HYDROLOGY & HYDRAULIC SUMMARY

A preliminary hydrology, hydraulic and scour evaluation was completed for the Days Mills Bridge Replacement. A hydrology report for the Kennebunk River watershed was developed and used concurrently with flow data from USGS StreamStats program. A summary of the project site hydrology is located in the table below.

SUMMARY		
Drainage Area	21.4	mi^2
Q1.1	225	ft^3/s
Q10	915	ft^3/s
Q25	1,180	ft^3/s
Q50	1,395	ft^3/s
Q100	1,610	ft^3/s
Q500	2,200	ft^3/s

Reported by: HNTB
Date: September 11, 2023

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

Hydraulic calculations for the existing conditions along Kennebunk River were performed using the U.S. Army Corps of Engineers' software HEC-RAS, version 5.0.7. HEC-RAS supports one-dimensional, steady flow and unsteady flow, water surface profile calculations. Cross-sections were cut from survey data gathered for this project. The proposed structure was not modeled since it spans the existing structure and provides a greater hydraulic opening than the existing structure. This evaluation concluded that at the existing structure, the Q50 and Q100 storm water elevations are 11.52 feet and 10.83 feet below the low chord, respectively.

A summary of the hydraulic analysis of the existing conditions is provided below; the Preliminary Hydrology, Hydraulic Report is provided separately.

HYDRAULIC SUMMARY

		Existing Structure
		46' Long Single Span Bridge
Bridge Opening Area, ft^2	ft^2	482
Headwater Elevation, Q1.1, ft.	ft	124.11
Headwater Elevation, Q10, ft.	ft	127.31
Headwater Elevation, Q50, ft.	ft	129.03
Headwater Elevation, Q100, ft.	ft	129.72
Headwater Elevation, Q500, ft.	ft	131.50
Discharge Velocity at Q1.1, fps	ft/s	5.83
Discharge Velocity at Q10, fps	ft/s	9.75
Discharge Velocity at Q50, fps	ft/s	11.19
Discharge Velocity at Q100, fps	ft/s	11.74
Discharge Velocity at Q500, fps	ft/s	13.03
Clearance at Q50, ft.	ft	11.52
Clearance at Q100, ft.	ft	10.83

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