

Section XVIII - Flood Elevation Requirements

- A. **Introduction** - Localities in Hampton Roads have adopted freeboard construction requirements above specific FEMA flood plain mapping that impact proposed construction standards in these localities, including HRSD projects. FEMA developed a Community Rating System (CRS) for localities that voluntarily exceed the minimum requirements of the National Flood Insurance Program (NFIP). One benefit to compliance with this program is a discount on flood insurance policies for participating communities.
- B. **Locality Code Requirements** - The following table summarizes the current adopted freeboard construction requirement for localities in Hampton Roads and the HRSD service area. Freeboard = height above FEMA Base Flood Elevation for the 100-year storm.

Definitions of the different zones

AO	River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
Coastal A	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
AE	The base floodplain where base flood elevations are provided. AE Zones are now used on new format FIRMs instead of A1-A30 Zones.
V	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.
VE	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.

Locality	AO Zone Min Elev	Coastal A or AE Zone Min Elev	VE or V Zone Min Elev
Chesapeake	Equal to FIRM or flood-proofed	Base flood + 1.5'	Base flood + 1.5'
Isle of Wight	---	Base flood + 1.5'	Base flood + 1.5'
Norfolk	Equal to FIRM or flood-proofed	Base flood + 3'	Base flood + 3'
Portsmouth	Equal to FIRM or 2' higher than adjacent grade if no elev available	Base flood + 3'	Base flood + 3'
Smithfield	---	---	---

Suffolk	Equal to FIRM or 2' higher than adjacent grade if no elev available	Base flood + 1'	Base flood + 1'
Virginia Beach	Equal to FIRM or 2' higher than adjacent grade if no elev available	Base flood + 2'	Base flood + 2'
Gloucester	Base flood + 2'	Base flood + 2'	Base flood + 2'
Hampton	---	Base flood + 3'	Base flood + 3'
James City County	FIRM + 2'	Base flood + 2'	Base flood + 2'
Mathews	Equal to FIRM	Base flood + 1'	Base flood + 1'
Newport News	Equal to FIRM or 2' higher than adjacent grade if no elev available	Base flood + 2'	Base flood + 2'
Poquoson	Base flood + 3'	Base flood + 3'	Base flood + 3'
Williamsburg	N/A	N/A	Base flood + 1.5'
York	FIRM + 3' or 2' higher than adjacent grade if no elev available	Base flood + 3'	Base flood + 3'
King William	---	Base flood + 1'	Base flood + 1'
West Point	---	Base flood + 1'	Base flood + 1'

These freeboard construction elevation requirements should be verified with the locality in question for each project when initiated. Localized drainage constraints should also be considered for each project when setting the elevation for new buildings or structures.

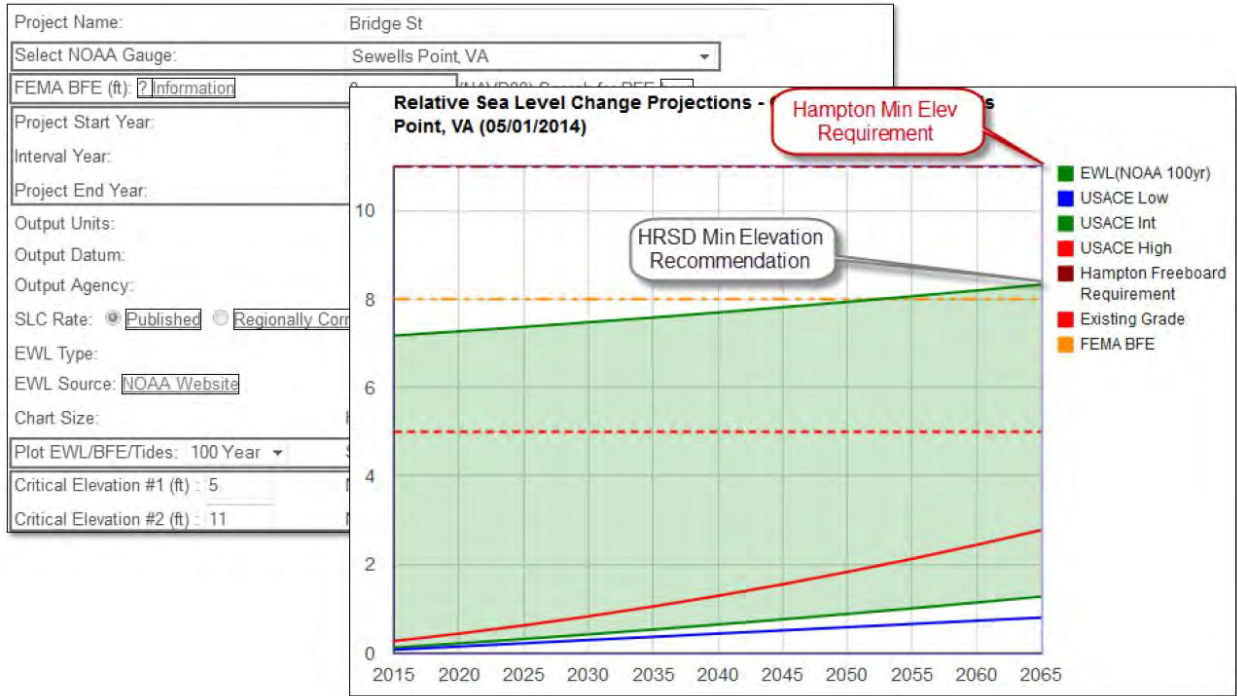
C. Steps for Determining Construction Elevation - The following tools and procedure should be used with all HRSD above ground construction:

1. US Army Corps Sea-Level Change Curve Calculator (<http://www.corpsclimate.us/ccaceslcurves.cfm>)
2. Input FEMA BFE (site specific)
3. Select Sewell's Point gauge
4. Input project begin and end years (50-yr life cycle)
5. Select 100-yr EWL (extreme water level)
6. Select USACE Intermediate Curve
7. Input existing grade elevation under Critical Elevation #1
8. Select finished floor elevation from graph

9. Determine Locality minimum requirements (FEMA flood elevation + Locality freeboard)
10. Determine HRSD calculation results (USACE Tool)
11. Use greater of the two results

D. Elevation Requirement Example - The following example is based upon HRSD's Bridge Street Pump Station project located in Hampton.

Project Name:	Bridge St		
Select NOAA Gauge:	Sewells Point, VA		
FEMA BFE (ft): ? Information	8	(NAVD88) Search for BFE here	
Project Start Year:	2015		
Interval Year:	5		
Project End Year:	2065		
Output Units:	<input checked="" type="radio"/> Feet <input type="radio"/> Meters		
Output Datum:	<input type="radio"/> LMSL <input checked="" type="radio"/> NAVD88		
Output Agency:	<input checked="" type="radio"/> USACE <input type="radio"/> NOAA <input type="radio"/> Both		
SLC Rate:	<input checked="" type="radio"/> Published <input type="radio"/> Regionally Corrected	or User Entered:	<input type="text"/> (ft/yr) <input type="button" value="Display Data"/>
EWL Type:	<input checked="" type="radio"/> Highs <input type="radio"/> Lows		
EWL Source:	NOAA Website	<input checked="" type="radio"/> NOAA (GEV) <input type="radio"/> USACE (Percentile) 100 yr difference (m) = 0.15	
Chart Size:	Height: <input type="text"/> 600	Width: <input type="text"/> 800	<input type="button" value="Display Data"/>
Plot EWL/BFE/Tides:	100 Year	Select Curve:	USACE Int
Critical Elevation #1 (ft) :	5	NAVD88 - Description:	Existing Grade
Critical Elevation #2 (ft) :	11	NAVD88 - Description:	Hampton Freeboard R



End of Section