

E2 - REQUIREMENT DOCUMENT PHYSICAL SEABASED PORT SECURITY SYSTEM Haakonsværn Naval base

1 SYSTEM SOLUTION

The solution is to be installed and ready to use, with all necessary functions except for tugging boat. How to lift and use of the tugging boat for daily use and lifting crane for maintenance shall be described under the maintenance chapter.

1.1 Design and purpose

The barriers have two main purposes. The first purpose is to physical stop un-authorized small crafts as jet-skis, smaller boats as RIBs, and larger ships. The second purpose is to function as a preventive barrier between the civilian and the military area.

The sea barriers must rise minimum 100 centimetres or more above sea level.

Estimated use of gates is:

- ✓ Threat level low: 2 times pr. 7 days
- ✓ Threat level medium: 14 times per 7 days
- ✓ Threat level high: more than 20 times per 24 hours.

Estimated numbers are per opening gate. The gates must be possible to maneuver in open and closing position in the conditions described in chapter 1.4

1.2 Physical requirements

The subsea mooring system must withstand higher loads than the floating barriers and horizontal wire/tube etc. connections. Due to subsea service is more complicated.

- The solution must withstand a vessel of 4 tonnes¹ holding a constant speed of 30 knots² when hitting the barrier at all angles³ (horizontal).
- Apply if data are calculated or tested
Tested
Calculated
(Documentation and test data from certified test centre must be included).
- The sea barriers must be minimum 1 meter above sea level.
- The barriers must be designed in a way that prevents a person to climb over/above it, preferably cylindrical shape.
- The solution must be designed in a way that prevents jet-skis and other similar small crafts from penetrating the perimeter between two barriers (maximum 1 meter between two barriers).
- All materials must be able to withstand corrosion, sea growth and environmental factors as listed in chapter 1.4.
- The solution must be designed to withstand natural catastrophes as flooding, 50 years tidal wave etc.
- All components must be ISO certified.
- All steel components must be ISO certified, apply ISO standard for welded and galvanized steel.

¹ Apply mass of calculated/tested vessel.

² Apply speed of calculated/tested vessel.

1.3 Safety requirements

All the lights and signs on the barriers must comply Norwegian and international regulations. Haakonsværn Naval base can provide all the signs in AutoCAD format etc.

Please fill in the colours the barriers can be delivered in: _____

All the barriers are to be delivered with reflective band fill in choices: _____

The barrier must have a safety marking light each 25 metres.

All gates for in/out transportation must have red light on the port side and green light on the starboard side. All the marking lights must operate 24/7/365 on solar and/or battery power.

1.4 Environmental requirements

- The sea bedding conditions is a mix of rock, gravel and mud.
- Sea conditions is:
 - Sea growth conditions
 - Saltwater conditions
 - Tidal conditions
 - Water temperature
 - Wave height
 - There is normally no ice on the water during the winter.
- Weather conditions is:
 - Maximum and minimum temperature +30°C / -10°C.
(It may drop to -20°C for shorter periods in the winter)
 - Maximum wind 30m/s
 - Snow:Yes
- Technical safety solution
 - Reflective band size and colour
 - Safety lights LEDs lux
 - Battery

1.5 Maintenance

Apply full description of all necessary maintenance.

Apply full description of all recommended maintenance.

1.6 Service agreement

As an optional price, a service agreement for 1 and 3 years with necessary maintenance to maintain full function and guarantee on a level that ensures that the solution does not degrade or lack function.

The following is to be included

- Recommended service __ times a year (fill in how many visits a year)
- Status report of recommended repairs and replacements.

The Royal Norwegian Marine will provide a boat with a crane (5 tonne/20kn lifting capacity).

1.7 Life cycle cost (LCC)

The expected LCC costs for 10 and 25 years shall be described. The following factors is to be included in the LCC

- Estimated use (8 opening/closing session per 24 hours)
- 1 full maintenance a year
- The sea bedding conditions
- Sea conditions as:
 - Sea growth conditions
 - saltwater conditions
 - Tidal conditions
 - Water temperature
- Weather conditions as:
 - Maximum and minimum temperature
 - Maximum wind 25m/s
 - Snow

- Expected change for parts as:
 - Solarpanels
 - LEDs
 - Battery
- Expected change in parts as:
 - Moorings
 - Chains
 - Locks
 - Anchors
- Expected change for the barriers themselves.

1.8 Documents to be included

Following documents are to be included in the offer:

- Description of solution
- Scope of work
- Component list
- Spare part price list.
- Data sheets
- Test data
- ISO certifications
- Service agreement
- Expected LCC
- Battery change cycle
- Necessary spare part inventory

2 THE OFFERS CONTENT AND ORGANISATION

- Offer Letter, with any reservations and assumptions.
- Guarantee period
- Description of solution
- Description of necessary maintenance
- Detailed overview of what is included, with number of components, description and unit prices
- Datasheets, white paper etc.
 - Documentation of life expectation
 - Documented break load of components
 - Certified test documentation papers for complete solution (Technical approval company, BRE, TÜV, Sintef or other well known test facilities)
- Delivery time
- Recommended detailed work schedule

3 SECURITY GRADE

All documentation and information between the parties shall be considered confidential.