5

assume v = 4ft/s

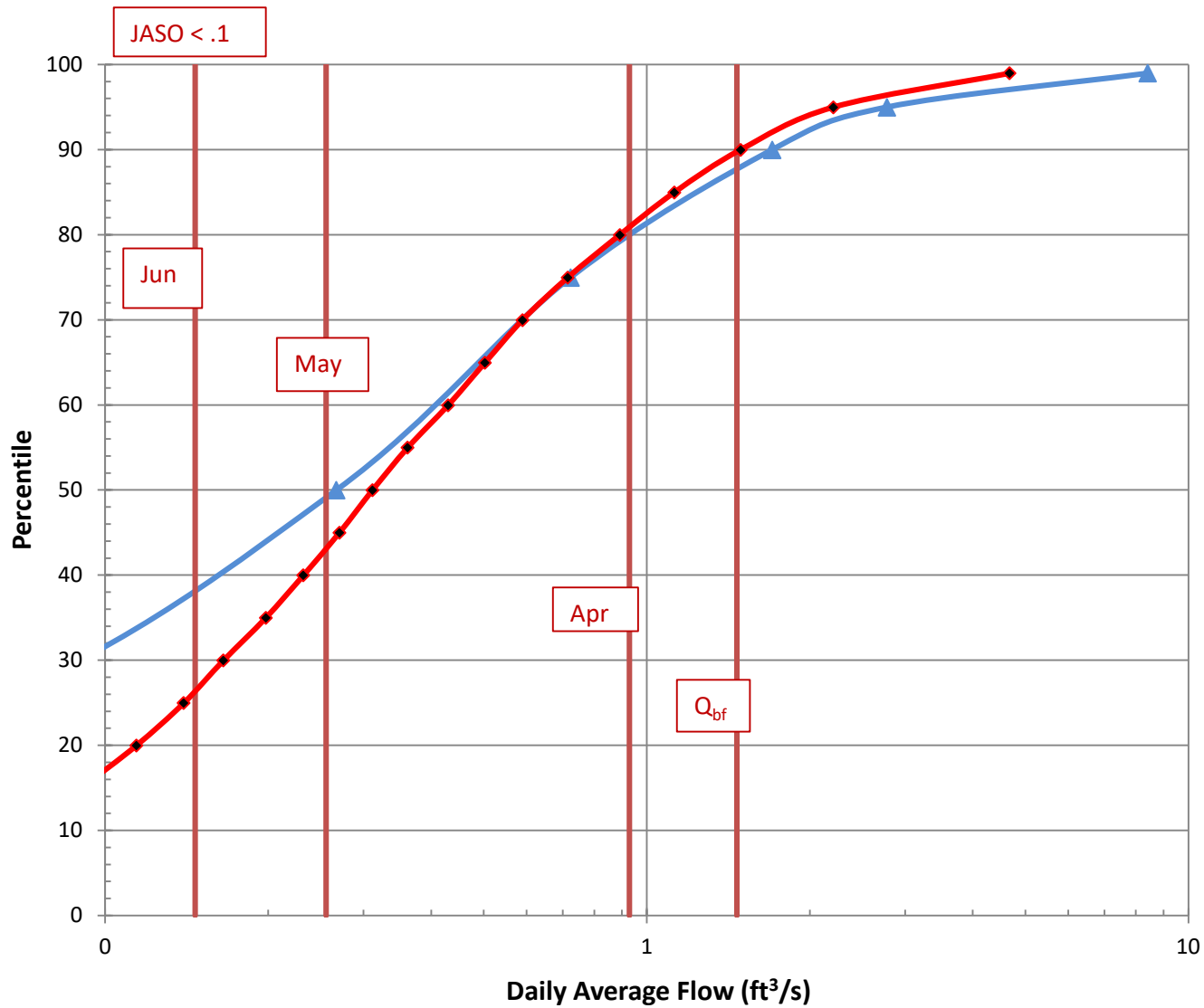
W _{bf}	6.3	estimated bankfull width (ft)
d _{bf}	0.4	estimated bankfull depth (ft)
A _{bf}	1.6	estimated bankfull flow area (ft ²)



References

Dudley, 2013. FY2013 Progress Report - Phase 1 ..., USFWS QRP Project
 Dudley, 2004. Estimating Monthly Streamflows ... , SIR 2004-5026
 Dudley, 2015. Regression Equations for Monthly & Annual Mean..., USGS SIR 2015-5151

Daily Average Flow Distribution



Daily Avg Flow Dist

$A_{ws} = (mi^2)$ 0.3

$Q (ft^3/s)$

Pctl	Median	84 th pctl
1.00E-06	0.00	0.00
1	0.03	0.05
5	0.05	0.08
10	0.07	0.11
15	0.09	0.13
20	0.11	0.16
25	0.14	0.19
30	0.17	0.21
35	0.20	0.24
40	0.23	0.28
45	0.27	0.32
50	0.31	0.37
55	0.36	0.44
60	0.43	0.51
65	0.50	0.60
70	0.59	0.69
75	0.71	0.84
80	0.89	1.00
85	1.13	1.28
90	1.49	1.72
95	2.21	2.67
99	4.68	6.16

Q_{bf}	1.5
$Q_{1.002}$	3.0
$Q_{1.1}$	7.3
Q_2	15.6

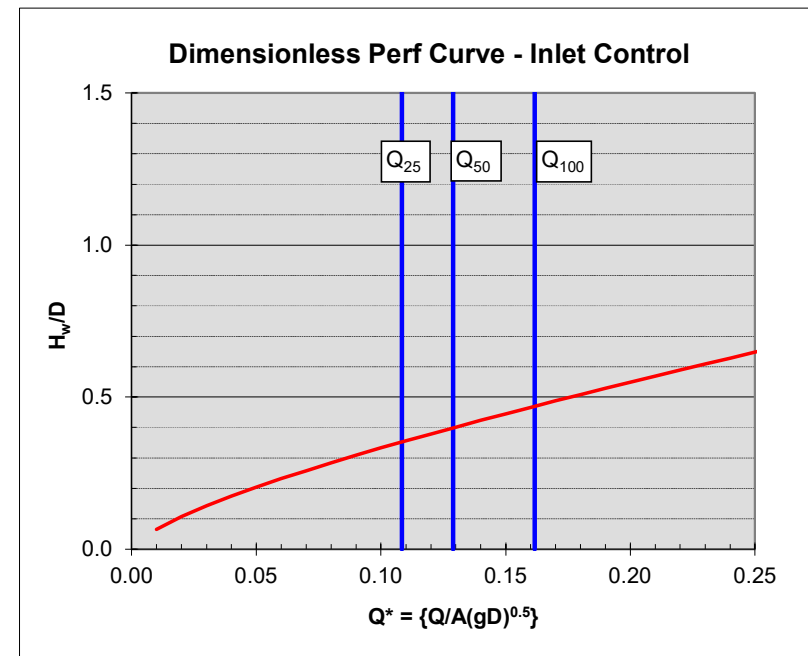
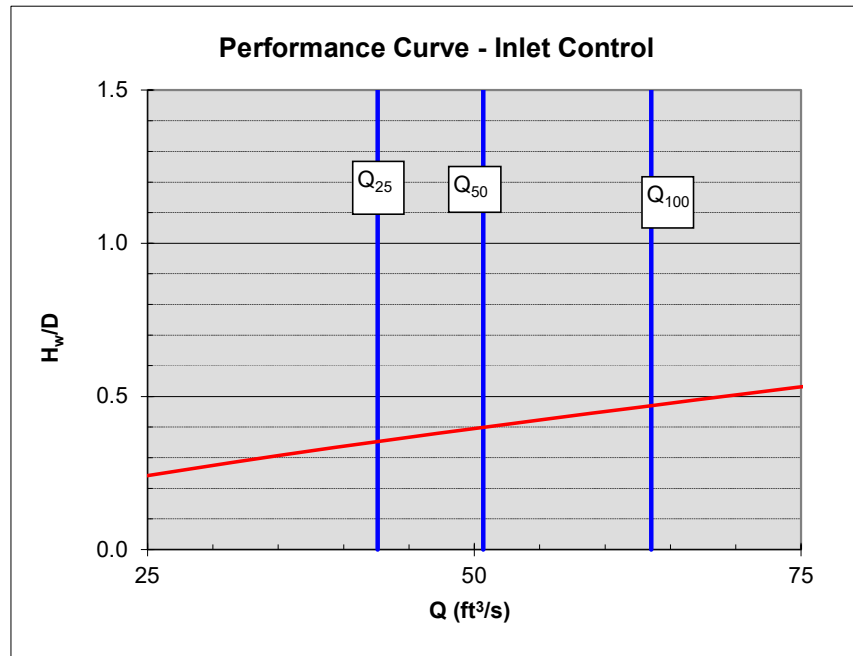
NOTE: This page is for preliminary sizing only.
Final design should be done with HY8 or HDS-5

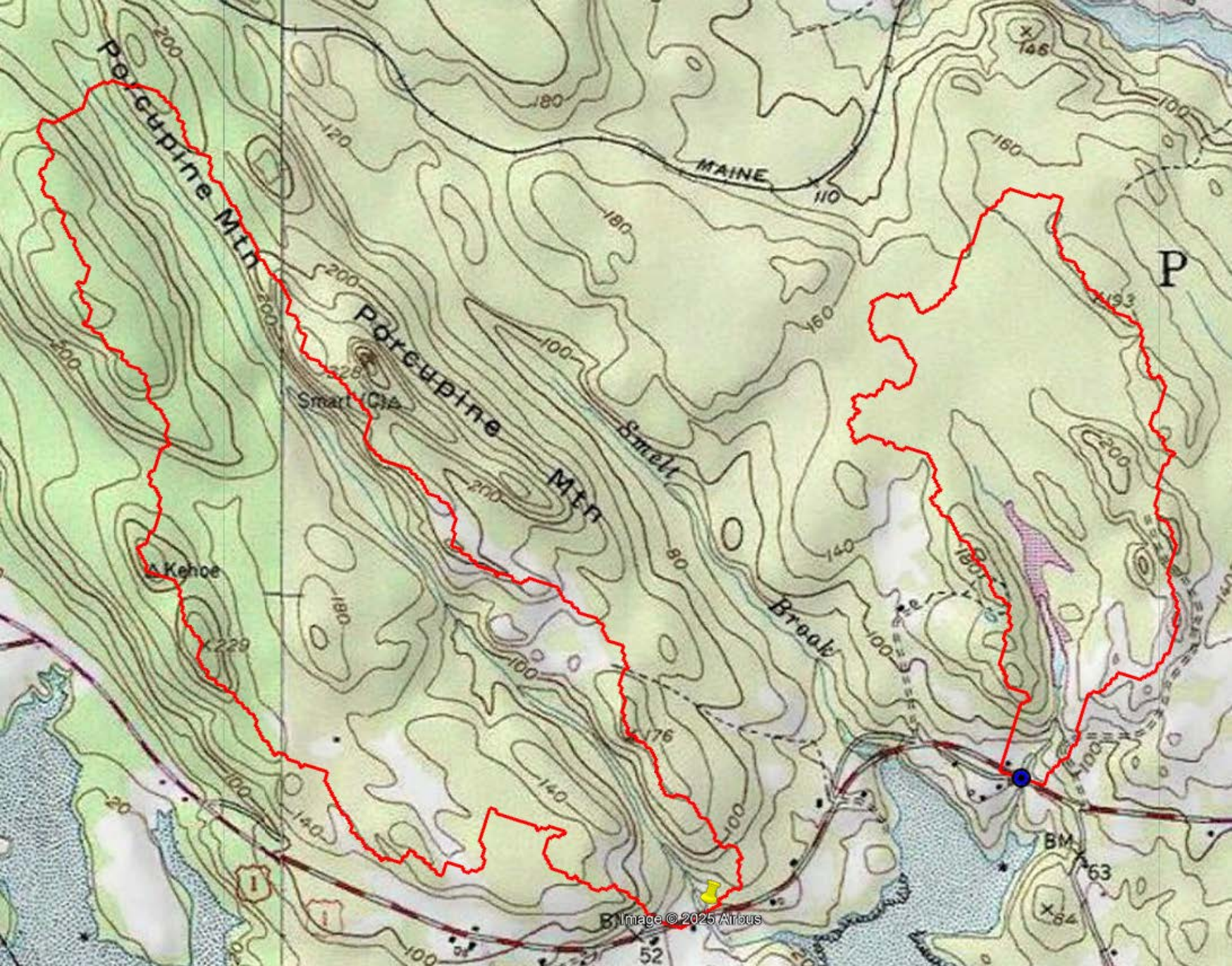
Note:
culvert dimensions are for open flow area; adjust for lost capacity
due to embedding / backfilling (min {2' / 25% rise} embedment)
Finish analysis with HY-8

Preliminary Culvert Sizing - Round & Box Culverts

Shape:	Round				
Inlet Type:	Circ CMP Proj				
D or R (ft)	6	diam / rise	Q_{25}	42.6	
w (ft)	11	box span	Q_{50}	50.7	trial D / R = 4.1
Slope (ft/ft)	0.01		Q_{100}	63.5	trial w: BFW = 6.3
A (ft ²)	28.27				
g (ft/s ²)	32.2				

Choose shape and inlet type by pull-down menu in green cells





National Flood Hazard Layer FIRMMette



67°6'14"W 44°57'27"N



0 250 500 1,000 1,500 2,000 Feet 1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/4/2025 at 7:30 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Perry 26630.12 XC-88085 US1 outlet to East Bay

Region ID: ME

Workspace ID: ME20250304164653669000

Clicked Point (Latitude, Longitude): 44.95379, -67.09833

Time: 2025-03-04 11:47:30 -0500



Existing 3.5D x 62L

+ Collapse All

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLDEM10M	Mean basin slope computed from 10 m DEM	9.66	percent
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	650030.91	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	4980442.55	meters
COASTDIST	Shortest distance from the coastline to the basin centroid	35	miles
DRNAREA	Area that drains to a point on a stream	0.3	square miles
ELEV	Mean Basin Elevation	141.7	feet
ELEVMAX	Maximum basin elevation	211.4	feet
I24H100Y	Maximum 24-hour precipitation that occurs on average once in 100 years	6.37	inches
I24H10Y	Maximum 24-hour precipitation that occurs on average once in 10 years	4.36	inches
I24H200Y	Maximum 24-hour precipitation that occurs on average once in 200 years	7.03	inches
I24H25Y	Maximum 24-hour precipitation that occurs on average once in 25 years	5.15	inches
I24H2Y	Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index	3.09	inches
I24H500Y	Maximum 24-hour precipitation that occurs on average once in 500 years	7.99	inches
I24H50Y	Maximum 24-hour precipitation that occurs on average once in 50 years	5.75	inches
I24H5Y	Maximum 24-hour precipitation that occurs on average once in 5 years	3.78	inches
JULAVPRE	Mean July Precipitation	3.04	inches
LC06WATER	Percent of open water, class 11, from NLCD 2006	0.58	percent
PCTSNDGRV	Percentage of land surface underlain by sand and gravel deposits	0	percent

Parameter Code	Parameter Description	Value	Unit
PRDEC FEB90	Basin average mean precipitation for December to February from PRISM 1961-1990	11.5	inches
PRECIP	Mean Annual Precipitation	43.1	inches
SANDGRAVAF	Fraction of land surface underlain by sand and gravel aquifers	0	dimensionless
SANDGRAVAP	Percentage of land surface underlain by sand and gravel aquifers	0	percent
STATSGOA	Percentage of area of Hydrologic Soil Type A from STATSGO	11	percent
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	13.017	percent
STORNWI	Percentage of storage (combined water bodies and wetlands) from the National Wetlands Inventory	12.41	percent

➤ Peak-Flow Statistics

Peak-Flow Statistics Parameters [Statewide multiparameter peakflows SIR 2020 5092]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.3	square miles	0.26	5680
I24H100Y	24 Hour 100 Year Precipitation	6.37	inches	3.99	9.88
I24H10Y	24 Hour 10 Year Precipitation	4.36	inches	2.84	6.38
I24H200Y	24 Hour 200 Year Precipitation	7.03	inches	5.26	11.1
I24H25Y	24 Hour 25 Year Precipitation	5.15	inches	3.3	7.75
I24H2Y	24 Hour 2 Year Precipitation	3.09	inches	1.92	4.17
I24H500Y	24 Hour 500 Year Precipitation	7.99	inches	5.95	13.1

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
I24H50Y	24 Hour 50 Year Precipitation	5.75	inches	3.65	8.79
I24H5Y	24 Hour 5 Year Precipitation	3.78	inches	2.48	5.38
STORAGE	Percent Storage	13.017	percent	0	29.4

Peak-Flow Statistics Flow Report [Statewide multiparameter peakflows SIR 2020 5092]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	PIL	PIU	ASEp
50-percent AEP flood	15.7	ft^3/s	8.32	29.6	39.1
20-percent AEP flood	25.3	ft^3/s	13.6	47	38.1
10-percent AEP flood	32.5	ft^3/s	17.2	61.3	38.9
4-percent AEP flood	42.6	ft^3/s	22.2	81.6	39.9
2-percent AEP flood	50.7	ft^3/s	26	98.8	39.7
1-percent AEP flood	59.4	ft^3/s	30.6	115	40.7
0.5-percent AEP flood	69.1	ft^3/s	34.4	139	42.8
0.2-percent AEP flood	81.8	ft^3/s	40.1	167	43.8

Peak-Flow Statistics Citations

Lombard, P.J., and Hodgkins, G.A.,2020, Estimating flood magnitude and frequency on gaged and ungaged streams in Maine: U.S. Geological Survey Scientific Investigations Report 2020–5092, 56 p. (<https://doi.org/10.3133/sir20205092>)

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Application Version: 4.28.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1