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Petawawa National Forestry Institute, Chalk River, Ontario K0J 1J0, Canada

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INSTALLATION OF A SINGLE PYLON FOREST FIRE LOOKOUT TOWER

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Introduction

The Petawawa Research Forest contains some of Canada's oldest forestry research plots. The 24 710 acre (10 000 ha or 100 km^2) forest lies within the Great Lakes – St. Lawrence forest region (Rowe 1972) on the edge of the Canadian Shield and is predominantly mature forest with a mixture of white and red pine, trembling aspen, and white birch.

Because of military activity at Canadian Forces Base (CFB) Petawawa, adjacent to the Petawawa Research Forest, and the value of the research plantations and field experiments, fire detection and suppression are mandatory.

There are currently two staffed fire towers on the property: Center Lake tower and the new Wylie Lake tower.

Construction

Funds were set aside to establish a new tower to replace the Montgomery tower which was torn down. A suitable site was found in March 1988 and, that summer, a 2.5 mile (4.0 km) access road was built in cooperation with CFB Petawawa to the site of this new tower (Wylie Lake). Once the road and site were prepared, a notice of tender was sent out.

Advanced Towers Ltd. of Elmira, Ontario, was awarded a contract to build an 80 foot (24 m) all-weld single pylon forest fire lookout tower (Figure 1). The tower was designed in accordance with Canadian Standards Association (CSA) Standard s37-1986 to support a 64 square foot (6 m^2) cupola weighing approximately 2500 pounds (1134 kg). Tower installation included the following:

- foundation pin and anchor weldmonts for normal soil-bearing installation (4000 psf (19 530 kg/m^2) safe bearing)
- shop-fabricated, 10 foot (3 m) all-weld steel tower sections with splice bolts
- guy cables, guy grips, thimbles, shackles, and turnbuckles
- hot-dip galvanizing of all steel, guy cables, and hardware
- chemical etching, neutralizing, and enamel color banding of lower steel to Department of Transport specifications
- a standard grounding kit utilizing galvanized steel ground rods at the lower base and anchor piers, with stranded copper wire and strand connector
- safety equipment, including two trollies, an 84 foot (26 m) rail, and 36 inch (91 cm) safety hoops with an 18 inch (46 cm) ladder and three towerman safety belts
- construction of the cupola

Tower plans are presented in imperial units.

Costs

The tower base and anchor piers were installed on bare, smooth solid rock in the fall of 1988 in two days. Tower construction and cupola installation took three days in the spring of 1989.

The total cost for the tower installation, including all safety equipment and cupola construction, was C $35 469.34.

Conclusion

Some debate the use of a fire tower instead of aerial fire detection but, given the cost of the tower versus the overall resource value at risk, the Wylie Lake tower is excellent value at only 0.1% of the reported forest value.

For further details, contact J. Monty, Forestry Canada, Petawawa National Forestry Institute, P.O. Box 2000, Chalk River, Ontario K0J 1J0, Canada.

Reference

Rowe, J.S. 1972. Forest regions of Canada. Can. For. Ser. Publ. No. 1300.

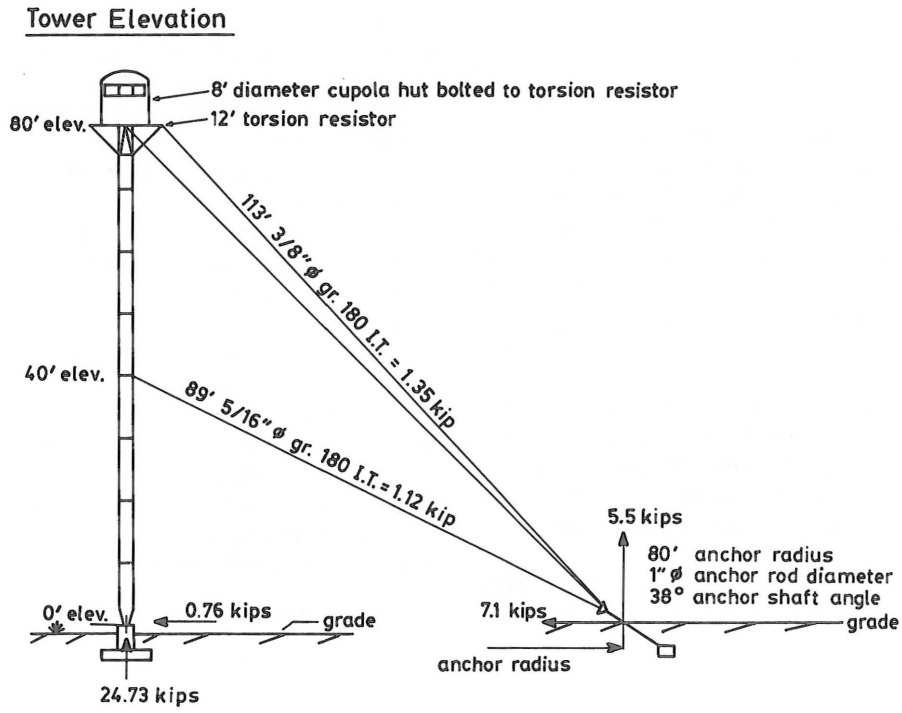

Figure 1: Blueprint drawing of forest fire lookout tower (Advanced Towers Ltd., Elmira, Ont.)

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