

## Oak Ridge Adopt-A-Stream Visual Assessment Reporting Form

### Assessment Scores

<b>Watershed:</b> _____ <b>Date:</b> _____ <b>Time of Sampling:</b> _____	<b>Data Collectors (include first/last names &amp; any class/investigative team name):</b> _____ _____	
<b>Stream Name:</b> _____ <b>Length of Stream Surveyed:</b> _____  <b>Location</b> (specific road directions to the site & its location on stream – include landmarks. Example: 100 ft. below crossroads of Main and Second Streets): _____ _____		
<b>Clean Up Report</b>		
<b>Approximate area cleaned (linear feet):</b> _____ *you can pace off this section to get a general idea of the area  <b>Approximate amount of trash removed (lbs.):</b> _____ <b>(number of bags):</b> _____  <b>Please list the most common items removed from the creek:</b> _____ _____  <b>Please list any notable items removed from the creek:</b> _____ _____  *please email any before and after photos or group pictures to <a href="mailto:healthywaters@oakridgetn.gov">healthywaters@oakridgetn.gov</a>		
<b>Weather in past 24 hours</b> <input type="checkbox"/> Storm (heavy rain) <input type="checkbox"/> Rain (steady rain) <input type="checkbox"/> Showers (intermittent rain) <input type="checkbox"/> Overcast <input type="checkbox"/> Clear/Sunny	<b>Weather now</b> <input type="checkbox"/> Storm (heavy rain) <input type="checkbox"/> Rain (steady rain) <input type="checkbox"/> Showers (intermittent rain) <input type="checkbox"/> Overcast <input type="checkbox"/> Clear/Sunny	<b>Physical Measurements</b>  Water Temperature: _____ °C
<b>Water Odors</b> <i>Check all that apply</i> <input type="checkbox"/> Normal <input type="checkbox"/> Sewage <input type="checkbox"/> Petroleum <input type="checkbox"/> Chemical <input type="checkbox"/> Other: _____	<b>Water Color/Appearance</b> <i>Check all that apply</i> <input type="checkbox"/> No unusual color <input type="checkbox"/> Multi-colored (oily sheen) <input type="checkbox"/> Brown/muddy <input type="checkbox"/> Milky/white <input type="checkbox"/> Foam/Suds <input type="checkbox"/> Other: _____	<b>Algae</b> <i>Check all that apply</i> <input type="checkbox"/> Minimal growth <input type="checkbox"/> Covers substrate <input type="checkbox"/> Floating in spots <input type="checkbox"/> Thick mats
<b>Site Observations</b> (Describe any notable physical (e.g., bends in stream; eroded banks) and/or biological (e.g., lacks riparian cover; recently cut trees) features) _____ _____		

Channel Condition

Riparian Zone

Bank Stability

Canopy Cover

Water Appearance

Nutrient Enrichment

**Please give each category a rating of good, average or poor in the above boxes**

**Good = G**

**Average = A**

**Poor = P**

**Site Problems and Possible Solutions:** Describe any conditions at this site that may pose major threats to stream health and list any possible solution to improving these conditions (ex. illegal dumping, illicit discharge, noticeable invasives, etc.)

### **Channel Condition**

Streams tend to meander (form snakelike curves) more as the gradient (steepness) of the terrain over which it flows decreases. Development often alters streams including how it naturally meanders. These changes may affect a stream in the way it transports sediment or develops and maintains habitat for fish, aquatic insects, and aquatic plants. Some modifications to stream channels have more impact on stream health than others. For example, concrete dikes or dams along a stream bank affect streams more than pilings or other supports used for road crossings. Active bank down-cutting or erosion on stream banks also impairs a streams ability to maintain itself. Both situations indicate stream channel instability. Extensive bank armoring, like rip rap, usually leads to more problems downstream.

### **Bank Stability**

The stability of the banks of a stream can be determined by examining the extent to which sediment has been detaching from the banks and entering the stream channel. Some erosion is normal in a healthy stream, especially around stream bends. Excessive bank erosion may occur when riparian vegetation has been degraded or the stream hydrology and/or sediment load has been modified. High and steep banks are also more susceptible to erosion or collapse.

The extent and type of riparian vegetation is important to bank stability. Trees, shrubs, sedges, and rushes have the type of root masses capable of withstanding high stream flow, whereas common turf grass (Kentucky bluegrass) does not. Soil type also influences bank stability. For example, banks with a thin soil over gravel or sand are more prone to collapse than are banks with a deep soil layer.

### **Water Appearance**

The water appearance element evaluates the health of the stream by assessing its turbidity and color (and in some instances its smell). Turbidity is the measure of the depth to which an object can clearly be seen. It is caused mostly by soil particles or organic matter that are suspended in the water. Turbidity increases with storm events or any other form of turbulence. Streams may be naturally tea-colored if they are in watersheds with extensive wetland areas. Streams with slight nutrient enrichment may support free-floating algae that give the water a greenish appearance. When nutrient loads are high, there may be thick coatings of algae on rocks. In degraded streams, floating algal mats, surface scum, or pollutants, such as dyes or oil, may be visible and/or may smell.

### **Nutrient Enrichment**

Nutrient enrichment is often reflected by the types and amounts of aquatic plants in the water. High levels of nutrients, especially nitrogen and phosphorus, promote an overabundance of algae and floating and rooted macrophytes. The presence of some aquatic vegetation is normal and provides habitat and food for all stream animals. An excess of aquatic vegetation, however, can be harmful to stream life. Plant respiration and decomposition of dead vegetation consume dissolved oxygen in the water. The decrease in dissolved oxygen creates stress on aquatic organisms and, if low enough, can lead to massive fish kills.

### **Riparian Zone**

A riparian zone is the area adjacent to a stream and is one of the most important elements in determining the health of a stream. The quality of a riparian zone in relation to a stream increases with width and vegetation diversity. A high quality riparian zone should contain natural vegetation comprised of a community of trees, shrubs, and herbaceous (non-woody) plants. A wide, highly vegetated riparian zone filters out pollutants in stormwater runoff, controls erosion, provides shade and habitat for terrestrial and aquatic organisms, provides organic food for stream organisms, and dissipates energy during flood.

### **Canopy Cover**

Shading of the stream is important for several reasons. Cool water has a greater oxygen holding capacity than warm water. When streamside trees are removed, the stream is exposed to more direct sun. This shift in light intensity and temperature causes a decline in the numbers of certain fish and invertebrate populations. Warmer water also promotes excessive growth of submerged macrophytes (plants) and algae that compromise the health of the aquatic community. In estimating the portion of the water surface area that is shaded, assume that the sun is directly overhead and the vegetation is in full leaf-out.

**Non-native, Invasive Plants**

Invasive species include plants that are non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause harm to native vegetation. Check below if any of these species are present around your creek.

Kudzu



Japanese Honeysuckle



Privet



Japanese Knotweed

