

HYDRAULIC REPORT

Josh Bridge carries Langdon Road over the Abagadasset River in the town of Richmond, Maine. A hydrology report for the Abagadasset River was developed and used with flow data from FEMA flood insurance study (FIS) report, and peak flow estimates provided by the Maine Department of Transportation (MaineDOT) Hydrology Section. The summary of the site hydrology is located in the table below.

SUMMARY		
Drainage Area	8.34	mi ²
Q1.1	115	ft ³ /s
Q25	555	ft ³ /s
Q50	645	ft ³ /s
Q100	745	ft ³ /s
Q500	1000	ft ³ /s

Reported by: Praul, Jacob

Date: November 1, 2024

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

HYDRAULIC INFORMATION

A hydraulic model was not created for this project due to the similarity in conditions to Stewart Bridge (#6186; WIN 25069.00) which is less than a mile upstream. The stream is relatively slow moving with a wide floodplain. The FEMA Flood Map shows a Q100 flood elevation of 142.3' which would result in overtopping part of the roadway.

The project site has soft soils characteristic of this area and settlement was a problematic part of the Stewart Bridge project. A project to meet headwater to depth requirements would require settlement mitigation and a significant reconstruction of Langdon Road beyond the flood plain at both ends. As a bridge project on a town road, that extensive of a roadway reconstruction with associated grade increase is not within the scope of the project. As a tailwater controlled structure set lower than the stream thalweg in a slow moving stream, the structure is going to flow full or nearly full at most recurrence intervals. During multiple site visits, the stream had no appreciable velocity. A basic assessment of flow compared to velocity and proposed cross sectional area with consideration of a typical bankfull flow even flowing only half full yields a low velocity more than reasonable for fish passage.