

SWSA Pond

Prudent and Feasible Alternatives

As part of this application prudent and feasible alternatives to the pond have been analyzed and discussed. The goal of the project is to be able to have sufficient water available when snow making conditions are present. Climate Change has added much variability to weather in New England. Like the farmer in the field, one must make hay while the sun shines. Snow cannot be made unless it is cold enough. Periods of suitable temperatures are shorter than in the past. The combination of having the equipment with the water volume required to convert to snow in a shorter amount of time is critical. SWSA is coming up on its 100th anniversary soon. In order to assure that winter events can take place, the pond solution is the most reasonable option to provide sufficient water to make snow. There is also the benefit of the proposed emergent marsh and program to address the invasive phragmites.

Option 1. Larger Pond, Less Equipment

In 2023 there was a pond proposed in 2023 with 0.42 acres of surface area and 1.7 acre-feet of usual storage. The current proposal has 64% of the original surface area and 73% of the original (0.27 acres of surface, and 1.4 acre-feet of available storage).

Option 2. More of the same well tiles currently used

There is no linear relationship as to the number of wells and the amount of discharge available (ie, 2 wells do not yield twice the flow). One well would be taking water for the adjoining wells. There is also the issue with available water to pump. The material below the organics consists of stratified sands. The porosity of these sands range from 0.2 to 0.4 depending of the gradation of the material. This means there is only 20-40% water in the voids where the pond would be and all the water is not available (80 to 60% less than a pond volume). There would not be the

required increase of available water to accomplish the stated goal. In addition, the water that is in the soil is not readily available. In addition there would be the increased number of pumps and electricity used. More of the same well tiles or even drilling more wells is unfeasible and does not meet the goals the current pond option offers.

Option 3. Storage

The pond is what would store the water for snowmaking. Other storage methods are prohibitively expensive and carry a much larger long-term maintenance cost.

3a Water tower

A water tower 20' high and 20' in diameter has a volume of 47,000 gallons, or 11% of what is proposed. It would require 8.8 towers to be able to match the pond



Figure 1 water tower more suited for swimming and trains

Costs can vary widely. A prefab 10,000-gallon tower can cost between \$40,000 to \$50,000. It would require 42 to match the pond at a cost of \$1,866,000. This does not include foundation work for the towers or the loss of space for parking and storage or visual issues.

3b Underground tanks

The cost of a 50,000-gallon Xerxes 12' diameter 68' 1" fiberglass tank delivered to site is \$250,000. If 8 are needed to attain just less than what the pond can provide, it would require at least \$2 million and still more to dig the hole, let alone the area required to fit the tanks.

Conclusion – A pond is the only option that accomplishes what is needed at a significantly less cost while providing benefits associated with a pond and emergent marsh.

