

ERTEC Environmental Systems

Protecting Global Lands and Waterways™

Case Study

E-Fence™

Wildlife Exclusion Fence



- > Lower Project Costs
- > Better Performance
- > ZERO Waste
 - ✓ Reusable
 - ✓ Recyclable



E-Fence HDPE Polymer Matrix™

Application:

Product:

Project:

Owner:

Species at Risk:

Wildlife Exclusion

ERTEC E-Fence™ 30" (0.75 m), black installed with No-Trench Ground Seal™

Third Crossing Bridge over the Cataraqui River

City of Kingston, Ontario

Common snapping turtle (*Chelydra serpentina*), Painted turtle (*Chrysemys picta*), Northern map turtle (*Graptemys geographica*), Common musk turtle (*Sternotherus odoratus*)

ERTEC E-Fence ([brochure](#)) is a highly reliable and low cost species exclusion and control barrier designed for projects in habitat where threatened small vertebrates are present. The fence is designed to exclude small vertebrate species from active construction areas, control movement within fragmented habitat and for survey perimeter control. E-Fence has the capability to serve more than one function in the same trench (same fence-line):

- 1) Wildlife exclusion
- 2) Hi-Viz construction safety
- 3) Sediment control using ERTEC's revolutionary sediment control systems

- Typically cuts first project costs significantly
- Allows wind and water flow-through and significantly reduces knock-downs, and washouts
- If reused on subsequent projects, the savings are dramatic
- Highly configurable for different species and habitat

Project Background: The new bridge connects John Counter Blvd. on the west side of Gore Road on the east side over the Cataraqui River. It is a two lane bridge with a multi-use pedestrian/cycling path which spans 1.2 km across the river. Protecting wildlife and their habitat was a key part of conserving Kingston's biodiversity and the team worked hard to protect the ecosystem within the project area. To protect against adverse effects to Snapping turtles, Painted turtles, Northern map turtles Common musk turtles and other native turtles who may use or be in the project area, ERTEC E-Fence turtle exclusion fencing was installed to prevent turtles from nesting in the construction zone. Throughout the project, continuous visual surveys were done by onsite personnel to ensure the fencing was effective, and turtles were protected from construction activities and equipment on the shorelines. If turtles were encountered within the construction area, trained environmental professionals assessed and rectified the situation minimizing harm to the local wildlife. The construction team remains committed to being good environmental stewards during construction, including implementing a series of plans and procedures to ensure the proposed activities are reflective of the City's responsibility to protect and preserve lands and wa-



E-Fence is installed at the water's edge throughout the project



East Side Landing, Gore Road



Prime Contractor

Several U.S. and Int'l patents apply

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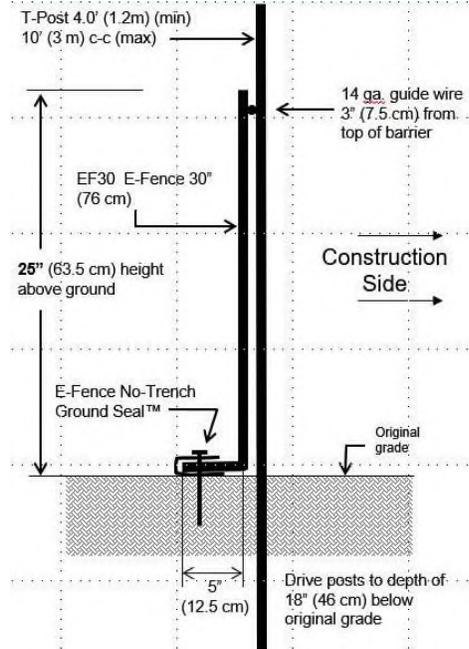
Case Study—E-Fence™

Bridge Construction — Ontario, Canada

Wildlife Barriers—page 1 of 2



East side shoreline



E-Fence 30" configured for turtle exclusion with No-Trench Ground Seal™

Configuration: E-Fence Black, 30" (0.75 m) installed with E-Fence No-Trench Ground Seal™

The Challenge: This site was expected to see frequent high winds and plenty of stormwater runoff and is expected to last several years. An exclusion fence on this site must be able to handle wind and water flows and endure the life of the project with negligible maintenance.

High Wind and Storm Water Flows: The coefficient of drag (Cd) was evaluated for both E-Fence (which is at least 50% open area) and solid type exclusion fences (such as geotextile or solid plastic types). A very large difference in Cd was evident. Drag forces on E-Fence are dramatically reduced (less than 10% found with solid fences). For this reason, we see that solid fences must withstand much greater wind-driven forces and pressure. The greater pressure and forces on solid fences dramatically reduce their reliability leading to premature failure.

Stormwater runoff will cause geotextile or solid type exclusion barriers to fail in two modes: 1) if installed along contours, head-pressure from ponding against the barrier can penetrate weak points along the trench. Storm water flows will then concentrate and flow underneath causing unwanted and sometimes severe land erosion. Ponding occurs because the barrier's Percentage Open Area (POA) is very low, causing it to blind-off to flow quickly 2) if solid barriers are installed up and down contours (which is routinely required), runoff will collect and concentrate along the barrier as it flows downhill. Runoff will scour out the base of the barrier, creating loss of integrity. Weep holes drilled or formed into solid barriers will not allow enough water to flow through (POA is often less than 1%). Weep holes will blind-off very quickly in stormwater events. To control damage, it is important to design with a barrier which has at least 50% Open Area (Open Type) or with a flow rate greater than 600 gallons/ft²/min. E-Fence Rigid Polymer Matrix™ allows stormwater to flow through. It provides very high reliability because there is almost no storm-water washouts nor wind knock-downs. This significantly reduces maintenance and monitoring costs and increases animal safety.

E-Fence allows high wind and concentrated stormwater flow-through

Summary: "E-Fence has been an excellent choice. E-Fence was effective and performed well. I feel its easy to monitor, and we haven't have maintenance problems with stormwater and wind flows." - Shem Evans, Environmental Coordinator, Kiewit



E-Fence installed with E-Fence No-Trench Ground Seal™ where trenching is difficult or unwanted



E-Fence installed along the fingers of the causeway to keep turtles out of the construction zone