The Castle Rock Condominiums water system (PWSID 1000035) is a community water system located in Charlestown. It serves approximately 292 residents daily. There are a total of 7 wells on the property, but only 3 are active. The water system consists of three wells, known as Drilled Well # 4, Drilled Well # 5 and Drilled Well # 6. Drilled Wells 1, 2, 3 & 7 have all been disconnected from the system. Well # 1 has been abandoned but it is unknown at this time what the proposed intent of wells # 2, 3 & 7 is. There are two tanks, which comprise the system distribution, and two booster pumps which alternately maintain distribution in combination with the tanks. Castle Rock has installed an UV light/aeration system for corrosion control. The last sanitary survey was done November 17, 2000. For further information Karen Bellucci at 1C West Castle Way, Charlestown, RI 02813.

The Source Protection Area is a long, narrow wedge extending about 1.6 miles north-northeast (see Figure 2 on back). It is covered mostly by woods (Table 1 on back).

Sampling Summary (for the previous five years)
▲ Bacteria have not been detected.
▲ Nitrate levels in groundwater are higher than background levels, which may indicate contribution from human activity.
▲ No violations of the standards for regulated contaminants (excluding bacteria and nitrates) have been identified. However, there have been detections greater than half the levels considered acceptable by US EPA. This indicates the need for continued monitoring and may indicate the need for future management and/or treatment.

This report summarized assessment results for this water system. The assessment identifies both known and potential sources of pollution occurring in the wellhead protection area, and ranks the well based on the likelihood of future contamination. The goal of this study is to help water supplies, local officials, and residents living in drinking water supply areas to learn more about source water protection. Because groundwater quality is directly related to land use activities, everyone living or working in the wellhead protection area has a role to play in keeping local water supplies safe now and in to the future.

RISKS:
▲ Residential development is densely clustered near the well, but outside the 200’ Inner Protective Radius
▲ Several roads are located near the well, increasing the risks for hazardous material spills and road salt contamination.

OPPORTUNITIES:
▲ The majority of the wellhead protection area consists of undeveloped forestland.
▲ The town can implement land use controls and programs to protect this wellhead protection area form future high-intensity development.
▲ Residents can follow the guidelines on the back to reduce the impact of common household contaminants.

<table>
<thead>
<tr>
<th>Susceptibility To Contamination</th>
</tr>
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<tbody>
<tr>
<td>Low</td>
</tr>
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Note: A ranking of MODERATE means that the water could become contaminated one day. Protection efforts are important to assure continued water quality.
Table 1. High-intensity land uses identified within the source water protection area that have the potential to contaminate drinking water.

<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Associated Contaminants¹</th>
<th>% of Protection Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Residential</td>
<td>Nutrients, Pathogens, VOCs, SOCs</td>
<td>19.9%</td>
</tr>
<tr>
<td>% Commercial, Industrial, Institutional</td>
<td>VOCs, SOCs, Solvents, Inorganics</td>
<td>2.0%</td>
</tr>
<tr>
<td>% Intensive Agriculture</td>
<td>Nutrients, Pathogens, VOCs, SOCs</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

¹Potential contaminants include nutrients (nitrates and phosphorus from fertilizers and human and animal waste), pathogens (bacteria, viruses, and other microorganisms that can cause disease); volatile organic compounds (VOCs) found in fuels and solvents; synthetic organic compounds (SOCs), such as pesticides and plastics; and inorganics, including metals and other substances that can harm human health in high concentrations.

Figure 2. Areas of high-intensity land use are shown in dark gray.

What You Can Do To Protect Water Quality

**Public Water Suppliers:**
- Implement all recommendations in the latest Sanitary Survey.
- Protect undeveloped land within the wellhead or watershed protection area. Work with municipal boards and government as needed to implement land use protection measures and education programs.
- Post signs alerting public to Wellhead or Watershed Protection Area.
- Inspect water supply and protection area regularly for potential pollution sources.

**Municipal Boards and Government:**
- Develop a groundwater protection plan and ordinance and supporting protective zoning regulations, such as limits of paved surface areas within new developments.
- Incorporate groundwater and source water protection goals into the Comprehensive Plan.
- Implement on-site wastewater management or sewer maintenance plans and ordinances.
- Develop programs for land acquisition, conservation easements, or other critical lands protection.
- Adopt a stormwater management plan and ordinance.
- Establish a community education and outreach program that promotes residential pollution prevention and best management practices for the Public Works Department.

**Residents:**
- Inspect septic systems annually and pump as needed.
- Replace/repair cesspools and failing septic systems.
- Reduce fertilizer and pesticide use.
- Reduce stormwater runoff by limiting paved surface areas and maintaining good vegetative cover.
- Pick up after your pets.
- Properly use, store, and dispose of hazardous products.
- Properly maintain motor vehicles and fuel storage tanks. Consider replacing underground storage tanks with properly contained above-ground tanks.
- Check all municipal laws that may apply.

**Farmers and Landowners:** Develop conservation plans on agricultural and forest lands that:
- Reduce soil erosion, sediment, and stormwater runoff.
- Address proper nutrient, manure, pest, and irrigation water management.
- Address proper fuel storage and equipment maintenance.
- Conserve water, improve soil health, and protect surrounding natural resources.
- Check all federal and state laws that apply.

**Commercial and Industrial Businesses:** Adhere to all laws, regulations, and recommended practices for:
- Hazardous waste management
- Above- and underground storage tanks
- Wastewater discharge
- Floor drains
- Proper training for all employees

For More Information

URI CE Home Field Syst Program (401) 874-5398, www.uri.edu/cewq
URI CE Nonpoint Education for Municipal Officials (401) 874-2138, www.uri.edu/cewq
Local Municipal Boards and Government, contact town/city hall
R.I. DEM Office of Water Resources (401) 222-4700, www.state.ri.us/DEM/programs/benvironwater/index.htm

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