

Multi-Band Antennas Mast Erection for US Coast Guard Auxiliary, Flotilla 34

Mara Hansen's Quartermaster Project
Boatswain, Ship 238



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Presented by

Mara D Hansen

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About Me



Mara Danae Hansen

Boatswain, Sea Scout Ship 238

Rank: Able

School: North Broward Prep

Class of 2027

GPA: 4.31

SAT: 1340

Volunteer Hours: 532 hrs

AP Scholar

National Honor Society Member

Order of Arrow Member

Scuba Club Vice President



Skills

- NAUI Master Diver
- Over 100 Dives
- Became a Jr Rescue Diver at 14
- Over 65 Days living on a Catamaran in Caribbean (over 3 years)
- Rebuilding 2 Catalina Capri's

What I love about Sea Scouts

- I love getting the opportunity to teach people

Favorite things

Boxing
Compass

Trucker's
Hitch

Sailing

What is a Quartermaster Project?

While an Able Sea Scout, plan, develop, and demonstrate leadership to others in a service project that is helpful to any religious institution, school, or your community. The project plan must be approved by your Skipper and ship committee and approved by the council or district advancement committee before you start. This service project should involve your ship and at least one other group.

Why I want to be a Quartermaster?

- Currently only Sea Scout to have three stripes
- Follow through on something I have spent three years building towards

Project Description

The project I'm planning is the set up of a mast about 40 feet tall to be located by the west wall of the Coast Guard Auxiliary, Flotilla 34 building at the Alsdorf Park Boat Ramp in Pompano Beach.



This mast will allow the use of multiple antennas on the following bands

0.3-3 MHz

Medium Frequency

30-30 MHz

High Frequency

30-300 MHz

Very High Frequency

0.3-3 GHz

Ultra High Frequency

Bands to be Supported

MF

HF

VHF

UHF

My project will benefit Flotilla 34

This project is something that the flotilla has been wanting to do to have operational, emergency-ready, infrastructure-independent radio communications.



My project will be beneficial to Coast Guard Auxiliary flotilla 34 because radios work best with long antennae that are up high.

Some of the antennas supported by the mast will reach line of sight (potentially up to 25 nautical miles).

The MF-HF antenna can reach much farther, potentially hundreds, even thousands of miles. High elevation can expand the range of all of them since it will raise the antennas above things that would obstruct their range.

Who will help



AND....USCGAUX, FLOTILLA 34!



How it will be built

1



A hole needs to be dug to insert a 3 feet 3" PVC pipe surrounded by concrete to hold the base of the mast, a lateral support anchored at the building wall at 6 feet above surface to vertically stabilize the mast.

2



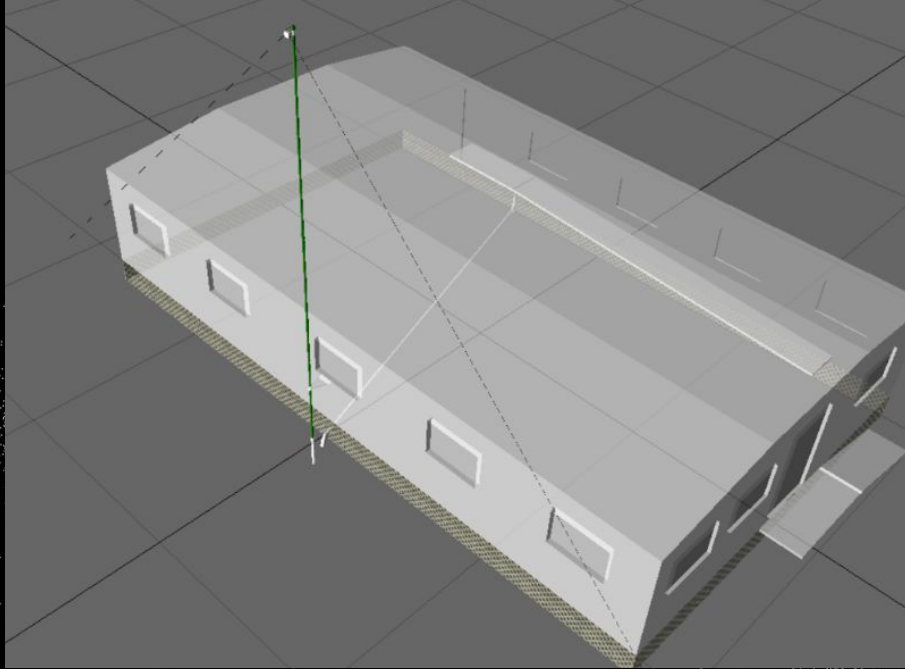
The MF-HF antenna elements will be configured in an inverted V sloping down and providing additional lateral support.

3



Finally, 2" PVC pipe running from the base of the mast to the floor of the radio room to contain the cables to connect the radios to the antennas.

Materials Needed



1 6 feet PVC pipe 3" diameter

2 40 feet PVC pipe 2" diameter

3 5x: clamps for 2" PVC pipe

4 2x: 2 in 90-Degree PVC DWV Elbow
Long Sweep

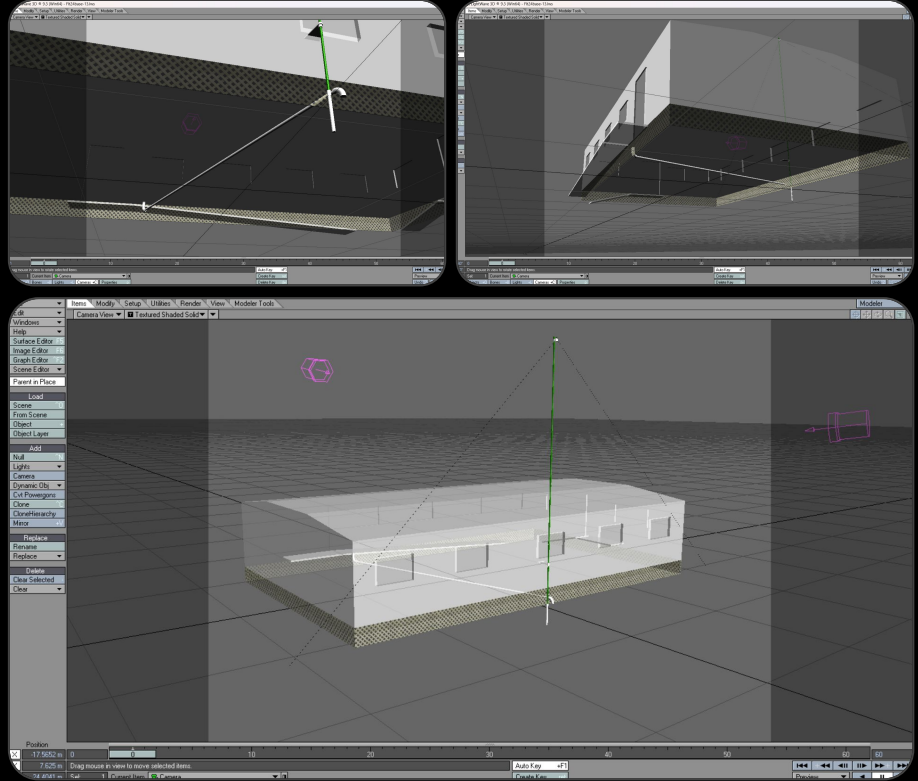
5 1x: 50 lb Fast setting Concrete mix

6 1x: 0.5 cu ft Drainage rock (0.5 - 3 inches)

Our designs

Antenna Mast Project renderings

3D renderings of the Antenna Mast Project,
provided by Skipper Carlos M. Arenas



Next Steps



Thank you

Ready for what's next?

Mara D. Hansen

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