

Statement Re a Replacement High School Turf Field
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Background

In 2007 when the first artificial turf field was proposed at Wayland High School to replace the existing football field, there were great concerns and huge uncertainties over the potential effect of the field on the Happy Hollow wells. No other such field had ever been built so close to a public water supply, and it was known that the ground up tires to be used for infill contained dozens to hundreds of toxic chemicals. There was no proof that the toxins would affect the wells, but the mere possibility motivated an appeal to DEP and a settlement that attempted to eliminate the risk.

The settlement had two major elements:

1. A redesign of the drainage from the field so that water leaching through the carpet and infill would be captured and drain away from the wells to the north, into a drainage swale, and then be conducted to the river.
2. A program of sampling and analysis of the leachate from the drainage outfall to determine if any toxins were in fact coming from the field.

However, after the field was built in September of that year, the drainage pipe and swale remained perfectly dry after precipitation events. They remained so until January, when groundwater in the area rose so as to fill the swale and submerge the pipe.

In 2010 a hydrological study was initiated by the Wellhead Protection Committee that proved that field drainage was not flowing to the north as intended in the settlement. The portion of the field nearest the wells was in fact draining to the wells, and the rest of the field was draining with the general groundwater flow in the area to the west-southwest, from the adjacent grass fields toward the drainage swale and the artificial field.

There is a fragmentary record of sampling at the end of the pipe in 2008. But given the flows as are now known, sampling at that point would have as a minimum been heavily diluted by groundwater flow from the natural fields, and therefore ineffective in determining whether toxins were leaching from the artificial field.

In the succeeding years, normal routine water quality testing was done at the wells. No toxins were detected. But there was no attempt to test specifically for the toxins contained in tires. In addition, leaching from the field would have occurred episodically, with precipitation events, and there was no attempt to synchronize testing with such events.

The Wellhead Protection Committee, after the hydrological study, recommended in its DEP approved Wellhead Protection Plan that a new monitoring well be installed at the side of the field nearest the wells, to more effectively monitor any leachate. That was never done. The WPC also recommended that any replacement field be natural grass.

In sum, the uncertainties existing in 2007 over the potential contamination of the wells remain virtually

unchanged, with one exception: it is now known that there is indeed flow from the field to the wells, which was the subject of speculation and debate in 2007.

Current Proposal

The current proposal is to replace the now worn field with a substantially identical replacement.

Given the unchanged uncertainties, it would only be prudent to reimpose the settlement strategy from 2007, requiring a redesigned drainage system that would actually be effective in directing the drainage to the north. Such a system could be built with a liner under the field drainage pipes to force water infiltrating the field to flow into the pipes, rather than vertically into the groundwater and thence to the wells. But such a liner was explicitly rejected by the PMBC.

However, new issues have emerged since 2007. Migration of crumb rubber, the ground up old tires used as infill, has proven to be a problem. In addition, the plastic strands used to simulate grass, generally made from polyethylene or PVC, have been shown to enter the environment as they wear away from the field due to UV degradation and shoe abrasion. Microplastics are now recognized as a major pollution issue all over the world. Perhaps most significantly, they are a major source of endocrine disrupting chemicals (EDC's), which mimic hormones.

An August 6 New York Times article on hormones and EDC's explains that "they can be effective at minuscule doses" and that "the list of potential problems is long: prostate and breast cancer, infertility, fibroids, endometriosis, male and female reproductive dysfunction, birth defects, disrupted immune function, obesity, diabetes, cardiopulmonary disease, neurobehavioral and learning dysfunctions like autism, hermaphroditism and alternation of sexual identity in animals."

The issue of crumb rubber toxicity is currently being studied by EPA, and claims of harmlessness, especially in such a sensitive spot as a well capture zone, are certainly premature until and if EPA declares them to be valid. To this date, no other artificial turf field has been built so close to a public water supply.

A specific issue found in the Sudbury River in recent years is the occurrence of intersex fish, presumably as a result of river contamination by EDC's. So directing drainage from a major source of plastic pollution to the river is not acceptable.

The only strategy which would be fully protective of both the wells and the river is the one recommended by the Wellhead Protection Committee: requiring the replacement field to be natural grass.

I urge the Conservation Commission to require natural grass in its Order of Conditions.