CLEVELAND CLINIC-LYNDHURST CAMPUS
RESTORATION CONCEPT FOR EUCLID CREEK

Euclid Creek Watershed—Lyndhurst, Ohio

The Natural Resource Problem
The Euclid Creek watershed draining into the Cleveland Clinic study area is approximately 1.81 square miles. The watershed is composed of a mix of dense residential development, open land with light commercial development, and woodland. The reach to be restored begins approximately 800 liner feet downstream of the culvert on Richmond Rd. and extends almost 700 feet downstream where it flows under the entrance drive to the campus (see Vicinity Map to right).

Within the reach to be restored there are areas of bank erosion, failing bank stabilization practices, channel incision (downcutting), maintained lawn, low-head dam and, due to the entrenched condition, the absence of a functioning riparian floodplain. These conditions limit the biological communities and ecological services provided by the stream. The riparian vegetation consists of mostly young trees and shrubs with herbaceous vegetation within a narrow riparian corridor bordered by an expanse of maintained lawn.

If left in its current condition, the Creek will likely continue to downcut and erode stream banks until reaching a point of equilibrium, but this channel evolution will come at the cost of further erosion, habitat loss, increased sedimentation downstream, and reduced water quality, and will further jeopardize infrastructure such as the pedestrian trail at the top of the slope.

Site Vicinity Map

| Fish barrier structure on Euclid Creek | Expansive lawn where new channel will be rerouted |
| Falling slope on Creek’s left bank and railroad tie bank stabilization | Stacked landscaping block bank stabilization |
Proposed Solution
To address the existing issues, the conceptual design shows a rehabilitated Euclid Creek that would be relocated away from the existing steep hillslope, allowing the creation of oxbow wetlands in the old channel and reconnecting the stream to the floodplain. The invasive phragmites found onsite would be treated. This concept also shows the reestablishment of native riparian woody vegetation along the floodplain where grading is occurring to take advantage of the benefits provided by a natural forest buffer, such as slowing overland flow, capturing woody debris, and processing nutrients and sediment from the channel. In addition, cobble riffles would be added to the new channel and the low-head dam would be modified with a series of rock steps to allow increased passage of fish and other aquatic organisms.

Proposed Outcomes
The restoration and stabilization of this reach of Euclid Creek will result in measurable improvements in the stream, floodplain, and riparian habitat. Specific outcomes anticipated are:

- Approximately 700 feet of stream channel will be restored and stabilized.
- Nearly 1,100 feet (two banks) of poor quality stream bank will be regraded or relocated and stabilized using native plants and bioengineering techniques.
- Roughly 1.8 acres of maintained lawn and low quality forest will be replaced with native riparian forest, 6.0 acres of existing riparian forest will be enhanced and treated for invasives, and 0.1 acres of wetland will be created.
- Raising the QHEI score to 55 within five years after the restoration has been completed.