

**VIRGINIA DEPARTMENT OF HEALTH  
ENGINEERING DESCRIPTION SHEET**

**DATE:** April 15, 2009

**WATERWORKS NAME:** Striper's Landing

**WATERWORKS CLASS:** VI

**COUNTY/CITY:** Franklin County

**TYPE:** Community

**LOCATION:** From the Town of Rocky Mount take Route 40 northeast toward Redwood for approximately 1.4 miles; Left onto Route 122 (north) for approximately 13.7 miles; Right onto Route 616 (Scruggs Road) for approximately 5.3 miles; Right onto Route 942 (Bluewater Drive); waterworks is located 1½ miles south of the intersection of Routes 942 and 616.

**OWNER:** Striper's Landing Water Company  
**Contact:** Mr. Kenneth Gibbs, President  
P.O. Box 1708  
Midlothian, VA 23113  
**Phone No. (804) 744-2979**  
**Fax No. (540) 763-4975**

**OPERATOR:** Certified Class VI Operator Required

**PERMIT NUMBER:** 5067937

**EFFECTIVE DATE:** October 20, 1983

**Amended:**  
May 01, 1984  
December 18, 1992  
June 02, 1999  
May 30, 2007  
April 15, 2009

**TYPE OF TREATMENT:** Chlorination

**SOURCE:** Six Drilled Wells

**DESIGN CAPACITY:** 40,800 gpd

**DESCRIPTION OF THE WATERWORKS**

This system consists of six drilled wells, one 55,000-gallon atmospheric-type storage tank, one 2,500-gallon hydropneumatic tank, two booster pumps, continuous chlorination treatment and distribution system which serves the Striper's Landing condominiums and residential homes.

**Well No. 1:** This well is housed in a wood building with a concrete floor slab and floor drain located in a wooded area 100 feet north of Striper's Lane approximately 300 feet from the intersection of Striper's Lane and State Route 942. The class II-B well was drilled to a depth of 320 feet; cased and grouted to a depth of 68 feet to bedrock and was completed on February 24, 1983. The well's submersible pump is driven by a 5 HP electric motor and is capable of delivering 32 gpm at 312 feet TDH. The well yielded 22 gpm at a drawdown depth of 245 feet after a 48-hour drawdown test performed on April 15-17, 1996. The well is equipped with a sanitary seal, screened vent and drawdown gauge. The well discharge pipe is equipped with a check valve, gate valve, water meter, pressure gauge, sample tap and blow-off. Operation of the well pump is controlled by electrodes in the atmospheric-type storage tank.

**Well No. 6:** This well is housed in a wood building with a concrete floor slab and floor drain on the west side of Striper's Lane approximately 0.1 mile from the intersection of Striper's Lane and State Route 942. The well is drilled to a depth of 300 feet with 6-inch diameter galvanized steel casing and is cased and grouted to a depth of 102 feet. A submersible pump is installed. Accurate information on the pump capacity is not available. The well yielded 4 gpm at a drawdown depth of 255 feet after a 48-hour drawdown test performed on April 15-17, 1996. The well is equipped with a sanitary seal screened vent and drawdown gauge. The well discharge pipe is equipped with a check valve, gate valve, sample tap, water meter, shut off-valve, pressure gauge and blow-off. Operation of the well pump is controlled by electrodes in the atmospheric-type storage tank.

**Well No. 10:** This well is located in a wooded area 100 feet east of Striper's Lane approximately 0.2 mile from the intersection of Striper's Lane and State Route 942. The class II-B well was drilled to a depth of 440 feet with 6-inch diameter galvanized steel casing; cased and grouted to a depth of 58 feet to bedrock and was completed on November 08, 1983. The well's submersible pump, driven by a 3 HP electric motor, is capable of delivering 19.5 gpm at 438 feet TDH. The well yielded 5 gpm at a drawdown depth of 375 feet after a 48-hour drawdown test performed on April 15-17, 1996. The well is equipped with a well cap, screened vent and drawdown gauge. The well discharge pipe is equipped with a pitless adapter, check valve, gate valve, water meter, pressure gauge, sample tap and blow-off. Operation of the well pump is controlled by electrodes in the atmospheric-type storage tank.

**Well No. 11:** This well is housed in a wood building with a concrete floor slab and floor drain located adjacent to the atmospheric tank and control building off of Striper's Lane approximately 0.1 mile from the intersection of Striper's Lane and State Route 942. The well is drilled to a depth of 320 feet with 6-inch diameter galvanized steel casing, and is cased and grouted to a depth of 105 feet. A submersible pump is installed. Well No. 11 has an observed pump capacity of 8.5 gpm. The well yielded 6 gpm at a drawdown depth of 280 feet after a 48-hour drawdown test performed on April 15-17, 1996. The well is equipped with a sanitary seal screened vent and drawdown gauge. The well discharge pipe is equipped with a check valve, gate valve, sample tap, water meter, shut off-valve, pressure gauge and blow-off. Operation of the well pump is controlled by electrodes in the atmospheric-type storage tank.

**Well No. 12:** This Class IIB well is located 355 feet east of the treatment building. The well was drilled on August 22, 2007 to a total depth of 505 feet and is cased and pressure grouted to a depth of 75 feet. The well is provided with 6-inch steel casing. During the yield and drawdown test performed during September 16-18, 2007 (simultaneously with well No. 13), the well yielded 9 gpm at a drawdown depth of 455 feet. A submersible well pump is provided in the well capable of delivering 9 gpm @ 530 feet TDH. The well is provided with a 6 foot by 6 foot by 6 inch sloped concrete pad. A pitless adapter and well cap with vent, pressure gauge, and drawdown gauge are provided. Water is pumped from the well to the treatment building where the independent 2-inch diameter line is provided with a check valve, water meter, sample tap, pressure gauge, screened blowoff, and isolation valve prior to combining with the well discharge line from the other wells. HOA switches are provided for control of the well pump. Water level electrodes in the 0.055-MG storage tank control the activation of the well pump.

**Well No. 13:** This Class IIB well is located 150 feet west of the treatment building. The well was drilled on August 17, 2007 to a total depth of 505 feet and is cased and pressure grouted to a depth of 70 feet. The well is provided with 6-inch steel casing. During the yield and drawdown test performed during September 16-18, 2007 (simultaneously with well No. 12), the well yielded 5 gpm at a drawdown depth of 430 feet. A submersible well pump is provided in the well capable of delivering 7 gpm @ 487 feet TDH. The well is provided with a 6 foot by 6 foot by 6 inch sloped concrete pad. A pitless adapter and well cap with vent, pressure gauge, and drawdown gauge are provided. Water is pumped from the well to the treatment building where the independent 2-inch diameter line is provided with a check valve, water meter, sample tap, pressure gauge, screened blowoff, and isolation valve, prior to combining with the well discharge line from the other wells. HOA switches are provided for control of the well pump. Water level electrodes in the 0.055-MG storage tank control the activation of the well pump.

**Treatment:** The chlorination treatment is located in the control building adjacent to the atmospheric tank. The continuous chlorination treatment consists of a 30-gallon solution tank, a chemical metering pump rated at 30 gpd equipped with an antisiphon valve. The raw water from the six wells is injected with the chlorine solution before entering the atmospheric tank. The chemical metering pump operates with the well pumps.

**Atmospheric-Type Storage Tank:** The 55,000-gallon atmospheric-type storage tank is located adjacent to Well No. 11. The tank has a diameter of 14 feet 5 inches and is 45 feet in height. The tank has an effective volume of 44,000-gallons measured from the booster pump low-water-level cutoff of 8 feet and a well cutoff level of 44 feet. The 55,000-gallon atmospheric-type storage tank is equipped with an access hatch, screened vent, screened overflow and screened drain. The atmospheric tank provides water to the condominium units.

**Booster Pumps:** There are two horizontal centrifugal type pumps (located in the control building) with a combined capacity of 185 gpm at 92 feet TDH that are each driven by a 6-HP electric motor. Each booster pump is provided with shutoff and check valves, pressure gauges, compound gauges and low-level cutoffs. The booster pump system is required to provide adequate water pressure to a high pressure zone of the distribution system at the higher elevations of the development.

**Hydropneumatic Storage Tank:** The 2,500-gallon hydropneumatic tank is housed in the control building and is equipped with an access manhole, a vacuum relief, pressure relief valve, pressure gauge, sight glass and a screened drain. A permanent air compressor is provided on site. The hydropneumatic tank provides water to the high pressure zone.

### CAPACITY EVALUATION OF THE WATERWORKS

**Design Basis:** Commonwealth of Virginia *Waterworks Regulations*  
One Equivalent Residential Connection (ERC) = 400 gpd

1. Source Capacity and Pump Capacity

Well No.	Well Yield (gpm ÷ 0.5gpm/ERCx400gpd/ERC)		Pump Capacity (gpd) (gpm x 1440 min/day)		Effective Capacity (gpd)
1	22 gpm	17,600 gpd	32 gpm	46,080 gpd	17,600 gpd
6	4 gpm	3,200 gpd	8 gpm observed	11,520 gpd	3,200 gpd
10	5 gpm	4,000 gpd	19.5 gpm	28,080 gpd	4,000 gpd
11	6 gpm	4,800 gpd	8.5 gpm observed	12,240 gpd	4,800 gpd
12	9 gpm	7,200 gpd	9 gpm	12,960 gpd	7,200 gpd
13	5 gpm	4,000 gpd	7 gpm	10,080 gpd	4,000 gpd
<b>Total Effective</b>					<b>40,800 gpd</b>

2. Storage Capacity:

Gross Volume

Effective Volume

Atmospheric Tanks	55,000 gallons	44,000 gallons
Hydropneumatic Tank	2,500 gallons * 1/3 =	833 gallons

44,833 gallons/200 gals/ ERC= 224 ERCs or 89,600 gpd

3. Booster Pumps:

Estimated Combined Capacity of 185 gpm

Maximum hour domestic demand:  $Q = 11.4N^{0.544}$   $185 = 11.4N^{0.544}$   $N = 167$  ERCs or 66,800 gpd

**Conclusions:**

This waterworks is permitted for a design capacity of 40,800 gallons/day due to limited source capacity described above. This permit does not suspend, minimize, or otherwise alter this owner's obligation to comply with applicable federal, state, or local laws and regulations or permits.

RLP/ga