

## Living Snow Fence – Reviving an Old Process with Modern Techniques

PennDOT District 9 Environmental Unit

### Problem/Challenge Addressed

In District 9, several counties are situated high in the landscape along the Allegheny Front. Counties along the Allegheny Front experience some of the windiest weather east of the Mississippi River. During snow and high wind weather, drifting snow often results in hazardous conditions for the travelling public.

Prior to the 1970s, PennDOT had a robust snow fence program throughout the Commonwealth. Snow fence was a common scene across the landscape. However, the process of installing snow fence and removing it each year was labor intensive and costly. It was so labor intensive that in the 1970s, when PennDOT began moving to shifts and began purchasing more advanced equipment, it was recommended that snow fences be phased out. To this day, however, some counties continue the practice in problematic areas prone to high winds and drifting. And, despite the advancements in equipment, road closures due to blowing and drifting snow are not uncommon.

### Results/Key Takeaways

Living Snow Fence utilizing plant stakes is cheaper to install than traditional fence, is maintenance free and can help improve safety in certain areas prone to winter snow drifting.



### Contact Information

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### Method/Process/Product to Resolve Challenge

PennDOT District 9 adopted a plan for a living snow fence utilizing a species of shrub willows which grow quickly and perform well in both the poor growing conditions along our roadsides and in the harsh environments of the windy areas they are needed. In addition, the willows which can be purchased as live stakes are easy to plant, inexpensive, and maintenance free.





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### Live Stakes

What makes this plant work so well is that it grows from a live stake. There is no hole to dig because there is no root ball. Planting is as easy as pushing the 20-inch rebar sized stakes into the ground in early spring. The design consists of two staggered rows with plants in each spaced two feet apart. In other words, for every foot of snow fence, you plant one stake.



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### Growth is Rapid

Expect 2-4 feet of growth during the first year, and rapid growth during subsequent years. If you look closely, you can see the original stake in the 4-year-old plant on the right.



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### Species Selection

Streamco Willow (*Salix purpurea*) can be found in many varieties. Choose a variety that does not seed or spread by roots, is multi branched and grows rapidly. The variety “Fish Creek” has been our choice, but on a recent large project, we allowed the contractor to choose from:

- “Fish Creek”,
- “SX64”,
- “SX67”,
- “Milbrook,
- “Oneida”, or
- “Onondaga”





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Standard Snow Fence



Living Snow Fence



### Benefits of Living Snow Fence versus Standard Snow Fence

(From: USDA, 2011, Living Snow Fence, An agroforestry practice)

- Living Snow Fence is **more efficient** (when mature can capture up to 12 times more snow).
- Living Snow Fence may **last twice as long as** Standard Snow Fence.
- Installation and maintenance **costs of Living Snow Fence are 4-7 times less** than Standard Snow Fence.



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### Challenges with Living Snow Fence Using Plant Stakes

- It may take 2-3 years to begin effectively trapping snow
- Living Snow Fence is best suited for areas with large right-of-way due to the distance required between the fence and the road.

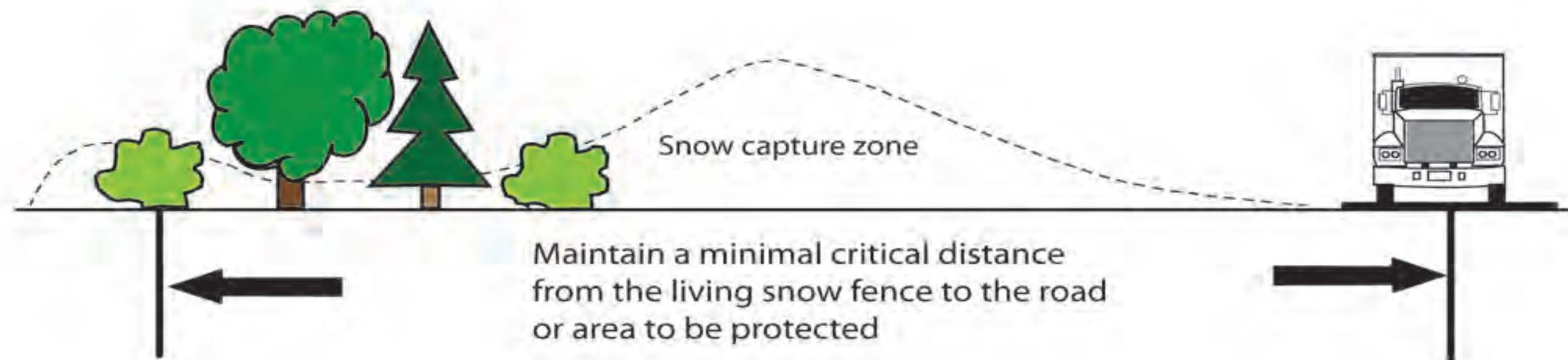


Illustration: Doug Wallace, NRCS



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### Results



District 9 has installed Living Snow Fence utilizing maintenance forces since 2004.



In 2017 and 2018, District 9 contracted for the placement of 12,650 linear feet of Living Snow Fence as part of the 219 Project in Somerset County.