**6. ENGINEERING SYSTEMS REQUIREMENTS**

**H30 COASTAL PROTECTION**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
SYSTEMS REQUIREMENTS
COASTAL PROTECTION TEMPLATE 02/18

Instructions for using this template: There are template files for each UNIFORMAT Level 2 Group Elements. This template is for Group Element H30-COASTAL PROTECTION. Text such as this is hidden text that will not print when the hidden text box in "Print/Options" is un-checked.

Edit this template for the requirements of the project and wherever brackets [ ] appear. Use UFC 4-150-06 when determining Coastal Protection system requirements.

The SYSTEMS REQUIREMENTS are intended to define items that are required throughout the facility or on a system wide basis that is common to several waterfront facilities. Coastal Protection-specific requirements are defined in GENERAL SYSTEM REQUIREMENTS paragraph of PTS Section H30. Coordinate with the lead programmer for interface requirement with other elements of the program. Editing is required where brackets [ ] appear. Delete all Coastal Protection elements that are not required for the project. If additional elements or sub-elements are required for the project that do not appear in the template, consult with the Capital Improvements section at NAVFAC Atlantic for additional element numbers and description. Coordinate with the PERFORMANCE TECHNICAL SPECIFICATION SECTION H30 to ensure that performance requirements are provided for all of the Waterfront Facility Elements listed here and that paragraph numbering matches.

There may be rare occasions when prescriptive specifications may either be edited and included in Part 5 of the RFP or required in PTS Section H30 to be edited by the Contractor's Designer of Record. In both cases, the Engineering Systems Requirements (ESR) must include references to these documents.
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**SYSTEM DESCRIPTION**
The Coastal Protection System consists of all waterfront [breakwater,] [wave protection armor,] [slope protection,] [revetment,] [and] [ \_\_\_\_\_\_\_\_\_ ] at [ \_\_project site\_\_\_\_\_ ] necessary and required for the protection of project waterfront facilities from damage by wave, tide and current.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
NOTE: Provide additional coastal protection system scope description if not already covered above. List the coastal protection elements in the project.
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**GENERAL SYSTEM REQUIREMENTS**
Provide a Coastal Protection System complete in place, and approved, as specified throughout this RFP, as needed for a complete, usable and proper installation. Install all material in accordance with ESR and PTS Sections H30. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

Do not commence in-water coastal protection work until the required permits listed in Paragraph titled, "Permitting and Agency Review" in Chapter 3, Site Analysis of Part 3 are obtained. Work to be done below [Mean Higher High Water (MHHW)] [\_\_\_\_\_\_\_\_] is considered in-water work.

**Oceanographic Design Parameters**
**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
NOTE: Use the following when Government provides the wave analysis:
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

[A wave analyses report, prepared by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is included in Attachment \_\_ of Part 6. The design water level and wave conditions are based on [50-year] [100-year] [\_\_\_\_\_\_\_\_] recurrence conditions as follows:

|  |  |
| --- | --- |
| Design Water Elevation | [\_\_\_\_\_\_] |
| Design Significant Wave Height | [\_\_\_\_\_\_] |
| Design Wave Period | [\_\_\_\_\_\_] |
| Extreme High Water (EHW) | [\_\_\_\_\_\_] |
| Mean Higher High Water (MHHW) | [\_\_\_\_\_\_] |
| Mean Lower Low Water (MLLW) | [\_\_\_\_\_\_] |
| Extreme Low Water (ELW) | [\_\_\_\_\_\_] |

The information presented above is based on the Government's best estimate of those environmental and physical factors which reasonably can be expected to affect the design, performance and durability of the waterfront facilities. Consider these criteria to be minimum requirements. For design of waterfront facility improvements, perform thorough engineering analysis using all relevant criteria that could affect the integrity and performance of the constructed improvements.]

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
NOTE: Use the following when Government does not provide the wave analysis:
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

[Develop the wave data at the project site for the design of Coastal Protection elements.]

 **H3010 WAVE PROTECTION**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
NOTE: Provide description of locations and types of the required wave protection such as breakwater, wave protection armor for slope protection, revetment and scour protection.
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

[Design and construct the Coastal Protection elements to withstand the wave forces generated based on the oceanographic design parameters described above in accordance with the performance requirements of Paragraph H3010 in PTS Section H30 of Part 4.]

[Utilize [500 lbs (220 kg)] [\_\_\_\_\_\_\_\_\_\_] minimum size of stone used as armor or rip rap for wave protection.]

 **H3020 SLOPE PROTECTION**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*
NOTE: Provide description of locations and types of the required slope protection such as revetment or embankment dike.
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

[At [\_\_\_\_identify location\_\_\_\_] provide slope protection such as [rock revetment] [\_\_\_\_] to stabilize the embankment. Design and construct slope protection facilities in accordance with the performance requirements of Paragraph H3020 in PTS Section H30 of Part 4. Wave protection of the slope protection facilities must meet the performance requirements of Paragraph H3010 in PTS Section H30 of Part 4.]

--End of Section--