

HYDROLOGY REPORT

The project site is a bridge between two islands. Tidal fluctuations at and through this bridge are complex and affected by the convoluted coastline. Tidal elevations vary little from one side of the bridge to the other, but tidal elevations vary greatly over time. No freshwater flow impacts this bridge.

SUMMARY OF WATER LEVEL ELEVATIONS/HYDROLOGY

DESCRIPTION	ELEVATION, NAVD
HOWL, Jan 1978 (Sedgewick)	11.4/9.8
HOWL with 4' of sea level rise (100 year)	15.4/13.8
HAT, 2016	7.15
MHHW	5.0
MHW	4.6
MSL	-0.36
NAVD 88	0
MLW	-5.3
MLLW	-5.65
LAT	-7.95
10-year storm surge	8.4
10-year storm surge with wave setup	10.0
10-year storm surge with wave setup and sea level rise (SLR)	14.0
10-year storm surge with wave setup, SLR, and breaking waves	17.0
50-year storm surge	9.0
100-year storm surge	9.3
100-year storm surge with wave setup	10.9
100-year storm surge with wave setup and SLR	14.9
500-year storm surge	9.9

See Appendix E for the “Preliminary Design Hydrology and Hydraulic Report” as prepared by Northstar Hydro, Inc.

Reported by: Northstar Hydro, Inc.
Date: November 21, 2016

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

HYDRAULIC REPORT

The hydraulic analysis has shown that the bridge has little to no effect on the tidal water elevations on either side of the bridge, regardless of the span length. To meet the bridge design guide hydraulic requirements for freeboard requires raising the low chord of the bridge approximately 6 feet, which is not recommended as previously noted. A design exception to maintain the existing structure low chord elevation of 9.5 feet has been obtained. See Appendix E for the complete “Preliminary Design Hydrology and Hydraulic Report” as prepared by Northstar Hydro, Inc.