2024 restoration report of the Project Clear pipeline path and adjacent areas

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March 2025

Glossary:

Restoration – refers to Missouri native habitat that already exists, in which work to remove undesired species (i.e., invasive, nonnative, woody, aggressive, etc.), introduce native species, and monitor vegetation is used for improvement of the ecosystem to a condition inspired by precolonial settlement.

Reconstruction – refers to an area in which Missouri native habitat does not already exist, in which native species must first be introduced to begin habitat restoration efforts. For example, turning a row crop agricultural field into a prairie or savanna habitat.

Introduction: The Metropolitan St. Louis Sewer District's (MSD) Project Clear began onsite construction for installing a trunk sewer line in August 2019. The construction was completed on LREC property in September 2022. Please refer to the 2023 seeding report for more information about native seedings thus far. This ongoing habitat reconstruction effort has been completed with the combined work of LREC staff, interns, hired contractors, and volunteers.

Long-term Goals: Tallgrass bottomland prairie will be reconstructed on the northern and eastern sections (East Prairie) of the path. The northern section of the path will eventually be recombined with the North Prairie restoration unit. MSD has a 7.5 ft permanent access easement on either side of the pipeline, thus planting trees and other woody species should be avoided in these areas. The southern section of the path (Savanna) includes areas that were lawn, and will be reconstructed into bottomland savanna (i.e., grassland species with about 30% tree canopy cover).

Figure 1. Project Clear restoration unit boundaries and adjacent East Woods restoration unit.

Topography and Site Preparation: The total restoration area is about 6.72 ac (2.75 ha). At the time of publishing this report, the pipeline path consists of early successional native species, nonnative species, and the first-year growth of species seeded in Winter 2023/2024. The most observed seeded species in the reconstruction area in the 2024 growing season were *Bouteloua curtipendula*, *Schizachyrium scoparium*, *Elymus canadensis*, *Coreopsis lanceolata*, *C. tinctoria*, *Bidens polylepis*, *Echinacea purpurea*, and *Rudbeckia hirta*. It should be noted that the pipeline path had a conspicuous seeded pattern of *Gaillardia pulchella*, which was not purchased as a cover crop or desired in the native prairie mix. However, staff speculate that it was introduced to the site from residual seed left in the drill used by the planting contractor.

On May 15, staff high-mowed the Savanna to height of about 6 inches. Two additional high mowings occurred on the entire pipeline path reconstruction areas on June 3 and August 26 by a contractor.

The topography of the landscape is relatively flat, except for the Deer Creek banks sloping down toward the creek edge and the slope leading up the Ameren right of way. Additionally, there are several wet depressions throughout the path that retain water for most of the year as well as two urban drainage culverts leading into Deer Creek.

In March 2024, several 3-5" caliper trees were planted by contractors as privacy screens at the north and south ends of the pipeline path and in the savanna. Species include *Carya illinoensis*, *Gymnocladus dioicus*, *Nyssa sylvatica*, *Quercus bicolor*, *Q. macrocarpa, Q. michauxii*, and *Diospyros virginiana*.

Some of the seeded areas are more prone to seasonal flooding, such as the southern section of pipeline path where Deer Creek's channel bends rapidly to the east and then back toward the south. A concrete bank retaining toe wall installed at the bend of the creek by MSD after Project Clear construction has been an ongoing issue since its installment. The area behind this concrete wall has been eroded several times after flooding from the creek (Fig. 2).

On April 2, 2024, heavy rains caused Deer Creek to quickly rise to a height of 14.32 ft. After flooding, topsoil laid down after pipeline construction was scoured away, leaving degraded soil and large chunks of limestone exposed. Many plugs planted by contractors in 2022, were washed out. A portion of the pipeline that connects to a manhole was exposed as well. After this flood event, staff assumed any native plant species seeded in the prior winter were not able to persist. This specific flood event significantly eroded the hole behind the concrete toe wall along the Deer Creek bank. Due to several constraints, the creek bank was not stabilized for the remainder of the season. A second major flood event happened on November 5, 2024. After heavy rains, the creek reached a height of 15.8 ft. Further erosion of the soil and creek banks occurred after this event. Solutions for creek bank stabilization in that area will take place in 2025.

Figure 2. Severe scouring behind the toe wall on the banks of Deer Creek. Pictures taken on November 27, 2024.

Early successional and ruderal vegetation grew on the path along with the seeded native plants. Several invasive species occurred on the pipeline path and adjacent areas, such as *Conium maculatum* and *Lolium arundinaceum* in the savanna*, Humulus scandens* on the creek banks*, Lespedeza cuneata*, *Lotus corniculatus, Melilotus albus*, *M. officinalis* on the open areas of the pipeline path, *Perilla frutescens* and *Euonymous fortunei* on the woodland edge*, Sorghum halapense* on creek banks, savanna, and woodland edge, and *Rosa multiflora* in the drainage culvert. These species were treated by manual removal or herbicide application. Management of these species is ongoing. No prescribed burns have occurred post construction.

Volunteer Effort: There were 18 volunteer workdays involving pipeline path restoration efforts, which includes land management, seed collection, and cleaning. It should be noted that most of the seed collected and cleaned was used for pipeline path habitat reconstruction, but some was reserved for the other restoration units on site. There were eight days dedicated specifically to invasive treatment and other management activities on the pipeline path. Volunteers completed 202 total hours for tasks including seed broadcasting, willow staking and tree planting, trash clean up, removal of *Rosa multiflora*, *Alliara petiolata*, *Melilotus* spp., *Lespedeza cuneata*, *Sorghum halapense*, *Perilla frutescens*, *Humulus scandens*, *Lonicera maackii*, flood debris clean up, seed collecting,

and seed cleaning. Tuesday horticultural volunteers occasionally assisted with seed collecting and cleaning as well.

Additional sources about this project:

1. Sims, Caitlyn M. *2023–2024 Prairie Seeding Report of the Project Clear Pipeline Path*. 2024.
2. Natural History of Ecological Restoration by James Faupel and Caity Sims: https://mbgecologicalrestoration.wordpress.com/2024/03/03/reconstructing-and-reconnecting-native-habitats-post-pipeline-construction-at-the-litzsinger-road-ecology-center/