

RI CRMC COASTAL HAZARD APPLICATION WORKSHEET

APPLICANT NAME: _____

PROJECT SITE ADDRESS: _____

Please refer to the RI Shoreline Change Special Area Management Plan, Chapter 5 for background and descriptions of the steps outlined below. http://www.crmc.ri.gov/samp_beach/SAMP_Beach.pdf

STEP 1. PROJECT DESIGN LIFE

___ A. Indicate FEMA FIRM base flood elevation (BFE) for the project location, available from FEMA, or the municipal building official.

___ B. Using the CRMC Shoreline Change maps, indicate the transect number closest to your site, and erosion rate listed for that transect.

http://www.crmc.ri.gov/maps/maps_shorechange.html.

Transect Number:

Erosion Rate:

___ C. How long do you want your project to last? Identify the expected design life for the project (CRMC recommends a **minimum of 30 years**)

___ D. Add the number of years you identified in 1C to the current year. (For example, if you are completing this form in the year 2020, and you want your project to last 30 years, your design life year will be 2050.)

___ E. **CIRCLE** the sea level rise (SLR) projection from the Table 1. that matches or comes closest to project design life.

Year	2020	2030	2040	2050	2060	2070	2080	2090	2100
SLR	1.05	1.67	2.33	3.25	4.20	5.35	6.69	8.14	9.61

Table 1E. Sea Level Rise (SLR) Projections (Feb. 2017). NOAA High Curve, 83% Confidence Interval. Newport, RI Tide Gauge. All values are expressed in feet relative to NAVD88. <http://www.corpsclimate.us/ccaceslcurves.cfm>

NOTE: The STORMTOOLS sea level rise scenarios depict how high the water will be above the average height of the daily high tide over the 19-year period between 1983 and 2001. There have been between 4 and 5 inches of sea level rise in Rhode Island since then. The higher modeled water level accounts for the uncertainties in ice sheet and ocean dynamics.

STEP 2. SITE ASSESSMENT

___ A. Open *RICRMC Coastal Hazard Mapping Tool* <https://arcg.is/qTSqz>. Following the tutorial along the left side of the screen, enter the project site address and turn on the sea level layer closest to the number you circled in 1E.

___ B. **CIRCLE** the STORMTOOLS SLR map layer closest to the SLR value you circled in Step 1E above. If the value falls between the available STORMTOOLS SLR map layers, round off to the closest sea level rise (SLR) number.

1ft 2ft 3ft 5ft
7ft 10ft 12ft

___ C. Does the STORMTOOLS SLR map layer you circled above expose your project site to future tidal inundation? **CIRCLE YES or NO**

YES NO

___ D. List any **roads or access routes** that are potentially inundated from SLR and storms. To do this, **ZOOM OUT** from your project location, change BASEMAP on the viewer to "street view" – see Step 2A.

STEP 3. STORMTOOLS DESIGN ELEVATION (SDE)

___ A. Based on the project location, **CIRCLE** the SDE Viewer for your site, and open the corresponding tab in Mapping Tool:

South Coast SDE Viewer: Napatree to Point Judith	Narragansett Bay SDE Viewer: North & East of Point Judith
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___ B. Follow the tutorial included along the left panels of the viewer to enter the address of your project site. Select the tab across the top that corresponds to the sea level rise projection you identified in STEP 1E.

___ C. Click on the map at project site to identify **STORMTOOLS Design Elevation (SDE)** from the pop up box. **Enter the SDE value here:**

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STEP 4. SHORELINE CHANGE

___A. Setbacks are required per RI Coastal Resources Management Program (RICRMP), Section 1.1.9. Indicate the annual shoreline change rate value from STEP 1B, and the design life selected in STEP 1C above. Enter values in 4C below.

___B. **CIRCLE** the Projected Erosion Rate that corresponds to the design life you identified above.

Year	2050	2060	2070	2080	2090	2100
Projected Future Erosion Multiplier	1.34	1.45	1.57	1.70	1.84	2.00

Table 4B. Projected Shoreline Change Rate multipliers. (Oakley et al., 2016)

___C. **COMPLETE EROSION SETBACK CALCULATION:**

Historic shoreline change rate, STEP 1B	Design Life, STEP 1C	Projected Future Erosion Multiplier, STEP 4B	Erosion Setback (ft) 1B x 1C x 4B
X	X	=	

NOTE: A minimum setback of 50-feet is required, but a greater setback may be necessary and/or desirable based on this analysis.

STEP 5. CERl & OTHER SITE CONSIDERATIONS

___A. If you live in a community where a Coastal Environmental Risk Index (CERl) has been completed (Barrington, Bristol, Charlestown, Narragansett, South Kingstown, Warren, Warwick, Westerly), **CIRCLE** the level of projected damage to your location, as indicated on the map that corresponds to the design life identified in STEP 1.

CERl Level:	Moderate	High	Severe	Extreme	Inundated by 2100	Not applicable
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___B. Consider and discuss with your design consultant other forces or factors that might impact the development, such as coastal habitats, shoreline features, public access, wastewater, storm water, depth to water table/groundwater dynamics, saltwater intrusion, or other issues not listed above. In addition, pressure from rising sea levels will result in rising subsurface groundwater levels ultimately effecting wells and septic systems.

STEP 6. LARGE PROJECTS

This step is for Large Projects and Subdivisions only, six (6) or more units, as defined by RI CRMP Section 1.1.6.I(1)(f). This step may be skipped for other projects.

___A. Use the Sea Level Affecting Marshes Model (SLAMM) Maps to assess potential impacts to large projects and subdivisions from salt marsh migration resulting from projected sea level rise. CRMC SLAMM maps can be accessed here:

YES	NO
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http://www.crmc.ri.gov/maps/maps_slamm.html. The CRMC recommends using the 5-foot SLR projection within SLAMM to assess future potential project impacts on migrating marshes. Does the SLAMM map that corresponds to the design life you identified in STEP 1 expose your project site to future salt marsh migration? **CIRCLE YES or NO**

STEP 7: DESIGN EVALUATION

___A. Using Chapter 7 of the RI Shoreline Change SAMP as a guide, investigate mitigation options for the exposure identified above and include that in the final application.

This fully completed Coastal Hazard Application Guidance worksheet must accompany the application. If you are a design or engineering professional, please sign here that you have discussed the findings of this worksheet with the Owner.

DESIGN/ENGINEER SIGNATURE: _____ **DATE:** _____

OWNER'S SIGNATURE: _____ **DATE:** _____