



# TONKA EQUIPMENT COMPANY

## Project Profile

**Bridgewater, MA**

**Carver's Pond Water Treatment Plant**

### **BRIDGEWATER**

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### **DESIGN ENGINEER**

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### **GENERAL CONTRACTOR**

*Waterline Industries*  
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### **TONKA REPRESENTATIVE**

*BAU/Hopkins*  
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### **APPLICATION:**

Iron and Manganese Removal

### **TONKA PROCESS EQUIPMENT:**

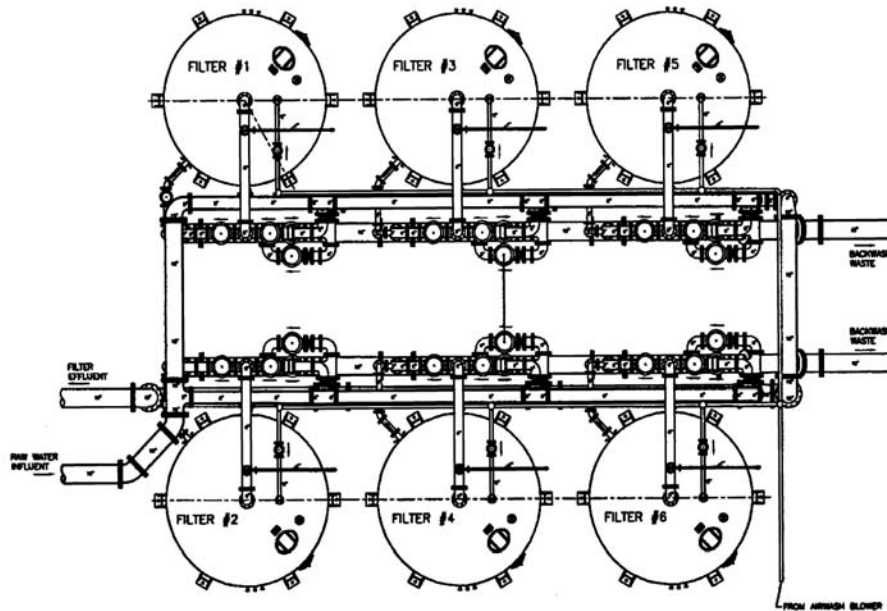
Vertical pressure filters (6) with chemical feed for oxidation

### **PROJECT**

This new well water treatment plant was constructed in 1999 to provide high quality water for the town's growth. The design flow rate for the plant is 1,270 gpm.

### **PROCESS**

Water is supplied from four groundwater wells. The treatment process consists of chemical feed, and six (6) vertical pressure filters with a dual media bed of manganese greensand and anthracite. Water is pumped directly from the wells through the filters to elevated storage and the distribution system.



The filter system used for iron and manganese removal consists of an inlet distribution system, filter media, graded gravel support bed and a filtered water collection system. The inlet distribution system serves to distribute water uniformly over the cross sectional area of the filter media. The effluent water collection system is designed to uniformly collect the treated water after it passes through the filter media and to uniformly distribute backwash flow when flow is reversed through the filter. The filter consists of a 21" layer of anthracite installed over a 24" layer of manganese greensand. The anthracite filter media serves to remove larger iron and manganese precipitate. The manganese greensand serves to remove the smaller manganese dioxide solids that are not captured within the anthracite.

Manganese greensand also serves to oxidize soluble iron and manganese that has not been oxidized in the pre-treatment oxidation process. The manganese greensand has the capacity to oxidize up to 700 grains of iron and manganese per cu. ft. when the bed is in a fully regenerated state. The manganese greensand also has the ability to absorb excess potassium permanganate which may have been fed in the oxidation process to the extent that the manganese greensand becomes saturated.

## PERFORMANCE

The raw water analysis summarized below reflects moderate to high concentrations of iron and manganese existing in the well water. The treatment process has been highly efficient in delivering high quality drinking water as indicated below.

	Raw Water	Finished Water
Iron (as Fe)	2.13-16 mg/l	0.007 mg/l
Manganese (as Mn)	0.99 mg/l	0.02 mg/l

**FOR ADDITIONAL DETAILS, CONTACT:**

**Tonka Equipment Company**



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